

11 December 2025

IEAPM Ref: IEAPM202512-11

Steve O'Donoghue
Director Resource Assessments
Department of Planning, Housing and Infrastructure
Email: via IEAPM Secretariat

Moolarben UG4 EP LWs 409-414

Re: IEAPM's Responses to DPHI Request for Supplementary Advice

On 25 October 2025, the NSW Department of Planning, Housing and Infrastructure (DPHI) requested the Independent Expert Advisory Panel for Mining (IEAPM, 'the Panel') to provide supplementary advice in relation to the Moolarben Coal Complex – Stage 1 (MP05_0117) Extraction Plan for Longwalls 409-414 (the 'EP').

The DPHI request comprises four questions that follow up on the advice provided on the EP by the IEAPM in August 2025 (IEAPM, 2025). This latest request is presented in Appendix A.

In addition to the documents previously provided to the Panel by the Applicant, agencies, and DPHI, identified in Table 2 of IEAPM (2025), further information outlined in Appendix B has been provided from the Applicant via DPHI for consideration of this supplementary advice.

Panel Advice

The four questions asked of the Panel are listed below, with the Panel responses to DPHI provided after each question.

1. Groundwater Modelling and Predictions

The Department acknowledges that the Panel has advised it has low confidence in aspects of the groundwater model and its associated predictions. In particular, the model boundary conditions and lack of uncertainty analysis. The Applicant has provided a technical memorandum that provides additional information and commentary about the groundwater model. The Applicant has also committed to complete recalibration of the groundwater model and uncertainty analysis by 30 June 2026.

The Department requests that the Panel review this technical memorandum and responses from the Applicant and advise whether:

- a) this additional information affects conclusions made about the reliability of the groundwater model, including confidence in predictions in the Triassic sandstone and baseflow losses; and*
- b) the proposed timing to update the groundwater model is considered appropriate.*

Panel Response

a) Groundwater Model Reliability

The Panel's advice of 25 August 2025 (IEAPM, 2025) identified two concerns related to the reliability of the regional groundwater model. First, the possible inappropriateness of the regional groundwater model's boundary conditions. Second, the lack of an appropriate sensitivity/uncertainty analysis for the 2023 update of the regional groundwater model. The second of these concerns has not been addressed in the additional information provided by the Applicant.

Two pieces of evidence for the Panel's concerns about the boundary conditions were the lack of drawdown around the perimeter of the model in the Ulan seam and Permian overburden at the end of mining (Figures 5.16 and 5.17, AGE, 2024) and the excessive contribution of the boundary conditions to the average water budget for the calibration period (Table 5.8, AGE, 2024).

The Applicant's groundwater consultants, Australian Groundwater & Environmental Consultants (AGE), have provided further commentary on the reliability of the groundwater modelling results. The primary thrust of AGE's commentary is the identification of an error in the setup of the model that affected the presentation of the water budget in Table 5.8 (AGE, 2024). The cause of the setup error was the duplication of boundary conditions to represent Ulan's East Pit Void comprising both drain boundary conditions and general head boundary conditions. The duplication created a local, fictitious, short circuit for water to enter and leave the model through the applied boundary conditions within the locality of the East Pit Void. The error has little effect on the rest of the model, as noted by AGE.

The revised water budget after removal of the error (Table 1 below) provides a better appreciation of the relative proportions of water entering and leaving the model domain, even though the labelling of the budget components continues to be slightly misleading with no reference explicitly to the East Pit Void general head boundary flows. The lumping of these with the general head boundary flows across the perimeter of the model domain means it is not possible to confirm what proportion of the general head boundary flows are associated with the East Pit Void.

The correction to the water budget table, although welcome, does not explicitly address the Panel's concerns about the lack of drawdown at the general head boundaries around the perimeter of the model domain and its impact on the calibration of the model and the model predictions. These are not discussed by AGE except to state, without clear justification, that "*...the water budget of the GHB applied to the outer edges of the model domain does not introduce bias in the model calibration and does not reduce the reliability of the model predictions.*"

A general head boundary comprises two parameters, namely, an assigned hydraulic head and a conductance controlling the flow across the model boundary driven by the head difference between the assigned hydraulic head and the head of the boundary cell. The two parameters allow the full range of hydraulic conditions to be represented on the boundary from effectively no flow (where no water is exchanged across the model boundary at the cell at any time) to a

fixed head where no matter what happens in the model the hydraulic head at the cell remains fixed (essentially an infinite water source or sink at the boundary).

Of note is that in AGE (2023), which describes the update to the model, the value of the general head boundary conductance is not considered. In section 7.3.4 of AGE (2023) the following is stated:

“The general head boundary package (GHB) was used to provide an exchange of water across the model boundary in areas where the aquifers continue beyond the model domain. The GHB boundary condition assigns a specified water level in the cell, and when the predicted head in the model cell rises above the reference elevation, groundwater will flow out of the model. Conversely when the head drops below this elevation, groundwater will flow into the model.”

The important point here is that the formations continue across the model boundary, so they are not no flow boundaries, and there is no infinite source or sink for water at the boundary, so they are not fixed head boundaries. The boundary conditions for the model lie somewhere between these limits. It is, therefore, important to select not only appropriate hydraulic heads but also appropriate conductance values to represent this intermediate condition. Careful selection of boundary conditions may be avoided sometimes if the model boundary is sufficiently remote from the area of interest that the modelling results both for calibration and prediction for the area of interest are insensitive to the selection of the boundary conditions. As the revised water budget (Table 1) and hydraulic head maps at end of mining still appear to show a significant exchange of water across the model boundary due to mining, the assertion of insensitivity cannot be made without detailed sensitivity testing.

For these reasons the Panel still has reservations about the reliability of the model given the lack of any presentation of the details of the boundary conditions and the apparently limited consideration of the impact of the model boundary conditions on the model calibration and predictions through appropriate sensitivity studies.

Table 1: Revised Water Budget (Table 2.3 of AGE (2025) response [Attachment 2 of Yancoal (2025e)])

Table 2.3 Revised modelled water budget

Parameter	In (ML/day)	Out (ML/day)	In - Out (ML/day)
Storage	14.4	0.3	14.1
Rivers	0.1	25.4	-25.3
Rainfall recharge	23.2	-	23.2
Evapotranspiration	-	1.8	-1.8
General head boundaries (across edge of model domain)	18.2	12.3	5.9
Drains (inflow to mine workings)	-	16.1	-16.1
Total	55.9	55.9	0.0

In conclusion, the additional information presented by the Applicant does not affect the Panel's previous conclusions about the reliability of the groundwater model, including a lack of confidence in predictions of water levels in the Triassic Sandstone and baseflow losses.

b) Groundwater Model Update

The Panel has the view that the review and recalibration of the model should commence as soon as practicable. The reasons for this are the apparent lack of attention to the selection of the modelled boundary conditions, the lack of clearly reasoned arguments for assessing the model results as reliable in the latest information supplied by the Applicant and the lack of any detailed uncertainty or sensitivity analysis to support the assessment. Sensitivity analyses are also needed to assess the uncertain impacts on the Goulburn River and The Drip of both the historical mining and the planned longwalls.

These reasons suggest that the time required for completion of the detailed review and recalibration of the model, including sensitivity studies, could be longer than might normally be required for routine model updating at the proposed 5 yearly intervals. By commencing as soon as practical, the opportunity is created to complete the model updating, including appropriate sensitivity analyses, before the proposed timeline of June 2026. This timeline should meet the recommendation in the IEAPM (2025) advice that the model is recalibrated to the satisfaction of DPHI, prior to commencement of extraction of LW410. Earlier completion would assist with timely decision making by the Applicant and the approval process by DPHI regarding future mining in UG4.

The Panel recommends that DPHI requires the Applicant to report to DPHI any changes to the model outputs following completion of the model update as they affect decision making with respect to the Drip and any predicted changes to baseflows in the Goulburn River, including details of the sensitivity of the modelled Triassic sandstone groundwater conditions identified by well-designed sensitivity analyses.

In conclusion, the Applicant's proposed timing to update the groundwater model should be appropriate if early and detailed reappraisal and recalibration of the model with appropriate sensitivity analyses is prioritised by the Applicant.

2. The Drip Conceptualisation and Monitoring

The Department acknowledges the Panels advice regarding monitoring bore PZ129 and its appropriateness in monitoring impacts on the Drip. Recent updates from the Applicant indicate that the construction of additional nested standpipe bores proximal to the Drip may not be possible due to access issues and associated construction environmental impacts.

The Applicant has provided further information on the proposed monitoring bore PZ129 as a suitable location for monitoring impacts on the Drip. The Department request that the Panel review this information and provide any further commentary on the ability of the existing monitoring network to provide 'early warning' trigger information about potential impacts on the Drip.

Panel Response

a) Conceptualisation of Groundwater Discharges at The Drip

The Panel stands by its conceptualisation of The Drip presented in IEAPM (2025). That is:

- the seepage faces in the upper sandstone cliff faces are supported by perched groundwater migrating laterally from the northern flank of the Goulburn River catchment. Dripping water from these layers is the dominant hydrological feature at The Drip.
- the lower seepage face just above river level is probably an expression of the regional water table in the Triassic sandstone. At present there is insufficient evidence that the seepage at the base of The Drip is not controlled by the regional water table.

This conceptualisation is based on recent monitoring data from the paired SW2/PZ237 and SW22/PZ234 sites; information that was not available to authors of previous expert reports commissioned by the Applicant prior to 2025. Previously all discharges at The Drip were assumed by the Applicant and its consultants to be from perched aquifers. This assumption is clearly not based on hard evidence. Resolving the different conceptualisations requires new factual geological and groundwater monitoring data. Until new observations are provided, the Panel has no confidence in the Applicant's current conceptualisation that all groundwater discharges at The Drip are from perched aquifers.

At standpipe location PZ237A, located upstream of The Drip on the southern side of the Goulburn River, the water table elevation is currently 383.3 mAHD. This aligns with a probable groundwater discharge level of ~383 mAHD for the lower seep at The Drip (Yancoal, 2025e). In the absence of reliable data from new sites located in closer proximity to The Drip (as water levels at PZ128 and PZ129 have not yet stabilised post drilling), the Panel remains of the view that the Panel's conceptualisation of perched groundwater feeding the upper cliff seepage faces and regional groundwater probably feeding the lower seepage face at The Drip is consistent with the available monitoring data.

Without nested monitoring bores being constructed north of The Drip (ideally within 500 metres (m) of the cliff line), it is not possible to confirm:

- the perched versus regional water table conceptualisation of discharge zones at The Drip.
- perched and shallow groundwater levels prior to the commencement of LWs409-414.

b) Necessity for Groundwater Monitoring and TARPs

The Panel acknowledges that there are site access issues to be resolved and on-ground clearing required to enable construction of nested (shallow sandstone) standpipes on the ridgeline north of The Drip. Such issues can hopefully be resolved. Historically, other mine investigation and monitoring programs have proven that environmental impacts of bore construction and wellhead completions can be minimised, managed and rehabilitated. The proposed sites (outlined in Attachment 4 of Enclosure 1 submitted with Yancoal (2025a)) are located some 300-400 m from

the cliff line within the Goulburn River State Conservation Area. The Panel believes two new northern monitoring bores at one of these sites are necessary to provide hard evidence regarding the nature of the strata and groundwater systems feeding The Drip and to demonstrate compliance with the performance measure of a “*Nil impact or environmental consequence*” on “*The Drip and Goulburn River Gorge*”.

If the proposed northern monitoring bores cannot be established, then there is no clear prospect of characterising the groundwater systems maintaining discharges at The Drip, or of understanding the natural variability of The Drip discharges and confirming any mining-induced groundwater level changes north of The Drip. Monitoring would be restricted to qualitative monitoring (such as visual observation) of the multiple seepage discharge areas across the whole of the cliff face from Goulburn River level.

If the northern bores can be established, then they should be completed ideally before the commencement of LW409. If mining of LW409 is approved prior to the completion of these bores, then the Panel would recommend no further mining be approved until they are completed and water levels in the bores have stabilised and an appropriate TARP has been established in an updated Drip Monitoring and Reporting Program.

The Panel expects that groundwater monitoring at all locations and at all depth intervals on the southern side of the Goulburn River are likely to show mining-induced water level and pressure declines if LWs409-414 proceed as planned.

There is already objective data from groundwater standpipes PZ234A, B and C located at the Corner Gorge that mining-induced depressurisation/dewatering of the Permian strata associated with the extraction of LWs401-408, can cause the drainage of groundwater from the Triassic sandstone and impact the regional water table. Relevant PZ234 hydrographs from the Permian strata, base of the Triassic sandstone, and uppermost Triassic sandstone up until April 2025 are shown in Figures 1a, 1b, and 1c respectively. Interestingly, the water level in August 2025 at PZ234A (the regional water table) is even lower at ~373 mAHD (Yancoal, 2025d). The Panel does not consider that the evidence presented in Yancoal (2025e) demonstrates that the drawdown observed at PZ234A is solely or primarily climate-related.

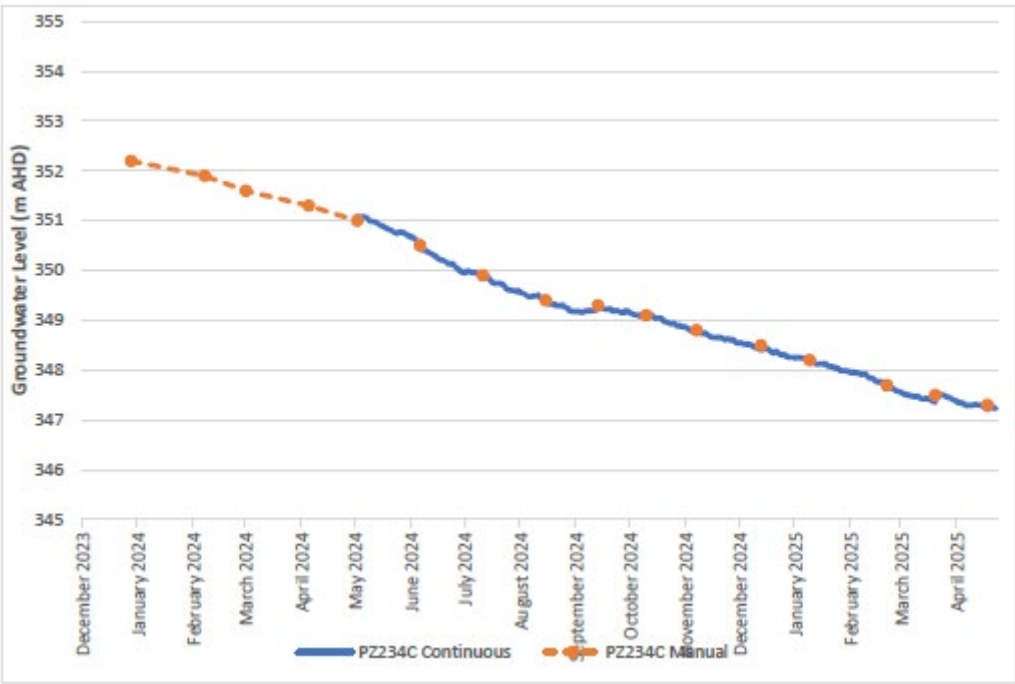


Figure 1a: Continuous and manually recorded water level data for PZ234C – Permian strata (from Enclosure 3 of Yancoal (2025f))

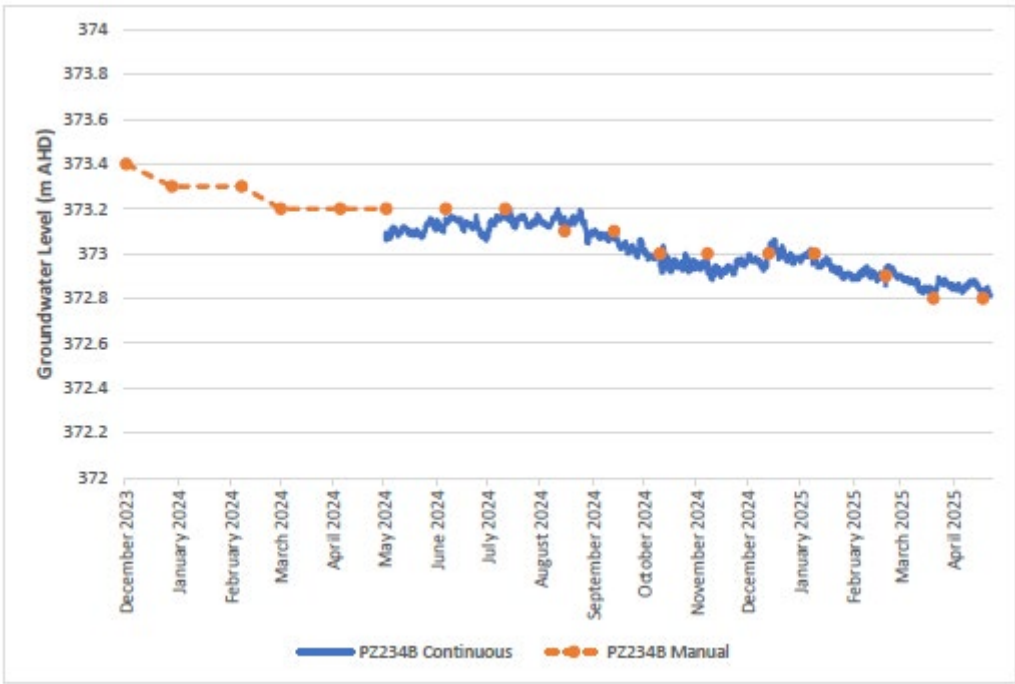


Figure 1b: Continuous and manually recorded water level data for PZ234B – Base of Triassic sandstone (from Enclosure 3 of Yancoal (2025f))

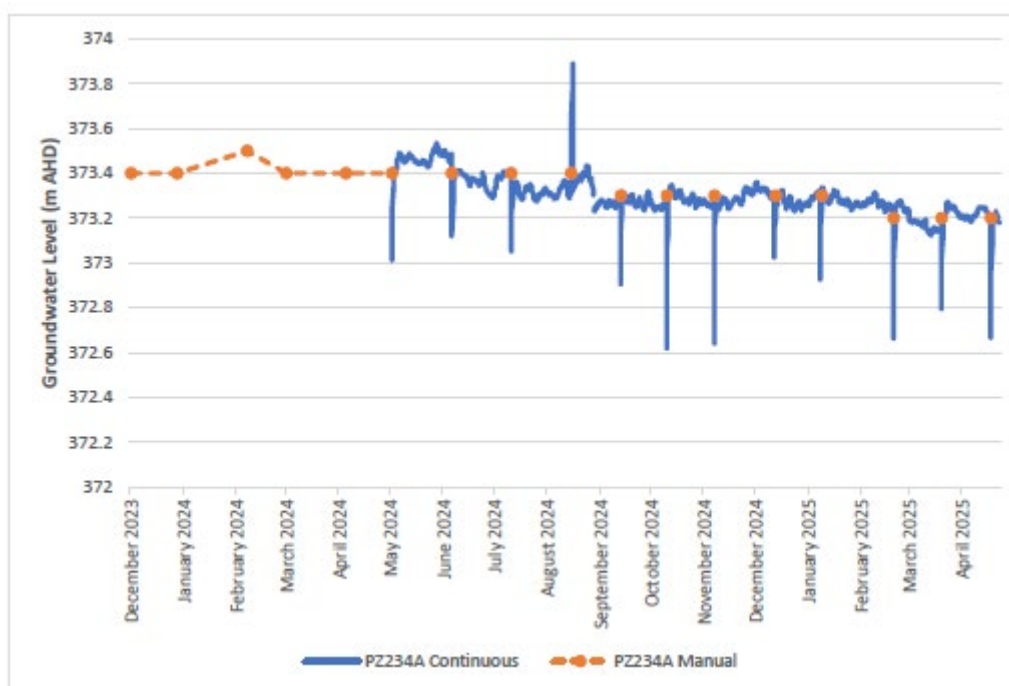


Figure 1c: Continuous and manually recorded water level data for PZ234A – Uppermost Triassic sandstone (from Enclosure 3 of Yancoal (2025f))

The Applicant does not agree with the Panel that the proposed Drip monitoring bores should be used as trigger monitoring bores. Instead, the Applicant is advocating that the relevant trigger bore for The Drip TARP be PZ129 which is located north of LWs409-414, approximately 220 m south of the Goulburn River and 330 m south of The Drip. While the Panel agrees that this site could be a useful ‘early warning’ location for identifying mining-induced drawdown and the potential propagation of drawdown impacts beneath the river and potentially affecting The Drip, the Panel has the following concerns:

- An observed drawdown in the Triassic sandstone (water table aquifer) at PZ129 would trigger further investigations that could only be fully resolved by monitoring of the groundwater systems feeding The Drip from the north. If shallow monitoring bores were constructed to the north of the Goulburn River on the ridgeline above The Drip after the commencement of the extraction of LWs410-414, there would be no established baseline for water levels north of the Drip to aid differentiation of mining-induced impacts from climate-related changes to the regional water table.
- Water level drawdown in the Triassic groundwater system is almost certain at PZ129 as this drill pad is also one of the nominated sites for dewatering bores to be constructed and operated in advance of mining (Dundon, 2019).

Consequently, the Panel does not consider it to be sufficient that PZ129 is the only trigger monitoring location for assessing potential impacts to The Drip. Other Triassic groundwater monitoring locations on the southern side of the Goulburn River could equally be compromised by mining-induced impacts, hence the necessity for a monitoring bore site on the northern side of The Drip, installed at the earliest opportunity, to demonstrate compliance with the

performance measure of a “*Nil impact or environmental consequence*” on “*The Drip and Goulburn River Gorge*”.

The Applicant’s proposed mitigation responses if an ‘early warning’ impact is identified are:

“Mitigation measures (i.e. trigger response actions) detailed in the Drip TARP include investigation of relevant climate and other monitoring data by the Technical Committee, review of subsidence predictions and/or groundwater modelling and recommendation of any interventions/actions if required (as detailed in Section 5 of the Monitoring Program).”

The Panel considers that the proposed interventions/actions stated in Section 5.2 of the draft monitoring and reporting program (Yancoal, 2025b) would be appropriate ‘on ground’ responses.

The Panel concludes and recommends that:

- Several sandstone monitoring bores at different sites on the southern side of the Goulburn River (such as the standpipes at PZ237A/B, PZ128 SP2, and PZ129 SP2) be used as ‘early warning’ trigger locations by conditioning in any Extraction Plan approval and by updating the draft monitoring program (Yancoal, 2025b).

Water level data and temporal trends from these sites should not be considered sufficient to demonstrate a nil impact to The Drip.

- Shallow nested sandstone monitoring bores on the northern side of the Goulburn River on the ridgeline above The Drip are necessary to demonstrate compliance with a “*Nil impact or environmental consequence*” performance measure at The Drip.

The Panel recommends that DPHI request the Applicant to continue to evaluate and negotiate early access to one of the previously recommended sites in Yancoal (2025a).

- If mining of LW409 is approved prior to the completion of these bores then the Panel would recommend no further mining be approved until they are completed and water levels in the bores have stabilised and an appropriate TARP has been established in an updated Drip Monitoring and Reporting Program.

c) Dewatering Program ahead of Panel Extraction

No information has been presented by the Applicant in either the EP or additional information supplied on the location, status and scheduling of proposed dewatering bores planned to operate in advance of mining each longwall. These assist in controlling groundwater inflows to the mine by depressurising the Ulan Seam and inducing groundwater drainage from the seam and overlying strata in the LW409-414 area.

It would be useful to understand where and when dewatering is planned to commence so as to identify any early mining-induced water level trends and to trigger investigations. The Panel recognises that drainage of groundwater from the Triassic sandstone aquifer and steep water level declines will primarily occur once fracturing occurs above each panel, however monitoring any early water level trends associated with dewatering may inform the possibility of water table

drainage and whether that drawdown is likely to extend beneath the Goulburn River and impact the lower seepage zone at The Drip.

3. Surface water / groundwater connectivity monitoring

The Department requests that the Panel review commentary provided regarding the proposed trigger values for SW02/237A and SW22/234A and advise whether this additional information affects recommendations made in the advice report.

Panel Response

The relevant recommendations in the Panel's advice report (IEAPM, 2025) were:

- *The groundwater trigger in the draft TARP for the Goulburn River be revised by: 1. Setting trigger water levels and objective management measures for the two nested sites located near SW2 and SW22 (PZ237A and PZ234A respectively) to coincide with when the surface water-groundwater connectivity changes from connected gaining to connected losing*
- *The trigger levels for flow, water quality and riparian groundwater (PZ124/127) should be independently reviewed, to the satisfaction of the Department, after they are proposed and before start of extraction of LW409*

(there is a typing error in the latter recommendation: PZ124/127 should read PZ234/237)

This advice was based on the interim trigger levels in Table 6 of the draft monitoring program provided to the Panel on 6 June 2025 (Yancoal, 2025c), which were 371.51 m AHD for PZ234A and 382.03 m AHD for PZ237A. In the updated draft (Yancoal, 2025b), the PZ234A interim trigger is unchanged and the PZ237A trigger has been corrected to 383.03 m AHD.

The Panel considers that the corrected interim trigger for PZ237A is appropriate; however, the proposed interim trigger for PZ234A is inappropriately low. Because it is approximately 1.5 m lower than the minimum observed water table level at that location, if the proposed interim trigger level for PZ234A were adopted, the Goulburn River may lose water due to mining for a substantial period prior to the trigger being activated.

The response from the Applicant (Yancoal, 2025d) includes two comments that aim to support the proposed trigger value at PZ234A:

1. *SW22 is located approximately 100 m upstream of PZ234A, and therefore, a lower 'no flow' level would be expected adjacent to PZ234A. In addition, observed surface water flows at SW22 since November 2023 are higher than observed groundwater levels at the adjacent PZ234A monitoring bore (i.e. indicating "losing" conditions).*

This comment is correct; however, the difference in locations of SW22 and PZ234A introduces uncertainty about whether the Goulburn River is gaining or losing (or alternating between the two) at PZ234A and makes it more difficult to determine an appropriate trigger level. The

proposed trigger level does not seem to be informed by an investigation into the relation between baseflow water levels at SW22 and those adjacent to PZ234A.

2. *A declining trend has also been observed at PZ234A since July 2024 however no decline has been observed at SW22 (refer to Chart 1). On this basis, the proposed investigation trigger level is considered appropriate.*

The Panel does not consider this to be a sound basis for concluding that the proposed trigger level is appropriate. A declining water table at PZ234A indicates an increasing hydraulic head gradient from the Goulburn River to the groundwater and therefore, assuming a hydraulic connection, an increase in flow loss (or possibly a switch from gain to loss). Due to the various controls on water levels at SW22 (including the local hydraulic conditions and the variable discharges from the Moolarben and Ulan mining operations), an increasing rate of flow loss would not necessarily be visible in water level trends at SW22.

The Panel notes that further updates to the trigger levels are anticipated to occur as a component of the LW407 End of Panel Reporting due in Q1/Q2 2026.

In conclusion, following the additional information provided, the two relevant Panel recommendations of IEAPM (2025) stand, but should be supplemented by two more, being:

- If the Goulburn River is found to be losing water to the groundwater at PZ234A in the baseline period then its trigger level should represent any decline in the water table level beyond the minimum level that can confidently be associated with climate variability.
- As part of updating the trigger level for PZ234A, the measured relation between river water surface levels between SW22 and adjacent to PZ234A should be considered.

4. Valley Closure TARP

The Department requests clarification on recommendation 4 regarding the Valley closure TARP, specifically, what trigger level is recommended that would instigate a pause of mining. Advice from the Applicant indicates a differential movement greater than 20mm, being a level less than survey tolerance, would instigate a pause of mining. However, the Department is unclear whether the Panel is recommending a trigger level of >5mm of differential movement, or whether the Applicant's proposed approach is considered appropriate.

Panel Response

The Panel stands by Recommendation 4 contained in IEAPM (2025), believing that it is an appropriate, precautionary approach in dealing with the potential impacts of valley closure on both The Drip and Corner Gorge.

By way of further explanation and clarification to remove any confusion, Recommendation 4 relates specifically to the section of the Goulburn River (Gorge) containing The Drip and Corner Gorge. It does not relate to the other sections of the Goulburn River, such as addressed by Recommendation 6 (IEAPM, 2025) which is focused on the section of river which passes close

to the inbye corners of LW409, LW410 and LW412. In that case, it is accepted that there is likely to be some level of valley closure (MSEC prediction of the order of 20 mm).

Returning to the Goulburn River Gorge and Recommendation 4, the Panel's recommended trigger level for valley closure is stated as being measurable closure greater than the GNSS monitoring system accuracy (which is understood to be ± 5 mm), also referred to as survey tolerance. It is not related to the accuracy of predictions (20 mm) made by MSEC, which the Applicant has raised in the latest response to DPHI.

With reference to the latest draft version (v3) of the UG4 Longwalls 409 to 414 Monitoring and Reporting Program (Yancoal, 2025b), section 2.1.1 includes the statement, based on MSEC's investigations, that: *"Valley closure movements greater than survey tolerance are unlikely to be observed at The Drip and Corner Gorge (MSEC 2025)"*. This supports the setting of a trigger level for any movement that is detected above survey tolerance.

The Panel's original Recommendation 4 further states that *"Such a trigger (measured closure across the Gorge, greater than survey tolerance) should lead to an immediate pause in mining while other monitoring systems and TARPs are reviewed. If there is no indication of any adverse impacts, then a period of reduced rate extraction could re-commence under a careful and regular monitoring regime which needs to be specified in an improved TARP. However, if there are any other indications of actual or potential adverse impact, then the alternative adaptive management strategies should be enacted, involving a stop to mining at that location and a potential relocation of the mining face further away from the Gorge"*.

This Panel recommendation for a pause to mining makes it clear that such a pause may only result in a very short duration stoppage (potentially less than 24 hours), provided the Applicant and its Technical Committee are able to rapidly assess other data to verify that there is no evidence of adverse impacts. This other data should include all relevant groundwater, surface water and subsidence monitoring and TARPs, including the additional sub-surface bedding plane monitoring on the southern side of The Gorge, as addressed in Recommendation 5 of (IEAPM, 2025).

If there is no indication of any adverse impacts, the recommended short pause that may be triggered is to be followed by a period of reduced-rate mining extraction, as per Recommendation 4.

As stated earlier, based on these arguments, the Panel stands by the original recommendation put forward to DPHI in (IEAPM, 2025) with respect to the TARP for valley closure at the Goulburn River Gorge.

References

AGE 2023, *UG4 LW401-408 Extraction Plan Revised Groundwater Technical Report*. V2.02. Dated 31 August 2023.

AGE 2024, *UG4 LW409-414 Extraction Plan Groundwater Technical Report*. V04.01. Dated 4 October 2024.

AGE 2025, *Moolarben UG4 LW409-414 EP Technical Memorandum – IEAPM Response*. Letter Attachment 2 of Yancoal 2025e dated 9 October 2025

Dundon 2019, *Moolarben – UG4 Modification – Review of Groundwater Effects*. Memo dated 28 September 2019.

IEAPM 2025, *Moolarben Coal Complex UG4 Extraction Plan for Longwalls 409-414 (MP05_0117)*. IEAPM Advice 202508-01 dated 15 August 2025.

Yancoal 2025a, *Moolarben Coal Complex UG4 Longwalls 409 to 414 Extraction Plan – Response to Request for Information*. Letter and enclosures dated 7 April 2025.

Yancoal 2025b, *UG4 Longwalls 409 to 414 Drip, Corner Gorge and Goulburn River Monitoring and Reporting Program*. Revised DRAFT for Approval dated October 2025.

Yancoal 2025c, *UG4 Longwalls 409 to 414 Drip, Corner Gorge and Goulburn River Monitoring and Reporting Program*. DRAFT provide to the IEAPM on 6 June 2025.

Yancoal 2025d, Email “Moolarben UG4 LW409-414 Extraction Plan - Additional Information” from Ian Flood to Steve O’Donoghue and Gen Lucas, dated 24 October 2025.

Yancoal 2025e, *Moolarben UG4 Longwall 409 to 414 Extraction Plan – Recommendations from the Independent Expert Advisory Panel for Mining*. Letter and attachments dated 10 October 2025.

Yancoal 2025f, *Moolarben Coal Complex Longwalls 409 to 414 Extraction Plan – Response to Follow up Queries*. Letter and enclosures dated 6 June 2025.

APPENDIX A: DPHI Request for Supplementary Advice (25 October 2025)

Department of Planning, Housing and Infrastructure



Our ref: MP05_0117-PA-98



Emeritus Professor Jim Galvin
Chair Independent Expert Advisory Panel for Mining

By email: j.galvin@bigpond.net.au

Date

Subject: Request for Supplementary Advice

Moolarben Coal Complex – Stage 1 (MP05_0117) Extraction Plan for Longwalls 409-414

Dear Prof Galvin

I am writing to you to request further targeted advice from the *Independent Expert Advisory Panel for Mining* (the Panel) in relation to the *UG4 Longwalls 409-414 Extraction Plan*.

In August 2025, the Panel provided *Advice Report No: IEAPM202508-01* in response to the Department's advice request of 21 January 2025. This request sought targeted advice regarding the scale and likelihood of potential subsidence, water-related impacts and environmental consequences on key features in the vicinity of the extraction plan area.

The Department has carefully considered this advice report noting that the Panel has raised a number of concerns, particularly regarding the modelling of groundwater impacts.

On 10 October 2025, the Applicant (Moolarben Coal Operations Pty Ltd) provided a response letter, including a technical groundwater memorandum prepared by Australian Groundwater & Environmental Consultants. The Department subsequently met with the Applicant to discuss residual matters, and a further response/ clarification email was provided on 24 October 2025. Given the technical nature of some of the responses, the Department is seeking targeted advice on a number of matters to assist the Department's consideration of the extraction plan. These matters are detailed in **Attachment A**.

Supplementary documentation is provided in **Attachment B**.

It would be appreciated if the Panel can provide advice by 21 November 2025.

If you have any questions or require additional information for your review, please contact Gen Lucas on (02) 9274 6489 or gen.lucas@planning.nsw.gov.au.

Yours sincerely

Steve O'Donoghue
Director Resource Assessments



Attachment A

1. Groundwater Modelling and Predictions

The Department acknowledges that the Panel has advised it has low confidence in aspects of the groundwater model and its associated predictions. In particular, the model boundary conditions and lack of uncertainty analysis. The Applicant has provided a technical memorandum that provides additional information and commentary about the groundwater model. The Applicant has also committed to complete recalibration of the groundwater model and uncertainty analysis by 30 June 2026.

The Department requests that the Panel review this technical memorandum and responses from the Applicant and advise whether:

- a) this additional information affects conclusions made about the reliability of the groundwater model, including confidence in predictions in the Triassic sandstone and baseflow losses; and
- b) the proposed timing to update the groundwater model is considered appropriate.

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The Applicant has provided further information on the proposed monitoring bore PZ129 as a suitable location for monitoring impacts on the Drip. The Department request that the Panel review this information and provide any further commentary on the ability of the existing monitoring network to provide 'early warning' trigger information about potential impacts on the Drip.

3. Surface water / groundwater connectivity monitoring

The Department requests that the Panel review commentary provided regarding the proposed trigger values for SW02/237A and SW22/234A and advise whether this additional information affects recommendations made in the advice report.

4. Valley Closure TARP

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level less than survey tolerance, would instigate a pause of mining. However, the Department is unclear whether the Panel is recommending a trigger level of >5mm of differential movement, or whether the Applicant's proposed approach is considered appropriate.



APPENDIX B: Additional Key Documents provided to and reviewed by the Panel

Document Reference	Document Name
Request for further advice by DPHI	- Request for Supplementary Advice Moolarben Coal Complex – Stage 1 (MP05_0117) Extraction Plan for Longwalls 409-414 - Attachment A: Targeted advice questions from DPHI to the Panel - Attachment B: Supplementary documentation from the Applicant: - Amended UG4 LW409-414 Extraction Plan with tracked changes: - Main Text - Appendix A: Water Management Plan - Appendix B: Land Management Plan - Appendix G: Subsidence Monitoring Program - Appendix H: Drip, Corner Gorge and Goulburn River Monitoring Program - Letter from the Applicant to DPHI re: Recommendations from the Panel's initial report (dated 10 October 2025) - Attachment 1: Response to Recommendations from IEAPM Advice Report - Attachment 2: Moolarben UG4 LW409-414 EP Technical Memorandum – IEAPM Response (AGE, 2025) - Attachment 3: Reconciliation of Updates to UG4 LW409-414 Extraction Plan Documents in Response to IEAPM Comments and Recommendations.
Email from the Applicant to DPHI regarding the Panel's report containing Additional Information (dated 24 October)	- Moolarben UG4 LW409-414 Extraction Plan - Additional Information - Attachment 1: Chart 1 Observed Monitoring Data PZ234A SW22 Nov 2023 - August 2025 - Attachment 2: Chart 2 Observed Monitoring Data PZ237A SW02 Oct 2023 - June 2024 - Attachment 3: AGE Memorandum RE: Comparison between Moolarben and Ulan groundwater models
Email from the Applicant to DPHI regarding the Panel's report containing Additional Information (dated 18 November)	- Moolarben UG4 LW409-414 Extraction Plan - Additional Information - Attachment 1: (<i>updated</i>) AGE Memorandum - RE: Comparison between Moolarben and Ulan groundwater models

Email from the Applicant (dated 3 December)	• Information on newly installed groundwater monitoring bores
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