



OUT19/10246

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Dear Mr Murphy

**Russell Vale Colliery Revised Underground Expansion Project (09\_0013)  
Revised Preferred Project Report**

I refer to your email of 30th July 2019 to the Department of Planning, Industry and Environment (DPIE) – Lands, Water and Department of Primary Industries (DPI) about the above matter.

While DPIE Water no longer coordinates responses for DPI or DPIE Lands, I am advised that they do not have any comments on this Revised Preferred Project Report (PPR).

DPIE - Water and the NSW Natural Resources Access Regulator (NRAR) have reviewed the PPR.

We advise there are a number of concerns related to the proposal:

- The groundwater model requires further refinement to meet the requirements of the Australian Groundwater Modelling Guidelines (2012). It currently does not adequately consider cumulative effects of historic, current and planned operations by this proposal and other mines in the area.
- The proponent needs to demonstrate that they have or are able to obtain sufficient shares of water from relevant water sources;
- The groundwater monitoring information lacks the detail required to confirm the predictions derived from the modelling, as well as management measures to address unpredicted events or anomalous results.

The proponent must also ensure that works on waterfront land are to be carried out in accordance with the Guidelines for Controlled Activities (2012) <https://www.industry.nsw.gov.au/water/licensing-trade/approvals/controlled-activities>.

Please note further explanation about water take, licensing, groundwater modelling and monitoring is provided in **Attachment A**.

Please send any further referrals to DPIE Water by email to [landuse.enquiries@dpi.nsw.gov.au](mailto:landuse.enquiries@dpi.nsw.gov.au).

Yours sincerely

A handwritten signature in blue ink, appearing to read 'M Isaacs'.

Mitchell Isaacs  
Director, Office of the Deputy and Strategic Relations  
**Department of Planning, Industry and Environment Water**  
3 October 2019

## Attachment A

# Detailed advice to DPIE Planning & Assessment regarding the Russell Vale Colliery Revised Underground Expansion Project (09\_0013) Revised Preferred Project Report (PPR)

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## 1.0 Groundwater Modelling

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The groundwater model (and associated assessment report) will require refinement in several aspects. The modelling should meet the requirements of the Australian Groundwater Modelling Guidelines (2012); should consider cumulative effects of historic, current and planned operations by this proposal and other mining in the area; and the report should adequately demonstrate how the model addresses the Director General's and subsequent agency-specific requirements.

### 1.1 Explanation

The report does not meet the requirements of the Australian Groundwater Modelling Guidelines (2012). For example, no assessment is given of the model confidence level class and the model has not been independently peer reviewed. Poor model calibration and lack of sensitivity and uncertainty analyses are considered major shortcomings in the reported modelling work.

The reported modelling work does not adequately consider mutual and cumulative effects of historic, current and planned operations in the area. Impact predictions for the proposed modified mining method are based on empirical subsidence modelling and numerical groundwater modelling. These have been used by the consultants to define the likelihood of subsidence impacts (low) arising from the first workings within the Wongawilli Seam and to simulate water balance components for the operation. Whilst in isolation the impacts from the proposed mine design are likely to be small, the cumulative impacts from historic and recently completed mining in overlying seams across a similar extent have yet to reach their conclusion and are currently unknown to DPIE Water. Furthermore, the potential for cumulative impacts from other nearby mining operations has not been fully investigated by the consultants. These impacts remain a concern.

The report does not adequately demonstrate how the model addresses the Director General's and subsequent agency-specific requirements.

### 1.2 Recommendation – Prior to Determination

DPIE Water recommends that the proponent revises the conceptual and numerical modelling and reporting to address issues identified in this assessment and to comply with the Australian Groundwater Modelling Guidelines (National Water Commission, 2012). This includes appropriate sensitivity and uncertainty analyses, independent peer review, assessment of the model confidence class, and useful and robust reporting.

The revised modelling must adequately consider mutual and cumulative effects of historic, current and planned mining operations in the area. The report needs to identify the current level of impact and predicted impacts arising from currently approved activities, and to present the range of potential impacts and groundwater take from the new development.

DPIE Water recommends that the proponent revises the modelling report to demonstrate how the model and report meet the relevant Director General's and agency-specific requirements.

### 1.3 Recommendation – Post Determination

DPIE Water recommends that the consent conditions require that the proponent provide a plan for: (a) updating the model and reporting throughout the life of the project; and (b) using the model for assessing the adequacy of the monitoring network and determining enhancement requirements.

These are to be developed in consultation with DPIE Water and to the satisfaction of the DPIE Secretary.

## 2.0 Water Take and Licencing

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The proponent needs to demonstrate that they have or can obtain sufficient shares of water from relevant water sources.

### 2.1 Explanation

The proponent proposes to obtain 10.04ML of water entitlements from Upper Nepean Tributaries Headwaters Management Zone (MZ) within the 'Upper Nepean and Upstream Warragamba Water Source of the Water Sharing Plan (WSP) for the Greater Metropolitan Region Unregulated River Water Sources 2011. The WSP indicated there are no trade in options permitted within the Upper Nepean Tributaries Headwaters MZ, therefore water can only be obtained with the Upper Nepean Tributaries Headwaters MZ only. There are currently 54ML of water entitlements held between two water access licence holders.

This represents a risk to the proponent due to the limited entitlement and number of licence holders to trade with. The proponent is to provide further details on how the project proposes to obtain the required water access licence for the additional surface water take.

The proponent also needs to identify if surface water take is occurring as a result of historical mining activities and obtain the necessary licences as required.

### 2.2 Recommendation

DPIE Water recommends that the proponent:

- Demonstrate prior to determination an ability to obtain the required licences (both surface water and groundwater) for the relevant water sources where required and acquires all water licences prior to the start of activities; and
- Reassess surface water and groundwater take estimates using the refined groundwater model (see above). This includes identifying if surface water take is occurring as a result of historical mining activities. Impacts and takes are to be presented as the range of potential impact and take resulting from an uncertainty analysis in line with the 2018 IESC explanatory note, *Uncertainty analysis—Guidance for groundwater modelling within a risk management framework*. The P90 estimates should be relied on for impact and take predictions.

## 3.0 Groundwater Monitoring

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The proponent needs to provide more detail regarding the groundwater monitoring program and the associated management measures.

### 3.1 Explanation

The assessments and Revised Preferred Project Report are lacking in detail with regard to the monitoring required to confirm the predictions derived from the modelling, as well as the management measures to be implemented to address unpredicted events or anomalous results.

### 3.2 Recommendations

DPIE Water recommends that the proponent:

- Clarify the existing and proposed monitoring program to confirm modelled predictions (e.g. water balance, flows, subsidence, pillar stability, reactivation of displacements, etc.).
- Provide evidence that the data from vibrating wire piezometers currently installed correlate closely with measurements from nearby open-hole monitoring bores screened across similar intervals.
- Detail the expansion of the existing monitoring network to improve data for ongoing revised modelling, with a specific focus on:

- the areal and depths extents of the impacts of all mining in the eastern domain,
- strategic placement of new installations to enable periodic future correlation between co-located vibrating wire piezometers and open-hole monitoring bores
- Provide details of management measures proposed to deal with unpredicted events or anomalous results observed from the monitoring program (e.g. specific response actions, mine design modifications, mine water lodgements drainage, scheduling of model revisions, reporting to agencies, etc.).