

20 March 2017

Mr David Kitto  
Executive Director  
Resource Assessments & Business Systems  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Dear David

**Subject: Springvale Mine Extraction Plan for Longwalls 420-422**

I write on behalf of the Independent Monitoring Panel (the Panel) for Springvale Mine in regard to the following updated documents provided by Springvale Mine.

1. *Subsidence Interactions with Geological Fault Zones and Groundwater Systems at Springvale Mine*, March 2017.
2. *Centennial Responses to IMP Feedback on Springvale Longwall 420-422 Extraction Plan*, 10 March 2017.
3. *Longwall 420-422 Biodiversity Management Plan, Revision 2*. 3 March 2017.
4. *Swamp Monitoring Program for LW420 to LW422, Springvale Mine*. March 2017.
5. *Water Management Plan of Extraction Plan for LW420-422, Version 3*. 6 March 2017.

These documents have been provided in response to the Panel's written advice to Centennial Coal mine management dated 20 February 2017 and to matters arising in our meeting with mine management and officers of the Department of Planning and Environment (DPE) in Sydney on 6 March 2017.

The content of these documents represents a significant advance since the inception of the Panel in recognising and understanding subsidence impacts on groundwater and surface water at Springvale Mine. In turn, this has now resulted in significant changes in the mine plan, as reflected in the Extraction Plan under review.

Against this background, the Panel endorses the management plans listed above. In so doing, the following points are noted for consideration and future reference:

1. *Centennial Responses to IMP Feedback on Springvale Longwall 420-422 Extraction Plan*
  - a. Recurring Issues Point 2 re Adaptive Management. The substantive changes to the mine plan may still not minimise impacts on Gang Gang East Swamp.
  - b. Recurring Issues Point 3 re Trigger Action Response Plans (TARPs). The Panel remains of the view that there is opportunity to improve the nature of some triggers.

- c. Recurring Issues Point 5 re Re-emergence of Diverted Water. A target date should be set for the re-evaluation of data relating to the impacts of past mining on groundwater and surface water systems associated with swamps (for example, by the completion of LW420).
  - d. Specific Comments Point 4 re Risk Management Plan. Although the risk ranking for swamps has been increased to *'high'*, it could be argued that this should be raised to *'extreme'*.
2. *Swamp Monitoring Program for LW420 to LW422, Springvale Mine*
- a. Section 8.2.2.2.3 re Assessing the presence or absence of clay material at the interface with the underlying bedrock. Findings of data analysis from hand-augered holes is still to be presented.
  - b. Section 8.2.2.3 re Monthly Water Balance Review. The Goldsim models should also include groundwater losses to the base of the swamp, not just lateral groundwater flows.
  - c. Section 8.5, first bullet. Suggest that this should be expanded by adding *' , and particularly in the case of the Giant Dragonfly, the loss of critical habitat.'*
3. *Water Management Plan of Extraction Plan for LW420-422*
- a. Section 10.2 re Groundwater Modelling and specifically *"Given that the impacts to environmental receptors were assessed in the EIS with respect to Springvale Mine at 300L/s, current inflow to underground operations at 270 to 280L/s, is within the range of that assessed."* The Panel questions the inference that mine inflows are within the range of the groundwater model predictions and, thus, there should be no impact to surface waters in this range of mine inflows. It is possible that vertical seepage that is within the range of model uncertainty could have occurred in some time periods in the past, and currently, and that the rate of vertical seepage might be significant for swamps. Model independent verification of the sources of groundwater inflow and model revision to include more surface and structural related processes would be required to provide enhanced confidence in the comparison of observed and modelled mine water inflow. For example, detailed geochemical and isotope fingerprinting of water and geochemical mix modelling would provide independent check on groundwater flow modelling. The groundwater model should be updated in the near future to include structural information.
  - b. Section 12 re Adaptive Management Practices. The Panel questions the extent to which rock bars have been successfully remediated.
  - c. Appendix A, re Stage 1 Hydrological modelling. Relevant documentation appears to be missing. This documentation should be reviewed by the Panel at some point (say by completion of LW420).

Should you have any queries in regard to these matters, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to read "J Galvin". The signature is written in a cursive style with a large, stylized initial "J".

Emeritus Professor Jim Galvin  
**On behalf of the Springvale Independent Monitoring Panel**