16 October 2024

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Department of Planning, Housing and Infrastructure

Dear Jessie

IEAPM Advice on Metropolitan Coal EP for LW311-316

Stage 1: LW 311 and LW312

Process

The IEAPM Panel appointed to advise the Department (DPHI) on the Extraction Plan (EP) proposed by Metropolitan Coal (MC) for LW 311 to LW 316 submitted its advice on Stage 1: LW 311 and LW312 to the Department on 5 September 2024. The nature of some concerns raised in that advice prevented the Panel from supporting the extraction of either panel.

Subsequently, MC responded to these concerns on 23 September 2024 and 2 October 2024 and a video conference took place between the Department, MC and the Panel on 3 October 2024. This led to a request from the Panel for further information from MC. Following receipt of this information on 9 October 2024, the Panel met on 10 October 2024 to discuss its significance, with Panel members then finalising their advice in their respective areas of expertise.

The outcome of this process is that the Panel is now in a position to support the EP for LW311 if the conditions of approval include provisions for additional surveying of threatened species and their environment in order to better inform conformance with the revised Performance Measures. This is expanded upon later in this advice.

Complexities

There is a range of complexities associated with this matter that distinguish it from other EPs and which impact on the nature and timing of the advice that the Panel can currently provide. These include, but are not limited to:

1. The assessment of the Environmental Assessment (EA) for the Metropolitan Coal Project in early 2009 by the Planning Assessment Commission (PAC) concluded that *there were significant deficiencies in the EA and the Preferred Project Report in relation to prediction of non-conventional subsidence impacts at swamps. This led to concerns that a small number of swamps might be at risk from this source and it was considered desirable that further work be undertaken to establish the nature and extent of any such risk before undermining of these swamps could proceed".* Swamps 76, 77 and 92 were of particular concern to the PAC and this situation was addressed in Condition 4 of Schedule 3 of the approval conditions at the time by not permitting these swamps to be undermined without approval of the Director General, with this approval incorporating approval of performance indicators(PI) and performance measures (PM) for these swamps (technically, Swamp 92 has already been undermined - by first workings).

2. Some 15 years later, there is still no agreed criteria amongst all stakeholders and none endorsed by the regulator to objectively determine the significance of swamps and, hence, to inform the identification and approval of PI and PM for Swamps 76, 77 and 92

3. Swamps over Metropolitan Coal mine do not fall under condition of approval provisions pertaining to threatened species, ecological communities and species because they were not gazetted as threatened at the time by NSW or Federal legislation. This is no longer the case, raising the question as to whether Swamps 76, 77 and 92 will fall under contemporary legislation pertaining to threatened species when a new PM is agreed for them.

4. PIs and PMs for these swamps were only put forward for the first time in the EP submitted to the Department in late March 2024 and are still not agreed and approved by the Director General as a basis for assessing the environmental impacts and consequences associated with extracting LW311 through to LW316. In the meantime, longwall development of LW 311 and LW312 is complete and underway for LW313. This means that for LW311, LW312 and LW 313:

    a. two of the three primary controls for limiting mining-induced subsidence impacts and environmental consequences are no longer available for these panels, these controls being longwall panel width and interpanel chain pillar width.

    b. the remaining primary control is for longwall mining to cease extraction before subsidence impacts reach threshold values that can result in an exceedance of a PM (in the case of a specific feature, the distance between the feature and the cessation of longwall extraction is referred to as stand-off distance).

LW311

Figure 1 shows the location of longwall panels, swamps and tributaries relevant to this advice.

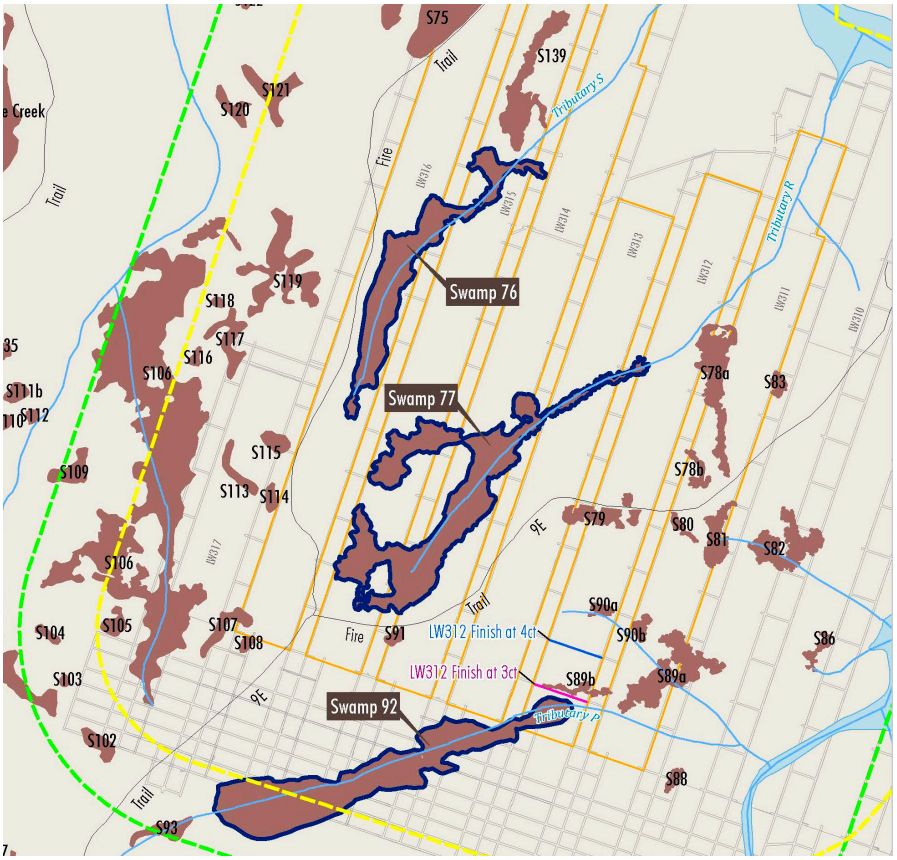

Figure 1: Plan showing the locations of LW311 to LW316, Swamps 76, 77 and 92, Tributary R and Tributary P, and possible stand-off distances of LW312 from Swamp 92.

Significant points in relation to LW311 are:

1. LW 311 does not directly mine under Swamps 76, 77 and 92 and, therefore is exempt from Condition 4 of Schedule 3 of the approval conditions.

2. Tributary R, which originates in Swamp 77, runs longitudinally over approximately 350m of inbye end (starting end) of LW311 (noting as shown in Figure 1 that this starting point has been moved outbye from its original planned position).

3. There is a credible likelihood that Tributary R has already been subjected to valley closure from the extraction of LW310 sufficient to result in cracking of the watercourse bed and subsurface flow in some areas, with this flow reporting back to the surface further downstream.

4. It is very likely that additional valley closure due to the extraction of LW311 will result in further cracking of the bed of Tributary R and subsurface flow over extended lengths, with this flow reporting back to the surface further downstream.

5. It is almost certain that extensive cracking of Tributary R will result from additional valley closure associated with the extraction of LW312 to LW316 and lead to subsurface flow over almost the full length of the tributary, with this flow reporting back to the surface further downstream.

6. Tributary P, which originates in Swamp 92, runs transversally across the planned outbye end (finishing end) of LW311.

7. Based on total (cumulative) predicted valley closure across Tributary P due to the extraction of LW311 and adjacent longwall panels, cracking of the watercourse bed sufficient to result in complete loss of pool water and subsurface water flow is very unlikely.

8. Cracking and subsurface flow in watercourses can (and usually does at Metropolitan Mine) result in downstream staining as iron is leached from the bedrock and brought to the surface where it can precipitate as red/orange/brown oxides.

These points and potential impacts were recognised during the assessment of the Metropolitan Coal Project Development Consent, with the following Subsidence Impact Performance Measures listed in Condition 1 of Schedule 3 of the Development Consent being particularly relevant to managing consequences arising from them:

a. negligible reduction in the water quality of Woronora Reservoir

b. negligible impact to threatened species, populations, or ecological communities

In September 2023, an IEAPM Panel comprising Professor Neil McIntyre and Professor David Waite prepared advice for the Department titled *Water Quality Performance Measures for Metropolitan Coal Mine.* This advice included a focus on the impacts of mining at Metropolitan Mine on water quality in the Woronora Reservoir. Both Professor McIntyre and Professor Waite are members of the IEAPM Panel providing advice to the Department on the EP for LW311 to LW 316. Based on their advice, the Panel concludes that the consequences of iron contamination in Tributaries P and R is very likely to be negligible for Woronora Reservoir but not necessarily so for biodiversity and any associated pools in these tributaries.

In respect of ecology, a key concern for the Panel is that adequate and robust surveys and baseline data are acquired to provide a sound basis for monitoring conformance with PIs that inform management plans and PMs that are embedded in approval conditions. A number of stakeholders have expressed concerns regarding the robustness and extent of surveys and baseline data collection to date in relation to threatened species, populations, and ecological communities along Tributaries P and R. These concerns are accentuated by recent reports of the presence of Littlejohn's Tree Frog along Tributary P. The Department is referred to the detailed advice in relation to ecology that the Panel has already provided to the Department and to MCs responses to this advice. The Panel is satisfied that the issues can be addressed, albeit belatedly, through the commitments provided by MC but considers some of these are sufficiently important that, if the EP for LW311 is approved, they should be embedded in the approval conditions.

Against this background, **the Panel concludes that:**

The EP proposed by MC is acceptable for the purpose of extracting LW311 provided that:

1. **MC completes the following surveys to inform assessment against the Performance Measures and Performance Indicators:**

    - **Targeted surveys for Littlejohn's Tree Frog (Jul-Nov) and Giant Burrowing Frog (Feb-May) in Tributary P and Tributary R using a robust monitoring method (see Section 6 of the Panel advice on LW311 and 312)**. Notwithstanding that these surveys may not be able to be completed until after subsidence impacts occur.

    - **Suitable baseline surveys for pool and surface water levels, based on baseline frog surveys above, in Trib P and Trib R.**

    - **Targeted surveys for the Giant Dragonfly (Dec-mid Jan) and Ground Parrot in Swamp 92 using a robust monitoring method (see Section 6 of the Panel advice on LW311 and 312).**

2. **The PM and PI for threatened species are confirmed as per discussed in Sections 6.3 and 6.6 of the Panel's advice of 6/9/2024.**

3. **The monitoring program for all threatened species is revised as per discussion in Section 6.5 of the Panel's advice of 6/9/2024 and the recommendation of that advice.**

LW312

As shown in Figure 1, a very minor portion of Swamp 77 and a significant portion of Swamp 92 overlie LW312. There is a range of matters that need further consideration before the Panel can finalise its advice on the EP for LW312. These include but are not limited to:

1. There is general agreement amongst key stakeholders that Swamp 92 is particularly significant but the stand-off distance of LW312 from Swamp 92 (130 m or 260 m) is not agreed (noting also that the EP will need to be revised to reflect a similar stand-off distance for LW313).

2. There is no general agreement amongst key stakeholders yet as to the significance of Swamp 77 and this has implications for whether LW312 can mine under and adjacent to Swamp 77 or whether it will need to stand-off from it. If Swamp 77 is considered significant, careful consideration has to be given to the implications for the mine plan if longwall mining also has to stand-off from this swamp.

3. The TARP proposed by MC to management subsidence related impacts for Swamps 76, 77 and 92, including unplanned subsidence impacts prior to the longwall reaching an agreed standoff position, requires significant revision. This is for a number of reasons that include:

    a. The subsidence component of the TARP is based on monitoring for conformance with predicted valley closure for each swamp. As such, it is based on monitoring a *predicted subsidence effect*, an approach that is known to be ineffective and which has been superseded following the 2008 recommendations of the Southern Coalfield Inquiry (SCI).

    b. For the proposed TARP to be effective, the predicted valley closures need to be correlated to measured *subsidence impacts* and *environmental consequences*, consistent with the recommendations of the SCI and the standard applying today to the environmental assessment of subsidence effects. None is provided in the TARP for Swamps 92, 76 and 77.

    c. The amount of valley closure required to exceed trigger level 2 and trigger level 3 varies between the swamps because it is based on the maximum predicted valley closure for each swamp without regard to the impacts and consequences associated with this valley closure. As a result, for example, 125 mm of valley closure results in a level 3 trigger being activated at Swamps 92 and 76, but 325 mm of valley closure is required to activate a level 3 trigger at Swamp 77.

    d. Furthermore, the TARP triggers are based on the predicted valley closure after the completion of LW316 and not on threshold values applying at the time of extracting LW312.

    e. The TARP is proposed by MC on the basis that the approach has been successfully applied at the Eastern Tributary. However, those circumstances and the associated TARP were very different since at the Eastern Tributary, because sufficient valley closure had already occurred to result in an exceedance of the Performance Measure and, therefore, the TARP was based on detecting the onset of any additional valley closure as a trigger to stop mining.

Resolution of these and other related matters will require another site-visit by the IEAPM and further discussions with MC and the Department. Whilst this will require additional time and expenditure, their resolution for LW312 has the potential to enable the EP for LW312 to 316 to be approved as one entity.

Yours sincerely

Jim Galvin
Co-Chair
IEAPM Panel for EP for LW311 to LW316