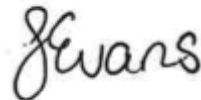


Subsidence Management Plan Approval

I, the Director, Energy & Resource Assessments (Underground), of the Department of Planning and Environment, under the provisions of the development consent referred to in Schedule 1, approve the development set out in Schedule 2, subject to the conditions set out in Schedules 3 and 4.



Director
Energy & Resource Assessments (Underground)
as nominee of the Secretary

Sydney

20 December 2022

SCHEDULE 1

Condition 7 of Schedule 3 of the development consent granted by the Minister for Urban Affairs and Planning on 20 November 2001 for the development of the Dendrobium Coal Mine and the construction and operation of associated surface facilities (DA 60-03-2001), as modified.

SCHEDULE 2

Underground mining operations, and associated monitoring, management and remediation, in Area 3C of the Dendrobium Coal Mine.

SCHEDULE 3 – GENERAL CONDITIONS

Definitions

1. The following definitions apply to this approval.

| | |
|---------------------------------|---|
| Area 3C WIMMCP | Watercourse Impact Monitoring, Management and Contingency Plan and its associated Trigger Action Response Plan for Area 3C, as required to be prepared under condition 4 of Schedule 3 of the development consent |
| Area 3C SIMMCP | Swamp Impact Monitoring, Management and Contingency Plan and its associated Trigger Action Response Plan for Area 3C, as required to be prepared under condition 6 of Schedule 3 of the development consent |
| BCS | Biodiversity, Conservation and Science Directorate within the Department |
| Department | Department of Planning, Industry and Environment |
| Development consent | Development consent DA 60-03-2001, as modified |
| Independent Expert Panel | Independent Expert Panel for Mining in the Catchment |
| Minor | Not very large, important or serious |
| Mitigation | Activities associated with reducing the impacts of mining operations prior to or during those impacts occurring |
| Negligible | Small and unimportant, such as to be not worth considering |
| Remediation | Activities associated with partially or fully repairing or rehabilitating the impacts of mining operations or controlling the environmental consequences of these impacts |
| Resources Regulator | NSW Resources Regulator |
| Secretary | Planning Secretary of the Department, or nominee |
| Subsidence Management Plan 2019 | Longwalls 20 & 21 Subsidence Management Plan prepared by Illawarra Coal South32 dated November 2019, including its Appendices 1 – 4 |
| Subsidence Management Plan 2021 | Longwalls 22 & 23 Subsidence Management Plan prepared by Illawarra Coal South32 dated September 2021, including its Appendices 1 – 4 |
| TARP | Trigger Action Response Plan |
| WaterNSW | Water NSW, as established under the <i>Water NSW Act 2014</i> |

2. Subject to the definitions above, the definitions in the development consent apply to this approval.

Terms of Approval

3. The Applicant must carry out the development:
- (a) in compliance with the conditions of the development consent;
 - (b) in compliance with the conditions of this approval; and
 - (c) generally in accordance with the Subsidence Management Plan 2021 (subject to review and approval of the WIMMCP and/or SIMMCP under the conditions of this approval).
4. If there is any inconsistency between the documents listed in condition 3, then the conditions of this approval and the development consent prevail to the extent of the inconsistency.

Limits on Approval

5. The Applicant must not extract the Wongawilli coal seam to a height of greater than 3.9 metres, subject to approval from the Resources Regulator to extract a greater height for identified mine safety reasons.

Performance Measures for Area 3C

6. The Applicant must ensure that the development does not cause any exceedance of the performance measures in Table 1, to the satisfaction of the Secretary.

Table 1: Subsidence Impact Performance Measures

| Swamps | |
|---------------------------------------|--|
| Swamps Den09, Den144, Den145, Den 154 | Minor environmental consequences including: <ul style="list-style-type: none"> • <i>negligible</i> erosion of the surface of the swamp; • <i>minor</i> changes to the hydrology of the swamp; • <i>minor</i> changes in the size of the swamp; • <i>minor</i> changes in the ecosystem functionality of the swamp; and • <i>maintenance or restoration</i> of the structural integrity of the bedrock base of any significant permanent pool or controlling rockbar within the swamp. |
| Watercourses | |
| Wongawilli Creek | Minor environmental consequences including: <ul style="list-style-type: none"> • <i>minor</i> fracturing, gas releases and iron staining; and • <i>minor</i> impacts on water flows, water levels and water quality. |

| | |
|--|--|
| Avon-to-Macarthur 330 kV transmission line and associated transmission towers (including tower TWR17-21) | <ul style="list-style-type: none"> • Always safe and serviceable; and • Damage that does not affect safety or serviceability must be fully repairable, and must be fully investigated and repaired at the cost of the Applicant. |
|--|--|

The Applicant may meet the requirements of this condition either by avoidance, mitigation, remediation or offsetting, or any combination of these measures.

Rehabilitation

7. If the Applicant does not meet the performance measures in Table 1, then following consultation with BCS, WaterNSW and Resources Regulator, the Secretary may issue the Applicant with a direction in writing to undertake actions or measures to mitigate or remediate subsidence impacts and/or associated environmental consequences. The Applicant must implement the direction in accordance with its terms and requirements, in consultation with the relevant agencies and to the satisfaction of the Secretary.

Groundwater Impact Monitoring

8. The Applicant must:
- (a) install groundwater monitoring boreholes containing multi-level piezometers along the centreline of each longwall proposed to be extracted within Area 3C, each containing at least 5 transducers, at least 2 years prior to commencing extraction of that longwall;
 - (b) use data from these boreholes and other investigations to develop a database for the Dendrobium Coal Mine for the height of complete drainage over longwalls;
 - (c) monitor rainfall and mine water ingress from overlying and surrounding strata in Area 3C on a daily basis; and
 - (d) use its best endeavours to identify the components of mine water make that derive from surface waters; to the satisfaction of the Secretary.

Offsets

9. The Applicant must offset any reduction of surface water reporting to WaterNSW storages or weirs caused by the extraction of longwalls within Area 3C, in consultation with WaterNSW and to the satisfaction of the Secretary.

Review of WIMMCP and SIMMCP

10. The Applicant must submit a revised Area 3C WIMMCP (including its associated TARP) to the Secretary by 30 March 2023 for approval. The revised Area 3C WIMMCP must:
- (a) be prepared in consultation with WaterNSW;
 - (b) include a TARP which contains quantitative triggers which support adaptive management measures directed to avoiding exceedances of the performance measures for Wongawilli Creek set out in Table 1;
 - (c) fully reflect the recommendations of the Independent Expert Panel which directly relate to impact monitoring, management, remediation and contingency planning in respect of watercourses;
 - (d) reflect the nine monitoring program recommendations included in *Height of Cracking – Dendrobium Area 3B* (PSM, 2018);
 - (e) include a methodology for developing a rating curve and establishing the relationship between the existing WWL gauge and the new gauge required to be constructed under condition 13 below; and
 - (f) fully reflect the advice of the of the Independent Expert Panel dated March 2022 on the Subsidence Management Plan 2021 relating to improving performance measures for watercourses.
11. The Applicant must submit a revised Area 3C SIMMCP (including its associated TARP) to the Secretary by 30 March 2023 for approval. The revised Area 3C SIMMCP must:
- (a) be prepared in consultation with WaterNSW and BCS;
 - (b) include a TARP which contains quantitative triggers which are directly linked to maintaining achievement of the performance measures for swamps set out in the SIMMCP;
 - (c) fully reflect the recommendations of the Independent Expert Panel which directly relate to impact monitoring, management, remediation and contingency planning in respect of swamps;
 - (d) fully reflect the advice of the of the Independent Expert Panel dated 13 December 2019 on the Subsidence Management Plan 2019 relating to monitoring of swamp impacts;
 - (e) reflect the nine monitoring program recommendations included in *Height of Cracking – Dendrobium Area 3B* (PSM, 2017); and
 - (f) fully reflect the advice of the of the Independent Expert Panel dated March 2022 on the Subsidence Management Plan 2021 relating to the method of analysis of impacts on swamp hydrology.
12. The Applicant must not undertake extraction of Longwall 22 or 23 until the Area 3C WIMMCP and Area 3C SIMMCP are revised and approved under conditions 10 and 11 of this Schedule.

Replacement of WWL Flow Gauge

13. The Applicant must complete construction of the flow gauge on Wongawilli Creek proposed to replace the existing WWL gauge to the satisfaction of WaterNSW and as soon as is practicable, and in any case by 30 May 2020.

Area 3C Mine Layout and Monitoring Program

14. By 30 March 2023, the Applicant must submit to the Secretary the:
 - (a) mine layout and mining geometry, as proposed at that date for Area 3C; and
 - (b) baseline monitoring program, as existing and as proposed at that date for Area 3C, for review.

Groundwater Modelling

15. By 30 March 2023, the Applicant must submit to the Secretary revised groundwater modelling for Area 3C that:
 - (a) includes cell dimensions of 50 m x 50 m within the footprint of all proposed longwalls as far as practicable;
 - (b) adequately justifies modelling methods used to simulate key processes relevant to impact assessment; and
 - (c) incorporates post-mine closure bulkhead and sealing options proposed to characterise the long-term groundwater behaviour and potential water discharge impacts, for review.

Regular Reporting

16. During the extraction of longwalls in Area 3C, the Applicant must submit a summary report to the Secretary every 4 months (unless some other period is agreed with the Secretary) which reflects Recommendation 20 of the Independent Expert Panel's Final Report (Part 2) and which includes:
 - (a) a consolidated summary of the monitoring results gathered during each 4-month period;
 - (b) assessment of compliance with the performance measures listed in Table 1;
 - (c) assessment of any exceedances of predictions in the Subsidence Management Plan 2019 and Subsidence Management Plan 2021;
 - (d) assessment of any exceedances of Level 2 or Level 3 Triggers in the TARPs;
 - (e) details of any actions taken or measures implemented in response to any such exceedance; and
 - (f) accurately records the seam mining height during the period, to the satisfaction of the Secretary.

Independent Environmental Audit

17. The Applicant must ensure that the audit team for the Independent Environmental Audit, required under condition 6 of Schedule 8 of the development consent, includes suitable experts in the fields of mine subsidence impacts and remediation, upland swamps, and stream hydrology and water quality; and carries out an audit of the impacts of mining undertaken in Area 3C as at the date of the Audit.

SCHEDULE 4 – CONDITIONS GOVERNING INDIVIDUAL LONGWALLS

LONGWALL 20

1. The Applicant must not extract Longwall 20 as presented in Subsidence Management Plan 2019.

LONGWALLS 22 & 23

Seepage Validation Report

2. The Applicant must submit to the Secretary a Seepage Validation Report which includes:
 - (a) results of field studies and permeability/seepage modelling of the strata between Area 3B and the Avon Reservoir;
 - (b) modelling and validation of the predicted permeability/seepage of the strata between Area 3C longwalls and the Cordeaux Reservoir; and
 - (c) confirmation of the appropriateness of the setback of Longwalls 22 and 23 from the Cordeaux Reservoir. to the satisfaction of the Secretary.

The Applicant may not commence longwall extraction of Longwall 22 or 23 until the validation report and setback is approved by the Secretary.

Transmission Line Management Plan

3. The Applicant must prepare and implement a Transmission Line Management Plan to manage potential impacts of mining Longwalls 22 & 23 on the Avon-to-MacArthur 330 kV transmission line and associated transmission towers. This plan must:
 - (a) be prepared by a suitable qualified and experienced person/s in consultation with the Resource Regulator and Transgrid;
 - (b) describe in detail appropriate pre-mining mitigation measures to be implemented to ensure compliance with the performance measures for the transmission line and associated transmission towers set out in Table 1;
 - (c) recommend appropriate remedial measures and measures for damage that does not affect safety or serviceability to investigate, mitigate, repair, replace or compensate predicted impacts and associated cost responsibilities; and
 - (d) recommend monitoring programs, TARPs and communication plans, to the satisfaction of the Secretary.
