

Notice

Environmental Protection Act 1994

Information request

This information request is issued by the administering authority under section 140 of the Environmental Protection Act 1994 to request further information needed to assess an application for a PRCP schedule.

To: Ribfield Pty Ltd, Middlemount Coal
Pty Ltd
Level 17, 444 Queen Street
Brisbane, QLD, 4000

By email transmission only

ATTN: Charissa Allan

Our reference: EPML00716913

Further information is required to assess an application for a PRCP schedule

1. Application details

The application for a proposed PRC plan was received by the administering authority on 29 June 2022.

The application reference number is: C-EATPRCP-100281751

Land description: ML70379, ML70417, ML700014, ML700027

2. Information request

The administering authority has considered the abovementioned application and is writing to inform you that further information is required to assess the application (an information request).

The information requested is provided in **Appendix 1**.

3. Actions

The abovementioned application will lapse unless you respond by giving the administering authority -

- (a) all of the information requested; or
- (b) part of the information requested together with a written notice asking the authority to proceed with the assessment of the application; or
- (c) a written notice –

- i. stating that you do not intend to supply any of the information requested; and
- ii. asking the administering authority to proceed with the assessment of the application.

Should the information request require an EIS process or applicant to submit a progressive rehabilitation and closure (PRC) plan then it must be completed and submitted.

A response to the information requested must be provided by 27 February 2023 (the information response period). If you wish to extend the information response period, a request to extend the period must be made at least 10 business days before the last day of the information response period.


The response to this information request or a request to extend the information response period can be submitted to the administering authority by email to CRMining@des.qld.gov.au.

If the information provided in response to this information request is still not adequate for the administering authority to make a decision, your application may be refused as a result of section 176 of the *Environmental Protection Act 1994*, where the administering authority must have regard to any response given for an information request.

4. Human rights

A human rights assessment was carried out in relation to this decision/action and it was determined that the decision is compatible with human rights.

If you require more information, please contact Priti Mahajan on the telephone number listed below.



Signature

24/08/2022

Date

Chris Wake
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Coal Business Centre
PO Box 3028, Emerald QLD 4720
Phone: 4987 9320
Email: CRMining@des.qld.gov.au

Appendix 1

Provide a revised PRC plan (including PRCP schedule) that addresses the following matters:

Item	PRCP Plan and/or PRCP Guideline	Issue	Required Information
Rehabilitation Planning Part			
1	<p>Post-mine land uses</p> <p>Section 3.3 Post mining Land Use</p> <p>Section 3.2 of the PRCP guideline states that, ‘Where PMLUs have not been pre-approved, the applicant must include all of the requirements stated in this section’ (Refer to #Option 2, in the third column of this table).</p>	<p>Section 3.3 of the PRCP planning part states that, ‘<i>Mixed use open woodland is the proposed PMLU for the majority of the Middlemount Coal Mine. Mixed-use open woodland comprises of a combination of mixed-use native ecosystem and low-density grazing. Flora comprising species characteristic of particular REs present within the pre-mining landscape would be incorporated into the final landform, where practicable. Endemic flora would contain species characteristics of REs which were present in the pre-mining landscape (i.e. these areas would not necessarily aim to recreate particular REs, rather contain species which are commonly present within the listed REs)</i>’.</p> <p>The above suggests that the proposed PMLU in the PRCP planning part differs to the PMLU stated in the EA (Native Ecosystem).</p> <p>Section 3.1.2.8 of the PRCP planning part states that prior to mining approximately 1,876 ha and 1,626 ha of the Middlemount Coal Mine was previously comprised of remnant vegetation and regrowth vegetation (non-remnant) respectively. Of the 18 REs identified, three have a conservation status of ‘Endangered’ and six have a conservation status of ‘Of Concern’ under the <i>Vegetation Management Act 1999</i> (VM Act) (Table 6, Figure 7).</p> <p>The current EA Table G2: Final land use and rehabilitation approval schedule requires recreation of RE types as the</p>	<p>A. #Option 1 – Revise the proposed PMLU of mixed used woodland to Native Ecosystem development which better aligns with the EA. This includes revising the PRCP schedule and plan to reflect following –</p> <ol style="list-style-type: none"> I. For existing established and ongoing rehabilitated areas add a criteria and milestone to reseed/plant tube stocks of the area with native shrub, tree and grass species (refer ‘Middlemount Rehabilitation Monitoring Event 2022 – Summary Report’) II. For future rehabilitation areas adjust the seed mix to ensure species characteristic of RE 11.5.3 and native grass species are dominant. Avoid exotic grass species like Buffle grass. III. Table 8 and 9 from the Appendix H Revegetation Management Plan should clearly list the native species by the life form it represents (i.e., T, S, G, F, in BioCondition) with proportions that reflect the dominant species in accordance with – <ul style="list-style-type: none"> • the analogue Regional Ecosystems site, • BioCondition descriptions for those Regional Ecosystems; and

		<p>PMLU for most of the mine domains except 'residual voids.' The EA rehabilitation criteria aims to achieve some rehabilitation parity with the previously cleared native vegetation, which requires appropriate mix of native trees, shrubs, forbs, and perennial grasses, that reflect the BioCondition of the cleared and adjacent regional ecosystems.</p> <p>Table 9 of Appendix H states candidate species suitable for inclusion in the revegetation seed mix for each landform. It appears from the above Table 8 and 9, the selected seed mix and its proportion is not representative of –</p> <ul style="list-style-type: none"> ○ the native species that are present at identified reference sites (refer Table 33 of the PRCP plan), ○ the BioCondition benchmarks; ○ the regional ecosystem technical descriptions. <p>The candidate species of cover crops, non-native grass and pasture legumes (<i>Stylosanthes</i>, <i>Cenchrus</i> and <i>Bothriochloa</i>) stated in Table 9 of the appendix H may have a substantial negative impact on native plant and animals.</p> <p>Section 3.7.1.7 of the PRCP plan identifies pasture grass cover, non-native grass cover (that are not pasture species) and non-native forb cover.</p>	<ul style="list-style-type: none"> • the technical descriptions for those Regional Ecosystems. <p>B. #Option2 - provide more information as per section 126C(1)(j) of the EP Act –</p> <p>I. Consideration of PMLU options having regard to:</p> <ul style="list-style-type: none"> • Regulatory constraints • Physical constraints • Chemical characteristics • Available rehabilitation method • Potential economic benefits for community or land holder • Potential environmental and social benefits for each option (proposed PMLU Vs EA PMLU) <p>II. The rehabilitation planning part of the PRC plan must include a detailed description of the nominated PMLU(s) for the site. The description must include (where relevant), but is not limited to:</p> <ul style="list-style-type: none"> • a description of the use of the land • if applicable, the specific vegetation types (e.g. RE 13.2.9) or land suitability classification (e.g. Class 4) • identification of any permanent or essential management infrastructure to be included as part of the PMLU • completion criteria for measuring whether the PMLU has been successfully achieved
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2	<p>Built Infrastructure</p> <p>3.5.7.4 Retained Infrastructure, Attachment 3 – Retention of Water Structures</p>	<p>Table 9 identifies landholders within the Middlemount Coal Mine. The table shows Anglo Coal Pty Ltd as landholder for the Lot/plan 11/TT443. It is not clear if the infrastructure proposed to be retained is solely on land held by Middlemount.</p>	<p>A. Clarify if any proposed infrastructure to be retained is on land held by Anglo Coal Pty Ltd and if yes provide the landholder agreement for retaining the infrastructure.</p>
3	<p>Risk Assessment</p> <p>Section 3.6.1 General rehabilitation practices - Hydrogeology</p> <p>Section 3.6.1 of the PRCP guideline states that hydrogeological assessment should include groundwater flow direction and velocity, including field tests to determine hydraulic conductivity.</p>	<p>Predicted water levels in final voids compared to predicted groundwater heads</p> <p>Section 8.4.1 of the Groundwater Assessment states that, <i>'Post closure conditions were simulated over a period of 500 years by WRM to predict the extent of void lake level recovery following cessation of mining. WRM modelling indicates that the residual voids would gradually fill over time from direct rainfall occurring across each void and groundwater seepage. Utilising the WRM modelling results, representative pit lake levels of approximately 10 mAHD in the North Void, and 35 mAHD in the South Void have been used for the purposes of post closure groundwater recovery modelling.</i></p>	<p>A. Provide pre and postmining groundwater level contours for the relevant layers (exp-Tertiary and Weathered Permian – Layer 3) as mentioned in section 8.4.1 of the Appendix B – Groundwater Impact Assessment</p> <p>B. Confirm if the WRM modelling predictions takes into consideration the pre and post mining groundwater level contours for the North and South voids</p> <p>C. Clarify if the potential changes in regional groundwater level over the years have been considered in the modelling</p> <p>D. If required, clarify its interaction with the residual voids in terms of level of water within</p>

	<p>Section 3.6.3 of the PRCP guideline states that rehabilitation planning part must include a void closure plan that includes but not limited to a water balance study including an assessment of void surface and groundwater interactions.</p>	<p><i>The representative pit lake levels were used to determine the long-term residual drawdown in the surrounding aquifers and establish a new equilibrium groundwater level around the residual voids. This was achieved by applying the representative pit lake levels, consistent with the WRM modelling results, in each void and running the model forward from the end of mining for 500 years.</i></p> <p><i>Based on these predictions, the voids would act as sinks in perpetuity with no escape of contained void water into the Rangal Coal Measures or Fort Cooper Coal Measures.'</i></p> <p>However, the above prediction does not seem to be inclusive of pre and post mining groundwater level contours for relevant layers adjacent to the North and South voids which may allow comparison with the predicted void water level.</p> <p>The pre and postmining groundwater level contours for the relevant layers would greatly assist in demonstrating the groundwater level gradients that exist adjacent the voids and if they are therefore likely to become sinks and minimise the impact of the release of contaminants.</p> <p>Section 7.6.2 of the Appendix A: Surface water assessment states that, 'The predicted long-term void water levels do not exceed the current regional groundwater level. Therefore there is no mechanism to lose salt within the closed void system, the voids continually accumulate salt over time and become hypersaline (around 33,000mg/L) within the first 200-300 years of simulation'.</p>	<p>void and quality of water and update the water balance model.</p>
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<p>4</p>	<p>General Rehabilitation Practices</p> <p>Section 3.5.3 General Rehabilitation Practices, Appendix B Groundwater Impact Assessment</p> <p>PRCP Guideline, Section 3.6.1 General rehabilitation practices - Hydrogeology</p>	<p>Inclusion of Backfill (spoil) material parameters in the groundwater modelling</p> <p>Section 8.5.1 of Appendix B -Groundwater Impact Assessment report states that, 'Overburden will continue to be placed within the open cut pits and progressively rehabilitated during mining. Over the life of the Project, surface water runoff and accumulated rainfall seepage will drain towards the voids.'</p> <p>It appears the following considerations have not been included in the groundwater impact modelling –</p> <ul style="list-style-type: none"> • allowance in the modelling for the additional recharge likely to occur when the spoil replaces the natural material that has been mined from the pits; • allowance for the likely increased specific yield and hydraulic conductivity (vertical and horizontal) of the spoil material <p>The above issues are likely to impact the 'post mining' conditions and in particular the water level and water quality in the final voids.</p> <p>Section 3.6.1 of the PRCP Guideline states that hydrogeological assessment should include groundwater modelling to determine contaminant transport and potential changes to groundwater level from dewatering or waste storage. Provision of the above information will</p>	<p>A. Confirm if the groundwater modelling has considered following issues –</p> <ol style="list-style-type: none"> I. allowance in the modelling for the additional recharge likely to occur when the spoil replaces the natural material that has been mined from the pits; II. allowance for the likely increased specific yield and hydraulic conductivity (vertical and horizontal) of the spoil material III. allowance of future monitoring of groundwater levels targeting the backfill areas to increase understanding of the above raised issues. <p>B. If issues raised above have not been considered in the groundwater modelling, then –</p> <ol style="list-style-type: none"> I. provide the revised groundwater modelling outcomes, including water level and quality of the void water or II. justify their exclusion.

		be helpful to establish potential of the impact of the release of contaminants.	
PRCP schedule			
5	Improvement Area Milestone	<p>Floodplain modification</p> <p>Sub-section 9.2.3.2 of the Appendix A – Surface water assessment states that, <i>‘Ground levels between the TSF and Diversion 2 will be modified to increase the conveyance of the floodplain at this location. There is currently a topographical ridge that is about 5 m above the adjacent floodplain, which will be lowered to match the surrounding ground levels of 158.2 m AHD on the upstream side and 155.25 m AHD on the downstream side. At the completion of mining, the northern floodplain of Roper Creek will be rehabilitated back to an active floodplain. The operational phase levee will be relocated some 150 m to 300 m further to the north and the floodplain shaped to drain local catchment runoff from the floodplain back to the Roper Creek channel’</i></p>	A. Include floodplain modification in the PRCP schedule.
6	Improvement Area Milestone	<p>High-wall and Low-wall treatment</p> <p>Section 3.5.5.3 of the PRCP planning part states that, ‘final void highwalls will be treated (e.g. benched or blasted) so that they are geotechnically stable to an appropriate factor of safety’.</p> <p>The improvement area milestones stated in the PRCP schedule does not specify the factor of safety.</p>	<p>A. In the PRCP schedule specify the factor of safety to determine geotechnical stability of high walls.</p> <p>B. In the PRCP schedule specify steps taken for low wall treatment relevant to the land outcome.</p>

7	Rehabilitation Milestone	<p>RM4 – Landform establishment</p> <p>Criteria relate to several types of landforms including waste rock dumps, TFC, levees, voids, flat surface areas etc. however not all criteria are relevant to each landform type. Additional criteria could also be considered, e.g. specific steps being provided to ensure capping of the TFC area or placement of NAF over the potential PAF material while rehabilitating the WRD areas and backfilling of the central pit.</p>	<p>A. Based on material characterisation provide a separate rehabilitation milestone for mining domain –</p> <ul style="list-style-type: none"> I. TFC II. Out of pit waste rock dumps III. In pit waste rock dumps/co-disposal IV. The central pit backfill area <p>B. Ensure following recommendations are being translated regarding the overburden and interburden waste rock placement in the relevant rehabilitation milestone from Sub-section 3.5.3.4 of the PRCP planning part –</p> <ul style="list-style-type: none"> I. Overburden is classified as NAF and is placed in any in-pit or ex-pit spoil dump. II. Interburden is preferentially placed in-pit to provide the acid neutralisation capacity for spot-dumping of Potentially Acid Forming (PAF) materials and creation of Permian caps and bunds on coal reject cells. III. PAF floor materials from the Middlemount seam should remain in the open pit and be covered with NAF spoil. IV. Burial of PAF be lime dosed (at a rate of 10 t/ha or as confirmed by field trials) and kept at least 10 m away from the outer surfaces of final landforms by covering with Permian spoil. V. Consideration of leaching potential via leaching tests for PAF materials
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			VI. the maximum ratio of PAF coarse reject/tailings to Permian spoil at the out-of-pit spoil emplacement area be 1 to 10.
8	Rehabilitation Milestone Criteria	<p>Several criteria can be improved to better reflect SMART principles. For example:</p> <p>RM1 – criteria (b) For contaminated land and water treatment, relevant upstream water quality parameters and monitoring locations are not provided.</p> <p>RM2 – criteria (c) For hydrocarbon, heavy metal, or other contaminants it is not clear what allowable departmental limits is referring to.</p> <p>RM3 – (d) It is unclear what evidence would be used to determine no acid rock drainage is occurring or has the potential to occur.</p> <p>RM4 –</p> <ul style="list-style-type: none"> • The steps involved in capping of the tailings are not specified. • No criteria are included for determination of geotechnical stability of backfilled pit area • The continuous slope length limit stated in Appendix F of the EA has not been included <p>RM6 –</p> <ul style="list-style-type: none"> • Bare surface area - EA states limit of 20 m² and RM6 states 100 m² • Minimum vegetation cover as per EA 70%, PRCP schedule states 65% • Specify the seed mix to be used representative of RE species, native grass and native shrubs. 	1. Revise the rehabilitation milestones criteria to reflect the SMART principle.

		<p>RM7 –</p> <ul style="list-style-type: none"> • No target species composition provided • Non-native cover crop grass species ratio limit not provided <p>RM9 –</p> <ul style="list-style-type: none"> • Period of monitoring stated as ‘ongoing period of time’ no specific quantitative period given. <p>RM10 – Consider providing rehabilitation milestone criteria based on BioCondition Framework*.</p> <p>RM11 – For retained infrastructure, clarify the steps to be taken to ensure the structures are safe for intended post mine use.</p>	
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*BioCondition Matrix – https://www.qld.gov.au/data/assets/pdf_file/0029/68726/biocondition-assessment-manual.pdf

Following could be considered while developing the rehabilitation milestone criteria based on BioCondition Framework –

- A. Identification of four condition classes for the reference sites, and the rehabilitated areas, based on BioCondition scores. For example, condition classes could be 1 = >90, 2 = >60-90, 3 = >30-60, 4 = 0-30, based on BioCondition scores.
- B. A clear description of how the BioCondition score will be used to monitor the progression of the rehabilitation - for example for the combined monitoring sites over time, will the average score, average of condition class or frequency of condition classes be the metric of success? One approach could be 0-1 years post rehabilitation, average BioCondition score target for all monitoring sites is class 4, for >1-5 years post rehabilitation class 3, for >5-10 years post rehabilitation class 2 and for 15 + years post rehabilitation class 1.
- C. There is no information on the stratification of the sampling, the number of sites or a clear time frame for monitoring.
- D. Further to the monitoring, Tree and Shrub diversity monitoring in 1 x 1 m² quadrats is not appropriate, hence the recommendation to use BioCondition. For example, RM10 Milestone Criteria, “tree and shrub species show evidence of flowering, viable seed setting, germination and emergence” is largely qualitative, and not something measured in a 1 x 1 m² quadrat. A BioCondition attribute recruitment score, part of a more comprehensive BioCondition assessment, is more transparent.