

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 amendment application for a site-specific environmental authority.

To: ERNEST HENRY MINING PTY LTD
Level 24, 175 Liverpool St
Sydney, 2000 NSW

ATTN: Dean Sharpe

Email: dean.sharpe@evolutionming.com

Our reference: EPML00899713; A-EA-AMD-100522681; 101/0009449

Further information is required to assess an amendment application for environmental authority

1. Application details

The amendment application for a site-specific environmental authority was received by the administering authority on 31 October 2023.

The application reference number is: A-EA-AMD-100522681

Land description: Mining Lease (ML) 2671; ML90041; ML90072; ML90075; ML90085; ML90100; ML90107 and ML90116.

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 specified in Appendix 1, attached to this notice.

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 **17 July 2024** (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 ESCairns@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.

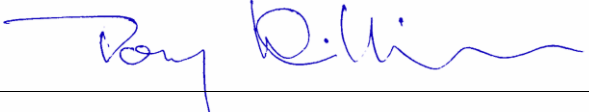
4. Human rights

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

5. Review and appeal rights

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. Information about your review rights is attached to this notice or search 'DES Internal review and appeals' at business.qld.gov.au. This information is guidance only and you may have other legal rights and obligations.

If you require more information, please contact the department.



Signature

17 January 2024

Date

Tony Williams
Department of Environment, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Email: ESCairns@des.qld.gov.au

Attachments

Appendix 1: Information Requested.

Information sheet: Internal review and appeals (ESR/2015/1742)

Appendix 1: Information Requested

Item	Statement/Topic	Issues	Information Required
1.	<p><u>Groundwater.</u> Understanding potential impacts to groundwater from the proposed increased volume of tailings storage in the Tailings Storage Facility (TSF) and the relationship to seepage pathways with the tailings evaporation dam and the production evaporation dam (TED/PED).</p>	<p>It is understood that seepage is already occurring from the TED/PED. Information provided in “Australasian Groundwater and Environmental Consultants Pty Ltd (AGE). (2022a). <i>Ernest Henry Mine – 25th Year Performance Review Report & Model Update</i>. Produced for EHM Pty Ltd.” (sections 2, 3.3.1 and 5.2.2) allows for seepage of at least some of this water to the Gilbert River Formation. However, there is little discussion in the application of the processes that lead to this seepage and of any links to the TSF. In addition, the processes and implications of additional water draining and being pumped to the TED/PED are not discussed.</p>	<p>Please provide a discussion of the processes that lead to this seepage and of any links between the TED/PED and the TSF. The discussion of these processes (which may be in an earlier report) needs to be clearly provided in the application with justification of how the proposed increase in tailings volume limit will not impact on these existing seepage processes.</p> <p>Please provide an update on the ongoing groundwater investigation including clarity regarding the distance to which seepage currently extends and may extend (if amendment is approved) from the TED/PED and discuss any potential impacts to Groundwater Dependent Ecosystems.</p> <p>Please provide an updated numerical groundwater model that represents all geologic units identified on site to provide a more accurate understanding of the potential future impacts, with and without the proposed amendment.</p>
2.	<p><u>Groundwater.</u> Page 53 of Appendix C states: “no future impact is predicted as a result of the 4.6% increase in the TSF volume capacity due to the absence of pathways towards the environmental values (EVs), the low rate of observed leakage, and the fact that the height of tailings will not exceed that already authorised in the TSF; this is concluded on the basis that the TSF is a free draining media (as</p>	<p>The groundwater model is described in “Australasian Groundwater and Environmental Consultants Pty Ltd (AGE). (2022a). <i>Ernest Henry Mine – 25th Year Performance Review Report & Model Update</i>. Produced for EHM Pty Ltd.”</p> <p>A review of this document shows that there is limited information about the numerical groundwater model in AGE 2022a. There is no layer to represent the shallow Cainozoic sediments (Tertiary) where</p>	<p>Please provide detailed information regarding the layers in the model and what they represent. This understanding is essential to determine if the model is suitable to inform predictions of the potential impacts of the proposed EA amendment on groundwater.</p>

	<p>evidenced by declining pore pressure monitored in TSF VWP sensors) and that it will be operationally maintained in accordance with its design intent.”</p>	<p>existing contamination has potentially occurred as referenced in section 3.3.1 (page 9) which states: <i>“The current numerical groundwater model for EHM, which was constructed in 2010 to support a previous BPRR, does not incorporate the Cainozoic sediments (because they were historically unsaturated).”</i> It also appears, based on discussion in AGE 2022a, that there is no separate layer for the Wallumbilla Formation in the model and is aggregated, to some extent, with the Gilbert River Formation.</p> <p>In addition, there appears to be no information on the layers in the model and what they represent.</p>	
<p>3.</p>	<p><u>Groundwater.</u> Predicting drawdown associated with a mine depth of 1150 m AHD.</p> <p>Appendix C, section 3.1, Predicted drawdown (page 8) and section 6.2 (page 34) drawdown, including table 6.1 (page 35)</p>	<p>No explanation has been provided as to why an updated numerical groundwater model was not used to predict drawdown as a result of mining to 1150 m AHD. Section 6.2 states <i>“These estimates are not derived from an updated flow model and are not highly certain.”</i></p> <p>Further, in AGE 2022a, the model has been used to predict drawdown at the end of mining (2026) with a proposed mining depth of 1200 m AHD rather than the proposed 1150 m AHD.</p> <p>Section 3.1 should explain the process (not directly using the numerical groundwater model) of extrapolating drawdown and making allowances for the impacts of the additional mining depth to 1150 m AHD. However, without some example graphs showing the process this section is difficult to follow and the conclusions are unclear.</p>	<p>Please update and use the numerical groundwater model to predict drawdown as a result of mining to 1150 m AHD. Provide a discussion of the findings.</p> <p>Please provide graphs with worked examples to explain the process of extrapolating drawdown and making allowances for the impacts of the additional mining depth to 1150 m AHD and provide a revised assessment of the additional predicted drawdown.</p>

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		Section 6.2, and associated table 6.1 are intended to provide the assessment of the additional predicted drawdown, as a result of mining to 1150 m, using the process discussed in section 3.1. However as stated above without clear conclusions in section 3.1 further clarity is required to understand what work has been undertaken.	
4.	<u>Groundwater.</u> Section 5.1 (page 29) of Appendix C states: “ <i>Additional storage of tailings in the TSF should not result in additional seepage from the TSF (consistent with current observations) due to the self-draining design of the TSF and the height of embankments remaining unchanged</i> ”.	No information is provided regarding these current assertions.	Please provide the information (observations) that support that additional storage of tailings in the TSF is will not result in additional seepage and elaborate the reasoning.
5.	<u>Groundwater.</u> Modelling to demonstrate the void will be a sink long term. Appendix C section 6.3 (page 37) states: “ <i>There are five historical modelled scenarios that have assessed the behaviour of the EHO pit as a sink for groundwater post mining (AGE, Dobos, & WS, 2005; HCID, 2009; AGE, 2010). Only one of the five scenarios predicted that the pit will not behave as a sink for groundwater; this scenario used a low annual evaporation rate (300 mm/yr; HCID, 2009). The low evaporation scenario was used to simulate a post-mining setting where evaporative loss from the pit was actively minimised for management purposes. The second scenario by HCID (2009) of high evaporative loss (3,333 mm/yr; HCID, 2009), considered a more realistic representation given</i>	Current information on the predicted relationship between the long-term residual void water level and adjacent groundwater level, based on the implications of the proposed amendment has not been addressed.	Please provide conclusive, current information, on the predicted relationship between the long-term residual void water level and adjacent groundwater level. To do this, please update and use the numerical groundwater model in conjunction with an updated water balance model. Please consider the new proposed dimensions of the residual void (due to the additional subsidence) and any changes to predicted groundwater inflows.

	<p><i>the hot arid climate at EHO, had comparable results to the other pit lake models (AGE, Dobos, & WS, 2005; AGE, 2010).</i></p> <p><i>Previously modelled pit lake scenarios indicate that evaporation (being the main outflow from the pit) plays an important role in post-mining pit lake recovery and subsequent maintenance of the post-mining pit lake as a sink for groundwater. In Section 5.1.1, it was stated that the potential lake surface area available for evaporative loss from the final void pit lake would be increased due to the expected subsidence by approximately 11%. Therefore, the equilibrium final void pit lake level could be expected to be lower, as a result of increased evaporation, promoting the pit to act as a sink to groundwater after mining.”</i></p>		
<p>6.</p>	<p><u>Groundwater.</u> It is noted that the zone of influence for the pit drawdown has been verified by the actual observed data. However, modelling needs to be undertaken to determine the fate of the pollutants in the long term taking into consideration extreme weather events, e.g., 1:100 and 1:1000 rainfall events and the associated rise in the water level in the pit that could potentially make the pit act as a source rather than a sink.</p>	<p>By the documents submitted with the amendment application, it is not clear that this modelling has been carried out.</p>	<p>Please undertake modelling to determine the fate of the pollutants in the long term taking into consideration extreme weather events, e.g., 1:100 and 1:1000 rainfall events and the associated rise in the water level in the pit that could potentially make the pit act as a source rather than a sink. Please use the new proposed dimensions of the residual void and any changes to predicted groundwater inflows.</p>
<p>7.</p>	<p><u>Groundwater.</u> One of the weaknesses of the current groundwater monitoring at EHM is that the Cainozoic (Tertiary) monitoring bores</p>	<p>There is no discussion of how monitoring of the movement of water in the Cainozoic (Tertiary) unit will be undertaken as water moves away, or has</p>	<p>Please provide information regarding the monitoring of water movement in the Cainozoic (Tertiary) unit. This is essential to understand how water moves away, or has moved away from the TED/PED complex potentially</p>

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	appear to be only located immediately adjacent the TSF, PED or TED.	moved away, from these dams potentially towards gullies/ watercourses.	towards gullies and watercourses and assess current and potential impacts to groundwater systems.
8.	<u>Subsidence</u> . The increase in mining depth from the currently authorised RL 1200 m to the proposed RL 1150 m is modelled to result in an increase in subsidence at the surface from 245m (RL1200m) to 370m (RL1150m) from the current pit wall, representing an additional 125m of subsidence associated with this project, equating to an additional subsidence area of approximately 113 hectares (ha).	It is unclear how this additional 113ha will be distributed laterally between the pit and the exclusion zone, or vertically. Section 5.6.7 of the supporting document discusses that the rehabilitation objectives for the pit will not change as a result of this application. However, no information has been provided to demonstrate that the stability of the pit has been considered as a result of the subsidence zone causing a change in the final landform.	Please provide detailed information regarding the proportional areas that will become part of the residual void footprint and the exclusion zone. In addition, please provide an assessment taking into consideration the altered final landform of how the pit will achieve the rehabilitation outcomes under condition F1-1 of the EA of safe, non-polluting, stable and self-sustaining. Please characterise the vertical profile of the subsided material to assess submergence in the pit lake.
9.	<u>Subsidence</u> . The cave zone will eventually consume more than 7 million cubic metres of the southern waste rock dump (SWRD). This represents 6.3 % of the 112 million cubic metres of the dump that exists at present. The waste dump material would rill into the subsidence crater and open pit.	Section 5.6.7 of the supporting document discusses the rehabilitation objectives for SWRD. It is unclear how the SWRD edge will be rehabilitated and stabilised (outside of the exclusion zone).	Please provide detailed information regarding the methods that will be used to stabilise and rehabilitate the edge of the SWRD (outside of the exclusion zone).
10.	<u>Tailings</u> . An additional 6,000,000 m ³ of tailings will be produced during the life of this project.	Section 2.7 of the supporting document states “The existing TSF will have capacity following the next proposed lift to accommodate ongoing production associated with development to RL 1150m.” The department is aware that the proposed lift is already authorised under the existing conditions of the EA. However, it is unclear if this additional load was considered within the design capacity of the lifted TSF or within the current consequence category assessment.	Please provide information to demonstrate the additional load is within the TSF design capacity. Consideration must be given to whether a new consequence category assessment should be carried out.