

Notice

Environmental Protection Act 1994

Environmental Evaluation

Notice to conduct or commission an environmental evaluation

This notice to conduct or commission an environmental evaluation is issued by the administering authority pursuant to section 326B of the Environmental Protection Act 1994 and amended pursuant to section 24AA of the Acts Interpretation Act 1954. Amendments to the original notice dated 23 May 2019 are underlined for identification purposes.

Mount Margaret Mining Pty Ltd
Level 44, 1 Macquarie Place
SYDNEY NSW 2000

Your reference: E-100150963 (Amended STAT1335); C-CPLRC-100000787

Our reference: EPML00851313

Wednesday, 3 November 2021

Take notice: that under the *Environmental Protection Act 1994* (the Act) a notice to conduct or commission an environmental investigation is issued to Mount Margaret Mining Pty Ltd (you) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Science (the department).

The notice to conduct or commission an environmental investigation is issued in respect of the activities of Mount Margaret Mining Pty Ltd on land described as the Mount Margaret Mine located at ML7122, ML90157, ML90198, ML90199, ML90228 and ML90229 (the premises).

A. Grounds

The notice to conduct or commission an environmental investigation is issued on the following grounds:

- The department is satisfied on reasonable grounds that an activity being undertaken at the premises is causing, or is likely to cause environmental harm.

The facts and circumstances forming the basis for these grounds are:

1. The Mount Margaret Mine is located approximately 35km northwest of Cloncurry in north-west Queensland, and is a large-scale open cut mine that has been in care and maintenance since 2014.
2. Mount Margaret Mining Pty Ltd (MMM) hold an environmental authority EPML00851313 (the EA) which authorises multiple environmentally relevant activities (ERAs) at the Mount Margaret Mine, located at ML7122, ML90157, ML90198, ML90199, ML90228, ML90229.
3. The ERAs authorised by the EA include:
 - a. The following Schedule 2A ERA's as prescribed under the Environmental Protection Regulation 2008 (EP Reg): 17-Mining copper ore; 16-Mining gold ore; 14-Mining iron ore and 19-Mining other.
 - b. The following Schedule 2 ERA's as prescribed under the EP Reg: 15-Fuel burning > 500kg/hr; 56-Regulated waste storage; 60-(1d) Waste disposal > 200,000t/yr; 63-(1b)(ii) Sewage treatment > 100

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to 1500 EP; 7-(3d) Chemical manufacturing > 200t/yr explosives; and 8-(1) Chemical storage >50t class 1 or 2.

4. The Mount Margaret Mine project consists of two different mining areas, E1 and Monakoff:
 - a. The Monakoff site was purchased by MMM from Exco Resources in 2011 as an undulating site which consists of a single pit (the Monakoff Pit), a Waste Rock Dump, a Water Dam and a ROM Pad. MMM commenced production at the Monakoff site in February 2013, and placed the site into care and maintenance in March 2014.
 - b. The E1 site was developed in August 2012 by MMM as a greenfield site with no prior disturbance. The E1 site consists of three partially developed open-cut pits (E1 South, E1 North and E1 East), two Waste Rock Dumps, Infrastructure Areas, Water Dams and Diversions.
5. Conditions W31 to W35 of the EA relate to groundwater monitoring at the Mount Margaret Mine.
6. Since April 2014, the department has received ongoing notifications from MMM relating to various water quality exceedances of groundwater limits specified in the EA at the Mount Margaret Mine.
7. Initial investigations into the exceedances conducted by MMM identified that exceedances were expected to continue if the groundwater monitoring program was not improved. Based on these investigations the department recommended that MMM submit an EA amendment application.
8. In September 2015, MMM lodged a formal EA amendment application with the department.
9. The EA application proposed a number of changes to the groundwater monitoring methodology and bore monitoring network in Schedule W of the EA. However, as the department considered that there was insufficient data to support the EA amendment, MMM later withdrew the application.
10. MMM continued to submit quarterly notifications to the department. In these notifications, MMM stated that they were continuing to collect groundwater monitoring data in order to support an EA amendment.
11. In July 2018, MMM submitted a second, informal EA amendment application with the department.
12. Review of this submission identified that further work was required before the department would consider approving an amendment to the groundwater conditions of the EA. Specifically, the department advised MMM that:
 - a. The potential movement of contaminants off site is a concern, which is not sufficiently dealt with in the work completed to date. It appears there are some unknowns in relation to the extent and the cause of potential contamination across both the Monakoff and E1 locations;
 - b. The department has reservations regarding the supporting information proposing that the groundwater quality of the bores at E1 (particularly the bores showing non-compliances) is representative of un-impacted background levels and additional context is needed; and
 - c. The current network of monitoring bores are generally located within the area of impact of mining activities and are therefore not supported for compliance purposes as they are potentially impacted, to varying degrees.
13. Review of the most recent notifications regarding groundwater at the Mount Margaret Mine, received by the department on 21 September 2018, 18 December 2018 and 4 April 2019 (the Notifications) identified:
 - a. Contaminant limit exceedances for pH, Electrical Conductivity (EC), Sulfate, Aluminium, Arsenic, Cadmium, Cobalt, Molybdenum, Uranium, Zinc and Fluoride at compliance monitoring bores EMKW001, EMEW002, EMKW002, EMEW001 and EMEW003 at the Monakoff site; and

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- b. Monitoring results were above the contaminant limit in the EA for a number of groundwater monitoring bores that are not specified in the EA but may be considered applicable in terms of monitoring of potential groundwater impacts from the activity. Specifically, for parameters including pH, EC, Aluminium, Arsenic, Manganese, Molybdenum, Cobalt, Copper, Fluoride, Suspended Solids and Uranium at groundwater monitoring locations MB03, MB06, MB04, MB05, MB08, MB07, PB02, PB04 and PB03 at the E1 site.
14. Review of groundwater monitoring data provided by MMM for the period January 2015 to September 2018 (the Data) by Dr Michael Newham (Water Sciences) of the department identified a number of groundwater monitoring bores across the Mount Margaret Mine site (both E1 and Monakoff) may be impacted by contamination.
 - a. At Monakoff, the review by Water Sciences identified that two monitoring bores, EMKW001 and EMKW002 are likely impacted by mining activities and that the Monakoff Pit is a 'flow through feature' and potential source to groundwater. Specifically, the review found that:
 - i. At EMKW001, the ionic composition of groundwater is very similar to the composition of water from the Monakoff Pit. It is considered likely that the natural groundwater has been influenced bywater originating from the Monakoff Pit.
 - ii. In this bore, concentrations of EC, Fluoride and Sulfate are consistently elevated above the contaminant limit in the EA; and concentrations of various metals including Arsenic, Cadmium, Cobalt, Lead, Uranium and Zinc between 2015 and 2018 were consistently elevated above the trigger levels in the EA:
 - Arsenic ranged from 37 to 86 µg/L; EA trigger level is 13 µg/L.
 - Cadmium ranged from 0.7 to 6.6 µg/L; EA trigger level is 0.2 µg/L.
 - Cobalt ranged from 41 to 62 µg/L; EA trigger level is 1.4 µg/L.
 - Lead ranged from 0.5 to 69 µg/L; EA trigger level is 3.4 µg/L.
 - Uranium ranged from 35 to 64 µg/L; EA trigger level is 0.5 µg/L.
 - Zinc ranged from 1020 to 1960 µg/L; EA trigger level is 8 µg/L.
 - iii. At EMKW002, increasing trends of EC, sulfate and uranium were identified and piper plots showed that the composition of major ions is changing over time and becoming more similar to EMKW001 and pit water, primarily through an increasing proportion of sulfate in the water. It is considered likely that EMKW002 is increasingly being impacted by seepage from the Monakoff Mine Pit.
 - b. At E1 the review by Water Sciences identified that the E1 area has potential impacts to groundwater, with bores within and to the east of the mining impacted areas (MB03, MB04, MB05, MB06, PB02 and PB03) showing elevated EC, higher sulfate concentrations and elevated concentrations of some metals. Specifically, the review found that:
 - i. At MB03 the maximum values in 2017 were elevated above the EA trigger levels for Arsenic (97 µg/L), Cadmium (0.7 µg/L), Cobalt (45 µg/L), Copper (160 µg/L), Lead (4 µg/L), Nickel (33 µg/L), and Zinc (28 µg/L), and above the EA contaminant limit for Selenium (30 µg/L).

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- ii. At MB07, a bore located between the PAF waste rock dump, the E1 North pit and the E1 East pit, the values over the period were also elevated above the EA trigger level for Arsenic (ranged from 42 to 118 µg/L) and above the EA contaminant limits for EC (ranged from 6,440 to 7,190 µS/cm) and Sulfate (maximum of 1340 mg/L).
- 15. In the most recent investigation submitted to the department on 6 September 2018 and conducted by Australasian Groundwater and Environmental Consultants Pty Ltd (AGEC) on behalf of MMM into the ongoing exceedances at Monakoff, *'Mount Margaret Mine Groundwater Exceedance Investigation 2017'* (the Report), it was identified that:
 - a. Groundwater flow in the Proterozoic rock aquifer at Monakoff is highly variable and uncertain.
 - b. Groundwater flow and contaminant transport at Monakoff is within highly fractured and heterogeneous Proterozoic rock aquifers; and these aquifers have highly variable groundwater flow rates, with hydraulic conductivity ranging from 0.81m/day to 0.00000346m/day.
 - c. Groundwater monitoring bores at Monakoff West (EMKW001 and EMKW002), are located near a number of potential contaminant sources including the Monakoff Pit, Waste Rock Dump, Evaporation Dam and ROM Pad.
 - d. Elevated levels of contaminants at Monakoff West bores (EMKW001 and EMKW002) are likely to be representative of contamination of groundwater from mining activities. The Report notes that:
 - i. The most plausible explanation for the change in water quality at EMKW001 is, *'transport of solutes (via diffusion and/or advection) from pit water enriched in metal concentrations'*.
 - ii. And, *'there are water quality changes at EMKW001 suggestive of the edge of a contaminant plume related to the Monakoff Pit which is approximately 250m away.'*
 - iii. With regard to water quality in EMKW002, *'it is possible that the increases in EC and sulfate are due to migration of water from the pit'* as it is downgradient of the pit.
 - e. Initially, the Monakoff pit void had been conceptualised as an evaporative sink, surrounded by a cone of depression. However, due to the cessation of mining activities and the transition of MMM into care and maintenance, the planned depth of the Monakoff Pit was not achieved.
 - f. Prior to transitioning into care and maintenance, ore material from the Monakoff ROM was placed back into the Monakoff Pit, and runoff from the potentially acid forming (PAF) Waste Rock Dump was directed to the Monakoff Pit and the Monakoff Site Water Dam.
 - g. At cessation of mining, the Monakoff Pit was excavated to a level of 174.79mAHD, and in May 2017, water had accumulated in the Monakoff Pit to a level of 178.2mAHD. At this time, the water in the Pit was higher than the surrounding groundwater contours.
 - h. The influx of water into the Monakoff Pit resulted in the creation of a localised groundwater mound at the Monakoff Pit and the potential for pit water to migrate into the groundwater system.
- 16. Environmental harm as defined by section 14 of the *Environmental Protection Act 1994* (EP Act), is any adverse effect, or potential adverse effect (whether temporary or permanent and whatever magnitude, duration or frequency) on an environmental value.
- 17. An environmental value, defined in section 9 of the EP Act, is:
 - a. a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or

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- b. Another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.
18. Section 6 of the Environmental Protection (Water) Policy 2009 (EPP Water) identifies the environmental values of waters to be enhanced or protected under the EPP Water. As the basin within the subject area of the Mount Margaret Mine is not mentioned within Schedule 1, Column 1 of the EPP Water, the environmental values as stated in section 6(2) of the EPP Water apply where applicable.
19. Based on the information contained in the Report, the relevant groundwater environmental values to be protected is stock watering (i.e. the suitability of the water for agricultural purposes as per the EPP Water).
20. In relation to Monakoff, the department considers that environmental harm is likely to be caused to the environmental values as a result of the ongoing elevated groundwater quality results above the relevant guideline values and the limits prescribed in the EA. Specifically, in relation to the elevated groundwater quality results observed at the Monakoff site it is noted that:
- a. Contaminant limits prescribed in the EA are based on the levels in the *'Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1, 2000'* (ANZECC Guidelines) for the protection of livestock drinking water quality.
 - b. Levels of contaminants measured in the Monakoff West bores, including EMKW001 and EMKW002 consistently exceed the ANZECC Guideline values for the protection of livestock drinking water.
 - c. In the most recent monitoring results provided in the Notifications, the following values were recorded:
 - i. EMKW001: EC value of 3230µs/cm (compared to EA contaminant limit 1000µs/cm), Fluoride value of 3.4mg/L (compared to reference value of 0.4mg/L) and Sulfate value of 2180mg/L (compared to reference value of 50mg/L); and
 - ii. EMKW002: Fluoride value of 3.9mg/L (compared to reference value of 0.4mg/L).
 - d. Whilst monitoring bores at Monakoff are not directly accessed for stock watering purposes, the department understands that the underlying aquifer at Monakoff is utilised for these purposes.
 - e. Groundwater monitoring bores with elevated levels of contaminants at the Monakoff site (EMKW001 and EMKW002) are located in Proterozoic rock aquifers.
 - f. The department is aware that groundwater from the Proterozoic rock aquifers is accessed by land holders for stock watering purposes.
 - g. Review of the Report identified that there are approximately 10 bores constructed within the Proterozoic rock aquifer at the Tablemount Property. The closest of these bores is located approximately 4km from the Monakoff Pit.
 - h. The ANZECC Guidelines provide technically derived values for the protection of various environmental values. Any exceedance of the values prescribed have the potential to negatively impact on the health of that particular value.
 - i. Chapter 4.3.3.4 of the ANZECC Guidelines state that, *'Levels of sulfate greater than 2000 mg/L may cause chronic or acute health problems in stock'* and,
 - ii. Chapter 4.3.4 of the ANZECC Guidelines state a number of parameters with concentrations below which there is a minimal risk of toxic effects. For Fluoride, this level is below 2mg/L.

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- i. Levels observed at Monakoff West bores exceed the values prescribed in the ANZECC Guidelines, and therefore have the potential to cause environmental harm. The department considers that should elevated levels of contaminants present in these bores migrate to nearby sensitive receptors (a cattle watering bore), environmental harm is likely to be caused.
21. The department also considers that environmental harm is likely to be caused to the environmental values of the area as a result of an inappropriate groundwater monitoring network at E1 and Monakoff, which may result in groundwater impacts going undetected.
22. On review of both the Report and the Data, the department considers that the groundwater monitoring network in the EA at Monakoff and E1 at the Mount Margaret Mine is not suitable or adequate to detect potential impacts to groundwater from mining activities for the following reasons:
 - a. A number of groundwater monitoring bores required to be monitored as per Schedule W – Table 9 of the EA are not monitored by MMM. Specifically, bores EMMW001, EMMW002, EMMW003, EMMW004, EMMW005, RD1A/1B, RD2A/2B, RDA3A/3B, RD4A/4B, RD5A/5B, RD6A/6B, TD1A/1B, TD2A/2B, TD3A/3B, TD4A/4B, TD5A/5B, TD6A/6B, WD1A/1B, WD2A/2B, WD3A/3B and reference bore EMMW006A/006B are not monitored by MMM.
 - b. In a letter dated 11 December 2017, MMM stated that a number of these bores are no longer in existence and had been replaced with alternative monitoring bores. However, it is noted that the alternative bores have not been assessed by the department and are not approved in the EA.
 - c. The only reference bore in the EA that is currently being monitored at Monakoff, EMKW003 is also described as a compliance bore in the EA (with the same co-ordinates). MMM has previously identified that EMKW003 is not suitable as a reference bore and should be reclassified as a compliance bore to monitor potential impacts in this area.
 - d. The groundwater model in the Report shows that groundwater moves north across the Monakoff site, however currently there are no bores located north (down gradient) of the site water dam to monitor this potential source of contamination to groundwater.
 - e. The southern end of the E1 site near the E1 South Pit and the E1 Dewatering Evaporation Pond currently does not have any groundwater monitoring bores. However, the department considers that the E1 South Pit and the Evaporation Pond are potential sources of contaminants to groundwater.
 - f. Groundwater monitoring bores MB01 and MB02 have both been decommissioned by MMM, and replaced with MB01B and MB02B, however due to low recharge and water levels these bores were deemed by MMM as inappropriate for compliance purposes.
23. In considering the information provided in the Report, the Data and the Notifications, the department considers that environmental harm is likely to be caused to groundwater as a result of the activities being conducted at the Mount Margaret Mine.
24. On 23 May 2019, the department issued a Notice to conduct or commission an environmental evaluation (reference STAT1335) (the Notice) to MMM.
25. On 20 July 2021, MMM requested an extension to the due date for submission of the final report on the environmental investigation, as outlined under requirement 15 of the Notice, from 24 May 2022 to 24 May 2023 (the extension request)
26. The department has assessed the extension request and supporting information submitted by MMM, and approved the requested.

B. Requirements

The report on the environmental investigation must address the following relevant matters:

1. Identify the underground **hydrogeological system(s)** at the **Mount Margaret Mine** incorporating all available data from groundwater monitoring bores, and describe:
 - a) the characteristics of each **hydrogeological feature** within the **hydrogeological system**, including, but not limited to; soil and rock types, porosity, permeability, hydraulic conductivity, transmissivity, stratigraphy and fault and fracture propensity; and
 - b) any geological barriers which are overlaying or underlying each **hydrogeological feature**; and
 - c) the waters contained in each **hydrogeological feature**, including its ionic composition; and
 - d) the movement of **groundwater** in each **hydrogeological feature** (direction and flow rate, at a minimum); and
 - e) the interaction of **groundwater** contained in each **hydrogeological feature** with any other underground **hydrogeological feature**; and
 - f) the interaction of any contaminated waters at the **Mount Margaret Mine**, with the water in each identified **hydrogeological feature**. Include a comparison of the ionic compositions of the contaminated waters with the waters of each **hydrogeological feature**; and
 - g) the locations where water contained within each **hydrogeological feature** does or may potentially interact with surface water and/or express to the surface; and
 - h) the spatial locations of environmental values within or dependant on each **hydrogeological feature**.
2. Develop a conceptual hydrogeological model integrating items (a)–(h) from Requirement 1. The conceptual hydrogeological model must be diagrammatically presented and define:
 - a) the assumptions relied upon; and
 - b) the uncertainties and exclusions.
3. Identify all sources, types and concentrations of **contaminants** that have the potential to be released or have been released from the **Mount Margaret Mine**, which are likely to be currently impacting or have the potential to impact on **groundwater**. This investigation must include, but not be limited to:
 - a) all dams, storages and ponds containing water affected, or potentially affected by activities at the **Mount Margaret Mine**; and
 - b) storages of waste materials at the **Mount Margaret Mine** that have the potential to generate seepage.
4. Develop a **conceptual hydrogeological model** and identify all actual and potential pathways and mechanisms for the release and transport of **contaminants** to **groundwater**, due to activities conducted at the **Mount Margaret Mine**.
5. Develop a **numerical hydrogeological model** that predicts the hydrogeographical extents of **contaminants** that have the potential to be released to **groundwater** due to the activities conducted at the **Mount Margaret Mine**. The **numerical hydrogeological model** must be developed with reference to the findings obtained from requirement 4 and, as appropriate to the nature and scale of risk:
 - a) Predict the rate and direction of movement of **contaminants** in **groundwater**; and
 - b) Use appropriate contaminants, and simulate the transport of these contaminants; and

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- c) Predict likely patterns of contaminant migration and impact.
- 6. Determine additional monitoring bores required to adequately detect and quantify the magnitude and hydrogeographical extent of any releases or potential releases of **contaminants** to **groundwater** due to activities conducted at the **Mount Margaret Mine**. In designing the monitoring bore network, consideration should also be given to any reference sites, potentially impacted sites, downgradient bores and any potential future planned impact areas.
- 7. Install additional monitoring bores at the locations identified from Requirement 6.
- 8. Review and assess the current groundwater quality from all monitoring bores at the **Mount Margaret Mine**, including:
 - a) Descriptive statistics tabulated for each groundwater monitoring bore at the **Mount Margaret Mine** including; date range, count, mean, minimum, median and 80th and 95th percentiles (and 20th percentile for pH); and
 - b) Temporal and spatial trends in **groundwater contaminants** including time series plots for all groundwater monitoring bores at the **Mount Margaret Mine** for all contaminants; and
 - c) Data distribution and spatial variability in **groundwater contaminants** including box and whisker plots from all available data from each groundwater monitoring bore at the **Mount Margaret Mine** showing the minimum, the median, 80th and 95th percentiles (and 20th percentile for pH) and maximum; and
 - d) Identification of any potential contamination events and/or trends and an assessment of whether these are to be included or excluded from the determination of percentiles.

Note: the method for assessing groundwater quality must be consistent with the guideline: *Using monitoring data to assess groundwater quality and potential environmental impacts. Version 1. Department of Science, Information Technology and Innovation (DSITI) 2017, Queensland Government, Brisbane* or a later version.

- 9. Assess impacts and potential impacts on **groundwater** and all **environmental values** by comparing the data from the assessment carried out as a result of Requirement 8 above against the relevant default guideline values contained in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC) for all **environmental values** relevant to the **Mount Margaret Mine**.

Note: the method for assessing impacts and potential impacts on groundwater quality must be consistent with the guideline: *Using monitoring data to assess groundwater quality and potential environmental impacts. Version 1. Department of Science, Information Technology and Innovation (DSITI) 2017, Queensland Government, Brisbane* or a later version.

- 10. Identify **key indicators** for all **contaminated water** that is being or has been released from the **Mount Margaret Mine** which are detectable in **groundwater**. Different **key indicators** may be nominated for different sources.
- 11. Identify all potential options, evaluate the likely effectiveness, estimate corresponding implementation timeframes, and estimated costs for:
 - a) The prevention of further **contaminant** releases from the **Mount Margaret Mine** to **groundwater**; and
 - b) Remedial measures to reduce **contaminant** concentrations in **groundwater** and ensure all **environmental values** are protected.

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12. By **30 August 2019** provide a detailed design document for the investigation including an implementation schedule. The implementation schedule must include regular notification to the department of progress against the requirements and schedule.
13. From **24 May 2019** provide progress updates on the progress of the investigation with reference to the implementation schedule at a frequency of once every six months.
14. Prepare a final report to address all matters of this environmental investigation. The final report on the environmental investigation must include:
 - a) The methodology applied in conducting this investigation, including any assumptions relied upon and their justification; and
 - b) The conceptual groundwater model and a description of the model including a visual representation; and
 - c) The transient solute transport model, a description of the solute transport model, including sources of uncertainty, calibration and sensitivity analysis as well as a visual representation; and
 - d) The results of any studies, assessments or analyses that were carried out to meet the requirements of this investigation
 - e) The outcomes and findings of the investigation, including justification for any conclusions; and
 - f) The electronic raw data used for all data analysis, modelling, and graphical summaries with a clear indication of where the data was used.
15. The final report on the environmental investigation must be submitted to the department on or before **24 May 2023**.
16. All requirements of the environmental investigation must be completed by, or in accordance with advice from, a **suitably qualified person**.

Definitions

EA means the most recently approved environmental authority EPML00851313 issued to Mount Margaret Mining Pty Ltd.

Environmental value(s) in the context of water means environmental values defined in the Environmental Protection (Water) Policy 2009 and are applied to surface water and groundwater, being:

- for slightly disturbed waters—the biological integrity of an aquatic ecosystem that has effectively unmodified biological indicators, but slightly modified physical, chemical or other indicators;
- for moderately disturbed waters—the biological integrity of an aquatic ecosystem that is adversely affected by human activity to a relatively small but measurable degree;
- for waters that may be used for producing aquatic foods for human consumption—the suitability of the water for producing the foods for human consumption;
- for waters that may be used for agricultural purposes—the suitability of the water for agricultural purposes;
- for waters that may be used for recreation or aesthetic purposes, the suitability of the water for—
 - primary recreational use; or
 - secondary recreational use; or

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- for waters that may be used for drinking water—the suitability of the water for supply as drinking water;
- for waters that may be used for industrial purposes—the suitability of the water for industrial use;
- the cultural and spiritual values of the water.

EPP Water means the *Environmental Protection (Water) Policy 2009*.

conceptual hydrogeological model means a descriptive representation of a groundwater system that incorporates an interpretation of the geological and hydrological conditions.

Contaminant with relevance to this investigation means any liquid or solid that has the potential to cause, either directly or indirectly, harm to the receiving environment.

Groundwater means water in underground rock crevices and in the pores of geologic materials that make up the earth's crust. Groundwater includes sub surface flows or seepage.

Hydrogeological feature(s) means a connected geological unit, sharing hydraulic characteristics and dynamics which is distinct from other geological units and stores water or acts as a transport pathway for water. A hydrological feature can be an aquifer and include transport pathways to and from the aquifer.

Key indicators means parameters, geochemical compositions/signatures or other identifiable characteristics of a body of water which are not present in the receiving environment and which can be used to identify the origin of a body of water, regardless of dilution or mixing with other waters.

Mount Margaret Mine means any mine feature or mining activity on or conducted on Mining Lease (ML) ML7122, ML90157, ML90198, ML90199, ML90228 and ML90229. In the context of groundwater monitoring bores this also includes bores outside of ML7122, ML90157, ML90198, ML90199, ML90228 and ML90229, where they have been placed for the purpose of detecting potential impacts to groundwater as a result of mining activities.

Receiving waters means all waters potentially impacted by the mining activity including groundwater and surface water.

Suitably qualified person means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

Surface water means waters other than groundwater.

numerical hydrogeological model means a model of a groundwater system that is manipulated in order to obtain information on the response of the natural groundwater system, using a computer program based on the numerical approximation of the flow and/or transport equation.

Transport modelling means describing solute transport using numerical models.

The environmental investigation must be carried out, and the environmental report prepared by a suitably qualified person.

The environmental report must be submitted to the department on or before: **24 May 2023**.

As the recipient of this notice, you are also required to provide a statutory declaration in the form attached, to accompany the environmental report submitted to the department.

Notice

The suitably qualified person who prepares the environmental report must also provide a statutory declaration in the form attached to the environmental report submitted to the department.

Copies of the template statutory declarations can also be accessed from the Queensland Government website at www.qld.gov.au, using the publication number as a search term:

1. Statutory declaration environmental evaluation for recipient ([ESR/2016/1997](#))
2. Statutory declaration for suitably qualified person ([ESR/2016/2266](#))
3. Statutory declaration environmental evaluation for auditor ([ESR/2016/2265](#))

Take notice:

1. The requirements of the notice to conduct or commission an environmental investigation take effect immediately upon service of this notice;
2. This notice remains in force until further notice from the department; and
3. You are responsible for meeting the costs of conducting or commissioning the environmental evaluation, preparing the environmental report and providing any further information as requested by the department.

C. Reviews and appeals

The provisions regarding reviews of decisions and appeals are found in sections 519 to 539 of the Act.

A person who is dissatisfied with certain decisions of the department, may be able to apply to have the department review that original decision.

Generally, a request to have a decision reviewed must:

- be made within 10 business days of the decision being notified to the person;
- be supported by enough information to enable the department to decide the application for review; and
- be made using the application form, Application for review of original decision ([ESR/2015/1573](#)) available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2015/1573) as a search term.

Where an application has been made for a decision to be reviewed, the applicant may also apply to the relevant court for a stay of the decision to secure the effectiveness of the review.

Once the original decision has been reviewed, a person who is dissatisfied with the review decision may be able to appeal against that decision to the relevant court within 22 business days after receiving notice of the review decision.

A person whose interests are or would be adversely affected by a decision of the department may also be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

For further information about reviews and appeals see the information sheet, Internal review and appeals ([ESR/2015/1742](#)) available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2015/1742) as a search term.

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The information sheets are available on the Queensland Government website at www.qld.gov.au, using the publication number as a search term.

You may have other legal rights or obligations and should seek your own legal advice.

D. Penalty

Failure to comply with a notice to conduct or commission an environmental evaluation is an offence.

1. The maximum penalty for an individual is 300 penalty units, totalling \$ 39,165.00
2. The maximum penalty for a corporation is 1500 penalty units, totalling \$ 195,825.00

Should you have any queries in relation to this notice, please contact Angela Sinopoli, Senior Environmental Officer of the department on telephone number (07) 4722 5357 or email angela.sinopoli@des.qld.gov.au.



Signature

5/11/21

Date

Gus Gonzo

Manager Minerals, Compliance

Delegate of the Chief Executive

Department of Environment and Science

Environmental Protection Act 1994

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