

Notice

Environmental Protection Act 1994

Environmental Protection Order

This environmental protection order is issued by the administering authority pursuant to section 358 of the Environmental Protection Act 1994.

Uranium Mineral Ventures Incorporated
60 Havelock Street
West Perth WA 6005

Your reference: EPML00418313

Our reference: CA32391, STAT1024

28 October 2016

Dear Sir,

Take notice: that under the *Environmental Protection Act 1994* (the Act) this environmental protection order (EPO) is issued to Uranium Mineral Ventures Incorporated (UMVI) (you) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Heritage Protection (the department).

The EPO is issued in respect to the activities of UMVI at Mining Leases 1399 and 1419 on land described as Lot 110 on USL42207 (the project site).

A. Grounds

This EPO is issued on the following grounds:

1. To secure compliance with the general environmental duty, which pursuant to section 319 of the Act, requires that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm;
2. To prevent contravention of s440ZG of the Act to preclude the unlawful deposition of a prescribed water contaminant into waters;
3. To secure compliance with Condition (C1-1) of Environmental Authority EPML00418313; and
4. To secure compliance with Condition (C2-1) of Environmental Authority EPML00418313.

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

1. You are the holder of Environmental Authority EPML00418313 (the EA) for the project site.
2. You submitted an Environmental Evaluation Report titled 'Environmental Evaluation' dated September 2013, which included detailed and summarised surface water, groundwater and sediment/soil monitoring data results and analysis for the project site. This report also included mapping and



tabulated data identifying non-compliances with the EA limits and potential source areas of contamination.

3. You submitted additional information for the Ben Lomond Uranium Molybdenum Project Environmental Evaluation Report; dated 31 March 2014, which included additional detailed and summarised surface water, groundwater and sediment/soil monitoring data results and analysis for the project site. This report also included mapping and tabulated data identifying non-compliances with EA limits and potential source areas of contamination picked up in airborne radiometric mapping.

The analysis and data presented included summary of exceedance of surface water and groundwater contaminant limits at the EA monitoring sites.

4. You submitted a Groundwater and Surface Water Trend Analysis; dated June 2014, which included detailed and summarised surface water, groundwater and sediment/soil monitoring data results and analysis for the project site. The analysis also included mapping and tabulated data, identifying elevated levels of contaminants at test sites compared to reference sites and identified mining activities are sources of contaminant contributions to Bog Hole Creek.
5. Officers of the administering authority conducted compliance inspections of the project site on 23 and 30 July 2014 and identified the presence of contaminant sources (mining affected areas) upstream of the monitoring locations which are experiencing non-compliance. This included actively eroding mineralised waste rock benches adjacent to the adit apron and eroding sections of the haul road near the adit. Officers observed evidence of livestock presence and inadequate fencing for stock exclusion on the valley floor. Officers also observed that these areas had no controls in place to prevent or minimise surface erosion and potential discharge of contaminants to waters.
6. You submitted a report titled: Survey of Areas and Volumes Ben Lomond Deposit dated November 2014 in December 2014 in response to the administering authority letter dated 19 August 2014. This report was prepared by Resource & Exploration Mapping Pty Ltd (REM) and provides quantitative areas and volumes of:
 - a) Waste rock extracted from the adit that was used by Minatome to construct 3 portal rock benches and has also been used as fill for the access haul road.
 - b) Estimate of how much of this fill material had been washed away since construction.

This survey identified that since the time of construction 131 m³ and 222 m³ of material has been eroded from the haul road and portal waste rock benches respectively.

7. You submitted a report titled: ETS Geotechnical – Adit Apron Assessment – Ben Lomond Mine, Dotswood April 2015 – Revision 1 in May 2015. This was submitted by you in June 2015 in response to the administering authority letter dated 19 August 2014. This report was prepared by Engineering Testing Services Pty Ltd (ETS Geotechnical), and reports on the assessment of the risk of further discharge of material from the portal waste rock benches to the watercourse.

This assessment identifies that during periods of intense rainfall, it is likely that fine grained material is washed from the batter slopes of the portal waste rock benches into the stream channel.

8. You submitted a report titled: XRF Characterisation Report – Ben Lomond Uranium/Molybdenum Project – May 2015. This report was submitted by you in June 2015 in response to EHP letter dated 19 August 2014. This report was prepared by you and reports on portable X-Ray Fluorescence analyser (pXRF) assessment results of the adit apron, portal waste rock benches, haul road and other radiometric anomaly areas identified in the EHP letter to you dated 19 August 2014.

This pXRF assessment identified elevated uranium and other contaminants in surface soils at the portal waste rock benches, the haul road on the mountain side and at areas near the core shed and concentrate storage shed on the valley floor. The report identifies that these areas are associated with previous mining activities.

9. The administering authority has commissioned a review of the elevated uranium levels in soils at the project site to determine the potential risk of uranium to livestock. This review indicated that there are concentrations of uranium in soils at the project site which may be harmful to livestock via ingestion of soil and plant matter during grazing.
10. Since completing the Environmental Evaluation report you have submitted notifications of surface water and groundwater non-compliance to the department for sampling conducted on 22 April 2014, 18 June 2014, 3 September 2014, 17 October 2014, 29 December 2014, 27 February 2015, 29 June 2015, 12 August 2015, 15 October 2015, 18 December 2015, 29 February 2016 and 29 April 2016. These sample results show ongoing non-compliance with the limits of the EA.
11. Officers of the administering authority conducted a compliance inspection of the project site on 30 March 2016 and took sediment and soil grab samples at the areas associated with previous mining activities identified by pXRF assessment. A Synthetic Precipitation Leaching Procedure (SPLP) was conducted on the samples taken and analysis of the leachate produced indicates that uranium levels in the leachate in test conditions are above the surface and groundwater limits of the EA.
12. The findings of the reports and analyses described above identify that compliance limits at groundwater and surface water monitoring sites are being exceeded by groundwater and surface water flows from the project site. While the findings identify natural sources of contaminants, the findings also identify that there are sources of contaminants associated with previous mining activities that have the potential to contribute contaminants to these monitoring sites resulting in the non-compliances. Details of these contaminant source areas, hereafter referred to as **treatment areas**, include:
 - a. **Treatment Area 1** – The adit apron – The disused adit apron is located adjacent to the portal and was constructed to provide a level surface to locate machinery and materials moving into or out of the adit. The Environmental Evaluation Report identified that there is uranium in soils in the area of the adit apron. The XRF Characterisation Report identified the adit apron as part of the Portal Rock Bench 3 with a maximum recorded surface uranium level of 755.9 ppm, arsenic 2,631 ppm and lead 4,171 ppm. Leachate testing of the adit material indicates that uranium leaches from the material at 0.381 mg/L.
 - b. **Treatment Area 2** – Haul road – The former haul road connects the adit apron to the former processing site on the valley floor. The REM survey report identified that approximately 50% of the haul road was constructed from mine waste and that a significant quantity (approximately 131 m³, 54%) of the haul road has been eroded down the Ben Lomond mountain slope toward Bog Hole Creek. The XRF Characterisation Report identified the first 100m of the haul road, below Bench 3, has a maximum recorded surface uranium level of 126 ppm, arsenic 2,563 ppm and lead 1,875 ppm. Leachate testing of the haul road material indicates that uranium leaches from the material at 0.01 mg/L.
 - c. **Treatment Area 3** – Waste rock benches – Approximately 2,935m³ of portal waste rock is located immediately downslope of the adit apron and is composed of three (3) benches of material that step down the slope. The Environmental Evaluation Report mapping identified that there is uranium in the soil of the portal waste rock benches. The REM survey report identified that approximately 222 m³ of the portal waste rock benches has been eroded down the Ben Lomond mountain slope toward Bog Hole Creek.

The ETS Geotechnical – Adit Apron Assessment report identified that progressive erosion of the batters of the portal waste rock benches has occurred during the 30 year life of the fill slopes. The report considers that the batters are stable, but may be prone to instability during periods of intense rainfall, which is likely to transport the waste rock fill material into the downstream watercourse. The XRF Characterisation Report identified that mineralised material is present on the uppermost bench (Bench 3), where rail trucks were unloaded into surface vehicles as part of the operations of the previous Project owner.

The XRF Characterisation Report identifies that Bench 1 has a maximum recorded soil uranium level of 951 ppm, and arsenic level of 1,092 ppm. Bench 2 has a maximum recorded soil uranium level of 1,165 ppm, arsenic level of 2,164 ppm and lead level of 199 ppm. Bench 3 has a maximum recorded soil uranium level of 570 ppm, arsenic of 2,631 ppm and lead of 4,171 ppm. Leachate testing of the waste rock bench material indicates that uranium leaches from the material at 0.345 mg/L.

- d. **Treatment Area 4** – Area approximately 100m north of core sheds – The XRF Characterisation Report indicates that the area was historically used to store and sort exploration and mining samples from Ben Lomond. The internal operations reports of the previous Project owner suggest these samples were relocated from this area to the covered ore stockpile area in 1982-83. The XRF Characterisation Report identified that mineralised material now remains in this area. The Report identified that the area 100m north of the core shed has a maximum recorded soil uranium level of 1,084 ppm. Leachate testing of the material approximately 100m north of the core sheds indicates that uranium leaches from the material at 0.049 mg/L.

The Groundwater and Surface Water Trend Analysis identified that this area is on a plateau that drains to Bog Hole Creek and during heavy wet season rainfall may contribute to elevated uranium concentrations in Bog Hole Creek.

- e. **Treatment Area 5** – Area around the crushing pad or loading ramp – This small area is immediately south of the core shed area adjacent to the site access road. The XRF Characterisation Report indicates that uranium in soils occurs approximately 50m south of the field office, near a small concrete loading area just below the access road to the office and core shed. Maximum recorded values in soils were 202 ppm uranium. Leachate testing of the material in this area indicates that uranium leaches from the material at 0.023 mg/L.
- f. **Treatment Area 6** – Area surrounding the covered ore stockpile – The Environmental Evaluation report mapping indicates that there is an area of contamination with uranium in soils in the areas immediately adjacent to and surrounding the covered ore stockpile.

The XRF Characterisation Report describes that prior to the covered ore stockpile construction this site was used to store ore samples from the underground workings. The maximum recorded value of uranium in soil (1466 ppm) was located near the north east corner of the covered ore stockpile. The XRF Characterisation Report also considers that elevated uranium levels are due to residual ore material remaining outside the covered ore stockpile after it was constructed.

The Groundwater and Surface Water Trend Analysis indicates that this area is on a plateau that drains to Bog Hole Creek and during heavy wet season rainfall may contribute to elevated uranium concentrations in Bog Hole Creek. Groundwater monitoring has also identified exceedance of water quality objectives in compliance monitoring bores BL SP DS1, BL SP DS2 and BL SP US located in the area immediately surrounding the covered ore stockpile. Leachate

testing of the area surrounding the covered ore stockpile indicates that uranium leaches from the material at <0.001 mg/L.

- g. **Treatment Area 7** – Area approximately 150 m south west of covered ore stockpile – The Environmental Evaluation Report mapping indicates that there is an area of contamination with elevated uranium in soil in an area approximately 150 m south west of the covered ore stockpile.

The XRF Characterisation Report identifies that this area previously experienced ground disturbance and has a maximum recorded soil uranium level of 647 ppm. Leachate testing of the area approximately 150 m south west indicates that uranium leaches from the material at 0.006 mg/L.

- h. **Treatment Area 8** – Small dam approximately 150m south west of covered ore stockpile – The dam is located downslope of Treatment Area 7 and would capture flows from this slope. Officers of the department observed erosion gullies draining to this dam and detected a soil uranium level of 125 ppm. The XRF Characterisation Report did not include sampling from this dam. Leachate testing of the small dam material indicates that uranium leaches from the material at 0.026 mg/L.

13. Section 319 of the Act, requires that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.
14. Section 440ZG of the Act states that a person must not unlawfully deposit a prescribed water contaminant in waters.
15. Condition (C1-1) of Environmental Authority EPML00418313 states that receiving waters affected by the release of process water or storm water contaminated by the mining activities or both must be monitored at the locations and frequencies defined in Schedule C – Table 1 and comply with the contaminant limits defined in Schedule C – Table 2.
16. Condition (C2-1) of Environmental Authority EPML00418313 states that Groundwater, affected by the mining activities must be monitored at the locations and frequencies defined in Schedule C – Table 3, and comply with the contaminant limits defined in Schedule C – Table 4.
17. The facts and circumstances outlined above detail that Treatment Areas 1 – 8 are mining affected areas. These areas have the potential to release contaminants to surface water, groundwater and land, and these areas have no controls in place to prevent and minimise surface erosion, potential discharge of contaminants to waters, and exposure to livestock.
18. EHP considers that actions are required to prevent the release or likely release of contaminated water to secure compliance with sections 319 and 440ZG of the Act and conditions (C1-1) and (C2-1) of Environmental Authority EPML00418313.

B. Requirements

In accordance with this EPO, you are required to do the following:

1. A Scope of Works (SoW) must be developed, relating to areas on the mining lease which have been subject to mining disturbance, including, but not limited to, the Treatment Areas identified in **Table 1 – Treatment Areas** and **Map 1 – Treatment Areas**. The SoW must be developed, by **appropriately qualified person/s*** and once implemented all practical measures are taken to ensure that the Treatment Areas are **non-polluting[^]**. The SoW must at a minimum include the following:

- (a) Address the Treatment Areas identified in **Table 1 – Treatment Areas** and **Map 1 – Treatment Areas**.
 - (b) Be accompanied with and informed by sufficient investigations, testing, analysis and review of each Treatment Area to draw scientifically valid conclusions with respect to the appropriateness and effectiveness of the treatment method nominated.
 - (c) Clearly define the geographical (including depth) extent of each Treatment Area.
 - (d) Detail the treatment method and any associated engineering works required to ensure each Treatment Area is safe, stable and **non-polluting**[^].
 - (e) Any engineering works must reference appropriate design standards and be certified by a **Registered Professional Engineer of Queensland (RPEQ)**⁺ with a relevant competency.
 - (f) Detail the procedures for any removal of contaminants to an appropriately licenced place for management as required.
 - (g) Detail measures to prevent livestock from accessing any known contaminant areas on the project site including, but not limited to, the Treatment Areas identified in **Table 1 – Treatment Areas** and **Map 1 – Treatment Areas**, until:
 - i) the environmental risk assessment considers cattle grazing an appropriate land use following consideration of site specific risks;
 - ii) the environmental risk assessment has been submitted to the administering authority for consideration; and
 - iii) the administering authority has provided written advice accepting the contents of the environmental risk assessment.
 - (h) Detail any ongoing management requirements for each Treatment Area to ensure that each respective area remains **non-polluting**[^].
 - (i) Be reviewed by a third party **appropriately qualified person/s**^{*}.
 - (j) Be submitted to the administering authority for consideration by 5pm on 29 May 2017. The submission must include, the review work and certification completed by the third party reviewer, demonstrating that:
 - i) Sufficient investigations, testing, analysis and review of each Treatment Area has been completed to draw scientifically valid conclusions with respect to the appropriateness and effectiveness of the treatment method nominated.
 - ii) Following implementation of the nominated treatment method, the third party reviewer confirms that the Treatment Areas will be **non-polluting**[^].
2. All site works associated with developing and implementing the Scope of Works are to be overseen by an **appropriately qualified person/s**^{*}.
3. By 5 pm on 1 November 2017 you must complete all actions detailed in the SoW and submit a completion and validation report to the administering authority. The report must detail actions taken to comply with all of the EPO requirements and certify that the Treatment Areas are **non-polluting**[^]. The report must also detail any maintenance requirements to ensure ongoing effectiveness of the actions implemented to comply with this notice.
4. You must submit bi-monthly (once every two months) status reports to the administering authority. The reports must detail actions taken to comply with all of the above EPO requirements. The reports must

also detail any maintenance requirements to ensure ongoing effectiveness of the actions implemented to comply with the above EPO requirements.

5. You must complete any maintenance, update or modification of the completed treatment methods required.
6. You must undertake bi-monthly (once every two months) monitoring of the completed treatment methods to confirm that the Treatment Areas are **non-polluting**[^].

⁺ **Registered Professional Engineer of Queensland (RPEQ)** means a registered person under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience in geomechanics, hydraulic design or engineering hydrology.

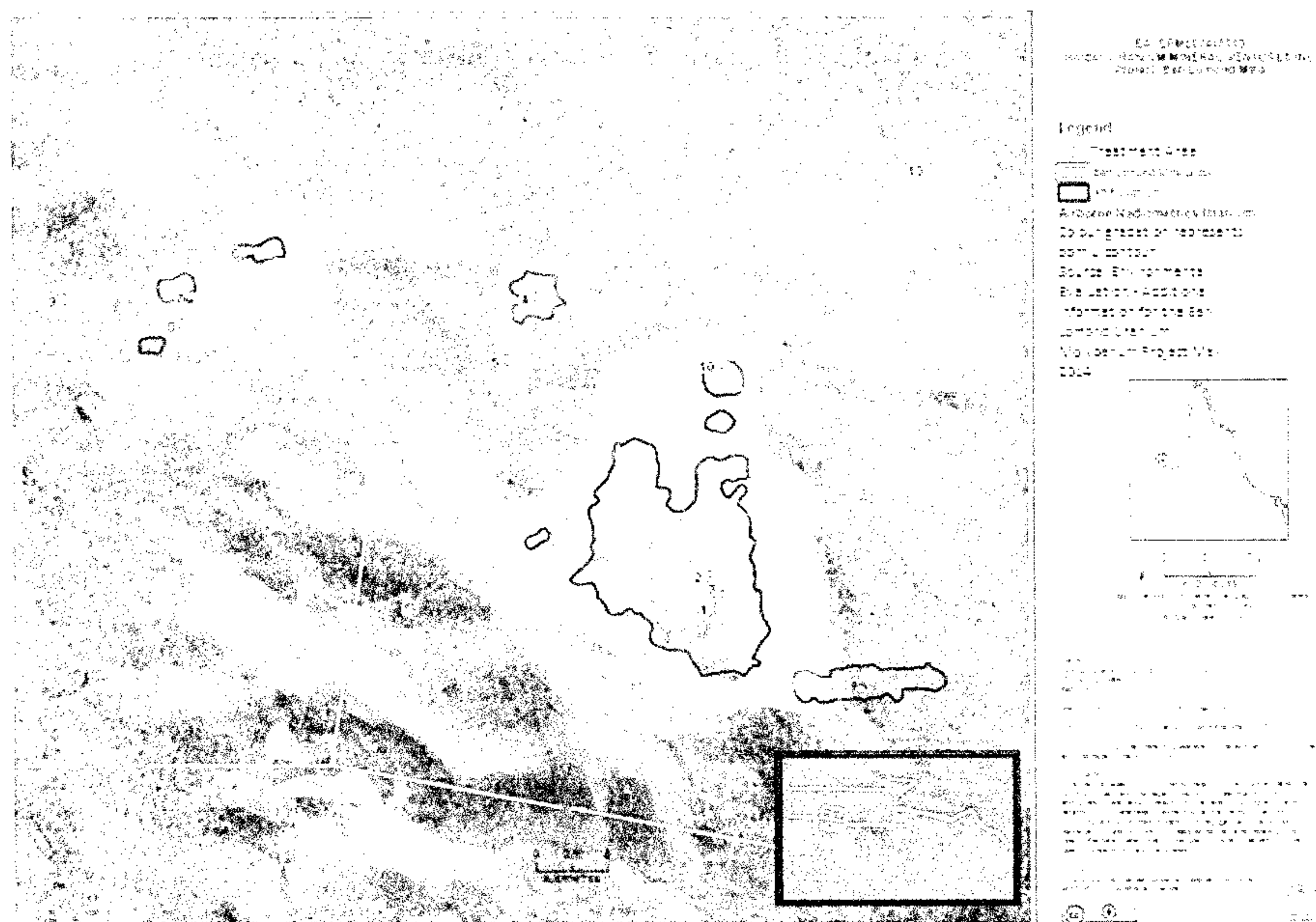
[^] **non-polluting** means the treatment areas do not release contaminants beyond the extent of the treatment methods implemented as part of this EPO. A release, of contaminants into the environment, is defined in Schedule 4 of the Act. For the avoidance of doubt, the release of contaminants as a result of natural mineralisation or other naturally occurring sources will not be taken into account in determine whether the treatment area is non-polluting.

^{*} **appropriately qualified person/s** means a person/s 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.

Table 1. Treatment Areas

Map 1 label	Treatment Area	Treatment Area location
1	Treatment Area 1 – The adit apron	The disused adit apron is located adjacent to the portal and was constructed to provide a level surface to locate machinery and materials moving into or out of the adit.
2	Treatment Area 2 – Haul road -	The former haul road connects the adit apron to the former processing site on the valley floor. The first section of the haul road starting from the adit is of most concern due to the presence of contaminated fill material.
3	Treatment Area 3 – Waste rock benches	The portal waste benches are located immediately downslope of the adit apron and is composed of three (3) benches of material that step down the slope.
4	Treatment Area 4 – Area approximately 100m north of core sheds	There is an area approximately 100m north and downslope of the core shed complex.
5	Treatment Area 5 – Area around the crushing pad or loading ramp	This small area is immediately south of the core shed area adjacent to the project site access road.
6	Treatment Area 6 – Area surrounding the covered ore stockpile	The areas immediately adjacent to the covered ore stockpile.
7	Treatment Area 7 – Area approximately 150 m south west of covered ore stockpile	An area of historic ground disturbance approximately 150m south west of the covered ore stockpile.
8	Treatment Area 8 – Small dam approximately 150m south west of covered ore stockpile	A small sediment dam located downslope of the covered ore stockpile and former stockpile area.

Map 1. Treatment Areas. Labels 1 – 8 refer to Treatment Areas described in Table 1¹.



¹Treatment Areas 9 and 10 are not part of the Scope of Works

C. Obligations

Additional permits and/or licences for activities carried out on the mining lease may be required under other legislation. Take notice that you are required to obtain any other local, state and federal approvals required to conduct the works required by this EPO.

If you propose to dispose of the place or business to which the EPO relates, you **must** advise the buyer of the existence of this EPO.

If you cease to carry out the activity to which this EPO relates, you **must** give written notice of ceasing to carry out the activity to the department within 10 days of ceasing the activity.

Take notice:

1. the requirements of this order take effect immediately upon service of the order;
2. failure to comply with this order is an offence under the Act;
3. this order remains in force until further notice from the administering authority.

D. Penalty

Failure to comply with an EPO is an offence.

1. The maximum penalty for an individual for wilfully contravening an EPO is 6250 penalty units, totalling \$734,375 or five years imprisonment.
2. The maximum penalty for a corporation for wilfully contravening an EPO is 31,250 penalty units, totalling \$3,671,875.
3. The maximum penalty for an individual for contravening an EPO is 4500 penalty units, totalling \$528,750
4. The maximum penalty for a corporation for contravening an EPO is 22,500 penalty units, totalling \$2,643,750

Failure to provide written notice to the buyer is an offence.

1. The maximum penalty for an individual is 50 penalty units, totalling \$5,875.
2. The maximum penalty for a corporation is 250 penalty units, totalling \$29,375.

Failure to provide written notice within 10 business days of ceasing the activity to the department is an offence.

3. The maximum penalty for an individual is 50 penalty units, totalling \$5,875.
4. The maximum penalty for a corporation is 250 penalty units, totalling \$29,375.

Section 3 of the Penalties and Sentences Regulation 2015 prescribes the monetary value of a penalty unit.

E. Reviews and appeals

The provisions regarding review of decisions and appeals may be 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:

1. within 10 business days of the decision being notified to the person;
2. be supported by enough information to enable the department to decide the application for review; and
3. be made using the application for review of an original decision form (EM709).¹

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.

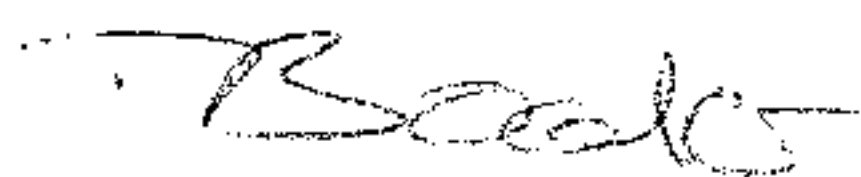
A person whose interests are or would be adversely affected by a decision of the department may also be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

For further information about reviews and appeals see the information sheet - internal review and appeal to the Planning and Environment Court (EM1866). You may have other legal rights or obligations and should seek your own legal advice.

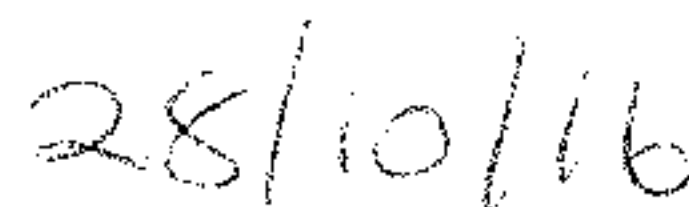
Should you have any queries in relation to the notice, please contact Andrew Wallace on telephone number (07) 4722 5366.

¹ This is the publication number. The publication number can be used as a search term to find the latest version of a publication at <www.ehp.qld.gov.au>.

Notice
Environmental Protection Order



Signature



Date

Rebecca Booker

A/Manager Compliance

Delegate of the Chief Executive

Department of Environment and Heritage Protection

Environmental Protection Act 1994

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