

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.

DGR Global Limited (ACN 052 354 837)
Level 27, 111 Eagle Street
BRISBANE CITY QLD 4000

To: Brian Gerry Moller
Director
DGR Global Limited
26 Jainba Street
INDOOROPILLY QLD 4068

To: Nicholas Mather
Director
DGR Global Limited
Level 27, 111 Eagle Street
BRISBANE CITY QLD 4000

To: Peter Stanley Wright
Director
DGR Global Limited
'Matisse Tower' Level 21, 110 Mary Street
BRISBANE QLD 4000

Cc: Mr John Bierling
Group Operations Manager
DGR Global Limited
Level 27, 111 Eagle Street
BRISBANE CITY QLD 4000
Email: jbierling@dgrglobal.com.au

Your reference: EPML00928813

Our reference: C-CPLRC-100267427 (101/0008732) STAT-E-100336413

24/02/2023

To whom it may concern

Take notice: that under the *Environmental Protection Act 1994* (EP Act) this environmental protection order (EPO) is issued to DGR Global Limited (ACN 052 354 837) (you) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Science (the department).

The EPO is issued with respect to the activities carried out by DGR Global Limited at the Shamrock mine site located on mining lease (ML) ML50291, ML3749, ML3741, ML3678, ML3752 and ML3753, situated at Webb Road, BLACK SNAKE, QLD 4600 (the premises).

A. Grounds

This EPO is issued on the following grounds:

1. Pursuant to section 358(d)(i) of the Act, the department requires you to take reasonable measures to secure compliance with the general environmental duty. The general environmental duty is detailed in s319 of the EP Act which states the following: *'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 (the general environmental duty).'*
2. Pursuant to section 358(d)(iii) of the EP Act, the department requires you to take reasonable measures to secure compliance with condition C1-1 of environmental authority EPML00928813 (the EA) dated 21 September 2018 which states *'contaminants must not be release from the site to any waters of (sic) the bed and banks of any waters.'*
3. Pursuant to section 358(d)(iii) of the EP Act, the department requires you to take reasonable measures to secure compliance with condition F2-5 of the EA which states *'high hazard dams containing hazardous waste shall be inspected by a Registered Professional Engineer (RPEQ) on or about 1st October but definitely before 1st November each year or at any time if alarming, unusual or otherwise unsatisfactory conditions are observed'*.
4. Pursuant to section 358(d)(iii) of the EP Act, the department requires you to take reasonable measures to secure compliance with condition F2-6 of the EA which states *'for each inspection, the engineer shall assess the condition of the dam and its foundations to determine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety.'*

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

1. You are:
 - a. the holder of mining lease ML50291, ML3749, ML3741, ML3678, ML3752 and ML3753;
 - b. the holder of EA EPML00928813 (the EA); and
 - c. the person with legal ownership, possession and control over the premises.
2. The EA authorises the environmentally relevant activity of resource activity, Schedule 3, 16: Mining gold ore at the premises, subject to conditions of the authority.
3. A tailings storage facility (TSF) is located on the premises.
4. In a report titled *'Shamrock Mine 2022 Annual Inspection of Regulated Structures – TSF 113337.13 November 2022'* (ATC Williams Pty Ltd, 2022) (the 2022 RPEQ report) prepared for you as a requirement of the EA condition F2-7, it was reported that the TSF is a dam:
 - a. storing hazardous material (tailings solids and process liquor);
 - b. containing approximately 770,000 tonnes of tailings material; and
 - c. having a seepage collection system that forms part of the facility. This includes sand toe drains, a chimney drain against the existing dam and drains connected to a manifold which pipe seepage through a culvert to a seepage dam.
5. The seepage dam is lined and seepage collected within the seepage dam is returned to the TSF via pumps and pipes. The seepage dam forms part of the TSF and is intended to be operated as a no release structure.
6. Condition C3-1 of the EA prescribes that *'receiving waters potentially affected by mining activities, and waters used to establish background levels, must be monitored at the location and frequencies defined in Table 1 and Figure 1 Shamrock Mine Water sampling points, for parameters listed in Table 2.'*
7. Selected compliance monitoring points in Table 1 of the EA are identified in Table 1 of this notice (refer Attachment A).

8. 'Seepage top dam – south' (seepage top dam (S)) and 'seepage top dam – north' (seepage top dam (N)) are unlined earthen dams located on the premises on either side of the seepage dam and designed to collect uncontaminated rainwater from the TSF embankment wall via surface drains positioned at the toe. You have advised that water from these dams is monitored voluntarily by you during the biannual compliance monitoring program.
9. Section 14 of the Act provides a definition of environmental harm:

'(1) Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

(2) Environmental harm may be caused by an activity— (a) whether the harm is a direct or indirect result of the activity; or (b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.'
10. Section 9 of the Act provides a definition of environmental value. *'Environmental value is— (a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or (b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.*
11. The EA provides the following definition: *'waters' - includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater runoff, and groundwater or any part thereof.'*
12. Monitoring point S4 is a non-perennial second order tributary of Black Snake Creek. Monitoring point S6 is located downstream of S4. Monitoring points S4 and S6 are considered 'waters', as defined in the EA. Black Snake Creek flows to Collins Creek, a tributary for the upper catchment Wide Bay Creek, part of the Mary River basin. The environmental values and water quality objectives for the receiving waters are listed in Schedule 1 of the *Environmental Protection (Water) Policy 2009* see: Schedule 1 - Plan: WQ1381 Mary River environmental values and water quality objectives Basin No. 138, including all tributaries of the Mary River. Environmental values include aquatic ecosystems; irrigation; farm supply/use; stock water; aquaculture; human consumer; primary recreation; secondary recreation; visual recreation; drinking water; industrial use; cultural and spiritual values.
13. Monitoring point GM1 is a groundwater monitoring borehole located on the premises. The EA definition of waters includes groundwater. Monitoring point GM1 is considered 'waters', as defined in the EA.
14. On 1 June 2022 you provided an email notification to the department reporting that you had become aware of a release of contaminated water from *'the D'Aguilar Mining Project (the premises) to waters at sampling point S4'*. You became aware of this release when AusRocks Limited (AusRocks), your third-party consultant, was reviewing water quality analysis results from biannual monitoring undertaken on 4 May 2022 (refer paragraph 23 and Attachment B, Table 2).
15. The notification was provided by you as the EA does not authorise the release of contaminants to waters. Condition C1-1 of the EA prescribes *'contaminants must not be release from the site to any waters of (sic) the bed and banks of any waters.'*
16. 'Contaminant' is defined in section 11 of the Act. *'A contaminant can be — (a) a gas, liquid or solid; or (b) an odour; or (c) an organism (whether alive or dead), including a virus; or (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants.'*
17. You implemented measures to divert contaminated surface water in seepage top dam (N) and seepage top dam (S) to the seepage dam and you commenced an investigation into the source and cause of the surface water contamination.
18. On 4 June, 14 June and 4 July 2022 you completed surface water monitoring as part of the investigation. You have provided these analysis results to the department.
19. On 4 July 2022 you provided a daily report to the department in accordance with a Tailings Dam Operating Plan stating the TSF was 25 mm below the spillway or 504.675 mRL. On 4 July 2022 authorised persons of the department inspected the premises. The TSF levels were viewed, and surface water monitoring was undertaken. Authorised persons observed water percolating through grass at and around the base of the TSF embankment and entering the drainage lines which report to

seepage top dam (N) and seepage top dam (S). This water was sampled by the department (refer paragraph 19 and 20 for results discussion). The seepage top dams were almost at capacity with water being cycled back into the seepage dam.

20. On 23 July 2022 you provided an email notification to the department reporting that the TSF had reached capacity and was passively releasing to Shamrock pit. On 29 July 2022 you notified the department this release had ceased. On 9 August 2022 you advised that the release was approximately 1.03635 ML in volume.
21. The department holds surface water and groundwater quality monitoring data for the premises. The data demonstrates the TSF (S16) and seepage dam (S3) typically contains a range of water contaminants including total dissolved solids (TDS), dissolved salts expressed as electrical conductivity (EC), sulphate and metals.
22. The department has undertaken a review of historic (post 2013) and recent (May to July 2022) water quality monitoring data obtained by DGR and the department, related to the investigation (i.e. monitoring points listed in Attachment A, Table 1, the seepage top dams and select parameters characteristic of mining activities undertaken at the premises; TDS, EC, sulphate, selenium, arsenic and cyanide). This review indicates that contaminants have been released from the premises to surface water and groundwater, with relevant contaminants above background levels (S1) in the receiving environment of Black Snake Creek (sites S4 and S6). The department consider non-compliance with EA condition C1-1 has occurred.
23. A review of selected parameters TDS, EC, sulphate, selenium, arsenic and cyanide indicate the following:
 - At S1 comparatively low surface water contaminant levels of TDS, EC, sulphate, selenium and arsenic below the applicable guideline values (refer Attachment B, Table 2). No historic sampling of cyanide (no known upstream sources present).

Surface water piper plots prepared by the department indicate recent ionic composition at background site S1 differs to on-site water storages (TSF (S16), seepage dam (S3), seepage top dam (N), seepage top dam (S) and water entering seepage top dam (S)).
 - At S4 recent elevated surface water contaminant levels compared to S1 background include TDS, EC, sulfate, dissolved selenium, dissolved arsenic and total cyanide. S4 recent elevated contaminant levels exceeding guideline values include EC, dissolved selenium, dissolved arsenic (speciation required) and total cyanide. Elevated historical TDS, EC, sulphate and total cyanide present 2014 to 2019. Dissolved selenium (20 µg/L on 04/05/2022 and 04/06/2022) and dissolved arsenic (18 µg/L on 04/06/2022) are historic maximums for S4.

Piper plots derived from recent surface water sampling indicate a similar ionic composition at S4 and on-site water storage (TSF (S16), seepage dam (S3), seepage top dam (N), seepage top dam (S) and water entering seepage top dam (S)). Piper plots derived from recent surface water sampling indicate similar ionic compositions in the water at the onsite water storages.
 - At S6 recent elevated surface water contaminant levels compared to S1 background levels include TDS, EC, sulphate, dissolved selenium and dissolved arsenic. S6 recent elevated contaminant levels exceeding guideline values include EC. Elevated historical TDS, EC, sulphate and dissolved arsenic present 2013. No historic sampling of cyanide. Sulphate (406 mg/L on 04/05/2022) is a historic maximum for S6.
 - At groundwater bore GM1 historically variable levels of TDS, EC and sulphate, trending down on 26/10/2021 and 04/05/2022. Elevated historical levels of arsenic present in 2013 (19 µg/L) and 2014 (8 µg/L) and selenium (250 µg/L) in 2013. Variable levels of total cyanide present on all sampling points between 2013 and 2022 (maximum 330 µg/L on 20/04/2021) with 15 µg/L present on 04/05/2022. Weak acid dissociable (WAD) cyanide present in 2017 and 2019.
 - The department is not aware of any historic (pre-2022) notification to the department or associated investigation into contamination levels at S4, S6 or GM1.
 - A summary of results obtained on 4 May 2022 and a comparison with relevant water quality guideline values are provided in Table 2 (refer Attachment B).

24. The department acknowledge that the most recent biannual water quality monitoring results sampled at S4 and S6 on 18 October 2022 indicate reduced contaminant levels within guideline limits for the parameters in Table 2, excluding EC (1540 $\mu\text{S}/\text{cm}$ at S4; 1550 $\mu\text{S}/\text{cm}$ at S6).
25. The daily reports provided by you indicate that water has been continuously entering the seepage top dams and water continues to flow or trickle at S4, a non-perennial second order tributary of Black Snake Creek, including during periods of little to no rainfall. You are currently draining water from the unlined seepage top dams into the seepage dam via gravity fed diversion pipes.
26. The department considers the TSF is at or near storage capacity, and this is likely driving increased and uncontrolled seepage on the premises. It is apparent some of this uncontrolled seepage water has been draining to the seepage top dams (primarily seepage top dam (S)) and some of this seepage water has been released (historically and recently) to monitoring point S4 and GM1. The department further considers that failure of the TSF and/or the seepage dam to collect and contain seepage water has and may continue to result in the unauthorised release of contaminants to surface water and/or groundwater. This has potential to cause impacts on environmental values (refer paragraph 12) associated with any impacted waters. The department considers unusual conditions associated with the TSF have been observed and the integrity of the TSF in respect to seepage, requires investigation.
27. On 29 November 2022 you provided the annual 2022 RPEQ report (refer paragraph 4), prepared for you as a requirement of condition F2-7 of the EA. You have not provided the department with the results of any RPEQ inspection of the TSF to clearly demonstrate that seepage or release of contaminants is not related to the integrity of the TSF and associated seepage dam, or the current storage capacity of the TSF, as is required by EA condition F2-5.
28. The department considers the source/s, cause/s and extent of historic and recent (2022) contamination at monitoring points S4, S6, seepage top dam (N) and seepage top dam (S) and GM1 requires investigation.
29. You did not provide the department with any correspondence regarding the findings of your investigation between 6 July 2022 and 27 January 2023.
30. On 27 January 2023 you provided the department with a report letter titled *Geochemical Assessment – TSF Pollution Investigation, Shamrock Mine* (ATC Williams, 5 January 2022 (sic 2023)). Section 3 (page 17) of the report states ***Based on these results, there is a high probability for two water transfer pathways to exist around the TSF; the first being a steady seepage pathway through the embankment or footprint of the TSF and the second being linked to an interstitial water level (essentially associated with groundwater) in the general area, which then expresses at GWE1 (ATCW surface water sample location west of TSF embankment) during recharge events at which elevated water levels exist.***
31. You have not clearly identified the source, cause and extent of contamination in surface water and groundwater. You have not provided a future action or investigation plan with timeframes to the department to address the contamination.
32. The department reasonably believes that the actions required under this EPO are necessary to secure compliance with the general environmental duty and conditions C1-1, F2-5 and F2-6 of the EA; identifying the source, cause and extent of contamination at the premises; preventing further release of contaminants to surface water and groundwater; ensuring early detection of risks through increased monitoring and reporting to the department; and further assessing the integrity and condition of the TSF in its entirety, which is at or near storage capacity.

B. Requirements

In accordance with this EPO, you are required to do the following (definitions in **bold** are provided in section 5 - definitions):

1. By 10 March 2023, you must engage a **suitably qualified and experienced person** (SQEP) to undertake requirements in this EPO. Where any EPO requirement falls outside of the SQEP's expertise, the SQEP is required to nominate and work with an **appropriately qualified person** (AQP). You are required to ensure the SQEP nominates and works with an AQP to meet EPO requirements when necessary. You must notify the department within 24 hours after engaging the SQEP and any AQP, including their qualifications and experience relevant to the requirements of this EPO.

2. Any written notification or submission to the department, as required by this EPO, must be provided in writing via email to sunshinecoast.esr@des.qld.gov.au.

Section 1 - SQEP inspection

3. By 31 March 2023, the SQEP engaged in EPO requirement 1 above, must undertake an inspection of the premises to:
 - a. assess the integrity and the condition of the **tailings storage facility** (TSF) in its entirety (including but not limited to the TSF embankment, foundations, footprint area and the associated seepage dam (S3)) and water transfer pathways. Assess the potential for, and identify any actual and/or potential seepage discharges;
 - b. identify any matters of concern associated with the integrity and condition of the TSF, including ability of the TSF to contain seepage discharges in accordance with the design of the seepage collection system; and
 - c. identify remedial works and/or recommendations of measures to be taken to identify the source, cause and extent of seepage discharges and remedy all identified matters of concern; and to reduce risks associated with seepage and migration of contaminants in surface water and groundwater.

Section 2 - SQEP investigation and report

4. By 31 August 2023, you must complete a SQEP investigation and provide a SQEP report in writing to the department.
5. The SQEP investigation and report must include the following:
 - a. Collate all available electronic surface water and groundwater data (from 2013 to present) at monitoring points relevant to the investigation. These points must include, and may not be limited to; S1, S4, S6, S3, S16, seepage top dam (N), seepage top dam (S) and GM1.
 - b. Using data collated from EPO requirement 5.a., complete an "Assessment of change through monitoring data analysis" as outlined at: <https://www.waterquality.gov.au/anz-guidelines/monitoring/data-analysis/data-assess-change>. Establish when and where exceedances of relevant water quality guideline values (including *Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 2 Aquatic Ecosystems* and *Volume 3 Primary Industries* (ANZECC & ARMCANZ, 2000) and *Queensland Water Quality Guidelines 2009* (State of Queensland, 2013) in surface water, and relevant trigger and limit contaminant concentrations in groundwater (refer EPO requirement 10.d.), have occurred. Use applicable dissolved metal values, total metal values and metals speciation when comparing results with guideline values.
 - c. Clearly identify all actual and potential contaminant migration / transfer pathways, for each contaminant source on the premises (including but not limited to the TSF, seepage top dam (N), seepage top dam (S) and seepage dam) which has potential to impact water quality at monitoring points S4, S6, seepage top dam (N), seepage top dam (S), GM1 and GWE1.
 - d. Clearly identify what control measures are in place to monitor, intercept and manage contaminant migration from the sources identified (refer EPO requirement 5.c.). Assess the effectiveness of all current control measures and identify any matters of concern and associated recommendations.
 - e. For the inspection conducted under EPO requirement 3, detail the investigation methodology and provide the complete results and all associated findings including but not limited to; assessment of the integrity and condition of the TSF in its entirety (including potential for and identification of seepage discharges), and clear identification of any matters of concern and associated recommendations.
 - f. Clearly identify the source/s, cause/s and extent of historic and recent (2022) water contamination at monitoring points S4, S6, seepage top dam (N), seepage top dam (S), GM1 and GWE1. This is to include (but may not be limited to) clear identification of the source (location), cause and extent of TSF seepage discharges and where deviation of seepage away from the current seepage collection system has occurred. Clearly identify any matters of concern and associated recommendations.

- g. Clearly identify and describe the range of remedial options available to monitor and remedy all identified matters of concern on the premises (identified in EPO requirements 5.d., 5.e and 5.f.), which to the extent practicable, prevents the future release of contaminants to surface water and groundwater from identified contaminant sources.
- h. Assess each of the remedial options identified in EPO requirement 5.g., including:
 - i) the expected performance of each remedial option in preventing further releases of contaminants to surface water and groundwater; and
 - ii) an estimated option implementation timeframe, which considers project staging (where appropriate) to minimise the release of contaminants over time; and
 - iii) the likely cost of implementing the remedial option(s); and
 - iv) detail any assumptions applied and any site-specific limitations and/or considerations that would prevent or materially impact the implementation of any particular remedial option.
- i. Nominate a recommended sustainable, long-term remedial option/s which if implemented will, to the extent practicable, prevent the release of contaminants to surface water and groundwater from identified contaminant sources.
- j. Where completion of the recommended remedial option is not reasonably achievable by 31 October 2023, the SQEP report must also assess and, where appropriate, recommend interim controls to limit the release of contaminants to surface water and groundwater.
- k. Provide laboratory certificates of analysis (COA), and associated field records for all water quality analysis undertaken at the premises from 5 July 2022 and to the conclusion of this EPO. Any COA results must be provided in the format requested by the department, within 7 days of the request, and be uploaded to the department's WaTERS database.

Section 3 - General

- 6. From the commencement date of this EPO, **contaminants** exceeding *Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 2 Aquatic Ecosystems* and/or *Volume 3 Primary Industries* (ANZECC & ARMCANZ, 2000) and/or *Queensland Water Quality Guidelines 2009* (State of Queensland, 2013) must not be released in a controlled or uncontrolled manner from the seepage dam, seepage top dam (N) or seepage top dam (S) to '**waters**' (refer Attachment C).
- 7. In the event of a release outlined in EPO requirement 6, you must complete the following:
 - a. notify the department in writing with the details of the release event (e.g. location, volume, duration, control measures) within 24 hours of commencement of the release and daily thereafter;
 - b. undertake additional event-based water quality monitoring as outlined in section 4 of this notice (Table 1, Table 3, EPO requirements 10.c to 13 inclusive), within 24 hours of commencement of the release; and
 - c. install, operate and maintain all necessary measures and management controls to prevent further release/s.
- 8. For the duration of this EPO, you must provide the department with a fortnightly report in writing. Each fortnightly report must be provided by 11:59pm every second Friday and include the following information for the preceding 14-day period:
 - a. daily rainfall received at the premises;
 - b. daily operational status of the two (2) seepage dam pumps (time operated);
 - c. daily measurement of water level (distance to all diversion pipes) in seepage top dam (N) and seepage top dam (S);
 - d. daily measurement of discharge volume (litres/24 hours) of water entering surface water monitoring point S4 via the adjacent culvert pipe outlet; and
 - e. a progress update on the status and findings of each EPO requirement.
- 9. The duration of this EPO is from 24 February 2023 to 31 August 2023.

Section 4 - Water Monitoring Program

10. From 1 March 2023 to 31 August 2023, you must undertake a monthly surface water and ground water monitoring program. Monthly surface water and ground water sampling must be undertaken in the first week of each month (i.e. on any date between the 1st and 7th day of each month). The program must include the following:
- monthly surface water and ground water sampling at the monitoring points prescribed in Table 1;
 - analysis of surface water and ground water samples for the parameters prescribed in Table 3;
 - measurement of flow rate (L/sec) at monitoring points S1, S4 and S6;
 - use of the latest version of the department's guideline '*Using Monitoring Data to Assess Groundwater Quality and Potential Environmental Impacts*' (State of Queensland, 2021) to derive the trigger and limit concentrations;

Table 3 – Surface water and ground water monitoring points and parameters

Parameter	Units	Monitoring Points
pH	pH units	S1 S4 S6 tailings storage facility (S16) seepage dam (S3) seepage top dam (N) seepage top dam (S) GM1 'X' (blind field duplicate) 'XX' (blind field blank)
Electrical Conductivity	µS/cm	
Total Dissolved Solids	mg/L	
Major cations (Ca, Mg, Na, K)	mg/L	
Major anions (Cl, SO ₄ , Alkalinity) and Fluoride	mg/L	
Cyanide (Total and Weak Acid Dissociable)	mg/L	
Ultra-trace ORC Metals Suite (Sb, As, Be, B, Cd, Cr, Co, Cu, Pb, Mn, Mo, Ni, Se, Ag, Sn, Zn) – dissolved metals (field filtered)	µg/L	
Aluminium – dissolved (field filtered)	µg/L	
Speciated arsenic (III) and arsenic (V) – dissolved	µg/L	
Speciated selenium (Se (IV)) – dissolved	µg/L	
Ultra-trace ORC Metals Suite (Sb, As, Be, B, Cd, Cr, Co, Cu, Pb, Mn, Mo, Ni, Se, Ag, Sn, Zn) – total metals	µg/L	
Aluminium – total metals	µg/L	

- for quality control purposes each monthly surface water monitoring event must include one (1) complete set of blind field duplicate samples, labelled 'X'; and one (1) complete set of blind field blank samples using water supplied by the testing laboratory, labelled 'XX'; and
 - the laboratory COC for each sampling event is to include a copy of email reports to be provided to the department to sunshinecoast.esr@des.qld.gov.au.
11. Within 28 calendar days of each sampling event undertaken in accordance with EPO requirement 10, you must provide a monitoring report to the department in writing. Reporting must include:
- a review of the surface water results against relevant guideline values (relevant guidelines are provided in EPO requirement 5.b.) and background monitoring point S1;
 - a review of the ground water results against relevant trigger and limit contaminant concentrations for groundwater (refer EPO requirement 10.d.);
 - tabular or graphical representation and analysis of trends in available monitoring data; and

- d. field records and measurements, including the groundwater standing water level (SWL) and Black Snake Creek flow rates.
12. All surface water samples, groundwater samples and other samples:
- a. must be collected by an SQEP (or an AQP nominated by the SQEP under EPO requirement 1); and
 - b. must be analysed by a laboratory which holds National Association of Testing Authorities (NATA) accreditation for the analysis performed. All sample container(s), sample preservation and holding times are to be in accordance with laboratory requirements for the analysis performed, as demonstrated on the associated laboratory sample receipt notification (SRN).
13. All determinations of the quality of contaminants in waters, including quality control sampling, must be made in accordance with methods prescribed in the latest edition of the 'Monitoring and Sampling Manual *Environmental Protection (Water) Policy 2009*' (Department of Environment and Science, 2018) and carried out on samples that are representative.

Section 5- Definitions

'Appropriately qualified person' (AQP) is defined as a person who has professional qualifications, training, skills and 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.

'Contaminant' is defined in section 11 of the *Environmental Protection Act 1994*. A contaminant can be — (a) a gas, liquid or solid; or (b) an odour; or (c) an organism (whether alive or dead), including a virus; or (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants

'Suitably qualified and experienced person' (SQEP) is defined in the guideline '*Structures which are dams or levees constructed as part of environmentally relevant activities ESR/2016/1934*' (des.qld.gov.au) as 'in relation to regulated structures means a person who is a RPEQ under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

- for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.'

'Tailings storage facility' (TSF) is defined as the DGR Global Ltd Shamrock mine site tailing storage facility and associated seepage dam; a dam containing hazardous waste in environmental authority EPML00928813.

'Waters' includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater runoff, and groundwater or any part-thereof.

C. Obligations

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:

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

D. Penalty

It is important that you know the impact to you personally as an individual or as a corporation for not meeting your obligations.

Failure to comply with an EPO is an offence.

- The maximum penalty for a corporation for wilfully contravening an EPO is 31,250 penalty units, totalling \$ 4,492,187.50.
- The maximum penalty for a corporation for contravening an EPO is 22,500 penalty units, totalling \$3,234,375 for a corporation.

Failure to provide written notice to the buyer of the existence of the order is an offence.

- The maximum penalty for a corporation is 250 penalty units, totalling \$35,937.50.

Failure to provide written notice to the department within 10 business days of ceasing the activity to which an environmental protection order relates is an offence.

- The maximum penalty for a corporation is 250 penalty units, totalling \$35,937.50.

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

E. Reviews and appeals

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

A person who is dissatisfied with an original decision made by the Department of Environment and Science (the department) may apply to have that decision internally reviewed.

Information about initiating an appeal in relation to this notice is contained within the [Internal Reviews and Appeals Information Sheet](#) (available at www.qld.gov.au using the publication number ESR /2015/1742 as a search term)

A request for review or appeal is to be made using the approved form '[Application for review of original decision](#)' (available at www.qld.gov.au using the publication number ESR/2015/1573 as a search term.

Applications for reviews are to be sent to Permit and Licence Management, Department of Environment and Science: via email at palm@des.qld.gov.au , or by mail to the following address: GPO. Box 2454, Brisbane, QLD, 4001.

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 be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

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

Pursuant to section 540 of the Act, the department is required to maintain a register of certain documents and information authorised under the Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety, unless alteration is required by the Act. There is no general discretion allowing the department to withhold documents or information required to be kept on the public register. For more information on the department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

Notice
Environmental Protection Order

Should you have any queries in relation to the notice, please contact Jacinta Thrower on 5459 6141 .



Signature

24/02/2023

Date

Ben Grant
Compliance Delivery Manager
Delegate of the Chief Executive
Department of Environment and Science
Environmental Protection Act 1994

Enquiries: Jacinta Thrower

COMPLIANCE CENTRE: Sunshine Coast

Ph: (07) 5459 6132

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Attachment A - Table 1 - Selected EA compliance monitoring points

Water	Monitoring Point	Site Description	Location (GDA94)	Comment
surface water	S1	Interception of Black Snake Creek and Webb Road, BLACK SNAKE. North of the TSF.	latitude -26.21452; longitude 152.27915	Off the premises - upstream background monitoring location.
surface water	S4	Non-perennial second order tributary of Black Snake Creek below the seepage dam on the western side of Webb Road, BLACK SNAKE.	latitude -26.21896; longitude 152.27424	On the premises - potentially impacted monitoring location.
surface water	S6	Black Snake Creek causeway on the northern side of Black Snake Road, BLACK SNAKE.	latitude -26.22258; longitude 152.26642	Off the premises - potentially impacted monitoring location.
surface water	S16	TSF. Immediately east of the seepage dam.	latitude -26.22061; longitude 152.27592	On the premises - potentially impacted monitoring location.
surface water	S3	Seepage dam. Immediately west of the TSF.	latitude -26.21841; longitude 152.2746	On the premises - potentially impacted monitoring location.
groundwater	GM1	Borehole located south of the seepage dam.	latitude -26.21853; longitude 152.27453	On the premises - potentially impacted monitoring location.

Attachment B - Table 2 - Surface water quality sampling results and comparison, AusRocks 4 May 2022.

Parameter	Guideline - Aquatic ecosystems ¹ (Freshwater) 95% species protection	Guideline - Primary Industries ²	Queensland Water Quality Guideline ³	S1	S4	S6
TDS (mg/L)	-	2000 ⁴	-	475	1260	1010
EC (µS/cm)	1500 ⁵		1200 (80 th percentile)	184	1680	1440
sulphate (mg/L)	-	1000 ⁶	-	<1	626	406 (historic maximum)
selenium - dissolved (µg/L)	11 (Se (IV)) ⁸	-	-	<10 ⁸	20 (historic maximum) ⁷	<10 ⁸
selenium - total (µg/L)	5 ⁸	20 ⁹	-	NS	NS	NS
arsenic - dissolved (µg/L)	13 (AsV) and 24 (AsIII) ¹⁰	-	<50 ¹¹	3 (equivalent historic maximum) ⁸	17 ⁸	3 ⁸
arsenic - total (µg/L)	-	500 ¹²		NS	NS	NS
total cyanide (µg/L)	7 ¹³	5 ¹⁴		NS	<4	NS

* NS – Not sampled

¹ Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 2 Aquatic Ecosystems — Rationale and Background Information (ANZECC & ARMCANZ, 2000).

² Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 3 Primary Industries — Rationale and Background Information (ANZECC & ARMCANZ, 2000).

³ Queensland Water Quality Guidelines 2009 (State of Queensland, 2013).

⁴ ANZECC & ARMCANZ, 2000. Volume 3, section 9.3.4.5 The conservative value has been applied.

⁵ ANZECC & ARMCANZ, 2000 Volume 3, section 8.2.3.3 Hart et al. (1990, 1991).

⁶ ANZECC & ARMCANZ, 2000 Volume 3, section 9.3.4.4.

⁷ speciation required

⁸ ANZECC & ARMCANZ, 2000. Volume 2, section 8.3.7.1

⁹ ANZECC & ARMCANZ, 2000. Volume 3, section 9.3.5.16.

¹⁰ ANZECC & ARMCANZ, 2000. Volume 2, section 8.3.7.1 The conservative value has been applied.

¹¹ State of Queensland, 2013. Table 7.1.1

¹² ANZECC & ARMCANZ, 2000. Volume 3, section 9.3.5.2 The conservative value has been applied.

¹³ ANZECC & ARMCANZ, 2000. Volume 2, section 8.3.7.2.

¹⁴ ANZECC & ARMCANZ, 2000. Volume 3, section 9.4.2.2

Attachment C - Aerial image showing the location of the TSF embankment, seepage top dam (N), seepage top dam (S), seepage dam (seepage pond) (S3) and monitoring points (AusRocks, 17 June 2022).

