

## ***Environmental Protection Act 1994***

### **Environmental Protection Order**

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

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

Cc: Brian Gerry Moller  
Director  
26 Jainba Street  
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Cc: Nicholas Mather  
Director  
Level 27, 111 Eagle Street  
BRISBANE CITY QLD 4000

Cc: Peter Stanley Wright  
Director  
'Matisse Tower' Level 21, 110 Mary Street,  
BRISBANE QLD 4000

Cc: Mr John Bierling  
Group Operations Manager  
DGR Global Limited  
Email: [jbierling@dgrglobal.com.au](mailto:jbierling@dgrglobal.com.au)

Your reference: EPML00928813

Our reference: C-CPLPO100049807 (101/0008732) STAT-E-100353709

13/06/2023

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) (DGR Global/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 at the Shamrock mine site located on land described as mining lease (ML) MK50291. ML3749, ML3741, ML3678, ML3752 and ML3753, on land 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)(iii) of the Act, the department requires you to take reasonable measures to secure compliance with condition C7-1 which states

*'The design storage allowance on 1<sup>st</sup> November of each year for any dam containing **hazardous waste** constructed or operated within the operational **land** must comply with Table 4.*

**Table 4 ( Storage design\* for dams containing hazardous waste)**

| Dam Name                 | Design Storage Allowance**<br>Critical Wet Period | Spillway Critical<br>Design Storm*** | Mandatory****<br>Reporting Level |
|--------------------------|---------------------------------------------------|--------------------------------------|----------------------------------|
| Shamrock<br>Tailings Dam | 502.7 mRL (2m freeboard)                          | 150mm in 1 hour                      | 503.4m RL (1.3m<br>freeboard)    |

Note: AEP means annual exceedance probability

*\* Calculations are to be carried out in accordance with the "Site Water Management" guideline in the Technical Guidelines for Environmental Management of Exploration and Mining in Queensland – DME 1995.*

*\*\* The design storage allowance on 1st November of each year for any dam containing hazardous waste constructed within the operational land must be equivalent to the run-off from the critical wet period plus process inputs for the period. Process inputs refers to hazardous mineral process waste and any water, which is being disposed of in the storage facility.*

*\*\*\* The critical storm has a duration that produces the peak discharge for the catchment.*

*\*\*\*\* The level below spillway crest that can accommodate runoff from a 72 hour ARI storm, or the ARI wave allowance whichever level is lower.'*

2. 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 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).*
3. Pursuant to section 358(d)(iii) of the Act, the department requires you to take reasonable measures to secure compliance with condition A3-1 which states

*'The holder of this environmental authority must*

- a. Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and*
- b. Maintain such measures, plant and equipment in a proper condition; and*
- c. Operate such measures, plant and equipment in a proper manner.'*

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

1. You are:
  - a. the holder of mining lease (ML) ML50291, ML3749, ML3741, ML3678, ML3752 and ML3753;
  - b. the holder of environmental authority EPML00928813 (the EA); and
  - c. the person with legal ownership and 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.

**Condition C7-1**

3. Condition F2-1 and F2-2 of the EA identify the Shamrock Tailings Dam as a dam containing hazardous waste.
  - Note: The Shamrock Tailings Dam is referred to as the Tailings Dam or Tailings Storage Facility (TSF) from time to time in other correspondence relating to this structure.
4. Condition C7-1 of the EA requires that the Shamrock Tailings Dam meet the design storage allowance (DSA) on 1 November each year of 502.7mRL (2m freeboard).
5. In a report titled '*Shamrock Mine 2022 Annual Inspection of Regulated Structures – TSF 113337.13 November 2022*' (ATC Williams Pty Ltd, 2022) (the report), submitted by you as a requirement of condition F2-7 of the EA, reports the Shamrock Tailings Dam as:
  - a. storing hazardous material (tailings solids and process liquor); and
  - b. containing approximately 770,000 tonnes of tailings material.
6. The report includes an assessment of containment and freeboard requirements.
7. The report stated the water level in the Shamrock Tailings Dam (inferred as at 1 Nov 2022) and compared against authorised levels below:

| SHAMROCK TAILINGS DAM |                              |                                 |
|-----------------------|------------------------------|---------------------------------|
| Water level           | EA DSA                       | EA MRL                          |
| RL 504.55 m           | RL 502.7 m<br>(2m freeboard) | RL 503.4 m<br>(1.3 m freeboard) |

8. The department determined you did not comply with condition C7-1 of the EA on 1 November 2022 by failing to meet DSA.
9. On 6 January 2022 the department issued DGR Global a formal warning for failing to meet DSA by 1 November 2021 at the Shamrock Tailings Dam and therefore in contravention of EA condition C7-1 (WARN-E-100181781).
10. A review of the annual inspection of regulated structure reports for Shamrock Mine indicates that DSA has not been achieved for the Shamrock Tailings Dam for eight of the last ten years (2019 and 2020 were the only years where DSA has been achieved on 1 November).
11. In addition the report indicated the Shamrock Tailings Dam had 10.4ML available storage, exceeding the mandatory reporting limit, entering into the 2022/2023 wet season.
12. The department considers that there is an increased risk of an unauthorised releases from the Shamrock Tailings Dam if you fail to take action to achieve DSA in the Shamrock Tailings Dam by 1 November annually.
13. Because of repeated failure to comply with condition C7-1 of the EA, the department considers that it is appropriate to require you to take reasonable steps, which include the review of all water management

measures on site (including water balance), identify and implement action plan needed to rectify these failures.

General Environmental Duty (GED)

14. Conditions F2-1 and F2-2 of the EA identify the Shamrock Tailings Dam as a dam containing **hazardous waste** on the premises.
15. The department considers Shamrock Pit has previously received and continues to have the potential to receive and contain **contaminants** and **hazardous waste** from the Shamrock Tailings Dam.
16. Condition F2-2 of the EA does not authorise Shamrock Pit to contain **hazardous waste**.
17. Water quality monitoring data demonstrates the Shamrock Tailings Dam (monitoring point S16) contains a range of water **contaminants** including total dissolved solids (TDS), dissolved salts expressed as electrical conductivity (EC), sulphate and metals, at levels typically exceeding relevant water quality guideline values.
18. The department undertook a review of water quality monitoring data sampled in the Shamrock Tailings Dam provided by you from November 2013 to October 2022 (the review period) and compared the results to relevant water quality guideline values (refer Attachment A, Table 1).
19. The review of selected parameters during the review period TDS, EC, sulphate, aluminium, arsenic, cadmium, copper, lead, molybdenum, selenium and zinc indicates the following:
  - TDS (mg/L) results range between 379 mg/L (26/10/2021) and 5780 mg/L (21/10/2020). Mean value 1990 mg/L. TDS exceeding the guideline value (2000 mg/L) on 8 from 25 sampling occasions.
  - EC (µS/cm) results range between 561 µS/cm (26/10/2021) and 6810 µS/cm (21/10/2020). Mean value 2605 µS/cm. EC exceeded the guideline value (1200 µS/cm) on 24 from 25 sampling occasions.
  - Sulphate (mg/L) results range between 146 mg/L (26/10/2021) and 3320 mg/L (21/10/2020). Mean value 1071 mg/L. Sulphate exceeded the guideline value (1000 mg/L) on 8 from 25 sampling occasions.
  - Aluminium – dissolved (µg/L) results range between <10 µg/L on 22 from 25 sampling occasions to 90 µg/L (26/06/2014). Aluminium – dissolved was above the laboratory limit of reporting and exceeded the guideline (55 µg/L) on 3 occasions. Aluminium – total is not routinely sampled.
  - Arsenic – dissolved (µg/L) results range between 40.6 µg/L (19/01/2022) and 1000 µg/L (20/11/2019). Mean value 319.5 µg/L. Arsenic – total or speciated is not routinely sampled.
  - Cadmium - dissolved (µg/L) results range between 0.1 µg/L (20/04/2021) and 3 µg/L (23/11/2017). Mean value 0.86 µg/L. Cadmium – dissolved exceeded the guideline value (0.2 µg/L) on 24 from 25 sampling occasions. Cadmium – total is not routinely sampled.
  - Copper – dissolved (µg/L) results range between 5 µg/L (04/10/2016) and 43 µg/L (28/04/2015). Mean 19.8 µg/L. Copper – dissolved exceeded the guideline (1.4 µg/L) on all 25 sampling occasions. Copper – total is not routinely sampled.
  - Lead – dissolved (µg/L) results range between <1 µg/L on 20 from 25 sampling occasions to 36 µg/L (04/05/2022). Lead – dissolved exceeding the guideline (3.4 µg/L) on 4 occasions including May 2022 and October 2022. Lead – total is not routinely sampled.
  - Molybdenum - dissolved (ug/L) results range between 6 ug/L (04/06/2022) and 60 ug/L (14/06/2022). Mean value 18.28 ug/L. Molybdenum – dissolved exceeded the guideline (34 ug/L) on 4 from 25 sampling occasions, including in June 2022. Molybdenum – total is not routinely sampled.
  - Selenium – dissolved (µg/L) results range between 20 µg/L (04/10/2016) and 380 µg/L (26/10/2021). Mean value 76.8 µg/L. Selenium – total or speciated is not routinely sampled. *In addition, selenium – total (50.2 µg/L) sampled by the department on 04/07/2022 exceeded the guideline value (20 µg/L).*
  - Zinc – dissolved (µg/L) results range between <5 µg/L (17/05/2016 and 04/10/2016) and 59 µg/L (07/11/2013). Mean value 26.04 µg/L. Zinc – dissolved exceeded the guideline value (8 µg/L) on 22 from 25 sampling occasions, including 8 occasions in 2022. Zinc – total is not routinely sampled.

20. The Environmental Management Overview Strategy prepared for the mining leases dated February 2005 (refer EA condition A1-1) states that since January 1999, any passive releases from the Shamrock Tailings Dam have been designed to flow to Shamrock Pit.
21. Shamrock Pit is considered a 'dam' and a 'residual void' as defined in the EA.
22. You reported to the department that between approximately 9:45am 23 July 2022 and approximately 10am 29 July 2022 (6 days), there was an uncontrolled release from the Shamrock Tailings Dam to Shamrock Pit.
23. Passive releases from Shamrock Pit flow to the receiving waters of Freshwater Dam. Freshwater Dam flows to Collins Creek, a tributary for the upper catchment Wide Bay Creek, part of the Mary River basin.
24. The department has observed Freshwater Dam passively releasing into Collins Creek, most recently Freshwater Dam was observed releasing on 31 March 2023.
25. The department considers that **contaminants** from Shamrock Tailings Dam via Shamrock Pit have the potential to release offsite to Freshwater Dam, which meets the definition of '**waters**'.
26. Mine affected water (a liquid) stored in the Shamrock Tailings Dam is considered a **contaminant** pursuant to section 11 of the Act.
27. 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.'*
28. 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.'*
29. 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.
30. Active ongoing management of the risk of environmental harm is required to mitigate the impact on environmental values and demonstrate your general environmental duty.
31. The department considers that it is appropriate to require you to take all reasonable and practicable measures to prevent or minimise environmental harm and comply with your GED.
32. The measures include a review of all water management strategies, including operating procedures, the site water balance, and assessing the consequence category of the Shamrock Pit in accordance with the *Manual for assessing consequence categories and hydraulic performance structures* (ESR/2016/1933) to assess 'failure to contain' scenarios of the Shamrock Pit and inform how the site will achieve compliance with your GED and EA.

#### Condition A3-1

33. Condition A3-1 of the EA requires you to install, maintain and operate all measures, plant and equipment necessary to ensure compliance with the conditions of the EA.
34. This includes measures, plant and equipment that are necessary for you to comply with condition C7-1 of the EA.
35. This also includes measures, plant and equipment that are necessary for you to comply with condition C1-1 at Shamrock Pit which prevents the unauthorised release of contaminants to waters.

36. The January 2022 evaporation modelling and water balance for the Shamrock Tailings Dam indicated that the water management strategy would not achieve DSA by 1 November 2022.
37. Additionally the modelling also indicated that operation of 3 evaporators was not effective in reducing legacy water.
38. This was supported by water levels in February 2022 in the model was 503.8 mRL and assuming continued operation of 3 evaporators and 5-year average seasonal rainfall inputs, the estimated February 2023 water level was 503.72 mRL.
49. The department has determined that you have not installed, maintained and operated sufficient measures, plant and equipment necessary to effectively manage contaminated water and hazardous waste generated and stored in the Shamrock Tailings Dam at the premises as required by condition A3-1 of the EA, to ensure compliance with condition C7-1 and condition C1-1 of the EA.
50. The department has determined that you have not demonstrated the GED by taking all reasonable and practicable measures necessary to prevent or minimise environmental harm associated with the potential release of contaminated water and hazardous waste from the Shamrock Tailings Dam, and subsequently Shamrock Pit, which forms part of an activity authorised by the EA on the premises.
51. On the basis of the information set out in these facts and circumstances, the department has determined that it is reasonable to require you to take immediate and further action in order to secure compliance with conditions of the EA and the GED, such that you accelerate the reduction of the water inventory on the premises, develop an effective water management strategy for the premises and meet your obligations outlined in the EA.

## **B. Requirements**

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

### **Section 1 - General**

1. From **13 June 2023** you must not **release contaminants** and/or **hazardous waste**:
  - a. from the Shamrock Tailings Dam to the Shamrock Pit or **waters** or **land**, unless such a **release** is otherwise permitted under the Act; and
  - b. from the Shamrock Pit to **waters** or **land**, unless such a **release** is otherwise permitted under the Act.
2. By **11:59pm 1 November 2023** the water level in the Shamrock Tailings Dam must be less than the design storage allowance critical wet period (DSA) of 502.7 mRL (2m freeboard), as defined in condition C7-1 of the EA.
3. By **30 June 2023**, you must engage a **suitably qualified and experienced person** (SQEP) to undertake relevant requirements in this EPO. Where any requirement of this EPO 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 requirements of this EPO 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.
4. Any written notification or submission to the department, as required by this EPO, must be provided via email to [sunshinecoast.esr@des.qld.gov.au](mailto:sunshinecoast.esr@des.qld.gov.au).
5. The duration of this EPO is from 13 June 2023 to 1 November 2023.

### **Section 2 - SQEP report**

6. By **4 August 2023**, the SQEP engaged in EPO requirement 3, must provide the department with a report (the SEQP Report) that meets requirement 7.
7. The SQEP report must:
  - a. Set out a strategy (a water management strategy) to actively reduce the volume of water stored in the Shamrock Tailings Dam and Shamrock Pit to achieve compliance with the EA and the GED; and

- b. Include a water storage curve and table for the Shamrock Tailings Dam and Shamrock Pit, which characterises both the volume (ML) of water stored and available storage capacity (ML), related to mRL levels in both the Shamrock Tailings Dam and Shamrock Pit; and
- c. Develop an accurate and calibrated water balance model (the water balance model) for the Shamrock Tailings Dam, associated seepage dam and Shamrock Pit; and
  - i. The water balance model must include the use of available climate records from the premises in addition to long-term climate data (in excess of 100 years) sourced from the Queensland Government SILO (Scientific Information for Land Owners) system.
  - ii. The water balance model must include connections between the Shamrock Tailings Dam and Shamrock Pit, all contributing catchment areas, storage relationships, evaporation calculation and any other applicable inputs, outputs and transfers.
  - iii. The water balance model must include a comparison between climate records and modelled data. Where consistent differences between SILO data and climate records from the premises occurs, state the average differences and adjust the water balance accordingly, to align with the climate records from the premises. Complete a sensitivity analysis to characterise those parameters which influence model response and outcomes.
  - iv. The water balance model must be capable of being updated and run at any time.
- d. Use the water balance model to assess the risk and / or probability of the Shamrock Tailings Dam and Shamrock Pit overtopping in the 2023/2024 wet season, and characterise the corresponding scenarios; and
- e. Give consideration to the outcome of the consequence category assessment for Shamrock pit (EPO requirement 11); and
- f. Define the volume in Shamrock Pit (the nominated storage allowance) at 1 November each year in order to prevent an unauthorised release including a nominated annual exceedance probability (AEP) e.g.1:100 AEP; and
- g. Outline all of the lawful water reduction measures available, that would result in the active removal of water:
  - i. in the Shamrock Tailings Dam that minimise the potential for environmental harm and achieve compliance with the DSA as defined in condition C7-1 of the EA by 1 November 2023, and 1 November annually thereafter.
  - ii. in the Shamrock pit that minimise the potential for environmental harm and ensure compliance with condition C1-1 of the EA and your GED; and
    - Water reduction measures must include, but not be limited to; planning for safe and stable diversion of clean water catchment flows away from the Shamrock Tailings Dam, remediation of existing contaminated catchments to facilitate future diversion of these catchments away from the Shamrock Tailings Dam and additional water evaporation and/or treatment measures (e.g. evaporators, sprinklers, aerators and atomizers).
- h. Identify the predicted timing of achieving the DSA volume in the Shamrock Tailings Dam, and nominated storage capacity in the Shamrock pit, for each water reduction measure in isolation and in combination. The relevant data and any calculations or modelling used is to be presented, along with any assumptions and their justification; and
- i. Estimate costs to implement each water reduction measure; and
- j. Identify the actions, resources and responsibilities required to implement each water reduction measure and
- k. Identify any risks and controls associated with each water reduction measure and
- l. Identify any legislative approvals associated with each water reduction measure and
- m. Nominate recommended water reduction measure/s in a water management strategy and
- n. Prepare a water management strategy which will:

- i. reduce the Shamrock Tailings Dam water inventory to achieve DSA by 1 November annually, and
- ii. reduce the Shamrock pit water inventory to provide the nominated storage allowance by 1 November annually.
  - The water management strategy must include monthly iterations of the water balance model and provide clear water management decision thresholds (e.g. Trigger Action Response Plan (TARP), matrix or table) which summarises the water reduction measure/s to be implemented at the premises for a range of scenarios relating to water levels, rainfall forecasting and times during each year.

### **Section 3 – Shamrock pit**

8. By **28 July 2023**, the SQEP engaged in EPO requirement 3, must assess the consequence category of the Shamrock Pit in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/19335) (the manual).
9. By **28 July 2023** you must install and maintain a marker post in the vicinity of Shamrock Pit spillway which clearly indicates the water level (mRL) in the Shamrock Pit.
10. By **4 August 2023** the report submitted under requirement 6 must include SQEP certification in the form set out in the manual.

### **Section 4 – Monthly report**

11. For the duration of this EPO, you must provide the department with a monthly report in writing. Each monthly report must be provided by 11:59 pm on the first Friday of each month and include the following information for preceding monthly period:
  - a. Daily rainfall totals received at the premises and expected rainfall in the next 7 days.
  - b. Rainfall (mm) required to reach Shamrock Tailings Dam spillway and Shamrock Pit spillway.
  - c. Water level in the Shamrock Tailings Dam (mRL and distance to; spillway, MRL, DSA).
  - d. Water level in the Shamrock Pit (mRL and distance to spillway).
  - e. Current remaining additional storage capacity (ML) in the Shamrock Tailings Dam and Shamrock Pit.
  - f. Shamrock Tailings Dam seepage pumps (number and duration operated).
  - g. Summary of actions taken to reduce the Shamrock Tailings Dam water inventory over the reporting period including, but not limited to, the number of evaporators in operation, their type, location and hours of use and the water reduction measure/s used.
  - h. Estimated daily volume of water removed from the Shamrock Tailings Dam water inventory, listed for each day, separated by each water reduction measure, including details of the measurements, calculations and assumptions that the estimate is based.
  - i. The status of actions taken to comply with this EPO.

### **Section 5 – Shamrock Tailings Dam and Shamrock Pit release event**

12. In the event of a release of water from the Shamrock Tailings Dam and/or Shamrock Pit, you must notify the department by contacting the 24/7 pollution hotline on 1300 130 372 (option 2) / [pollutionhotline@des.qld.gov.au](mailto:pollutionhotline@des.qld.gov.au) and [sunshinecoast.esr.des.qld.gov.au](mailto:sunshinecoast.esr.des.qld.gov.au) as soon as practicable and within 24 hours of commencement of the release and daily thereafter. You must report the details of the release event (e.g. location, volume, duration, control measures).
13. In the event of a release of water from the Shamrock Tailings Dam and/or Shamrock Pit, you must undertake a surface water and ground water monitoring program. The program must include the following:

- a. Surface water monitoring at the monitoring points prescribed in Table 3 (below) commencing the same day of release for 7 consecutive days (i.e. day 1 to day 7) and continuing weekly thereafter (i.e. day 14, day 21 etc) while the release/s are occurring.
- b. In the event of a Shamrock Tailings Dam release when a Shamrock Pit release has not occurred it is not necessary to sample monitoring point S14 (Freshwater Dam).
- c. In the event of a Shamrock Pit release you must sample monitoring point S14 (Freshwater Dam).
- d. Weekly ground water monitoring at the monitoring locations prescribed in Table 3 (below) commencing in week 2 (i.e. between day 8 and day 14) and continuing weekly thereafter, while the release/s are occurring.
- e. In the event a release event ceases and then recommences, the surface water and ground water monitoring program recommences (i.e. from day 1).
- f. Analysis of surface water and ground water samples for the parameters prescribed in Table 3 (below) on all monitoring occasions.
- g. Analysis of surface water and ground water samples for the parameters; speciated arsenic (III), arsenic (V) and speciated selenium (Se (IV)) – dissolved (field filtered) on the first surface water and ground water monitoring occasion only.

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

| Sample Type   | Parameter                                                                                                                       | Units    | Monitoring Points                                                                       |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------|
| Surface water | pH                                                                                                                              | pH units | TSF (S16)                                                                               |
|               | Electrical Conductivity                                                                                                         | µS/cm    | Shamrock pit (S15)                                                                      |
|               | Total Dissolved Solids                                                                                                          | mg/L     | Freshwater dam (S14)                                                                    |
|               | Major cations (Ca, Mg, Na, K)                                                                                                   | mg/L     | 'X' (blind field duplicate)                                                             |
|               | Major anions (Cl, SO <sub>4</sub> , Alkalinity) and Fluoride                                                                    | mg/L     | 'XX' (blind field blank)                                                                |
|               | Cyanide (Total and Weak Acid Dissociable)                                                                                       | mg/L     |                                                                                         |
|               | Ultra-trace ORC Metal 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     |                                                                                         |
|               | 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     |                                                                                         |
| Ground water  | All surface water parameters (refer above)                                                                                      | -        | GM3 / MB3 (Freshwater Dam borehole)<br>FC1 (flue dust cell 1)<br>FC2 (flue dust cell 2) |

- h. For quality control purposes each 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'.
  - i. The laboratory chain of custody (COC) for each monitoring event includes a copy of email reports to be provided to the department.
  - j. 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 for groundwater.
14. Within 28 calendar days of receipt of the sampling results of each monitoring event undertaken in accordance with EPO requirement 13, you must provide a monitoring report to the department in writing. Reporting must include:
- a. A review of surface water results against relevant 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). Use applicable dissolved metal values, total metal values and metals speciation when comparing results with guideline values.
  - b. A review of the groundwater results against relevant trigger and limit contaminant concentrations for groundwater (refer EPO requirement 13.j.).
  - c. Tabular or graphical representation and analysis of trends in available monitoring data.
  - d. Field records and measurements, including the groundwater standing water level (SWL) and surface water flow rates.
  - e. Laboratory certificates of analysis (COA), and associated field records for all water quality monitoring undertaken as a requirement 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.
15. 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 3).
  - 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).
16. 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 6 - Definitions**

Key terms and/or phrases used in this document are defined in this section and bolded throughout this document. You should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

**'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 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.'*

**'Hazardous waste'** is defined in EA EPML00928813 and means *'any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.'*

**'Land'** means land excluding waters and the atmosphere.

**'Release'** is defined in Schedule 4 of the Act. *'Release, of a contaminant into the environment, includes— (a) to deposit, discharge, emit or disturb the contaminant; and (b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed; and (c) to fail to prevent the contaminant from being deposited, discharged, emitted or disturbed; and (d) to allow the contaminant to escape; and (e) to fail to prevent the contaminant from escaping.'*

**'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.'

**'Shamrock Tailings Dam'** 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.

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## 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 wilfully contravening an EPO is 6250 penalty units, totalling \$898,437.50 or five years imprisonment for an individual or \$ 4,492,187.50 for a corporation.

- The maximum penalty for contravening an EPO is 4500 penalty units, totalling \$ 646,875 for an individual or \$ 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 is 50 penalty units, totalling \$ 7,187.50, for an individual or \$ 35,937.50 for a corporation

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 is 50 penalty units, totalling \$ 7,187.50 for an individual or \$ 35,937.50 for a corporation.

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](http://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](http://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](mailto: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 to 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](http://www.qld.gov.au). For queries about privacy matters please email [privacy@des.qld.gov.au](mailto:privacy@des.qld.gov.au) or telephone 13 74 68.

**Notice**  
**Environmental Protection Order**

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Should you have any queries in relation to the notice, please contact Jacinta Thrower on 07 5459 6141 telephone number.



Signature

13/06/2023

Date

Kate Grayson

Manage (Compliance)

Delegate of the Chief Executive

Department of Environment and Science

*Environmental Protection Act 1994*

**Enquiries: Jacinta Thrower**

COMPLIANCE CENTRE: **Sunshine Coast**

Ph: (07) 5459 6141

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