

Environmental Enforcement Order

Section 362 of the *Environmental Protection Act 1994*



Department of the
**Environment, Tourism,
Science and Innovation**

Order id: STAT E-100685367

Issued to: Sojitz Gregory Crinum Pty Ltd ACN: 626 424 048

Registered address: Central Plaza One, Level 27, 345 Queen Street, BRISBANE QLD 4000
For the purpose of this notice "you" means the recipient of this notice or your authorised representative.

Site address: Mining Lease (ML) 1989, ML1923, ML70061, ML7007, Mineral Development Licence (MDL) 133 ("the premises")

Issued by: Cate Puschmann, Manager Compliance, Department of the Environment, Tourism, Science and Innovation, an authorised person of the administering authority ("the delegate")


Signed by delegate

Date: 13 January 2025

Relevant matter/enforcement grounds: The *Environmental Protection Act 1994* (the Act) Section 359 Enforcement grounds:
S359 (e) it is necessary to issue an environmental enforcement order to secure the person's compliance with (ii) a condition of an environmental authority. Specifically, conditions A3, A4, W44 and S3 of Environmental Authority EPML00945013 effective 15 May 2019.
S359 (c) it is necessary to issue an environmental enforcement order to secure the person's compliance with the general environmental duty. Section 319 *General environmental duty (1) A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonably practicable measures to prevent or minimise the harm (the general environmental duty).*

Service method: Via registered post and email

Why are we writing to you?

The delegate reasonably suspects that you have not met the general environmental duty obligations and contravened section 430 of the Act at the premises. The delegate has issued this Environmental Enforcement Order (EEO) to you under sections 359 of the Act to remedy the contravention, avoid further contraventions and keep the Department of the Environment, Tourism, Science and Innovation ("the department") informed.

What are you required to do?

Please read this EEO carefully and carry out all the required actions listed below by the required dates.

Terms used in this order have the meaning defined in the Background and Definitions section of the EEO, or if not defined, in the Act.

If you have any questions about this EEO, please contact Louise Pinn, by email louise.pinn@des.qld.gov.au or telephone (07) 4837 3499.

Required Actions:

Part A – Engage independent appropriately qualified persons

1. By **5:00pm on 31 January 2025**, you must:
 - (a) Engage independent appropriately qualified person's (AQP's) as defined below in this notice, to carry out the requirements of this notice; and
 - (b) Confirm the engagement of the AQP's and submit the qualifications and experience of the AQP's to the department in writing, to CWES_Rockhampton@des.qld.gov.au.

Part B – Groundwater monitoring program

2. You must require an independent AQP to review the existing groundwater monitoring program and develop an improved groundwater monitoring program to monitor the effects of the existing and future activities, including future dewatering impacts and connectivity and impacts to surface waters. The groundwater monitoring program must:
 - (a) Be able to monitor the change in level and quality of groundwater to detect and evaluate any possible impacts from mining activities on all potentially impacted groundwater aquifers, surface waters and the Lilyvale Waterhole;
 - (b) Include a sufficient number of bores installed at locations and depths which yield representative groundwater samples;
 - (c) Include monitoring of background groundwater quality and standing water levels, including those downgradient of the impacted mining area;
 - (d) Consider the offsite impacts to groundwater and potential off lease users which may be impacted from mining activities;
 - (e) Ensure existing and future groundwater monitoring bores are able to be constructed without risk of possible contamination of the sampled water;
 - (f) Include a detailed review of the proposed mining schedule and mine infrastructure placement before selecting additional monitoring bore locations; and
 - (g) Consider the feasibility of inserting data loggers in a representative number of monitoring bores in each aquifer in order to record groundwater level variation more consistently over the monitoring year.
3. By **5:00pm on 13 June 2025**, you must submit the report prescribed in Requirement 2 to the department in writing, to CWES_Rockhampton@des.qld.gov.au.
4. By **5:00pm on 26 September 2025**, you must have considered any comments provided by the department in relation to the groundwater monitoring program and have completed the implementation of the groundwater monitoring program, including the installation of any additional bores, as prescribed in Requirement 2 of this EEO.
5. By **5:00pm on 26 September 2025**, you must commence monthly monitoring of groundwater standing water levels at the bores identified in Requirement 2 which continues for the duration of the EEO.
6. You must require an independent AQP to review and interpret the groundwater monitoring results prescribed in Requirement 5 of this EEO and every three months prepare and submit a report to the department in writing to CWES_Rockhampton@des.qld.gov.au.
7. You must apply to amend your Environmental Authority (EA) EPML00945013 to include the following:
 - (a) any additional bores and monitoring requirements identified in Requirement 2 of this EEO; and
 - (b) appropriate groundwater trigger limits for quality and water levels based on the monitoring and reports prescribed by Requirement 5 and 6 of this EEO.

Environmental Enforcement Order

Part C – Reinstating flows in Crinum Creek

8. You must require an independent AQP to complete a report that considers and determines the most effective way to reinstate pre-disturbance flows in Crinum Creek, immediately downstream of the Gregory Crinum Mine. The report must:
- (a) Include a comprehensive review of historical flows (at least 10 years) in Crinum Creek;
 - (b) Include an options analysis that assesses measures to permanently reinstate pre-disturbance flows in Crinum Creek and takes into consideration:
 - i. Current, future and historical mining activities;
 - ii. The design and construction of possible future creek diversions and all necessary works to ensure a stable structure that limits erosion;
 - iii. The monitoring requirements to determine any potential impacts from mining activities and surface water diversions on groundwater; and
 - iv. Minimises the potential for environmental harm.
 - (c) Make recommendations on the actions required to permanently reinstate flows in Crinum Creek immediately downstream of the Gregory Crinum Mine.
 - (d) Include an options analysis that assesses any interim actions (that can be implemented prior to the 2025-2026 wet season at the Gregory Crinum Mine) that will increase downstream flows in Crinum Creek, with consideration to estimates of pre-disturbance flows in Crinum Creek and without causing adverse environmental impacts or environmental harm. This must include an assessment of actions including but not limited to:
 - i. Dewatering of G-North wetlands;
 - ii. Supplementing Crinum Creek with alternate raw water sources; and
 - iii. Additional temporary clean stormwater diversion works.
 - (e) Make recommendations on the interim actions required to reinstate flows in Crinum Creek immediately downstream of the Gregory Crinum Mine.
9. By **5:00pm on 24 April 2025**, you must submit the report prescribed in Requirement 8 to the department in writing, to CWES_Rockhampton@des.qld.gov.au.
10. By **5.00pm on 30 May 2025**, you must commence the actions identified in Requirement 8(c) and 8(e) to restore pre-disturbance flows in Crinum Creek immediately downstream of the Gregory Crinum Mine.
11. By **5.00pm on 31 October 2025**, you must have implemented all additional interim actions at the Gregory Crinum Mine, as identified in Requirement 8(e), that will increase downstream flows in Crinum Creek (prior to the 2025-2026 wet season).
12. By **5:00pm on 31 July 2026**, you must have finalised the implementation of all works, as identified in Requirement 8(c), to permanently reinstate the pre-disturbance flows in Crinum Creek immediately downstream of the Gregory Crinum Mine.
13. Following the completion of Requirement 12 and following a flow event of ≥ 0.1 m³/s measured at the Lilyvale Waterhole Gauging Station you must require an independent AQP to review the works prescribed in Requirement 12 and prepare and submit a report in writing to the department to CWES_Rockhampton@des.qld.gov.au within one month of the flow event that certifies the effectiveness of these works to permanently reinstate the pre-disturbance flows in Crinum Creek.

Part D – Monitoring, sampling analysis and reporting

14. All monitoring conducted under this EEO must be in accordance with the administering authority's *Monitoring and Sampling Manual 2018* and all monitoring equipment must be effectively calibrated and maintained.

Environmental Enforcement Order

15. All analyses required under this EEO must be carried out by a laboratory that has National Association of Testing Authorities (NATA) certification, or an equivalent certification, for such analyses.

Part E – Update of site management plans, procedural guides and models

16. You must engage an AQP to consider the findings of Part B and Part C – Requirements of this EEO and then review, develop and update the following documents to ensure that these meet the requirements of EA EPML00945013 as well as accurately reflect current and future activities at the Gregory Crinum Mine:

- (a) Water Management Plan;
- (b) Erosion and Sediment Control Plan;
- (c) Subsidence Management Plan;
- (d) Groundwater Monitoring and Management Plan;
- (e) Receiving Environmental Monitoring Program;
- (f) Groundwater Model; and
- (g) Any other operational procedural guides, plans and models relating to water management at the premises.

17. By **5:00pm on 31 July 2026**, you must submit updated reports, plans, procedural guides and models as prescribed in Requirement 16 of this EEO, to the administering authority via email to CWES_Rockhampton@des.qld.gov.au

Part F – Final report

18. Within 1 month, following the completion of Requirement 13, you must submit a report prepared by an AQP to the department to CWES_Rockhampton@des.qld.gov.au that certifies all requirements of this EEO have been met.

Background and Definitions

19. The department is the administering authority and has responsibility for enforcing the Act.
20. Since 27 March 2019, you have been the holder of Environmental Authority EPML00945013 (the EA) that authorised environmentally relevant activity (ERA) 13 mining black coal amongst others, at the Gregory Crinum Mine.
21. The department is satisfied that you are the entity operating the Gregory Crinum Mine and are responsible for the construction, operation, and/or maintenance of the Gregory Crinum Mine under the EA.
22. On 12 June 2024, the department received a community concern alleging that operations at the Gregory Crinum Mine had impacted and restricted downstream flows in Crinum Creek.
23. On 4 July 2024, the department met with Sojitz Gregory Crinum Pty Ltd (Sojitz) representatives to discuss the community concern.
24. On 8 July 2024, the department requested further information from Sojitz regarding the operations at the Gregory Crinum Mine which included flow data for Crinum Creek and underground dewatering activities. This information was received on 23 July 2024. The information indicated the following:
- a. Groundwater drawdown - data provided for monitoring bores CRN1, CRN4 and CRN11 shows significant changes in the past 18 months. Data for CRN1 indicates that between 1 January and 31 December 2022, there was an increase in groundwater level of 14.7681m. However, over the past 18 months, there has been a decline of 24.9054m from 179.7732mAHD on 1 January 2023 to 154.8705mAHD on 30 June 2024. Data for CRN4 indicates that over the past 18 months, there has been a decline of 22.5268m from 180.1542mAHD on 1 January 2023 to 157.6268mAHD on 30 June 2024. Data for CRN11 indicates that over the past 18 months, there has been a decline of 23.2751m from 180.2749mAHD on 1 January 2023 to 157.0054mAHD on 30 June 2024.
 - b. Flow data - As part of the information request response, Sojitz provided a spreadsheet titled, '*Crinum Creek Flows*' which details the flow rates recorded at the Crinum Creek upstream gauging station (CCU) and at the Lilyvale Waterhole gauging station (LWGS). A review of the data indicates that when high levels of flow at CCU are recorded, smaller to nil flows are recorded at the LWGS.

Water Management Plan

25. A review of the Gregory Crinum Water Management Plan (WMP), Version 3.0, reviewed July 2023 has identified that there are flow constraints in the Crinum Creek subsidence area which reduces flow further downstream. Section 3.2.5 - Operational Constraints in the WMP states:

The following operational constraints exist when managing the storage of mine affected water;

Historic subsidence of Crinum Creek has resulted in pools that restrict water flow through the site during rain events, this impacts on potential releases as flows do not reach the lower portions of the lease, unless significant rainfall occurs.

Crinum Creek Diversion and Subsidence Monitoring Reports

26. A review of the *Crinum Creek Subsidence Monitoring Report 2021* prepared by Engeny Water Management, Section 6, Recommendations states:

Based on the 2021 subsidence inspection for Crinum Creek the following recommendations have been provided:

- Infill subsidence holes and cracks at LW23-24.

27. A review of the *Crinum Creek Diversion and Subsidence Monitoring Report 2023* prepared by Alluvium Consulting Australia Pty Ltd indicates that there are erosion and connectivity issues between the surface water and groundwater.

Section 1.1 of the report states:

The geomorphic character and behaviour of the creek is substantially influenced by Tertiary basalt lava flows, which have infilled large parts of a former valley on which the waterway now sits. Lilyvale Waterhole on Crinum Creek shortly downstream of mining operations is a form of plunge/expansion pool where the waterway debouches from a basalt gorge. With the prevalence of basalt forming channel boundaries, Crinum Creek is highly stable with respect to fluvial processes through much of the GCM lease. However, the basalt is fractured, which is pertinent to surface water-groundwater interactions and the cracking associated with subsidence.

Section 3.1 Index of Diversion Condition Results, Subsidence reach states:

This reach has two substantial natural pools with the addition of subsidence pools over LW23, 24, 25 and 27. The upstream pool is formed by a raised road crossing, without any culverts, which effectively acts as a small weir. This crossing backwaters approximately 1,600m upstream, which includes the downstream extents of the diversion (influences sites CC-Div4 and LW26). The second pool, downstream of the above, is a natural pool backwatered by basalt bedrock, it extends from site LW24-25 upstream for approximately 400m. This second pool has been partially infilled with compacted gravel and grout, most likely to aid vehicle access for the works associated with sealing subsidence cracking. The pools only retain water where there is a fine-grained alluvial sediment cover, those in the basalt section of the creek drain into basalt fractures. The major difference to pre-subsidence is that drainage is now deep and does not return to the creek at Lilyvale Waterhole.

Cracking was observed throughout the subsidence reach associated with all panels (LW25, 24, 23, 22 and 27). Treatment of cracking has occurred in parts of Crinum Creek for LW25 to LW22 by pouring of grout into observed tension cracks near the pillar zone. Other cracking was observed more in the centre of the panels which could be the compression cracks experienced across the panel when the longwall face advances. These cracks are not grouted. The objective of the grouting is to minimise the increase of inflows to the basalt aquifer from the channel bed for several safety and broader water management objectives of the mining operation. The grout poured in 2014 is brittle and already degrading on the surface, and it is possible that it will not achieve the desired management outcomes. A more flexible solution which swells and shrinks in response to environmental conditions would be more likely to achieve flow loss objectives.

There has been a severe impact to riparian vegetation through panels LW22 and LW27, which is unlikely to recover in the short to medium term. Dewatering of the underground mine, coupled with loss of flows to G North and subsidence cracks have caused a mass die-off of all vegetation within the channel (a series of three photos from 2007 (pre subsidence), 2015 (shortly after subsidence completed) and current are shown in Figure 3-4).

Environmental Enforcement Order

28. A review of the 2022, 2023 and 2024 *Crinum Creek Diversion and Subsidence Monitoring Reports*, prepared by Alluvium Consulting Australia Pty Ltd show the following required actions (see Table 4-1) have been outstanding for 3 consecutive subsidence monitoring reporting periods (2022, 2023 and 2024).

Table 4-1. Summary of condition issues and recommended actions

Item	Feature	Issue	Actions	Timeframe	High level cost estimate (using DES rates)
Required actions					
A	Crinum North subsidence reach flows	Loss of groundwater in the basalt aquifer that formerly discharge to surface around LW27.	Subsidence Management Plan to understand trajectory of groundwater – surface water interaction and likely timeframes to restored hydrology. Linked to management of interaction with G North. Strategy to restore hydrology to be developed from understanding of trajectory.	Action to be recommended in SMP to occur by end mid 2024. Review and develop strategy within 12 months, in time for the next round of monitoring. Implement as per strategy.	Analysis and advice from external resources \$80k Actions to mitigate: TBD
B	Vegetation loss LW27	Complete death of riparian zone c. 2015. Limited regeneration since	Once groundwater surface water rebound understood. Develop strategy	Follows from A	

Groundwater monitoring review

29. The *Gregory Crinum Annual Groundwater Review* dated July 2023 and October 2024 prepared by EnviroScience Matters Pty Ltd (ESM) indicates that the groundwater monitoring bore network is not sufficient to monitor future dewatering impacts and that there is also a lack of monitoring bores to the south or north of the mine area. The review states:

ESM considers that, given the hydrogeological uncertainty of the impacts of structure on the dewatering effects, there are insufficient EA-nominated monitoring bores in place to monitor future dewatering impact.

Existing structural information needs to be reviewed in detail in relation to the proposed mining schedule and mine infrastructure placement before selecting additional monitoring bore locations. However, it is noted that there are no monitoring bores either to the south or north of the mine area and no monitoring bores specifically placed up gradient of the Lilyvale Lagoon to monitor potential water level impacts on this important feature.

30. On 3 September 2024, the department undertook a pre-wet season preparedness inspection. As part of this inspection, officers inspected an area of Crinum Creek where Sojitz representatives explained that Crinum Creek on the upstream side holds water however, on the downstream side, the water flows through subsidence cracking and into the underground operations. During the inspection, Sojitz representatives confirmed that maintenance of the cracks that are grouted has not been undertaken since the site was transferred to Sojitz in 2019.
31. To date Sojitz has not finalised a strategy to address Crinum North subsidence reach flows and ensure the restoration of Crinum Creek downstream flows.
32. Given the information above, the department alleges that you have failed to comply with conditions A3, A4, W44 and S3 of the EA.
33. Condition A3 of the EA states:

In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and / or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority.

Note: This authority authorises the environmentally relevant activity. It does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

34. Condition A4 of the EA states:

Maintenance of measures, plant and equipment

The environmental authority holder must ensure:

- a) that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed;
- b) that such measures, plant and equipment are maintained in a proper condition; and
- c) that such measures, plant and equipment are operated in a proper manner.

35. Condition W44 of the EA states:

Groundwater

The holder of the environmental authority must develop and implement a groundwater monitoring program. The program must be able to detect a significant change to ground water quality values (consistent with the current suitability of the groundwater for domestic and agricultural use) due to activities that are part of this mining project.

36. Condition S3 of the EA states:

A subsidence management plan must be developed and implemented by the holder of this environmental authority prior to the commencement of activities that result in subsidence of a watercourse that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activities and to ensure compliance with the conditions of this environmental authority.

37. Section 430 of the Act says:

A person must not contravene a condition of the authority.

38. The department considers that you have failed to take all reasonable and practical measures to prevent and minimise the likely environmental harm caused by carrying out the activity and you have therefore failed to comply with your General Environmental Duty.

39. Section 319 of the Act says:

General Environmental Duty is defined as 'A person must not carry out an activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable actions to prevent or minimise the harm'.

40. In summary, the delegate considers you have contravened sections 430 and 319 of the Act, and it is reasonable to require you to secure your compliance with these conditions and the General Environmental Duty.

41. The delegate has considered the circumstances (including the standard criteria and human rights) and determined that the required actions are reasonable to remedy or otherwise address the relevant matters.

42. This EEO takes effect from the date of service and remains in force until stayed, amended, revoked or finalised.

Definitions that apply to this notice:

“Authorised representative” Is a representative that has been nominated by the person this Order relates to, for acting on their behalf when dealing with the Queensland Government to manage matters. For more information, read the guideline Authorisation letter to nominate an Authorised Holder Representative (available at www.qld.gov.au using the publication number ESR/2019/5168 as a search term).

“Appropriately qualified person(s)” Means a person(s) who has professional qualifications, training, skills, or experience relevant to the requirements of the Environmental Enforcement Order, and can give authoritative assessment, advice, and analysis using relevant protocols, standards, methods or literature.

“Wet season” means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of this EEO, this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

Warnings and information about this EEO

A PERSON WHO IS BOUND BY THIS EEO AND WHO FAILS TO COMPLY WITH THIS EEO, WITHOUT A REASONABLE EXCUSE, COMMITS AN OFFENCE UNDER THE ACT.

- The maximum penalty for wilfully contravening an EEO is 1655 penalty units, totalling \$266,951.50 for an individual, or \$1,334,757.50 for a corporation.
- The maximum penalty for contravening an EEO is 600 penalty units, totalling \$96,780.00 for an individual, or \$483,900.00 for a corporation.

Note that under section 493 of the Act that each executive officer of the corporation may be taken to have also committed an offence, of failing to ensure the corporation complies with the Act.

If you propose to dispose of the premises or business to which the EEO relates, you must advise the buyer of the existence of this EEO. Failure to provide written notice to the buyer of the existence of the order is an offence under section 369C of the Act with a maximum penalty of 50 penalty units, totalling \$8,065.00 for an individual, or \$40,325.00 for a corporation.

Further information about EEOs can be found on the [department's website](#).

Review and appeal rights

Under Chapter 11, Part 3 of the Act, a dissatisfied person may apply for a review of this EEO within 10 business days of receiving this EEO; and a dissatisfied person who is dissatisfied with the review decision may appeal against the decision to the Court.

A request for review is to be made using the approved form 'Application for review of original decision' (available at www.qld.gov.au). Applications for reviews are to be sent to Permit and Licence Management, Department of the Environment, Tourism, Science and Innovation: via email at palm@des.qld.gov.au, or by mail to the following address: GPO. Box 2454, Brisbane, QLD, 4001.

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.

Privacy statement

Section 540 of the Act requires the department 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 redaction in part is required by the Act. 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.

Accessibility

Contact us if you need this information in an accessible format such as large print or audio.

Interpreter assistance



If you need interpreter assistance or want this document translated, please contact us and advise your preferred language. If you are deaf, or have a hearing or speech impairment, contact us through the [National Relay Service](#).