

STATEMENT OF REASONS

Issued in accordance with Section 35 of the *Northern Territory Civil and Administrative Tribunal Act 2014* (NTCAT Act) for a decision made under and Section 74 of the *Water Act 1992* (Water Act)

Licensee	Groote Eylandt Mining Company Proprietary Limited ABN 26 004 618 491
Waste Discharge Licence (WDL) Number	WDL256
Licensed Action	The controlled discharge of mine-influenced water collected on MLN951 into the Angurugu River via the authorised discharge points and subject to the conditions of this licence.
Material considered	<ul style="list-style-type: none"> • Application documents submitted by the applicant <ul style="list-style-type: none"> ○ Approved WDL application form ○ Xenith (2024) <i>Waste Discharge Licence Application - Supporting Information</i> ○ Consultation and Communication Plan - Angurugu River WDL ○ F3 Quarry Emergency Response Trigger Action Response Plan ○ GEMCO responses to comments from the Administering Agency • Comments from the applicant on the draft WDL. • <i>Guidelines on waste discharge licencing under the Northern Territory Water Act 1992.</i> • Northern Territory Government Gazettal notices No. G9, 11 March 1998, No. G11 25 March 1998 and No. G20 27 May 1998. • Surface water extraction licence 9291005. • The Australian & New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018). • Guidelines for Managing Risks in Recreational Water published by the National Health and Medical Research Council (2008). • NT EPA assessment report 77 - GEMCO Eastern Leases Project.

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- NT EPA notice of decision and statement of reasons dated 22 December 2020.
 - Correspondence from affected people and stakeholders:
 - Anindilyakwa Land Council
 - Aboriginal Areas Protection Authority
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Application

Application by Groote Eylandt Mining Company Proprietary Limited for a waste discharge licence.

Decision

I grant WDL256 in accordance with section 74 of the *Water Act 1992* (NT).

Decision-maker

Andrew Johnson
Controller of Water Resources

Signature



Date

6 February 2025

This Statement of Reasons has been prepared in accordance with section 35 of the NTCAT Act. References to the Water Act refer to the *Water Act 1992* (NT).

In making the decision to grant/amend a waste discharge licence, the following matters have been considered:

A. BACKGROUND

1. Groote Eylandt Mining Company Proprietary Limited (GEMCO, the applicant) operates a manganese mine on Groote Eylandt in the Gulf of Carpentaria, Northern Territory.
2. The GEMCO mine consists of two domains, known as the Eastern Leases and Western Leases. The Western Leases consist of open-cut, strip-mining operations. This application relates to the Western Leases.
3. In March 2024, the GEMCO operations were severely impacted by heavy rainfall caused by Tropical Cyclone Megan. This resulted in a significant excess of water in existing mining pits (quarries) and tailings dams. The existing approved disposal methods authorised under a deemed environmental (mining) licence issued pursuant to the *Environment Protection Act 2019* (NT) (variation of authorisation DML0126-01) have been unable to sufficiently reduce the stored volumes. The cumulative effects of this event and another wet season's rainfall could cause an uncontrolled overflow from GEMCO mine storages.
4. The applicant is requesting approval for a WDL to release the excess water into the Angurugu River, a perennial watercourse that drains through the mining operations.
5. The following sites of conservation significance (SOCS) and beneficial use declarations are relevant to this activity:
 - a. Groote Eylandt Area Marine Waters (see paragraphs 26 and 27)
 - b. Groote Eylandt group – SOCS Number 26.

B. APPLICATION

6. On 19 November 2024, the applicant submitted the application form and supporting information.
7. The application was for a single discharge point to be located on the Angurugu River, receiving water from the F3 Quarry on the Western Leases of the GEMCO mine. The application identified manganese and aluminium as the potential contaminants of concern.
8. Additional information was requested to clarify details of the application on 21 November 2024.
9. Additional information was provided on 3 December 2024.
10. A draft WDL was issued to the applicant for comment on 13 December 2024.
11. Comments from the applicant on drafts of the WDL were received on 19 December 2024, 16 January 2025 and 21 January 2025. The draft WDL was discussed in a meeting with the applicant on 22 January 2024.
12. In all, the following documents were submitted by the applicant in support of their application:
 - a. Approved WDL application form
 - b. *Xenith (2024) Waste Discharge Licence Application – Supporting Information*, including

- i. WRM (2024) *Proposed GEMCO water releases to the Angurugu River*
 - ii. GEMCO Western Leases mining authorisations
 - iii. Water Management Section of GEMCO FY21-FY24 Mining Management Plan
 - iv. GEMCO FY24 Environmental Monitoring Report
- c. Consultation and Communication Plan – Angurugu River WDL
 - d. F3 Quarry Emergency Response Trigger Action Response Plan
 - e. GEMCO responses to comments from the Administering Agency
 - f. GEMCO response to request for information from the Administering Agency regarding AMP3 reference data values.

C. REASONS FOR DECISION

Matters considered under section 90 of the Water Act

In accordance with section 90(1) of the Water Act, the following factors were considered in deciding to grant this waste discharge licence.

The availability of water in the area in question (s 90(1)(a))

13. The Angurugu River is a perennial stream receiving freshwater flows from the east. The Angurugu River flow is dependent on seasonal rainfall. During the dry season, the stream conveys at least 10 ML/day. Flows in the Angurugu River exceed 60 ML/day about 55% of the time. Flows exceed 1000ML/day after periods of heavy rainfall.
14. The new WDL will not restrict the availability of water for extraction in the area because it does not authorise extraction from the river.

Any water allocation plan applying to the area in question (s 90(1)(ab))

15. There is no water allocation plan in place which covers Groote Eylandt.

The existing and likely future demand for water for domestic purposes in the area in question (s 90(1)(b))

16. There are no settlements located downstream of the proposed discharge point on the Angurugu River, nor any such proposed developments.
17. The Angurugu community is located approximately 2 km upstream of the proposed discharge point. GEMCO holds a water extraction licence for extraction of surface water from the Angurugu River, at a location approximately 2.5 km upstream of the proposed discharge point (see paragraph 23). The licence is for public water supply to the Angurugu community as well as water for mining activities. Tidal influences mean that discharged water will flow upstream during incoming tides. However, discharged water is unlikely to reach as far as the extraction licence location. The water extraction licence is located beyond the upper reach of tidal influences and is primarily influenced by freshwater inflows. Thus, the extraction licence location is not likely to be impacted by changes in water quality due to discharges.
18. For the above reasons, the WDL is unlikely to affect the future demand for water for domestic purposes in the area.

Any adverse effects likely to be created as a result of activities under the WDL on the supply of water to which any person other than the applicant is entitled under the Water Act (s 90(1)(c))

19. The proposed activity involves discharging water, rather than taking water.
20. Other than the applicant, no person is entitled to water from downstream or upstream of the discharge point on the Angurugu River.
21. For the above reasons, the WDL is not likely to affect water supply to which any person other than the applicant is entitled.

The quantity or quality of water to which the applicant is or may be entitled from other sources (s 90(1)(d))

22. The applicant is entitled to extract surface water from the Angurugu River pursuant to a water extraction licence under the Water Act (surface water extraction licence number 9291005).
23. Under surface water extraction licence number 9291005, the applicant is licenced to take the following volumes from the Angurugu River:
 - a. 1,740 ML/annum for potable purposes (public water supply) and
 - b. 845 ML/annum to support mining activities.
24. The location for water extraction licence 9291005 is approximately 2.5 km upstream of the discharge point.
25. This WDL does not authorise the extraction of water by the applicant and therefore does not affect the quantity of water the applicant is entitled to.

The designated beneficial uses of the water and the quality criteria pertaining to the beneficial uses (s 90(1)(e))

26. The relevant declared beneficial uses area is Groote Eylandt Area Marine Waters declared in Gazettal notices No. G9, 11 March 1998, No. G11 25 March 1998 and No. G20 27 May 1998.
27. The following beneficial uses are prescribed:
 - c. Aquatic ecosystem protection and
 - d. Recreational water quality and aesthetics.
28. The Australian & New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018)¹ and the Guidelines for Managing Risks in Recreational Water published by the National Health and Medical Research Council (2008)² were considered.
29. The WDL includes conditions to prevent or minimise impact on beneficial uses, including:
 - a. Allowing the applicant to discharge over the 2024-2025 wet season mitigates the risk of uncontrolled releases from mine water storages. There is uncertainty around the potential cumulative impacts of discharges of fresh to brackish water into an estuarine environment over subsequent years. Given the uncertainty, the proposed WDL requires the applicant to conduct baseline monitoring over the initial wet season of discharges to ensure impacts will be able to be

¹ <https://www.waterquality.gov.au/anz-guidelines>

² <https://www.nhmrc.gov.au/sites/default/files/images/guidelines-for-managing-risks-in-recreational-water.pdf>

detected in future years (see paragraph 29d). The proposed WDL contains a requirement to conduct a hydrodynamic assessment to determine the effect and potential impacts of additional freshwater inputs from mining discharges on estuarine water quality over the annual seasonal cycle.

- b. Discharge specifications and limitations: Discharge of water with a turbidity reading above 20 NTU is prohibited to prevent aesthetic impacts.
- c. Water quality trigger values:
 - i. The licence provides trigger values and limits on water quality to protect aquatic ecosystem health.
 - ii. Trigger values for this licence have been derived from background water quality data collected at monitoring point AMP3 between 2006 and 2024. Trigger values have been set at the 80th percentile of the background water quality dataset for parameters that should remain low, namely: turbidity, total suspended solids, aluminium, manganese and the upper bound of the pH range. Trigger values have been set at the 20th percentile of background water quality dataset for parameters that should remain above the specified level, namely: electrical conductivity (EC) and the lower bound of the pH range.
 - iii. Exceedances of trigger values at the compliance point are a trigger for further investigation and, if required, action to bring the water quality back to an acceptable level. The existing monitoring point AMP3 has been specified as the compliance point.
 - iv. The proposed WDL specifies that exceedances of the trigger value by 3 or more times, or on 3 consecutive sampling occasions are reportable events and must be investigated to determine the cause and take corrective and preventive action as appropriate. The proposed WDL specifies that over a monitoring period (April to March), the median value for the parameters as measured at the compliance point must not deviate beyond the trigger values or a specified range. This accounts for the variability for tropical rivers such as the Angurugu River, which demonstrate high natural seasonal variability, as well as tidal influence.
 - v. Using background water quality data to derive trigger values is generally preferred over using the default guideline values (ANZG, 2018). The aluminium and metal trigger values in the proposed WDL based on background data are well below the ANZG (2018) default guideline values for these toxicants and as such are likely to protect aquatic ecosystems.
 - vi. Trigger values are not applied to other metals. The level of other metals in F3 Quarry water were shown to generally remain below the ANZG (2018) default guidelines. The proposed WDL requires monitoring for a range of heavy metals to ensure that unexpected levels in the discharge can be detected.
 - vii. The EC trigger value is set at <math>< 570 \mu\text{S}/\text{cm}</math> in the proposed WDL. The applicant proposed this trigger value for application at downstream monitoring locations. The purpose of requiring the median EC at AMP3 to remain above

- d. Monitoring program:
- viii. Water quality: Water quality samples at locations downstream of and immediately upstream of the discharge point must be collected weekly. The samples must be analysed for a range of parameters so the applicant can assess impacts of discharges on the receiving water quality. The proposed WDL includes monitoring both downstream and upstream of the control point to account for incoming tides which may move discharges upstream.
 - ix. Biological monitoring: The proposed WDL includes requirements for baseline assessments and ongoing monitoring of riparian vegetation and estuarine biodiversity in the downstream receiving environment. The licence holder is required to prepare a biological monitoring program designed to detect changes and impacts to biological values, and then implement the program.
 - x. Sediment and marine monitoring: The proposed WDL includes requirements for the licence holder to submit a sediment and marine water quality monitoring plan to the administering agency for approval, then implement the plan.
- e. Reporting requirements: The licensee must provide monitoring data and reports to the administering agency on a yearly basis. The licensee must record all non-compliances, and report these in their annual return. If a non-compliance of a certain severity occurs (a notifiable incident), the licensee must provide notice within 24 hours and submit an investigation report within 10 business days.
- f. Standard WDL conditions: The proposed WDL includes conditions which are standard to WDLs issued by the administering agency. This includes the provision that authorised discharges must not cause mortality or adverse impacts on fish, other aquatic organisms or plants. These conditions are relevant to protecting the recreational use of the Angurugu River.
30. The conditions included in the proposed WDL ensure that potential impacts on the receiving environment are minimised and that effective monitoring is in place to allow early detection of potential impacts on the designated beneficial uses of the water.

The provisions of any agreement made by or on behalf of the Territory with a State of the Commonwealth concerning the sharing of water (s 90(1)(f))

31. There are no water sharing arrangements in place in the Northern Territory concerning the sharing of water in the area.

The existing or proposed facilities on, or in the area of, the land in question for the retention, recovery, or release of drainage water, whether surface or sub-surface drainage water (s 90(1)(g))

32. Drainage water retention facilities in the area of the discharge location and on the mining leases are regulated under a deemed environmental (mining) licence issued pursuant to the *Environment Protection Act 2019* (NT) (variation of authorisation DML0126-01; the applicant's mining licence). Under the applicant's mining licence, the applicant has developed a water management infrastructure network that enables it to transfer water between active and inactive quarries, water storage and water transfer facilities, the concentrator and Tailings Storage Facilities (TSFs). The applicant may also discharge surplus water to bushland if water quality is within stipulated trigger limits. The infrastructure enables the applicant to move water for operational requirements and to ensure bush discharges are managed to prevent environmental harm to the surrounding bush. The applicant manages water according to their water management plan which includes groundwater and surface water monitoring, reporting and protocols for responding to adverse impacts.

33. The applicant has pumping and pipe infrastructure suitable to release water to the Angurugu River from the northern quarries. Surplus water in the northern quarries (N4 Quarry, N3 Quarry, F3N Quarry, F3 Q Quarry and NH Quarry) can be pumped to the F3 Quarry designated storage void before being discharged to the Angurugu River.
34. The proposed WDL specifies the discharge point on MLN3 (a mineral lease held by the Applicant), between the under-construction haul road culvert bridge and the Rowell Highway bridge. It is proposed to discharge water through a diffuser to minimise scouring of the streambed.

The adverse effects, if any, likely to be created by such drainage water resulting from activities under the WDL on the quality of any other water or on the use or potential use of any other land (s 90(1)(h))

Drainage water quality and quantity

35. Discharge under the WDL will be from the on-site water body F3 Quarry. The applicant has been monitoring water quality in on-site water bodies, including F3 Quarry, since 2009. The application contained summary data to indicate the quality of water in F3 Quarry. The assessment of the application assumed that discharge water quality will be similar to historical water quality in F3 Quarry.
36. Based on all available data from December 2009 to present (summarised in WRM (2024), water quality in F3 Quarry can be summarised as follows:
 - a. Slightly brackish, with a median electrical conductivity of 592 $\mu\text{S}/\text{cm}$.
 - b. Total suspended solids and turbidity levels which are generally very low (median TSS is 0.5 mg/L and median turbidity is 4.4 NTU).
 - c. Slightly acidic with a median pH of 5.7.
 - d. No detectable hydrocarbons.
 - e. Dissolved aluminium concentrations that frequently exceed the default guideline values. Aluminium concentrations in the freshwater and estuarine reaches of the Angurugu River frequently exceed the median concentration in F3 quarry.
 - f. Dissolved manganese concentrations that are well below the freshwater default guideline value. Manganese concentrations in the estuarine reach of the Angurugu River frequently exceeds the median concentration in F3 quarry. Manganese concentrations in the freshwater reaches of the Angurugu River is generally below the median concentration of manganese recorded in F3 Quarry.
 - g. The median dissolved zinc concentration is just below the default guideline value.
 - h. The concentrations of all other metals have been well below the default guideline values and/or below the limit of detection.
37. The applicant plans to discharge 60 ML/d and the discharge rate will remain below 700 L/s. Discharges will add a maximum of 60 ML/day of brackish water to an estuarine system that receives consistent freshwater inflows of at least 10 ML/day in the dry season and 60 to >1000 ML/day during the wet season.

Effects of drainage water on the quality of other water

38. The applicant asserted that the discharges can be expected to have, “No adverse effects on receiving water quality...” This assertion was supported by the reasoning that the existing monitoring data shows that the quality of water stored on site (summarised in paragraph 36) is very similar to the freshwater flows from the upper Angurugu River.
39. When discharges are undertaken in the wet season and additional brackish water inputs are a small fraction of background flows, the monitoring data provided by the applicant indicates that the discharges are unlikely to have adverse effects on the water quality on the receiving environment or the potential use of surrounding land.
40. However, it is unclear whether additional brackish water inputs during periods of lower flow (dry season) will have an impact on riverine biodiversity and riparian vegetation. The additional releases have the potential to moderately alter local salinity closer to the release point, compared to AMP1 and AMP2, which will remain dominated by tidal inflows. It has therefore been proposed to include a salinity investigation (trigger) level at the AMP3 downstream monitoring point. An investigation will be undertaken if the salinity at AMP3 falls below the 20th percentile of background conditions. The licence includes requirements to conduct a baseline assessment and develop a monitoring program capable of detecting impacts.
41. The WDL contains conditions for the purpose of preventing or minimising adverse effects of discharges authorised under the proposed WDL on the quality of receiving water, as outlined in the paragraph 29.

Effects of drainage water on the use or potential use of any other land

42. The quantity of releases will not have a significant impact on the water levels along the river, irrespective of the upstream catchment flows. That is, no additional land will be inundated as a result of the discharges.
43. The quality of water proposed for discharge is similar to existing water quality in the Angurugu River and will not be of a quality that would affect the usability of land in the receiving environment.
44. The discharges are unlikely to prevent or alter the use of land downstream or upstream of the discharge point, particularly for cultural and recreational activities.
45. For the above reasons, discharges authorised under the proposed WDL are unlikely to have an effect on the use or potential use of land.

The provisions under the *Planning Act 1999 (NT)* relating to the development or use of land in the area in question (s 90(1)(j))

46. The activities conducted on the land do not require development consent under the Planning Scheme established under the *Planning Act 1999 (NT)*, for the following reasons:
 - a. The Western Leases mine site has the benefit of section 162 of the *Planning Act 1999*, as it was a lawful land use prior to the commencement of the former *Planning Act 1993*.

Other factors the Controller considers should be taken into account or that the Controller is required to take into account under any other law in force in the Territory (s 90(1)(k))

Compliance

47. The applicant has not held a WDL previously and as such has no compliance history under the *Water Act 1992*.
48. The applicant has previously submitted environmental incident reports to the Northern Territory Environment Protection Authority in accordance with section 14 of the *Waste Management and Pollution Control Act 1998*.
49. On 23 August 2024, the applicant submitted a section 14 report regarding vegetation dieback adjacent to the western leases of the GEMCO mine. The vegetation dieback may have resulted from the discharge of mine water to bushland. The discharges to bushland are authorised and regulated under the applicant's mining licence.

Aboriginal Land and Protected Areas

50. The discharges will drain into the Angurugu River which runs through the Anindilyakwa Land Trust.
51. The Groote Eylandt Archipelago is dedicated as The Anindilyakwa Indigenous Protected Area (IPA).
52. The Controller has consulted with the Anindilyakwa Land Council (ALC) on the proposed WDL (see section D below).

Conditions of WDL

53. The key features of the proposed WDL to prevent and detect environmental impacts as a result of discharges are described in paragraph 29.
54. The WDL does not include all the terms/amendments proposed by the applicant. The following terms/amendments were not included in the proposed WDL for the following reasons:
 - a. The applicant requested to include separate dry season and wet season trigger values for EC and pH. The proposed wet season trigger values were not supported as they were considered too low to allow for detection of impacts.
 - b. The applicant requested changes to standard conditions of the WDL. The proposed changes were not supported to maintain consistency with the requirements of other WDLs.

Assessment under the *Environment Protection Act 2019 (NT)* or the *Environmental Assessment Act 1982 (repealed)*

55. Portions of the applicant's mining activity have been subject to assessment by the NT EPA under the *Environmental Assessment Act 1982 (NT)* or *Environment Protection Act 2019 (NT)*.
56. The Eastern Leases Project was assessed in under the *Environmental Assessment Act 1982 (NT)*. The assessment outcomes are detailed in NT EPA assessment report 77. This licence does not concern activity on the Eastern Leases. Nonetheless, the discharges proposed by the applicant are not inconsistent with the findings and recommendations of the assessment report.
57. The J Quarry Haul Road Realignment Project was assessed under *Environment Protection Act 2019 (NT)*. The outcomes of the assessment are recorded in the Northern Territory Environment Protection Authority notice of decision and statement of reasons dated 22 December 2020. The project was found to not pose a significant risk to the environment.

D. CONSULTATION

58. The Controller of Water Resources and representatives from the administering agency met with representatives of the applicant on 9 December 2024. The applicant facilitated an inspection of source water bodies, discharge locations and infrastructure, and receiving waters.
59. The Controller of Water Resources and representatives from the administering agency met with representatives of the Anindilyakwa Land Council (ALC) on 10 December 2024. The representatives of the ALC raised concerns about the proposed discharges, including:
- a. Insufficient consultation by the applicant to allow for free, prior and informed consent
 - b. The choice of the proposed discharge location
 - c. Impacts on the discharges on cultural values associated with the Angurugu River
 - d. Impacts on the discharges on the ability of traditional owners to be able to fish in the river
 - e. Impacts of the discharges on water quality in the Angurugu River and receiving marine environment
 - f. Impacts of the discharges on environmental values
 - g. Aesthetic impacts of the discharges.
60. The draft WDL was provided to the applicant and the following agencies:
- a. Anindilyakwa Land Council
 - b. Aboriginal Area Protection Authority
 - c. Mining Division of the Department of Lands, Planning and Environment
 - d. Northern Land Council.
61. Comments from the applicant on drafts of the WDL were received on 19 December 2024, 16 January 2025 and 21 January 2025. The draft WDL was discussed in a meeting with the applicant on 22 January 2024.
62. Comments received from interested stakeholders and directly affected people noted the presence of sacred sites downstream of the discharge location, restated concerns noted in paragraph 59, and provided feedback regarding the protection and monitoring of aquatic, riparian and marine ecosystem health.

E. CONCLUSION AND FINAL DECISION

63. Based on the above reasons, I have decided to grant WDL256 on the terms and conditions specified in the licence.