

DIRECTION TO PROVIDE ADDITIONAL INFORMATION IN RELATION TO THE SUPPLEMENTARY ENVIRONMENTAL REPORT

Direction given under section 124(1) of the Environment Protection Regulations 2020

Name of proposed action	GEMCO Excess Water Disposal Project
Proponent	Groote Eylandt Mining Company Pty Ltd (GEMCO)
NT EPA reference	EP2025/043
Nature of proposed action	Mining, utilities and services
Description of proposed action	The project is located on NT Portions 1031, 1305, 1306, 1632, 1669 & 1671 on the western side of Groote Eylandt adjacent to the Port, Rowell Highway and GEMCO's Western Leases. The project sits within the East Arnhem Local Government area, and the land tenure is a mix of Aboriginal freehold, Mineral Lease (North) and Special Purpose Lease. The proposed action includes the construction, installation and operation of water discharge infrastructure (pumps, pipes and marine outfall) over a distance of ~ 12 km extending to a discharge point 600 m into Milner Bay. The water management infrastructure is proposed to have a water discharge capacity of up to 80 gigalitres per year. The duration of the proposed action is for the remaining life of mine and to support closure activities.
Method of environmental impact assessment	Assessment by supplementary environmental report (SER)
Direction	The proponent is directed to provide additional information in relation to the SER (refer to Attachment A)
Submission period	The additional information must be submitted to the NT EPA within 6 months of the date of this Direction
Document to be published	Additional information to the SER
Person authorised to give direction	Lauren Townsend A/Executive Director Environment and Heritage Delegate of the NT EPA under section 36(1) of the <i>Northern Territory Environment Protection Authority Act 2012</i>
Signature	
Date of direction	13 April 2026

Attachment 1 – Additional information to be provided in relation to the Supplementary Environmental Report

Groote Eylandt Mining Company Pty Ltd – GEMCO Excess Water Disposal Project

Topic	Context	Additional information requested
The proposed action		
Consultation	One of the justifications for standard assessment by supplementary environmental report (SER) was Regulation 59 (d) & (e) - the extent of community engagement that has occurred, and whether it is sufficient to ensure that affected communities and individuals understand the proposed action and its potential impacts, including cumulative impacts on marine ecosystems. During the SER submission period the Anindilyakwa Land Council (ALC) provided a submission in which they raised concerns about consultations with traditional owners. The ALC provided the following comment: <i>“The discussions with senior men took place without the full understanding as to the size and impacts of the Project. The discussions held can in ALC’s view only be described as preliminary, due to the number of people involved, inadequate knowledge of the extent of the project and its impacted area.</i> <i>Further detailed community consultations must be undertaken, to ensure that Traditional Owners can be heard and their concerns in this matter are fully considered before any discharge”</i> The submission indicates that traditional owners have not been adequately consulted and there’s uncertainty about potential impacts of the project. The NT EPA’s Stakeholder Engagement and Consultation guidance discusses the importance of consultation, objects of the EP Act, general duty of proponents, effective engagement and proponent obligations.	1) Address the issues raised in submissions received in relation to the SER. 2) Provide evidence that GEMCO has consulted with (including informing and involving) potentially affected stakeholders. 3) Provide supporting evidence that the inputs and concerns of traditional owners and the ALC have been considered and addressed, and outline how those inputs were incorporated to the planning and design of the proposed action, including any resulting changes. 4) Demonstrate and include supporting evidence that object 3(d) and 3(e) of the EP Act and the NT EPA’s expectations for stakeholder engagement in accordance with the NT EPA’s Stakeholder Engagement and Consultation guidance have been met. 5) Demonstrate how Free, Prior and Informed Consent has been sought, including evidence of culturally appropriate, well-informed and non-coercive engagement undertaken sufficiently in advance of decisions or approvals.

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	Objects 3(d) and 3(e) of the <i>Environment Protection Act 2019</i> (EP Act) are: - to provide for broad community involvement during the process of environmental impact assessment, environmental approval and environmental (mining) licensing; and - to recognise the role that Aboriginal people have as stewards of their country as conferred under their traditions and recognised in law, and the importance of participation by Aboriginal people and communities in environmental decision-making processes.	
Marine Environmental Quality		
Submissions on the SER - Discharge modelling and supporting data	The SER was required to address the submissions made on the referral. These submissions raised issues related to marine environmental quality including: - turbidity impacts - baseline water quality of the receiving environment - discharge water quality - hydrodynamic modelling - avoidance, mitigation, and management measures; and - cumulative impacts (i.e. the combined impact of the proposed action over its lifetime) on the marine environment. Government authority and public submissions received in relation to the SER indicate that these matters have not been addressed in a manner that adequately resolves the remaining uncertainty about the significance and acceptability of potential impacts to the marine receiving environment. It is the expectation of the NT EPA that the extent, magnitude, and duration of potential impacts to the receiving environment are avoided and then mitigated in	1) The NT EPA notes that the SER and associated appendices describe the use of near field plume modelling (e.g. MERGE3 UTM) and far field hydrodynamic modelling (e.g. MIKE 3) to assess the impacts of the proposed marine discharge. However, the SER does not clearly describe how the outputs of the near field modelling are incorporated into, or used to inform, the far field modelling. To assist the NT EPA's assessment, please clarify: - The point of transition between the near field and far field modelling, including how this point corresponds to physically defined plume behaviour (e.g. initial dilution, plume rise or trapping depth); - Which specific outputs from the near field modelling (such as dilution achieved, plume thickness or effective discharge concentration) were used to parameterise the far field MIKE 3 model; - How the far field model represents near field mixing processes, noting that far field hydrodynamic models are not designed to resolve diffuser scale jet and buoyancy behaviour; - Whether the linkage between near field and far field modelling is based on:

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	accordance with the principles of environment protection and management as set out in Part 2 of the EP Act (including the principles of ecologically sustainable development, waste management hierarchy, and environmental decision-making hierarchy). Proponents are required to demonstrate how potential environmental impacts would be avoided, and then mitigated, and how any residual impacts would be managed or offset. Based on the Referral Information and SER, GEMCO has estimated discharge contaminant concentrations using a source-based, volume-weighted approach, drawing on monitored mine pit water quality data, estimated dewatering volumes, sewage treatment plant (STP) discharge quality, and hydrodynamic modelling outputs to assess dilution and dispersion. This approach is intended to represent the expected quality of water at the end-of-pipe and after mixing in the receiving environment. The NT EPA has determined that further information is required to verify datasets, assumptions, cumulative loads, the extent of the proposed mixing zone, and whether treatment to meet defined water quality limits relevant to the receiving environment is necessary prior to end-of-pipe discharge. Issues requiring resolution include justification of the mixing-zone definition (percentile-based vs physics-based), use and framing of dredge plume modelling guidance, ecological exposure duration and long-term impacts, and the clarity, transparency, and defensibility of mixing zone compliance logic.	i. physically defined plume characteristics; or ii. statistical or percentile based dilution metrics; and e. The assumptions made at the near field / far field interface and how these assumptions ensure a conservative and precautionary assessment of marine impacts. Please include cross references to the relevant sections of the SER and modelling appendices where this linkage is described, and provide additional explanation or clarification where such description is currently implicit rather than explicit. 2) The NT EPA notes that the SER and associated appendices define and apply a mixing zone extent for the proposed discharge of mine-affected water to the marine environment. The mixing zone plays a critical role in determining where temporary exceedances of water quality guideline values may be acceptable and where full compliance is required. To assist the NT EPA in its assessment, please provide a clear explanation and justification of the mixing zone extent, including: a. Why the spatial extent of the mixing zone was determined based on percentile-based dilution outcomes (e.g. 1st percentile dilution) rather than physically derived near field plume behaviour (e.g. initial dilution, plume rise or trapping depth), and the justification for this approach. b. Why the selected mixing zone extent is considered appropriate having regard to: i. the nature and duration of the proposed discharge; ii. characteristics of the receiving marine environment; and iii. protection of identified environmental and cultural values; c. How the mixing zone extent aligns with contemporary best practice approaches, which typically distinguish between: i. near field processes used to define the mixing zone; and ii. statistical metrics used to assess compliance beyond the mixing zone;

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		d. Whether alternative mixing zone extents or definitions were considered, and if so, why these were not adopted; e. How compliance with relevant water quality objectives is demonstrated outside the mixing zone, including how exceedances are treated within the mixing zone. Please include cross references to the relevant sections of the SER and appendices where the mixing zone is described and justified, and provide additional explanation where the rationale is currently implicit rather than explicit. 3) Address the issues raised in submissions received in relation to the SER and the matters outlined in the following points: a) Provide evidence that the potential cumulative impacts (both the combined impacts with other stressors and the accumulation of impacts over the duration of the marine discharge) of the following have been adequately assessed and identify specific avoidance and mitigation measures related to the management of: i. nitrate from the discharge water and sewage treatment plant (STP); and ii. metals and metalloids in the discharge water (total load and dissolved fractions); and iii. sediment concentration and turbidity levels of the discharge water and turbidity generated by the discharge process. b) Demonstrate that the PN1-PN4 and PS13-PS16 reference sites are representative of ambient marine water quality and provide evidence that they are not affected by discharge from the sewage treatment plant (STP). c) Provide tabulated water quality data (totals and dissolved fractions) sufficient to verify summary statistics and graphs for all mine pits and the STP discharge. Include key parameters, date ranges, and representative statistics (median, percentiles, min/max) to allow assessment of variability. Justify derivation of 95th percentile of the volume-weighted mixed analyte concentrations, including

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		assumptions and data regarding turbidity, flow rates, pit volumes, and timing of dewatering. d) Evaluate on-site water treatment methods to improve the quality of the discharge water (e.g. reduction of suspended solids and metals/ metalloids) prior to end-of-pipe discharge, with defined end-of-pipe water quality limits (totals and dissolved fractions) relevant to the receiving environment. e) Provide details of the modelling approach for both near-field and far-field discharges, including all parameters, assumptions, and domain definitions. Demonstrate that the models account for wave effects, temporally varying currents and depths, variations to salinity and temperature of discharge waters, periods of minimal tidal flow, and provide calibration or sensitivity testing for advection and dispersion processes to ensure reliable representation of contaminant transport and flushing. f) The assessment of impacts should be updated to reflect any outcomes, findings, or new information arising from the matters addressed above. 4) Provide supporting documents that are not publicly available, including, but not limited to: a) IPE (2023b). Memorandum - Volume weighted assessment of dewatering discharge analyte concentrations. Prepared by Indo-Pacific Environmental for GEMCO, August 2023. b) IPE (2023c). Volume weighted assessment of dewatering discharge pH. Draft memorandum produced by IPE for GEMCO, 21 November 2023. 5) Demonstrate that the waste management hierarchy (Part 2 of the EP Act) has been considered and applied to the proposed marine discharge.
Suspended solids/turbidity modelling	Adopting INPEX (2022) sediment deposition thresholds and associated impact zones based on guidance for dredging activities in the modelling for the GEMCO Excess Water Disposal Project may not provide a suitable basis for	1) Demonstrate that the modelling used to define impact zones for the discharge applies sediment deposition thresholds that are appropriate to the receiving environment and the continuous duration of the discharge. This should include justification that the thresholds are based on site-specific conditions or a suitably conservative approach, and that

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	determining potential impacts. Darwin Harbour is a naturally turbid system with multiple anthropogenic impacts, including dredging and waste discharges. Milner Bay experiences lower background turbidity and minimal disturbance in comparison. Furthermore, the INPEX (2022) thresholds and the NT EPA's draft Marine Dredging Guideline were developed for short-term, intermittent dredging activities, rather than for continuous, high-volume, long duration point source discharge as proposed. Consequently, the use of INPEX (2022) values, and the modelling methodologies used to assess impacts from the proposed marine outfall, rather than marine dredging, may not provide a suitable basis for defining impact zones in Milner Bay.	they accurately characterise the extent and magnitude of potential impacts.