



Northern
Territory
Government

WASTE DISCHARGE LICENCE

(Pursuant to section 74 of the *Water Act*)

| | |
|------------------------------|--|
| Licensee | NRR Mining Pty Ltd |
| Licence Number: | WDL246-01 |
| Registered Business Address: | Unit 18, 109 Holt Street Eagle Farm QLD 4009 |
| ACN: | 619 218 665 |
| ABN: | 38 619 218 665 |
| Premises: | Roper Bar Mine Mine area located within NT Portion 819, defined as Crown Lease Perpetual (which is the former St Vigeon Pastoral Lease). Bing Bong Port Facility Load out facility for authorised mining activities located within NT Portion 4319, defined as perpetual pastoral lease 1051. |
| Anniversary Date: | 20 May |
| Commencement Date: | 20 May 2020 |
| Amendment Date: | 1 December 2020 |
| Expiry Date: | 20 May 2022 |
| Licensed Activity: | Controlled discharge of water, in accordance with the licence conditions, from F-East Pit 1 (FE1) through authorised discharge point RBAD1 into the Towns River Controlled discharge of water, in accordance with the licence conditions, from the dredge soil containment cell through the authorised discharge point BBDP03 into the Bing Bong Swing Basin in the Gulf of Carpentaria |
| Potential Issues: | Toxicity of salinity, sulphate, acid/alkaline solutions and metals/metalloids. Increased bioavailability of metals due to pH changes. Smothering of flora. Impairment of ecosystems structure and function |
| Ecosystem Attributes: | The area immediately surrounding the mine site (including the Towns and Magaranyi Rivers) has a high ecological value due to its remoteness, relatively undisturbed condition and its |

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potential as, and connectivity with a sawfish habitat (Limmer Bight and associated coastal floodplains Site of Conservation Significance, SOCS #32)

Level of Protection for the Receiving Environment:

99% Species Protection for Freshwater Ecosystems (ANZG 2018)

95% Species Protection for Marine Ecosystems (ANZG 2018)

No change in water/sediment chemical and physical properties beyond natural variation

No change in biodiversity beyond natural variation

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INFORMATION ABOUT THIS LICENCE

Definitions of Terms

- A section including the definition of terms used in this Licence can be found at the end of it.
- Terms used in the waste discharge licence which are defined in the *Water Act* (the Act) have the meaning given in that Act unless specifically indicated otherwise.

Responsibilities of Licensee

- It is an offence under the Act, if the holder of a waste discharge licence contravenes or fails to comply with the conditions of a waste discharge licence.
- Licensees must comply at all times with the requirements of the Water Act and all applicable laws.
- Except as expressly provided for in this licence, the licensee must not:
 - cause environmental harm either directly or indirectly;
 - allow waste to come into contact with water; or
 - allow water to be polluted.
- Without limiting the conditions of this licence, in conducting the activity, the licensee must do all things reasonable and practicable to:
 - prevent or minimise the likelihood of pollution occurring as a result of, or in connection with, the activity;
 - prevent or minimise the likelihood of environmental harm occurring as a result, or in connection with, the activity;
 - effectively respond to pollution and the risk of pollution occurring as a result of, or in connection with, the activity;
 - effectively respond to environmental harm and the risk of environmental harm occurring as a result of or in connection with the activity; and
 - apply the principles of ecologically sustainable development.

Duration of licence

- This licence will remain in force until its expiry date, it is surrendered by the licensee, or until it is suspended or revoked by the Controller of Water Resources.
- As set out in section 94 of the Act, the holder of a licence may, at any time, surrender the licence.

Amendment, Modification or Revocation of Licence (section 93 of the *Water Act*)

- As set out in section 93 of the Act, the Controller of Water Resources may, by notice:
 - amend or modify the terms and conditions of a licence;
 - revoke a licence; or
 - suspend a licence.

Public Register

- A copy of this Licence will be placed on a register in accordance with section 95 of the Act.
- A copy of waste discharge licences and any plans for environmental management, reports, submissions or documents required as a condition of a waste discharge licence, will be placed on a register.

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- The Administering Agency makes this register freely available from the Northern Territory Environment Protection Authority (NT EPA) website.

Beneficial Use Declaration (section 73 of the Water Act)

- Beneficial Use Declaration (BUD) is a legislated process that reduces the effects of water pollution and assists in the protection and management of water. The community decides how a particular water body should be used by choosing on one or more Beneficial Use categories.

Environmental Interests

- This section highlights the beneficial uses as declared under the Act and the sensitivity of the surrounding land use and environment associated with the location of the approved activity.
 - Declared beneficial uses and or water quality objectives
 - McArthur River Area – Aquatic Ecosystem Protection
 - Sites of Conservation Significance (SOCS) are:
 - Limmen Bight and associated coastal floodplains, SOCS site number 32
 - McArthur River coastal floodplain, SOCS site number 34
 - No Ramsar Wetlands
 - Directory of Important Wetlands:
 - Limmen Bight (Port Roper) Tidal Wetlands System
 - Limmen National Park
 - St Vidgeon Management Area

Cultural Interests

- It is the licensee's responsibility to contact the Aboriginal Areas Protection Authority, appropriate land council or other governing body and ensure that any Authority Certificates required as a result of conducting the licenced activity are obtained and complied with.

RULES FOR INTERPRETING THE CONDITIONS OF THIS LICENCE

- Where there is a discrepancy between the conditions of this licence and any plan, standard, guideline or other document referred to in this licence, the conditions of this licence prevail to the extent of the inconsistency.
- Any reference to any standard (Australian or international) in this licence means the relevant parts of the current version of that standard.
- A reference to any guideline or code of practice (or to the relevant parts of any guideline or code of practice) in this licence means the current version of the guideline or code of practice.
- Under section 76 of the Act, any contravention of or failure to comply with this licence by the licensee may be an offence.
- In this licence, unless the contrary intention appears, words that are defined in the Act are intended to have the meaning given to them in that Act.

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LICENCE CONDITIONS

GENERAL

1. The licensee must ensure the contact details recorded with Administering Agency for this licence are correct at all times.
2. The licensee must at all times have a 24 hour emergency contact.
3. The licensee must notify the Administering Agency prior to making any operational change that will cause, or is likely to cause, an increase in the potential for environmental harm.
4. The licensee must cause clear and legible signage, in English, to be displayed in a prominent location at each public entrance to the premises that includes the following details:
 - 4.1. waste discharge licence number issued under the Act; and
 - 4.2. 24 hour emergency contact details.
5. The licensee must cause a copy of this licence to be available for inspection by any person, in hard copy form, at the premises.
6. The licensee must provide to the Administering Agency, within 10 business days of a request, a copy of any document, monitoring data or other information in relation to the activity, in the format requested by the Administering Agency.
7. All notices, reports, documents or other correspondence required to be provided as a condition of this licence, unless otherwise specified as a condition of this licence, must be provided in electronic form by emailing waste@nt.gov.au.
8. The licensee must maintain and implement the current version of the documents listed in Table 1.

Table 1 – License Documents

| Document Title | Date |
|---|---------------|
| Water Management and Monitoring Program | November 2019 |

9. Within 10 business days of any amendment being made to a document listed in Table 1 the licensee must provide the amended document to the Administering Agency, along with:
 - 9.1. a tabulated summary of the amendment(s) with document references;
 - 9.2. reasons for the amendment(s); and
 - 9.3. an assessment of environmental risk associated with the amendment(s).
10. The Administering Agency may require the licensee to revise or amend and resubmit any amended document. Where the Administering Agency requires a document to be resubmitted, the licensee must submit it to the Administering Agency by the date specified by the Administering Agency.
11. The licensee must, for the duration of this licence, implement, maintain and follow a Consultation and Communication Plan which includes a strategy for communicating with persons who are likely to have a real interest in, or be affected by, the activity.
12. The licensee must operate and maintain a community feedback number.
13. The licensee must display the community feedback number:
 - 13.1. where the licensee has a website, in a prominent location on the licensee's website;
 - 13.2. in the Consultation and Communication Plan; and
 - 13.3. in other publicly available documents relating to the activity.
14. The licensee must maintain a Complaint Log for all complaints received by the licensee in relation to the activity.
15. The licensee must ensure that the Complaint Log includes, for each complaint received by the licensee, the following information:

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- 15.1. the person to whom the complaint was made;
 - 15.2. the person responsible for managing the complaint;
 - 15.3. the date and time the complaint was reported;
 - 15.4. the date and time of the event(s) that led to the complaint;
 - 15.5. the contact details of the complainant if known, or where no details are provided a note to that effect;
 - 15.6. the nature of the complaint;
 - 15.7. the nature of event(s) giving rise to the complaint;
 - 15.8. prevailing weather conditions at the time (where relevant to the complaint)
 - 15.9. the action taken in relation to the complaint, including any follow-up contact with the complainant; and
 - 15.10. if no action was taken, why no action was taken.
16. The licensee must implement, maintain and follow an Emergency Response Plan that addresses procedures for responding to emergencies associated with the activity that may cause environmental harm.

EARLY SURRENDER OF LICENCE

17. Any reports, records or other information required or able to be provided by the licensee under this licence must be submitted to the Administering Agency prior to the licensee surrendering the licence. If the date on which a report, record or other information is required falls after the date the licensee requests to surrender this licensee, the licensee must provide the report, record or information as far as possible using data available to the licensee up to and including the date the request to surrender the licence is made.

OPERATIONAL

18. The licensee must ensure any plant and equipment used by the licensee in conducting the activity:
- 18.1. is reasonably fit for the purpose and use to which it is put;
 - 18.2. is maintained and calibrated; and
 - 18.3. is operated by a person trained to use the plant and equipment.
19. No change, replacement or alteration of plant and equipment is permitted if the change, replacement or alteration increases the risk of environmental harm for the licenced activity, unless approved by the Administering Agency.

DISCHARGES

Discharges to water

20. This licence authorises discharge to water from the authorised discharge points as identified in Table 2, and as otherwise allowed in accordance with the conditions of this licence.
21. The licensee must ensure that all discharge events at the authorised discharge points consist only of waste from the source as specified in Table 2.

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Table 2 Authorised Discharge Points

| Authorised Discharge Point | Description | Location |
|----------------------------|--|---|
| RBAD1 | FE1 discharge pipe Immediately adjacent to the Towns River Water from F-East pit 1 (FE1) | Latitude: -15.145085 Longitude: 135.086732 |
| BBDP03 | Discharge point within the Bing Bong Swing Basin consisting of decant water from the dredge spoil containment cell | Latitude: -15.628102 Longitude: 136.388067 |

22. The licensee must, for the authorised discharge point, install, operate and maintain a device to measure and record, for each discharge event:
- 22.1. the time the discharge commenced and the duration of the discharge;
 - 22.2. the discharge rate of flow; and
 - 22.3. the discharge volume.
23. Where the Administering Agency directs the licensee to cease discharge from an authorised discharge point identified in Table 2 of this licence, the licensee must immediately cease the discharge.
24. The licensee must ensure that the discharge from all discharge events at the authorised discharge point does not:
- 24.1. contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;
 - 24.2. cause or generate odours which would adversely affect the use of surrounding waters;
 - 24.3. cause algal blooms in the receiving water;
 - 24.4. cause visible change in the behaviour of fish or other aquatic organisms in the receiving water;
 - 24.5. cause mortality of fish or other aquatic organisms;
 - 24.6. cause adverse impacts on plants; or
 - 24.7. cause erosion at and immediately downstream of the authorised discharge point.

MONITORING

25. The licensee must conduct sediment and biological monitoring programs specified in the NRR Water Management and Monitoring Plan ("the Monitoring Plan").
26. The licensee must ensure that any proposed revisions to the Monitoring Plan (other than typographical changes or revisions to formatting or referencing) are:
- 26.1. reviewed by a suitably qualified professional, who must produce a written report about their review;
 - 26.2. submitted to the Administering Agency with justification for revisions; and
 - 26.3. submitted to the Administering Agency, in electronic form (with a complete copy of the qualified professional's 20 business days prior to the proposed implementation date.
27. The licensee must conduct surface water monitoring in accordance with Appendix 1 and Appendix 4 of this licence.
28. The licensee must ensure that sampling locations detailed in Appendix 1 of this licence are sampled on the same day and in order from most upstream to downstream.
29. The licensee must ensure that samples taken for analysis detailed in Appendix 4 of this licence are shipped to the laboratory by air freight within 24 hours of collection.

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30. The licensee must request the shortest turnaround time offered by the laboratory for the monitoring detailed in Appendix 4 of this licence.
31. The licensee must ensure that every sampling location is sampled in each sampling round. Where a sampling location is inaccessible or dry during a sampling round, further attempts must be made to sample in that same round should accessibility or water return to the location.
32. The licensee must ensure that all samples and field environmental data are representative of the conditions at the time of sampling.
33. The licensee must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667, ANZG 2018).
34. The licensee must ensure that all monitoring samples are analysed at a laboratory with current NATA accreditation or equivalent, for the parameters to be measured.
35. The licensee must ensure any samples collected in connection with this licence, are obtained by, or under the supervision of a qualified sampler.
36. The licensee must ensure that for each sample collected, the following information must be recorded and retained:
 - 36.1. the date on which the sample was collected;
 - 36.2. the time at which the sample was collected;
 - 36.3. the location at which the sample was collected;
 - 36.4. the name of the person who collected the sample;
 - 36.5. the chain of custody forms relating to the sample;
 - 36.6. the field measurements (if any) and analytical results (if any) relating to the sample; and
 - 36.7. laboratory quality assurance and quality control documentation.

RECORDING AND REPORTING

37. The licensee must keep records of all non-compliances with this licence. These records must be adequate to enable the licensee to comply with the non-compliance notification conditions of this licence.
38. The licensee must notify the Administering Agency of any non-compliance with this licence by emailing waste@nt.gov.au, as soon as practicable after (and in any case within 24 hours after) first becoming aware of the non-compliance.
39. The licensee must include in the notification of non-compliance the following information:
 - 39.1. when the non-compliance was detected and by whom;
 - 39.2. the date and time of the non-compliance;
 - 39.3. the actual and potential causes and contributing factors to the non-compliance;
 - 39.4. the risk of environmental harm arising from the non-compliance;
 - 39.5. the action(s) that have or will be undertaken to mitigate any environmental harm arising from the non-compliance;
 - 39.6. corrective actions that have or will be undertaken to ensure the non-compliance does not reoccur;
 - 39.7. if no action was taken, why no action was taken; and
 - 39.8. a date when an incident investigation report will be submitted to the Administering Agency.
40. A non-compliance with this licence includes:

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- 40.1. an exceedance of a trigger value on three consecutive sampling occasions for parameters specified in Appendix 2 of this licence for monitoring locations RBSW04 and RBSWDS; or
 - 40.2. an exceedance of three times or more a trigger value for parameters specified in Appendix 2 of this licence for monitoring locations RBSW04 and RBSWDS; or
 - 40.3. an exceedance of the turbidity trigger value specified in Appendix 4 of this licence on three consecutive sampling occasions or on a single occasion by three times or more the trigger value for monitoring location BBMZ01; or
 - 40.4. an exceedance of the trigger values specified in Appendix 4 of this licence, excluding turbidity, for monitoring location BBMZ01.
41. The licensee must investigate the cause of each exceedance of trigger value for parameters specified in Appendix 2 and Appendix 4 of this licence, including:
- 41.1. the actual and potential causes and contributing factors to the exceedance;
 - 41.2. the risk of environmental harm resulting from the exceedance;
 - 41.3. actions undertaken to mitigate any environmental harm arising from the exceedance; and
 - 41.4. corrective actions undertaken to ensure the exceedance does not reoccur.
42. The licensee must keep records of all exceedances of trigger values for parameters specified in Appendix 2 and Appendix 4 of this licence. These records must be adequate to enable the licensee to comply with the conditions of this licence.
43. The licensee must keep records of all discharges including:
- 43.1. the time the discharge commenced and the duration of the discharge;
 - 43.2. the discharge rate of flow; and
 - 43.3. the discharge volume.
44. The licensee must submit a completed Annual Return, by emailing waste@nt.gov.au, within 10 business days after each anniversary date of this licence, which relates to the preceding 12 month period.
45. The licensee must complete and provide to the Administering Agency a Monitoring Report, as prescribed by this licence, by 1 August each year.
46. The licensee must ensure that each Monitoring Report:
- 46.1. is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring';
 - 46.2. reports on surface water, sediments, and biological monitoring undertaken for this licence and as part of the environmental monitoring program for the site;
 - 46.3. includes a tabulation of all monitoring data required as a condition of this licence. Data must be provided electronically in Microsoft Excel format;
 - 46.4. includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the activity over a minimum period of three years (where the data is available). Data used in this analysis must be provided electronically in Microsoft Excel format;
 - 46.5. reports on all exceedances and investigations undertaken for this licence;
 - 46.6. reports on the total contaminant load discharged from the mine site annually; and

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- 46.7. includes an assessment of environmental impact from the licenced activity and if the level of protection has been achieved by the licensee.

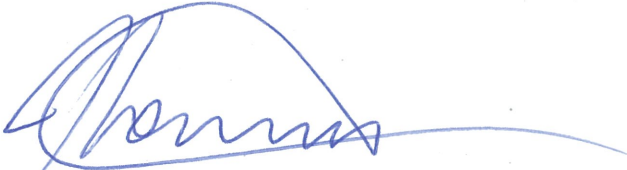
PERFORMANCE IMPROVEMENT

47. The licensee must ensure that the sediment and biological monitoring programs are updated within 30 business days of the commencement date of this licence to include as a minimum:
- changing locations RBSW02 and RBSW04 to impact locations; and
 - monitoring location RBSWDS in the sediment and biological monitoring programs.
48. The licensee must undertake a review of the sediment and biological monitoring programs to assess their capability to assess the environmental impact from the licensed activity and determine if the level of protection for the receiving environment has been achieved by the licensee. The review must be:
- 48.1. undertaken by a suitably qualified professional, who must produce a written report about their review;
- 48.2. submitted to the Administering Agency, in electronic form, by 1 August 2020.
49. The licensee must ensure that water quality monitoring stations, including water level and flow meters, are installed and operational before 1 October 2020.

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END OF LICENCE CONDITIONS

This licence is not valid unless signed below:



JOANNE TOWNSEND

Controller of Water Resources

Dated the 22 December 2020

END NOTES

This licence supersedes WDL246 which was issued on 20 May 2020

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DEFINITIONS

In this licence, unless a contrary intention appears:

| Term | Definition |
|-------------------------------------|--|
| 24 hour emergency contact | the phone number of a person who can be contacted at any time and be capable of responding to and providing information about any incident associated with the activity. |
| Activity | the Licenced activity as described on the covering page of this licence. |
| Administering Agency | means the Department of Environment and Natural Resources, or if dissolved, another Government Department with responsibility for administering the Water Act. |
| Annual Return | an Administering Agency prescribed format for demonstrating and reporting compliance with the conditions of this licence. |
| ANZG 2018 | Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian State and Territory Governments, Canberra ACT, Australia. Available at www.waterquality.gov.au/anz-guidelines . |
| Business days | a day not Saturday, Sunday or a public holiday, in the Northern Territory. |
| Community feedback number | a telephone number enabling members of the public to contact, at any time, a person or voice mail system that can accept, on behalf of the licensee, enquiries or complaints about the activity, and to which the licensee must respond. |
| Complaint Log | a register of complaints to be maintained by the Licensee that records the details of each complaint received in relation to the activity. |
| Consultation and Communication Plan | a written plan documenting proposed consultation and communications for the activity before, during and after the activity which includes a strategy for communicating with members of the public who are likely to have a real interest in, or be affected by, the activity. |
| Contact details | includes the 24 hour emergency contact, and name, position title and phone number of a representative of the licensee who can be contacted about the licence and activity. |
| Contaminant | a solid, liquid or gas or any combination of such substances and includes: <ul style="list-style-type: none">(a) noise, odour, heat and electromagnetic radiation;(b) a prescribed substance or prescribed class of substances; and(c) a substance having a prescribed property or prescribed class of properties. |
| Discharges | allow a liquid, gas or other substance to flow out from where it has been confined. |
| Emergency Response Plan | a written plan documenting the licensee's procedures for responding to emergencies caused by, resulting from or associated with the activity and that may cause environmental harm. |
| Environmental harm | any harm to or adverse effect on, or potential harm to or potential adverse effect on, the environment |

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| Term | Definition |
|-----------------------------|---|
| incident | includes: <ul style="list-style-type: none">(a) an accident, emergency or malfunction; and(b) a deliberate action, whether or not that action was taken by the person conducting the activity in the course of which the incident occurred. |
| Land | includes water and air on, above or under land. |
| Maintain | kept in a manner that it does not present or cause a risk of environmental harm or a hazard to persons or property or, for the purposes of documents including plans, a process of reviewing and amending documentation to ensure it is relevant. |
| Material environmental harm | environmental harm that: <ul style="list-style-type: none">(a) is not trivial or negligible in nature;(b) results, or is likely to result, in not more than \$50,000 or prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the harm or rehabilitate the environment; or(c) results in actual or potential loss or damage to the value of not more than \$50,000. |
| NATA | National Association of Testing Authorities, Australia. |
| Non-compliance | failure or refusal to comply, whether by act or omission, with obligations or requirements and includes any exceedance of a licence limit. |
| Non-compliance notification | an Administering Agency prescribed format for notifying the Administering Agency of a non-compliance. |
| Plant and equipment | all material items used in association with the activity, including (but not limited to) storage vessels and containers, pipe work and hosing, vehicles (including vessels), tools, and measuring equipment. |
| Point source discharge | means any discernible, confined or discrete conveyance from which contaminants or waste are or may be discharged. |
| Pollute | in relation to water, means directly or indirectly to alter the physical, thermal, chemical, biological or radioactive properties of the water so as to render it less fit for a prescribed beneficial use for which it is or may reasonably be used, or to cause a condition which is hazardous or potentially hazardous to: <ul style="list-style-type: none">(a) public health, safety or welfare;(b) animals, birds, fish or aquatic life or other organisms; or(c) plants. |
| Pollution | <ul style="list-style-type: none">(a) a contaminant or waste that is emitted, discharged, deposited or disturbed or that escapes; or(b) a contaminant or waste, effect or phenomenon, that is present in the environment as a consequence of an emission, discharge, deposition, escape or disturbance or a contaminant or waste. |
| Premises | the premises identified in this licence which includes equipment, plant and structures, whether stationary or portable, and the land on which premises are situated. |
| Public entrance | access to the premises that is utilised by the public. |
| Qualified person | a person registered under Section 68 of the WMPC Act. |

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| Term | Definition |
|----------------------------|---|
| Qualified sampler | a person who has training and experience in obtaining samples from the relevant environmental medium. |
| Serious environmental harm | environmental harm that is more serious than material environmental harm and includes environmental harm that: <ul style="list-style-type: none">(a) results or is likely to result in more than \$50,000 or prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the harm or rehabilitate the environment;(b) results in actual or potential loss or damage to the value of more than \$50,000;(c) damages an aspect of the environment that is of a high conservation value or of special significance; and(d) is irreversible or otherwise of a high impact or on a wide scale. |
| Stormwater | water flowing over ground surfaces, in natural streams and drains as a direct result of rainfall over a catchment and consists primarily of rainfall runoff. |
| Trigger values | assigned value for each indicator used to assess the risk to an environmental value, a value that initiates some type of pre-defined management action. |
| Waste | Includes matter or a thing, whether wholly or partly in a solid, liquid or gaseous state, which, if added to water, may pollute the water. |
| Wastewater | water that contains a contaminant or waste. |
| Water | means water, whether or not it contains impurities. |
| WMPC Act | the Northern Territory <i>Waste Management and Pollution Control Act</i> . |

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APPENDIX 1: SURFACE WATER MONITORING PROGRAM

| Parameter | Sample Locations | | Sample Locations | | | | Frequency | | |
|------------------------------|-------------------|----------------|------------------|--------|--------|----------|-----------|--------|--------|
| | Field Measurement | Units | Analysis | RBSWUS | RBSW01 | RBDP02US | | RBSW04 | RBSWDS |
| Flow | | kL/day measure | | | | | | | |
| Water Level | | | | | | | | | |
| pH | | pH units | | | | | | | |
| Electrical Conductivity (EC) | | µS/cm | | | | | | | |
| Dissolved Oxygen (DO) | | % saturation | Field | | | | | | |
| Temperature | | °C | | | | | | | |
| Turbidity | | NTU | | | | | | | |
| Photograph | | N/A | | | | | | | |
| Metals/Metalloids | | | | | | | | | |
| Aluminium (Al) | | | | | | | | | |
| Arsenic (As) | | | | | | | | | |
| Antimony (An) | | | | | | | | | |
| Boron (B) | | | | | | | | | |
| Barium (Ba) | | | | | | | | | |
| Beryllium (Be) | | | | | | | | | |
| Cadmium (Cd) | | | | | | | | | |
| Chromium (Cr) | | | | | | | | | |
| Cobalt (Co) | | | | | | | | | |
| Copper (Cu) | | | | | | | | | |
| Iron (Fe) | | | | | | | | | |
| Lead (Pb) | | | | | | | | | |
| Manganese (Mn) | | | | | | | | | |
| Molybdenum (Mo) | | | | | | | | | |
| Nickel (Ni) | | | | | | | | | |
| Selenium (Se) | | | | | | | | | |

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APPENDIX 2 : DISCHARGE TRIGGER VALUES

| Parameter | Units | Location | |
|---|--------------|--|--------------|
| | | RBSW04 and RBSWDS | FE1 |
| Physical Parameters | | | |
| Trigger Values | | | |
| pH | pH units | <20 th and >80 th percentile for RBSW01 ⁴ | <4.5 or >9.5 |
| Electrical Conductivity (EC) | µS/cm | >80 th percentile for RBSW01 ⁴ | N/A |
| Dissolved Oxygen (DO) | % saturation | <20 th and >80 th percentile for RBSW01 ⁴ | < 10 |
| Turbidity | NTU | <20 th and >80 th percentile for RBSW01 ⁴ | N/A |
| Metals/Metalloids (filtered 0.45µm) | | | |
| Aluminium (Al) | µg/L | 27 ¹ | N/A |
| Arsenic (As) | | 0.8 ² | N/A |
| Antimony (An) | | 9 ³ | N/A |
| Boron (B) | | 90 | N/A |
| Cadmium (Cd) ⁵ | | 0.06 | N/A |
| Chromium (Cr) ⁵ | | 0.01 ^{1, 2} | N/A |
| Cobalt (Co) | | 1.4 ³ | N/A |
| Copper (Cu) ⁵ | | 1 ¹ | N/A |
| Iron (Fe) | | 300 ^{1, 3} | N/A |
| Lead (Pb) ⁵ | | 1 | N/A |
| Manganese (Mn) | | 1200 | N/A |
| Molybdenum (Mo) | | 34 ³ | N/A |
| Nickel (Ni) ⁵ | | 8 | N/A |
| Selenium (Se) | | 5 | N/A |
| Tin (Sn) | | 3 ³ | N/A |
| Uranium (U) | | 0.5 ³ | N/A |
| Zinc (Zn) ⁵ | | 2.4 | N/A |
| Nutrients | | | |
| Total Nitrogen (TN) | µg/L | >80 th percentile for RBSW01 ⁴ | N/A |
| Total Phosphorous (TP) | | >80 th percentile for RBSW01 ⁴ | N/A |
| Key | | | |
| Trigger values based on 99% species protection ANZG 2018 | | | |
| 1 - If the concentration measured at the upstream monitoring location (RBSW01) is greater than the trigger value then the upstream concentration becomes the trigger value for that monitoring round. | | | |
| 2 - Undertake further analysis for speciation if trigger value is exceeded (As – As(III) and As(V), Cr – Cr(III) and Cr (VI)). | | | |
| 3 - Low reliability trigger value to be used until the collection of more data allows for the calculation of site specific trigger value (SSTV). | | | |
| 4 – Calculated using all monitoring rounds available for RBSW01 until 24 months of sample results are available at which stage trigger values will be based on the most recent 24 months of data. | | | |
| 5 Hardness correction factor may be applied on a 'per sample' basis and in accordance with ANZG 2018 for Cadmium, Chromium, Copper, Lead, Nickel and Zinc. | | | |

WASTE DISCHARGE LICENCE (WDL246-01)

APPENDIX 3: ROPER BAR MINE WDL MONITORING LOCATIONS



WASTE DISCHARGE LICENCE (WDL246-01)

APPENDIX 4: MONITORING PROGRAM FOR THE DISCHARGE OF DREDGE SPOIL DECANT WATER

| Parameter | Units | Analysis | Sample Locations | | | Trigger Values for BBMZ01 | |
|--|--------------|----------------------------------|--|-------------|-------------|---------------------------|-------------|
| | | | Sample Locations | | | | |
| | | | Site Code | DSCP | BBDP03 | | BBMZ01 |
| | | | Latitude | -15.627126° | -15.628102° | | -15.627780° |
| Longitude | 136.377316° | 136.388067° | 136.388712° | | | | |
| Frequency | | | | | | | |
| Field Measurement | | | | | | | |
| Flow | kL/day | Field | N/A | C | N/A | N/A | |
| Water Level | mb MOL | | D | N/A | N/A | MOL | |
| pH | pH units | | D | D | B, D, A | <8.0 or >8.4 ¹ | |
| Electrical Conductivity (EC) | µS/cm | | D | D | B, D, A | N/A | |
| Dissolved Oxygen (DO) | % saturation | | D | D | B, D, A | <90 ¹ | |
| Temperature | °C | | D | D | B, D, A | N/A | |
| Turbidity | NTU | | D | D | B, D, A | 20 ¹ | |
| Photograph | N/A | | N/A | N/A | B, D, A | N/A | |
| Metals/Metalloids | | | | | | | |
| Aluminium (Al) | µg/L | Unfiltered and Filtered (0.45µm) | W | W | B, W, A | N/A | |
| Cadmium (Cd) | | | W | W | B, W, A | 5.5 ² | |
| Cobalt (Co) | | | W | W | B, W, A | 1 ² | |
| Copper (Cu) | | | W | W | B, W, A | 1.3 ² | |
| Iron (Fe) | | | W | W | B, W, A | N/A | |
| Lead (Pb) | | | W | W | B, W, A | 4.4 ² | |
| Manganese (Mn) | | | W | W | B, W, A | N/A | |
| Nickel (Ni) | | | W | W | B, W, A | 70 ² | |
| Tributyltin as Sn | | | W | W | B, W, A | 0.006 ² | |
| Zinc (Zn) | | | W | W | B, W, A | 15 ² | |
| Other | | | | | | | |
| Total Suspended Solids (TSS) | mg/L | Unfiltered | W | W | B, W, A | N/A | |
| A – the day immediately following cessation of discharge B – Immediately before dredging commences C – Continuous using a flow meter D – Daily during discharge W – Weekly during discharge mb – meters below MOL – Maximum operating level | | | ¹ Default trigger value for tropical Australia, marine inshore ² Trigger values based on 95% species protection for marine ecosystems (ANZG 2018) | | | | |

WASTE DISCHARGE LICENCE (WDL246-01)

APPENDIX 5: ROPER BAR MINE WDL MONITORING LOCATIONS – BING BONG LOADING FACILITY

