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**File Ref:** . EN2010/0195-06~0018

**Your Ref:**

Mr Brent Murdoch  
General Manager Australia  
Vista Gold Australia Pty Ltd  
GPO Box 3449  
Darwin NT 0801

Dear Mr Murdoch

**RE: WASTE DISCHARGE LICENCE WDL178-5**

I refer to Vista Gold Australia Pty Ltd application for a waste discharge licence dated 13 October 2016.

Waste discharge licence WDL178-5 has been signed and is enclosed for your records.

For any queries regarding the waste discharge licence please contact Jane Orr on 8924 4049 or [jane.orr@nt.gov.au](mailto:jane.orr@nt.gov.au).

Yours sincerely



JO TOWNSEND

Controller of Water Resources

16 January 2017.



Northern  
Territory  
Government

## WASTE DISCHARGE LICENCE

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

**Licence Number:** **WDL178 - 05**

**Commencement Date:** 16 January 2017

**Expiry Date:** 31 August 2018

**Licensee** **Vista Gold Australia Pty Ltd**

**ACN:** 117 327 509

**Registered Business Address:** 1 / 4 Manning Road  
Double Bay NSW 2028

**Registered Business Postal Address:** PO Box 1467  
DOUBLE BAY  
NSW 1360

**Local Postal Address:** GPO Box 3449  
DARWIN  
NT 0801

**Premises Address:** Mount Todd Gold Project  
Mineral Lease Numbers MLN 1070, 1071 and 1127  
Jatbula Road, Katherine NT 0851

**Contact Person:** Brent Murdoch, General Manager  
p: 08 8941 9105  
m: 0488 100 314  
f: 08 8992 9011  
e: [bmurdoch@mttodd.com.au](mailto:bmurdoch@mttodd.com.au)

**Emergency Contact** Mount Todd Site Manager  
p: 08 8975 4297 (site office); 08 8976 7132 (site house)  
m: 0488 100 314 (General Manager, Darwin)

**Licensed Activity:** Discharge of wastewater from Mineral Leases MLN1070, 1071 and 1127, being:

- Treated wastewater from retention pond RP3 to Edith River via Batman Creek and Stow Creek.

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## WASTE DISCHARGE LICENCE (WDL178-05)

### INFORMATION ABOUT THIS LICENCE

#### 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.
- The licensee must notify the administering agency within 14 days after ceasing to conduct the activity.
- The licensee may surrender the licence to the administering agency.

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

- As set out in section 93 of the *Water 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 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.
- A copy of the Annual Return will be placed on the register.
- The administering agency makes this register freely available from the administering agency website.

#### Environmental Interests

- This section highlights the beneficial uses as declared under the *Water 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 for the Edith River:

- surface water - aquatic ecosystem protection (Gazette Reference G23 11 June 1997).
- groundwater – raw water for drinking, raw water for agriculture, and raw water for industrial purposes (Gazette Reference G22, 9 June 1999).

Sites of Conservation Significance (SOCS)

- SOCS Number 30, Yinberrie Hills; and
- SOCS Number 3, Daly River Middle Reaches.

#### 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

## WASTE DISCHARGE LICENCE (WDL178-05)

required as a result of conducting the licenced activity are obtained and complied with.

- The mining lease and discharges are located on aboriginal land under Freehold Aboriginal title to Barnjarn Aboriginal Corporation.
- Sites of Aboriginal significance including registered and recorded Aboriginal sacred sites may exist in the immediate vicinity of and downstream from the Mount Todd mine site.
- Further specific advice on any cultural requirement or implication of the licenced activity should be sought from the Northern Land Council and the Aboriginal Areas Protection Authority.

### **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 *Water 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 *Water Act* are intended to have the meaning given to them in that Act.

## WASTE DISCHARGE LICENCE (WDL178-05)

### LICENCE CONDITIONS

#### GENERAL

1. The licensee must ensure the contact details recorded with the 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 the mine entrance gate with the following details:
  - 4.1. waste discharge licence number issued under the *Water 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](mailto:waste@nt.gov.au).
8. 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.
9. 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.
10. The licensee must operate and maintain a community feedback number.
11. The licensee must display the community feedback number:
  - 11.1. where the licensee has a website, in a prominent location on the licensee's website;
  - 11.2. in the Consultation and Communication Plan; and
  - 11.3. in other publicly available documents relating to the activity.
12. The licensee must maintain a Complaint Log for all complaints received by the licensee in relation to the activity.
13. The licensee must ensure that the Complaint Log includes, for each complaint received by the licensee, the following information:

## **WASTE DISCHARGE LICENCE (WDL178-05)**

- 13.1. the person to whom the complaint was made;
  - 13.2. the person responsible for managing the complaint;
  - 13.3. the date and time the complaint was reported;
  - 13.4. the date and time of the event(s) that led to the complaint;
  - 13.5. the contact details of the complainant if known, or where no details are provided a note to that effect;
  - 13.6. the nature of the complaint;
  - 13.7. the nature of event(s) giving rise to the complaint;
  - 13.8. prevailing weather conditions at the time (where relevant to the complaint);
  - 13.9. the action taken in relation to the complaint, including any follow-up contact with the complainant; and
  - 13.10. if no action was taken, why no action was taken.
14. 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**

15. 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**

16. The licensee must, without limiting any other condition of this licence, in conducting the activity do all things reasonable and practicable to ensure the activity does not adversely affect the Declared Beneficial Uses and Objectives as declared from time to time, including those applying to:
- Edith River Surface Water
17. The licensee must ensure any plant and equipment used by the licensee in conducting the activity:
- 17.1. is reasonably fit for the purpose and use to which it is put;
  - 17.2. is maintained; and
  - 17.3. is operated by a person trained to use the plant and equipment.

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### DISCHARGE LOCATION

18. This licence authorises discharge to water from the authorised discharge point identified in Table 1 and Appendix 1.
19. The licensee must ensure that all discharge events at each authorised discharge point consist only of waste from the source as specified in Table 1.

Table 1 – Authorised discharge point

Retention Pond	Authorised Discharge Point	Description	Latitude	Longitude
RP3	RP3 Diffuser release to Batman Creek.	Treated wastewater pumped from Batman Pit (RP3) to Batman Creek on MLN1070, which flows to Stow Creek which flows off-lease to the Edith River.	-14.13914°	132.1116°

### DISCHARGE QUALITY

20. The licensee must ensure all reasonable and practical measures are undertaken to ensure the wastewater discharge does not adversely impact any of the following water quality objectives at and downstream of monitoring site SW4:
  - 20.1. for aquatic ecosystem protection, maintenance of background quality for nutrients and suspended solids determined as the 80<sup>th</sup> percentile for each parameter calculated using a dataset of at least four years of contiguous monthly Wet season data collected from the Edith River upstream of the mine site;
  - 20.2. for aquatic ecosystem protection, maintenance of water quality guideline values for toxicants at least 80% level of species protection in accordance with use of default and site specific water quality trigger values as recommended by ANZECC & ARMCANZ (2000) guidelines; and
  - 20.3. for water suitable for stock drinking and agricultural use, maintenance of quality as recommended by ANZECC & ARMCANZ (2000) guidelines.
21. Prior to and during any discharge from RP3, the licensee must determine and monitor the dilution required to achieve the water quality objectives defined in condition 20 and Appendix 2.
22. The licensee must ensure that the discharge from all discharge events at the authorised discharge point does not:
  - 22.1. contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;
  - 22.2. cause or generate odours which would adversely affect the use of surrounding waters;
  - 22.3. cause algal blooms in the receiving water;



## WASTE DISCHARGE LICENCE (WDL178-05)

- 22.4. cause visible change in the behaviour of fish or other aquatic organisms in the receiving water;
  - 22.5. cause mortality of fish or other aquatic organisms; or
  - 22.6. cause adverse impacts on plants.
23. The licensee must not cause water quality measured at SW4:
- 23.1. to exceed the site specific trigger values (SSTV) for all water quality parameters specified in Appendix 2, except pH and dissolved oxygen;
  - 23.2. on two consecutive occasions; or
  - 23.3. on any single occasion where the measured value exceeds the SSTV greater than or equal to two times the SSTV.
24. The licensee must not cause the pH or dissolved oxygen concentration measured at SW4 to be outside the range specified in Appendix 2.
25. When water quality at monitoring point SW4 does not comply with condition 23 and 24, this is a non-compliance and the licensee must:
- 25.1. cease discharge of wastewater; and
  - 25.2. investigate cause(s) of the non-compliance; and
  - 25.3. implement corrective actions to achieve the water quality objectives specified in condition 20, prior to recommencing discharge.

### MONITORING

26. The licensee must monitor water quality at the monitoring locations defined in Table 2 in accordance with the surface water monitoring requirements defined in Appendix 4.
27. The licensee must for all land based monitoring points specified in the licence:
- 27.1. install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and
  - 27.2. maintain safe access and egress, as is reasonably practicable.
28. The licensee must maintain continuous water quality monitoring equipment and undertake continuous water quality monitoring at water quality monitoring locations RP3 and SW4 for the wastewater discharge period.
29. The licensee must ensure the continuous monitoring equipment:
- 29.1. measures water flow rate, pH, electrical conductivity and temperature at intervals sufficient to detect a change relevant to the parameter being measured and the duration of the discharge;
  - 29.2. measures, records and transmits measured data in real time to the Vista Gold data management system; and
  - 29.3. achieves greater than or equal to 90% valid data capture for all measurements.

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Table 2 – Water quality monitoring locations (mapped in Appendix 3)

Monitoring Location ID	Type	Description	Latitude	Longitude
SW4	Compliance	Waste water discharge monitoring site Edith River.	-14.17067°	132.09835°
SW2	Reference	Edith River at Edith Falls Road. Non-impacted reference. Northern side of the stream to minimise discharge from Phillips Creek.	-14.17195°	132.11990°
SW13	Reference	Stow Creek. Non-impacted reference site.	-14.15605°	132.12989°
SW3	Information	Stow Creek at Jatbula Road Bridge. Impacted information site.	-14.16144°	132.11851°
SW10	Information	Edith River at causeway of Old Stuart Highway. Downstream information site.	-14.18464°	132.03037°
RP3	Wastewater source	In-flow sampling tap on discharge pipe from Batman Pit to authorised discharge point (discharge side of the RP3 pumps).	-14.14109°	132.10322°

30. The licensee must ensure any samples collected in accordance with this licence, are obtained by, or under the supervision of a qualified sampler.
31. The licensee must ensure that all samples and field environmental data are representative of the conditions at the time of sampling.
32. 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, ANZECC/ARMCANZ).
33. The licensee must ensure individual daily samples from SW4 are analysed for the parameters specified in Appendix 4 for the first three days of any discharge, thereafter a weekly composite of up to seven daily samples is permitted to be analysed, provided this does not compromise holding times for the water quality parameter to be analysed in accordance with condition 32.
34. The licensee must ensure that all monitoring samples are analysed at a laboratory with current N.A.T.A. accreditation or equivalent, for the parameters to be measured.

### ECOTOXICOLOGY PLAN

35. The licensee must prepare an Ecotoxicology Plan that describes the methods to:
  - 35.1. verify level of species protection at SW4 during a discharge event when mixed with

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wastewater from RP3 (dilution verification) at least once per discharge season;

- 35.2. carry out whole effluent direct toxicity assessment of RP3 prior to the 2017/2018 discharge season;
  - 35.3. ensure sampling and analyses are carried out with appropriate quality controls to ensure test water represents the quality of treated wastewater that will be discharged for the season;
  - 35.4. ensure toxicity assessment is carried out using at least two test species that are known to be sensitive to the test waters;
  - 35.5. ensure toxicity assessment is carried out at test water dilutions that span the point of a chronic endpoint response;
  - 35.6. determine the dilution required to protect 80%, 90% and 95% species with 95% confidence using any new data and data produced from previous point estimate test results to populate the species sensitivity distribution, provided each data point can be justified; and
  - 35.7. ensure chemical analysis is concurrently carried out for the likely key contaminants, including sulfate, aluminium, cadmium, cobalt, copper, nickel, zinc and lead, for each of the toxicity assays.
36. The Ecotoxicology Plan must be:
- 36.1. reviewed by a suitably qualified professional who must produce a certified written report about their review with recommendations, where appropriate; and be
  - 36.2. submitted to the administering agency with a copy of the qualified professional's certified written report by 28 February 2017.
37. The licensee must implement the Ecotoxicology Plan with all qualified professional's recommendations.

### **RECEIVING ENVIRONMENT MONITORING PLAN**

38. The licensee must prepare a Receiving Environment Monitoring Plan (REMP) that includes monitoring programs capable of measuring the level of impact the wastewater discharges are having on the Beneficial Uses that have been declared for the Edith River:
39. The licensee must ensure the REMP is:
- 39.1. reviewed by suitably qualified professional who must produce a certified written report about their review with recommendations, where appropriate; and
  - 39.2. submitted to the administering agency by 31 March 2017 with a copy of the qualified professional's certified review.
40. The licensee must implement the REMP with all qualified professional's recommendations.
41. The licensee must ensure that any proposed revisions to the REMP (other than typographical changes or revisions to formatting or referencing) are:
- 41.1. reviewed by a suitably qualified professional who must produce a written report about their review;

## WASTE DISCHARGE LICENCE (WDL178-05)

- 41.2. submitted to the administering agency with justification for revisions; and
- 41.3. submitted to the administering agency, in both hard copy and electronic form (with a complete copy of the qualified professional's written review), 20 business days prior to the proposed implementation date.

### RECORDING AND REPORTING

- 42. The licensee must ensure that, for each sample collected in accordance with this licence, the following information is recorded and retained:
  - 42.1. the date on which the sample was collected;
  - 42.2. the time at which the sample was collected;
  - 42.3. the location at which the sample was collected;
  - 42.4. the name of the person who collected the sample;
  - 42.5. the chain of custody forms relating to the sample;
  - 42.6. the field measurements (if any) and analytical results (if any) relating to the sample; and
  - 42.7. laboratory quality assurance and quality control documentation.
- 43. The licensee must notify the pollution hotline on 1800 064 567 prior to commencing a discharge to the Edith River, and when discharge has ceased.
- 44. The licensee must provide the administering agency a periodic report for each calendar month during which a discharge has occurred no later than 10 business days after receiving the laboratory analytical results for the last day of discharge for the relevant calendar month.
- 45. The periodic report must contain for each day of the month where a discharge occurred, tabulated data including:
  - 45.1. the factors used to assess the dilution ratio at SW4;
  - 45.2. surface water monitoring results required under condition 26; and
  - 45.3. assessment of surface water monitoring results for SW4 against the site specific trigger values listed in Appendix 2.
- 46. 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.
- 47. The licensee must notify the administering agency of any non-compliance with this licence by emailing [waste@nt.gov.au](mailto:waste@nt.gov.au), as soon as practicable after (and in any case within 24 hours after) first becoming aware of the non-compliance.
- 48. The licensee must include in the notification of non-compliance the following information:
  - 48.1. when the non-compliance was detected and by whom;

## WASTE DISCHARGE LICENCE (WDL178-05)

- 48.2. the date and time of the non-compliance;
  - 48.3. the actual and potential causes and contributing factors to the non-compliance;
  - 48.4. the risk of environmental harm arising from the non-compliance;
  - 48.5. the action(s) that have or will be undertaken to mitigate any environmental harm arising from the non-compliance;
  - 48.6. corrective actions that have or will be undertaken to ensure the non-compliance does not reoccur; and
  - 48.7. if no action was taken, why no action was taken.
  - 48.8. a date when an incident investigation report will be submitted to the administering agency.
49. The licensee must notify the administering agency for all incidents that trigger condition 23, and must ensure that the notification includes the following information:
- 49.1. when the exceedance was detected and by whom;
  - 49.2. the date and time of the exceedance;
  - 49.3. the actual and potential causes and contributing factors to the exceedance;
  - 49.4. the risk of environmental harm arising from the exceedance;
  - 49.5. the action(s) that have or will be undertaken to address the exceedance and/or environmental harm;
  - 49.6. if no action was taken, why no action was taken; and
  - 49.7. a date when an incident investigation report will be submitted to the administering agency.
50. The licensee must complete an Annual Return and provide the Annual Return report to the administering agency by 30 August for each year of this licence, unless otherwise agreed.
51. The licensee must complete and provide to the administering agency an Annual Monitoring Report, as prescribed by this licence by 30 August for each year of this licence, unless otherwise agreed, for the preceding 12 month period.
52. The licensee must ensure that each Annual Monitoring Report:
- 52.1. is prepared in accordance with the requirements of the NT EPA 'Guideline for Reporting on Environmental Monitoring';
  - 52.2. includes a tabulation of all monitoring data required as a condition of this licence;
  - 52.3. 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); and
  - 52.4. includes assessment of environmental impact of the activity to the water quality objectives defined in condition 20; and

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52.5. includes a summary of the outcomes of the Ecotoxicology Assessment Plan and the Receiving Environment Monitoring Plan.

**END OF LICENCE CONDITIONS**

This licence is not valid unless signed below:



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Jo Townsend  
Controller of Water Resources

16 January 2017

## WASTE DISCHARGE LICENCE (WDL178-05)

### 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 Northern Territory Department of Environment and Natural Resources, or subsequent agency authorised to administer Part 7 of the <i>Water Act</i> .
Annual Return	an administering agency prescribed format for demonstrating and reporting compliance with the conditions of this licence. Annual return forms are located on the NT EPA website ( <a href="https://ntepa.nt.gov.au/waste-pollution/approvals-licences">https://ntepa.nt.gov.au/waste-pollution/approvals-licences</a> ).
ANZECC	Australian and New Zealand Environment and Conservation Council.
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand.
ANZECC & ARMCANZ (2000) guidelines	<p>National Water Quality Management Strategy 4 <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, including:</i></p> <ul style="list-style-type: none"><li>• <i>Volume 1 – The guidelines (chapters 1-7)</i></li><li>• <i>Volume 2 – Aquatic ecosystems – rationale and background information (Chapter 8)</i></li><li>• <i>Volume 3 - Primary Industries - Rationale and Background Information (irrigation and general water uses, stock drinking water, aquaculture and human consumers of aquatic foods)</i></li></ul> <p>National Water Quality Management Strategy No.7 <i>Australian Guidelines for Water Quality Monitoring and Reporting.</i></p>
AS/NZ 5667	Australian/New Zealand Standard, 1998, reconfirmed 2016, water quality sampling series.
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

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<b>Term</b>	<b>Definition</b>
	licence and activity.
Contaminant	a solid, liquid or gas or any combination of such substances and includes: (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.
Discharge season	the annual Wet season period when there are sufficient flows in the Edith River to adequately dilute the discharge.
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 audit	has the meaning given in section 47 of the WMPC Act.
Environmental harm	any harm to or adverse effect on, or potential harm to or potential adverse effect on, the environment
Environmental nuisance	(a) an adverse effect on the amenity of an area that: (i) is caused by noise, smoke, dust, fumes or odour; and (ii) unreasonably interferes with or is likely to unreasonably interfere with the enjoyment of the area by persons who occupy a place within the area or are otherwise lawfully in the area; or (b) an unsightly or offensive condition caused by contaminants or waste.
Incident	includes: (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.
Litter	litter, garbage, rubbish, refuse or waste matter, and includes the body of a dead animal.
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: (a) is not trivial or negligible in nature; (b) results or is likely to result in not more than \$50,000 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.
Mine site	the mine site boundaries are defined by three mineral leases: MLN1070, MLN1071 and MLN1127.
N.A.T.A. accreditation	quality control accreditation for the measurement/analysis under the National Association of Testing Authorities, Australia.



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Term	Definition
NHMRC	National Health and Medical Research Council
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: (a) public health, safety or welfare; (b) animals, birds, fish or aquatic life or other organisms; or (c) plants.
Pollution	(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.
Qualified professional	means a person who has professional training and experience in the design of monitoring programs that can detect adverse impacts to the environment if there are any adverse impacts.
Qualified sampler	a person who has training and experience in obtaining samples from the relevant environmental medium.
Receiving environment	the aquatic ecosystem, water quality, sediment quality and biota quality of the Edith River waters, bed and bank.
Serious environmental harm	environmental harm that is more serious than material environmental harm and includes environmental harm that: (a) results or is likely to result in more than \$50,000 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

## WASTE DISCHARGE LICENCE (WDL178-05)

Term	Definition
	(d) is irreversible or otherwise of a high impact or on a wide scale.
Solid inert waste	solid waste that has no active chemical or biological properties. These wastes do not undergo environmentally significant physical, chemical or biological transformation.
SSTV	site specific water quality trigger values that have been developed in accordance with ANZECC & ARMCANZ guidelines to achieve the desired water quality objectives for the receiving environment.
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.
Wet season	means the period commencing 1 December and ending 31 March.
WMPC Act	the Northern Territory <i>Waste Management and Pollution Control Act</i> .

APPENDIX 1 - AUTHORISED DISCHARGE LOCATION - RP3 DIFFUSER RELEASE INTO HORSESHOE CREEK ON MLN1070



## APPENDIX 2 - SITE SPECIFIC TRIGGER VALUES AT SW4

Parameter	Units	Sample Type	Reference		Triggers
			Edith River Ambient Water Quality <sup>1</sup>	ANZECC & ARMCANZ Water Quality Guideline for 80% species protection	SSTV <sup>2</sup> at SW4
pH <sup>3</sup>	pH units	Field	6.66	6.0 - 8.0	less than 6.0 or greater than 8.0
Electrical conductivity <sup>3</sup>	µS/cm	Field	26.5	NG <sup>4</sup>	250
Dissolved oxygen	% saturation	Field	92.5	85-120	less than 85 or greater than 120
Sulfate	mg/L	Unfiltered	<1	NG <sup>4</sup>	129
Bicarbonate	mg/L	Unfiltered	12.3	NG <sup>4</sup>	319
Chloride	mg/L	Unfiltered	2	NG <sup>4</sup>	64
Magnesium	mg/L	Unfiltered	0.66	NG <sup>4</sup>	2.5
Total cyanide	µg/L	Unfiltered	BDL <sup>5</sup>	7.0	7.0
Aluminium	µg/L	Filtered <sup>6</sup>	35.9	150	150
Cadmium	µg/L	Filtered <sup>6</sup>	BDL <sup>5</sup>	0.8	0.8
Cobalt	µg/L	Filtered <sup>6</sup>	BDL <sup>5</sup>	90	13
Copper	µg/L	Filtered <sup>6</sup>	BDL <sup>5</sup>	2.5	2.5
Iron	µg/L	Filtered <sup>6</sup>	328	300	350
Lead	µg/L	Filtered <sup>6</sup>	BDL <sup>5</sup>	9.4	9.4
Manganese	µg/L	Filtered <sup>6</sup>	18.5	3600	3600
Nickel	µg/L	Filtered <sup>6</sup>	BDL <sup>5</sup>	17	17
Zinc	µg/L	Filtered <sup>6</sup>	4.55	31	31

<sup>1</sup> 80<sup>th</sup> percentile of reference site dataset.

<sup>2</sup> SSTVs and water quality compliance assessment only apply to the manually measured field data not the online data. An investigation response must be implemented every time a measured water quality value is greater than or equal to the value specified unless otherwise specified.

<sup>3</sup> The value obtained using properly calibrated hand-held field instrument is to be compared with the SSTV.

<sup>4</sup> NG means no guideline value.

<sup>5</sup> BDL means below level of analytical detection.

<sup>6</sup> Filtered in the field at time of sample collection using membrane filters with pore diameter of 0.45 µm.

APPENDIX 3 - LOCATION OF SURFACE WATER MONITORING SITES



## APPENDIX 4 - SURFACE WATER MONITORING REQUIREMENTS

Key: N/A: Not applicable. C: Continuous, real-time, online measurement. D: Daily when discharging for any period of time in any day, also one week after the cessation of discharge and once during the period of first flush, otherwise monthly testing. M: Once per month

Parameter	Abbrev.	Units	Sampling Site ID	SW4 compliance	SW4 online	SW2	SW13	SW3	RP3	SW10
Description				Compliance site - Edith River	Continuous real-time in situ	Non-impacted reference - Edith River	Non-impacted reference - Stow Creek	Information impact - Stow Creek	Wastewater discharge	Information - Edith River
Longitude			-14.141091	-14.17067°		-14.17195°	-14.15605°	-14.16144°	-14.14033°	-14.18464°
Latitude			132.103209	132.09835°		132.11990°	132.12989°	132.11851°	132.10266°	132.03037°
Sample Type				Sampling Frequency						
Environmental Field Data										
Daily site rainfall	Rain	mm		N/A	N/A	N/A	N/A	N/A	D	N/A
Daily site evaporation	Evap	mm		N/A	N/A	N/A	N/A	N/A	D	N/A
Daily maximum air temperature	T <sub>max</sub>	°C		N/A	N/A	N/A	N/A	N/A	D	N/A
Daily minimum air temperature	T <sub>min</sub>	°C		N/A	N/A	N/A	N/A	N/A	D	N/A
Pumping rate	Discharge	L/s		N/A	N/A	N/A	N/A	N/A	D	N/A
Cumulative Discharge Volume	Cum Discharge	m <sup>3</sup>		N/A	N/A	N/A	N/A	N/A	D	N/A
River flow	Flow	m <sup>3</sup> /s		D	C	N/A	N/A	N/A	N/A	N/A
Water Level	Gauge height	m		D	C	N/A	N/A	N/A	D	N/A

Sampling Site ID	SW4 compliance	SW4 online	SW2	SW13	SW3	RP3	SW10
Description	Compliance site - Edith River	Continuous real-time in situ	Non-impacted reference - Edith River	Non-impacted reference - Stow Creek	Information impact - Stow Creek	Wastewater discharge	Information - Edith River
Longitude	-14.17067°	-14.141091	-14.17195°	-14.15605°	-14.16144°	-14.14033°	-14.18464°
Latitude	132.09835°	132.103209	132.11990°	132.12989°	132.11851°	132.10266°	132.03037°
Dissolved oxygen	DO	% saturation	Field measure	Field measure	Field measure	Field measure	Field measure
Water Temperature	T <sub>water</sub>	°C	Field measure	Field measure	Field measure	Field measure	Field measure
Electrical conductivity	EC	µS/cm	Field & lab measure	Field measure	Field measure	Field measure	Field measure
Electrical conductivity	EC	µS/cm	Field measure	Field measure	Field measure	Field measure	Field measure
pH	pH <sup>7</sup>	pH units	Field & lab measure	Field measure	Field measure	Field measure	Field measure
pH	pH	pH units	Field measure	Field measure	Field measure	Field measure	Field measure
<b>Metals and metalloids</b>							
Aluminium	Al	µg/L	Filtered <sup>8</sup>	Field measure	Field measure	Field measure	Field measure
Aluminium	Al	µg/L	Unfiltered	Field measure	Field measure	Field measure	Field measure
Boron	B	µg/L	Filtered <sup>8</sup>	Field measure	Field measure	Field measure	Field measure
Cadmium	Cd	µg/L	Unfiltered	Field measure	Field measure	Field measure	Field measure
Cadmium	Cd	µg/L	Filtered <sup>8</sup>	Field measure	Field measure	Field measure	Field measure

<sup>7</sup> Field pH using properly maintained and calibrated hand held field instrument is to be used for assessing compliance with the SSTV. The laboratory measured value is for information. The on-line measured value is for operational control to provide warning that water quality has changed and to trigger operational corrective action, if required.

<sup>8</sup> Filtered in the field at time of sample collection using membrane filters with pore diameter of 0.45 µm.

Sampling Site ID	SW4 compliance	SW4 online	SW2	SW13	SW3	RP3	SW10		
Description	Compliance site - Edith River	Continuous real-time in situ	Non-impacted reference - Edith River	Non-impacted reference - Stow Creek	Information impact - Stow Creek	Wastewater discharge	Information - Edith River		
Longitude	-14.17067°	-14.141091	-14.17195°	-14.15605°	-14.16144°	-14.14033°	-14.18464°		
Latitude	132.09835°	132.103209	132.11990°	132.12989°	132.11851°	132.10266°	132.03037°		
Cobalt	Co	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Copper	Cu	µg/L	Unfiltered	D	N/A	D	M	D	M
Copper	Cu	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Chromium <sup>9</sup>	Cr	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Fluoride	F	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Iron	Fe	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Iron	Fe	µg/L	Unfiltered	D	N/A	D	M	D	M
Lead	Pb	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Lithium	Li	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Manganese	Mn	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Mercury	Hg	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Nickel	Ni	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
Zinc	Zn	µg/L	Filtered <sup>a</sup>	D	N/A	D	M	D	M
<b>Nutrients</b>									
Total Nitrogen	TN	µg/L	Unfiltered	D	N/A	D	M	D	M

<sup>9</sup> If total chromium of the filtered sample returns a result greater than the practical quantification limit (PQL), the sample is to be reanalysed for speciated chromium.



Sampling Site ID	SW4 compliance	SW4 online	SW2	SW13	SW3	RP3	SW10
Description	Compliance site - Edith River	Continuous real-time in situ	Non-impacted reference - Edith River	Non-impacted reference - Stow Creek	Information impact - Stow Creek	Wastewater discharge	Information - Edith River
Longitude	-14.17067°	-14.141091	-14.17195°	-14.15605°	-14.16144°	-14.14033°	-14.18464°
Latitude	132.09835°	132.103209	132.11990°	132.12989°	132.11851°	132.10266°	132.03037°
Nitrate	NO <sub>3</sub> -N	µg/L	M	M	M	M	M
Nitrite	NO <sub>2</sub> -N	µg/L	M	M	M	M	M
Ammonia	NH <sub>3</sub> -N	µg/L	M	M	M	M	M
Total phosphorus	TP	µg/L	D	M	M	D	M
Organic carbon (total)	TOC	mg/L	M	M	M	M	M
<b>Major Ions</b>							
Bicarbonate	HCO <sub>3</sub>	mg/L	D	M	M	D	M
Calcium	Ca	mg/L	D	M	M	D	M
Chloride	Cl	mg/L	D	M	M	D	M
Sodium	Na	mg/L	D	M	M	D	M
Magnesium	Mg	mg/L	D	M	M	D	M
Potassium	K	mg/L	D	M	M	D	M
Sulphate	SO <sub>4</sub> <sup>2-</sup>	mg/L	D	M	M	D	M
Total Dissolved Solids	TDS	mg/L	D	M	M	D	M

Sampling Site ID	SW4 compliance	SW4 online	SW2	SW13	SW3	RP3	SW10
Description	Compliance site - Edith River	Continuous real-time in situ	Non-impacted reference - Edith River	Non-impacted reference - Stow Creek	Information impact - Stow Creek	Wastewater discharge	Information - Edith River
Longitude	-14.17067°	--14.141091	-14.17195°	-14.15605°	-14.16144°	-14.14033°	-14.18464°
Latitude	132.09835°	132.103209	132.11990°	132.12989°	132.11851°	132.10266°	132.03037°

**Other Water Quality Parameters**

Parameter	Unit	SW4 compliance	SW4 online	SW2	SW13	SW3	RP3	SW10
Unfiltered Alkalinity (acid neutralising capacity)	mg/L	D	N/A	D	M	M	D	M
Hardness	mg/L	D	N/A	D	M	M	D	M
Total Suspended Solids	mg/L	D	N/A	D	M	M	D	M
Total Cyanide <sup>11</sup>	mg/L	D	N/A	M	M	M	M	M

<sup>10</sup> Residue remaining on a filter with nominal pore size of 0.45 µm.

<sup>11</sup> WAD Cyanide analysis is required if Total CN analysis (by APHA 4500-CN-C) is greater than 0.004mg/L. WAD Cyanide analysis must then be conducted on the same day as the analysis for Total CN.

