Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence Number	L6267/1991/10
Licence Holder	Water Corporation
Registered business address	629 Newcastle Street LEEDERVILLE WA 6007
File Number	2012/007602
Duration	01/11/2013 to 31/10/2035
Date of issue	31/10/2013
Date of amendment	19/12/2017
Prescribed Premises	Category 54 Category 61
Premises	Derby Wastewater Treatment Plant Crown Reserve 34921 Lot 95 on Deposited Plan 182444 Certificate of Title Volume LR3009 Folio 912

This Licence is granted to the Licence Holder, subject to the following conditions, on 19 December 2017, by:

Date signed: 19 December 2017

Stephen Checker
MANAGER LICENSING (WASTE INDUSTRIES)
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Explanatory notes

These explanatory notes do not form part of this Licence.

Defined terms

Definition of terms used in this Licence can be found at the start of this Licence. Terms which are defined have the first letter of each word capitalised throughout this Licence.

Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation (DWER) is established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences, takes enforcement action and develops and implements licensing and industry regulation policy.

Licence

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased, or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered, or permitted to be altered, from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Licence does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007;*
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Licence Holder to ensure that any action or activity referred to in this Licence is permitted by, and is carried out in compliance with, other statutory requirements.

The Licence Holder must comply with the Licence. Contravening a Licence Condition is an offence under s.58 of the EP Act.

Responsibilities of a Licence Holder

Separate to the requirements of this Licence, general obligations of Licence Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Licence Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under section 61; and
- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a works approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Licence Holder has a duty to report to DWER all discharges of waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

Offences and defences

The EP Act and its regulations set out a number of offences, including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA).*
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA).*

Section 53 of the EP Act provides that a Licence Holder commits an offence if Emissions are caused, or altered from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a Closure Notice or an Environmental Protection Notice.

Defences to certain offences may be available to a Licence Holder and these are set out in the EP Act. Section 74A(b)(iv) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Licence Holder can prove that an Emission or Discharge occurred in accordance with a Licence.

This Licence specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of Specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

The Specified and General Emissions and Discharges from Primary Activities conducted on the Prescribed Premises are authorised to be conducted in accordance with the Conditions of this Licence.

Emissions and Discharges caused from other activities not related to the Primary Activities at the Premises have not been Conditioned in this Licence. Emissions and Discharges from other activities at the Premises are subject to the general provisions of the EP Act.

Amendment of licence

The Licence Holder can apply to amend the Conditions of this Licence under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Licence at any time on the initiative of the CEO without an application being made.

Amendment Notices constitute written notice of the amendment in accordance with s.59B(9) of the EP Act.

Duration of Licence

The Licence will remain in force for the duration set out on the first page of this Licence or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

Suspension or revocation

The CEO may suspend or revoke this Licence in accordance with s.59A of the EP Act.

Fees

The Licence Holder must pay an annual licence fee. Late payment of annual licence fees may result in the licence ceasing to have effect. A licence that has ceased to have effect due to non-payment of annual licence fees continues to exist; however, it ceases to provide a defence to an offence under s.74A of the EP Act.

Late fees are a component of annual licence fees and should a Licence Holder fail to pay late fees within the time specified the licence will similarly cease to have effect.

Definitions and interpretation

Definitions

In this Licence, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
Amendment Notice	means an amendment granted under s.59 of the EP Act in accordance with the procedure set out in s.59B of the EP Act.
Annual Period	means a 12 month period commencing from 1 July until 30 June in the following year
Condition	means a condition to which this Licence is subject under s.62 of the EP Act.
Books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
Compliance Report	means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO (guidelines and templates may be available on the Department's website).
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
Department Request	means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Licence Holder in writing and sent to the Licence Holder's address for notifications, as described at the front of this Licence, in relation to: (a) compliance with the EP Act or this Licence; (b) the Books or other sources of information maintained in accordance with this Licence; or (c) the Books or other sources of information relating to Emissions from the Premises.
Discharge	has the same meaning given to that term under the EP Act.

DWER	Department of Water and Environmental Regulation.
Emission	has the same meaning given to that term under the EP Act.
Environmental Harm	has the same meaning given to that term under the EP Act.
Extreme rainfall event	means a one in ten year rainfall event of 72 hours duration.
EP Act	means the *Environmental Protection Act 1986* (WA).
EP Regulations	means the *Environmental Protection Regulations 1987* (WA).
Implementation Agreement or Decision	has the same meaning given to that term under the EP Act.
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
Licence	refers to this document, which evidences the grant of a Licence by the CEO under s.57 of the EP Act, subject to the Conditions.
Licence Holder	refers to the occupier of the premises being the person to whom this Licence has been granted, as specified at the front of this Licence.
Material Environmental Harm	has the same meaning given to that term under the EP Act.
Pollution	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Licence applies, as specified at the front of this Licence and as shown on the map in Schedule 1 to this Licence.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Primary Activities	refers to the Prescribed Premises activities listed on the front of this Licence as described in Schedule 2, at the locations shown in Schedule 1.
Reportable Event	means an exceedance above the target limit specified in Column 4 of Table 6, in Schedule 3.
Serious Environmental Harm	has the same meaning given to that term under the EP Act.

Unreasonable Emission	has the same meaning given to that term under the EP Act.
Waste	has the same meaning given to that term under the EP Act.

Interpretation

In this Licence:

(a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a Condition, each row in a table constitutes a separate Condition;

(d) any reference to an Australian or other standard, guideline or code of practice in this Licence means the version of the standard, guideline or code of practice in force at the time of granting of this Licence and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Licence; and

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

Conditions

Emissions

1. The Licence Holder must not cause any Emissions from the Primary Activities on the Premises except for specified Emissions and general Emissions described in Column 1 of Table 2 subject to the exclusions, limitations or requirements specified in Column 2 of Table 2.

Table 2: Authorised Emissions table

Column 1	**Column 2**
Emission type	**Exclusions/Limitations/Requirements**
Specified Emissions	
Treated wastewater from the Premises discharged to the Maturation Ponds (as shown in Schedule 1) for disposal to offsite wetland or to the reuse pond for offsite reuse at the golf course.	Subject to compliance with Conditions 2, 7, 8, 9 10 and 11
General Emissions (excluding Specified Emissions)	
Emissions which: • arise from the Primary Activities set out in Schedule 2; or	Emissions excluded from General Emissions are: • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or • Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy; or • Emissions or Discharges which do not comply with a prescribed standard; or • Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or

Column 1	Column 2
Emission type	**Exclusions/Limitations/Requirements**
	Decision; or • Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental *Protection (Unauthorised Discharges) Regulations 2004*.

Infrastructure and equipment

2. The Licence Holder must ensure that the infrastructure and equipment specified in Column 1 of Table 3 is maintained in good working order and operated in accordance with the requirements specified in Column 2 of Table 3.

Table 3: Infrastructure and equipment controls table

Column 1	Column 2
Site infrastructure and equipment	**Operational requirements**
1) All	Storm-water conveyance infrastructure must not direct storm-water into any sewage and treated wastewater storage ponds, transfer pipelines and conveyance infrastructure.
2) Sewage treatment system	The sewage treatment system must operate to the following specifications: (a) be able to receive and treat a sewage inflow of up to 1500 m^3/ day; (b) overtopping of the ponds does not occur except as a result of an Extreme rainfall event; (c) a freeboard at or below 200mm is maintained; (d) the integrity of the containment infrastructure is maintained; (e) trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter; (f) vegetation and floating debris (emergent or otherwise) is prevented from encroaching onto pond surfaces

Column 1	Column 2
Site infrastructure and equipment	**Operational requirements**
	or inner pond embankments; (g) notify the CEO no less than 14 days prior to the desludging of any wastewater treatment pond on the premises with the following information: I. when desludging is proposed to occur; II. the desludging method; III. action to mitigate potential odour impacts; and IV. the method by which the community will be advised of the desludging activities.
3) Sludge Drying beds	a) biosolids sludge is only stored and processed at the sludge drying bed at the Premises; b) a bunded hardstand area capable of preventing surface run-off of leachate; and c) sludge leachate is returned to the start of the treatment process;
4) Septage receival point	Is surrounded by a bunded hardstand area which returns septage to the start of the treatment process

3. The Licence Holder must construct the works for the infrastructure and equipment:

(a) specified in Column 1,

(b) to the requirements specified in Column 2,

detailed in Table 4.

Table 4 Work requirements for Premises

Column 1	Column 2
Site Infrastructure	Requirements
Septage receival point	• constructed of impervious concrete/material free of leaks and defects; • be fully bunded; • measuring 3.7m x 9.0m; • be situated adjacent to the northern edge of the new anaerobic pond; and • direct septage inflows into the anaerobic pond .

Column 1	Column 2
Site Infrastructure	Requirements
Sludge drying bed	• constructed of suitable impermeable liner material with an effective permeability of less than $2x10^{-10}$ m/s; • be fully bunded ; • measure 28.0m x 23.0m; • be situated adjacent to the eastern edge of the new anaerobic pond; and • direct liquid flows into Primary Pond 1 via draincoil PVC drainage pipe.
Anaerobic pond	• must be lined with impervious material over a binding layer; • comprise the following dimensions: i. depth of 5.2m. ii. internal dimension at floor level of 10m x 15m. iii. internal dimension at top of water level of 28m x 33m. • must be equipped with multiple fit-for-purpose sludge extraction pipelines to direct sludge to the sludge drying bed; and • direct flows into Primary treatment pond 1 and/or 2 as necessary.

4. The Licence Holder must not depart from the requirements in Column 2 of Table 4 except;

(a) where such departure is minor in nature and does not affect the infrastructure; or

(b) where such departure improves the functionality of the infrastructure and reduces the risk to public health and the environment; and

(c) and all other conditions in this Licence are still satisfied.

5. Subject to Condition 3 within 30 days of the completion of the Works specified in Column 1 of Table 4, the Licence Holder must provide to the CEO an engineering certification from a suitably qualified professional engineer confirming each item of infrastructure or component of infrastructure specified in Column 1 of Table 4 has been constructed with no material defects and to the requirements specified in Column 2 of Table 4

6. Where a departure from the requirements specified in Column 2 of Table 4 occurs and is of a type allowed by condition 4 the Licence Holder must provide to the CEO a description of, and explanation for the departure along with the certification required by Condition 5.

Intake restrictions

7. The Licence Holder shall only accept waste on to the premises if:

(a) it is of a type listed in Table 5; and

(b) it meets any specification listed in Table 5.

Table 5: Waste acceptance

Waste type	Waste Code	Specification[1]
Sewage- waste from the reticulated sewerage system and other minor volumes transported by truck as an infrequent contingency	K110, K130 and K210	Accepted through sewer inflow(s) or septage receival point only

Throughput restrictions

8. The Licence Holder is permitted to accept no more than 1500 m^3 of sewage for processing per day (as a monthly average).

9. The Licence Holder must monitor and record the volumes of incoming waste and outgoing products at the Premises for the parameter stipulated in column 1 of Table 6, using the units specified in column 2 of Table 6 at the frequency specified in column 3 of Table 6.

Table 6: Monitoring of inputs

Column 1	Column 2	Column 3
Parameter	**Units**	**Frequency**
Waste Inputs – Sewage	m^3	Continuous

10. The Licence Holder must provide to the CEO a summary of the volumes of waste input from the Premises with the Annual Audit Compliance Report required under condition 17

Disposal requirements

Sludge and biosolids

11. The Licence Holder must:

(a) dispose of the sludge and biosolids from the Premises to a licensed landfill site using a Controlled Waste Carrier;

(b) keep accurate and auditable records relating to the disposal of sludge and biosolids from the Premises including the Controlled Waste Carrier and registration number of the vehicle transporting the sludge and biosolids to the landfill; and

(c) dispose of collected debris, vegetation, grit or screenings from the treatment plant to a licensed landfill facility.

Monitoring Requirements

12. The Licence Holder must undertake monitoring of treated wastewater discharged from the premises in accordance with the requirements specified in Schedule 3.

13. The Licence Holder must submit all water samples required in Schedule 3 to a laboratory with current NATA accreditation of the analyses of samples specified in Schedule 3.

14. The Licence Holder must submit to the CEO an Annual Environmental Report with the monitoring data required under Schedule 3 with the Annual Audit Compliance Report required under condition 17.

Record-keeping

15. The Licence Holder must maintain accurate and auditable Books including the following records, information, reports and data required by this Licence:

(a) the calculation of fees payable in respect of this Licence;

(b) the works conducted in accordance with Condition 3, 4, 5 and 6 of this Licence;

(c) the maintenance of infrastructure required to ensure that it is kept in good working order in accordance with Condition 2 of this Licence;

(d) monitoring undertaken in accordance with Conditions 12 and 13 of this Licence; and

(e) complaints received under Condition 16 of this Licence.

In addition, the Books must:

(f) be legible;

(g) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;

(h) be retained for at least 3 years from the date the Books were made; and

(i) be available to be produced to an Inspector or the CEO.

16. The Licence Holder must record the number and details of any complaints received by the Licence Holder relating to its obligations under this Licence and its compliance with Part V of the EP Act at the Premises, and any action taken by the Licence Holder in response to the complaint. Details of complaints must include:

(a) an accurate record of the concerns or issues raised, for example a copy of any written complaint or a written note of any verbal complaints made;

(b) the name and contact details of the complainant, if provided by the complainant;

(c) the date of the complaint; and

(d) the details and dates of the actions taken by the Licence Holder in response to the complaints.

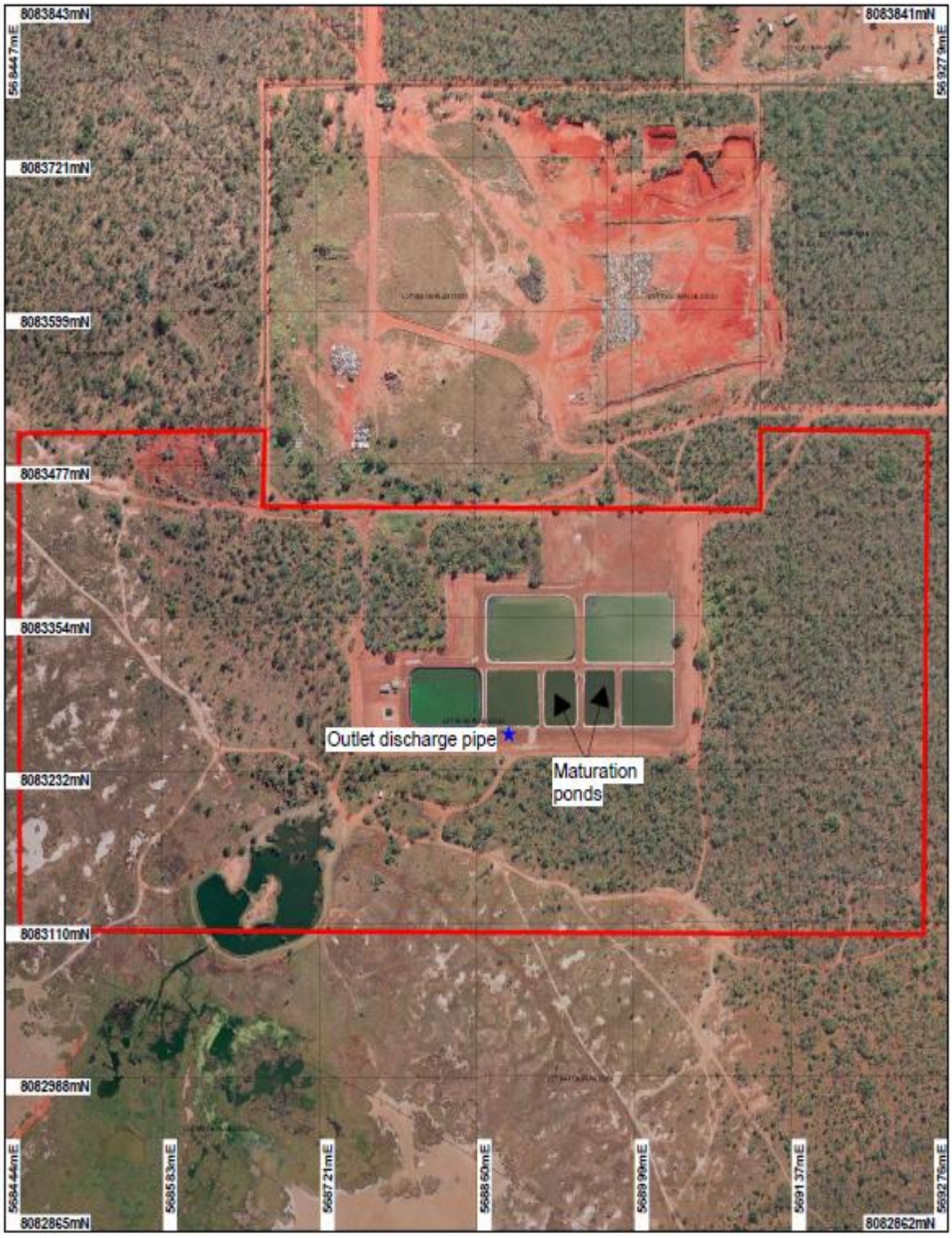
17. The Licence Holder must submit to the CEO, no later than 30 September, a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the preceding Annual Period.

18. The Licence Holder must comply with a Department Request, within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

Schedule 1: Maps

Premises map

The Premises are shown in the map below. The red line depicts the Premises boundary. The Outlet discharge pipe referenced in Schedule 3 is provided in the map



Schedule 2: Primary Activities

At the time of assessment, Emissions and Discharges from the following Primary Activities were considered in the determination of the risk and related Conditions for the Premises.

The Primary Activities are listed in Table 7:

Table 7: Primary Activities

Primary Activity	Premises production or design capacity
Category 54 – Sewage facility: premises on which sewage is treated (excluding septic tanks).	1500 m^3 per day (monthly average)
Category 61 – Liquid waste facility: premises on which liquid waste produced on other premises (other than sewage waste) is stored, reprocessed, treated or irrigates	100 tonnes or more per annual period

Infrastructure and equipment

The Primary Activity infrastructure and equipment situated on the Premises is listed in Table 3, condition 2.

Site layout

The Primary Activity infrastructure and equipment is set out on the Premises in accordance with the site layout specified on the Premises map in Schedule 1.

Schedule 3: Monitoring

Treated Wastewater Monitoring

The Licence Holder must monitor the Emissions specified in Column 1 from the locations specified in Column 2 of Table 8. Emissions must be calculated as an average over the period specified in Column 3, at the frequency specified in Column 5, and in accordance with the method specified in Column 6.

Table 8: Treated wastewater monitoring table

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Emission	**Location***	**Averaging period**	**Parameter**	**Frequency**	**Method**
Treated effluent water	Outlet discharge pipe (as referenced in Schedule 2 Map)	Spot sample	• pH[1]; • Total Suspended Solids; • Total Dissolved Solids; • Total Phosphorus; • Total Nitrogen; • Biochemical Oxygen Demand; • Escherichia coli; and • Ammonium Nitrogen; • Nitrate + Nitrite Nitrogen	Quarterly	AS5667.10. 1998
		Continuous	Volume (m^3)	Weekly	Flow metering device

Note 1: In-field non-NATA accredited analysis permitted.

Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Licence Amendment

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L6267/1991/10
Applicant	Water Corporation
File Number	2012/007602
Premises	Derby Wastewater Treatment Plant Crown Reserve 34921 Lot 95 on Plan 182444
Date of Report	19/12/2017
Status of Report	Final

Table of Contents

1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
Annual Period	1 July the previous year and ending on 30 June in that year
AACR	Annual Audit Compliance Report
AER	Annual Environment Report
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CS Act	*Contaminated Sites Act 2003* (WA)
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DoH	Department of Health
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of, and during this Review
Licence Holder	Water Corporation

m^3	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
NEPM	National Environmental Protection Measure
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
PM	Particulate Matter
PM_{10}	used to describe particulate matter that is smaller than 10 microns (µm) in diameter
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Revised Licence
Review	this Licence review
Revised Licence	the amended Licence issued under Part V, Division 3 of the EP Act following the finalisation of this Review.
Risk Event	As described in *Guidance Statement: Risk Assessment*
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
WWTP	Wastewater Treatment Plant
$\mu g/m^3$	micrograms per cubic metre
µg/L	micrograms per litre

2. Purpose and scope of assessment

The Licence Holder has applied for a licence amendment to construct one new anaerobic pond upstream of the existing facultative ponds and construct a dedicated sludge drying bed on the premises. A new septage receival point will be constructed in order to receive septage directly into the new anaerobic pond will also be constructed. The new anaerobic pond will increase the Derby WWTP production and design capacity from 800 m^3/day to 1500m^3/day.

As part of this assessment the licence has been converted to the current format licence; Existing Licence conditions will be transferred into the new licence format.

2.1 Application details

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
CSO1394 Derby WWTP Upgrade Licence Amendment Supporting Information – August 2017	2 August 2017

3. Background

The Applicant currently holds Existing Licence L6267/1991/10 for the operation of the Derby WWTP. The Derby WWTP currently consists of two facultative ponds operating in parallel followed by two secondary treatment ponds, two tertiary ponds and an effluent storage pond (Attachment 1). Treated wastewater from the two tertiary ponds (Maturation ponds 3A and 3B) is either discharged;

- into a dedicated wetland 100m south west of the WWTP, which then overflows into tidal mudflats in King George Sound; or
- wastewater is discharged for reuse to the Derby golf course from the Effluent Reuse Compensating Basin pond.

The Licence Holder is authorised to accept Controlled Waste liquid waste in accordance with Category 61 activity.

Table 3 lists the prescribed premises categories under the Existing Licence.

Table 3: Prescribed Premises Categories in the Existing Licence

Classification of Premises	Description	*Approved Premises production or design capacity or throughput*
54	Sewage facility: premises – (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	810 cubic metres per day
61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewage waste) is stored, reprocessed, treated or irrigated.	100 tonnes or more per annual period

4. Overview of Premises

4.1 Operational aspects

The Derby WWTP currently consists of two facultative ponds operating in parallel followed by two secondary treatment ponds, two tertiary ponds and an effluent storage pond. Treated wastewater from the tertiary ponds is either discharged via a 150mm PVC pipeline into a dedicated 6ha wetland 100m south west of the WWTP which overflows into tidal mudflats or during the Dry Season wastewater is discharged post chlorination for reuse to the Derby golf course. In the financial year 2016-2017 the Derby WWTP discharged 122983m^3 of treated wastewater via the Golf course and 153274m^3 was discharged to the wetland. Derby WWTP accepted 247950L of controlled septage waste during this period.

The Licence Holder is proposing constructing the following works at the Premises:

- Construction of one new anaerobic pond;
- A new septage receival point; and
- A new sludge drying bed.

The new anaerobic pond will be constructed upstream of the existing facultative ponds and are designed to cater for influent with high organic loads and typically involve longer detention times than other treatment ponds. The dimensions of the new pond are as follows:

- Depth = 5.2m
- Internal dimensions at floor level = 10m x 15m
- Internal dimensions at top of water level = 28m x 33m

The anaerobic pond will be lined with impermeable reinforced concrete over a blinding layer. Effluent from the anaerobic pond will flow directly into the existing primary treatment pond 1 (Attachment 1). Water quality parameters will not increase as a result of the addition of the new anaerobic pond. The anaerobic pond will include permanently installed sludge delivery pipeline/works. Sludge will be withdrawn from the bottom of the anaerobic pond via three separate suction pipelines and transferred to the sludge drying beds. The pipes will be permanently installed and sludge will be withdrawn using a trailer mounted vacuum pump which will connect between the suction lines and permanently installed delivery line which delivers sludge to the drying beds. Desludging is anticipated to occur biannually.

A new septage receival point will be constructed next to the anaerobic pond to allow direct flow into the pond. The receival point will be a concrete pit 3.5m x 9.5m situated adjacent to the northern edge of the anaerobic pond. The volume of septage waste currently constitutes 0.05% of the daily inflow.

A sludge drying bed will be constructed adjacent to the anaerobic pond and to the following specifications:

- Size = 27.5m x 27.5m
- 0.85m high concrete bund.

The sludge drying bed will be lined by a synthetic liner (either polyethylene HDPE or geosynthetic clay liner). As a minimum the liner will have a permeability coefficient of 2 x 10^{-10} m/s. a draincoil drainage pipe will be used to return liquid matter back to the WWTP.

Construction is proposed to commence in May 2018 with Commissioning in April 2019. It is anticipated that operation will commence in June 2019.

4.2 Infrastructure

The Sewage facility infrastructure, as it relates to Category 54 and 61 activities, is detailed in Table 4 and with reference to the Site Plan (Attachment 1).

Table 4 lists infrastructure associated with each prescribed premises category.

Table 4: Sewage facility Category 54 and 61 infrastructure.

	Infrastructure	**Site Plan Reference**
	Prescribed Activity Category 54	
Sewage facility		
1	Facultative (Primary) Treatment Pond A & B	Site Plan Attachment 1
2	Maturation (Secondary) Pond 2A & 2B	
3	Maturation (Tertiary) Pond 3A & 3B	
4	Effluent Reuse Compensating Basin	
5	Pump Station and Chlorination Building	
6	Backwash Basin	
	Prescribed Activity Category 61	
Liquid waste facility		
1	Septage receival point	Site Plan Attachment 1

4.3 Exclusions to the Premises

The Licence Holder discharges treated wastewater to the Derby Golf Course. The discharge of treated wastewater to the Golf Course is not captured under the Existing Licence or the Proposed Licence. The Derby Golf Course does not hold a licence for discharge of treated wastewater.

5. Legislative context

5.1 Contaminated sites

The Premises is not classified as a Contaminated Site under the CS Act.

5.2 Other relevant approvals

5.2.1 Department of Health

The Licence Holder has submitted a notification of work to the DoH on 2 August 2017. DoH responded to the Licence Holder in a letter dated 24 August 2017 advising DoH has no objections to the proposed WWTP upgrade subject to the three conditions stated in the letter; refer to Appendix 2.

5.3 Part V of the EP Act

5.3.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Publication of Annual Audit Compliance Reports (May 2016)*
- *Guidance Statement: Decision Making (November 2016)*
- *Guidance Statement: Risk Assessments (November 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*

5.3.2 Works approval and licence history

Table 5 summarises the works approval and licence history for the premises.

Table 5: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
L6267/1991/10	31/10/2013	New Licence
L6267/1991/10	29/04/2016	Extension of Expiry date to 31 October 2035

5.3.3 Clearing

The Licence Holder has advised that the maximum 0.5ha proposed clearing area is to be assessed under Water Corporation's state-wide purpose permit CPS185-8

6. Modelling and monitoring data

6.1 Monitoring of discharges to land and surface water

The Licence Holder is required under Existing Licence condition 8 to monitor wastewater samples from the outlet discharge pipe of the WWTP. Treated wastewater is discharged either to the artificial wetland adjacent to the WWTP or to the Derby Golf Course. Treated wastewater may discharge from the artificial wetland into the adjacent tidal flats of Kind George Sound. Table 6 provides the yearly average of contaminant discharge parameters from the Derby WWTP for the previous four years (2016-2017, 2015-2016, 2014-2015 and 2013-2014).

Table 6: Yearly average contaminant discharges from Derby WWTP

	Parameter (mg/L)								
Year	*pH*	*Total Suspended Solids*	*Total Dissolved Solids*	*Biochemical Oxygen Demand*	*Total Nitrogen*	*Total Phosphorus*	*Ammonium Nitrogen*	*Nitrate-Nitrite Nitrogen*	*E. Coli*
2016-2017	8.03	122.5	602.5	66.25	35.25	6.4	14.5	0.25	~21,333
2016-2015	7.99	121	624	50	33	7	16.9	0.12	~20413
2015-2014	8.04	108	585	54.8	37	7.5	23	0.3	~19250
2013-2014	8.1	155	588	61.25	31	5.7	12.2	0.3	~22250

The following figures taken from the 2016-2017 AER provide wastewater trend graphs for all the parameters required to be monitored under Existing licence condition 8 since 2014.

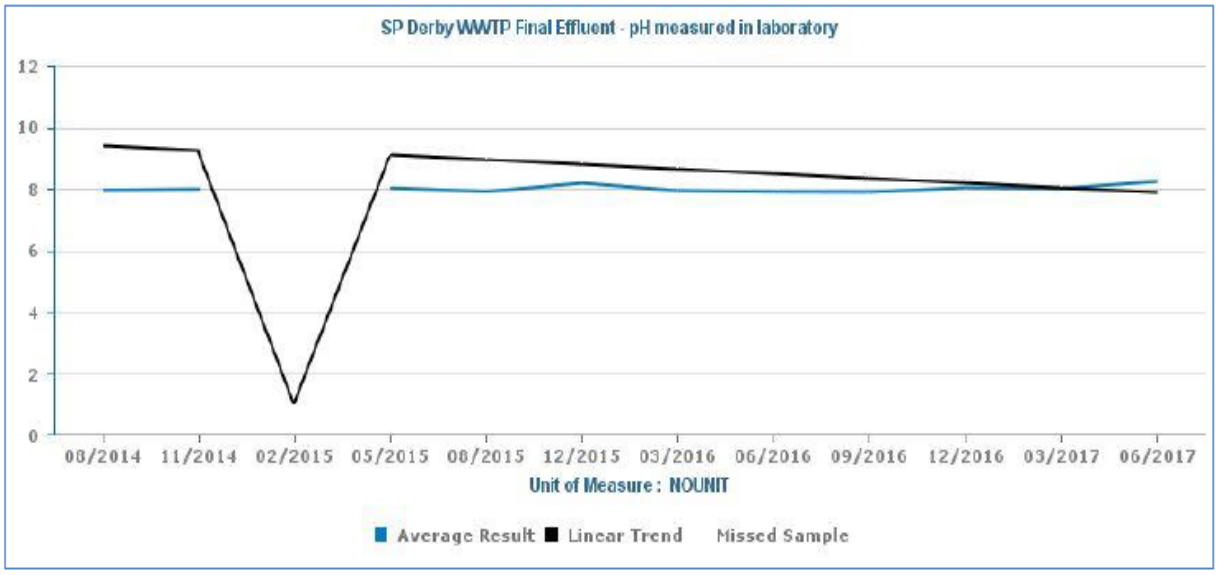


Figure 1: pH trend data.

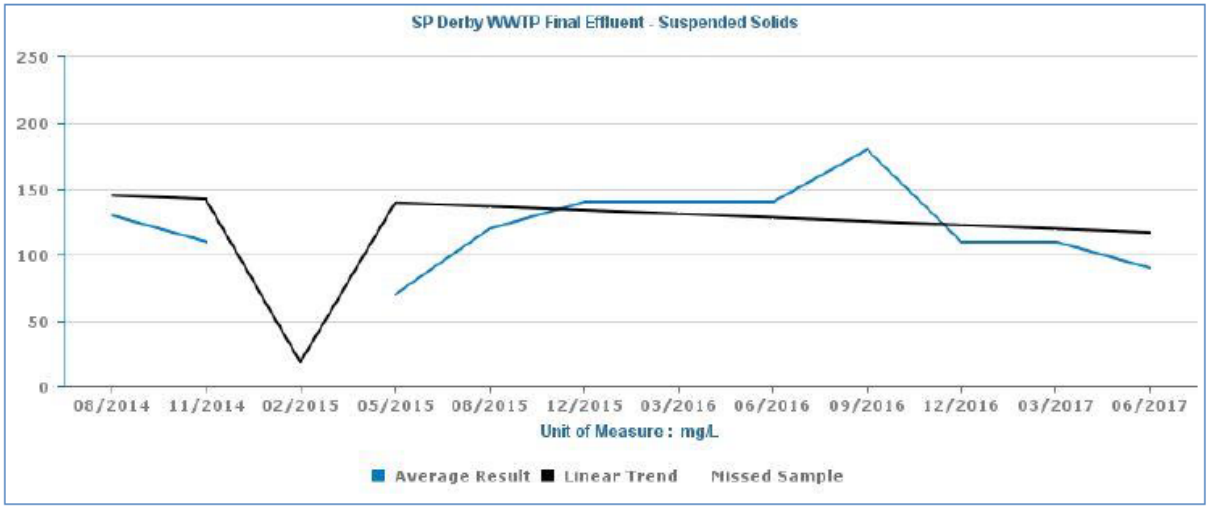


Figure 2: Total Suspended Solids trend data.

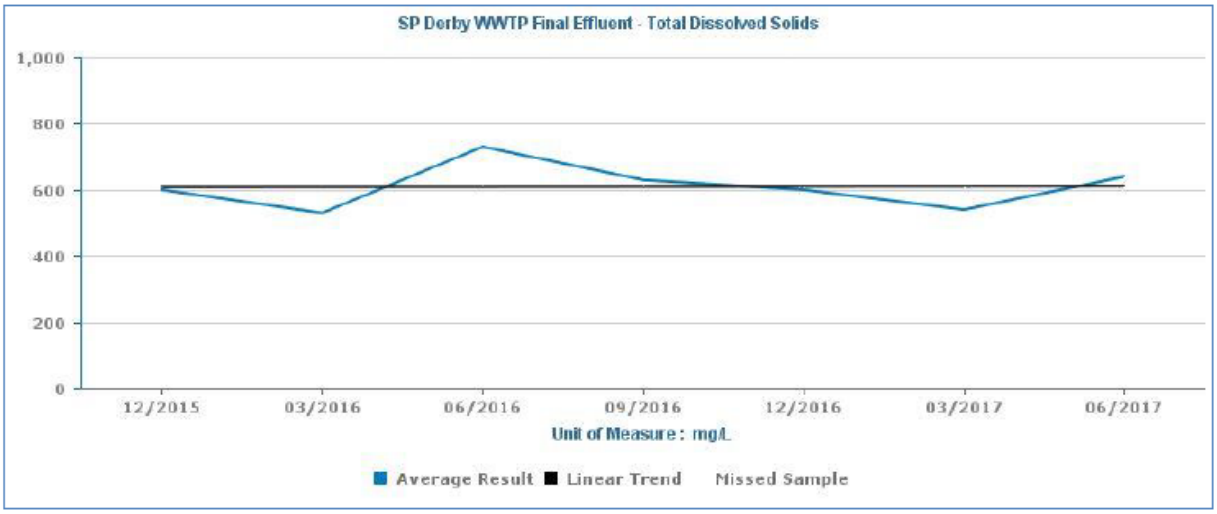


Figure 3: Total Dissolved Solids trend data.

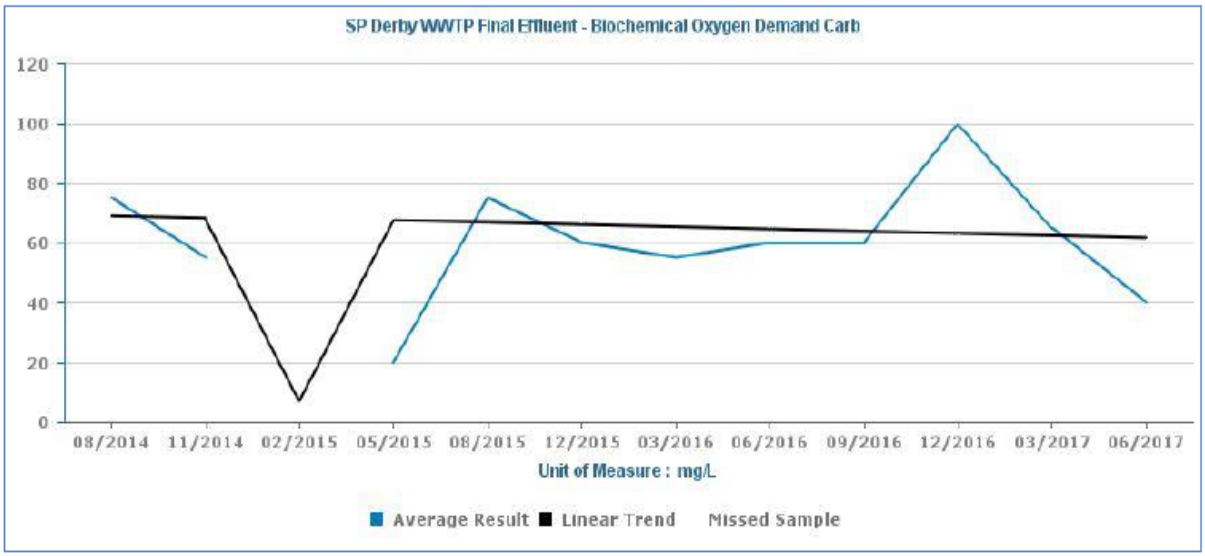


Figure 4: Biochemical Oxygen Demand trend data.

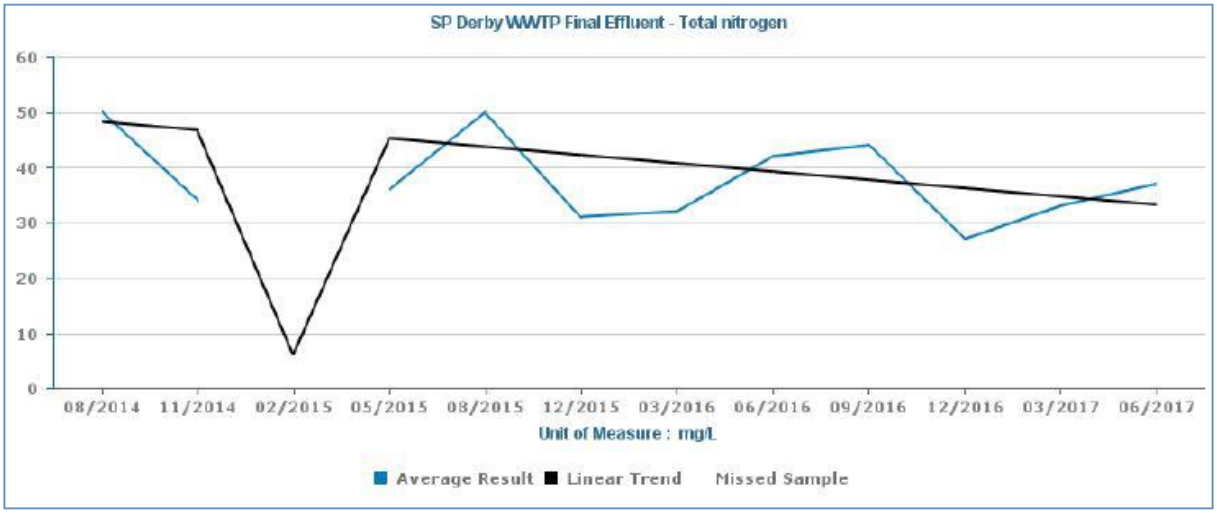


Figure 5: Total Nitrogen trend data.

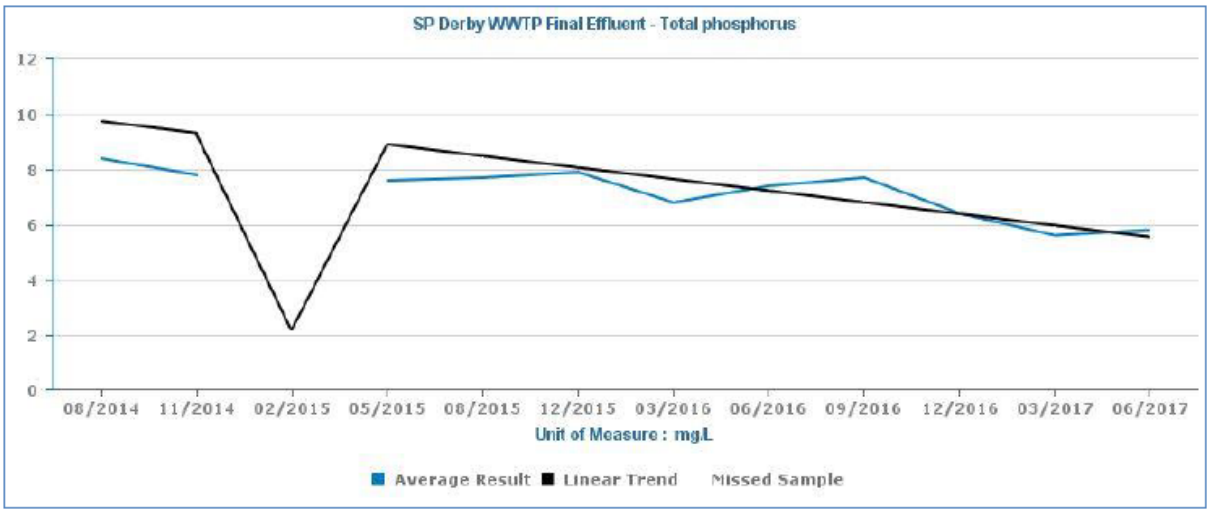


Figure 6: Total Phosphorus trend data.

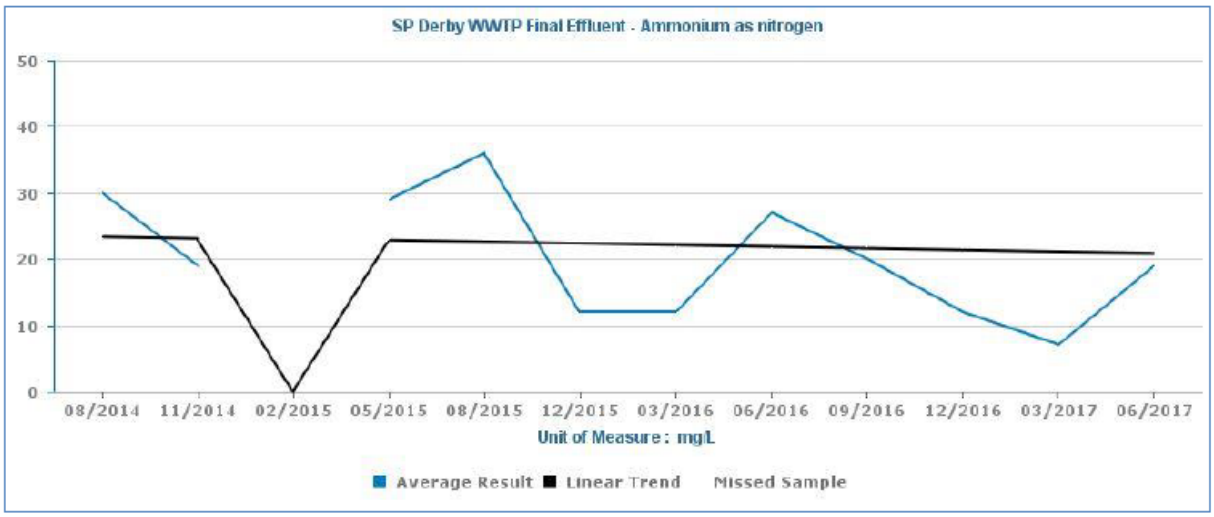


Figure 7: Ammonium Nitrogen trend data.

Licence: 6267/1991/10
File Number: 2012/007602

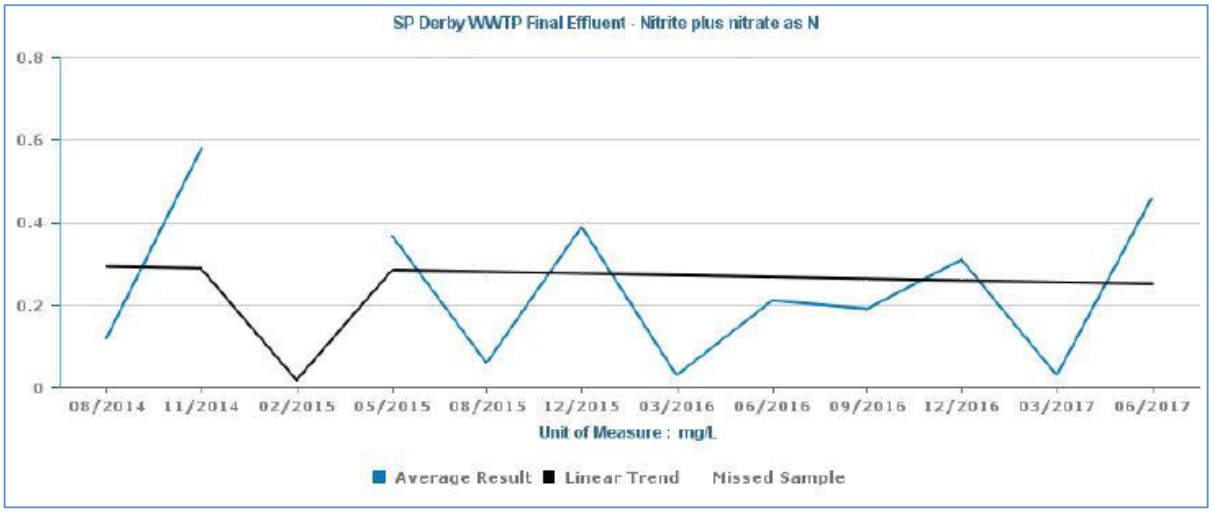


Figure 8: Nitrate + Nitrite Nitrogen trend data.

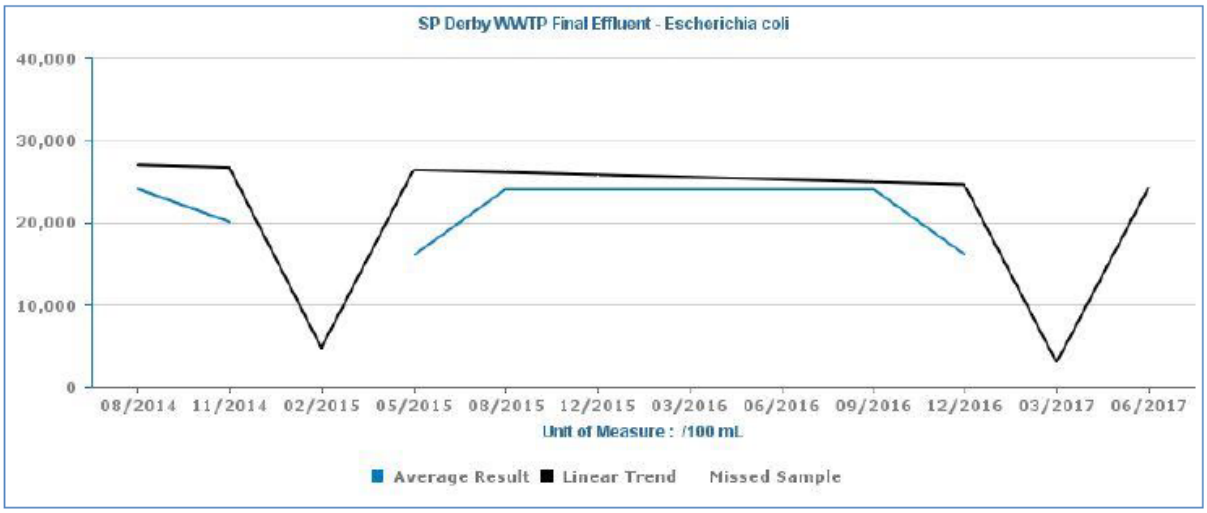


Figure 9: E.coli trend data.

6.2 Monitoring of odour

The Licence Holder has undertaken an odour assessment dated April 2017 as part of the licence amendment application and submitted the odour assessment as Attachment E in the Application Supporting Document (Table 2). The odour assessment has been conducted for the proposed future WWTP upgrade which includes two new anaerobic ponds although this licence amendment application is only the subject of the construction and operation of one additional anaerobic pond. The odour assessment reports the following conclusions:

- *For the existing plant, the predicted 5 OU contours extends about 120m west, 180m north, 220m east and about 150m south into the rural land. The 5 OU contour for the existing plant remains within the treatment plant site area and well away from the urban and commercial areas of Derby township.*
- *For the proposed future plant, the predicted 5 OU contours extend about 120m west, 240m north, 220m east and 200m south into rural land. The extension of the 5 OU contour with the expanded plant is generally to the north and south because the anaerobic pond are north of the primary ponds and the prevailing winds are north west*

and south east.

- *The predicted 5 OU contour for the proposed future plant remains well away from the developed area of Derby township. There is a small extension of the 5 OU contour into the corner of the general industrial zone (unoccupied), but the predicted odour levels in the industrial area is unlikely to be an issue in an industrial setting.*
- *Overall the proposed future Derby WWTP will have a larger odour footprint than the existing plant but it is not considered to be a risk of causing an odour nuisance.*

The Licence Holder has confirmed that given this licence amendment application is only for one new anaerobic pond and not two ponds as proposed for the future plant, reducing the number of ponds from two to one will have the predictable effect of reducing the extent of the 5OU contour due to the reduction in odour emissions. Hence there will be less impact than what is noted in the odour assessment report submitted with the licence amendment application.

Figure 10 provides an overview of the proposed future upgraded WWTP predicted contours for current land use.

Figure 10: Odour contours for the proposed WWTP.

7. Location and siting

7.1 Siting context

The Premises is located on Reserve 34921which resides on the southern edge of the Derby township. To the north of the premises is the Derby landfill (zoned Industrial), to the west is the tidal flats of King George Sound and to the east and south the premises has an extensive buffer of native vegetation. An Industrial park lies 400m to the north east. Attachment 2 provides a site overview.

7.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 7.

Table 5: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Primary Activity
Residential Premises	615m north east (Rural) 915m north (Residential)
Industrial premises	570m north east 490m north east

7.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 8. Table 8 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 6: Environmental values

Specified ecosystems	Distance from the Premises
Acid Sulphate Soils Risk Mapping	Within the Premises boundary; in the south west corner 410m from activity. High to Moderate risk
RIWI Act 1914	Premises lies within Derby proclaimed groundwater area
Contaminated Site	70m north Derby Landfill (adjacent to north) is registered
Hydrography Area subject to inundation. Non-perennial swamp	 580m from activity and adjacent to south west premises boundary. 275m south west of activity but within premises boundary south west.
Biological component	**Distance from the Premises**
Threatened/Priority Fauna	Within premises boundary
Other relevant ecosystem values	**Distance from the Premises**
Mangrove community (high value ecosystem)	Located 1200m south west from the activity.

7.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 7: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Major watercourses/waterbodies	Creek 2200m south west 5000m west King Sound	Recreational -fishing
Groundwater	Depth to groundwater encountered at approximately 5.5m – 5.9m (based on information within licence amendment application). Variation driven by tidal variation. No functional bores are located within 1km of Premises (based on available GIS dataset –WIN Groundwater Sites).	Water is not used for potable or industrial use. Groundwater system linked to marine ecosystem with Mangrove community located 1200m south west of the Premises activity.

7.5 Soil type

DWER's GIS identifies soil types as soil class Jw1 - Low-lying coastal plains with some sand dunes: chief soils are saline clays (Uf1.41) on the flat to very gently sloping plains. Associated are (Ug5) and (Uf) soils along the inland margin of the plains; areas of saline muds (Um1) on slopes and flats submerged at high tide; and very small areas of calcareous sands (Uc1.1) and/or siliceous sands (Uc1.2) on coastal dunes. Occurs on sheet(s): 6,8,9.

7.6 Meteorology

Climate statistics for the Premises are illustrated in Figure 11 and 12 below.

7.6.1 Wind direction and strength

Annual wind direction and strength at 9am and 3pm respectively for the Premises is provided in Figure 11 and 12 below.

7.6.2 Rainfall

Annual mean rainfall is provided in Figure 13 below.

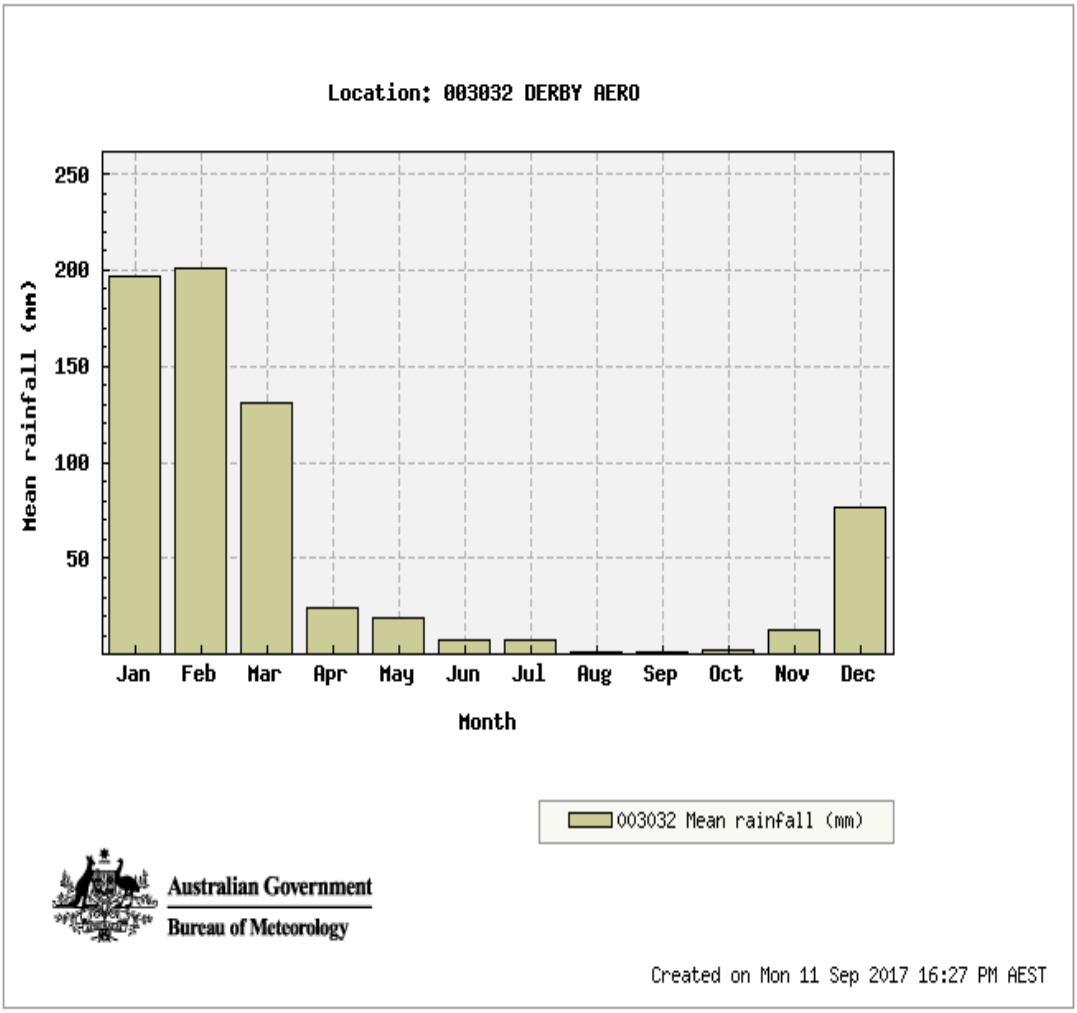


Figure 13: Derby Mean rainfall

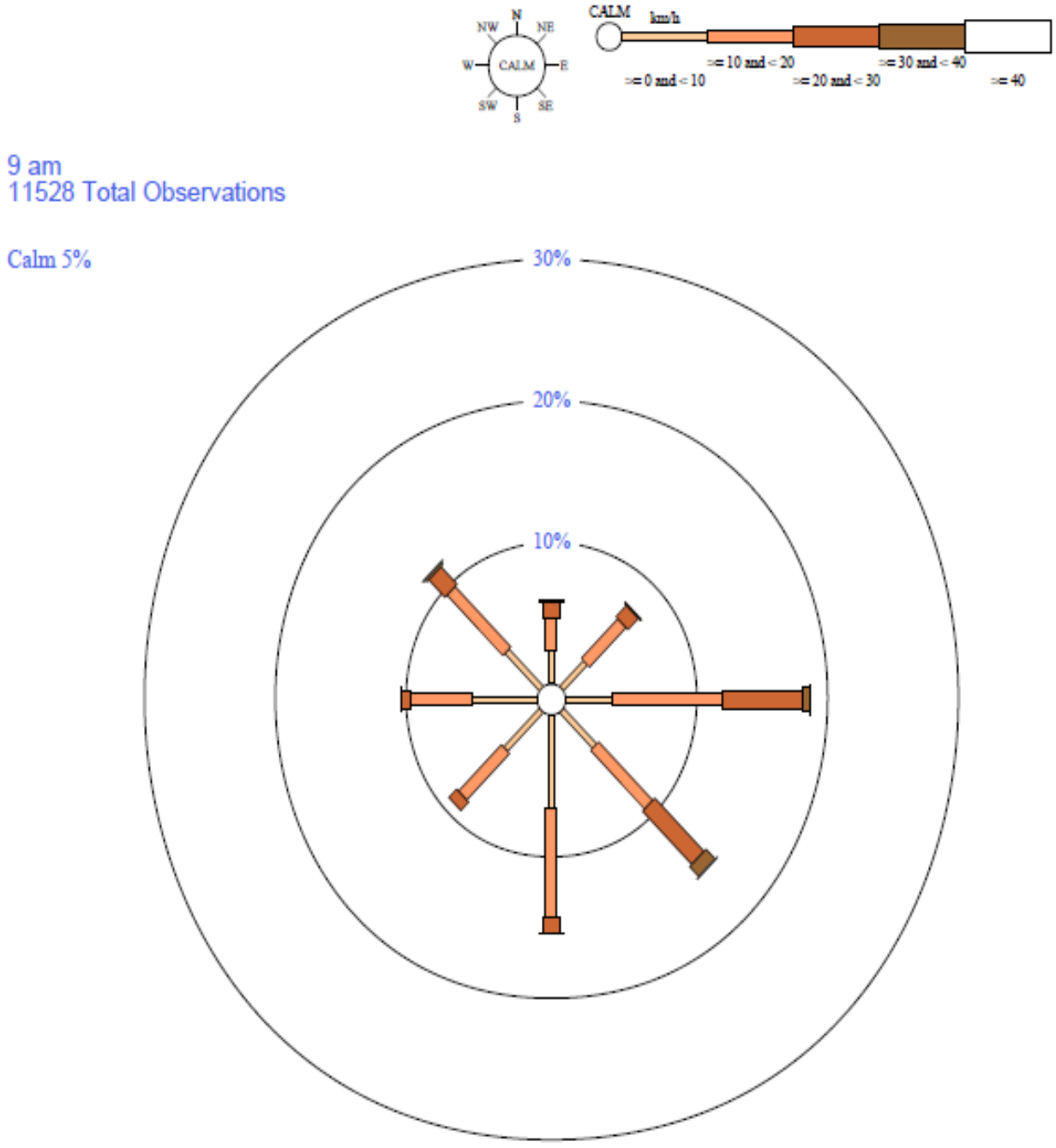


Figure 11: Annual wind rose Derby 9 am

"It is important to note that these wind roses show historical wind speed and wind direction data for Bunbury weather station and should not be used to predict future data"

Source Bureau of Meteorology website www.bom.gov.au

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File Number: 2012/007602

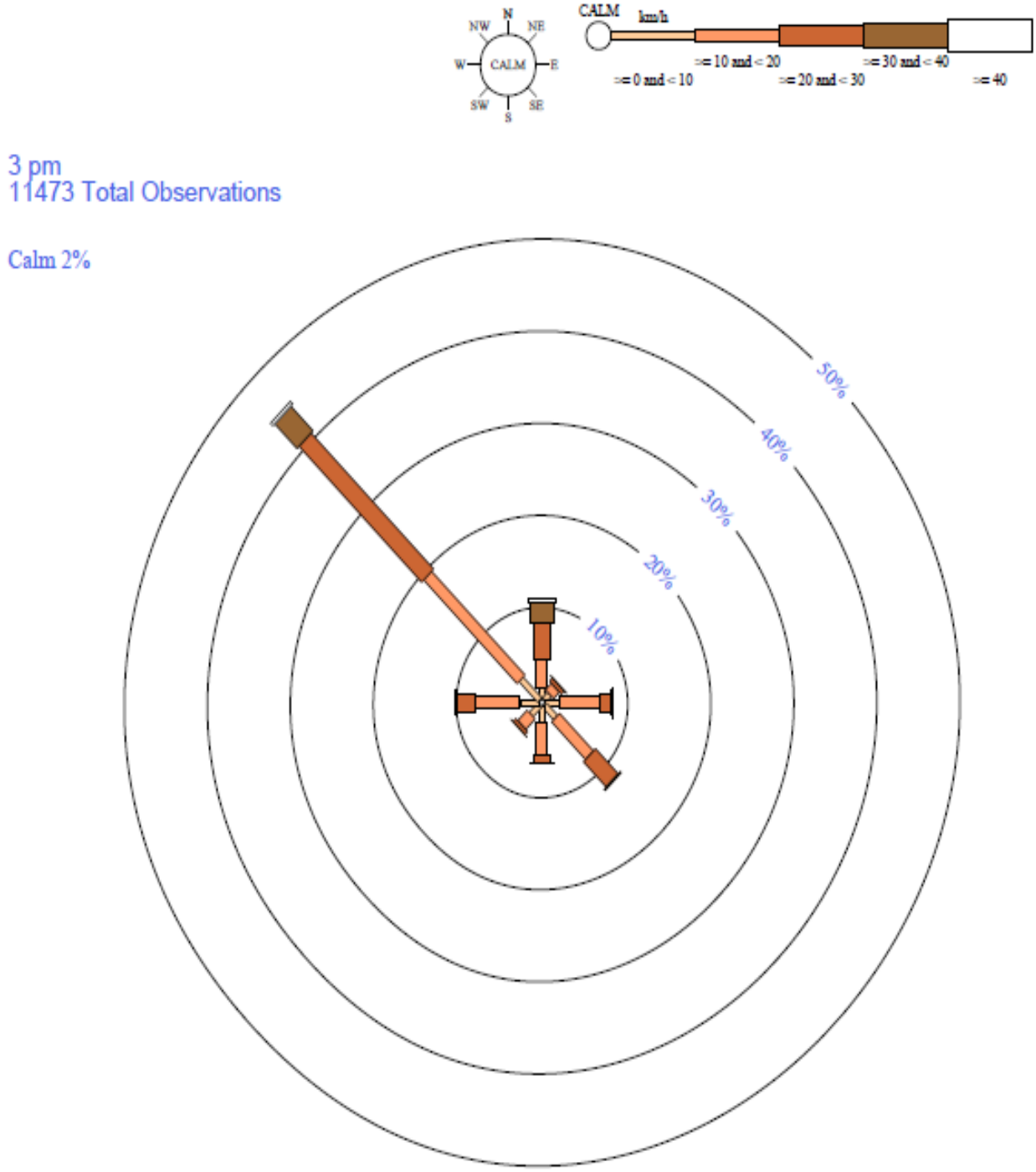

Figure 11: Annual wind rose Derby 3 pm

"It is important to note that these wind roses show historical wind speed and wind direction data for Bunbury weather station and should not be used to predict future data"

Source Bureau of Meteorology website www.bom.gov.au

Licence: 6267/1991/10
File Number: 2012/007602

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 10 and 11.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 10 and 11 below.

Table 10: Identification of emissions, pathway and receptors during construction

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Wastewater Treatment Plant	Vehicle movements on unsealed access roads	Noise from movement of heavy and light vehicles	No residences or other sensitive receptors in proximity. Residential premises 615m north east (Rural) and 915m north (Residential)	Air / wind dispersion	Amenity impacts causing nuisance	No	No receptor present. Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of noise emissions. Noise can be adequately regulated by the EP Noise Regs.
		Dust from movement of heavy and light vehicles	No residences or other sensitive receptors in proximity. Residential premises 615m north east (Rural) and 915m	Air / wind dispersion	Health and amenity impacts - Potential suppression of photosynthetic and respiratory functions	No	No receptor present. Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
			north (Residential)				dust emissions. Dust can be adequately regulated by section 49 of the EP Act.
	Construction of new pond /drying bed and septage receival point	Noise from movement of heavy and light vehicles	No residences or other sensitive receptors in proximity. Residential premises 615m north east (Rural) and 915m north (Residential)	Air / wind dispersion	Amenity impacts causing nuisance	No	No receptor present. Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of noise emissions. Noise can be adequately regulated by the EP Noise Regs.
		Dust from movement of heavy and light vehicles	No residences or other sensitive receptors in proximity. Residential premises 615m north east (Rural) and 915m north (Residential)	Air / wind dispersion	Health and amenity impacts - Potential suppression of photosynthetic and respiratory functions	No	No receptor present. Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of dust emissions. Dust can be adequately regulated by section 49 of the EP Act.
	Fuel transfer to Heavy machinery	Hydrocarbon discharge / spill to land	Depth to groundwater encountered at approximately 5.5m – 5.9m	Direct discharge	Soil contamination inhibiting vegetation growth and survival and health impacts to fauna and flora	No	No bulk fuel will be stored on site. Fuel will be transferred between a fuel truck and Heavy machinery. The Delegated Officer considers the separation distance adequate for potential emissions from fuel spillage and hydrocarbon discharges to land and these can be adequately regulated by the UDR.

Table 11: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Wastewater Treatment Plant	Operation of treatment ponds / sludge drying beds and septage receival point	Noise from operation of ponds (aerators etc) and movement of light vehicles	No residences or other sensitive receptors in proximity. Residential premises 615m north east (Rural) and 915m north (Residential)	Air / wind dispersion	Amenity impacts causing nuisance	No	No receptor present. Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of noise emissions as not foreseeable. Noise can be adequately regulated by the EP Noise Regs.
		Dust from movement of vehicles	No residences or other sensitive receptors in proximity. Residential premises 615m north east (Rural) and 915m north (Residential)	Air / wind dispersion	Health and amenity impacts - Potential suppression of photosynthetic and respiratory functions	No	No receptor present. Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of dust emissions as not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.
	Seepage	Leachate to groundwater	Groundwater dependent ecosystems, subterranean fauna Depth to groundwater encountered at approximately 5.5m – 5.9m	Direct discharge	Groundwater contamination	No	No pathway. The new anaerobic pond will be lined with an impervious (1×10^{-9} m/s) reinforced concrete over a binding layer. The sludge drying bed will consist of a synthetic liner designed to meet 2×10^{-10} m/s permeability.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
	Treatment of sewage	Odour	Residential premises 615m north east (Rural) and 915m north (Residential)	Air / wind dispersion	Amenity impacts causing nuisance	No	Prevailing 9am and 3pm winds south east and north west respectively. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of odour emissions as not foreseeable. Odour can be adequately regulated by section 49 of the EP Act.
	Sewage pond (Anaerobic) / sludge drying bed	Overtopping of pond / drying bed resulting in sewage discharge to land	Vegetation adjacent to discharge area Surface waters (marine)	Direct discharge	Soil contamination inhibiting vegetation growth and survival Eutrophication of marine environment	Yes	See section 8.4
	Solid waste	Biosolids and vegetation screening solids	Ecosystems adjacent to storage area	Direct discharge	Soil contamination inhibiting vegetation growth and survival and health impacts to fauna	No	No pathway. Sludge will be removed from the anaerobic pond and transferred to the sludge drying bed via three separate suction pipelines which are permanently installed in the pond. The sludge drying bed will be lined and any liquid fraction will be returned to the pond via a draincoil drainage pipe. De-sludging activity will be infrequent – approximately every two years.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
	Bulk fuel storage	Breach of containment causing hydrocarbon discharge to land	Ecosystems adjacent to storage area Creek 2200m south west	Direct discharge	Soil contamination inhibiting vegetation growth and survival and health impacts to fauna	No	No pathway or receptor present. Prevailing 9am and 3pm winds south east and north west respectively. Only small volumes of chemicals will be stored within the Chlorination Shed which is fully enclosed and has an impervious concrete floor.

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 14 below.

Table 8: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 15 below.

Table 9: Risk criteria table

Likelihood		**Consequence**		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		**The following criteria has been used to determine the consequences of a Risk Event occurring:**		
			Environment	**Public health* and amenity (such as air and water quality, noise, and odour)**
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*
"onsite" means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 16 below:

Table 10: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

8.4 Risk Assessment – Overtopping

8.4.1 Description of Overtopping

The new anaerobic pond will receive untreated sewage from Derby sewerage infrastructure for treatment at the WWTP. Overtopping of the new anaerobic pond can occur during normal operating procedures and in extreme rainfall events (cyclones and large storms) which occur in the region. Any overtopping has the potential to directly discharge untreated sewage into the vegetation adjacent to the treatment pond(s) and the artificial wetland which does overflow into the marine tidal flats / surface waters of King George Sound which has extensive mangrove ecosystem. Any overflow of untreated sewage has the potential to increase nutrients into the environment which can cause degradation of the environment or nitrification of the tidal flats.

The Licence Holder will undertake de-sludging of the anaerobic pond when required (approximately every two years) and biosolids will be placed on the sludge drying bed for treatment. Biosolids can overtop the sludge drying bed and direct discharge onto the adjacent environment.

8.4.2 Identification and general characterisation of emission

The type of emission is direct discharge of untreated/treated wastewater and biosolids from the anaerobic pond and sludge drying bed. The anaerobic pond has an additional capacity of 700m3/day and depending on the type of incident (cyclone for example) a large percentage of this volume could overtop into the environment which would constitute untreated sewage high in nutrient concentration(s). It is however anticipated that the frequency will be very low and

generally only for a short duration; maximum of weeks in a cyclone for example.

Biosolids volumes would be considered low and any overtopping would be localised to the immediately area surrounding the drying beds. The frequency and volume is anticipated as very low as de-sludging is proposed to occur at two year intervals.

8.4.3 Description of potential adverse impact from the emission

Potential impacts include eutrophication of marine waters if untreated sewage was to enter the marine environment. It is unlikely and significant volume of untreated wastewater would reach the marine environment as overflow is directed towards the artificial wetland which has capacity to absorb a large quantity of overflow waters. Any overflow resulting from a cyclone or extreme rainfall event would be diluted with rainwater.

Soil contamination may inhibit vegetation growth and cause health impacts to fauna.

8.4.4 Criteria for assessment

Relevant land and surface water quality criteria include:

- National Environment Protection (Assessment of Site Contamination) Measure 1999;
- ANZECC & ARMCANZ (2000) – freshwater and marine waters criteria; and
- DoH 2011 – non-potable groundwater use.

8.4.5 Licence Holder controls

Overtopping will be managed by maintenance of pond and drying bed (liners and freeboard) as well as maintain the existing premises drainage systems that send all overflow to an overflow weir at the southern edge of secondary treatment pond 2. This overflow is then discharged to the artificial wetland. The current production and design of the WWTP is 810m^3/day and with the addition of the new anaerobic pond production and design capacity will increase to 1500m^3/day; however the projected inflow of 1200m^3/day is not proposed to be reached until the year 2036. The new anaerobic pond will therefore increase capacity such that overflow is unlikely. In addition, the anaerobic pond and sludge bed freeboard are designed to contain a 48-72 hour rainfall event.

8.4.6 Key findings

The Delegated Officer has reviewed the information regarding overtopping and has found:

1. *The Premises has existing infrastructure to manage and mitigate overflows.*
2. *The sludge drying bed will be bunded and will only be used as required for de-sludging activities which will be very infrequent. The Existing Licence has conditions which regulate pond de-sludging activities.*
3. *Existing licence has conditions which regulate maintenance of wastewater treatment ponds and overtopping.*
4. *No new conditions are required on the Proposed Licence for overtopping and de-sludging activities.*

8.4.7 Consequence

If overtopping occurs, then the Delegated Officer has determined that the impact of overtopping will be low level onsite impacts, minimal off-site impacts and not detectable off-site impacts wider scale with Specific Consequence Criteria likely to be met. Therefore, the Delegated Officer considers the consequence of overtopping to be **Minor**.

8.4.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of overtopping could occur at some time. Therefore, the Delegated Officer considers the likelihood of Risk Event 1 to be **Possible**.

8.4.9 Overall rating of overtopping

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 14) and determined that the overall rating for the risk of overtopping is **Medium**.

8.5 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 17 below. Controls are described further in section 9.

Table 11: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor** **(Impact)**			
1.	Overtopping of untreated wastewater	Sewage pond / sludge drying bed	Directed overtopping to marine environment causing impacts on water quality and visibility.	Infrastructure and management controls.	Minor consequence Possible **Medium risk**	Acceptable subject to proponent controls conditioned / outcomes based controls Conditions already on the Existing Licence; no new conditions required on the Proposed licence.

9. Regulatory controls

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 18. The risks are set out in the assessment in section 10 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Licence Holder. The conditions of the Licence will be set to give effect to the determined regulatory controls.

Table 18: Summary of Works Approval regulatory controls to be applied

		Controls (references are to sections below, setting out details of controls)
		9.1.1 Infrastructure and equipment
Risk Items (see risk analysis in section 8)	1. Overtopping	●

9.1 Licence controls

The Licence Holder has applied for a licence amendment to construct one new anaerobic pond, septage receival point and sludge drying bed. The Risk Assessment has determined no conditions are required to regulate emissions from construction works and existing licence conditions are sufficient to mitigate operation of the three new infrastructure. The Existing Licence has at this time been converted into the new Licence format; refer to Licence condition conversion Table 19 below.

9.1.1 Infrastructure and equipment

Licence condition 3 has been added to the licence to allow the Licence Holder to construct the new anaerobic pond, sludge drying bed and septage receival point according to the specification outlined in condition 3. Licence condition 4 allows for minor departures if required. Licence condition 5 requires a construction compliance document be submitted by the Licence Holder to the CEO to ensure construction occurred with no material defects. Licence condition 6 requires the construction compliance document to identify and departures for works.

Licence condition 2 on the proposed licence has been converted from condition 5 on the Existing licence and is sufficient to mitigate overtopping emissions from the Premises. No new licence conditions are required post construction of the new anaerobic pond, sludge drying bed and septage receival point.

Table 19: Licence Condition conversion

Licence Condition	
Existing Licence	Proposed Licence
1	Converted into condition 7
2	Converted into condition 14
3	Converted into condition 16
4	Converted into condition 17
5	Converted into condition 2
6	Converted into condition 9
7	Converted into condition N/A
8	Converted into condition 12 and Schedule 3
9	Converted into condition Schedule 3
10	Converted into condition 13
11	Converted into condition 14
12	Converted into condition 11
13	Converted into condition 11
14	Converted into condition 2
15	Converted into condition 2 and 11
16	Converted into condition 2
17	Converted into condition 2

10. Determination of Works Approval and Licence conditions

The conditions in the issued Licence have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 20 provides a summary of the conditions to be applied to this licence for construction of the anaerobic pond, sludge drying bed and septage receival point.

Table 12: Summary of conditions to be applied

Condition Ref	Grounds
Infrastructure and Equipment 3, 4, 5 and 6	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act.
Infrastructure and Equipment 2	These conditions are valid, risk-based and contain appropriate controls.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the licence under the EP Act.

11. Applicant's comments

The Licence Holder was provided with the draft Decision Report and Licence on 3 November 2017. The Licence Holder submitted comments on 29 November 2017. Refer to Appendix 3 for a comprehensive review of the comments.

12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Amended Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Stephen Checker
MANAGER LICENSING (WASTE INDUSTRIES)

Officer delegated under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Licence L6267/1991/10 – Derby WWTP	L6267/1991/10	accessed at www.der.wa.gov.au
2.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
3.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DER 2015b	
4.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	DER 2016a	
5.	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DER 2016b	
6.	DER, November 2016. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	DER 2016c	

Appendix 2: DoH Advice

Government of **Western Australia**
Department of **Health**

Your Ref: Murray French
Our Ref: F-AA-54145
Job: 16388
Enquiries: Clemencia Rodriguez (9388 4812)

Mrs Rachael Miller
Manager Water Quality
Water Corporation
P.O Box 100
LEEDERVILLE WA 6007

Dear Rachael,

RE: DERBY WASTEWATER TREATMENT PLANT UPGRADE

I refer to the Water Corporation correspondence of 2nd August 2017 seeking Department of Health (DoH) endorsement for the above mentioned upgrade.

It is noted that the Derby Wastewater Treatment Plant (WWTP) currently treats 800 kL/day of effluent and it is proposed to upgrade the plant to treat 1500 kL/day.

It is proposed to construct an anaerobic pond upstream of the existing primary ponds. In addition, a sludge drying bed, a tank receival slab and interconnecting pipework will be part of the upgrade.

It is noted that secondary treated effluent is disposed to a constructed wetland area or chlorinated and pumped to the Derby Golf Club for irrigation.

The DoH has no objections to the proposed WWTP upgrade subject to the following:

1. Submission of six weekly consecutive samples from the final effluent demonstrating compliance with Clause 5 of the Derby Golf Club Recycled Water Approval No B09/DY000 after completion of the works.
2. Update of the Operational Mosquito Management Plan Derby WWTP (PM#14138872 v3) addressing DoH comments sent by email on 24 August 2017.
3. A communication plan during the upgrade of the WWTP being implemented in consultation with the Local Government to address community concerns regarding noise, dust, odour, sewage spills or traffic issues.

I trust this information is of assistance, if you would like to discuss this matter further, please contact the Water Unit of the Health Department on (08) 9388 4999.

Yours faithfully,

Richard Theobald
MANAGER WATER UNIT
PUBLIC HEALTH DIVISION
DEPARTMENT OF HEALTH WA
24 August 2017
cc DWER
Shire of Derby West Kimberley

Environmental Health
All correspondence PO Box 8172 Perth Business Centre Western Australia 6849
Grace Vaughan House 227 Stubbs Terrace Shenton Park WA 6008
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28 684 750 332

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Licence: 6267/1991/10
File Number: 2012/007602

Appendix 3: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder comment	DWER response
1. Treated Wastewater from the Premises discharged to the Effluent Reuse Compensating Basin (as shown in Schedule 1)	It would be useful for consistency to use the same terminology as that in the Process Control Table (our internal monitoring and tracking system)	Wording changed to Maturation Pond. The Licence Holder advises discharges to the artificial wetland comes from the final Maturation Ponds rather than the Effluent Storage Basin; confirmed with infrastructure map. Schedule 1 Map changed accordingly.
1 Table 2 Colum 1 – Specified Emissions	Table 2 does not reference the discharge to the dedicated artificial wetland (as discussed in the decision report) as an emission. It is proposed that reference to this emission is included if its omission would no longer allow the discharge. Note that the discharge to the wetlands comes from the final Maturation Ponds rather than the Effluent Storage Re-use Basin. The golf course re-use scheme has also not been included as a specified emission. We assume that it falls under general emissions. If not, we request that it be included as a specified emission.	Condition 1 updated. Offsite discharges added to Specified Conditions.
1.Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the	*Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access (**excepting the discharge of treated wastewater to the dedicated artificial wetland**); or*	Condition 1 'specified emissions' updated as above.

Condition	Summary of Licence Holder comment	DWER response
public has access; or	Does the DWER consider that the discharge of treated wastewater to the dedicated artificial wetland and/or 3rd party re-use scheme to be an emission excluded from general emissions? Would the condition as it is in its existing text therefore exclude the discharge of the treated wastewater to the artificial wetland? If so, it is requested that this is clarified in the text. Similarly, would the discharge of the treated wastewater to the golf course be exclusion as it is publicly accessible, if so, can the wording also please be amended to include reference to this exception.	
2. All de-sludging beds, septage receival inlet and sewage and treated wastewater storage ponds, transfer pipelines and conveyance infrastructure must be impermeable and free of leaks or defects	***There must be no discernible loss*** *from all de-sludging beds, septage receival inlet and sewage and treated wastewater storage ponds, transfer pipelines and conveyance infrastructure* ~~*must be impermeable and free of leaks or defects*~~ It is noted that the proposed amended licence has been converted to the current licence format, and that the terminology of the new conditions has changed. Condition 2 of the proposed licence, for example, requires 'all treated wastewater storage ponds to be impermeable' while the current licence requires 'no discernable seepage loss from the treatment ponds'. Further, the Risk Assessment supporting the decision in setting this condition does not include an assessment of the existing operational infrastructure. Water Corporation believes demonstrating compliance with condition 2, as proposed, will be difficult and costly for the existing treatment storage ponds, and therefore requests this condition be appropriately amended to enable Water Corporation to achieve a level of compliance proportionate to the level of risk to public health and the environment. It would be beneficial for operational and construction related conditions be clearly delineated in the licence to avoid unachievable conditions.	As per DWER's guidance on redundant conditions, the wording *discernible* is not an objective measurable amount and the wording has been removed from licences. As the specifications for the lining of existing infrastructure onsite is not known, the Delegated Officer agrees that 'impervious' infrastructure may not be achievable without upgrade works which are beyond the scope of this amendment. The requirement has therefore been removed, however it is expected that further information regarding the lining of infrastructure may be required in the event of a future licence review.

Condition	Summary of Licence Holder comment	DWER response
2. The sewage treatment system must operate to the following specifications: (a) have the capacity to determine if seepage or containment failure from below ground infrastructure is occurring	*The sewage treatment system must operate to the following specifications:* *~~(a) have the capacity to determine if seepage or containment failure from below ground infrastructure is occurring~~* The requirement here states that we have to provide a subsurface drainage monitoring system underneath any new infrastructure. This is not our standard practice for pond treatment systems, nor has historically been required. Our standard practice is to test the pond at commissioning.	The Delegated Officer agrees that the requirement is not consistent with requirements for similar licensed sites. The requirement has been removed,
2. The sewage treatment system must operate to the following specifications: (c) direct all treated wastewater to the treated effluent storage pond	*The sewage treatment system must operate to the following specifications:* *(b) direct treated wastewater to the **Effluent Reuse Compensating basin OR to the dedicated artificial wetland or 3rd party re-use scheme.*** As per comment on Condition 1, not all wastewater is sent to the effluent storage pond. Wastewater is also discharged to the wetlands from the final Maturation Ponds and to the 3rd party re-use scheme.	The Delegated Officer has removed this requirement as it is not sufficiently risk-based. Risks associated with the inappropriate management of wastewater onsite are adequately covered via the freeboard and overtopping requirements in the licence.
3. The Licence Holder must construct the works for the infrastructure and equipment: (a) specified in Column 1, (b) to the requirements specified in Column 2,	*Septage receival point* - *Constructed of impervious concrete/**material** free of leaks and defects;* - *Be fully bunded;* - *Measure approximately **3.7m x 9.0m;*** - *Be situation adjacent to the northern edge of the new anaerobic pond; and* - *Direct septage inflows into the anaerobic pond.* Please note there has been a minor departure from the original design as submitted in the Licence Amendment Application. The	Condition wording changed as requested noting advice from Licence Holder.

Condition	Summary of Licence Holder comment	DWER response
detailed in Table 4. Septage receival point • constructed of impervious concrete free of leaks and defects; • be fully bunded; • measuring 3.5m x 9.5m; • be situated adjacent to the northern edge of the new anaerobic pond; and • direct septage inflows into the anaerobic pond via PVC pipe.	design has been improved to increase operational safety and efficiency. Please see attached the new drawings showing the updated layout. Proposed amendments are suggested to the text in Table 4 as above.	
3. The Licence Holder must construct the works for the infrastructure and equipment: (a) specified in Column 1, (b) to the requirements specified in Column 2, detailed in Table 4. Sludge drying bed	*Sludge Drying Bed* - *Constructed of **suitable impermeable liner material** with an effective permeability of less than 2 x 10^{-10} m/s;* - *Be fully bunded **~~with a concrete bund of 0.85m high~~;*** - *Measure approximately **28m x 23m**;* - *Be situated adjacent to the eastern edge of the new anaerobic pond; and* - *Direct liquid flows into **Primary Pond No. 1** via draincoil PVC drainage pipe.* Changes to text as per the minor design changes as noted above. Due to the minor change in design and layout, the proposal to	Condition wording changed as requested noting advice from Licence Holder.

Condition	Summary of Licence Holder comment	DWER response
• constructed of either polyethylene or geosynthetic clay liner with an effective permeability of less than $2x10^{-10}$ m/s; • be fully bunded with a concrete bund of 0.85m high; • measure 27.5m x 27.5m; • be situated adjacent to the eastern edge of the new anaerobic pond; and • direct liquid flows into the anaerobic pond via a draincoil PVC drainage pipe.	drain filtrate/leachate returned to the start of the treatment process is no longer hydraulically feasible without the installation of a return pump station. Water Corporation now proposes to drain filtrate/leachate by gravity into the existing Primary Pond No 1.	
3. The Licence Holder must construct the works for the infrastructure and equipment: (a) specified in Column 1, (b) to the requirements specified in Column 2, detailed in Table 4.	*Anaerobic Pond* - *Must be lined with impervious **material** over a binding layer;* - *Comprise the following dimensions:* *i) Depth of 5.2m* *ii) Internal dimension at floor level of approximately 10m x 15m.* *iii) Internal dimension at top of water level of approximately 28m x 33m.* - ***Must be equipped with multiple fit-for-purpose sludge extraction pipelines** to direct sludge to the sludge drying bed; and*	Condition wording changed as requested noting advice from Licence Holder.

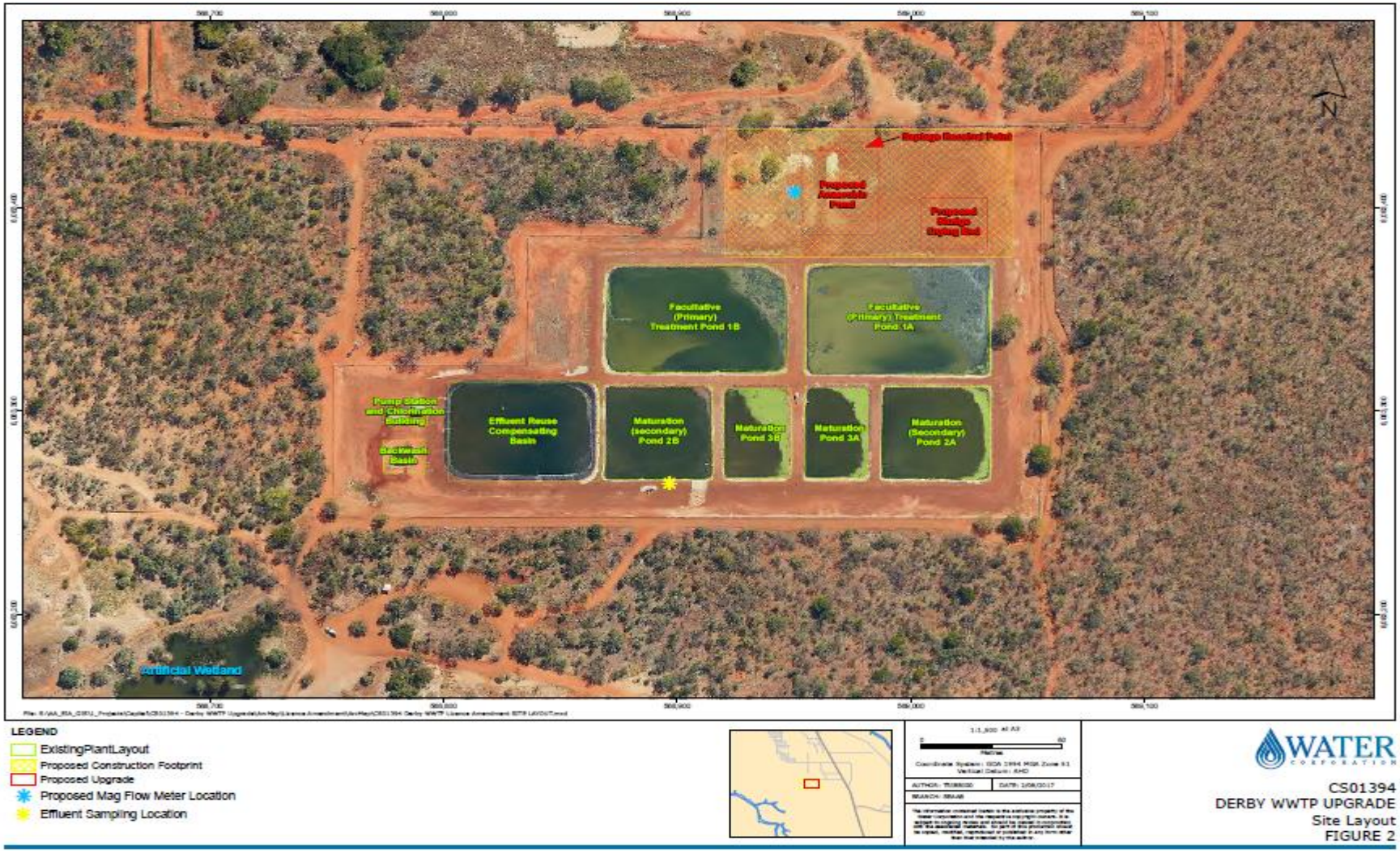
Condition	Summary of Licence Holder comment	DWER response
Anaerobic pond • must be lined with impervious reinforced concrete over a binding layer; • comprise the following dimensions: i. depth of 5.2m. ii. internal dimension at floor level of 10m x 15m. iii. internal dimension at top of water level of 28m x 33m. • contain three (3) separate PVC suction pipelines to direct sludge to the sludge drying bed; and direct flows into primary treatment pond 1.	*Direct flows into primary treatment pond 1* ***and/or 2 as necessary****.* Changes to text as per the minor design changes as noted above.	
8. The Licence Holder is permitted to accept no more than 1500 cubic metres of sewage for processing per day (as a 7 day average).	*The Licence Holder is permitted to accept no more than 1500 cubic metres of sewage for processing per day* ***as an average annual daily flow (AADF)*** *(as a 7 day average).*	The Delegated Officer has amendment the requirement to a monthly average. An annual average would potentially permit significantly over capacity inflows for extended periods. If the plant is receiving over capacity inflows for more than a month at a time, the Delegated Officer considers that the plant does not have sufficient capacity.

Condition	Summary of Licence Holder comment	DWER response
9. The Licence Holder must monitor and record the volumes of incoming and outgoing waste and outgoing products at the Premises for the parameter stipulated in column 1 of Table 6, using the units specified in column 2 of Table 6 at the frequency specified in column 3 of Table 6.	*Schedule 3 states the requirement to monitor the volume of treated effluent water discharged from the site, as such, should it also be included here under outputs?*	Schedule 3 requires monitoring of outputs which constitute treated wastewater discharged from the Wastewater Treatment Plant. These results are required to be monitored and reported under Condition 12, 13 and 14 of the Proposed Licence. Condition 9 has been re-worded to only monitor incoming volumes.
13. The Licence Holder must submit all water samples required in Schedule 3 to a laboratory with current NATA accreditation of the analyses of samples specified in Schedule 3.	*Due to the isolated location of the Derby WWTP it is requested that a notation be included that in-field non-NATA pH analysis would be permitted. It is not practicable for the field pH samples to get to a NATA accredited laboratory within the stipulated timeframes.*	Schedule 3 Table 8 monitoring has been amended to allow in-field non-NATA pH analysis as requested. This is consistent with other Water Corporation Licences.
14. The Licence Holder must submit to the CEO a treated waste water monitoring report with the Annual Audit Compliance	*Can there please be further specification around what is to be required in the "Treated Wastewater Monitoring Report"? Could this reporting instead be captured in the existing Annual Environmental Report?*	Condition 14 wording has been changed to Annual Environmental Report. This condition on the Proposed Licence replaces the Existing Licence Annual Environmental Report condition wording.

Condition	Summary of Licence Holder comment	DWER response
Report required under condition 17.		
Schedule 2	*Inclusion of additional row for Category 62*	Included
Schedule 3	*It is noted that the only reference is to "treated effluent water". It would be clearer to specify the 2 separate discharge locations as they are monitored and sampled from 2 different locations.* *1. Reuse to the Golf Course and* *2. Discharge to the wetlands.* *Sample and monitoring locations should be referenced as per the Process Control Table for consistency. A figure showing the naming of the monitoring locations is attached.* *Can further clarification please be provided on how the averaging period can be "continual"? Please can the averaging period be specified (i.e. annual, monthly, weekly, etc)* *As per comment on Condition 13 - Due to the isolated location of the Derby WWTP it is requested that a notation be included that in-field non-NATA pH analysis would be permitted. It is not practicable for the field pH samples to get to a NATA accredited laboratory within the stipulated timeframes (Australian Standard).*	The figure attached in the submission indicates that the S2 SP Derby WWTP final Effluent sample point is at the Maturation (Secondary) Pond 2B. This is consistent with the location shown in Schedule 2 Map. This is the same location as provided in Attachment 1 Site Plan below. Schedule 3 'Volume' parameter has been amended. Schedule 3 has been amended to include the notation of 'in-field non-NATA pH analysis would be permitted' consistent with other Licences.
Section 4.3 Decision Report The Licence Holder discharges treated wastewater to the Derby Golf Course. The discharge of treated	*It is noted that in Section 4.3 there is reference to the lack of regulation of the golf course 3rd party re-use of the treated wastewater. Can some clarification be made as to the implication of this comment?*	DWER is currently preparing a policy on the regulation of the third party reuse of treated wastewater. The licence has not historically regulated reuse and It is not proposed to assess reuse under this current licence amendment - however this may occur under a future licence review. As an ongoing, historical discharge, reuse to the golf course is acknowledged and has been included in 'specified emissions' in

Condition	Summary of Licence Holder comment	DWER response
wastewater to the Golf Course is not captured under the Existing Licence or the Proposed Licence. The Derby Golf Course does not hold a licence for discharge of treated wastewater.		Condition 1.

Attachment 1: Site Plan



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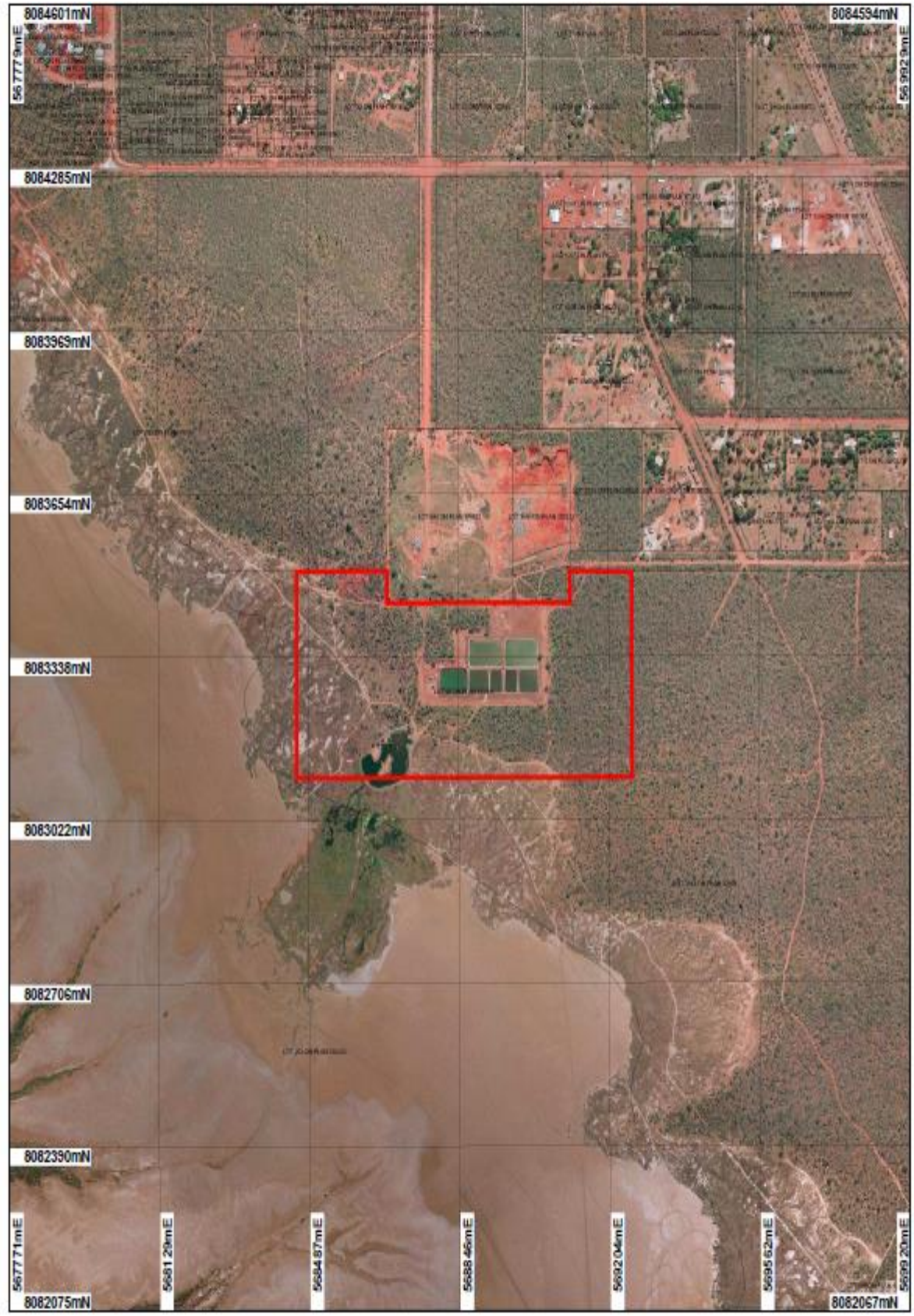
Attachment 2: Site Overview



Licence: 6267/1991/10
File Number: 2012/007602