Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Water Corporation

Licence: L8070/2005/2

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

Premises address: Mundaring Wastewater Treatment Plant
Lot 304 on Plan 192455
Digby Way
MUNDARING WA 6073
Bound by the following points, as depicted in Schedule 1

Point	Easting	Northing
1	422193.34m	6470525.03m
2	422193.42m	6470515.10m
3	422338.88m	6470516.21m
4	422339.30m	6470526.14m
5	422455.20m	6470582.49m
6	422615.36m	6470584.00m
7	422615.08m	6470588.96m
8	422453.17m	6470587.44m
9	422420.53m	6470654.94m
10	422298.34m	6470605.83m
11	422298.95m	6470525.83m

Issue Date: Thursday, 24 October 2013

Commencement date: Sunday, 27 October 2013

Expiry date: Friday, 26 October 2028

Prescribed Premises Category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
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.	100 cubic metres or more per day	240 cubic meters per day

Conditions
This Licence is subject to the conditions set out in the attached pages.

Date signed: 24 June 2016
….....
Alan Kietzmann
MANAGER LICENSING, WASTE INDUSTRIES
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role
The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implement licensing and industry regulation policy.

Licence requirements
This licence is issued under Part V of the Act. Conditions contained within the licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link: http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* – these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places 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.

Other Guidelines which you should be aware of include:

- *Western Australian Guidelines for Biosolids Management*, Department of Environment and Conservation, December 2012 (as amended from time to time).

Licence Fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary
The Mundaring Wastewater Treatment Plant (WWTP) is located on Lot 304 on Plan 192455 Digby Way, Mundaring. The premises is accessed via Darkan Street, Mundaring. The premises was first commissioned in 1996 and has been regulated under *Environmental Protection Act 1986* licence L8070 since 2005. The Mundaring WWTP accepts sewage waste from the Mundaring town centre, including the Mundaring shopping precinct, a few residences and two nearby schools.

The premises is surrounded by vegetated conservation reserves to the north, with the Mundaring Christian College sharing the southern lot boundary. Rural lifestyle blocks are located further to the north, east, south and west, with the closest residential property being approximately 200m from the WWTP pond. The geology of the site has been assessed as comprising of soils from the Dwellingup Land Unit (gently undulating lateritic uplands on the western edge of the plateau) or the Yarragil Land Unit (concave valleys in the western portion of the plateau). Major soil types are considered to be well drained gravely brown sands, pale brown sands and earthy sands of varying depths over lateritic duricrust, and moderately well drained yellow duplex soils and yellow or brown massive earthy soils on valley side slopes. The valley floor comprises of poorly drained mottled yellow duplex soils and clay loams (Water Corporation, 2011).

The nearest surface water bodies are the Bugle Tree Creek, located approximately 350m south west of the premises' operational area, and the Jarrah Creek, located approximately 720m north east of the premises. The Jarrah Creek is currently utilised for treated wastewater discharges during the wet winter periods when irrigation is not suitable. Both the Bugle Tree Creek and Jarrah Creek are considered to exhibit freshwater quality and provide habitat for freshwater ecology. Historic water quality monitoring of the Jarrah Creek downstream of the discharge location has shown higher levels of Total Nitrogen (TN) within the creek, directly related to elevated nutrient contents within the treated wastewater discharged. It is anticipated that the recent upgrade works undertaken will significantly reduce nutrient concentrations within the discharged wastewater for irrigation and/or to the Jarrah Creek. The main emissions from the premises are odour and discharges to land and surface water.

2016 Licence amendment
This licence amendment is required to address the recent upgrades of the premises that were undertaken as part of Works Approval W4921/2011/1. The upgrades included:

- Increase of premises design capacity from 120 cubic metres a day to 240 cubic metres a day;
- Addition of a new inlet that incorporates fine screening and the incorporation of the balancing tanks and transfer pump station into the new process train;
- Conversion of the process train into a new 3-stage reaction process consisting of anaerobic, anoxic and aerobic conditions;

- Addition of Membrane Bio-Reactor (MBR) technology to the existing process tanks, including a new aeration system, recycle pumping and membrane ultrafiltration system;
- New Waste Activated Sludge (WAS) thickening facility;
- New odour collection and treatment facilities for the inlet works, load balancing tanks, MBR process tanks, WAS dewatering system and storage tank;
- New UV system for disinfection of the MBR product water prior to discharge to reuse storage;
- Reconfigured Operations building to accommodate the expanded Stage 2 electrical facilities;
- Upgraded reuse water delivery systems to supply additional consumers and supply site process water; and
- Electrical, control and Supervisory Control and Data Acquisition (SCADA) installation required for the integration of the above unit processes.

As part of the upgrades additional sites have also been selected for irrigation of treated wastewater. Existing irrigation occurs to the Harry Riseborough Oval for reuse by the Shire of Mundaring during the summer months. Additional irrigation of treated wastewater will now occur to the Harry Riseborough Oval, as well as to the oval within the Mundaring Christian College and to paddocks at a nearby private equestrian property. This additional irrigation area will allow for additional irrigation of treated wastewater during the summer months. During wet winter periods excess wastewater will remain to be discharged via a stabilisation pond to Jarrah Creek following high quality tertiary standard wastewater treatment.

The licences and works approvals issued for the Premises since 2008 are:

Instrument log		
Instrument	**Issued**	**Description**
L8070/2005/1	23/10/2008	New licence
L8070/2005/2	24/10/2013	Licence re-issue
W4921/2011/1	21/06/2012	New works approval
W4921/2011/1	02/04/2015	Works approval amended
L8070/2005/2	24/06/2016	Licence amendment to new format, updating premises operation to allow for upgraded treatment processes and extending expiry date.

Severance
It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'annual period' means the inclusive period from 1 July until 30 June in the following year;

'AS/NZS 2031' means the Australian Standard AS/NZS 2031 *Selection of containers and preservation of water samples for microbiological analysis;*

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'Assessment and management of contaminated sites guidelines' means the document titled "Assessment and management of contaminated sites, Contaminated sites guidelines, December 2014" published by the Chief Executive Officer of the Department of Environment Regulation, as amended from time to time;

'assessment levels' means the Tier 1 assessment levels as defined in the **'Assessment and management of contaminated sites guidelines'**

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au;

'cfu/100 mL' means colony forming units per 100 millilitres;

'controlled waste' has the definition in *Environmental Protection (Controlled Waste) Regulations 2004;*

'covers' means metallic or non-metallic covers used to cover the pre-treatment, primary treatment and secondary aeration areas of the treatment plant;

'hardstand' means a surface with a permeability of 10^{-9} metres/second or less;

'Leachate' means liquid released by or water that has percolated through waste and which contains some of its constituents;

'Licence' means this Licence numbered L8070/2005/2 and issued under the *Environmental Protection Act 1986;*

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'**Process equipment**' means any wastewater or sludge containment infrastructure or wastewater treatment vessel;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'Waste Code' means the Waste Code assigned to a type of controlled waste for purposes of waste tracking and reporting as specified in the Department of Environment Regulation "Controlled Waste Category List" (July 2014), as amended from time to time; and

'wastewater treatment vessels' means any vessel or tank containment infrastructure associated with the treatment of wastewater and includes, but not limited to oxidation ditches and clarifiers.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 Premises operation

1.2.1 The Licensee shall only allow waste to be accepted on to the Premises if:
(a) it is of a type listed in Table 1.2.1; and
(b) the quantity accepted is below any limit listed in Table 1.2.1; and
(c) it meets any specification listed in Table 1.2.1

Table 1.2.1: Waste acceptance

Waste	Waste Code	Quantity Limit	Specification[1]
Sewage	N/A	240 m^3/day	Accepted through sewer inflow(s) only

1.2.2 The Licensee shall ensure that the wastes accepted onto the Premises are only subjected to the process(es) set out in Table 1.2.2 and in accordance with any process requirements described in that table.

Table 1.2.2: Waste processing

Waste type	Process	Process requirements
Sewage	Screening, disinfection and filtration. And Physical, biological and chemical treatment. **Preliminary treatment** • Screening **Balancing tanks** • Wastewater flow balancing **Process treatment** • Anaerobic, anoxic and Aeration tanks **Tertiary treatment and disinfection** • Filtration and chlorination • Sodium hypochlorite dosing	None specified
Sewage sludge and Waste activated sludge	Sludge treatment and storage	
Treated wastewater	Chlorination and Storage prior to discharge to Jarrah Creek	

1.2.3 The Licensee shall ensure that material is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 1.2.3.

Table 1.2.3: Containment infrastructure

Storage vessel or compound	Material	Requirements
Inlet/preliminary works: Mechanical Screens	Screenings	Recovered screenings to be stored in a sealed bin which is stored within a hardstand area that is graded to a collection drain which returns leachate to the start of the treatment process.
Balancing Tanks	Wastewater	Ensure that the covers on the tanks are kept in place at all times except when removal is required for maintenance operations or during emergency situations.
Anaerobic Reactor		
Anoxic Reactor		
Aerobic Reactor		
Membrane Reactors		

Table 1.2.3: Containment infrastructure		
Storage vessel or compound	**Material**	**Requirements**
Permeate Tank		
Waste Activated Sludge (WAS) tank	Sludge and filtrate	Returns sludge and filtrate to the start of the treatment process.
Treated wastewater storage pond (wetland)	Treated wastewater	Ensure that the pond remains free of vegetation and debris
Reuse Storage Tank		

1.2.4 The Licensee shall manage the wastewater treatment tanks/treated wastewater storage pond such that:
(a) overtopping of the tanks/storage pond does not occur; and
(b) stormwater runoff is prevented from entering the tanks/storage pond; and
(c) vegetation and floating debris (emergent or otherwise) is prevented from growing or accumulating in the tanks/storage pond.

2 Emissions

2.1 Point source emissions to air

2.1.1 The Licensee shall ensure that where waste is emitted to air from the emission points in Table 2.1.1 and shown in Schedule 1, it is done so in accordance with the conditions of this Licence.

Table 2.1.1: Emission points to air		
Emission point reference	**Emission point height (m)**	**Source, including any abatement**
Scrubber stack	4	Stack via biological scrubbing system

2.2 Emissions to land

2.2.1 The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emission points to land			
Emission point reference (and located on Map of emission points)	**Emission point reference on Map of emission points**	**Description**	**Source including abatement**
Irrigated Water Sample Point (reuse storage tank)	Irrigation Sites (Harry Riseborough Oval, Mundaring Christian College and private equine property)	Discharge to offsite irrigation areas	Treated wastewater

2.2.2 The Licensee shall not cause or allow emissions to land greater than the limits listed in Table 2.2.2.

Table 2.2.2: Emission limits to land			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
Irrigated Water Sample Point (reuse storage tank)	Total Nitrogen	300 kg/ha	Spot sample
	Total Phosphorus	50 kg/ha	

2.3 Point source emissions to surface water

2.3.1 The Licensee shall ensure that where waste is emitted to surface water from the emission points in Table 2.3.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.3.1: Emission points to surface water		
Emission point reference	**Description**	**Source including abatement**
Jarrah Creek Discharge Point (when reuse option not available)	Discharge of treated wastewater via discharge outlet into the Jarrah Creek	Treated wastewater

3 Monitoring

3.1 General monitoring

3.1.1 The Licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all microbiological samples are collected and preserved in accordance with AS/NZS 2031; and
(d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured, unless indicated otherwise in the relevant table.

3.1.2 The Licensee shall ensure that monthly monitoring is undertaken at least 15 days apart.

3.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications.

3.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.2 Monitoring of inputs and outputs

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of inputs and outputs					
Input/Output	**Monitoring point reference**	**Parameter**	**Units**	**Averaging period**	**Frequency**
Sewage – inlet flow	Inflow meter	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous
Treated wastewater to offsite irrigation	Outflow measuring unit	Effluent flow rate (cumulative)	m^3/day	Monthly	Continuous
Treated wastewater to discharge into Jarrah Creek	Outflow measuring unit	Effluent flow rate (cumulative)	m^3/day	Monthly	Continuous

3.3 Monitoring of emissions to land

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of emissions to land			
Emission point reference	**Parameter**	**Units**	**Frequency**
Irrigated Water Sample Point (storage contact tank)	Thermotolerant Coliforms (*E.coli*)	cfu/100 ml	Monthly when discharging
	pH (in field testing)	-	
	Total Suspended Solids	mg/L	
	Total Dissolved Solids		
	5 Day BOD (Biological Oxygen Demand)		
	Total Nitrogen		
	Total Phosphorus		
	Ammonium-Nitrogen		
	Nitrate Nitrogen		

3.4 Monitoring of point source emissions to surface water

3.4.1 The Licensee shall undertake the monitoring in Table 3.4.1 according to the specifications in that table.

Table 3.4.1: Monitoring of emissions to surface waters					
Emission point	**Monitoring point reference and location**	**Parameter**	**Units**	**Averaging period**	**Frequency**
As depicted in Schedule 1: Jarrah Creek Discharge Point	Discharge Point E: 421972.78 N: 6471982.92 MGA: 50	Thermotolerant Coliforms (*E.coli*)	Cfu/ 100ml	Spot sample	Monthly when discharging to Jarrah Creek.
		pH	-		
		Total Phosphorus	mg/L		
		Total Nitrogen			
		Total Suspended Solids			
		Total Dissolved Solids			
		5 Day BOD (Biological Oxygen Demand)			
		Ammonium-Nitrogen			
		Nitrate Nitrogen			

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

3.5 Ambient environmental quality monitoring

3.5.1 The Licensee shall undertake the monitoring in Tables 3.5.1 according to the specifications in those tables.

Table 3.5.1: Monitoring of ambient surface water quality				
Monitoring point reference and location	**Parameter**	**Units**	**Averaging period**	**Frequency**
As depicted in Schedule 1: Sample Point 1 (downstream) E: 421853.18 N: 6472046.25 MGA: 50 Sample Point 2 (downstream) E: 421767.93 N: 6472090.02 MGA: 50 Sample Point 3 (upstream) E: 422042.40 N: 6471947.93 MGA: 50	Total Nitrogen Total Phosphorus	mg/L	Spot sample	Monthly when discharging to the Jarrah Creek

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:
(a) be legible;
(b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
(c) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
(d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
(i) off-site environmental effects; or
(ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.3 The Licensee shall:
(a) implement a complaints management system that shall record the following information (if known or provided) about complaints received at the Premises concerning any environmental impact of the activities undertaken at the Premises:
(i) name and address of the complainants (if consented);
(ii) date and time of complaint;
(iii) date and time of alleged incident;
(iv) alleged source of the incident;
(v) general description of the alleged incident, including any environmental or health impacts reported by the complainant;
(vi) wind direction, wind speed and temperature at time of alleged incident;
(vii) likely source of the alleged incident; and
(viii) actions taken by licensee to address complaint, including the outcome of any investigation(s) and action(s) to verify any impacts.
(b) complete an annual analysis and review of complaints recorded under 4.1.3(a) to identify any common factors and root cause of complaints and proposals to address these.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 63 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents, that have occurred during the annual period and any action taken	None specified
Table 1.2.1	Summary of any treatment capacity exceedances and any action taken.	None specified
3.2.1	Monitoring of inputs and outputs	None specified

Table 4.2.1: Annual Environmental Report		
Condition or table (if relevant)	**Parameter**	**Format or form**[1]
3.3.1	Monitoring of emissions to land	None specified
	Methodology and calculations used to estimate the daily volumetric flow rate of treated wastewater discharged to irrigation and results of those calculations.	
	Comparison and interpretation of data for water quality discharges to irrigation areas against historical water quality data and the relevant water quality criteria.	
	Total Nitrogen and Total Phosphorus Contaminant loading (kg/day – monthly average) to water discharged to irrigation	
3.4.1	Monitoring of emissions to surface water	None specified
	Methodology and calculations used to estimate the daily volumetric flow rate of treated wastewater discharged to Jarrah Creek and results of those calculations.	
	Comparison and interpretation of data for water quality discharges to the Jarrah Creek against historical water quality data.	
	Total Nitrogen and Total Phosphorus Contaminant loading (kg/day – monthly average) to water discharged to Jarrah Creek	
3.5.1	Monitoring results of the Jarrah Creek water quality	A summary of the results should be presented in tabulated form within the body of the report as well as onto site drawings, where appropriate.
	• An interpretive summary and assessment of ambient Jarrah Creek quality monitoring results against relevant assessment levels for water as published in the Assessment and management of contaminated sites guidelines. • An interpretive summary and assessment of the Jarrah Creek quality monitoring results against previous monitoring results. Trend graphs shall be provided in support of this assessment.	
4.1.2	Compliance	AACR
4.1.3	Complaints summary	None specified
-	Summary of any changes to site boundaries, or sampling point location/name	None specified
-	The quantity of sewage sludge removed from the Premises	

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:
(a) any relevant process, production or operational data recorded under conditions of this licence; and
(b) an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table (if relevant)	**Parameter**	**Reporting period**	**Reporting date (after end of the reporting period)**	**Format or form**
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO at the Contact Address and in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	**Parameter**	**Notification requirement[1]**	**Format or form[2]**
-	Taking process equipment offline for maintenance works that may result in increase odour emissions.	No less than 72 hours in advance of works	None specified
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next working day Part B: As soon as practicable	N1

Note 1: No notification requirement in the Licence shall negate the requirement to comply with s72 of the Act.

Schedule 1: Maps

Premises map

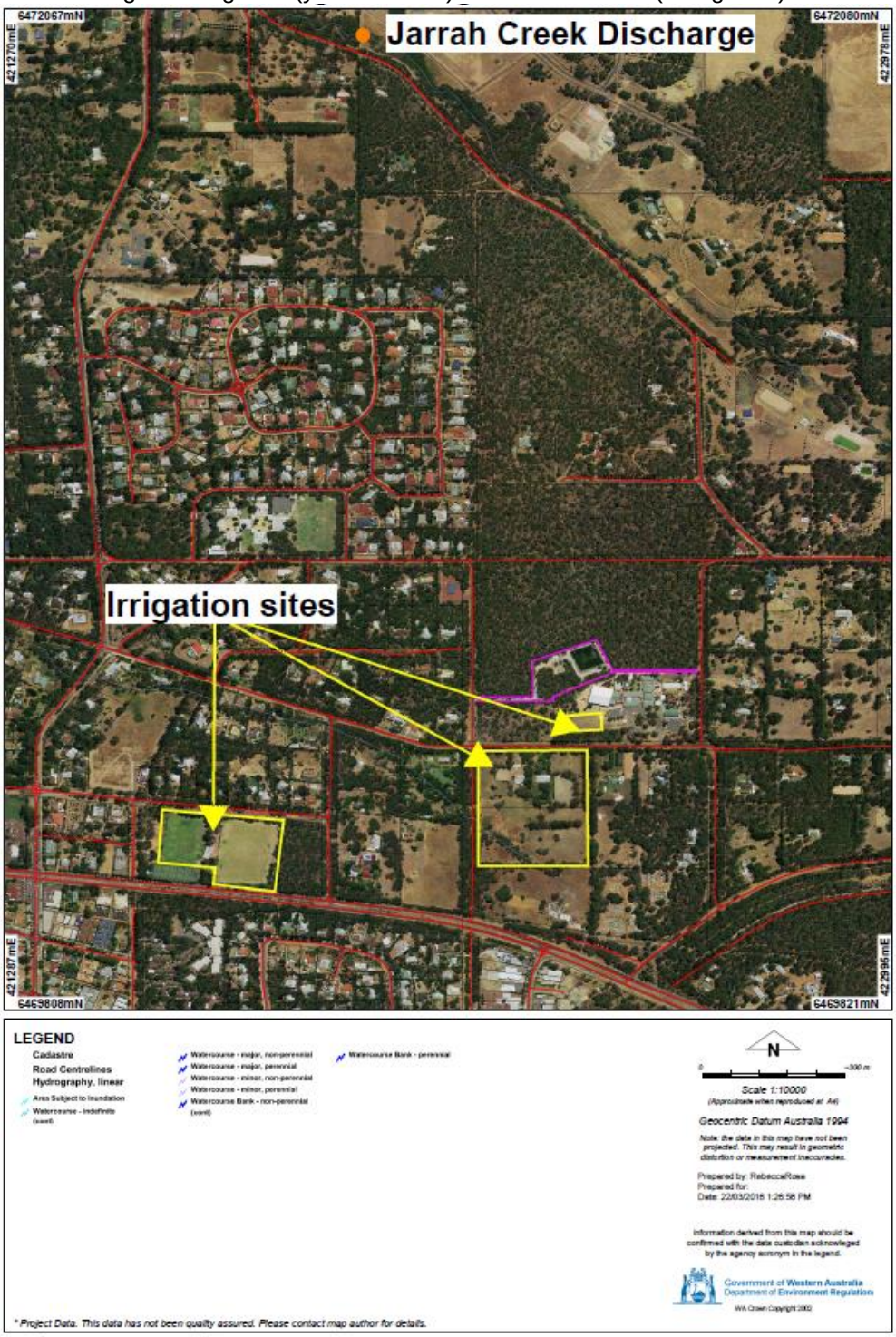
The Premises is shown in the map below. The pink line depicts the Premises boundary.

Scrubber and stack location

The location of the scrubber and stack described in Table 2.1.1 shown in the map below.

Emission Points map

The location of the discharges to irrigation (yellow border) and Jarrah Creek (orange dot).



Monitoring Locations map

The location of the Irrigated Water Sample Point (contact storage tank) is shown by the blue dot. The premises boundary is shown by the pink line.

The location of the Jarrah Creek Discharge and upstream and downstream (ambient environmental monitoring) sample Points shown by the blue dots. The premises boundary is shown by the pink line (bottom of image).

Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of the non compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L8070/2005/2 Licensee: Water Corporation
Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	Water Corporation
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Water Corporation	
Date	

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Water Corporation

Licence: L8070/2005/2

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

Premises address: Mundaring Wastewater Treatment Plant
Lot 304 on Plan 192455
Digby Way
MUNDARING WA 6073
Bound by the following points, as depicted in Schedule 1

Point	Easting	Northing
1	422193.34m	6470525.03m
2	422193.42m	6470515.10m
3	422338.88m	6470516.21m
4	422339.30m	6470526.14m
5	422455.20m	6470582.49m
6	422615.36m	6470584.00m
7	422615.08m	6470588.96m
8	422453.17m	6470587.44m
9	422420.53m	6470654.94m
10	422298.34m	6470605.83m
11	422298.95m	6470525.83m

Issue date: Thursday, 24 October 2013

Commencement date: Sunday, 27 October 2013

Expiry date: Friday, 26 October 2028

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER) CEO delegated officer, has decided to issue an amended licence. The delegated officer considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by: Rebecca Rosa
Licensing Officer

Decision Document authorised by: Alan Kietzmann
Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how DER CEO delegated officer has assessed and determined the application and provides a record of the decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to the delegated officer's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)** 54	**Assessed design capacity** 240 cubic meters per day
Application verified Application fee paid	Date: N/A Date: N/A	
Works Approval has been complied with Compliance Certificate received	Yes☒ No☐ N/A☐ Yes☒ No☐ N/A☐	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒		
Is the Premises subject to any EPP requirements? Yes☐ No☒		

3 Executive summary of proposal and assessment

Mundaring Wastewater Treatment Plant (WWTP) is located on Lot 304 on Plan 192455 Digby Way, Mundaring. The premises was first commissioned in 1996 and has been regulated under *Environmental Protection Act 1986* licence L8070 since 2005. The Mundaring WWTP accepts sewage waste from the Mundaring town centre, including the Mundaring shopping precinct, a few residences and two nearby schools.

The premises is surrounded by vegetated conservation reserves to the north, with the Mundaring Christian College sharing the southern lot boundary. Rural lifestyle blocks are located further to the north, east, south and west, with the closest residential property being approximately 200m from the WWTP pond. The geology of the site has been assessed as comprising of soils from the Dwellingup Land Unit (gently undulating lateritic uplands on the western edge of the plateau) or the Yarragil Land Unit (concave valleys in the western portion of the plateau). Major soil types are considered to be well drained gravely brown sands, pale brown sands and earthy sands of varying depths over lateritic duricrust, and moderately well drained yellow duplex soils and yellow or brown massive earthy soils on valley side slopes. The valley floor comprises of poorly drained mottled yellow duplex soils and clay loams (Water Corporation, 2011).

The nearest surface water bodies are the Bugle Tree Creek, located approximately 350m south west of the premises' operational area, and the Jarrah Creek, located approximately 720m north east of the premises. The Jarrah Creek is currently utilised for treated wastewater discharges during the wet winter periods when irrigation is not suitable. Both the Bugle Tree Creek and Jarrah Creek are considered to exhibit freshwater quality and provide habitat for freshwater ecology. Historic water quality monitoring of the Jarrah Creek downstream of the discharge location has shown higher levels of Total Nitrogen (TN) within the creek, directly related to elevated nutrient contents within the treated wastewater discharged. It is anticipated that the recent upgrade works undertaken will significantly reduce nutrient concentrations within the discharged wastewater for irrigation and/or to the Jarrah Creek.

The wastewater treatment process is illustrated in Figure 1 below.

May 2016 Amendment
This licence amendment is required to address the recent upgrades of the premises that were undertaken as part of Works Approval W4921/2011/1. The upgrades included:

- Increase of premises design capacity from 120 cubic metres a day to 240 cubic metres a day;
- Addition of a new inlet that incorporates fine screening and the incorporation of the balancing tanks and transfer pump station into the new process train;
- Conversion of the process train into a new 3-stage reaction process consisting of anaerobic, anoxic and aerobic conditions;
- Addition of Membrane Bio-Reactor (MBR) technology to the existing process tanks, including a new aeration system, recycle pumping and membrane ultrafiltration system;
- New Waste Activated Sludge (WAS) thickening facility;
- New odour collection and treatment facilities for the inlet works, load balancing tanks, MBR process tanks, WAS dewatering system and storage tank;

- New UV system for disinfection of the MBR product water prior to discharge to reuse storage;
- Reconfigured Operations building to accommodate the expanded Stage 2 electrical facilities;
- Upgraded reuse water delivery systems to supply additional consumers and supply site process water; and
- Electrical, control and SCADA installation required for the integration of the above unit processes.

As part of the upgrades, additional sites have also been selected for irrigation of treated wastewater. Existing irrigation occurs to the Harry Riseborough Oval for reuse by the Shire of Mundaring during the summer months. Additional irrigation of treated wastewater will now occur to the Harry Riseborough Oval, as well as to the oval within the Mundaring Christian College and to paddocks at a nearby private equestrian property. This additional irrigation capacity will allow for additional irrigation volumes of treated wastewater during the summer months. During wet winter periods excess wastewater will remain to be discharged via a stabilisation pond to Jarrah Creek following high quality tertiary standard wastewater treatment. However the volume discharged is likely to be reduced with the increase to the irrigation area. The upgrades are considered to result in significant improvements to the quality of wastewater leaving the premises. The new MBR will contribute to greatly reduced contaminant loads with reductions of up to 66% and 63% anticipated for Total Nitrogen and Total Phosphorus, expected respectively with the upgraded processing system.

The licence has also been converted to the new format for consistency with other Water Corporation licences. Changes have been made in relation to definitions and controlled waste codes.

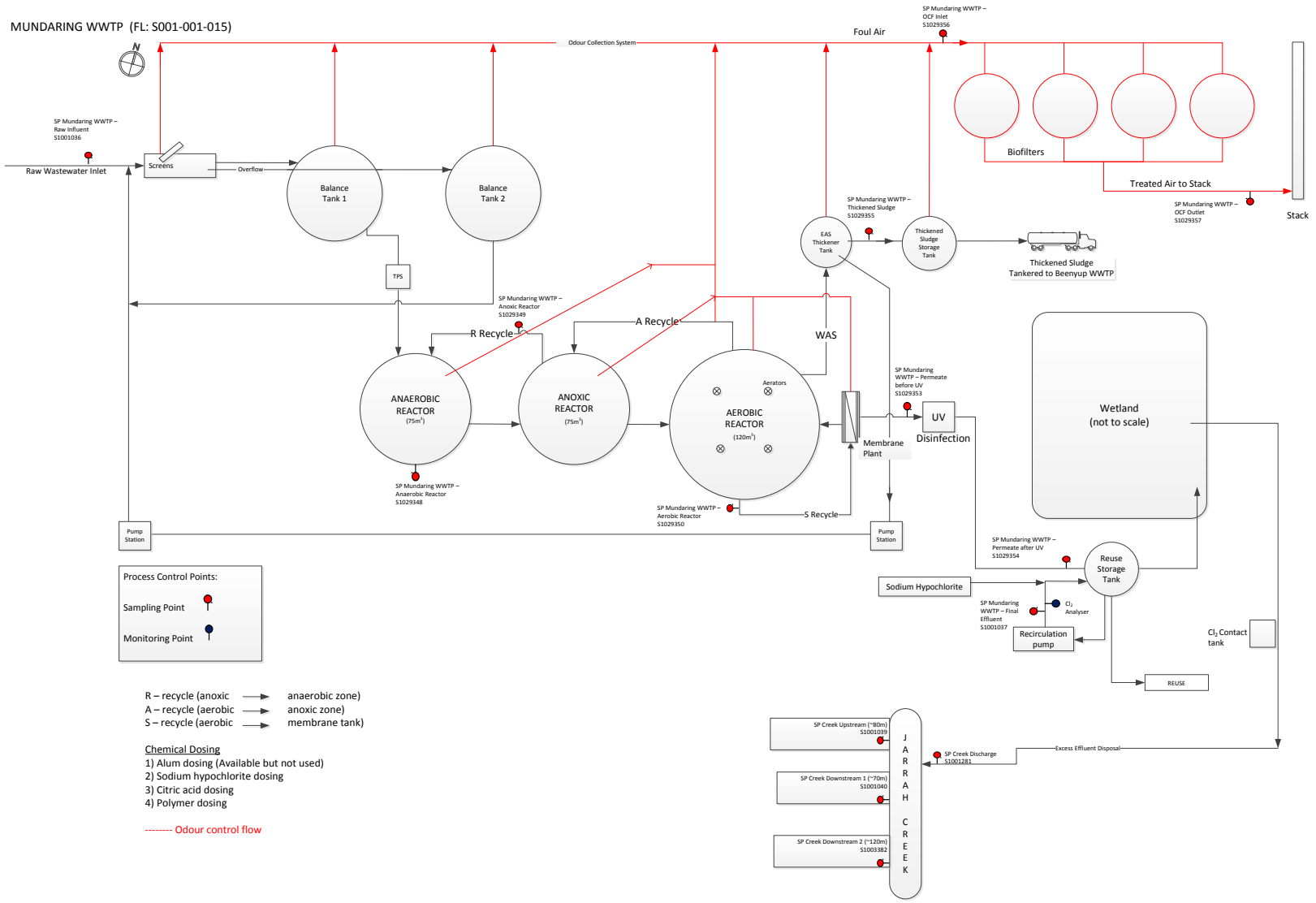


Figure 1: Wastewater Treatment Process

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Premises operation	L1.2.1 L1.2.2 L1.2.3 L1.2.4	Condition 1.2.1 and Table 1.2.1 limits the waste types and quantities that can be accepted at the premises to those that have been assessed under the licence application as suitable given the infrastructure and control measures at the premises. Condition 1.2.2 and Table 1.2.2 limits the waste processing that can occur to those assessed under the licence application as suitable given the infrastructure and control measures at the premises, and relevant to the licence categories applied for. Condition 1.2.3 and Table 1.2.3 specify the containment infrastructure at the premises and any requirements of those infrastructure as the assessment has been undertaken and control measures proposed under the understanding that the specified infrastructure is in place to contain the specified materials. Condition 1.2.4 specifies that wastewater treatment tanks must be managed appropriately to avoid damage and ensure proper function to prevent potential spillage or malfunction of the treatment system.	L8070/2005/2 Documentation supporting application
Point source emissions to air	L2.1.1	<u>Emission Description</u> *Emission:* Odour from the acceptance and processing of sewage on the premises *Impact:* Odour has the potential to interfere with the amenity of odour sensitive receptors. The nearest residential premises is located approximately 200 meters from the premises. *Controls:* Waste is delivered to the premises via an enclosed pipeline. Odourous air is extracted from the inlet works, primary tanks, secondary treatment tanks and sludge	L8070/2005/2 Documentation supporting application

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		storage facilities and passed through biological scrubbers and vented to a 4 meter stack. The biological scrubbing system comprises of an OdaVent® Biofiltration System, which aims to remove > 99% of hydrogen sulphide. Risk Assessment Consequence: Minor Likelihood: Rare Risk Rating: Low Regulatory Controls Condition 2.1.1 provides for the direct emissions to air via the biofiltration system. Monitoring conditions are not required to manage air emissions from the stack. Residual Risk Consequence: Minor Likelihood: Rare Risk Rating: Low	
Point source emissions to land	L2.2.1	Emission Description Emission: Treated wastewater irrigated onto land for reuse (irrigation). Impact: Excess nutrients may impact the receiving environment and groundwater. Controls: Treated wastewater irrigation occurs over the summer months when irrigation is available as a reuse option. The licence amendment and upgrades allow for additional irrigation areas that will reduce the volume of TWW irrigated to land. The new MBR upgrades to the plant will contribute to greatly reduced contaminant loads with reductions of up to 66% and 63% for Total Nitrogen and Total Phosphorus, expected respectively with the upgraded processing system. Risk Assessment Consequence: Minor Likelihood: Possible Risk Rating: Moderate	L8070/2005/2 Documentation supporting application

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Regulatory Controls Condition 2.2.1 and Table 2.2.1 specifies the areas that treated wastewater may be discharged to off site. Monitoring conditions have been applied to ensure that treated wastewater is monitored to ensure that the water quality is acceptable for irrigation. Residual Risk Consequence: Minor Likelihood: Possible Risk Rating: Moderate	
Point source emissions to surface water	L2.3.1	Emission Description *Emission:* Treated wastewater discharge into Jarrah Creek. *Impact:* Excess nutrients may impact the receiving environment (Jarrah Creek) causing eutrophication and/or may alter the water quality. Historic water quality monitoring of the Jarrah Creek downstream of the discharge location has shown higher levels of Total Nitrogen (TN) within the creek, directly related to elevated nutrient contents within the treated wastewater discharged. *Controls:* The licensee disposes of treated wastewater into the Jarrah Creek during wet winter periods, when irrigation for reuse of the wastewater is unable to occur. Wastewater is treated to a high quality tertiary level prior to discharge. The new MBR upgrades will contribute to greatly reduced contaminant loads with reductions of up to 66% and 63% for Total Nitrogen and Total Phosphorus, expected respectively with the upgraded processing system. In addition, the increased irrigation areas will result in a reduced discharge to Jarrah Creek, given that the ability to irrigate during the summer months has been increased. Risk Assessment Consequence: Major Likelihood: Possible Risk Rating: High Regulatory Controls Condition 2.3.1 and Table 2.3.1 specifies that treated wastewater may be discharged	

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		to the Jarrah Creek outlet. Monitoring conditions have been applied to monitor nutrient loads within the wastewater discharged. Residual Risk Consequence: Major Likelihood: Possible Risk Rating: High	
Fugitive Emissions		Dust emissions are not expected from premises activities. Any fugitive dust emissions can be adequately managed under the general provisions of the *Environmental Protection Act 1986.*	*Environmental Protection Act 1986*
Odour		Odour emissions are risk assessed above in emissions to air. Any fugitive odour emissions not otherwise controlled by the licence conditions can be adequately managed under the general provisions of the *Environmental Protection Act 1986*	*Environmental Protection Act 1986*
Noise		Noise emissions are not expected from premises activities. The licensee is required to comply with the *Environmental Protection (Noise) Regulations 1997*	*Environmental Protection (Noise) Regulations 1997*
Monitoring of inputs and outputs	L3.2.1	Condition 3.2.1 and Table 3.2.1 requires the licensee to continually monitor the sewage inlet flow and treated wastewater outlet flow.	N/A
Monitoring of emissions to land	L3.3.1	In order to monitor the quality of the discharge, sampling and analysis of the treated wastewater being discharged is required. Condition L3.3.1 provides for the location, parameters to be tested and frequency of sampling to be undertaken to monitor TWW discharge water quality for irrigation.	L8070/2005/2 Documentation supporting application
Monitoring of emissions to surface water	L3.4.1	In order to monitor the quality of the discharge to the Jarrah Creek, sampling and analysis of the treated wastewater being discharged to this area is required. Condition L3.4.1 provides for the location, parameters to be tested and frequency of sampling to be undertaken to monitor TWW discharge water quality to Jarrah Creek.	L8070/2005/2 Documentation supporting application

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Monitoring of ambient environmental quality	L3.5.1	In order to monitor the potential impacts of the treated wastewater discharges to the Jarrah Creek, ambient surface water monitoring is required. Condition 3.5.1 specifies the location of monitoring points, parameters to be monitored, frequency and averaging period.	L8070/2005/2 Documentation supporting application
Information	L4.1.1	Condition 4.1.1 sets out the requirements for any records that are required under this licence, such as ensuring they are legible and retained for 6 years, which assists DER in regulating the conditions of this licence. Condition 4.1.2 requires the occupier to undertake an audit of their operations against the conditions of the licence and to report on this compliance in an Annual Audit Compliance Report (AACR). This condition assists DER in regulating the occupier's compliance with licence conditions and allows an opportunity for DER to recive the occupier's environmental performance. Condition 4.1.3 requires a complaints management system to be implemented where the occupier can internally address any issues that arise from premises operations. DER will review these complaints as reported in the Annual Environmental Report (AER) and can consider the requirement for the reassessment of any regulatory controls to address the complaints. Condition 4.2.1 requires the licensee to submit an AER. The AER is required to include the AACR and a summary of the complaints required under condition 4.1.3. DER reviews all of the data procided in the AER to assess compliance with the licence conditions and to monitor the environmental impacts from the premises. Condition 4.2.2 requires the Annual Report to include any relevant process, production or operational data recorded under conditions of this licence to ensure all relevant data is provided in the annual report for DER to review, and requires an assessment of the information against previous monitoring results and licence limits to ensure the	N/A

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		licensee has reviewed the data and provides DER with comparative information. Condition 4.2.3 specifies that the licensee must submit copies of original monitoring reports within 14 days of request by the CEO, in the event that the CEO wishes to review this data. Condition 4.3.1 requires the licensee to notify the CEO if there is a breach of any licence limit (i.e processing limits). The notifications required under this condition give DER appropriate notice of any environmental impacts at the premises so that DER can determine if any further action is required to address the incident.	
Licence Duration	N/A	The licence has been reassessed as part of this amendment. DER's Guidance Statement: Licence Duration (November 2014) discusses DERs position to extend licences for premises to allow for better regulatory outcomes. Based on the risk profile for this premises, the expiry date has been extended to 2028 (10 year extension).	Department of Environment Regulation Guidance Statement, Licence Duration, November 2014

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
02/05/2016	Consultation Shire of Mundaring re planning approvals in place	No planning approvals from Council in place as land is vested with Water Corporation for the purpose of providing a wastewater treatment plant. Correspondance from the Shire of Mundaring dated 2 May 2016, states 'the works can be considered as a public works exemption under section 6 of *The Planning and Development Act 2005'.*	N/A
27/05/2016	Proponent sent a copy of draft instrument	<u>Licence</u> - Minor administrative changes for the introduction, table 1.2.2 and 1.2.3. - Table 2.2.1 'storage contact tank' to be changed to 'reuse storage tank'. - Table 2.2.2 'composite sample' to be changed to 'spot sample'. - Condition 3.1.1(d) 'all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured, **unless indicated otherwise in the relevant table'**, as per other WC Licences. - Condition 3.1.2, Water Corporation cannot ensure monthly monitoring is at least 30 days apart. Change to 15 days, as per other WC Licences and the averaging period from weekly to monthly. - Allow in-field/non-NATA analysis testing of pH. - Table 3.5.1, what does the following text	- Accepted, all changes made - Accepted, changes made - Accepted, changes made - Accepted, changes made - Accepted, changes made - Accepted, changes made - Wording amended to reflect that monthly

Date	Event	Comments received/Notes	How comments were taken into consideration
		mean- 'Monthly outside of the discharge period, when the Jarrah Creek is flowing'. Does this mean we need to sample Jarrah Creek even when we aren't discharging?	monitoring to be undertaken during periods of discharge to the Jarrah Creek.
		- Table 4.2.1, Please remove the requirement to include in the AER a comparison of Jarrah Creek water quality to water quality criteria. The upgrade will be providing a much higher quality of wastewater which will not have an adverse impact on the quality of the creek. As such, the effluent quality and creek quality sampling should be sufficient to assess impact (i.e. there will only be improvements to creek quality due to the upgrade and the nature of the MBR process – providing a physical barrier for contaminants).	- The wording of the relevant section has been amended to improve clarity of expectations, which has resulted in the inclusion of additional definitions. The monitoring requirement is maintained. DER needs to be satisfied, that even though the Licensee maintains the water discharged will be of better quality than currently in the Creek, the impacts and trends need to justify the environmental sustainability of the discharges.
		<u>Decision Document</u> - In the executive summary a statement about Magnesium Hydroxide liquid (MHL) storage is included. This is not in use, please remove.	- Accepted, changes made
		- Some of the summary does not reflect the plant as built.	- Accepted, changes made
		- Schematics shown in Figure 1 is an old version, please change.	- Accepted, changes made

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

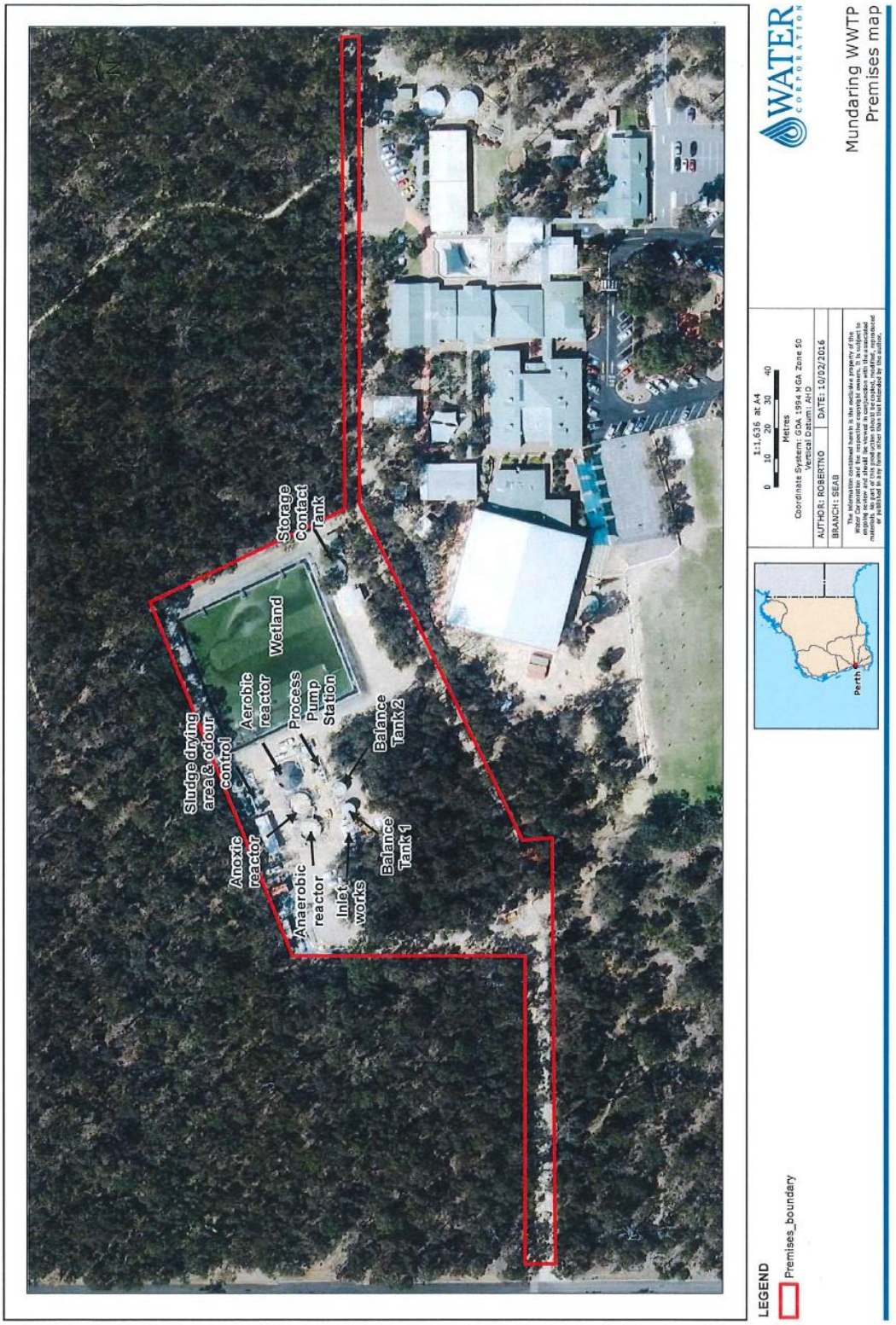
Appendix 1

Premises Map

The premises boundary is shown in the following map by the pink border.

Infrastructure Map

The premises boundary is shown in the following map by the red border.



Discharge and Irrigation Locations Map