Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Water Corporation

Licence: L6320/1991/8

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

Premises address: Gnowangerup Wastewater Treatment Plant
Lot 5001 on Plan 58995
GNOWANGERUP WA 6335
Being Lot 5001 on Plan 58995 as depicted in Schedule 1.

Issue date: Thursday, 29 October 2015

Commencement date: Sunday, 1 November 2015

Expiry date: Monday, 31 October 2016

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	180 cubic metres per day

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

Date signed: 29 October 2015
.....
Steve Checker
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 DER 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 implements 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.

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

Location and site setting
The Gnowangerup Wastewater Treatment Plant (GWWTP) is located within the Shire of Gnowangerup about 750 metres east of the town centre. The GWWTP treats sewage from the Gnowangerup town site prior to discharge to Gnowangerup Creek.

The GWWTP consists of the following operations and infrastructure:

- Sewerage delivery pipes originating from the Denny Street pump station where alum dosing takes place;
- Two primary treatment ponds that can be operated as a series or in parallel; and
- Sludge storage compound.

Potential sensitive receptors in the vicinity of the GWWTP include:

- General agricultural areas to the north, east, south and south west and a community purpose area to the north west, zoned under the Shire of Gnowangerup local planning scheme;
- Residential and recreational areas extending from about 250 meters southwest of the GWWTP, including about ten residences which fall within the 400 metre special control area odour buffer, zoned under the Shire of Gnowangerup local planning scheme;
- The Gnowangerup Creek which flows north to south directly west of the Premises boundary, passing through general agricultural land and directly adjacent a residence about two kilometres south east of the GWWTP. Gnowangerup Creek drains into the Pallinup River/ Beaufort River catchment. Uses could include recreation, stock and agricultural services, additional activities further down catchment do include primary and secondary contact activities and commercial fishing.
- Depth to groundwater is not known. GWWTP is located within the 240-260 m AHD topographic contours, to the southwest Gnowangerup Creek is located within the 240-250 m AHD topographic contours. No groundwater monitoring bores are present at the GWWTP.

Subsequent to the Minister's appeal determination 318 of 2009 two separate licences have been issued, one on 7 October 2010 and the second on 25 October 2012. Both licences required the submission of an Environmental Improvement Plan (EIP) by Water Corporation.

Water Corporation are not currently pursuing a reuse system with any thirds parties and are awaiting the outcomes of the wetland installation at the Narrogin wastewater treatment plant before confirming any activities to improve emission quality at the GWWTP.

This Licence is the successor to licence L6320/1991/7 and includes consideration of the emission risk from the GWWTP and the inclusion of conditions for:

- Appropriate and accurate interpretation of the licence;
- Operational and emission specific controls;
- Emission and ambient environmental monitoring controls; and
- Information and reporting controls.

This Licence and Decision Document have identified that an environmental assessment is required for the following emissions:

- Point source emission to surface water of treated sewage;
- Fugitive odour emissions; and
- Seepage from the pond liners.

Subsequently this Licence has been issued for a period of one year to allow DER to undertake this assessment and identify any additional regulatory controls that may be required to ensure the risks to public health and the environment are acceptable.

The licences and works approvals issued for the Premises since 6/10/2003 are:

Instrument log		
Instrument	**Issued**	**Description**
L6320/1991/4	06/10/2003	Licence reissue
L6320/1991/5	21/09/2004	Licence reissue
L6320/1991/6	29/10/2009	Licence reissue
L6320/1991/6	7/10/2010	Licence amendment (post Minister's appeal determination 318 of 2009)
L6320/1991/7	25/10/2012	Licence reissue
L6320/1991/8	22/10/2015	Licence reissue and amendment

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 5667.6' means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams;*

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

'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

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

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

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

'Licence' means this Licence numbered L6320/1991/8 and issued under the Act;

'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;

'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;

'treated wastewater' means wastewater that has been treated by the 'wastewater treatment system';

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia;

'wastewater treatment system' means the system for treating wastewater at the Premises which comprises of transfer pipes and two primary ponds.

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

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

1.2 General conditions

1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.3 Premises operation

1.3.1 The Licensee must record and investigate the exceedance of any descriptive or numerical limit in this section.

1.3.2 The Licensee must only allow waste to be accepted on to the Premises if:
(a) it is of a type listed in Table 1.3.1; and
(b) the quantity accepted is below any limit listed in Table 1.3.1; and
(c) it meets any specification listed in Table 1.3.1.

Table 1.3.1: Waste acceptance

Waste	Quantity Limit	Specification[1]
Sewage – waste from the reticulated sewerage system	None specified	(i) Accepted through sewer inflow(s); or (ii) Accepted from a controlled waste carrier to the pond.

Note 1: Additional requirements for the acceptance of controlled waste are set out in the *Environmental Protection (Controlled Waste) Regulations 2004.*

1.3.3 The Licensee must ensure that the wastes accepted onto the Premises are only subjected to the processes set out in Table 1.3.2 and in accordance with any process requirements described in Table 1.3.2.

Table 1.3.2: Waste processing

Waste type	Process	Process requirements
Sewage	Wastewater treatment system	(a) Treatment of sewage waste shall be limited to an annual average treatment capacity below 180 m^3/ day.
Sewage sludge	Storage	(b) Sewage sludge must be stored within the sewage sludge compound.

1.3.4 The Licensee must ensure that waste material is only stored and/ or treated within vessels or compounds provided with the infrastructure detailed in Table 1.3.3.

Table 1.3.3: Containment infrastructure

Vessel or compound	Material	Requirements
Primary ponds	Wastewater	(a) Clay lined
Sewage sludge compound	Sewage sludge	(b) An area fully enclosed by a bund, lined with an impermeable material, capable of preventing surface run-off of leachate and sludge and which returns leachate to the wastewater treatment system

1.3.5 The Licensee must manage all wastewater treatment ponds such that:
(a) overtopping of the ponds does not occur;
(b) stormwater runoff is prevented from entering the wastewater treatment ponds;
(c) the integrity of the containment infrastructure is maintained; and
(d) trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter.

1.3.6 The Licensee must managed the sewage sludge compound such that:
(a) overtopping of the sewage sludge compound does not occur;
(b) stormwater runoff is prevented from entering the sewage sludge compound; and
(c) the integrity of the containment infrastructure is maintained.

1.3.7 The Licensee must:
(a) implement security measures at the site to prevent as far as is practical unauthorised access to the site;
(b) undertake regular inspections of all security measures and repair damage as soon as practicable; and
(c) ensure the entrance gates are closed and locked when the site is closed or staff are not present at the Premises.

2 Monitoring

2.1 General monitoring

2.1.1 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 surface water sampling is conducted in accordance with AS/NZS 5667.6;
(d) all microbiological samples are collected and preserved in accordance with AS/NZS 2031;
(e) 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.

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

2.1.3 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 and the requirements of the Licence.

2.1.4 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.

2.2 Monitoring of emissions to surface water

2.2.1 The Licensee shall undertake the monitoring in Table 2.2.1 according to the specifications in Table 2.2.1.

Table 2.2.1: Monitoring of emissions to surface water

Emission point reference	Parameter	Units	Averaging period	Frequency
L1	Volumetric flow rate (cumulative)[1]	L/s m^3/day	Monthly and annual	Continuous
	pH[1]	-	Spot sample	Monthly
	Ammonium (NH_4-N)	mg/L		
	Metals filtered and total (aluminium)			
	Nitrate + nitrite – nitrogen			
	Total biochemical oxygen demand			
	Total dissolved solids			
	Total nitrogen			
	Total phosphorus			
	Total suspended solids			
	Escherichia coli	cfu/ 100 mL		

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

2.3 Monitoring of inputs and outputs

2.3.1 The Licensee shall undertake the monitoring in Table 2.3.1 according to the specifications in Table 2.3.1.

Table 2.3.1: Monitoring of inputs and outputs

Input/ Output	Parameter	Units	Averaging period	Frequency
Sewage received via sewer inflows to the wastewater treatment system	Volume	m^3/ day	Monthly	Continuous
Sewage received from controlled waste tanker				
Treated wastewater to reuse				
Treated wastewater to emission point L1				

2.4 Ambient environmental quality monitoring

2.4.1 The Licensee shall undertake the monitoring in Table 2.4.1 according to the specifications in Table 2.4.1.

Table 2.4.1: Monitoring of ambient surface water quality				
Monitoring point reference and location on map in Schedule 1	**Parameter**	**Units**	**Averaging period**	**Frequency**
WQ1 and WQ2	pH[1]	-	Spot sample	Monthly when flowing
	Ammonium (NH_4-N)	mg/L		
	Metals filtered and total (aluminium)			
	Nitrate + nitrite – nitrogen			
	Total biochemical oxygen demand			
	Total dissolved solids			
	Total nitrogen			
	Total phosphorus			
	Total suspended solids			
	Escherichia coli	cfu/ 100 mL		

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

3 Information

3.1 Records

3.1.1 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 3.1.1(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.

3.1.2 The Licensee shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

3.1.3 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.

3.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

3.2 Reporting

3.2.1 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 3.2.1 in the format or form specified in that table.

Table 3.2.1: Annual Environmental Report		
Condition or table (if relevant)	**Parameter**	**Format or form**[1]
Condition 1.3.3	Summary of any treatment capacity limit being exceeded and any action taken.	None specified
Condition 2.1.1	A list of monitoring methods used to collect and analyse monitoring samples required by any condition of this licence.	
Condition 2.1.3 and 2.1.4	Calibration report.	
Condition 2.2.1	(a) Summary of all monitoring data for emissions to surface water which shall include: (i) data in a table format for the annual period; and (ii) data in graphical format for trend analysis to include at least the last four years data where available. (b) Contaminant load to surface water for the monitored parameters (aluminium, total biochemical oxygen demand, total dissolved solids, total nitrogen, total phosphorus and total suspended solids) as: (i) kg/ day monthly average; and (ii) total annual loading kg/ year.	
Condition 2.3.1	Summary of all inputs and outputs monitoring data which shall include: (a) data in a table format for the annual period; and (b) comment on annual inflow/ outflow volumetric trends.	
Condition 2.4.1	Summary of all monitoring data for ambient surface water quality which shall include: (a) data in a table format for the annual period; (b) data in graphical format for trend analysis to include at least the last four years data where available; and (c) an assessment of ambient surface water quality monitoring data for impact on surface water quality.	
3.1.3	Compliance	Annual Audit Compliance Report (AACR)
3.1.4	Complaints summary	None specified

Note 1: Forms are in Schedule 2

3.2.2 The Licensee shall submit the information in Table 3.2.2 to the CEO according to the specifications in that table.

Table 3.2.2: Non-annual reporting requirements				
Condition or table	**Parameter**	**Reporting period**	**Reporting date**	**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

3.3 Notification

3.3.1 The Licensee shall ensure that the parameters listed in Table 3.3.1 are notified to the CEO in accordance with the notification requirements of the table.

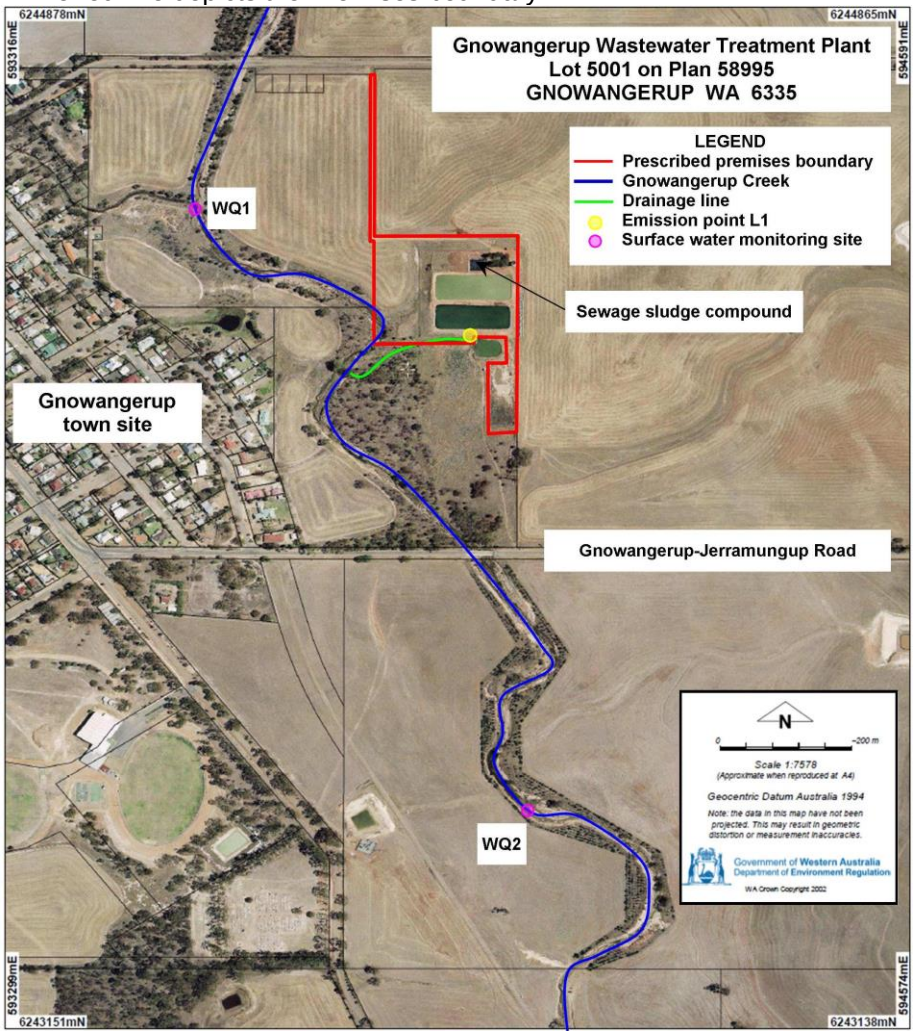
Table 3.3.1: Notification requirements			
Condition or table (if relevant)	**Parameter**	**Notification requirement**	**Format or form[1]**
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
-	Taking process equipment and/ or a pond offline for maintenance work that may result in an increase in emissions.	No less than 72 hours in advance of the works	None specified
-	Removal of sewage sludge from a pond or hardstand.	No less than 14 days in advance of the works	

Note 1: Forms are in Schedule 2

Schedule 1: Maps

Premises map

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



Schedule 2: Reporting and 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: L6320/1991/8 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	
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: L6320/1991/8

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

Premises address: Gnowangerup Wastewater Treatment Plant
Lot 5001 on Plan 58995
GNOWANGERUP WA 6335
Being Lot 5001 on Plan 58995 as depicted in Schedule 1.

Issue date: Thursday, 29 October 2015

Commencement date: Sunday, 1 November 2015

Expiry date: Monday, 31 October 2016

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue a licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Peter van Schoubroeck
Licensing Officer

Decision Document authorised by: Caron Goodbourn
Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER'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)**	**Assessed design capacity**
	54	180 cubic metres per day
Application verified Application fee paid	Date: 12/08/2015 Date: 20/08/2015	
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	Not applicable	
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☐ *Environmental Protection South West Agriculture Zone Wetlands Policy 1998*		
Is the Premises subject to any EPP requirements? Yes☐ No☒		

3 Executive summary of proposal and assessment

Location and site setting
The Gnowangerup Wastewater Treatment Plant (GWWTP) is located within the Shire of Gnowangerup about 750 metres east of the town centre. The GWWTP treats sewage from the Gnowangerup town site prior to discharge to a drain line which enters Gnowangerup Creek.

The GWWTP consists of the following operations and infrastructure:

- Sewerage delivery pipes originating from the Denny Street pump station where alum dosing takes place;
- Two primary treatment ponds that can be operated as a series or in parallel; and
- Sludge storage compound.

Potential sensitive receptors in the vicinity of the GWWTP include:

- General agricultural areas to the north, east, south and south west and a community purpose area to the north west, zoned under the Shire of Gnowangerup local planning scheme;
- Residential and recreational areas extending from about 250 meters southwest of the GWWTP, including about ten residences which fall within the 400 metre special control area odour buffer, zoned under the Shire of Gnowangerup local planning scheme;
- The Gnowangerup Creek which flows north to south directly west of the Premises boundary, passing through general agricultural land and directly adjacent a residence about two kilometres south east of the GWWTP. Gnowangerup Creek drains into the Pallinup River/ Beaufort River catchment.
- Groundwater, which is at an unknown depth in respect to the GNWWP, estimated to be 5 to 10 meters. GWWTP is located within the 240-260 m AHD topographic contours, to the southwest Gnowangerup Creek is located within the 240-250 m AHD topographic contours. No groundwater monitoring bores are present at the GWWTP.

Issues associated with the wastewater treatment system
The GWWTP discharges sewerage treated by the wastewater treatment system to an open drain which flows about 140 metres to the Gnowangerup Creek. The previous licence set the emission targets detailed in Table 1. Emission contaminant concentrations for the parameters detailed in Table 1 are equivalent between the 2010/11 and 2014/15 operating periods except for *Escherichia coli* which has increased in concentration significantly over the four year period. The target for total nitrogen was exceeded over 90% of the 2014/2015 operating period. Improvements in the quality of emissions from the GWWTP have been considered since 2009. The Gnowangerup Creek surface water quality monitoring results undertaken by Water Corporation, previously beyond the requirements of the licence, for the 2011 and 2015 operating periods are summarised in Table 2.

Minister's appeal determination 318 of 2009 was issued on 4 May 2010. As part of the appeal outcomes the then Minister determined that:

> *'… the licence will include a condition requiring the submission of an Environmental Improvement Plan (EIP), which will focus on requiring the Water Corporation to undertake staged improvements to the WWTP to improve the quality of wastewater discharge and establish appropriate future discharge limits'*.

Subsequent to the Minister's appeal determination 318 of 2009 two separate licences have been issued, one on 7 October 2010 and the second on 25 October 2012. Both licences required the submission of an Environmental Improvement Plan (EIP) by Water Corporation. Prior to the issue of this licence no emission limits have been established.

Water Corporation submitted the first EIP(1) on 25 March 2011. The EIP(1) set two objectives with regards to the emission of treated wastewater:

- '*To return downstream water quality to consistency with background levels*'.
- '*To identify viable third party wastewater re-use options*'.

The EIP(1) identified the implementation of a grass bay treatment and disposal system estimated for commissioning in July 2013.

Water Corporation submitted the second EIP(2) on 27 June 2013. The EIP(2) set two objectives with regards to the emission of treated wastewater:

- '*Work toward return of downstream water quality to consistency close to background levels*'.
- '*To identify viable third party wastewater re-use options*'.

The EIP(2) identified the implementation of a reuse system by the Shire of Gnowangerup for commissioning in June 2015 and a wetland treatment disposal system estimated for commissioning in October 2017.

Water Corporation are not currently pursuing a reuse system with any third parties and are awaiting the outcomes of the wetland installation at the Narrogin wastewater treatment plant before confirming any activities to improve emission quality at the GWWTP.

To date no improvements resulting in an improved quality of wastewater discharged from the GWWTP have been implemented since the Minister's appeal determination 318 of 2009. In addition no discharge limits have been previously determined relative to the risk posed to potential receptors by the emission of treated sewerage discharged from the GWWTP.

DER has identified that an environmental assessment is required for the following emissions:

- Point source emission to surface water of treated sewage;
- Fugitive odour emissions; and
- Seepage from the pond liners.

Subsequently DER is granting the licence for a period of one year to allow DER to undertake this assessment and identify any additional regulatory controls that may be required to ensure the risks to public health and the environment are acceptable.

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			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Interpretation and General conditions	L1.1.1 – 1.1.5; and L1.2.1	**Operation** Conditions 1.1.1 – 1.1.5 requires that terminology used within the licence is referenced to the appropriate definitions where applicable, that any reference to a standard or guideline is to the most current version of that standard or guideline and that emissions not authorised through the licence comply with the provisions of the *Environmental Protection Act 1986*. Condition 1.2.1 requires that all pollution control and monitoring equipment is maintained such that it is operational and fit for purpose. **Operation** <u>Emission description:</u> *Emission:* The quality of stormwater discharged from the GWWTP may deteriorate where stormwater is not appropriately managed or comes into contact with sludge, sewage, incidental spills or becomes loaded with sediment. *Impact:* Contaminants (nitrogen, phosphorus, pathogens/ *Escherichia coli* and suspended solids) entering local ground and/ or surface water, potentially impacting the quality of Gnowangerup Creek. *Controls:* Grading of site topography, bunds, physical containment of treatment facilities, dedicated stormwater drainage, pond freeboard and general site maintenance.	General provisions of the *Environmental Protection Act 1986* *Environmental Protection (Unauthorised Discharge) Regulations 2004*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Risk assessment *Consequence:* Minor *Likelihood:* Unlikely *Risk Rating:* Moderate Regulatory Controls: It is considered that the provisions of Section 49 of the *Environmental Protection Act 1986* and the provisions of the *Environmental Protection (Unauthorised Discharge) Regulations 2004* are sufficient to regulate the emissions of stormwater. Conditions under section 1.3 of the licence provide further controls that limit the risk of contaminants being able to be mobilised within stormwater. Residual risk *Consequence:* Minor *Likelihood:* Rare *Risk Rating:* Low	
Premises operation	L1.3.1 – 1.3.7	**Operation** Conditions 1.3.1 – 1.3.7 are proposed based on the risk of emission to surface water as documented in Appendix A *Emissions to surface water including monitoring*. Condition 1.3.5 has replaced condition 1(a), (b), (d) and (e) in licence version L6320/1991/7. Condition 1.3.6 has replaced condition 6(c) in licence version L6320/1991/7. Conditions 5 and 7 in licence version L6320/1991/7 have been removed from the Licence. The management and disposal of solid waste, sludge and biosolid waste outside of the prescribed premises is beyond the provisions of the licence. Management of such waste is regulated by the general provisions of the *Environmental Protection Act 1986.*	General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Emissions to surface water including monitoring	L2.2.1	**Operation** DER's assessment and decision making are detailed in Appendix A. Condition 2.2.1 has replaced conditions 10 and 11 in licence version L6320/1991/7. Condition 4 in licence version L6320/1991/7 has been deleted; emission targets do not serve as an effective regulatory control for the emissions from the GWWTP. All emissions must comply with condition 1.1.5.	General provisions of the *Environmental Protection Act 1986*
Odour	L1.3.2 – 1.3.7	**Operation** Emission description *Emission:* Odour may be generated from the wastewater ponds, treatment process, sludge storage compound and as a result of maintenance or abnormal operating conditions. *Impact:* Interference with the health, welfare, convenience, comfort or amenity of sensitive residential receptors and members of the public. The closest residences are located about 250 metres south west of the GWWTP. Six odour complaints were received by Water Corporation regarding the GWWTP during the 2014/ 2015 operational period. *Control:* General maintenance of the wastewater treatment system and sewage sludge compound. Risk Assessment *Consequence:* Minor *Likelihood:* Possible *Risk Rating:* Moderate Regulatory controls Conditions 1.3.2 through 1.3.7 ensure that the wastewater treatment system is operated within designed and approved parameters which help to reduce the occurrence of odour emissions at the GWWTP.	General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		The risk assessment has identified that a more detailed assessment of the odour emissions at the GWWTP is required for the identification of: • Odour emission sources at the Premises, pathways and receptors for odour emissions; • Meteorological conditions and operations at the Premises which exacerbate odour emissions; • Management actions that will be implemented for the control of odour emissions; and • Contingencies that will be implemented where management actions fail. DER intends to undertake the assessment identified above which will inform any additional regulatory controls required, beyond the provisions of Section 49 of the *Environmental Protection Act 1986.* <u>Residual Risk</u> *Consequence:* Minor *Likelihood:* Possible *Risk Rating:* Moderate	
Noise	N/A	**Operation** Noise emissions generated at the GWWTP have not resulted in complaints or been identified as an issue. Therefore no licence conditions are required in this section. Should noise emissions arise from the GWWTP they can be managed under the requirements of the *Environmental Protection (Noise) Regulations 1997*.	*Environmental Protection (Noise) Regulations 1997*
Monitoring general	L2.1.1-2.1.4	**Operation** Conditions 3.1.1-3.1.4 require precision and accuracy during sample collection, analysis and reporting. Condition 3.1.1 has replaced conditions 9 and 12 in licence version L6320/1991/7.	General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Monitoring of inputs and outputs	L2.3.1	**Operation** Condition 3.3.1 has been included to facilitate assessment of wastewater treatment performance, hydraulic loading and emission volumes of the GWWTP. Condition 3.3.1 has replaced condition 8 in licence version L6320/1991/7.	General provisions of the *Environmental Protection Act 1986*
Ambient quality monitoring	L2.4.1	**Operation** Two surface water monitoring sites have been operated by Water Corporation since at least 2010. Surface water monitoring requirements have not been included on previous versions of the licence. The risk assessment in Appendix A informs the requirement for surface water monitoring to take place.	General provisions of the *Environmental Protection Act 1986*
Improvements	N/A	**Operation** Conditions 2 and 3 in licence version L6320/1991/7, regarding the environmental improvement plan (EIP), have been removed. The submission date for the EIP was 31/01/2013; an EIP dated 26/06/2013 was submitted to DER. No actions have been implemented at the GWWTP as a result of the EIP submission. DER intends to undertake further assessment of the emission risk from the GWWTP which will inform the need for any improvement regulatory controls.	General provisions of the *Environmental Protection Act 1986* ANZECC and ARMZANZ 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Volume 1*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Information	L1.3.1; L3.1.1-3.1.4; L3.2.1, L3.2.2 and L3.3.1	**Operation** Condition 1.3.1 requires that the Licensee investigates any descriptive or numerical limit being exceeded in conditions 1.3.2 – 1.3.7 and subsequent reporting requirements can be fulfilled. Condition 3.1.1 requires that information and reporting is clear, legible and retained for an appropriate time period. Condition 3.1.2 requires that employees and representatives of the proponent at the GWWTP are aware of the requirements of the Licence. Condition 3.1.3 requires that the Annual Audit Compliance Report is completed and subsequently submitted under condition 5.2.1. Condition 3.1.4 requires that a complaints management system is implemented and maintained. Condition 3.2.1 and outlines the information to be included in the Annual Environmental Report. Condition 3.2.1 has replaced conditions 13, 14, 15, 20 and 21 in licence version L6320/1991/7. Condition 3.2.2 requires that the reported monitoring results can be verified against original accredited laboratory reports on request. Condition 3.3.1 requires that any breach of a specified limit in the licence is promptly identified and that any additional response from DER can be implemented in an appropriate timeframe. Condition 3.3.1 has replaced: • Conditions 6(a) and (b) in licence version L6320/1991/7; and • The relevant components of conditions 16, 17, 18 and 19 in licence version L6320/1991/7; targets have been amended to limits where justified.	General provisions of the *Environmental Protection Act 1986*
Licence Duration	N/A	The Licence has been reissued for a one year period through until late 2016. This timeframe takes into consideration the factors within the document *Guidance statement: licence duration*. No other statutory approvals have been identified as limiting the timeframe for the issue of this licence. The risk of emissions and associated assessment of those emissions requires further review to inform the development of any valid site specific risk-based regulatory controls.	Department of Environment Regulation 2015, *Guidance statement: licence duration*

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
14/09/2015	Application advertised in West Australian (or other relevant newspaper)	None applicable	None applicable
18/09/2015	Application referred to interested parties listed	None applicable	None applicable
07/10/2015	Proponent sent a copy of draft instrument	Administrative errors identified and alternate dates of completion for improvement conditions proposed	Regulatory control and risk assessment reconsidered, instrument redrafted.
27/10/2015	Proponent sent a copy of draft instrument	-	N/A
02/11/2015	Instrument issue to be advertised in West Australian		

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 A

Emissions to surface water including monitoring

Potential emissions to surface water as a result of the operations of the Gnowangerup Wastewater Treatment Plant are:

(1) Containment failure: Potential emissions may arise from the failure of containment infrastructure within the wastewater treatment system (ponds) or conveyance pipelines.
(2) Point source emission to surface water: Emissions to surface water are planned under controlled conditions year round with all treated wastewater currently discharged to a drain line, which due to the volumes of wastewater discharge flows to the Gnowangerup Creek. Some infiltration may take place.
(3) Seepage: Potential emissions may arise from failures in the integrity of containment infrastructure within the wastewater treatment system, (ponds) or conveyance pipelines.

The assessment of emissions to surface water also considers the risk of emission to land however, due to the proximity of the discharge point and infrastructure at the Gnowangerup Wastewater Treatment Plant to Gnowangerup Creek (140 metres away) discharges to land are primarily considered in the context of emissions to surface water. Gnowangerup Creek in the area around and downstream of the GWWTP passes through agricultural land and has little remnant vegetation.

Offsite reuse (irrigation) is not assessed. No offsite reuse currently takes place. Any reuse of wastewater will need to consider the relevant provisions of the *Environmental Protection Act 1986* and undertake the appropriate assessment and approval processes.

The guideline Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand (ANZECC and ARMCANZ) 2000, *National Water Quality Management Strategy Paper No. 4 Australian and New Zealand Guidelines for Fresh and Marine Water Quality Volume 1* is referred to herein as ANZECC and ARMCANZ 2000.

(1) Emission description (containment failure):

Emission: Potential emissions of raw or partially treated sewage may arise from the failure of containment infrastructure within the wastewater treatment system (ponds) or conveyance pipelines. Emissions could contain elevated concentrations of pathogens (including *Escherichia coli)*, nitrogen, phosphorus and other contaminants.
Impact: Emissions of this nature would result in a discharge to land and with larger volumes (pond failure) discharging to the Gnowangerup Creek. Impacts could include increases in local groundwater and surface water nutrient levels and also effects on livestock and human health that may access or use Gnowangerup Creek downstream of the GWWTP.
Controls: General maintenance of the GWWTP, no containment failures are known to have occurred since the licence was first issued in 1992.

Risk assessment:
Consequence: Moderate
Likelihood: Rare
Risk Rating: Moderate

Regulatory controls:
Condition 1.3.4 requires that the Licensee only contains wastes within the authorised infrastructure meeting the specified requirements.
Condition 1.3.5 requires that the Licensee manages the wastewater treatment ponds in a manner that minimises the risk of overflow and seepage.
Condition 1.3.6 requires that the Licensee manages the sewage sludge compound in a manner that minimises the risk of overflow and seepage.

Condition 1.3.7 requires that the Licensee manages the security of the site to minimise the risk of unauthorised access to the wastewater treatment system.

Residual risk:
Consequence: Moderate
Likelihood: Rare
Risk Rating: Moderate

(2a) Emission description (Point source emission to surface water – excluding pathogens/ *Escherichia coli*):
Emission: Emissions of treated sewage occur on a regular and at times continuous basis from the GWWTP to the drainage line which enters Gnowangerup Creek. Emissions can contain elevated concentrations of nitrogen, phosphorus and other contaminants. The quality of the wastewater is dependent on the performance of the wastewater treatment system at the time prior to emission.
Impact: Impacts could include increases in local surface water nutrient levels, impact stream ecology and increase the contaminant load within the Pallinup River catchment.
Controls: General maintenance of the GWWTP; wastewater treatment performance is summarised within the executive summary of this Decision Document.

Risk assessment:
Consequence: Minor
Likelihood: Likely
Risk Rating: Moderate

Regulatory controls:
Condition 1.3.2 requires that the Licensee only accepts authorised waste through the assessed and authorised infrastructure.
Condition 1.3.3 requires that the Licensee only processes waste through the assessed and authorised processes. The limit of 180 m^3/ day is the nominated design capacity of the GWWTP and is applied as an annual average due to the temporary fluctuations of stormwater in the sewerage network which result in short term inflows greater than 180 m^3/ day.
Condition 1.3.7 requires that the Licensee manages the security of the site to minimise the risk of unauthorised access to the wastewater treatment system.
Regulatory controls limiting the quantity and/ or quality of treated sewage discharge to surface water may be required. DER intends to undertake a more detailed assessment of environmental risk to surface water. The following factors will be considered:

- 180 m^3/ day is the nominated design capacity of the GWWTP, due to the temporary fluctuations of stormwater in the sewerage network short term inflows greater than 180 m^3/ day in turn increase outflows on occasion greater than 180 m^3/ day.
- 30 mg/L was a target specified under condition 4 in licence version L6320/1991/7 for biochemical oxygen demand; the GWWTP has predominantly met the target. More detailed assessment may in future find that a lower discharge limit should be applied.
- 30 mg/L was a target specified under condition 4 in licence version L6320/1991/7 for total nitrogen; the GWWTP has predominantly not met the target. More detailed assessment may in future find that a lower discharge limit should be applied.
- 6 mg/L was a target specified under condition 4 in licence version L6320/1991/7 for total phosphorus; the GWWTP has consistently met the target. More detailed assessment may in future find that a lower discharge limit should be applied.
- The lack of any improvement and some deterioration in the emission quality for the GWWTP since Minister's appeal determination 318 of 2009;
- The submission of two EIPs without actions being implemented to improve emission quality;
- Downstream monitoring results showing elevated concentration levels beyond those of upstream monitoring results for ammonium, nitrite, total nitrogen and total phosphorus (results are summarised in Table 2 of the Executive Summary); and

- All 2014/2015 downstream monitoring results total nitrogen and total phosphorus and potentially all for ammonium, exceed ANZECC and ARMCANZ 2000 trigger levels for a slightly to moderately disturbed upland river ecosystem in South-west Australian (reference Table 3.3.6);
- 2014/2015 upstream monitoring results indicate that results may be below ANZECC and ARMCANZ 2000 trigger levels however, limits of detection in the monitoring do not allow this to be verified.

Condition 2.2.1 requires that emissions to surface water are monitored continuously for emission quantity and monthly for emission quality. This allows the emission quality and quantity to be reviewed against ambient environmental monitoring results and the general treatment performance of the GWWTP assessed.
Condition 2.4.1 requires that surface water quality in the Gnowangerup Creek is monitored monthly to assist is assessing the potential impact of emissions from the GWWTP on the Gnowangerup Creek.

Residual risk:
Consequence: Minor
Likelihood: Likely
Risk Rating: Moderate

(2b) Emission description (Point source emission to surface water – pathogens/ *Escherichia coli*):
Emission: Emissions of treated sewage occur on a regular and at times continuous basis from the GWWTP to the drainage line which enters Gnowangerup Creek. Emissions can contain elevated concentrations of *Escherichia coli* greater than 24,000 cfu/ 100mL. The quality of the wastewater is dependent on the performance of the treatment system at the time prior to emission.
Impact: From the confluence of the drainage line and Gnowangerup Creek, the creek travels about 400m through Water Corporation land (not part of the prescribed premises boundary) before passing under the Gnowangerup-Jerramungup Road and entering private property. No access controls to Gnowangerup Creek on the land occupied by Water Corporation outside of the prescribed premises boundary are known to exist. Land west of the Gnowangerup Creek occupied by Water Corporation appears to be used for agricultural purposes. Land south of the Gnowangerup-Jerramungup Road is used for agricultural purposes. Pathogens/ *Escherichia coli* at elevated concentrations could affect the health of livestock and humans that may access or use water from Gnowangerup Creek downstream of the GWWTP.
Controls: General maintenance of the GWWTP; wastewater treatment performance is summarised within the executive summary of this Decision Document.

Risk assessment:
Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

Regulatory controls:
Regulatory controls 1.3.2, 1.3.3 and 1.3.7 detailed under item 2a above are applicable to the regulation of pathogens/ *Escherichia coli* emissions.

Regulatory controls limiting the quantity and/ or quality of treated sewage discharge to surface water may be required. DER intends to undertake a more detailed assessment of environmental risk to surface water. The factors considered above and the following sections of ANZECC and ARMZANZ 2000 will be considered:

- Section 4.2.3.3: Irrigation water quality guidelines recommend a median value for thermotolerant coliforms of less than 1000 per 100 mL for pasture and fodder application for grazing animals and less than 1000 per 100 mL for raw human food crops not in direct contact with irrigation water. Relevant potential current and future beneficial uses of water from Gnowangerup Creek

downstream of the GWWTP discharge confluence may involve direct irrigation or complementing storage dam supplies for private or commercial irrigation.

- Section 4.3.2.2: Drinking water for stock guidelines recommend a median value for thermotolerant coliforms of less than 100 per 1000 mL. Relevant potential current and future beneficial uses of water from Gnowangerup Creek downstream of the GWWTP discharge confluence may involve direct stock watering or for complementing storage dam supplies for stock watering.
- Section 5.2.1: Recreational water guidelines for human contact recommend a median value for thermotolerant coliforms of less than 150 cfu/ 100mL for primary contact and less than 1000 cfu/ 100mL for secondary contact. Relevant potential current and future beneficial uses of water from Gnowangerup Creek downstream of the GWWTP discharge confluence may involve primary contact recreational purposes by members of the public on land occupied by Water Corporation or on private land.

The GWWTP is potentially unable to treat sewage to an acceptable emission level for *Escherichia coli* and other pathogens, with 2014/2015 emission result consistently at levels >24,000 cfu/ 100 mL.

Residual risk:
Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

(3) Emission description (Seepage):
Emission: Potential emissions may arise from failures in the integrity of containment infrastructure within the wastewater treatment system, (ponds) or conveyance pipelines.
Impact: Emissions of this nature could result in a discharge to land which could in turn impact groundwater and or surface water. Impacts could include increases in local soils and groundwater nutrient levels and other contaminants which could in turn migrate to surface waters. The permeability and consistency of the pond liners, sludge drying area, local soils and depth to groundwater is not currently known.
Controls: General maintenance of the GWWTP.

Risk assessment:
Consequence: Minor
Likelihood: Possible
Risk Rating: Moderate

Regulatory controls:
Condition 1.3.4 requires that the Licensee only contains wastes within the assessed and authorised infrastructure.
Condition 1.3.5 requires that the Licensee manages the wastewater treatment ponds in a manner that minimises the risk of overflow and seepage.
Condition 1.3.6 requires that the Licensee manages the sewage sludge compound in a manner that minimises the risk of overflow and seepage.
DER intends to undertake a more detailed assessment of risk posed by seepage from the GWWTP. This will help reduce uncertainty and inform the possible need for groundwater monitoring bores to be installed to detect potential seepage from the ponds.

Residual risk:
Consequence: Minor
Likelihood: Possible
Risk Rating: Moderate