Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L8849/2014/1
Licence holder	Fogarty Family Wines Pty Ltd
ACN	009 155 551
Registered business address	Level 2, 24 Outram street WEST PERTH WA 6005
DWER file number	DER2014/002340-1
Duration	23/03/2015 to 22/03/2029
Date of issue	19/03/2015
Date of amendment	15 October 2024
Premises details	Deep Woods Estate 871 Commonage Road YALLINGUP WA 6282 Legal description - Being Lot 10 on Diagram 75204 and Part of Lot 21 on Plan 20521 As defined by the premises map depicted in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 25 Alcoholic beverage manufacturing: premises on which an alcoholic beverage is manufactured and form which liquid waste is or is to be discharged onto land or into water.	Not more than 1,400 kilolitres of wine produced per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 15 October 2024, by:

Caron Goodbourn

Digitally signed by Caron Goodbourn
Date: 2024.10.15 14:07:40 +08'00'

MANAGER. PROCESS INDUSTRIES
INDUSTRY REGULATION
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Licence history

Date	Reference number	Summary of changes
9/10/2014	W5707/2014/1	New works approval for upgrading the premises wastewater treatment and irrigation systems to increase production capacity.
19/03/2015	L8849/2014/1	New licence
15/10/2024	L8849/2014/1	Department initiated licence amendment as a result of a licence review including updating to new format, and extending the expiry date of the licence to 2029 to reflect expiry date of disposal area lease.

Interpretation

In this licence:

(a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;

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

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

(d) any reference to an Australian or other standard, guideline, or code of practice in this licence:

  (i) if dated, refers to that particular version; and

  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;

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

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

Infrastructure and equipment

1. The licence holder must ensure that the site infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 1.

Table 1:Infrastructure and equipment requirements

	Site infrastructure and equipment	Operational requirement	Infrastructure location
Winery			
1	Winery - consisting of an enclosed building housing the following wine production equipment: press, vibrating hopper, de-stemmer, crusher, fermentation tanks, storage tanks Outside concrete hardstand holding the following wine production equipment: fermentation tanks, storage tanks and drains. Stormwater overflow sump. 8 kL stormwater tank and pipeline Acoustic enclosure around refrigeration units (AERU)	(a) All wastewater collected from internal and external hardstand floor drains must be directed to the wastewater collection sump for wastewater treatment. (b) Wastewater drainage system including any sumps, pipelines, and drainage channels) and concrete flooring or hardstands must be maintained to prevent wastewater or product leaks to underlying soils. (c) Uncontaminated stormwater must be directed away from all wastewater collection drains and the WWTP during vintage to an overflow sump and stormwater tank. (d) The acoustic enclosure around the winery refrigeration unit must be maintained to ensure noise levels do not impact on nearby residential receptors.	Labeled in Schedule 1 Figure 2 as winery stormwater overflow tank pipeline AERU (acoustic enclosure/refrigeration units)
Winery wastewater treatment plant (WWTP)			
2	WWTP consists of: Solids screen 8 kL concrete wastewater collection sump In line pH corrector Inflow meter (M1) 60 kL settling / clarification tank 60 kL aerobic tank with aerator Anaerobic tank	(a) Not more than 35,000 litres of wastewater in any 24 hours may be directed to the WWTP. (b) Wastewater must undergo pH adjustment, settling, aeration, and anaerobic digestion before being discharged through flow meter (M3) to the land application area (L1). (c) Until the flow meter (M3) is installed, volumes of inflow through the flow meter (M1) must be measured and recorded. (d) Flow meter (M3) must be maintained to enable the cumulative volume of treated wastewater discharged to the irrigation areas to be accurately measured and recorded.	Labeled in Schedule 1 Figure 2 as WWTP M1, M3 and W1

	Site infrastructure and equipment	Operational requirement	Infrastructure location
	23 kL post aerobic tank with aerator M2 discharge point Once installed flowmeter (M3) Once installed sample tap (W1)	(e) Until a sample tap (W1) is located on the outflow pipeline of the WWTP, all samples must be taken from M2 discharge point. (f) Wastewater sample point (W1) must be maintained to allow wastewater samples to be collected. (g) WWTP tanks must be inspected daily when operational to prevent overtopping of and seepage from the WWTP tanks. (h) Daily WWTP inspections must be recorded within a logbook including the date, time and name of inspector. (i) Vegetation and floating debris must be prevented from growing within or accumulating in the WWTP tanks. (j) Sludge collected within the anaerobic tank must be disposed of offsite by a licensed controlled waste carrier.	
Wastewater disposal			
3	2 Ha wastewater disposal (irrigation) area consisting of: -mixed grass paddock -wastewater delivery pipelines above and below ground -cannon spray irrigation system - irrigation area boundary markers	(a) Irrigation area (L1) must be outlined by permanent boundary markers and must be maintained to be always visible. (b) Irrigation of treated wastewater must only occur in the designated irrigation area L1. (c) No irrigation-generated run-off, spray drift, or discharge must occur beyond the boundary of the designated irrigation area (L1). (d) Wastewater must be evenly distributed over the irrigation area. (e) No soil erosion must occur within the irrigation area (L1). (f) Healthy (growing) vegetation cover must be maintained over the wastewater irrigation area to maximise wastewater and nutrient uptake. (g) Irrigation must not occur on land that is visibly water-logged or has water ponding on the surface. (h) Must notify the CEO within 48 hours of becoming aware that wastewater irrigation cannot occur for any reason at L1, including how the wastewater will be managed in the interim.	Labeled in Schedule 1 Figure 1 as: L1 Pipeline and underground pipeline
Solids management			
3	Solid (marc) waste storage area consisting of: Bunded concrete hardstand with drainage and collection sump	(a) All surface runoff of leachate and contaminated stormwater must be directed to the drainage sump and directed to the settling/clarification tank. (b) Marc, lees, screening solids and other winery organic wastes must only be stored within the bunded concrete hardstand..	Labeled in Schedule 1 Figure 2 as solids area.

	Site infrastructure and equipment	Operational requirement	Infrastructure location
		(c) All organic material stored within the solids waste storage area must be removed offsite for disposal.	

Works

2. The licence holder must install the infrastructure in accordance with the requirements specified in Table 2.

Table 2: Infrastructure requirements – discharge flow meter

Infrastructure	Installation requirements	Infrastructure location	Timeframe
Flow meter (M3) capable of measuring all wastewater discharges from WWTP to discharge point L1 as shown in Schedule 1 Figure 2.	Must be installed on the outflow pipe that discharges wastewater from the WWTP to the irrigation area.	As depicted in Schedule 1, Figure 2: Map of the site layout of the premises, labelled M3 and W1	Must be installed by 30 November 2024.
Sample tap (W1) capable of sampling wastewater quality of wastewater discharges from the WWTP to the discharge point L1 as shown in Schedule 1 Figure 2			

3. The licence holder must submit within 30 days of the flow meter and sample tap installation required by condition 2, submit to the CEO the serial number of the flowmeter and photographical evidence demonstrating that the flow meter and sampling tap have been installed in accordance with the requirements of condition 2.

Emissions and discharges

Authorised emission limits and targets

4. The licence holder must ensure that emissions from the discharge point listed in Table 3 for the corresponding parameter do not exceed the corresponding limit when monitored in accordance with condition 6.

Table 3: Emission and discharge limits

Discharge point	Parameter	Limit
Irrigation area L1 (2Ha) as shown in Schedule 1, Figure 1.	pH	≥5.5 and ≤9
	Electrical conductivity	≤2.9 dS/m
	[2]Sodium absorption ratio (SAR)	≤6
	[1]Total nitrogen	Not more than 300 kg/ha/annual period
	[1]Total phosphorus	Not more than 50 kg/ha/annual period
	[1]Biological oxygen demand	Not more than 1500kg/ha/month

Note 1: See Schedule 2 loading calculation spreadsheet.

Note 2: NSW Department of Primary Industries 2016, *Primefact1344: Interpreting water quality test results*, Sydney, New South

Wales

5. The licence holder shall target wastewater treatment quality to below the concentrations listed in Table 4 when monitored in accordance with condition 6.

Table 4: Wastewater treatment targets

Monitoring location	Parameter	Target
Wastewater sampling point (W1) for disposal to Irrigation area L1.	Total nitrogen	≤20mg/L
	Total phosphorus	≤5 mg/L
	Total suspended solids	≤100 mg/L
	Biological oxygen demand	≤150 mg/L

Monitoring

Monitoring of emissions to land

6. The licence holder must monitor emissions in accordance with the requirements specified in Table 5: and record the results of all such monitoring.

Table 5: Emissions and discharges monitoring

Discharge point	Monitoring location	Parameter	Units	Frequency	Averaging period
Irrigation area (L1,) as shown in Schedule 1 Figure 1.	Flowmeter M3 as shown in Schedule 1 Figure 2	Volumetric flow rate (cumulative)	L/day (m^3 or kL)	Continuous when discharging	Daily
	Wastewater sampling point W1 as shown in Schedule 1 Figure 2	pH[1]	-	Monthly when irrigating	Spot sample -
		Electrical conductivity[1]	mS/cm		
		Total nitrogen	mg/L		
		Total phosphorus			
		Total dissolved solids			
		Total suspended solids			
		BOD			
		Sodium ion (Na^+)			
		Calcium ion (Ca^{2+})			
		Magnesium ion (Mg^{2+})			
		Sodium adsorption ratio	-		

[1] In field non-NATA accredited analysis permitted for pH and electrical conductivity.

7. The licence holder must record the results of all monitoring activity required by condition 5. The licence holder must 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; and

(c) all laboratory samples are submitted to and tested by a laboratory with current National Association of Testing Authorities NATA accreditation for the parameters being measured.

8. The licence holder must ensure that monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months.

Monitoring of inputs and outputs

9. The licence holder must monitor inputs and outputs in accordance with the requirements specified in Table 6 and record the results of all such monitoring.

Table 6: Monitoring of inputs and outputs

Input/output	Parameter	Units	Averaging period
Grapes	Grapes crushed	tonnes	Annual period
Wine	Beverage produced	kilolitres	Annual period

Improvements

10. The licence holder must submit to the CEO, by **31 August 2025**, a revised nutrient and irrigation management plan (NIMP). The NIMP must:

(a) Describe the irrigation area, irrigation discharge rates, irrigation schedule, irrigation system, treated wastewater storage volumes, and irrigated crop or vegetation;

(b) Provide details demonstrating that the wastewater irrigation rates, and schedule of application do not saturate the soil, infiltrate past the root zone of the crop or contaminate the soil for each month of the year irrigation is undertaken;

(c) Provide site-specific nutrient loading rates, based on the irrigated crop's ability to assimilate nutrients, and remove nutrients through harvesting, and

(d) Provide a contingency plan for wastewater disposal in the event that the licence holder no longer has access to the irrigation area (L1).

Records and reporting

11. The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

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

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.

12. The licence holder must:

(a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and

(b) prepare and submit to the CEO by no later than **30 April** after the end of that annual period an Annual Audit Compliance Report in the approved form.

13. The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:

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

(b) the works conducted in accordance with condition 2 of this licence;

(c) any maintenance of infrastructure and logbooks that are performed in the course of complying with condition 1 of this licence;

(d) monitoring programmes undertaken in accordance with conditions 6 and 9 of this licence; and

(e) complaints received under condition 11 of this licence.

14. The books specified under condition 13 must:

(a) be legible;

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

(c) be retained by the licence holder for the duration of the licence; and

(d) be available to be produced to an inspector or the CEO as required.

15. The licence holder must submit a report when an exceedance of any target or limit specified in condition 4 Table 3 and condition 5 Table 4, within 14 days of becoming aware of the target or limit exceedance. The report must contain the following information:

(a) a description of the exceedance;

(b) the time and date when the exceedance occurred;

(c) whether any environmental impact occurred as a result of the exceedance and, if so, what that impact was and where the impact occurred;

(d) details of the management action(s) taken in response to resolving the exceedance; and

(e) the details and result of any investigation undertaken into the cause of the exceedance.

16. The licence holder must, within 7 days of becoming aware of any pollution control equipment listed within condition 1, Table 1 of this licence, malfunctions and / or causes an authorised discharge, must notify the CEO in writing and include in that notification the following information:

(a) which pollution control equipment malfunctioned;

(b) the time and date when the malfunction occurred;

(c) if any environmental impact occurred as a result of the malfunction/ unauthorised discharge and if so, what that impact is, and where the impact occurred;

(d) the details and result of any investigation undertaken into the cause of the malfunction/unauthorised discharge;

(e) what action has been taken and the date on which it was taken to prevent the malfunction/unauthorised discharge.

17. The licence holder must submit to the CEO by no later than **30 April** after the end of each annual period, an Annual Environmental Report for that annual period for the conditions listed in Table 7, and which provides information in accordance with the corresponding requirement set out in Table 7.

Table 7: Annual environmental report

Condition or table	Requirement
1	Copy of the logbook recording all daily inspections of the WWTP.
4, 5, 6, 7, 8	Monthly and annual volumes (m^3 or kL) of wastewater applied to irrigation area (L1). Monthly photographic evidence illustrating the date, the flow meter serial number and flow meter reading (M3) (ensuring the numbers are readable). Wastewater monitoring data in tabulated and graphical form including the sampling date. Present monthly and annual tabulated loadings of nitrogen, phosphorus and BOD applied to the irrigation area (L1) using the Nutrient Loading Spreadsheet in Schedule 2 An assessment and interpretation of the data including comparison to historical trends, water quality limits, targets and loading limits. Copies of laboratory sample analysis reports.
9	Inputs and outputs.
11	A summary of complaints recorded for the annual period.
12	An audit of the licence conditions.
15	Copies of all licence limit and target exceedance reports submitted within the annual period.
16	Details of any pollution control incidents, malfunctions occurring within the annual period.

Definitions

In this licence, the terms in Table 8 have the meanings defined.

Table 8: Definitions

Term	Definition
ACN	Australian Company Number
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12-month period commencing from 1 April until 31 March.
AS/NZS 5667.1	means the current version of Australian / New Zealand Standard AS/NZS 5667.1 *Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.10	means the current version of Australian / New Zealand Standard AS/NZS 5667.10 *Water Quality – Sampling, Part 10: Guidance on sampling of waste waters*
averaging period	means the time over which a limit is measured, or a monitoring result is obtained
beverage production facility	means all equipment listed in Table 1 including canning, bottling, fruit processing, beverage production, refrigeration units and the WWTP
BOD	biochemical oxygen demand
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
emission	has the same meaning given to that term under the EP Act.
hardstand	means a surface with a permeability of 10^{-9} metres/second or less
kg/ha	kilograms per hectare
kL	kilolitres
L/day	litres per day
leachate	means liquid released by or water that has percolated through waste and which contains some of its constituents
lees	means the material which accumulates in the bottom of grape juice or wine fermentation tanks

Term	Definition
licence	means this Licence numbered L8849/2014/1 and issued under the Act
licence holder	means the occupier of the premises, being the person to whom this licence has been granted, as identified on the front of this licence
licensed liquid waste facility	means a liquid waste facility that holds a licence under Part V, Division 3 of the EP Act
m	metres
malfunction	means a piece of equipment or infrastructure that fails to function normally.
marc	means grape material (mainly skin, pulp and seeds) which is left over after grape crushing and pressing
mg/L	milligrams per litre
monthly	means a one-month period from the first day of a month until the last day of that same month
NATA	means the (Australian) National Association of Testing Authorities
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 premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this 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 water that has passed through the wastewater treatment system
vintage	means the period of time during which the first and last grapes of the season are received for crushing
unathorised discharge	has the same meaning given to that term under the EP Act.
waste	has the same meaning given to that term under the EP Act

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1)

Figure 1: Map of the boundary of the prescribed premises (outlined in pink), and irrigation area (L1) (outlined in yellow).

Site layout map

The site layout within the prescribed premises is shown in the map below (Figure 2)

Figure 2: Site layout of the WWTP, solids area and winery.

Schedule 2: Nutrient loading calculator

Irrigation areas[1]: size, volume irrigated, irrigation days				Annual period (as defined by your licence)[2]												Volume irrigated during annual period (kL)[3]
	Size (ha)			January	February	March	April	May	June	July	August	September	October	November	December	
EXAMPLE irrigation area:	*25*	*volume irrigated*	*kL*	*20,000*	*20,000*	*18,000*	*15,000*	*0*	*0*	*0*	*0*	*15,000*	*18,000*	*20,000*	*25,000*	*151,000*
		days of irrigation	*days/month*	*29*	*28*	*30*	*25*	*0*	*0*	*0*	*0*	*20*	*25*	*30*	*27*	
Irrigation Area 1:		volume irrigated	kL													
		days of irrigation	days/month													
Irrigation Area 2:		volume irrigated	kL													
		days of irrigation	days/month													
Irrigation Area 3:		volume irrigated	kL													
		days of irrigation	days/month													
Wastewater quality[4]	*EXAMPLE sampling date:*			*20/01/2022*	*15/02/2022*	*17/03/2022*	*19/04/2022*	*12/05/2022*	*12/06/2022*	*9/07/2022*	*15/08/2022*	*12/09/2022*	*15/10/2022*	*13/11/2022*	*7/12/2022*	
	EXAMPLE total nitrogen		*mg/L*	*13.2*	*21.3*	*17.6*	*19.2*	*42.4*	*25.1*	*30.4*	*40.3*	*34.8*	*38.7*	*44.6*	*47.3*	
	EXAMPLE BOD		*mg/L*	*4.8*	*12.1*	*6.1*	*4.9*	*4.8*	*4.1*	*3.3*	*5.2*	*4.4*	*5.2*	*5.1*	*7.5*	
	Sampling date:															
	For wineries to indicate sampling period:[5]															
	Total nitrogen		mg/L													
	Total phosphorus		mg/L													
	Biochemical oxygen demand		mg/L													

Nutrient and BOD loadings[6]			January	February	March	April	May	June	July	August	September	October	November	December	kg/ha/annual period[7]
EXAMPLE total nitrogen loadings			*10.6*	*17.0*	*12.7*	*11.5*					*20.9*	*27.9*	*35.7*	*47.3*	*183.5*
EXAMPLE BOD loadings		*kg/ha/month*	*3.8*	*9.7*	*4.4*	*2.9*					*2.6*	*3.7*	*4.1*	*7.5*	*38.8*
		kg/ha/day	*0.13*	*0.35*	*0.15*	*0.12*					*0.13*	*0.15*	*0.14*	*0.28*	
Irrigation Area 1	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													
Irrigation Area 2	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													
Irrigation Area 3	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													

Licence limits[8]				
		kg/ha/annual period	kg/ha/month	kg/ha/day
Irrigation area 1	TN			
	TP			
	BOD			
Irrigation area 2	TN			
	TP			
	BOD			
Irrigation area 3	TN			
	TP			
	BOD			

Explanatory notes and calculations:

White cells should be filled in where applicable. Pale yellow cells will calculate automatically.

NOTE 1 - Where there is irrigation to more than 3 areas, additional copies of this sheet should be completed.
NOTE 2 - This sheet should be completed for your annual period as defined by your licence. *E.g. If your annual period is from 1 October to the 30 September in the following year, for the 2022-2023 annual period, you should include data from January - September 2023, and October - December 2022.*
NOTE 3 - Volume irrigated during the annual period (kL), for each irrigation area is the sum of the monthly volumes irrigated to that area. *E.g. For the example shown: Volume irrigated during annual period = 20,000 (Jan) + 20,000 (Feb) + 18,000 (Mar) + 15,000 (Apr) + 15,000 (Sep) + 18,000 (Oct) + 20,000 (Nov) + 25,000 (Dec) = 151,000 kL. Noting that for the example there was no irrigation during the months of May, June, July or August.*
NOTE 4 - The sampling and analysis of your wastewater quality should be undertaken in accordance with your licence conditions. For sampling less often than monthly, i.e. quarterly, 6-monthly, or annually: for months where no sampling is required, wastewater quality should be taken to be equivalent to the most recent sample taken. *E.g. Quarterly sampling during Feb, May, Aug and Nov - total nitrogen concentrations were analysed to be 7, 11, 8 and 13 mg/L respectively in the wastewater. For March and April, as February was the most recent sample taken, total nitrogen concentration is estimated to be 7 mg/L. Similarly, for June and July, as May was the most recent sample, total nitrogen concentration is estimated to be 11 mg/L. There will be no sampling date associated with non-sampling months.* If your licence requires you to monitor loading rates for additional parameters (e.g. inorganic nitrogen, reactive phosphorus etc.) additional copies of this sheet should be completed for the additional parameters.
NOTE 5 - For wineries to indicate sampling period - this row is only required to be completed if your licence condition specifies a sampling period e.g. pre-vinatge, peak vintage, late vintage, post vintage, non-vintage. Indicate which sampling date corresponds with which period.
NOTE 6 - Parameter loading (TN, TP or BOD) each month per hectare for each irrigation area (kg/ha/month): $\frac{\text{monthly concentration of parameter (TN, TP or BOD) in mg/L * monthly volume of wastewater irrigated to irrigation area (kL)}}{\text{size of irrigation area}} \div 1000$ *E.g. Using the example shown, for total nitrogen for January: 13.2 mg/L * 20,000 kL / 1,000 = 264 kg/month. 264 / 25 ha = 10.6 kg/ha/month (for January).* Loading of parameter (BOD) each day per hectare for each irrigation area (kg/ha/day): BOD loading (kg/ha/month) ÷ number of days of irrigation during that month. *E.g. Using the example shown, for BOD for October: 3.7 kg/ha/month / 25 days of irrigation during October = 0.15 kg/ha/day (for October)*
NOTE 7 - To calculate annual loading of parameter (TN, TP or BOD) per hectare (kg/ha/annual period): sum of monthly loadings (kg/ha/month). You should calculate an annual loading (kg/ha/annual period) for each relevant parameter for each irrigation area. *E.g. Using the example shown, for total nitrogen: 10.6 (Jan) + 17 (Feb) + 12.7 (Mar) + 11.5 (Apr) + 20.9 (Sep) + 27.9 (Oct) + 35.7 (Nov) + 47.3 (Dec) kg/ha/month = 183.5 kg/ha/annual period*
NOTE 8 - Relevant licence limits to be entered. Where TN = total nitrogen, TP = total phosphorus, and BOD = biochemical oxygen demand. Once applicable licence limits have been entered, the calculated loadings will become red text if they exceed the relevant limit.

Note: Licence holders can request a digital Excel spreadsheet (with in-built formulas) on request.

Send all requests to info@dwer.wa.gov.au

Attention: Process Industries and quote the licence number.