Application for Licence

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L9398/2023/1
Applicant	Mallokup Malt Pty Ltd
ACN	626 944 116
File number	DER2023/000420~2
Premises	Mallokup Malt 1129 Ludlow Road North, Stirling Estate 6271 Legal description Lot 51 on Deposited Plan 61595 As defined by the premises map Figure 1 Schedule 1 attached to the issued licence
Date of report	05 October 2023
Decision	Licence granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of a malt processing facility at Mallokup Malt, 1129 Ludlow Road North, Stirling Estate, WA (premises, Mallokup). As a result of this assessment, licence L9398/2023/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 27 June 2023, Mallokup Malt Pty Ltd (the applicant) submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application is to seek a licence relating to the processing of barley and cereal grain to manufacture malt and irrigate wastewater to land at the premises. The premises is approximately 3.5 km northwest of Capel townsite.

The premises relates to the category 18: food processing and has an assessed throughput of up to 500 tonnes/annum of malt produced under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L9398/2023/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in licence L9398/2023/1.

2.2.1 Background

The premises was issued with a works approval W6398/2020/1 on 27 January 2021 which expires on 27 January 2026. The applicant submitted Environmental Compliance Reports on 22 December 2022 and 29 March 2023 and it was determined by the delegated officer that there was sufficient information provided to determine compliance with works approval W6398/2020/1. Time-limited operations under W6398/2020/1 commenced on 29 March 2023.

Mallokup Malt processes up to 1,000,000 kilograms of barley and cereal grains to produce 500 kilograms of malt and directs the wastewater from the process through a wastewater treatment plant before discharging treated wastewater to land via irrigation.

2.3 Infrastructure and operational aspects

Infrastructure (from applicant)

The food processing facility infrastructure, as it relates to Category 18 activities are:

- Enclosed malt processing, packaging and storage shed with concrete graded floor draining through a 3mm perforated mesh basket (basket screen) to a concrete 30 kL sump.
- Stainless steel steep tank
- 2 x stainless steel germination kilning vessels
- Vacuum transfer machine
- Bagging machine

- 4x grain silos
- 1x malt silo
- Grain cleaner connected to a IBC
- Grain cleaner dust extractor connected to an enclosed metal bin.
- Gas fired water boiler with 6.1m flu
- Genset

Wastewater treatment plant (WWTP) consisting of:

- Pumps and pipes
- 60 kL aeration tank with an aerator.
- 250 kL wastewater storage tank fitted with an aerator and sampling outlet tap (W1)
- Volumetric flow meter (M1 located on the outlet of the storage tank)

Wastewater disposal area consisting of:

- 0.9 ha wastewater irrigation paddock with fixed sprinklers
- Soil tensiometer and weather station
- Groundwater monitoring bores. MB3 and MB4

Operations

Mallokup Malt operates 7 days a week from 7 am to 6 pm and processes one batch of barley/cereal grain to malt per week. Grain is received and loaded through the in-load grain silo and then stored within three silos on a concrete hardstand. Grain from the three silos is graded/cleaned before entering the malt manufacturing process. A dust extractor is attached to the grain cleaner, where oversized grain, grain dust and grain are separated. Oversized grain is directed to an enclosed IBC. Each cleaning batch delivers between 25-50 kg of oversized grain into the IBC that can hold up to 700 kg. The oversized grain is transferred offsite and sold as animal feed. The dust extractor is connected to an enclosed waterproof metal container that can hold up to 200 kg or 4 batches of grain dust. The grain dust is like chaff and up to 2.5 tonnes of chaff is removed offsite each year and used as compost and/or feed domestic worm farms on neighbouring farms. A fifth silo stores the finished malt product.

The manufacturing process involves three stages: steeping, germination and kilning. Ten tonnes of grain (barley/cereal grain) will be transferred once per week from the grain stored in three silos to the steep tank for processing. There are two different steep cycle processes; a three-steep and one-steep cycle. A three-steep cycle involves the steeping tank being filled with 14 kL of water above the grain bed and intermittently supplied with oxygen. The grain is soaked for 6-8 hours, where the water is changed three times over the 36 - 48 hour steeping process. A further 10 kL of water is used in the second steeping cycle and 8 kL in the third cycle.

- The maximum volume of wastewater produced from a three steep cycle including cleaning is 26 kL.

A one-steep cycle involves the tank being filled with 14 kL water above the grain bed and intermittently supplied with oxygen. The grain is soaked for 18 hours transferred to the germination tank via vacuum and sprayed with 7 kL of water.

- The maximum volume of wastewater in a one steep cycle including cleaning is 16kL.

During the steeping cycles, the grain will change from 12% to 45% moisture content. It is estimated that one type of steeping cycle will occur each week with the one-steep process occurring from June – September to reduce wastewater emissions.

The steeped grain is transferred from the steeping tank to the germination vessel via a vacuum. The grains are rested for three days in the germination vessel (stainless steel container), where the humidity is controlled to assist with germination. Within the germination vessel malt turners (augers) are programmed to turn the grain every four hours to prevent malt matting onto the bottom of the vessel. The malt turners have spray jets attached and spray water to ensure moisture levels are maintained for maximised growth.

The wastewater from the steeping and germination process is drained to the WWTP. All grains and husks are retained in the tanks.

The process of kilning occurs in the same vessel as the germination vessel. The kilning process involves dry air being blown through the vessel and the grain bed at 70 to 110^0 C until the desired malt colour is created. The heating of the kiln is via a hot water boiler located within the machinery shed with a flu venting steam, 6.1 metres above ground level (magl).

The clean malt is then processed through a bagging machine via vacuum transfer into 25 kg polypropylene bags. Occasionally, one-tonne bulka polypropylene bags will be used. The vacuum process separates the malt culms (rootlets) from the clean malt through the filtration on the vacuum. All malt culms, debris, and residual malt are swept up and deposited into a plastic pallet waste bin stored within the shed. The malt culms are a source of protein and are stored for 24 hours before removed from the premises and sold to cattle and sheep farmers within the locality.

A small quantity of the malt will be roasted per week (approximately 100kg). The 25 kg bags of malt will be roasted in a roasting machine for a few hours to produce the desired product. Roasted malts will be bagged into 0.5 to 5 kg paper pouch bags through the bagging machine and manually heat sealed.

Cleaning of the steep and germination/kilning tanks will be through hot water pressure scrubbing, vacuum and sweeping of dry debris. All solid debris will be deposited into the pallet waste bin. All wastewater will be drained to the 30kL sump.

Wastewater treatment plant and solids removal

The maximum design capacity of the WWTP is based on a weekly design throughput and limited by the sump at 30kL/week. The applicant provided details on the amount of wastewater that would be produced each week throughout the year.

- From October to May, 26kL/week (3,714L/day) of wastewater is expected to be produced.
- From June to September, 16kL/week (2,290L/day) of wastewater is expected to be produced.

Wastewater will be drained through a 3mm perforated mesh basket that sits within the grated drain within the building and drains via gravity into a covered 30kL sump. Wastewater will be left in the sump to allow separation of solids and liquids. The mesh basket and settling in the sump will remove gross solids.

Wastewater generated from the malting process enters the grated drains at several locations within the hardstand shed and gravity feed to the solid's sump. The grated drain contains a basket with 3mm perforated screen that captures coarse solids and debris up to 3mm. The basket screen is emptied weekly, and any loose grain is swept up and placed in the pallet waste bin.

With the use of a float switch operated pump, wastewater is transferred from the 30kL sump to the 60kL aeration tank located within the self-contained concrete bunker, where it undergoes aeration, caustic dosing, and aerobic treatment to balance pH and reduce biological oxygen demand (BOD) and nutrients. The aeration tank is covered with an impermeable cover during winter to restrict rainfall from entering. Treated wastewater from the aeration tank is pumped to a 250 kL storage tank fitted with an aerator to ensure adequate oxygenation occurs, especially over the stored winter months.

Sludge will be monitored monthly in all tanks and extracted and disposed offsite by a licensed liquid waste contractor as required.

Solids will be removed from the sump with a loader and solids stored in plastic bins within the self-

contained concrete bunker and removed offsite.

Wastewater irrigation (from applicant)

Treated wastewater is to be irrigated to a 0.9 ha irrigation area, seeded with perennial ryegrass, and harvested for hay at least twice a year in October, January and/or April. Additional water will be irrigated to ensure that hay can be produced outside of the season. Irrigation is via automated sprinkler system connected to a rain sensor and tensiometer that will shut off irrigation during periods when the hydraulic load of the soil is at capacity.

An above ground low pressure sprinkler system will be used for irrigation. The sprinklers are placed 10m apart along the sprinkler lines and have a low application rate of 4mm/hour.

An electric pump will transfer treated wastewater from the 250kL storage tank to five separate valves on the sprinkler lines. This will be controlled by a computer program that will be linked to a rain sensor and tensiometer located within the irrigation area and will have a parameter setting to stop irrigation at 5 (KPa) at a depth of 30cm. A weather station located on shed roof within the premises records daily rainfall and is kept and updated into a water balance spreadsheet. Irrigation schedules will be entered manually on the day of watering after monitoring the weather, evaporation, and soil moisture. A water meter is installed on the main pipeline from the storage tank to measure the volume of wastewater irrigated.

The applicant proposes to irrigate treated wastewater from October - May, with wastewater stored from June to September. A weather station located within the premise measures rainfall and a tensiometer located within the irrigation area (L1) measures onsite with an automatic shutdown at 5 kPa. Irrigation will occur on a rotational basis, with irrigated areas dry for 24 hours between applications.

The applicant undertook wastewater sampling from the treated wastewater storage tank outlet tap (W1) whilst in time-limited operation under works approval W63982020/1. The water quality results are outlined in Table 1

Table 1: Treated wastewater quality (from applicant)

	[2]pH	**EC dS/m)**	**TDS (mg/L)**	**TSS (mg/L)**	**COD mg/L)**	**TP (mg/L)**	**TN (mg/L)**	**Volumetric flow data kL**
[1]ANZECC 2000-Primary Industries[1]	5.5-9.0	1.3-2.9[4] Moderate tolerant crops	-	<40	<40	0.8-12[3]	25-125[3]	
26/06/2023	6.9	1.4	1200	36	740	3.8	27	No irrigation
4/08/2023	7.6	0.63	760	98	530	2.8	19	No irrigation

Note 1 National Water Quality Management Strategy Paper No. 4 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3 Primary Industries long term irrigation (over 20 years), 2000, ARMC and ANZECC (ANZECC 2000).
Note 2- pH has been adjusted to suit southwest swan coastal plain lower pH values within ground water. pH has been adjusted from 6 – 9 to 5.5 -9.
Note 3 – ANZECC 2000, requires site specific assessment to determine actual value.
Note 4 – Salinity levels have been set based on effects to crop yields for rye grass and general pasture.

The wastewater quality was compared to the ANZECC (2000) irrigation quality criteria and the nutrient loading based on NSW EPA (1998). (See Section 3 for discussion).

The applicant undertook groundwater monitoring from three bores up and down gradient of the irrigation area whilst undertaking time-limited operations in works approval W6398/2020/1. Table 4

outlines the groundwater data for two bores, MB3 is upgradient, and MB4 is down gradient of the irrigation area.

The groundwater was compared to low land freshwater quality for ecosystem protection (ANZECC 2000) criteria. (See Section 3 for discussion).

Table 2: Groundwater monitoring bore data (from applicant)

Date	[1]ANZECC 2000-	Standing water level mbgl	[2]pH	EC dS/m	TN mg/L	Ammonia - NH3 mg/L	Nitrogen – NOx mg/L	TP mg/L	Reactive Phosphorus (orthophosphate) mg/L
	Criteria		5.5-9	<1.5	<1.2	<0.08	<0.150	<0.065	<0.04
26/06/2023	MB3	1.45	no samples taken						
26/06/2023	MB4	1.1	7.4	1.1	0.25	0.067	0.034	<0.05	<0.005

1 National Water Quality Management Strategy Paper No. 4 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1 Low land freshwater aquatic ecosystems, 2000, ARMC and ANZECC (ANZECC 2000).
Note 2- pH has been adjusted to suit southwest swan coastal plain lower pH values within ground water. pH has been adjusted from 6 – 9 to 5.5 -9.

The applicant provided monthly standing water levels for MB3 and MB4 from January to July 2023. MB3 ranged from dry (January) to 1.45 (June) mbgl and MB4 from 2 (January) to 1.05 (July) mbgl, indicating that the groundwater table that generally peaks in September will likely be within 0.5 – 1 metre below ground level within the irrigation area.

Note to applicant: The applicant requested a two steep process and option to irrigate wastewater in the months of August and September. This request was provided late in the licence assessment process. The applicant failed to provide supporting information for a 2 steep process or details to support the viability of wastewater storage and winter irrigation schedules.

The delegated officer has determined to continue the assessment on the original application and requests that the applicant obtain further wastewater quality data, wastewater storage balance, nutrient irrigation plan and 12 months of standing groundwater levels before submitting a future licence amendment.

3. DWER technical review

Hydraulic and nutrient loading

A hydraulic and nutrient loading assessment was undertaken within works approval W6398/2020/1 base on the US EPA (2006) hydraulic calculation methods and NSW EPA (1998) nutrient loading methods. This assessment was based on the Applicant's proposed production capacity using the three steep cycle over 35 weeks (October to May at 26 kL/week of wastewater) and one steep cycle over 17 weeks (June to September at 16 kL/week of wastewater) irrigated over 0.9 hectares (totalling 1,182kL/year of wastewater) irrigating from October to May and storing wastewater from June to September. Using the highest wastewater sample concentration in Table 1 (June 2023) the delegated officer determined that over a 35-week irrigation period, TN, TP and BOD concentrations were well within the nutrient loading and hydraulic land and soil capability.

The applicant provided harvesting export rates for hay cropping for total nitrogen and phosphorus, in which the figures align with the Department of Primary Industries and Regional Development (DPIRD) cropping rates for hay in the southwest region of Western Australia. Table 3 outlines the expected harvesting export rates for nitrogen and phosphorus to the calculated irrigation rates based on the applicant's submitted wastewater highest concentration data (see Table 1) and the predicted annual wastewater volumes (1,182 kL/yr) averaged over 8 months (35 weeks) of irrigation. This calculation

was considered conservative. Harvesting export was equal to the total phosphorus irrigation loading rates, whereas total nitrogen exceeded the export rate by 1.5 kg/ha/year. Noting that the calculation was conservative and if total nitrogen rates were averaged (23 mg/L) then total nitrogen irrigation loading rates would be 30.2 kg/ha/year and below the export rate.

Noting that the applicant intends to harvest twice a year with a possible third harvest each year, and that worst case scenario irrigation loading rates are likely to meet or be slightly over twice-yearly harvesting export rates. In considering that the irrigation area is adjacent to a wetland system (Stirling wetlands), that could be impacted by eutrophication from excessive irrigation of wastewater from October to May. The delegated officer considers that the loading rate limits for irrigation should not exceed the export rates for two harvests per year. In addition, NSW EPA (1998) considers that an effective upper limit for BOD loading rates is 1,500 kg/ha/month to prevent odours and breakdown of soil microbes in most soils.

Table 3: Loading calculations (from applicant)

	TN kg/ha/yr	**TP kg/ha/yr**	**BOD /COD kg/ha/month**
[1]Loading rates based on irrigating 35 weeks/yr	35.5 kg/ha/yr	5 kg/ha/yr	971.9 kg/ha/month
[2]Twice yearly harvesting loading export rates	34 kg/kg/year	5 kg/kg/year	-
[2]Thrice yearly harvesting loading export rates	51 kg/ha/yr	7.5 kg/ha/yr	-

[1] Loading rates based on June 2023 sampling data (see Table 1), applicant predicted 1,182 kL/yr wastewater and irrigation over 8 months.

[2]Loading rates including harvesting are based on a twice-yearly harvest, harvesting on 4 tonnes/ha/cut, removing 2.5kg phosphorus and 17kg nitrogen per tonne of grain removed.

Assessment of pH and electrical conductivity data against ANZECC (2000) irrigation guidelines indicated that these parameters are within acceptable ranges values for long-term irrigation to crops. To ensure the viability of long-term treated wastewater application ANZECC limits to key parameters can be applied to ensure minimal impacts to soil structure, organic chemistry, and soil-plant nutrient uptake ability. Specifically, pH and electrical conductivity limits in line with ANZECC 2000 irrigation guidelines will assist in the prevention of soil contamination and crop yield decline.

Groundwater

Table 2 outlines groundwater data up and down stream of the irrigated area. Existing groundwater data will form a baseline of water quality of the groundwater for future monitoring once irrigation starts in October 2023. As it stands, the background groundwater levels are under the ANZECC 2000 for all parameters for lowland freshwater aquatic ecosystems.

Tensiometer

The applicant has indicated that a tensiometer 30 cm below ground level will measure onsite soil moisture that will be linked to a computer program for automatic shutdown of irrigation when it reaches 5 kPa. In a review of literature for tensiometers (Victora, Department of Primary Industries, 2000), in sandy soils, tensiometers readings consider soil to be saturated with a reading of 0 kPa, have optimum soil moisture levels for plant growth between 30 to 40 kpa, and considered soil to be dry at 70 kpa. Whilst a review of peach trees grown in Manjimup in clay soils has an optimum transpiration rate when soil moisture was 5-10 kPa in summer (DPIRD 1991).

The delegated officer has considered a shutdown of 5 kPa to be excessive and likely lead to leaching of nutrients. An automated shut down of irrigation activities at 10 kPa at the onset of soil saturation is considered appropriate.

4. Other approvals and legislation

Rights to Water and Irrigation Act 2014 (RIWI)

The applicant has two groundwater bores on the premises issues under the RIWI Act They are:

- GWL205548 Busselton Capel Groundwater Area – Leederville for 5,000 kL for horticultural purposes
- GWL205088 Busselton Capel Groundwater Area - Superficial for 5,000 kL for commercial purposes.

The applicant has access to groundwater to undertake the commercial and agricultural requirements.

Department of Health

The applicant received approval on 22 April 2021 from the Department of Health for approval to construct or install an apparatus for the treatment of sewerage to irrigate wastewater to 0.9 ha of land, under the *Health (Miscellaneous provisions) Act 1911* and *Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974*.

Local Government

Development approval by the Shire of Capel for PA194/2019 for an Industry Rural (Malt Production) at Lot 51 Mallokup Rd (cnr Ludlow Rd North) Stirling Estate was issued on 28.10.2020. The shire has indicated that the conditions of this permit have been cleared.

The Shire currently has a hold on the issue of a "permit to use" in respect of the approved system for the malting plant effluent treatment and disposal issued on 22 April 2021 (approval 46.21) by the Department of Health under the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 pending the licensing approval by DWER.

5. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway, and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

5.1 Source-pathways and receptors

5.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this decision report are detailed in Table 4 below. Table 4 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 4: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Operation			
Noise	Malt manufacturing including deliveries and	Air/windborne pathway	All operations occur in day-time hours (7:00am to 6:00pm, 7 days a week) All malt processing occurs within a confined shed.

Emission	Sources	Potential pathways	Proposed controls
	load outs (including activities for grain cleaner, dust extractor, boiler, genset, vacuum pump, transfer pumps.)		Grain is cleaned and transferred once a week. Dust vacuum maximum noise level is 66.4 dB
Odour and air emissions			All malt processing occurs within a confined shed. Sump is covered. Solid waste (culms) stored in pallet bins inside shed and removed offsite within 24 hours. Gas water boiler with emissions via a 6.1 magl flu.
Dust			All operations occur within the building or on a concrete hardstand. Grain is delivered into a specific intake silo. Grain is graded and dust extracted by a dust extractor. Oversized grain is contained in an enclosed IBC and removed offsite. Grain dust (chaff) is stored in an enclosed waterproof metal container and removed offsite.
Odour	WWTP operations	Air/windborne pathway	Storage tank is covered. Aeration tank is open and has a removable cover that can be placed over the tank to reduce odours. Storage tank is aerated.
Tank sludge waste and solid sump waste.		Spills and seepage of treated and untreated wastewater, sludge to soil and groundwater and overland runoff	Sludge levels will be monitored monthly in each tank and sludge removed by an authorised controlled waste contractor. Aeration tank located on concrete floor and bunded wall (self-contained concrete bunker). Solids from sump stored temporality in self-contained concrete bunker.
Overtopping of containment, spills, and leaks of wastewater from containment tanks and pipe works			All tanks have a backup float valve to shut off supply to pumps that are linked to pump shut off float switches. The 30kLsump tank has a high-level alarm that flashes within the malt shed. Aerator tank located within a 92m^3 concrete bunded area. Contingency plan to have liquid waste disposed off-site by an authorised waste contractor. This will occur when there is less than 30kL capacity contained within the 250kL storage tank One-steep process only between June to September to reduce wastewater and volume required for storage.
Wastewater to land with excessive hydraulic loading	Onsite disposal of wastewater via irrigation to land	Direct discharge to land	Rotation of irrigation areas. Even application of irrigated wastewater via sprinklers. Tensiometer at 30cm below ground to measure moisture levels at the root zone within the irrigated area.
Nutrient wastewater to land			Groundwater levels to be monitored from 3 bores to ensure groundwater separation of 1.5m. Irrigation will cease if groundwater rises above 1.5mbgl. 250kL winter storage tank for treated wastewater. Wastewater stored from June – September.

Emission	Sources	Potential pathways	Proposed controls
			Integrated computer-controlled irrigation system to cease irrigation when soil moisture is at 5 kPA at a depth of 30cm. Flow meter to record volumes of irrigation water discharged. No irrigation during rainfall of flooded areas. Irrigation area planted with perennial pasture (hay) and healthy vegetation cover maintained. Irrigation area harvested a minimum of twice a year.

5.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 5 below provides a summary of potential human and environmental receptors that may be impacted because of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Four rural residential premises located within 500m of the malt processing facility.	• 220m south of malt processing facility • 400m north of the malt processing facility • 455m southeast of the malt processing facility • 500m southeast of the malt processing facility
Mallokup Holiday Chalets	410m east of the malt processing facility
Environmental receptors	**Distance from prescribed activity**
Geomorphic Wetlands – Stirling Wetlands	Multiple use floodplain 15m north of the irrigation source Multiple use sumpland 99m northwest of the irrigation source Multiple use estuary peripheral wetland 220m west of the irrigation source Conservation estuary peripheral wetland 720m west of the irrigation source
Parks and Wildlife Managed Lands and Waters	Tuart Forest National Park 230 m south of the irrigation source.
Threatened Ecological Communities and Priority Ecological Communities	Premises contained within the 500m buffer for the Tuart woodlands and forests of the Swan Coastal Plain (critically endangered) Premises located within the 500m buffer for
Major watercourses/waterbodies	Capel River 280m north of the irrigation source. Capel River is a Protection Catchment Waterway and is a groundwater fed waterway in the Geographe Catchment (DoW 2010).
Underlying groundwater (non-potable purposes)	The Groundwater is managed under the *Rights to Water and Irrigation Act 1914* within the proclaimed Busselton Capel Groundwater Area. The Perth-Swan Superficial is a managed resource that is utilised by licensed users. DWER groundwater bore BN1S indicates that groundwater peaks between 0.5 to 1 mbgl in late winter/early spring.

Soil type	The Department of Primary Industry and Regional Development (DPIRD) Natural Resource Information (WA) database classifies the Premises as Vase Wonnerup Wet Flats Phase (211VaWOw) that consist of poorly drained flats around the edge of Vasse Estuary, with dark calcareous sands and mixed estuarine deposits. This is typically distinguished as deep loamy duplexes and earths underlined by deep pale sands. Soil testing at 2 locations (Site and Soil Report) confirmed that the site consisted of brown sandy clay, and had a permeability rate of 1.1m/day and a PRI 189.
Acid sulphate soils (ASS)	The northern part of the premises has a high to moderate risk of ASS occurring within 3m of the natural soil surface. The lower southern portion of the premises, where the malt processing facility and irrigation paddock is located, has a moderate to low risk of ASS occurring within 3m of the natural soil surface.

5.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and considers potential source-pathway and receptor linkages as identified in Section 5.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 5.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6. Licence L9398/2023/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e. food processing manufacturing malt and irrigating treated wastewater to land.

The conditions in the issued licence, as outlined in Table 6 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 6: Risk assessment of potential emissions and discharges from the premises during operation

Risk events					Risk rating [1] C = consequence L = likelihood	Justification for additional regulatory controls	Regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**			
Malt manufacturing including deliveries, grain cleaning and load outs	Odour and air emissions	Air / windborne pathway causing impacts to health and amenity	Rural residential 220m south, 400m north, 455m southeast, 500m southeast, and tourist chalets 410m east of the malt processing facility	All activities are within enclosed building. All solids stored within enclosed containers. All boiler emissions are through a flu. Refer to Table 4	Minimal impact to amenity C = Slight The risk event will probably not occur in most circumstances. L = Unlikely **Low Risk**	All malting operations including culm storage to occur within an enclosed building. Grain cleaning and transfer occur once a week for a short period during the day. The delegated officer considers applicant controls sufficient to manage odour and noise which has been determined as a low risk. As the proposed controls are necessary for maintain a low level of risk, they will be imposed on the licence as operational controls. The applicant will be required to comply within the *Environmental Protection (Noise) Regulation 1997*.	No additional regulatory controls
	Noise			Grain is cleaned and transferred once a week. Dust extractor has maximum level of 66.4 dB. Malt processing occurs within building Refer to Table 4	Minimal impact to amenity C = Slight The risk event will probably not occur in most circumstances. L = Unlikely **Low Risk**		No additional regulatory controls
	Dust			Graded grain has a dust extractor, dust is used for compost Refer to Table 4	Minimal impact to amenity C = Slight The risk event will probably not occur in most circumstances. L = Unlikely **Low Risk**	All grain from the silos is placed through a grain cleaner with an attached dust extractor once a week. Chaff like dust is stored within an enclosed container and removed from the premises and composted. The delegated officer considered the distance to receptors, the applicant's controls and determined the risk of dust drift to be low. As the proposed controls are necessary for maintain a low level of risk, they will be imposed on the licence as operational controls.	No additional regulatory controls
	Nutrient laden solids and leachate from graded and spent grains prior to removal from offsite	Direct discharge to land and leachate seepage / infiltration to soil and ground and surface waters	Wetlands are contained within and adjacent to the premises. Capel River 280m from malt facility. Groundwater likely to be with 0.5-1mbgl of site. Premises contained within the buffer of 2 threatened ecological communities and priority ecological communities	Solid stored in pallet bin inside manufacturing building prior to removal offsite. Leachate directed to WWTP. Dust chaff stored in enclose metal container, oversized grain stored in IBC on concrete hardstand Refer to Table 4	Minimal impact to amenity C = Slight The risk event will probably not occur in most circumstances. L = Unlikely **Low Risk**	All solids are stored within a pallet bin prior to removal offsite for feed to farmers and leachate directed to WWTP. The delegated officer determined the risk of contamination of the soil, ground, and surface water bodies to be low. As the proposed controls are necessary for maintain a low level of risk, they will be imposed on the licence as operational controls	No additional regulatory controls
WWTP operations	Odour	Air / windborne pathway causing impacts to health and amenity	Rural residential 220m south, 400m north, 455m southeast, 500m southeast, and tourist chalets 410m east of the malt processing facility	Sump and storage tanks covered, aeration tank has a removable cover that is used in winter. Sump solids/sludge is stored temporarily in the bunded area. Refer to Table 4	Low level impact to amenity C = Minor The risk event will probably not occur in most circumstances. L = Unlikely **Medium Risk**	The delegated officer considered that the sump and storage tanks are enclosed, the aeration tank has an aerator and removable cover, solids from the sump will be periodically deposited into the concrete bunker, the distance to receptors and determined that the risk was medium. The delegated officer considered that the applicant's controls were insufficient to control the risk and regulatory controls were conditioned to ensure management of the operations. It is likely that solids from the sump will have an odour that could impact on the amenity of the closest receptors. As the proposed controls are critical for maintain an acceptable level of risk, the delegated officer imposed the applicant's controls on the licence to maintain as operational requirements.t	LIcence controls • Solids from the sump must only be temporarily stored in the concrete bunker for no longer than 24 hours prior to removal offsite by a licensed waste carrier.
	Sludge waste	Spills and seepage of untreated wastewater, sludge to soil and groundwater and overland runoff to surface water bodies	Wetlands contained within and adjacent to the premises. Capel River 280m from malt facility. Groundwater likely to be with 0.5-1mbgl of site. Premises contained within the buffer of 2 threatened ecological communities and priority ecological communities	Monthly monitoring of sludge levels, sludge removed as required, aeration tank stored on concrete hardstand within bunded wall. Refer to Table 4	Onsite impact mid-level, local scale impact low level C= Moderate The risk event may only occur in exceptional circumstances. L = Rare	The delegated officer has considered the applicant's proposed monthly monitoring for sludge build up within the sump and tanks, with sludge removed as required by a licensed contractor is and appropriate method to manage sludge levels within containments and to reduce the risk of spills and seepage. The delegated officer considered the applicant's controls, the distance to groundwater and conservation wetlands and determined that the risk was medium. As the applicant's proposed controls are critical for maintaining an acceptable level	No additional regulatory controls.

Risk events					Risk rating [1] C = consequence L = likelihood	Justification for additional regulatory controls	Regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**			
					Medium Risk	of risk, they will be imposed within the licence as operational controls.	
	Overtopping of containment, spills, and leaks of wastewater from containment tanks and pipe works			Shut off pumps, high level alarms on tanks and sump, aerator tank located on concrete hardstand within bund with a removable cover, contingency plan to removed storage tank volume when less than 30 kL capacity remains. Refer to Table 4	Onsite impact mid-level, local scale impact low level C= Moderate The risk event may only occur in exceptional circumstances. L = Rare **Medium Risk**	The delegated officer has considered that the sump and tanks have high level alarms installed, the aeration tank is located within a bunded area, the aeration tank has a removable cover that will be covered in winter, and that excess wastewater will be removed off site by a licenced contractor. The delegated officer considered the applicant's controls, the distance to groundwater and conservation wetlands and determined that the risk was medium. As the applicant's proposed controls are critical for maintaining an acceptable level of risk, they will be imposed within the licence as operational controls. The delegated officer considered that the removable cover on the aeration tank should be extend to shoulder months of winter to reduce the risk of rainfall overtopping containments.	Licence controls • The aeration tank must be covered from May to October inclusive to precent the ingress of rainfall.
Onsite disposal of wastewater via irrigation	Wastewater to land with excessive hydraulic loading and nutrients to land	Direct discharge to land contaminating soil, groundwater, and surface water bodies.	Wetlands contained within and adjacent to the premises. Capel River 280m from malt facility. Groundwater likely to be with 0.5-1mbgl of site. Premises contained within the buffer of 2 threatened ecological communities and priority ecological communities	Rotation and even application of irrigation areas. Soil moisture probes, groundwater levels monitored, winter wastewater storage, harvesting crops, stop irrigating when groundwater is 1.5 mbgl.. Refer to Table 4	Onsite impact mid-level, local scale impact low level C= Moderate The risk event will probably occur at some time. L= Likely **High risk**	The applicant has proposed various controls to prevent excessive hydraulic and nutrient loadings to land. These controls consisting of storage of wastewater from June to September with no irrigation, harvesting two crops each year, stopping irrigation when soil saturation occurs through a tensiometer, monitoring groundwater levels, stop irrigating when groundwater is above 1.5mbgl and undertaking water quality monitoring and removing treated wastewater when storage capacity is full. The delegated officer has reviewed wastewater samples from time limited operations and calculated wastewater nutrient loading and compared this to DPIRD nutrient exports rates for hay crops. Nutrient loading levels and export levels were similar. Only 7 months of groundwater levels have been provided, indicating that groundwater is likely to be above 1 mbgl for August and September. The delegated officer considered the applicant's controls, the water quality data of the treated wastewater and ambient groundwater, the distance to wetlands and groundwater and determined that the risk was high. As the applicant's proposed controls are critical for maintaining an acceptable level of risk, they will be imposed within the licence as operational controls. The delegated officer considered that the applicant's controls were insufficient to control the risk and regulatory management and reporting controls were conditioned. The delegated officer considered that limits for the soil tensiometer, nutrient loading and wastewater and groundwater monitoring and exceedance reporting were required.	Licence controls • Water quality concentration limits and loading limits. • Reporting of concentration exceedances. • Ambient groundwater and surface water monitoring. • Shut down of the irrigation system when the tensiometer reaches 10 kPa or less.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

Note 3: Conditions 5, 6, 7, 10, 11, 12, 13, 14 and 15 are standard reporting and sampling requirements.

6. Consultation

Table 7 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 20 July 2021	None received	N/A
Shire of Capel advised of proposal on 31 July 2023	The Shire of Capel replied on the 16 August 2023. Confirming that a permit to use the effluent and disposal system under the *Health (Treatment of sewerage and disposal of effluent and liquid waste) Regulations 1974* is on hold, until DWER issues a licence. The Shire of Capel reported that on inspection of the facility on 5 July 2023 the following was observed: • The concrete sump was uncovered and has concerns of odours emanating from the storage of wastewater containing solids/sludge. • The transfer, storage and removal of solid waste from the WWTP bund is requested to be clarified. • Accumulated spent grain was disposed on an adjacent property with the potential for odours, stable fly breading and nutrient leaching. • Irrigation was observed in June and July outside of DWER and Department of Health approvals.	The delegated officer notes this information and has assessed the operation and management of the WWTP, irrigation and solids (see Risk assessment Table 6).
The applicant was provided a draft on 31 August 2023.	The applicant replied on the 2 October 2023, refer to Appendix 1.	Refer to Appendix 1

7. Decision

Based on the assessment in this report, the delegated officer has determined the proposal to operate a malt manufacturing facility and irrigate wastewater to land at 1129 Ludlow Road North, Stirling Estate, with an assessed operational throughput of 500 tonnes of malt, does not pose an unacceptable risk of impacts to off-site receptors. This determination is based on the following:

- manufacturing occurs within an enclosed building,
- WWTP holds sufficient wastewater storage from June to September, and
- hydraulic and nutrient loading assessment indicates the treated wastewater for irrigation activities are appropriate for the soil and land capabilities of the site.

Conditions have been imposed on the licence based on the controls described above as they are considered reasonable and appropriate to maintain an acceptable level of risk.

The delegated officer determined to apply additional regulatory controls in the licence to monitor for any impacts of treated wastewater irrigated to land impacts to groundwater (and receiving surface water bodies) and to ensure that waste solids management is appropriately managed to reduce impacts on residential receptors. These include:

- treated wastewater and groundwater monitoring;
- treated wastewater irrigation water quality concentration and annual loading limits with reporting requirements;
- revised limit on the tensiometer from 5 to 10 kPa when irrigation must be automatically turned off, and
- 24-hour limit on the holding of solid sludge in the outside concrete bunker before being transported offsite.

The delegated officer is satisfied that the above controls, once implemented, will lower the overall risk profile of the premises, and ensure the food processing facility can operate in a manner that does not pose an unacceptable risk of impacts to public health and the environment.

8. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Primary Industries and Regional Development (DPIRD) 1991, Transpiration and water relations of irrigated peach trees at Manjimup, Western Australia, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. DWER 2021, *Works Approval W6398/2020/1 Mallokup Malt*, Perth, Western Australia
6. DWER 2021, *Decision Report W6398/2020/1 Mallokup Malt*, Peth Western Australia
7. Department of Water (DoW) 2008, *Water Quality Protection Note 22: Irrigation with nutrient-rich wastewater*, Perth, Western Australia.
8. Mallokup Malt Pty Ltd (2023) *Application and supporting documents*, Capel, Western Australia.
9. Monnit (2023) *How to interpret data from your soil moisture sensor*, South Salt Lake, Utah, United States of America Interpreting Soil Moisture Sensor Data (monnit.com),
10. NSW EPA 1998, *Environmental & Health Protection Guidelines: On site Sewerage Management for Single Households*. NSW EPA Technical Guidelines.
11. NSW Department of Primary Industries, *Prime Fact- Determining readily available water to assist with irrigation management,* Sydney, NSW Determining readily available water to assist with irrigation management (nsw.gov.au)
12. Shire of Capel (2023) *DWER correspondence DWERDT821601 - Email from Shire of Capel regarding Mallokup Malt Licence application including Department of Health approval 46.21*, Capel, Western Australia
13. US EPA 2006, *Process design manual, land treatment of municipal wastewater effluents. Report EPA/625/R-06/016*.
14. Victoria Department of Primary Industries, 2000, *Agriculture Notes: How to use tensiometers AG0298* How to use tensiometers (DPI Vic) (vgls.vic.gov.au), Melbourne, Victoria.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Decision report section 2.3	The Applicant indicated that solid waste is removed from the sump by a loader and transferred to plastic bins. The remaining solids in the sump are minimal.	The delegated officer notes this information and will update the decision report.
Condition 1 Table 1 Item 2c – enclosed sump	The sump is encircled on three sides by infrastructure and is protected by prevailing winds. Odour is restricted to the site. Enclosing the sump will create significant risk to operators of the loader that remove the solids. The Applicant requests that the sump must be covered is removed.	The delegated officer does not expect the sump to be enclosed that would create a risk to operators in the cleaning out process of the sump. A removable lid over the sump opening will provide free access to the sump for cleaning out, and prevent odours being emitted from the sump when operational. The condition will be reworded to: '*Sump must operate with a removable lid that covers the opening of the sump.'*
Condition 1 Table 1 Item 3 c - tensiometer	Tensiometer for irrigation cessation is 20 kPa. The Applicant has requested 5-10 kPa that is based on irrigation requirements in Manjimup for peach trees. This study indicates that at 30 cm below ground level for optimum moisture level tensiometer readings should be between 5 – 10 kPa for summer irrigation. In considering the soil at the site has a high level of clay with a low permeability a tensiometer at depth of 30 cm is likely to be into summer before 20 kPa is reached.	The delegated officer has reviewed the DPIRD Manjimup peach tree study and soil site report and agrees to reduce the tensiometer cease irrigation reading to 10 kPa for irrigation at 30 cm.
	The Applicant requested to know if there are opportunities to review the licence once they have more information on the operations.	The delegated officer notes this and advises that the licence holder can submit an application for a licence amendment to have licence conditions amended based on a risk assessment of the supporting documentation.
	The Applicant provided boiler emission data.	The delegated officer noted this information and considered the risk of emission from the boiler to be low, see Table 6 risk assessment.

Appendix 2: Loading rates 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): monthly concentration of parameter (TN, TP or BOD) in mg/L * monthly volume of wastewater irrigated to irrigation area (kL) ÷ 1000 size of irrigation area *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.