Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for a licence amendment

Division 3, Part V *Environmental Protection Act 1986*

Licence number	L8876/2015/2
Licence holder	Sassey Pty Ltd
ACN	008 996 156
File number	DWERVT16359 APP-0026181
Premises	Wise Wine winery 237 Eagle Bay Road NATURALISTE WA 6281 Being Lot 101 on Plan 28068 and Lot 53 on Diagram 54855
Date of report	05/05/2025
Decision	Amendment Granted

1. Scope and purpose of assessment

1.1 Application background and summary

Background

Licence L8876/2015/2 is held by Sassey Pty Ltd (licence holder) for the Wise Wine winery (the premises), located at 237 Eagle Bay Road in Naturaliste, about 2.5 km southeast of Dunsborough. The premises relates to Category 25, with an assessed production capacity of 1,800 kilolitres of wine produced per annual period.

The premises consists of a vineyard, cellar door, restaurant, onsite accommodation, winery processing facility, wastewater treatment plant (WWTP), three dams and about 14 ha of remnant vegetation. The licence holder has operated the winery since the early 1990s. All winery processing infrastructure is contained within a concrete hardstand area, which includes drains around the perimeter and the capacity to pump stormwater to the WWTP collection sump in heavy rainfall events. The treated wastewater is discharged through a canon sprinkler system to a 4.5 ha paddock on the premises.

Application summary

On 24/9/2024, the licence holder submitted an application to amend licence L8876/2015/2, under Division 3 Part V of the *Environmental Protection Act 1986*. The licence holder has applied to amend their licence as they have changed the type of activity and processes at the site by installing 2 stills and producing alcoholic spirits on site. The production of the spirits at the proposed capacity increases the amount of wastewater irrigated to land and ultimately changes the composition and nature of the wastewater stream.

2. Amendment review

2.1 Location and site

2.1.1 Groundwater

The premise is situated on the Leeuwin Naturalist ridge, meaning there is no confined aquifer beneath it, rather just a surficial aquifer which is recharged predominantly by local rainfall and surface drainage. Surficial aquifers will vary in depth depending on the site and will typically sit above weathered bedrock.

2.1.2 Significant nearby habitat

The premises slopes West to East, with the irrigation area situated approximately 200m uphill from Meelup Brook. Meelup brook is a freshwater non-perennial stream which runs through Meelup regional park and into Meelup Beach. Meelup regional park is an ‘A’ class recreation and conservation reserve and is home to 6 conservation significant fauna, including the critically endangered Western Ringtail Possum.

2.1.3 Rainfall

Rainfall data for Cape Naturaliste weather station (ID:009519), between the years 1991-2020, and pan evaporation data from Wilyabrup (ID: MR001) is portrayed in Table 1 and shows that rainfall exceeds pan evaporation in the months on May, June, July and August, which are also the wettest months of the year.

Table 1. Rainfall and pan evaporation data for local area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Rain (mm) Cape Naturaliste	11	8	24	34	102	128	142	113	75	36	26	12
Mean Pan evaporation (mm) Wilyabrup[1]	248	205	165	110	74	53	59	74	102	145	189	235
Mean Daily pan evaporation (mm)[2]	8	8	6	4	3	2	2	2	4	5	6	8

1. Mean monthly pan evaporation data range 2013-2024
2. Mean daily pan evaporation data range 2022-2024.

2.1.4 Soils

Lateritic gravelly loam soils are characteristic of the upper slopes in Meelup. Site specific soil composition is unknown as a detailed site investigation has not been done.

Delegated officer summary: There is sensitive ecological areas nearby, and it is likely that any excess nutrients which infiltrates through the soil will hit the surficial aquifer bedrock and run downhill into this area via Meelup Brook. This will be considered when determining irrigation controls. There are also no up to date site soil characteristics and no Winter irrigation management controls in place which will need to be addressed through the development of a Wastewater Management Plan (WMP).

2.2 Distilling wastewater characteristics

Depending on the distillery method, it is estimated that distilling generates between 10 – 32 litres of wastewater per litre of spirit (Kharayat 2011). If the licence holder is to produce 450L of spirits, it could equate to 14,400L of distilling wastewater per annual period.

As depicted in Figure 1, wastewater from distilling is of a poorer quality than that of winery wastewater. Distilling wastewater generally has higher TSS, TDS, BOD, Kjeldahl Nitrogen, sodium, TP, Calcium, Magnesium, SAR and potassium and a lower pH.

Table 2: General characteristics of untreated winery and distillery effluent (NWQMS 1998).

Analysis	Distillery	Winery vintage	Winery non-vintage
Suspended solids (mg/L)	5000-30,000	100-1300	100-1000
pH	3-5	4-8	6-10
Total dissolved solids (mg/L)	1100-4500	<550-2200	<550-850
Biochemical oxygen demand (mg/L)	13,000-35,000	1000-8000	<1000-3000
Total organic carbon (mg/L)	1000-15,000	1000-5000	<1000
Total Kjeldahl nitrogen (mg/L)	500-1700	5-70	1-25
Sodium (mg/L)	260-540	110-310	250-460
Total phosphorus (mg/L)	100-400	1-20	1-10
Carbon:nitrogen:phosphorus	10-50:4:1	30-100:4:1	15-30:5:1
Calcium (mg/L)	90-140	13-40	20-45
Magnesium (mg/L)	70-100	6-50	10-20
Sodium absorption ratio (SAR)	8	4-8	7-9
Potassium (mg/L)	1300-2100	80-180	40-340

Delegated officer summary: Wastewater from distilling is of poor quality and an increased risk to the environment when irrigating. There is currently nutrient irrigation loading limits on the licence, which will need to be revised to ensure they are relevant, through the development of a WMP.

3. Risk assessment

The table below describes the risk events associated with the amendments consistent with the *Guidance Statement: Risk Assessments* (DER 2017). The table identifies whether the risk events are acceptable and tolerated, or unacceptable and not tolerated, and the appropriate treatment and degree of regulatory control, where required.

Table 3: Risk assessment of proposed activity

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk[1]	New regulatory controls to be added to licence	Reasoning
Source/ Activities	**Potential emissions**	**Potential receptors, pathway and impact**	**Licence holder controls**					
PROPOSED AMENDMENT								
Irrigation of wastewater from winery **and distillery** to 4.5 ha Land Application Area (L1)	On-site irrigation of nutrient-rich wastewater	Surficial water table running into Meelup Brook and overland runoff – infiltration of nutrients through the soil and over land run off occurring if irrigation occurs when soils are saturated. Increased nutrients can impact waterway health, causing events such as algal blooms. Soil degradation through watering of nutrient and salt rich wastewater that can cause soils to become sodic/highly saline and preventing future growing capacity.	The applicant did not propose any new controls to manage irrigating with wastewater consisting of both winery wastewater and distilling wastewater.	**Moderate**	**Likely**	**High** Acceptable, subject to multiple regulatory controls	1. Production limits for wine and spirits produced each annual period. 2. Installation of a flowmeter on the outlet pipe of the irrigation tank that irrigates L1 and photographs of end of month meter reads. 3. Controls regarding wastewater drainage to the WWTP. 4. The licence holder must by 30 September 2025, submit to the CEO a WMP. 5. Vegetation in L1 is harvested at least once per annual period. 6. No livestock to be allowed in L1 after seeding/during growing season. 7. Irrigation system valves, pumps, pipelines, and other fittings must be kept in working order with no leaks and be routinely inspected for ruptures or leaks when irrigating. 8. Irrigation must not be undertaken 12 hours before forecasted, during or 24 hours immediately after a rainfall event of 5mm. 9. Addition of emissions limits for pH and SAR:EC ratio 10. Addition of Sodium Ion, Calcium ion, Magnesium ion, SAR to water testing	1. The licence holder has the capacity to exceed these limits, therefore placing a limit on their production to match what this risk assessment was assessed on, is seen as necessary. 2. The flowmeter is currently situated before the final irrigation tank, on the pH tank. The meter needs to be installed on the outlet of the irrigation tank (final tank) to accurately reflect the amount of water being irrigated to L1. A photograph at the end of each month of the flowmeter is to ensure DWER can verify the amount of wastewater that has been produced and irrigated. Current FM1 Serial Number: 16016323. 3. These conditions ensure all wastewater from the premises is contained and diverted to the drainage system the leads to the WWTP and the system is working accordingly so there is no uncontrolled release of untreated wastewater to the environment. 4. Currently there is no site-specific nutrient loading rates for nitrogen and phosphorus that have been determined, and the licence holder has failed to grow a crop in recent years. The current wastewater nutrient irrigation limits for the site are taken from Table 2, Water Quality Protection Note 22 (WQPN) which are now deemed inadequate. The WQPN gives general limits which are currently under review, with the document carrying a disclaimer saying the limits stated in this WQPN should not be used. Therefore, site specific information and a nutrient off take/harvest strategy need to be developed to ensure a nutrient balance on the site. The WMP must also assess the risks associated with irrigating throughout Winter, when rainfall exceeds the pan evaporation rate. This is to ensure that when irrigation is occurring it is necessary for the plants, and efficient whilst also ensuring any excess nutrients do not leach through the soils into the water table. 5. Nutrient inputs (via wastewater) should be balanced by the nutrient offtake (plant nutrient uptake and harvesting). The nutrients from wastewater irrigation help condition the soil, and the plants absorb the nutrients from that soil. Harvesting a crop is crucial for a nutrient off-take strategy because it involves the removal of the nutrients that have been absorbed by the plants off site, enabling the nutrient balance to take place. No harvesting of a crop has occurred in recent years on site, meaning no nutrient balance has occurred and the excess nutrients are left on the site and in the soil which can hen penetrate through the soil and into the water table. 6. Livestock in the irrigation area add extra nutrients to the irrigation area via their waste and can damage growing plants, meaning the uptake of nutrients is not as efficient as it needs to be. Livestock have been seen in the irrigation area via satellite imagery. 7. A burst irrigation line occurred in L1 throughout last year, “possibly from grass slasher impact, which was left unreported.” This resulted in visible pooling and saturation of the soils, and it is unknown how long it was left unattended. 8. To prevent increased run off, pooling, waterlogging of the soils and penetration of excess nutrients from wastewater into the water table and nearby stream. 5mm is the average daily pan

								evaporation rate throughout the year. 9. Both SAR:EC ratio and pH are crucial in keeping soil health at a level where crops can grow. Distilling wastewater is typically acidic(pH <6) and has a high SAR. High SAR values present a greater risk of soil sodicity and reduced infiltration. Acidic water can contribute to soil acidification, which can further exacerbate nutrient deficiencies. Monitoring these parameters and ensuring the licence holder stays within the limits will help manage any environmental impacts to the soil. 10. These parameters help determine soil structure and health. As shown in Figure 1, distilling wastewater has high levels of sodium, calcium and magnesium. High levels of these parameters can cause sodic soils, nutrient uptake issues and infiltration/drainage issues within the soil. They also have an effect on freshwater streams with high sodium levels increasing salinization.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guidance Statement: Risk Assessments (DER 2017).

4. Decision

The delegated officer grants the licence amendment as it is determined the proposal to irrigate with wastewater generated from the production of both wine and spirits making is acceptable if further conditions relating to the management of wastewater and the irrigation area are imposed. The overall increase in volumes of wastewater expected from the distillery is minimal, but distillation does change the nature and quality of wastewater that is irrigated.

Existing controls on the licence are considered slightly inadequate for regulating the management of wastewater and irrigation practices on the premises. To address any potential impacts to the nearby Meelup Brook and regional park, and to the soils in the irrigation area, additional regulatory controls detailed in Table 3 have been added to the Licence. Furthermore, the development of a WMP will ensure a review of current irrigation practices and nutrient loading limits, which will enable the licence holder to better manage their irrigation of wastewater practices.

The delegated officer has also taken this amendment application as an opportunity to update the format and layout of the licence conditions and extend the expiry date of the licence.

In amending the licence the department 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.

4.1 Licence holder comments on draft decision

The licence holder was provided a draft version of the licence along with this decision report on 8 April 2025. No comments were received.

5. Conclusion

Based on this assessment, it has been determined to grant an amended licence subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments.

Table 2 provides a summary of the proposed changes and will act as a record of implemented changes.

Table 4. Summary of licence amendment changes

Previous condition	New Condition no.	Proposed changes
-	1	Production limits of wine and distilled beverages added
-	2	Condition requiring the location of flowmeter FM1 to be installed on the outlet of the irrigation tank.
1,2,3,4	3	Operational requirements all consolidated into Table 1.
-	4	New condition requiring development of a WMP.
5	5	Change of BOD requirement to /kg/ha/month. Addition of pH and SAR:EC limits.
10	10	Addition of Sodium ion, Calcium Ion, Magnesium Ion, SAR to parameters.
15	15	Addition of “no later than” to sentence requiring a submission.
15	15 Table 5	Addition of new requirements to be submitted under AER.

		Photographs of the end of month readings of the flow meter. Amount (tonnes) of sludge removed from the aeration tank for off-site disposal. Volume/mass (tonnes) of harvested biomass within irrigation area. Type (species) of crop(s) planted and harvested within irrigation area. Month the crop(s) were harvested within irrigation area. Groundwater monitoring data in tabulated and graphical formats including the sampling date, including at least the last 5 years (once available) of data for comparison. An assessment and interpretation of the data including comparison to historical trends. Copies of laboratory sample analysis reports. Monthly volumes of water irrigated to land. Tabulated loadings of nitrogen, phosphorus and BOD applied to irrigation area (L1) including an explanation of the basis for determining loading rates. SAR & EC values plotted on Figure 4 graph. A summary of the amount of fruit accepted for crushing/processing at the premises and a summary of the amount of crushed (already processed) fruit accepted from third parties.
16	-	Condition removed as consolidated into Table 8

Caron Goodbourn
MANAGER, PROCESS INDUSTRIES
An officer delegated by the CEO under section 20 of the EP Act

References

1. Department of Environment Regulation (DER) 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
2. Department of Water (2009), *SouthWest groundwater areas allocation plan*, Perth Western Australia.
3. Department of Water (2008), *Water Quality Protection Note 22: Irrigation with nutrient-rich wastewater,* Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Decision Making*, Perth, Western Australia.
5. Geographe Catchment Council 2006, *River Action Plan for the Cape Naturaliste Streams,* Busselton, Western Australia.
6. Grape and Wine Research and Development Corporation 2011, *Winery Wastewater Management & Recycling: Operational Guidelines,* Adelaide, Western Australia.
7. Kharayat, Y, 2012, *Distillery wastewater: bioremediation approaches*. Journal of Integrative Environmental Sciences *9*(2).
8. National Water Quality Management Strategy, 1998, *Effluent Management Guidelines for Australian Wineries and Distilleries,* Artarmon, New South Wales.

9. Sassey Pty Ltd, 2024, *Application and supporting documents for licence amendment L8876/2015/2*, Naturaliste, Western Australia
10. Sassey Pty Ltd, 2024, 2024 Annual Audit Compliance Report. August 2024
11. Sassey Pty Ltd, 2024, email from Jake Bacchus, *Amendment submission*, September 2024