Amendment Report

CEO initiated licence amendment

Division 3, Part V *Environmental Protection Act 1986*

Licence number	L7359/1995/10
Licence holder	Oakover Vineyards Pty Ltd
ACN	009 359 835
DWER file number	APP-0026235 / DEC35/1~2
Premises	Oakover Wines 148 Dale Road MIDDLE SWAN WA 6056 Legal description - Lot 103 on Plan 77141 As depicted in Schedule 1
Date of report	03/10/2025
Decision	Amended licence granted

1. Scope and purpose of assessment

1.1 DWER initiated licence review

On 21 August 2024, the department initiated a review of licence L7359/1995/10 held by Oakover Vineyards Pty Ltd (the licence holder) under Division 3, Part V of the Environmental Protection Act 1986 (EP Act) for Nikola Estate (the site or premises) in Middle Swan, a Category 25 alcoholic beverage manufacturing with a nominated crush capacity of 10,000 tonnes per year and a *production capacity* of 7000 kilolitres of wine manufactured per annual period.

The review was initiated and undertaken consistent with the department's published licence review framework which includes the *Guideline: Industry Regulation licence reviews* and *Procedure: Industry Regulation licence reviews*. The review of this licence was as a response to the findings of a series of reviews of the licence holders annual environmental reporting.

Alcoholic beverage production such as wineries can have significant environmental impacts through nutrient export in the absence of adequate waste management practices (dealing with the treatment wastewater and solid wastes) and require site-specific risk-based regulatory controls.

The scope of this review considers factors such as infrastructure and activities utilised to minimise, monitor, or control risks associated with the production, handling, storage, and emissions of various wastes produced at the premises and will also include:

- an update of the format of the licence;
- previous licenses issued to the licence holder;
- a review of the risk profile of emissions from the premises;
- a review of the current licence conditions with regard to adequacy and appropriateness for current activities or operations on the premises;
- review whether any additional regulatory controls are required to mitigate risk or emissions; and
- consider current scientific knowledge related to the operations on the premises.

Under section 59 of the EP Act the department may amend a licence at any time. Based on the outcomes this licence review, the department will give effect to the findings in accordance with the procedure specified in section 59B of the EP Act.

1.2 Regulatory framework

In completing the assessment documented in this Amendment Report, 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.

1.3 Background

Site history

The premises is located in Middle Swan, by the Swan River with Jane Brook running through. Wine production has been occurring at the site since 1859 and was first licensed in `1995 with a nominated crush capacity of 10,000 tonnes per year producing between 3,500 and 4000kL of wine per year, with approximately 8.5 ML of wastewater reported being irrigated to land each year. In 1996, 4.02 Ha of vineyards were converted to a woodlot planted with Blue Gums and in 2007 1 Ha of the irrigation area was planted with 125 date palms. Very few of the planted trees remain having been replaced with grass.

Core winemaking activities are mainly undertaken during the vintage months of January - March when the bulk of wastewater is produced. Wastewater from the plant is directed to a concrete lined sump which also receives stormwater from hardstand areas and excess

stormwater collected from the roof of the processing shed. Treatment of wastewater consists of settlement and filtration after dilution with stormwater. From the sump the wastewater is directed to two 45,000 litre above-ground closed tanks in which solids settle prior to filtration through a disc filter. From the second tank wastewater is pumped for irrigation onto a 4.02 ha area which used to be planted to date palms and blue gums. Approximately 8.5 ML of wastewater was irrigated each year.

In 2015 the Department re-assessed emissions and discharges from the premises and as a result added a requirement to the licence to develop a Nutrient Irrigation Management Plan (NIMP). The NIMP was received in October 2016 (KASA 2016).

Background for initiating review

This review was commenced because of a series of annual environmental reports (AER) and annual audit compliance report (AACR) reviews undertaken by the department found elevated levels of nutrients in soil and groundwater sampling, exceedance of licence limits for nutrient loading, outdated waste management practices regarding the irrigation area sizing and crop.

Annual reporting reviews

The department conducted AER/AACR reviews on the following reporting periods with key findings summarised below:

2021/2022:

- 2,349 tonnes of grapes crushed equalling approximately 1,644.3 kL of wine produced (kL of wine was calculated from tonnes of grapes to kL of wine at a ratio of 1:0.7).
- Noted that treated wastewater irrigation may be causing pollution to groundwater and soil due to elevated levels of total nitrogen and phosphorous, and highly saline groundwater.
- Acidic pH in irrigated wastewater (pH of 4).
- Significantly high levels of BOD in January to March, and June.
- Majority of wastewater occurring in the wet winter months when soil is saturated, groundwater table is elevated and nutrient/water uptake by vegetation is low.

2022/2023:

- 2,276 tonnes of grapes crushed, and 1,676 kL of wine produced.
- A period of non-reporting (March, April, May 2023) for treated wastewater discharge monitoring, this was explained as “failure or malfunctions”, but no further reasoning was stated.
    - During this period of non-reporting treated wastewater pH significantly increased from 4.7 to 11.
- Noted trends consistent with the previous review (2021/2022) of elevated nutrient levels in groundwater and soil but did see a decrease in total phosphorous levels in the groundwater monitoring.
- Significantly high levels of BOD consistent with the previous reporting period.
- 34% of total treated wastewater irrigation occurred in the wet winer months (June-August).
- *On 07 December 2023, the licence holder stated in response to the review that the trees in the irrigation had been removed and replaced with kikuyu grass pasture due to the trees dying and becoming a fire hazard.*

2023/2024:

- 1,740 tonnes of grapes crushed, and 1,246 kL of wine produced.

- Loading rates were recalculated as the assessing environmental officer noted the incorrect land application area size being used which found exceeding application of BOD to soil.
- High acidity in the sampled treated wastewater for months November, and January - May.
- Significantly high levels of BOD consistent with the previous reporting period.
- No treated wastewater irrigation occurring in May, June and July.
- Noted trends consistent with the two previous reviews (2021/2022 and 2022/2023) of elevated nutrient levels in groundwater and soil but did see a decrease in total phosphorous levels in the groundwater monitoring.

In August 2024, the department notified the licence holder of the commencement of a licence review which included a request for further information.

On 28 October 2024, the licence holder provided the following information in response to the review notification:

'Licence assessed production capacity

We are considering an annual production capacity of 2500T (1750 kL of wine) *for this current review. Although we believe that we will be processing a lot less than this in the next few years, this represents a contingency for an increase in the future. Only wine is produced.*

If maximum 2500T is made into wine, 750T (ie 2500 x 0.3) of marc would be produced and approx. 5M L of wastewater would be produced (ie 2500 x 700 x 2.8).

Premises Infrastructure

Shown on MAP 1 - Location of infrastructure

Key infrastructure

Crushers

Presses

Pumps

Chiller

Tanks

Filtration system - Crossflow

Oak barrels

Barrel washer

Hot water system

Cold water supply (mains)

Gas Supply CO2 and N2

Air compressor

Shown on Map 2 – Location of water storage ad treatment infrastructure

Key Infrastructure

Initial holding sump tank

Delivery pump to the system from sump

Primary Aeration and heavy solids removal screen

Secondary Aeration and light solids removal screen

Primary settling / holding tank

Secondary holding tank

Irrigation pump

Heavy duty water filters

Irrigation system for dispersal of wastewater – area shown on MAP 2

Discharge of treated wastewater and land area

A new irrigation area has not been proposed – land area, flow meter location and sample tap, sprinklers and piping are the same, soil and water sampling points have not changed. We have received and are discussing further a NIMP proposal and quote from a consultant. Final meeting is next week to finalise options for the plan. We will then know if the current irrigation system discussing further proposed volume. The most up to date treated wastewater, soil and ground water results and discharge volumes are found in our annual report for the department – August - July 23/24

Solid waste (marc) management

Shown on MAP 1 – Location of marc collection area.

We have a space available at the production facility – bunded concrete, with drainage of leachate into the wastewater treatment plant. This area will be for short term (up to 1 week) storage and then marc will be removed off site. Annual maximum estimated tonnage of marc will be 750T'

2. Premises overview

2.1 Wastewater treatment and disposal system.

Wastewater treatment and disposal

Winery wastewater is treated by stormwater dilution and by the wastewater treatment plant (WWTP) (JJC 2021). Winery wastewater and stormwater is directed to a concrete lined settling sump, then undergoes settling in the primary and secondary settling tanks, then finally filtration through a disc filter before being irrigated to land. Sludge is removed from the WWTP and taken offsite by a licenced operator along with lees from the fermentation process (the lees do not enter the WWTP).

Treated wastewater is then pumped from the second holding tank through a flowmeter to a 1.9 ha irrigation area where wastewater is distributed by fixed sprinkler irrigation.

In the 2021/2022, 2022/2023 and 2023/2024 annual period approximately 6,534 kL, 8,474 kL and 2,713 kL respectively of treated wastewater was irrigated to the land application area. The licence holder expects to produce 5 ML of wastewater from their assessed production capacity (1,750 kL).

Solid waste (marc) management

Marc currently is transported to the marc pad ~1.3km Northeast from the winery building. The licence holder anticipates a total of 750 tonnes of marc produced per annual period derived from 2500 tonnes of grape crushed and 0.3 tonnes of marc per one tonne of grape.

On 10 January 2024, the licence holder stated that they have an alternative location for the storage of marc wastes located at the winery production shed. This is a concrete bunded pad with leachate directed to the WWTP.

Key Findings: There is a lack of information on the marc pad including having no description of permeability, size specifications or of leachate management. As a result, the marc storage area will be relocated to the concrete marc collection area located in the winery production shed.

2.2 Monitoring data and nutrient offtake plan

As required by licence L7359/1995/10 the licence holder must monitor the treated wastewater, groundwater and soil. Monitoring results are submitted annually as an annual environmental report, the results of this monitoring are summarised below.

2.2.1 Treated wastewater monitoring

Volumetric flow rate, pH, total nitrogen (TN), total phosphorous (TP), total dissolved solids (TDS) and BOD are sampled monthly in the treated wastewater. Monitoring results of nutrients in the treated wastewater taken from reporting periods between years 2023 - 2024 are summarised in Table 1 and results discussed below.

No sampling of potassium occurred in the winery treated wastewater; potassium typically occurs in high concentrations of winery wastewater (GWRDC 2011).

It should be noted that wastewater monitoring results were taken during an annual period of low rainfall meaning there was little dilution from stormwater as has occurred in previous annual periods. It's also noted that during the vintage season, when the volume of winery wastewater generation is at its highest, nutrient levels are also at their highest. These factors show that the WWTP is inadequate at treating the high volumes of wastewater and is reliant on stormwater dilution to reduce nutrient concentration.

Table 1: Treated wastewater monitoring summary (2023-2024).

Month/ Year	pH	TN (mg/L)	TP (mg/L)	TDS (mg/L)	BOD (mg/L)
Guideline limits[1]	**5 – 8.5[2]**	**25-125[1]**	**0.8-12[1]**	**704-2112[2]**	**-**
August 2023	6.5	7.2	1.2	160	560
September 2023	5.8	9.9	2.4	180	790
October 2023	7.1	24	6.5	390	1900
November 2023	5.4	110	16	360	1700
December 2023	6.9	36	11	300	1400
January 2024	4.2	10	7.3	1280	5400
February 2024	4.5	22	7.8	1160	4700
March 2024	4.2	41	8.3	400	2000
April 2024	4.9	38	6	350	1700
May 2024	4.3	5.14	9.1	1080	4300
June 2024	5.6	17	5.1	540	2700
July 2024	7.1	1.2	0.3	10	92

Average	**5.5**	**26.8**	**6.8**	**517.5**	**2270**
Range	**2.9**	**108.8**	**15.7**	**1270**	**5308**

[1]ANZECC and ARMCANZ 2000, note: these values require site evaluation to determine guidelines.

[2]GWRDC 2011

Red text indicates values exceeding the upper guideline limit or outside the range of guideline limits.

Blue text indicates values exceeding the lower guideline limit.

pH

For months of January – May 2024 the pH of the treated wastewater was consistently outside the range of the guideline's limits for irrigation quality. These values were all below the lower guideline limit characterising the wastewater acidic.

To address the acidic pH in treated wastewater emission limits for pH will be added to the licence based on guideline values.

Nitrogen and phosphorus

Nutrients of total nitrogen and total phosphorus were generally above the lower limit of the guideline range. Average nitrogen was above the lower limit of the guideline range by 1.8 mg/L but demonstrated a high range in values. Phosphorous had all but one result over the lower guideline range and one above the upper limit.

Total dissolved solids (TDS)

The TDS of the wastewater were generally below guideline limits with three values exceeding the lower limit.

TDS fluctuated mostly during vintage months, indicating that factors like chemicals in washdown water and vintage processing stages may be impacting on salt levels within WWTP with potential long-term impacts to plant and soil health.

BOD

BOD concentrations were shown to spike during the wine vintage months when wine production is at its highest. It also significantly decreases during the non-vintage wet winter months when stormwater inputs are their highest.

Key Findings: There's an absence of sampling of electrical conductivity (EC), potassium, sodium adsorption ratio (SAR), and ions for sodium, calcium and magnesium in treated wastewater. These will be added to the treated wastewater monitoring parameters in the amended licence due to their relevance and typical abundance in winery wastewater (DWER 2025).

In order to protect soil quality and ensure plant growth, emission limits for pH and the SAR:EC relationship will be included in the amended licence.

2.2.2 Soil and Groundwater monitoring

Soil and groundwater were sampled by the licence holder at three different locations. Soil was analysed for parameters pH, sodium, magnesium, calcium, total kjeidahl nitrogen, total available phosphorous and total organic carbon. Groundwater was analysed for parameters water level, pH, total nitrogen, total phosphorous, TDS and BOD.

As mentioned in the AER reviews, nitrogen and phosphorous were at elevated levels with indication that nutrients may be leaching through the soil profile to groundwater. Soil site 2 was focused on due to it being located inside the land application area which shows direct effects of treated wastewater irrigation on soil composition. Monitoring data is visualised below in Figure 1 with results discussed.

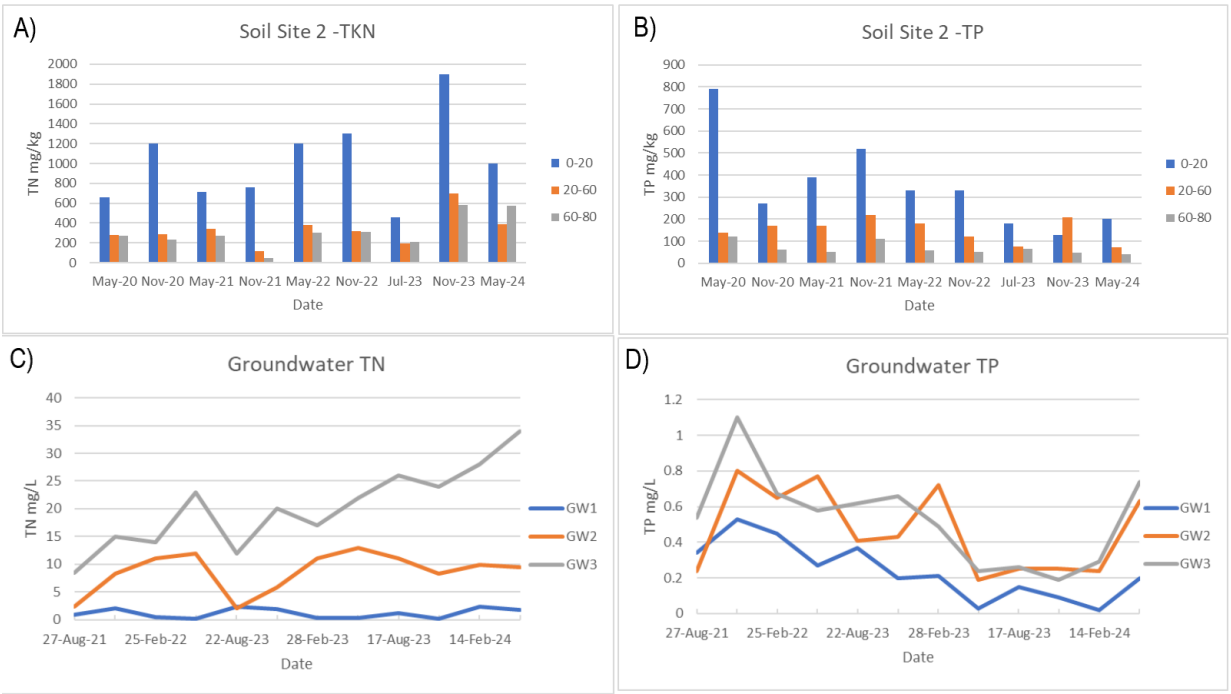

Figure 1: Concentrations of nitrogen and phosphorous taken from monitoring data for soil and groundwater between May 2020 to May 2024 and August 2021 to May 2024 respectively. A): Total Kjeldahl Nitrogen (mg/kg) at soil site 2 taken from three depths (cm) 0-20, 20-60, 60-80. B): Total available phosphorous (mg/kg) at soil site 2 recorded at three depths (cm) 0-20, 20-60, 60-80. C) and D): Total nitrogen (C)) and total phosphorous (D)) (mg/L) recorded at three groundwater monitoring bores.

Nitrogen

Nitrogen in all soil depths showed a positive linear trend over the recorded months with gradual increases in concentration, results in the month of May were generally less than November with May 2022 being the only outlier. Groundwater results have been consistent in GW1, with GW2 showing a minor positive linear trend. GW3 shows the highest positive linear trend in nitrogen concentration over time.

Phosphorus

Available phosphorus in soil showed a negative linear trend in the soil profile decreasing in all soil depths with the largest decrease happening in the topsoil (0-20cm). Groundwater total phosphorous results were on a downwards trend up until recent reporting where they have increased in concentration. It's noted that for phosphorous two different tests are undertaken in soil and groundwater monitoring, meaning that phosphorous concentration results in soil may not be a clear indication in the amount of phosphorous leaching through the soil profile to groundwater. Consistent sampling of parameters is necessary to evaluate trends.

Key Findings: From the above monitoring results and high concentrations in treated wastewater indicate that nitrogen and phosphorus may contaminating groundwater. A lack of soil sampling information for the form of nutrients and of salts/ions is noted. The following parameters will be added to the amended licence for soil monitoring: total Kjeldahl nitrogen, total phosphorous, electrical conductivity, cation exchange capacity, phosphorous buffering index, exchangeable sodium percentage, and potassium.

The following groundwater monitoring parameters will be added to the amended licence: total Kjeldahl nitrogen, total reactive phosphorous, and electrical conductivity.

As the majority of high nutrient treated wastewater is irrigation during the vintage months the

current soil sample schedule of July and November may be insufficient in providing an accurate understanding of the effect of treated wastewater irrigation to the soil profile. The licence will now require soil sampling to be undertaken in the months of April and October.

2.2.3 Nutrient offtake and water balance

Currently the licence holder irrigates to a portion of the land application area reflected on the current licence, within that area they've also switched vegetation from trees to a kikuyu grass pasture. Previously a nutrient and irrigation management plan (NIMP) as part of the licence conditions, was submitted by the previous licence holder, Accolade Wines (KASA 2016). No amendment of the licence to reflect the NIMP was assessed by the department.

Additionally, a concept design for an updated WWTP was commissioned by the current licence holder with no evidence of recommendations implemented on premises (JJC 2021). The licence holder pledged to submit an updated NIMP and water balance to reflect the risk associated with the licence holder's irrigation practices. This was requested by the department to be completed by 31 July 2024, with an extension requested by the licence holder for 31 October 2024, an extension was given till 31 August 2024. No NIMP has yet been received by the department.

Kikuyu is a grass species usually selected for its capability of taking up nitrogen and phosphorous. It has its highest growth rate during the warmer summer months and when healthy is green in appearance, it then becomes dormant over the winter months with little to no growth occurring and browning or yellowing of the grass occurs. To achieve high yields the crop requires continual maintenance as yield can decrease if the grass grows too high (Local Land Services 2021). The new irrigation area is ~1.9 ha from the previous 4.02 ha with a reduction of 2.12 ha (52.7% decrease).

Calculations on nutrient uptake and offtake of kikuyu grass were calculated and shown in Appendix 2. These calculations were determined with a conservative approach, that nutrient offtake of 235 kg/ha/year and 30 kg/ha/year for nitrogen and phosphorous respectively. Recent spatial imagery taken on 22 March 2025 of the land application area shows marginal green grass growth (Nearmap 2025). It's noted that previous imagery in December 2024 there's evidence of green grass growth.

Currently treated wastewater storage is 90 kL made up of the two settling tanks 45 kL each. This means that under the high wastewater generation year of 2022/2023, at an average 32.6 kL of wastewater produced daily (assuming production and irrigation occurs over 5 days a week) the storage will be exceeded in under three days. The licence holder has stated that tanks are available for winter storage but did not state the sizes or specifications of the tanks.

Key Findings: Based off the nutrient offtake calculations in Appendix 2, the licence emission loading limits values for nitrogen and phosphorous will be amended to reflect current the nutrient offtake of the land application area.

Pasture management conditions will be added to the licence to ensure that kikuyu grass is harvested and removed from the land application area and premises.

3. Risk assessment

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

Table 2 below summarises the key emissions and discharges which are deemed to be a risk as part of this decision report. Table 2 also includes the controls and commitments made by the licence holder in correspondence that was in response to the review notification and in response to the department's review of the licence holders Annual Environmental Reports (AER) and requests for more information.

Table 2: Licence holder controls

Emission	Source and pathways	Licence holder controls and commitments
Wastewater	Unintentional leaks and spills from containment infrastructure, pipes, drains and sumps and the WWTP discharging to soil or groundwater.	• Winery is situated on concrete hardstand that is graded and drained to direct all wastewater and stormwater that falls on the hardstand area to a series of concrete sumps with wastewater directed to sumps draining to the WWTP. • Sump located outside is equipped with a high-level alarm. • WWTP is situated on a concrete hardstand with no bunding. • Sludge is removed from the sumps and WWTP for off-site disposal by a licensed liquid waste contractor. • Lees do not enter the WWTP and are removed offsite. • Bottling of wine occurs offsite.
	Intentional irrigation of nutrient rich treated wastewater to the land applicational area seeping past the rootzone and causing soil and groundwater contamination.	• Kikuyu grass is already growing in the irrigation area, we will seed the areas where the grass isn't growing as well to ensure the 1.9 ha area has full coverage (email dated 10/01/2024). • Kikuyu grass vegetation cover is maintained over the 1.9 ha of land application area to take up nitrogen and phosphorous. The kikuyu grass will uptake 145.1834 kg-N/ha/year as well as 29.26177 kg-P/ha/year (email dated 10/01/2024). • Grass clippings are collected and removed offsite. This will be done by allowing the grass to grow taller before cutting and baling up for sale. (email dated 10/01/2024). • Licence holder made a commitment to prepare and submit an updated NIMP and licence amendment application by 31 October 2024 (email dated 14/05/2024) *An updated NIMP or licence amendment application is yet to be received.* • Over the wet months wastewater will be stored in winery storage tanks until the soil has had time to dry. This will hopefully mitigate the lack of wastewater during the drier months leading up to January (email dated 10/01/2024). • Committed to submitting a licence amendment application for 'interim winter wastewater

		storage tanks, proposed wastewater dam system as well as the current irrigation area (email dated 10/01/2024).
Solid wastes (marc)	Leachate from the storage of marc outside of impervious containment causing soil and groundwater contamination	• All marc will be stored on the concrete hardstand which is connected to our wastewater drain system. This marc will be collected and removed every 1 or 2 days by Techmont (our earth works contractor) and disposed on appropriately. (email dated 10/01/2024). • Marc collection area is concrete and bunded with drainage of all leachate to the WWTP. • Marc is taken off-site for disposal.

3.1.2 Receptors

Table 3 below provides a summary of the nearby human and environmental receptors that may be impacted as a result of activities producing emissions and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 3: Nearby sensitive receptors

Human receptors	**Distance from prescribed activity**
Closest residence	330m northeast of the winery shed, and 120m north of land application area.
School (Swan Christian College)	1.1 km east southeast of the winery shed.
Church and adventure centre	925m southeast of the winery shed
Environmental receptors	**Distance from prescribed activity**
Groundwater (Swan groundwater area)	>9 mbgl taken from the licence holders reporting of the land application area.
Swan river	155 m west from the winery shed and 270 m west from the land application area.
Small watercourse (Jane brook)	275m east of the winery shed and 155m east of the land application area

Other approvals

RIWI Act

The licence holder holds a RIWI water licence for the premises under licence number GWL105698(10) for the annual water entitlement of 375,020 kL. The allocation is for horticultural purposes of the vineyards, and lawns and gardens. The licence holder uses scheme water for the winery/wash down etc. Should the licence holder wish to use groundwater for use in the winery they would need to apply to have the water licence amended

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.

Risk Event				Risk rating[1] C = Consequence L = Likelihood	Justification for additional regulatory controls	Additional regulatory controls [2]
Source/ Activities	**Potential pathway and emissions**	**Potential receptors**	**Licence holder controls**			
Operation of the winery						
Wine manufacturing and packaging including crushing of grapes	Nutrient and sediment laden wastewater generated during winery production and packaging process or cleaning infiltrating soil causing contamination of soil, groundwater or surface water.	• Groundwater >9 mbgl. • Swan River 155m west of the winery. • Jane Brook 275m east of the in winery	See section 3.1.1.	**C = Minor** **L = Rare** ***Low risk***	The wine production occurs within the enclosed winery shed with wastewater being collected by drains and sumps. It's noted there's a lack of information on where the collection points of wastewater are, as a result a site infrastructure report requesting this information has been included in the licence. To ensure that wastewater is captured and transported to the WWTP the licence holders proposed controls will be included on the licence.	• **Site infrastructure report (Condition 4).**
Delivery and storage of juice/ wine product in outdoor storage tanks and areas.	Wine products rich in nutrients, BOD and acidic, leaking or spilling from storage tanks causing contamination of soil, groundwater or surface water.			**C = Moderate** **L = Possible** ***Medium risk***	There's a lack of information relating to the outdoor storage area including the type of hardstand, location of any collection sumps and drains. As a result, a map labelling the location of any collection sumps and drains has been conditioned in the licence. Based on available information it's assumed that the outdoor tank is situated on a concrete hardstand and has been conditioned as such.	• **Outdoor hardstand is consisted of an impervious concrete area (Condition 1).** • **Site infrastructure report (Condition 4).**
Containment of wastewater and solids						
Management of solid waste (marc)	Runoff or seepage of nutrient rich leachate from the marc storage area to soil causing contamination of groundwater or nearby surface water.	• Groundwater >9 mbgl. • Swan River 155m west of the marc storage area. • Jane brook 375m east of the marc storage area.	See section 3.1.1.	**C = Major** **L = Likely** ***High Risk***	The marc pad is described as clay lined but it's noted there's a severe lack of additional information on the specifications and testing of the liner and controls to prevent excessive solid waste build up and leachate runoff/seepage. As the marc pad is still in operation the risk is considered **high**. The delegated officer notes that the marc storage area is made of concrete and bunded to control the risk of leachate runoff leaving the area. To reduce the risk the marc storage area will replace the marc pad.	• **Removal of the marc pad on the licence replacing it with the marc storage area (Condition 1).**
Storage of treated and untreated wastewater	Spills or leaks of treated or untreated wastewater causing infiltration to land or runoff, contaminating groundwater or surface water.			**C = Moderate** **L = Possible** ***Medium risk***	The WWTP consists of two tanks which have a combined storage volume of 90kL. The WWTP accepts high volumes of wastewater from stormwater capture and winery wastewater, the delegated officer notes that this storage capacity can be exceeded within 3 days, possibly overloading the WWTP. Additionally spatial imagery from February 2024 and 2025 indicate overflow of wastewater from the appearance of wastewater runoff and pooling at the WWTP. The licence holder has stated that there's storage available to be used for wastewater but did not provide storage capacity, location or specifications of these tanks. The delegated officer considers the risk of storage as **medium**. The licence holder will be required to inspect the primary and secondary tanks daily during vintage and weekly post vintage.	• **The primary and secondary tanks must be inspected daily during vintage and weekly during post vintage (Condition 1).** • **Inspections must be logged and recorded in a book (Condition 12 and 13).**
	Odour travelling by air/wind dispersal causing impacts to health.	• Nearby residence. • School.		**C = Slight** **L = Rare** ***Low risk***	Due to the distance from nearby receptors and the lack of historical complaints the delegated officer considers the risk of odour as **low**, requiring no additional controls.	***N/A***
Treatment and irrigation of wastewater						
Onsite disposal of treated wastewater to land	Treated wastewater high in nutrients and salts irrigated to land passing the rootzone to groundwater causing contamination.	• Groundwater >9 mbgl. • Swan River 270m west of the land application area • Jane Brook 155m east of the land application area	See section 3.1.1.	**C = Major** **L = Likely** ***High Risk***	The delegated officer notes that the WWTP is outdated and provides limited nutrient and BOD removal from winery wastewater, that treated wastewater is diluted from stormwater captured at the winery building, and the land application area has decrease in size and changed in crop. Upon review of the 2023/2024 treated wastewater monitoring data it was determined that each parameter had values which were outside guideline limits or in the case of BOD exceeded licence loading limits. Nitrogen in soil and groundwater showed positive trends indicating excessive loading to land. Phosphorous in soil and groundwater showed a decreasing trend with groundwater having a spike in concentration during the most recent reporting month. It's noted that although the licence holder has proposed a decrease in the assessed production capacity this won't effect the nutrient loading as the reported beverage production in previous annual periods is already below the proposed capacity. The licence holder has illustrated they will decrease the size of the irrigation area and only irrigate to kikuyu grass. It's noted that kikuyu is dormant during the cold winter period where little	• **A groundwater monitoring bore inspection report (Condition 2 and 3).** • **Pasture management of kikuyu grass in the LAA added (Condition 5)** • **Emission limit values for pH and SAR:EC ratio added, and BOD nitrogen and phosphorus amended (Condition 6).** • **Parameters of EC, potassium, sodium, calcium, magnesium and SAR added to treated wastewater monitoring (Condition 7).** • **Parameters of plant available nitrogen, total phosphorous, EC, PBI, CEC, ESP and potassium are added to**

					water and nutrient uptake occurs. The delegated officer considers from the distance from nearby sensitive receptors, high nutrient values in treated wastewater, soil and groundwater, prior compliance, land application area size, the absence of an updated NIMP and existing controls on the licence that the risk **high**, requiring additional regulatory controls to be added to the licence.	**soil monitoring (Condition 8).** • **Parameters of TKN, TRP, EC, and SAR, added to ambient groundwater concentrations (Condition 9).** • **Relocation of soil monitoring points to be inside the new LAA (Figure 2 and Condition 8).**
	Excessive irrigation of treated wastewater to land exceeding hydraulic loading causing runoff or seepage to groundwater causing contamination.			**C = Moderate** **L = Likely** ***High Risk***	The delegated officer notes that the WWTP includes stormwater which falls on the winery production shed which is directed into the WWTP. Although the licence holder has proposed to decrease their assessed production capacity the influence of rainfall can cause high variation of wastewater. The land application area has also decreased in size and the licence holder has previously irrigated large amounts of treated wastewater over the high rainfall winter period. The licence holder has stated they expect 5 ML of wastewater to be produced per annual period which will be condition in the licence. The delegated officer considers due to the above reasoning, lack of information on hydraulic loading and the existing licence controls that the risk is **high**, requiring additional regulatory controls to be added to the licence. The months of May and September typically have periods of rainfall so to lower the risk of exceeding the hydraulic capacity of soil these two months will have a limit of 585 kL per month; this value was calculated from the total wastewater irrigation limit (kL) divided by the number of irrigation months (5,250 / 9, with the result rounded up).	• **Operational requirements added to the land application area for no winter irrigation (Condition 1).** • **Addition of wastewater irrigation to land emission volume limit values for the annual period and months of May and September (Condition 6).**

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

Note 2: Additional regulatory controls are those that are additional to the controls imposed on the previous Licence and additional to those proposed by the licence holder (section 3.1.1)

4. Decision

The delegated officer has reviewed the existing licence and has determined to grant the licence with additional regulatory controls required to ensure that operations and waste management at the premises don't pose an unacceptable risk to public health and the environment.

Consolidation

As part of this amendment the delegated officer has consolidated the licence by incorporating changes made under previous amendment notices. No additional assessment has been conducted as part of this consolidation. Decisions relating to the consolidated licence are published in previous amendment notices, and in accordance with section 59(1) of the EP Act, incorporating these changes into a single amended licence is not appealable.

In amending the licence, the delegated officer has also:

- updated the format and appearance of the licence;
- deleted the contents and introduction sections of the licence;
- deleted the redundant reporting and notification forms set out in schedule 2 of the previous licence;
- revised condition numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

The decision report for the previous licence will remain on the DWER website for future reference and will act as a record of DWER's decision making.

Consultation

The licence holder was provided with a draft licence and amendment report on 13 August 2025. After being emailed by the department on 10 September 2025 (the due date) the licence holder requested an extension, which was granted by the delegated officer until 22 September 2025. On 23 September 2025 the licence holder was emailed requesting if the comments had been submitted to the department, on 24 September 2025 the licence holder requested a further extension which was granted by the delegated officer until 26 September 2025, in which the licence holder did not submit comments. The draft included notes to the licence holder to provide further information to complete the licence, due to this not being received the delegated officer has made the following determinations based off the available information (Table 4).

Table 4: requested information

Requested information	Determination(s) made
Map or site drawing of the winery drains and collection sumps, and a description of wastewater flows to the WWTP.	A site infrastructure report condition will be included in the licence for the licence holder to provide the outstanding information.
Number and storage (kL) of wine storage tanks. Also indicate if any storage tanks are used for wastewater storage providing the amount, location and storage size (kL).	It's assumed there's no wastewater storage tanks on the premises (except for those mentioned in the WWTP).
For the outdoor hardstand provide the	From the available information it's assumed:

following: • Describe the activities and infrastructure. • A description of the hardstand, the number of tanks, their storage size and what they store. • A map of the location of any collection sumps and drains.	• It's assumed that the only infrastructure is the storage tanks. • That the outdoor area is on concrete hardstand and has been conditioned on the licence. • Asked for in the site infrastructure report.
Provide the holding capacity of the WWTP concrete holding sump, and the location and specification of the primary and secondary aeration screens.	No holding capacity for the concrete holding sump has been factored into the risk assessment or included in the licence. It's assumed the aeration screens are part of the primary and secondary tanks but has been listed as separate pieces of infrastructure.
Location of wastewater sample tap for monitoring.	A map of the WWTP has been included in the site infrastructure report requesting the location of the sample tap.
Specify if juice or wine is accepted from offsite for processing.	It's assumed no juice or wine is accepted at the premises for further processing.

Conclusion

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

References

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7. Email from Damian Hutton to DWER, *L7359/1995/10 Oakover Vineyards Pty Ltd - LICENCE REVIEW - submission of a NIMP,* dated 28/10/2024.

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17. Oakover Vineyards 2024, *23-24 Nikola Estate Annual Environmental Monitoring Report*, Perth, Western Australia.
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Appendix 2: Calculations.

Calculations of the potential nutrient offtake of kikuyu grass under a conservative approach of mowed grass yield. Values used in calculations were taken from yield and nutrient values in New South Wales and may have differing results for the climate of Western Australia.

Table 5: Nutrient uptake calculations of kikuyu grass

	Nitrogen	Phosphorous
Formula	Nutrient offtake = yield * nutrient content	
Annual yield (tDM/ha)	12.2	
Annual yield-20%[1] (tDM/ha)	9.76	
Plant nutrient content[2] (kg/tDM)	24	3
Annual nutrient offtake (kg/ha/yr)	234.24	29.28

[1]Shahrivar et al. 2019.

[2]LLC 2021.