



Application for Licence Amendment

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

Licence Number	L6826/1994/13
Licence Holder	Ausvision Rural Services Pty Ltd
ACN	106 075 763
File Number	DER2014/000604
Premises	Beaufort River Meats Abattoir 46 Macri Road BEAUFORT RIVER WA 6394 Being Part of Lot 508 on Plan 418913
Date of Report	30/05/2022
Decision	Revised licence granted

Table of Contents

1. Decision summary	3
2. Scope of assessment	3
2.1 Regulatory framework	3
2.2 Application summary	3
2.2.1 Soil Investigation Report	4
3. Risk assessment	4
3.1 Source-pathways and receptors	5
3.2 Risk ratings	5
4. Consultation	9
5. Decision	9
5.1 Summary of amendments	9
6. Conclusion	11
References	12
Appendix 1: Summary of licence holder's comments on risk assessment and draft conditions	13

Table 1 Emission pathways and sensitive environmental receptors	5
Table 3 Risk assessment of potential emissions and discharges from the premises during operation	7
Table 4: Consultation	9
Table 5 Summary of licence amendments	10

1. Decision summary

Licence L6826/1994/13 is held by Ausvision Rural Services Pty Ltd (licence holder) for the Beaufort River Meats Abattoir (the remises), located at 46 Macri Road, Beaufort River, WA.

This Amendment Report documents the assessment of potential risks to the environment from proposed changes to the emissions and discharges during operation of the premises. As a result of this assessment, Revised Licence L6826/1994/13 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence (DWER 2021) previously granted in relation to the premises. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

2. Scope of assessment

2.1 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>.

2.2 Application summary

On 2 February 2022, the licence holder submitted an application to the department to amend Licence L6826/1994/13 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The licence amendment sought to increase the irrigation area at the premises by incorporating a new irrigation area (Area C as shown in Figure 2 of the revised licence). Works required to establish the new irrigation area include trenching to install reticulation pipeline and a grid system of sprinklers with 20 m spacing to evenly distribute wastewater across the area. The new irrigation system will be automatically operated and existing irrigation areas A and B will also be converted to operate automatically.

The premises has been operational since 1994 and relates to the categories and the assessed production/design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in existing Licence L6826/1994/13. Current operations include:

- Holding sheep and goats in lairage (covered holding pens and outdoor holding yards);
- Processing animals through the abattoir (slaughterhouse);
- Temporary storage of carcasses in freezers;
- Temporary storage of animal waste by-products (offal, paunch, fat, bones and blood) in sealed tanks/ steel storage bins;
- Hide treatment and storage in a salting shed;
- Wastewater treatment comprising a simple screen pit, grill and screw and three treatment ponds (anaerobic, aerobic and facultative); and
- Treated wastewater disposal via irrigation to areas A and B (Figure 2 of the revised licence).

The intent for the expanded irrigation area is to reduce the nutrient load currently applied to land via wastewater irrigation. Nutrient loads of 598.1 kg/ha/year and 157.9 kg/ha/year for total nitrogen (TN) and total phosphorus (TP), respectively, were reported in the licence holder's

2021 Annual Environmental Report (AER). These rates significantly exceed the nutrient loading limits of 180 kg/ha/year (TN) and 80 kg/ha/year (TP) set by condition 11 of licence L6826/1994/13. The annual TN loading rate has exceeded the licence limit every year since 2014 and the 2021 rate was the highest recorded at the premises.

The licence holder is proposing to reduce nutrient loading rates by expanding the irrigation area from 7 ha to 15 ha. Using 2021 monitoring data, the licence holder calculates that expanding the irrigation area to 15 ha will decrease the TN loading rate by more than twofold from 598.1 kg/ha/year to 279.1 kg/ha/year. The TP loading rate would also decrease from 157.9 kg/ha/year to 73.7 kg/ha/year (Beaufort River Meats 2022).

In addition to expanding the irrigation area, the licence holder is constructing a secondary anaerobic treatment pond (subject to works approval W6452/2020/1) to improve treated wastewater quality in the tertiary pond before irrigation. The licence holder is yet to provide the department with evidence that the secondary anaerobic pond has been built in accordance with W6452/2020/1. Operation of the secondary anaerobic pond and its potential to improve treated wastewater quality is therefore not assessed in this report.

2.2.1 Soil Investigation Report

The licence holder submitted a soil investigation report (Bioscience 2021) to support the amendment application. The scope included a desktop study and site investigation to determine the capacity of each irrigation area to accommodate the hydraulic and nutrient loadings applied to land. Flow rate calculations and testing requirements were undertaken in accordance with the department draft guideline *Guidance on the establishment and management of irrigation schemes for the land disposal of wastewater*.

The report concluded an additional 8 ha of irrigated land would decrease TP and TN loading rates to below the licence loading rate limits. The TN loading rate was estimated to decrease from 598.1 kg/ha/year to 87.4 kg/ha/year, while the TP loading rate would decrease from 145 kg/ha/year to 32 kg/ha/year. However, the calculations were based on nutrient concentrations taken from a 2014 Nutrient and Irrigation Management Plan (Aquasol 2014) prepared for the premises, rather than recent site monitoring data. The Delegated Officer therefore considers nutrient loading rates and mass balances calculated in the soil investigation report are not representative of current site conditions and not applicable to this assessment.

Additional findings relevant to this assessment include:

- The expanded 15 ha irrigation area is sufficient to accommodate the annual hydraulic loading from wastewater irrigation, which was calculated to require a minimum 4.98 ha;
- Irrigation is not recommended in Area A during winter due to identification of a shallow perched aquifer in test pits and a high likelihood of waterlogging;
- Gypsum should be applied at a rate of 1 tonne per hectare each year to improve soil condition irrigation and pasture growth in Area B; and
- Dolomitic limestone should be applied at a rate of 500 kg per hectare each year to improve soil condition for irrigation and pasture growth in Area C.

3. 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.

3.1 Source-pathways and receptors

Emissions and associated actual or likely pathways during operation of the new wastewater irrigation area (Area C) which have been considered in this Amendment Report are detailed in Table 1. A summary of environmental receptors that may be impacted from these emissions is also provided in Table 1 (*Guideline: Environmental siting* (DWER 2020)).

Table 1 Emission pathways and sensitive environmental receptors

Emission	Source	Potential pathways	Receptors	Distance from activity
Wastewater with elevated nutrient and salt content	Irrigation to Area C	Infiltration through soil profile	Temporary creek (tributary of the Beaufort River)	About 850 m northeast of premises
			Groundwater (non-potable beneficial use) Groundwater quality at the premises is yet to be investigated. Regional groundwater quality is generally brackish to saline (1,650 – 30,250 mg/L) (Raper et al., 2014).	Site specific investigation found a perched aquifer 0.7 to 1.6m bgl (Bioscience 2021)
			Soil (future agricultural land use) Area C soils are generally gravelly clay in the top 2 m (Bioscience 2021). Salinity levels are low, phosphorus sorption is high (137 – 157 mg/kg), saturated hydraulic conductivity is moderate (8.1 Ks, mm/hour). Low effective cation exchange capacity was also observed in five of eight test pits (Bioscience 2021).	Underlying Area C

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the licence holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the licence holder'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 licence holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 2.

The Revised Licence L6826/1994/13 that accompanies this Amendment Report authorises emissions associated with the expansion of the treated wastewater irrigation area.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 2 Risk assessment of potential emissions and discharges from the premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence holder's controls sufficient?	New or revised conditions ² of licence	Justification for additional regulatory controls
Source/ Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
On-site irrigation of treated wastewater to new area (Area C)	Direct discharge of treated wastewater to land with elevated nutrients and salts	Infiltration resulting in soil and groundwater contamination (nutrients)	Soil and groundwater	<ul style="list-style-type: none"> Expand irrigation area to 15 ha to decrease hydraulic and nutrient loading rates Even spread of wastewater to field via a grid of evenly spaced sprinklers 	L = Possible C = Moderate Medium Risk	No	<p>Condition 1:</p> <ul style="list-style-type: none"> restriction on irrigation before, during and after rainfall events) restriction on irrigation during winter in Area A soil treatment in each irrigation area <p>Condition 2, 3 and 6:</p> <ul style="list-style-type: none"> new emission point (L3) <p>Condition 6</p> <ul style="list-style-type: none"> Emission Sampling changed from quarterly to monthly 	<p>The discharge of treated wastewater to land is considered to pose a medium risk of impact to soil structure and groundwater quality given the elevated nutrient content in treated wastewater which has resulted in regular exceedances of the nutrient loading limits (existing condition 11). The addition of Area C to the irrigation area is expected to reduce the nutrient loading rates closer to the licence limits for nitrogen and phosphorus.</p> <p>Wastewater sampling frequency has been increased from quarterly to monthly to enable more accurate calculation of nutrient loading rates and BOD.</p> <p>The Delegated Officer considers that Area C is suitable for irrigation and that existing irrigation operational controls specified for Area A and B are to be applied to Area C to reduce the risk of impacts to receptors to an acceptable level. Existing irrigation controls to be applied to Area C include preventing irrigation generated runoff, spray drift or discharge beyond the irrigation areas, avoiding irrigation on land that is waterlogged, ensuring vegetation cover is maintained and preventing soil erosion.</p> <p>The Delegated Officer has specified soil treatment in each irrigation area to be completed by 1st May 2023. These actions align with recommendations in the soil investigation report (BioScience 2021) and include turning and breaking clay in Area B, applying gypsum to Area C and dolomitic limestone to Area C to improve soil condition.</p> <p>In addition, the Delegated Officer has specified that irrigation is not undertaken in Area A during the wettest months of the year (1st May to 30th September), which has a shallow perched aquifer in winter. Further, irrigation is not permitted in any irrigation area when rainfall is imminent, during, or immediately after a rainfall event. These additional regulatory controls will reduce the risk of waterlogging and exceeding the hydraulic loading capacity of the land in winter to an acceptable level.</p>

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

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

4. Consultation

Table 3 provides a summary of the consultation undertaken by the department.

Table 3: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (23/03/2022)	None received	N/A
Licence holder was provided with draft amendment on 5 May 2022.	18 May 2022	Comments received are outlined in Appendix 1

5. Decision

The Delegated Officer has reviewed the information provided in the application and has determined that operation of the expanded 15 ha irrigation area does not pose an unacceptable risk of impact to the environment, subject to the conditions specified in the revised licence. The determination is based on the suitability of the new irrigation area (Area C) to accommodate the discharge of nutrient rich wastewater to land and the reduction in nutrient loading rates due to the larger irrigation area.

The nutrient loading rates calculated for the expanded irrigation area are still high given the elevated nitrogen and phosphorus concentrations in treated wastewater. However, the Delegated Officer notes that installation of the secondary anaerobic pond may improve the water quality of the tertiary pond and further reduce the nutrient loading rates.

The Delegated Officer has also specified that irrigation is to cease immediately before, during and after rainfall events due to the risk of waterlogging and surface water runoff, particularly in winter. Irrigation is also prohibited in Area A throughout the wettest months of the year due to the increased risk of waterlogging from the presence of a shallow perched aquifer.

In addition to the risk-based amendments, administrative changes were made to conditions including reformatting the licence to the contemporary format, consolidating and clarifying conditions and removing redundant conditions. These changes include a consolidated infrastructure table, with new maintenance requirements to preserve the integrity and performance of emission control infrastructure (e.g. drainage channels).

Continued breaches of the nutrient loading rate limits specified in the licence for nitrogen and phosphorus may trigger a CEO initiated licence review in accordance with section 59(2) of the EP Act, which would comprise a detailed assessment of the risk of emissions to land at the premises to ensure this Licence is an accurate reflection of the premises and its operations.

5.1 Summary of amendments

Table 4 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 4 Summary of licence amendments

Existing condition	Condition summary	Revised licence condition	Conversion notes
1 - 4	General emissions conditions	N/A	Redundant, generic requirements covered by other legislative instruments.
5	Authorised processes	1	Animal process limits removed given they are specified on the cover page. Wastewater process incorporated into Table 1 (row 1), condition 1
6	Containment infrastructure requirements	1	Incorporated into Table 1 (rows 2, 3, 4, 5), condition 1
7	Waste management	1, 2	Animal waste disposal requirements Table 1 (row 2), condition 1 and treated wastewater disposal is covered by condition 2
8.	Wastewater treatment pond operational requirements	1	Incorporated into Table 1 (row 5), condition 1
9	Irrigation operational requirements	1	Incorporated into Table 1 (row 6), condition 1
10	Authorised emissions to land	2	Condition reformatted. New emission point reference (L3) added for Area C
11	Emission limits	3	Condition reformatted. New emission point reference (L3) added for Area C
12	General monitoring – sampling collection requirements	4	Requirement 12(b) removed given microbial sampling is not specified in the licence
13	General monitoring – sampling frequency	5	No change
14, 15	General monitoring – calibration of monitoring equipment	N/A	Redundant conditions.
16	Monitoring of emissions to land	6	New emission point reference (L3) added for Area C
17	Monitoring of inputs and outputs	7	No change
18	Records and reporting	11	Condition updated into new format.
19	Compliance	9	No change
20	Complaints management	8	Condition updated into new format.

Existing condition	Condition summary	Revised licence condition	Conversion notes
21	Records and reporting	10	Condition updated into new format.
22	Annual Environmental Report	12	No change
23	Assessment of information relation to former condition 22	12	Incorporated into Table 8 (row 2), condition 12
Schedule 1: Maps	Site figures	Schedule 1: Maps	Figure 2 updated to include irrigation area C

6. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that an amended Licence will be granted, subject to conditions commensurate with the determined controls necessary for administration and reporting requirements.

References

1. Aquasol 2014, *Wellard Abattoir Nutrient and Irrigation Management Plan*, prepared by Aquasol Pty Ltd for Wellard's Abattoir.
2. Beaufort River Meats 2022, *2021 Annual Environmental Report*, submitted to DWER on 7 January 2022.
3. Beaufort River Meats 2019 *Annual Environmental Report*, submitted to DWER on 31 January 2020
4. Beaufort River Meats 2016 *Annual Environmental Report*, submitted to DWER on 5 February 2016.
5. Beaufort River Meats 2015 *Annual Environmental Report*, submitted to DWER on 27 January 2015
6. Beaufort River Meats 2014 *Annual Environmental Report*, submitted to DWER on 24 February 2014
7. Bioscience 2021, *RE: Land Disposal of Wastewater – Soil Investigation Results*, prepared for Beaufort River Meats.
8. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
9. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
10. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
11. Department of Water and Environmental Regulation (DWER) 2021, Amended Licence L6826/1994/13 granted on 4 March 2021.
12. Raper, GP, Speed, RJ, Simons, JA, Killen, AL, Blake, AI, Ryder, AT, Smith, RH, Stainer, GS and Bourke, L 2014, *Groundwater trend analysis for south-west Western Australia 2007–12*, Resource management technical report 388, Department of Agriculture and Food, Western Australia, Perth.

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

Condition	Summary of Licence Holder's comment	Department's response
1.	<p>Licence holder provided the following information for table 1, as requested in the draft licence:</p> <ul style="list-style-type: none"> manure collection method, frequency and disposal method location of temporary manure storage area including Map capacity of blood storage tank and frequency of blood disposal the timeframe for salting animal skins confirmed that Area A will use a travelling irrigator provided the location of each of the 3 flow meters including a map 	Updated condition 1, table 1 accordingly
1	Dimensions and construction materials of the sludge and solid bund – applicant clarified that this will be constructed together with the third anaerobic pond	Updated condition 1, table 1 accordingly – removed row discussing sludge bund
6	Provided the location of sampling point including map and photos	Updated accordingly