



Application for Licence

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

Licence Number	L9266/2020/1
Applicant	Department of Justice
File Number	DER2020/000059
Premises	<p>Wooroloo Prison Farm Wastewater Treatment Plant Great Eastern Highway WOOROLOO WA 6558</p> <p>Lot 29175 on deposited plan 192782; register number 29175/DP192782, Volume LR3117 Folio 247.</p> <p>Reserve under management order Reserve description: 14083</p> <p>All whole: Volume (Folio) - 3117 (247), 3144 (50), 3144 (51), 3144 (52), 3144 (53), 3144 (54), 3144 (55), 3144 (56)</p> <p>As defined by the premises map and coordinates provided in Schedule 1 of the issued licence</p>
Date of Report	6 August 2021
Decision	Licence granted

Stephen Checker

MANAGER WASTE INDUSTRIES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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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 the premises. As a result of this assessment, licence L9266/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision 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 and overview of Premises

On 10 October 2019, the Department of Justice (the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). The application was for the undertaking of construction works to upgrade the capacity of the existing wastewater treatment plant at the Wooroloo Prison Farm (the premises) from a 175m³/day to 220m³/day. The premises is approximately 2 kilometres southeast of the Wooroloo townsite.

Upon review of the application, it was identified that the proposed construction works had already been completed, and so the applicant was prompted to withdraw the application for a works approval and submit an application for a licence. The works approval application was formally withdrawn on 7 November 2019.

On 3 February 2020, the applicant submitted an application for a licence to the department under section 54 of the EP Act. The application was for the operation of the existing wastewater treatment plant at the premises, and the irrigation of a citrus orchard, sports oval and landscaped visitors areas within the prison farm using treated wastewater.

Upon review of the application, the licencing officer determined that additional information was required of the applicant to support the application. A formal request for further information was issued to the applicant on 26 March 2020. A number of responses to the request were issued on behalf of the applicant, with the final outstanding information received by the Department on 2 September 2020.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L9266/2020/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in licence L9266/2020/1.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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

3.1.1 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 1 below. Table 1 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Operation			
Odour	WWTP operation - Treatment of sewage	Air/windborne pathway causing impacts to health and amenity of surrounding human receptors receiving unpleasant odour	Separation distance between plant and sensitive receptors
	Disposal to, and decomposition of excess sludge in sludge lagoons	Air/windborne pathway causing impacts to health and amenity of surrounding human receptors receiving unpleasant odour	Separation distance between plant and sensitive receptors
Noise	WWTP operation - Pumps associated with the WWTP	Air/windborne pathway causing impacts to health and amenity of surrounding human receptors	Separation distance between plant and sensitive receptors
Nutrient pollution	Leak/failure of sewage pipes and holding ponds/tanks	Overland runoff and infiltration to soil potentially causing nutrient imbalance, ecosystem disturbance or impacts on plant health	Scheduled inspections and routine plant maintenance
	Irrigation of treated effluent		Alum dosing for phosphorus removal Effluent quality testing and monitoring Limit irrigation to plant water demand where practicable (no instrumentation is planned) Cessation of irrigation during and immediately after rain events, or if waterlogging or surface run-off is observed

Emission	Sources	Potential pathways	Proposed controls
Nutrient pollution	Uncontrolled discharge of nutrient rich treated water to orchard via the irrigation system during winter months	Overland runoff and infiltration to soil potentially causing nutrient imbalance, ecosystem disturbance or impacts on plant health	Limit irrigation to plant water demand where practicable (no instrumentation is planned) Separation distance between irrigation areas and Wooroloo Brook Cessation of irrigation during and immediately after rain events, or if waterlogging or surface run-off is observed
	Disposal of excess sludge to sludge lagoons		Unspecified - periodic removal of accumulated sludge
Pathogens (Viruses, parasites, and bacteria)	Leak/failure of sewage pipes and holding ponds/tanks	Overland runoff and infiltration to soil causing contamination of surrounding land, surface water and groundwater and exposure to fauna	Scheduled Inspections and routine plant maintenance
	Irrigation of treated effluent	Irrigation on trafficable spaces potentially causing health impacts on human receptors and fauna	Chlorination unit Use of lilac coloured pipework Defined (Department of Health approved) irrigation zones Drip irrigation system Timing of irrigation Restriction of access to allow soil drying Stock fencing to restrict livestock and native and introduced fauna access to citrus orchard
Soil contamination	Uncontrolled discharge of nutrient rich treated water to orchard via the irrigation system during winter months	Overland runoff potentially causing soil contamination and impacts on horticultural produce	Limit irrigation to plant water demand where practicable (no instrumentation is planned)

Emission	Sources	Potential pathways	Proposed controls
Sodicity and secondary salinization	Uncontrolled discharge of treated wastewater to orchard via the irrigation system during winter months	Overland runoff and soil infiltration resulting in salt deposition and mobilisation of subsoil salts with impacts on native and exotic vegetation	Limit irrigation to plant water demand where practicable (no instrumentation is planned) Cessation of irrigation during and immediately after rain events, or if waterlogging or surface run-off is observed

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors, and contractors of the applicants from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 2 and Figure 1 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guidance Statement: Environmental Siting* (DER 2016)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Receptor ID	Human receptors	Distance from prescribed activity
H1	Prison inmates and visitors	Within premises boundary
H2	Wooroloo Swimming Pool, off Linley Valley Road (restricted usage road), WOOROLOO WA	Within premises (Approximately 750m W of WWTP)
H3	Linley Valley Park, Lot 7 on Diagram 45818, Lot 8 on Plan 2508, Lot 421 on Plan 300357 and Lot 5485 on Plan 114980, Linley Valley Road WUNDOWIE WA 6560	Approximately 410 m NE of WWTP
H4	Rural residences, Linley Valley Road WUNDOWIE WA 6560	Approximately 900 m NW of WWTP
H5	El Caballo Lifestyle Village, 51 Jocosco Rise, Wundowie WA 6560	Approximately 1.3 km NE of WWTP
H6	El Caballo Resort, 3349 Great Eastern Hwy, Wooroloo WA 6558	Approximately 1.1 km NE of WWTP
H7	El Caballo Golf Course, 88 Great Eastern Hwy, Wooroloo WA 6558	Approximately 700 m NE of WWTP
H8	Loosefoot Saloon Bar, 3381 Great Eastern Hwy, Wundowie WA 6560	Approximately 1.5 km NE of WWTP
H9	Acacia Prison, Great Eastern Hwy, WOOROLOO WA 6558	Approximately 2.3km SE of WWTP
H10	Wooroloo Cemetery, 680 Linley Valley Rd, Wooroloo WA 6558	Approximately 1.8 km W of WWTP
H11	Cung Điện Tam Tòa Thánh Mẫu (Vietnamese Catholic place of worship), 1285 Government Road, Wooroloo, WA 6558	Approximately 2.8 km SW of WWTP
H12	Produce (citrus) consumers	N/A
H13	Wooroloo Townsite	Approximately 2 km NW of the premises
Receptor ID	Environmental receptors	Distance from prescribed activity
E1	Native fauna	Within premises
E2	Remnant native vegetation within prison farm boundary	Within premises, adjacent to WWTP, ponds and irrigated citrus orchard

E3	Keaninine Nature Reserve, Warlin Road, COPLEY WA 6562	Approximately 1 km E of the WWTP
E4	Wooroloo Brook- major river	Approximately 270m E of WWTP (separated by Great Eastern Hwy)
E5	Swan River catchment - Nonperennial minor river	Directly through WWTP footprint (sludge lagoons)
E6	Groundwater: Karri Karri, combined Fractured Rock West –Alluvium, and Karri Karri, combined Fractured Rock West – Paleochannel	Beneath premises – Confined regional water table approximately 10-12 m below ground level, with seasonal perched water table atop confining significant clay layer 3-4 m below natural soil level. Groundwater flow to the NE

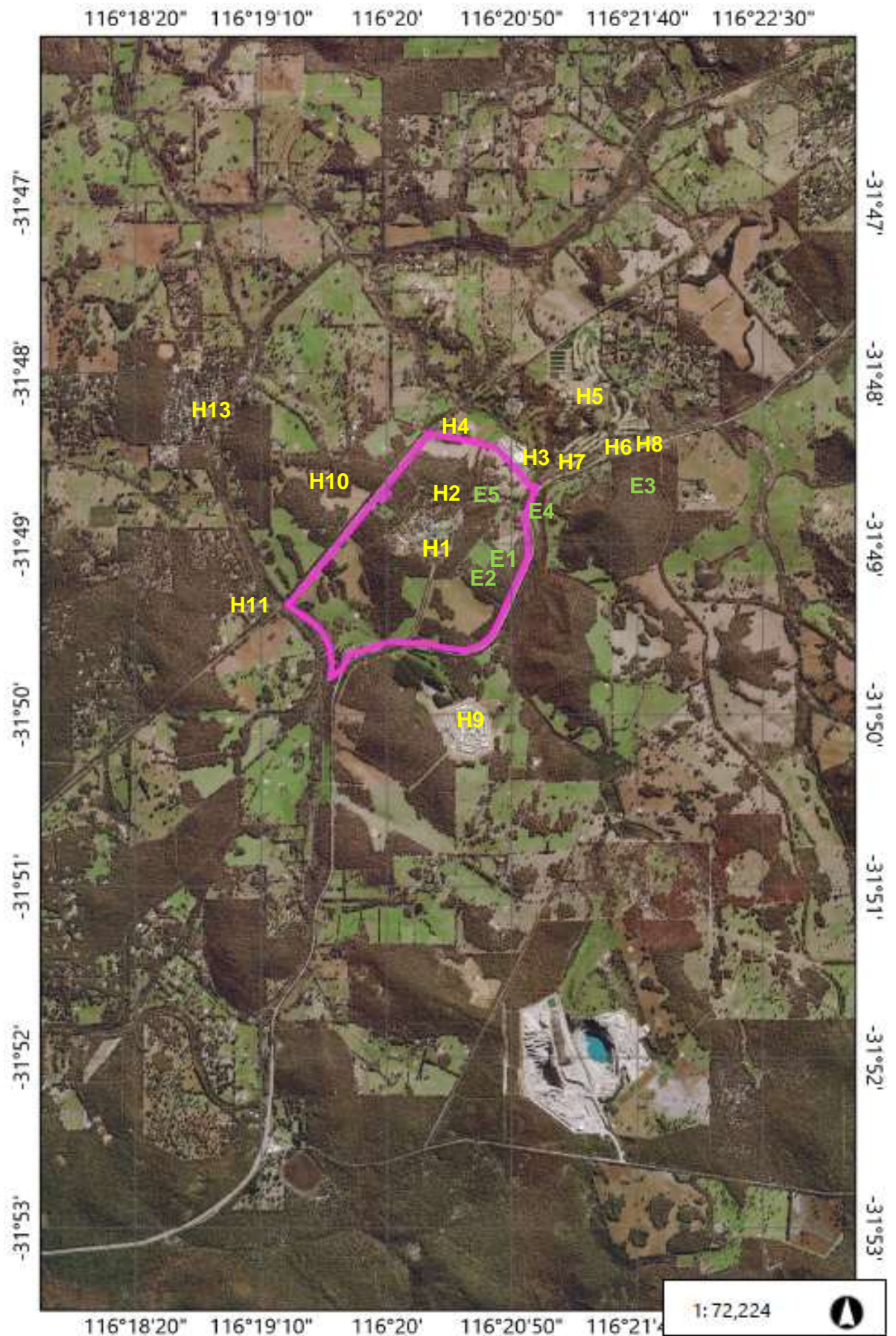


Figure 1: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source 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 applicant 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 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 3.

Licence L9266/2020/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e sewage facility.

The conditions in the issued licence, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 3: Risk assessment of potential emissions and discharges from the premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Operation								
WWTP Operation - Treatment of sewage	Odour generated onsite from the storage and treatment of wastewater	Air/windborne pathway causing impacts to health and amenity of surrounding human receptors receiving unpleasant odour	Rural residences, El Caballo Resort and Golf guests	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 2 and 8	N/A
	Noise generated from the operation of the equipment (pumps) associated with the WWTP	Air/windborne pathway causing impacts to health and amenity of surrounding human receptors	Wooroloo Pool visitors	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1	N/A
Leak/ failure of sewage pipes and holding ponds/tanks	Nutrient pollution	Overland runoff and infiltration to soil causing contamination of surrounding land, surface water and groundwater with an increase of nutrients, heavy metals, and other contaminants, impacting soil and ecosystem health	Remnant native vegetation	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 2, 3, 5, 6 and 17	N/A
	Pathogens (Viruses, parasites, and bacteria)	Overland runoff and infiltration to soil and uptake by vegetation	Inmates and visitors, fauna	Refer to Section 3.1	C = Possible L = Slight Low Risk	Y	Condition 2, 3, 5, 6 and 17	N/A

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Irrigation of treated effluent	Pathogens (Viruses, parasites, and bacteria)	Irrigation of trafficable spaces potentially causing health impacts and disease transmission	Prison inmates and visitors, fauna	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 4, 10, 11, 12, 15, 17, 18 and 19 <u>Condition 24 and 25</u>	N/A
	Nutrient pollution	Overland runoff and infiltration to soil potentially causing nutrient imbalance, ecosystem disturbance or impacts on plant health	Remnant native vegetation	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 4, 10, 11, 12, 15, 17, 18 and 19 <u>Condition 24 and 25</u>	N/A
	Soil contamination	Overland runoff and infiltration to soil potentially causing soil contamination and impacts on horticultural produce	Remnant native vegetation, fruit consumers	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 4, 10, 11, 12, 15, 17, 18 and 19 <u>Condition 24 and 25</u>	N/A
Disposal of excess sludge to sludge lagoons	Nutrient pollution	Infiltration to soil causing contamination of surrounding land, surface water and groundwater with an increase of nutrients, heavy metals, and other contaminants, impacting soil and ecosystem health	Remnant native vegetation, Wooroloo Brook	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N	Condition 1 and 10 <u>Condition 24 and 25</u>	Refer to section 3.5

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Disposal of excess sludge to sludge lagoons	Odour (from decomposition of putrescible waste)	Air/windborne pathway causing impacts to health and amenity of surrounding human receptors receiving unpleasant odour	Rural residences, El Caballo Resort and Golf guests	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1, 2, 6 and 8	N/A
Uncontrolled discharge of nutrient rich treated water to orchard via the irrigation system during winter months	Pathogens (Viruses, parasites, and bacteria)	Over-irrigation resulting in waterlogging, pooling and overland runoff of treated wastewater, potentially causing health impacts on human receptors	Prison inmates, Fauna	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1, 6, 11 and 15	N/A
	Nutrient pollution	Overland runoff and infiltration to soil potentially causing nutrient imbalance, ecosystem disturbance or impacts on plant health	Remnant native vegetation Wooroloo Brook	Refer to Section 3.1	C = Moderate L = Likely High Risk	N	Condition 1, 4, 10, 11, 12, 15, 17, 18 and 19 <u>Condition 24 and 25</u>	Refer to section 3.3
	Soil contamination	Overland runoff potentially causing soil contamination and impacts on horticultural produce	Remnant native vegetation Fruit consumers	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N	Condition 1, 4, 10, 11, 12, 15, 17, 18 and 19 <u>Condition 24 and 25</u>	Refer to section 3.3

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Uncontrolled discharge of nutrient rich treated water to orchard via the irrigation system during winter months	Salt (Sodicity and secondary salinisation)	Overland runoff and soil infiltration resulting in salt deposition, and mobilisation of subsoil salts with impacts on native and exotic vegetation.	Remnant native vegetation	Refer to Section 3.1	C = Major L = Possible High Risk	N	Condition 1, 4, 10, 11, 12, 15, 17, 18 and 19 <u>Condition 24 and 25</u>	Refer to section 3.3

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

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

3.3 Detailed risk assessment of winter irrigation of treated wastewater

The nutrient and water balances provided by the applicant indicate that, provided the upgraded plant achieves average Total Nitrogen and Total Phosphorus concentrations of less than 24 and 4 mg/L respectively, it will be possible to maintain nutrient application rates below the maximum rates recommended in the department's *Water Quality Protection Note 22: Irrigation with nutrient-rich wastewater* for Risk Category C sites (300 kg N/ha/year and 50 kg P/ha/year) without needing to increase the size of the current approved irrigation area. This is consistent with rates imposed as a condition of licence L8262/2008/2 for the Acacia Prison Wastewater Treatment Plant, situated to the south of the premises.

Due to the volumes of treated wastewater, and the limited storage capacity of the holding dam, large volumes of treated water must be irrigated to the citrus orchard (at high rates) over the winter months to avoid overtopping of the irrigation pond. It has been calculated that the application of irrigation to the orchard at rates in excess of plant water requirements will be necessary for 7 months of the year in order to avoid storage pond overflows. The peak application rate to the orchards required in winter months will be approximately 40% higher than the peak citrus orchard irrigation demand occurring in summer months.

The level of irrigation possible during the winter months without causing runoff problems and associated nutrient export from the site is uncertain. The application of treated wastewater at rates in excess of plant water requirements could result in surface ponding, runoff (and associated soil erosion) or losses via leaching past the root zone. Such application rates could thus result in significant export of nutrients off-site via runoff or lateral sub-surface flow, and discharge to receiving surface waters (i.e. the Wooroloo Brook).

The applicant has advised that irrigation of the citrus orchard will continue year-round and only stop during and immediately after rain events, or if waterlogging or surface run-off is observed. It is the applicant's intention that irrigation will be operated to avoid water logging or surface run-off, with discharge halted if waterlogging or surface run-off is observed, until such time that the issue has abated. However, the applicant has also advised that given orchard irrigation is used as a method of controlling overflows from the irrigation dam, should there be a risk of overtopping, then irrigation will continue irrespective of these issues. Furthermore, an earthen drainage diversion bund has previously been constructed within the citrus orchard for the purpose of slowing the movement of overland surface flows and reducing soil erosion.

Therefore, to achieve a sustainable water balance, i.e. no uncontrolled discharge from storage dam to the environment via orchard irrigation over winter, it will be necessary for the applicant to either:

- increase the irrigation area, incorporating vegetation such as woodlots planted with appropriate species or pastures which do not require irrigation over summer months; or
- increase both irrigation area and the storage capacity.

Based on the above, the Delegated Officer has determined that a condition requiring the licence holder to engage a suitably qualified hydrogeological consultant to prepare a detailed Water and Nutrient Balance Model and an updated Nutrient and Irrigation Management Plan be included in the licence.

3.4 Management of irrigation pond overtopping

Water balances and a storage pond assessment prepared for the premises indicate that, providing a minimum of 500 mm freeboard is allocated, the existing storage pond, with expansion of the plant to 220 kL/d of treated wastewater, will likely accommodate most rainfall events, not accounting for wind and wave action. However, the existing storage pond cannot

accommodate the design storm event of the 1% Annual Exceedance Probabilities, 72-hour event. To accommodate this event, the maximum operating water level should be lowered, and a minimum of 600 mm freeboard allocated from the lowest point on the crest. Accordingly, this has been required as a condition of the issued licence.

As discussed in section 3.3, the applicant has advised that continuous irrigation of the citrus orchards will be required over the winter months to prevent irrigation dam overtopping.

The applicant has also advised that if a wildfire was to impact the citrus orchard irrigation infrastructure, then overflow of the irrigation pond is to be expected as irrigation would be restricted or cease completely. Overflow of the dam for an extended period has the potential to compromise the integrity of the dam wall. Overflow events, which are not expected but if they do occur, will be managed according to *The Department of Health Wastewater Overflow Response Procedures, March 2013*, and repair of irrigation infrastructure would be prioritised to minimise overflow.

3.5 Sludge lagoon management

The existing three sludge lagoons at the premises are unlined. These lagoons have been constructed within a nonperennial minor river which runs through the northeast corner of the premises towards Wooroloo Brook. The deposition of activated sludge from the wastewater treatment process within these unlined lagoons for treatment by evaporation and oxidation has the potential to result in the leaching of nutrients and contaminants off-site via lateral sub-surface flow; and ultimately discharge to receiving surface waters (i.e. the Wooroloo Brook). The desludging and disposal history of sludge from these lagoons is unknown. However, in the past two years the vegetation surrounding them has been removed. Provision for the reconstruction of these lagoons to ensure a permeability less than or equal to 1×10^{-9} m/s has been included as a condition of the licence.

In addition to nitrogen and phosphorus, sludge from wastewater treatment plants is a known source of contaminants such as persistent organic particles which are not managed through soil sorption and plant uptake. Consideration may need to be given to the management of these contaminants as part of future and ongoing operations. It is noted that the licence holder has previously applied effluent sludge from offsite at the premises. The future application of solid waste from the sludge lagoons to land on a temporary or ongoing basis has not been considered in this risk assessment. The receipt and application of solid waste in excess of 1,000 tonnes per annual period may trigger the requirement for the premises to be licensed under category 61A - *Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated, or discharged onto land.*

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (26/10/2020)	None	N/A
Shire of Mundaring advised of proposal (26/10/2020)	None	N/A

Department of Health advised of proposal (26/10/2020)	<i>“DOH has approved in principal the proposed Wastewater Treatment Plant (WWTP) upgrade subject to conditions specified in our letter to the applicant dated 20 April 2020”</i>	Noted
Applicant was provided with draft documents on (14/12/2020)	Comments provided on behalf of the Department of Justice received from Jacobs on 7/01/2021 (Refer to Appendix 1)	Refer to Appendix 1
Applicant was provided with updated draft documents on (29/01/2021)	Comments provided received from Department of Justice on 26/02/2021 (Refer to Appendix 1), with further comments received on 01/04/2021	Refer to Appendix 1
A meeting was held with the applicant and their consultant on 3 May 2021, and a subsequent email dated 13 May 2021 invited further comment in relation to the draft instrument.	Comments provided on 30/07/2021	Refer to Appendix 1

5. 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) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
2. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing*. Department of Water and Environmental Regulation, Perth.
5. DOW 2008, *WQPN 22, JULY 2008 - Irrigation with nutrient-rich wastewater*, Perth Western Australia

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

Condition	Summary of applicant's comment	Department's response
Condition 1, Table 1	<p>Sewage inflow, Outflow and Conveyance pipe row: The flows given are the existing plant flows. The ADWF should be 220m³/day and the PWWF 880 m³/day.</p> <p><i>"With regard to the query on the PWWF of 880m³/day. Although the unit is given in m³/day, it is the peak instantaneous flow rate only, it does not imply that this flow rate will be applicable for 24hrs, resulting in a daily throughput of 880m³.....</i></p> <p><i>The design ADWF is 220m³/day. This does imply that on average the plant will receive 220m³ in a day.</i></p> <p><i>The flow rate will however vary during the day and at night will be lower and at peak times during the mornings and early evenings it will be higher, but on average 220m³ in a day.</i></p> <p><i>During normal dry conditions the morning peaks is expected to be up to 2.5 x the ADWF, but during wet condition, if there is some infiltration into the system, it is expected to be 4 x the ADWF, but on average is still expected to only receive around 220m³ in a day.....</i></p> <p><i>Generally, the process design is based on the average daily throughout, but the PWWF, which should be the maximum flow rate that can enter the plant, is important for the hydraulic design. I.e, the pipes, overflow weirs etc need to be design with sufficient hydraulic capacity to handle these short peak flows to prevent possible overtopping."</i></p>	<p>Noted.</p> <p>The assessed design capacity is 220 m³/day.</p> <p>A 20% allowance winter stormwater infiltration on top of the provided 2020 future wastewater flow estimate for a total prison muster of 465 of 135.5 m³/day is 162.6 m³/day</p> <p>The requested 880 m³/day is well in excess of the 20% allowance for winter stormwater Infiltration.</p> <p>It is recognised that the above figure represents only a Peak Instantaneous Flow of 10.2 litres per second. The specification has been amended to reflect this, and an additional requirement that confirmation of maximum plant design and performance capacity in m³/day expressed as both maximum daily (24 hr) and monthly averages be included in the detailed Water and Nutrient Balance Model and updated Nutrient and Irrigation Management Plan</p>
	<p>Inlet screen and degritting facility row: Reference is made to in-line muncher. The old muncher is however replaced with the new inlet screen and degritting facility. The inlet works is a mechanical spiral screw type screen with manual screen bypass and grit classifier (Refer Watercon process flow diagram and Process Design Report). Reference to the muncher should be removed and replaced with the new inlet screen and degritting facility.</p>	<p>Noted and amended</p>
	<p>Demand Aeration Tanks (DAT) row: The aerators referenced is the old aerators. Both the old DAT and new DAT now have one Jas Engineering SAR310, 7.5kW surface aerator.</p>	<p>Noted and amended</p>

Condition	Summary of applicant's comment	Department's response
	Intermittent Aeration Tanks (IAT) row: The new RAS pumps are 2.2kW SEV.80.80.22 (refer Watercon Process Flow Diagram) and not 1.5kW as listed.	Noted and amended
	Returned activated sludge (RAS) pumps row: This row is a little confusing with RAS pump and WAS pump info combined. Note, each IAT has one 2.2kW SEV.80.80.22 RAS pump and one 1.2kW SEG.40.12 WAS pump. Suggest that this item be split into two rows, one for the RAS and one for the WAS.	Noted and amended
	Holding pond row: The increased 600mm freeboard is not required on the holding pond. It has a fixed overflow to the irrigation dam, so will never hold any water above the overflow level (approximately at 500mm freeboard). The holding pond is effectively just a secondary settling tank and the top water level is always fixed on the overflow level. Suggest that the 600mm freeboard requirement be removed for the holding pond.	Noted and amended
	Chlorination unit row: "doing" to be changed do "dosing"?	Noted and amended
Condition 3, item (b)	Add "in the irrigation dam" at the end of the sentence to now read as follows. "a freeboard equal to, or greater than, 600 mm is maintained in the irrigation dam".	Noted and amended
Condition 6, item (a)	Remove "in-line muncher" and replace with "inlet screen and degritting facility".	Noted and amended
Condition 6, item (e)	Change "...o the irrigation dam" to "...to the irrigation dam".	Noted and amended
Table 4: Irrigated water sample point (citrus orchards) row	Query on the requirement for "Composite sample". How does the composite requirement here correlate with the spot sampling mentioned in Table 5? We request that this also be changed to "Spot sample"?	Noted Averaging periods changed to annual (and not applicable for Thermotolerant Coliforms)
Table 4: Irrigated water sample point (citrus orchards) row, Total Phosphorus Limit	A value of 3mg/L is listed. Should this not be at least 4mg/L as also referred to in the Decision Report and also considering the Category C classification. Or even 5mg/L considering the note in the "Guidelines for the Non-potable Uses of Recycled Water in Western Australia" that "Phosphorus in recycled water is usually in the range of 5-10mg/L as total phosphorus..", as noted in Section 6.6. We request that the "3mg/L" be changed to "4mg/L".	Noted Total nitrogen limits amended to 24 mg/L, and total phosphorus limits amended to 4 mg/l to reflect figures provided in the GHD <i>Wooroloo Prison Farm TWW Reuse Scheme NIMP Water and Nutrient Balance Calculations</i> (08/08/2019) to achieve nutrient application rates below 300 kgN/ha/year and 50 kgP/ha/year (maximum rates recommended in WQPN 22 for Risk Category C sites)

Condition	Summary of applicant's comment	Department's response
Table 4: Irrigated water sample point (visitor's area and sports oval) row, Total Phosphorus Limit	as for the item above we request for the "3mg/L" to be changed to "4mg/L".	Noted Total nitrogen limits amended to 24 mg/L, and total phosphorus limits amended to 4 mg/l to reflect figures provided in the GHD <i>Wooroloo Prison Farm TWW Reuse Scheme NIMP Water and Nutrient Balance Calculations</i> (08/08/2019) to achieve nutrient application rates below 300 kgN/ha/year and 50 kgP/ha/year (maximum rates recommended in WQPN 22 for Risk Category C sites)
Heading above Condition 17	The heading reads as follows: "The licence holder must undertake the monitoring in Table 7Ambient environmental quality monitoring". Should there be a break between "Table7" & "Ambient"?	Noted and amended (Formatting error)
Condition 20, First sentence and item (d)	Should the reference to Table 8 be referring to Table 9 instead?	Noted and amended
Condition 23, Item (c)	Section reference error, referring to Condition 0.	Noted and amended
Condition 25	It is stated that within 60 days of the date of the licence issue, the licence holder must engage a suitably qualified hydrogeological consultant to prepare a detailed Water and Nutrient Balance and updated NIMP. 60 days is very short to complete scope approval, request for tenders, tender evaluation and recommendation, budget approvals and award. Can this please be increased to 6 months? We believe this to be more achievable and reasonable considering that the flow to the treatment plant is still lower than the pre-upgrade plant capacity of 175m3/day. Also see our request below to discuss the particular requirements for the updated NIMP considering that the expected maximum flow to the upgraded wastewater treatment plant is now expected not to be more than the pre-upgrade capacity of 175m3/day.	Noted and amended
Condition 26	With the proposed extension of time requested on Condition 25 above, we would also wish a corresponding extension on Condition 26. We therefore request for the time requirement of Condition 26 to be changed to "within 18 months of the date of the licence issue. We again feel that this is reasonable considering that it is not expected that the flow will increase to above the pre-upgrade plant a capacity of 175m3/day.	Noted and amended

Condition	Summary of applicant's comment	Department's response
Page 9	Appears like a formatting error (see redline)	Noted and amended
Page 23	: Reference to Condition "0" which appears as though it should have referenced Condition 18	Noted and amended
Decision Report, Section 2.2	Replace duplication with upgrading from 175 m ³ /day to 220 m ³ /day capacity	Noted and amended
Table 1	Nutrient pollution and Sodicity and secondary salinization – typos, "cessation of irrigation"	Noted and amended
3.3	Should the last section be summer months or winter months? Is there relevance between summer demand and winter irrigation demand?	Noted, text is correct in that it highlights that winter application is not undertaken to dispose of surplus treated wastewater rather than to meet the water requirements of the orchard
Page 9 of draft licence	Appears like a formatting error	Reference hyperlink error corrected
Page 23 of draft licence	Reference to Condition "0" which appears as though it should have referenced Condition 18	<p>Noted and corrected</p> <p>Infrastructure and equipment specifications for the Sewage inflow, Outflow and Conveyance pipes amended to reflect that they must:</p> <ul style="list-style-type: none"> • Accommodate and average dry weather flow (ADWF) of 220 m³/d • Accommodate a peak wet weather flow (PWWF) or Peak Instantaneous Flow of 10.2 litres per second (880 m³/d) <p>The Assessed design capacity remains 220 m³ per day.</p> <p>Updated requirement in condition 25 to require: update of the plan specified in Condition 25 to ensure confirmation of maximum plant design and performance capacity in m³/day, expressed as both maximum daily (24 hr) and monthly averages</p>

Condition	Summary of applicant's comment	Department's response
Tentative comment	<p>Although the assessed design capacity is 220 m³/day, the Department of Justice would like to request whether the licenced capacity can initially be reduced to the revised expected maximum flows. The reasoning for this request is that the Department does not foresee that the prison muster will be increased to more than the current allowed for maximum of 465.</p> <p>It is noted that according to the NIMP that the watering rates in winter may potentially still be higher than the plant water requirements which poses an export of nutrients risk.</p>	<p>Noted, approved capacities of prescribed premises are based on the maximum capacity of the plant. The maximum capacity 220 m³ per day has not been reduced, and while the reduced prison muster and daily wastewater throughput has been noted, there is no limitation in place which would prevent an increased wastewater throughput in future (should the need arise). As such, the approved design capacity remains 220 m³ per day.</p>

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)				
Application type				
Works approval	<input type="checkbox"/>			
Licence	<input checked="" type="checkbox"/>	Relevant works approval number:		None <input checked="" type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received				
Applicant and Premises details				
Applicant name/s (full legal name/s)		Department of Justice		
Premises name		Wooroloo Prison farm Wastewater Treatment Plant		
Premises location		Lot 29175 on deposited plan 192782; register number 29175/DP192782, Volume LR3117 Folio 247. Reserve under management order Reserve description: 14083 All whole: Volume (Folio) - 3117 (247), 3144 (50), 3144 (51), 3144 (52), 3144 (53), 3144 (54), 3144 (55), 3144 (56)		
Local Government Authority		Shire of Mundaring		
Application documents				
HPCM file reference number:		DER2020/000059		
Key application documents (additional to application form):		<i>Wooroloo Prison Farm Wastewater Treatment Plant Upgrade Works: Works Approval Application Narrative and Attachments to the Application Form</i> <i>Water and Nutrient balance calculations August 2019</i>		

	<i>Effluent Quality reports</i> <i>Nutrient and Irrigation Management Plan</i> <i>DOH Recycled WS Approval Jan 2014</i> <i>Wooroloo Operation and Maintenance Manual</i>	
Scope of application/assessment		
Summary of proposed activities or changes to existing operations.	License for operation of Wooroloo Prison Farm Wastewater Treatment Plant and irrigation fields	
Category number/s (activities that cause the premises to become prescribed premises)		
Table 1: Prescribed premises categories		
Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 54 Sewage facility: premises – (a) on which sewage is treated (excluding septic tanks): or (b) from which treated sewage is discharged onto land or into waters	220 m ³ per day	N/A
Legislative context and other approvals		
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input type="checkbox"/> Expiry: Other evidence <input checked="" type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.

<p>Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Application reference No: Licence/permit No: Licence / permit not required.</p>
<p>Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: N/A Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Regional office: Swan Avon / Mid-West Gascoyne / Kwinana Peel / North West / South West / Goldfields / South Coast</p>
<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/></p>
<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx</i>)</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: N/A / possibly contaminated – investigation required (PC-IR) / not contaminated – unrestricted use (NC-UU) / contaminated – restricted use (C-RU) / remediated for restricted use (RRU) / contaminated – remediation required (C-RR) / decontaminated (Decon) Date of classification: N/A</p>