Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Licence Amendment

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

Licence Number	L8610/2017/1
Licence Holder	Pilgangoora Operations Pty Ltd
ACN	616 560 395
File Number	APP-0032084
Premises	Tambrah Accommodation Camp Pilgangoora Operations Wodgina East Road – Less than 100m from Great Northern Highway Legal description – Part of Mining tenement Mining Lease L45/409 MARBLE BAR WA 6760 As defined by the coordinates in Schedule 1 of the Revised Licence
Date of Report	25 March 2026
Decision	Revised licence granted

Alana Kidd

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Alana Kidd

Manager, Green Energy

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

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1. Decision summary

Licence L8610/2017/1 is held by Pilgangoora Operations Pty Ltd (Licence Holder) for the Tambrah Accommodation Camp (the Premises), located at Part of Mining tenement Mining Lease L45/409 MARBLE BAR WA 6760.

This Amendment Report documents the assessment of potential risks to the environment and public health from changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8610/2017/1 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence 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 Amendment summary

The Licence Holder operates the existing Pilgangoora village wastewater treatment plant (WWTP), with an assessed design capacity of 175.7 m^3/day. The WWTP currently discharges 350.5 m^3/day of blended effluent and RO reject brine to the existing 4.17 ha irrigation spray field.

On 28 October 2025, the Licence Holder submitted an application to the department to amend Licence L8610/2017/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The proposed amendment seeks to alter the existing licence allow the operation of a new WWTP authorised for construction under works approval W6902/2024/1.

The following amendments are being sought:

- Replace the existing WWTP with a new sequencing batch reactor WWTP with a treatment capacity of 240 m^3 per day
- A maximum of 140 m^3/per day RO reject brine will be blend with the treated water
- Discharge of up to 380 m^3 of brine and wastewater mixture (herein referred to as blended effluent) to the irrigation sprayfields per day.
- Increase of the total irrigation spray field area to 9.6 ha, by expanding the existing irrigation sprayfield (East sprayfield) and adding an additional sprayfield (West sprayfield) (a total of two sprayfields).
- Expansion of the premises boundary to include the new irrigation field to the west part of the premises and the expansion of the East sprayfield transferred from works approval W6902/2024/1.

2.2.1 Wastewater treatment plant

The proposed WWTP will cater for the expansion of accommodation capacity at the Tambrah accommodation camp. The WWTP has been designed to cater for up to 800 equivalent persons with a water use of 300 litres per persons, per day. The expected treated effluent target concentrations are shown in Table 1 below.

Table 1: WWTP expected effluent discharge parameters

Parameter	WWTP Discharge
Biochemical Oxygen Demand	<10 mg/L
E.coli	<1000cfu/100mL
pH	≥6.5 - ≤8.5
Total Phosphorus	<3.5 mg/L
Total Dissolved Solids	2170 mg/L
Total Nitrogen	<20 mg/L
Total Suspended Solids	<30 mg/L
Residual Free Chlorine	≥0.2 - ≤2.0 mg/L

The department assessed the construction, commissioning and time limited operations for the new WWTP under works approval W6902/2024/1.

The WWTP construction was assessed under application APP-0028175, which was sent to the department on 5 April 2025 and was compliant with the construction requirements. The WWTP (Figure 1) is a sequencing batch reactor composed of a balance tank, an aeration tank, an anoxic tank, a sludge storage tank, an effluent tank and an additional 30 m^3 RO brine storage tank. The existing RO plant which contains a 10.5 m^3 RO brine storage tank, hence the licence holder has a capacity to store a total of 40.5 m^3 of RO brine on the premises.

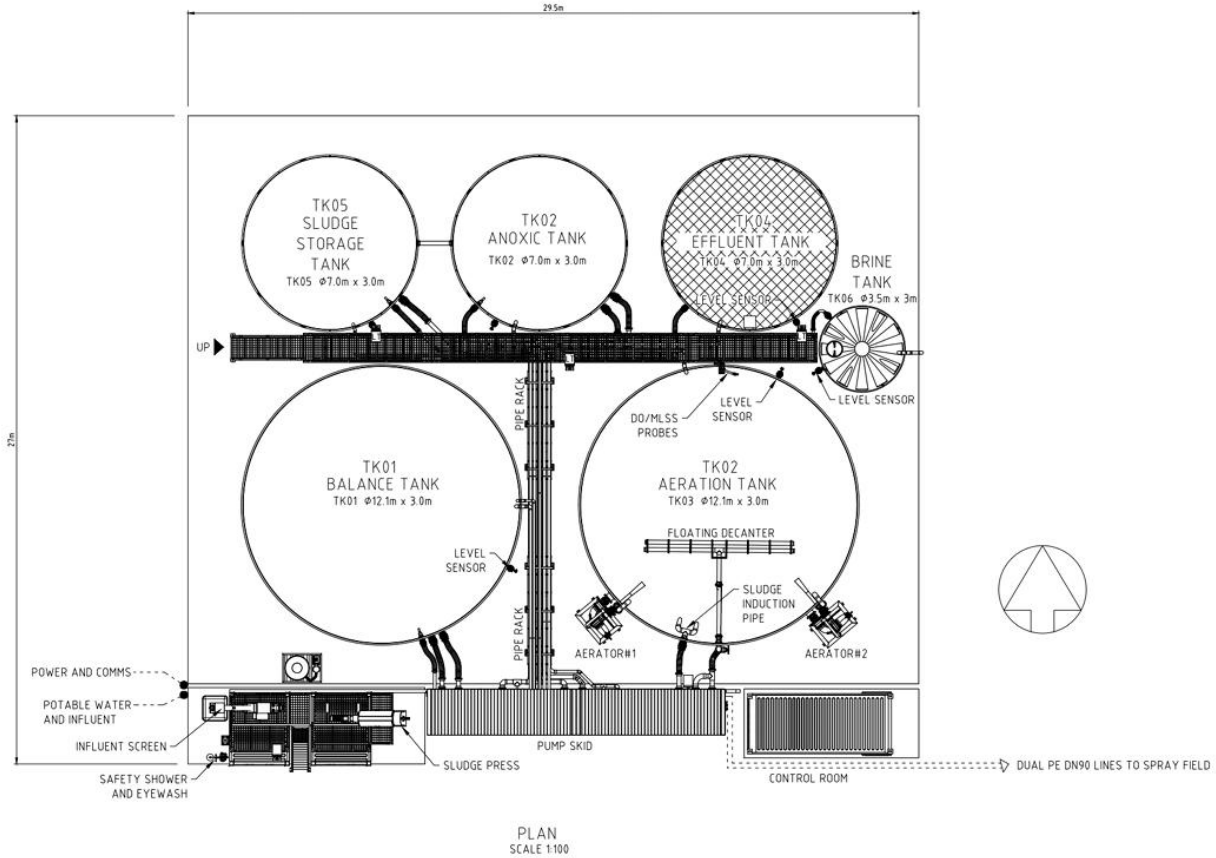

Figure 1: WWTP layout

The WWTP commissioning was assessed under application APP-0030282, on 29 July 2025. The commissioning period was between 5 April to 4 July 2025. The water samples were collected in accordance with AS/NZS 5667.10. During the commissioning period, the treated

water exceeded some parameters. The commissioning results are presented in Table 2.

Table 2: WWTP Commissioning discharge parameters

Week	Date	TN	TP	TDS	TSS	BOD	pH	Residual Free Chloride*	*E. Coli*
1	27-Apr-25	**21.1**	**19.2**	**3460**	6	2	8.25	0.46	**4800**
2	04-May-25	17.5	1.57	**3630**	5	**15**	8.22	0.39	1
3	11-May-25	17.3	2.69	2120	5	2	8.05	0.4	**6400**
4	18-May-25	18.5	1.8	**3510**	5	4	8.06	0.18	840
5	25-May-25	2.1	2.71	1990	6	4	8.32	0.24	5
6	01-Jun-25	**22.1**	2.01	1870	6	2	8.18	0.19	32
7	10-Jun-25	**20.4**	1.29	**2760**	11	2	8.38	1.34	4
8	15-Jun-25	18.9	1.53	1930	16	2	8.25	1.09	1
9	22-Jun-25	16.1	1.33	2100	12	2	8.22	0.54	1
10	25-Jun-25	**22.9**	3.14	2060	**87**	8	8.21	1.96	52
11	02-Jul-25	15.8	1.14	**2800**	22	6	8.08	0.94	46

**Exceedances highlighted in red*

The WWTP Time Limited Operations (TLO) started on 4 July 2025 and continues until the amended licence is issued, the proponent provided the recent treated water parameter results. For most of the WWTP TLO period, the parameters where within target levels. The preliminary TLO results are presented in Table 3.

Table 3: WWTP Time Limited Operations discharge parameters

Week	Date	TN mg/L	TP mg/L	TDS mg/L	TSS mg/L	BOD mg/L	pH	Residual Free Chloride* mg/L	*E. Coli* Cfu/100 mL
1	02-Jul-25	15.8	1.14	984	22	6	8.08	0.94	46
2	9-Jul-25	17.9	1.9	552	7	7	8.3	0.96	270
3	17-Jul-25	12.7	1.68	**2880**	10	4	8.28	0.2	240
4	24-Jul-25	**20.3**	2.06	-	**60**	7	7.76	0.84	110
5	27-Aug-25	16	0.84	1780	21	2	7.91	-	<1
6	1-Sep-25	16.5	1.15	961	17	<2	8.16	1.54	~2
7	28-Oct-25	13.6	1.48	1870	<5	3	8.08	-	~1
8	24-Nov-25	**26.5**	2.96	**2270**	24	3	8.27	-	150
9	30-Nov-25	**21.7**	1.61	2010	9	<2	8.34	-	<1
10	22-Dec-25	**29.9**	2.75	**2660**	12	4	7.13	-	**4300**
11	16-Fen-26	**26.8**	3.43	**2800**	17	<2	8.01	-	<1

**Exceedances highlighted in red*

The Licence Holder requested to increase the limit for Total Dissolved Solids from 2,170 to 4,000 mg/L, as per their Licence L9056/2017/1 limit in Carlindi WWTP, which has similar influent than Tambrah Accommodation Camp.

The RO reject Total Dissolved Solid (TDS) concentrations are summarised in Table 4 below.

Table 4: Quality of RO Brine diluted with effluent

Parameter	WWTP Discharge
RO reject flowrate	140,000 L/day
Indicative TDS of RO reject	3,500 mg/L
WWTP effluent flow rate	240,000 L/day
Average TDS calculation when combined with treated effluent	4,000 mg/L

The department transferred the WWTP and irrigation spray fields with the requested change in TDS to align with other Licence Holder approvals and agreed to the corresponding expansion of the premises boundaries.

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

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed below. Table 5 also details the control measures the Licence Holder has proposed to assist in controlling those emissions, where necessary.

Table 5: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Noise	Expanded Operation of wastewater treatment plant	Air/windborne pathway	Operational noise is expected to be significantly below the assigned level (dB) for noise sensitive premises: sensitive area (Wodgina Mine Camp) as prescribed in the *Environmental Protection (Noise) Regulations 1997* – Regulation 8, Table 1, due to the 5 km distance from the premises. Testing noise is expected to be intermittent but not exceed the assigned level described above.
Oduor	Extended Operation of wastewater treatment plant Incorrect wastewater chemical treatment balance Increased volume of Sludge removal		Controls in Works Approval W6902/2024/1: Wastewater is contained within storage tanks. Wastewater is treated prior to irrigation. Sludge will be removed periodically from site, for disposal with a licensed waste disposal tanker.
Spills/leakage of untreated and treated wastewater, treatment Chemicals or contaminated stormwater Spillage of raw RO water	Operation of wastewater treatment plant Infrastructure and equipment failure for new plant Irrigation of treated effluent that does not meet discharge quality criteria Spills, leaks and/or discharges of untreated sewage, treated effluent not meeting discharge criteria, sludge and chemicals. Storage of chemicals	Overland runoff Direct discharge	Leak detection alarms, switches and shut-off valves to prevent leaks. Chemical dosing Intermediate Bulk Containers have individual bunds and dosing lines are contained inside a sealed outer hose.
Treated wastewater Excess nutrient loading	Discharge of additional treated wastewater onto the irrigation field	Direct planned discharges to spray fields	Fenced spray-field Windrow (300 mm) bunded spray field to contain treated effluent and rainfall events. Continuous flow metering and in-field monitoring of pH and residual free chlorine. Monthly monitoring of parameters for the WWTP effluent. Nutrient loading will not exceed 'Category

Emission	Sources	Potential pathways	Proposed controls
			D' soil constraints. • Phosphorus: = 28kg/ha/90days • Nitrogen: =110kg/ha/90days

3.1.2 Receptors

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

Table 6 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 (*Guideline: Environmental siting* (DWER 2020)).

Table 6: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Industrial premises	~ 770 m west of the premises boundary
Environmental receptors	**Distance from prescribed activity**
Turner river west	Approximately 270 m east of the premises boundary
Creek line	41 m south from premises boundary, approximately 100 m south from West spray field
Rights in Water and Irrigation Act 1914	The Premises is located within the Proclaimed Pilbara Groundwater Area and Surface Water Area. Due to the vertical distance from the emission to the receptor, the department will not consider the Groundwater Area as an environmental receptor.
Groundwater	Groundwater beneath the premises is approximately 36 m bgl – Due the vertical distance from the emission to the receptor, the department will not consider the groundwater as an environmental receptor.
Aboriginal sites and heritage places	8 Lodged sites within the premises boundary 2 Registered sites within the premises boundary

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 incomplete 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 7.

The Revised Licence L8610/2017/1that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 54: Sewage facility activities.

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

Table 7: Risk assessment of potential emissions and discharges from the Premises operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls/ DWER comments
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Operation								
Expanded Operation of wastewater treatment plant	Noise	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Industrial premises ~ 770 m of the premises boundary	Refer to Section 3.1	C = Minor L= Rare **Low Risk**	Y	NA	The environmental siting of the premises is considered to be effective in mitigating the impact of noise emissions from the premises on sensitive receptors during operations. The delegated officer considers noise emissions associated with the construction can be sufficiently managed through the *Environmental Protection (Noise) Regulations 1997*
Expanded Operation of wastewater treatment plant. Incorrect wastewater chemical treatment balance. Increased volume of Sludge removal.	Odour	**Pathway:** Air/windborne pathway **Impact:** Cause discomfort in nearby locations	Industrial premises ~ 770 m of the premises boundary	Refer to Section 3.1	C = Slight L= Possible **Low Risk**	Y	**Condition 1** – operational requirement to maintain sludge within sealed tanks prior to removal from premises and the removal of any spillage. **Condition 5** – emission treatment criteria **Condition 11** – monitoring of treatment effluent	NA
Operation of wastewater treatment plant. Infrastructure and equipment failure for new plant.	Spills/leakage of untreated and treated wastewater,	**Pathway:** Overland runoff Direct discharge	Turner river west ~ 270 m east of the premises boundary	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	**Condition 1** - requirement to maintain leak detection alarms, switches and shut-	NA

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls/ DWER comments
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Irrigation of treated effluent that does not meet discharge quality criteria. Spills, leaks and/or discharges of untreated sewage, treated effluent not meeting discharge criteria, sludge and chemicals. Storage of chemicals.	treatment Chemicals or contaminated stormwater	Seepage **Impact:** Ecosystem disturbance or impacting surface water quality Soil contamination, inhibiting vegetation growth and survival	Vegetation within and adjacent to irrigation area Nearby tributaries / waterways (after rain). Aboriginal sites and heritage places within the premises boundary				off valves operational and to clean up any spills. **Condition 3** – operational management of stormwater on site	
Discharge of additional treated wastewater onto the irrigation fields. Piping– pipeline ruptures, overloading irrigation area, pooling. Wastewater not being mixed properly. RO water not diluted going to irrigation area.	Treated wastewater Excess nutrient loading Excess of salinity	**Pathway:** Overland runoff Direct discharge Spray drift **Impact:** Flooding/pooling /overland runoff potentially causing ecosystem disturbance or impacting surface water quality/vegetation death Soil contamination	Vegetation within and adjacent to irrigation area Nearby tributaries / waterways (after rain). Aboriginal sites and heritage places within the premises boundary Premises is located within the Proclaimed Pilbara Surface Water Area. Creek line ~ 100 m south from Western sprayfield	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	**Condition 1** – operational requirement to: - limit the volume of treated effluent with RO reject to be applied in the irrigation area -Avoid ponding and pooling of effluent **Condition 4** – specification of discharge point **Condition 5** – Emission treatment criteria **Condition 12** – treated effluent discharge criteria	NA

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

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

4. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

Consultation method	Comments received	Department response
The Department of Health advised of the proposal on (09/12/2025)	The Department of Health responded on 19 December 2025 stating that they issued a construction approval for the existing wastewater treatment plant connected to an additional 28,072 m² surface irrigation field. Wastewater treatment plant is approved to receive a maximum daily wastewater volume of 240,000 L/day. If there is any change in the use of the premises that affects the wastewater volume, a new application to construct or install an apparatus for the treatment of sewage must be submitted.	Noted
Licence Holder was provided with draft amendment on 11/03/2026	Licence Holder provided comments on 24 March 2026. Refer to Appendix 1.	Refer to Appendix 1.

5. Conclusion

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

5.1 Summary of amendments

Table 9 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 9: Summary of licence amendments

Condition no.	Proposed amendments
Licence front page	DWER file number updated Increase of discharge for category 54
Numbering of conditions	Updated to current licence conditions format
1.1.1, 1.1.2, 1.1.3, 1.1.4,	Outdated conditions removed
1	Condition 1 updated 1.1.2 - Definitions moved to Table 6 – Definitions Operational requirements added
2	1.2.1 condition updated
3	1.2.2 condition updated
1.3.1 and 1.3.2	Updated to new format in Condition 1 and 4
1.3.3 and 1.3.4	Added to operational requirements in condition 1

2.1.1	Conditions updated to condition 4
5	Emission treatment criteria added
6, 7 and 8	Added to update the licence conditions
3.1.1	Removed and incorporated in conditions 7 and 12
3.1.2, 3.1.3 and 3.1.4	Updated to new format
3.2.1	Updated to new format in condition 12
4.1.3	Updated format in condition 15
16	Auditable nooks condition added
4.1.1	Updated to new format in condition 17
4.1.2	Updated to new format in condition 18
4.2.1	Updated to new format in condition 19
Definitions – Table 6	Definitions updated and new definitions added
Premises map	Updated to the new premises boundary
Premises coordinates	Updated to the new premises boundary

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

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

Condition	Summary of Licence Holder's comment	Department's response
10 and 11	Requested to that these monitoring conditions refer to condition 9.	The department agreed and additionally move these conditions to appear after condition 9 for more fluency in the licence conditions.
18 – Table 5	To align the reporting condition regarding quarterly monitoring of Nitrogen, Phosphorus and Biochemical oxygen demand (BOD) with Table 4, as preference quarterly.	The department agreed and updated Table 5 quarterly tabulation of those parameters instead of monthly.