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	L6925/1997/8
Licence Holder	City of Albany
Application Number	APP-0026237
Premises	Albany Refuse Site 37 Maxwell Street MOUNT MELVILLE WA 6330 Legal description – Lot 1135 on Plan 208775 & Lot 202 on Plan 76615
Date of Report	25 June 2025
Decision	Revised licence granted

Abbie Crawford

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Abbie Crawford
MANAGER, WASTE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L6925/1997/8 is held by the City of Albany (licence holder) for the Albany Refuse Site (the premises), located at 37 Maxwell Street, Mount Melville, WA.

This amendment report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the premises. As a result of this assessment, revised Licence L6928/1998/8 has been granted.

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 Background and amendment summary

The Albany Refuse Site (also known as Hanrahan Road Waste Facility) is a licensed Category 62 solid waste depot and Category 64 Class II landfill site, consisting of a transfer station, Class II landfill cells, a resource recovery area, and a reuse shop (Fossicker's Tip Shop). The site is located approximately two kilometres north-west of the Albany city centre and approximately 660 metres north of Princess Royal Harbour.

The site is 49.5 ha in area, having received waste for burial since 1972 with a current annual maximum landfill rate of 100,000 tonnes per annual period. The landfill is unlined and has a licensed landfill footprint area of 18.4 ha of which 15.1 ha is being used as an active landfill area. The landfill area is currently uncapped except for a portion of the westernmost embankment where a lined leachate interception drain was installed in 2013 and included a compacted clay cap. The remainder of the landfilled area is covered with an interim cover layer of approximately 300 mm of clayey sand soils. Both current and historical landfilling areas are not currently subject to landfill gas management. Landfill gas currently vents to the atmosphere passively.

GHD conducted a review of the management of stormwater and leachate on the premises as presented in the *Hanrahan Road Waste Facility Stormwater and Leachate Management Options Assessment* (GHD 2022). The applicant subsequently amended the licence to allow for the installation of two 500,000 L liquid waste storage tanks to store excess leachate prior to discharging leachate back into the onsite leachate management systems as required.

On 27 September 2024, the Licence Holder submitted an application to the department to amend Licence L6925/1997/8 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Construction and operation of landfill gas management infrastructure;
- Changes to the approved leachate storage tank infrastructure; and
- Use of Posi-Shell system as an alternate daily landfill cover.

2.2.1 Leachate storage tanks

To mitigate the risk of leachate emissions from the premises during high rainfall events, the licence holder applied for and was granted a licence amendment to install two 500,000 L liquid waste storage tanks to store excess leachate prior to discharging leachate back into the onsite leachate management systems as required. The licence holder also explored the possibility of tankering excess leachate off site to a suitable facility should it need to into the future.

Due to constraints encountered during the procurement phase, the applicant has applied to amend the design and construction requirements of the leachate storage tanks. The steel tanks will have an impervious internal lining and will be located in an area adjacent to the leachate pond within a bunded handstand area. The amended design still allows for storage capacity of 110% of the volume of the largest tank and will be isolated from the leachate pond should a spill occur in the event where the leachate pond is at operational capacity. The location of the proposed leachate holding tanks is shown in Figure 1 below. The change to the location of the leachate storage tanks and bunded area was proposed to allow for future leachate evaporation infrastructure at the previously proposed location.

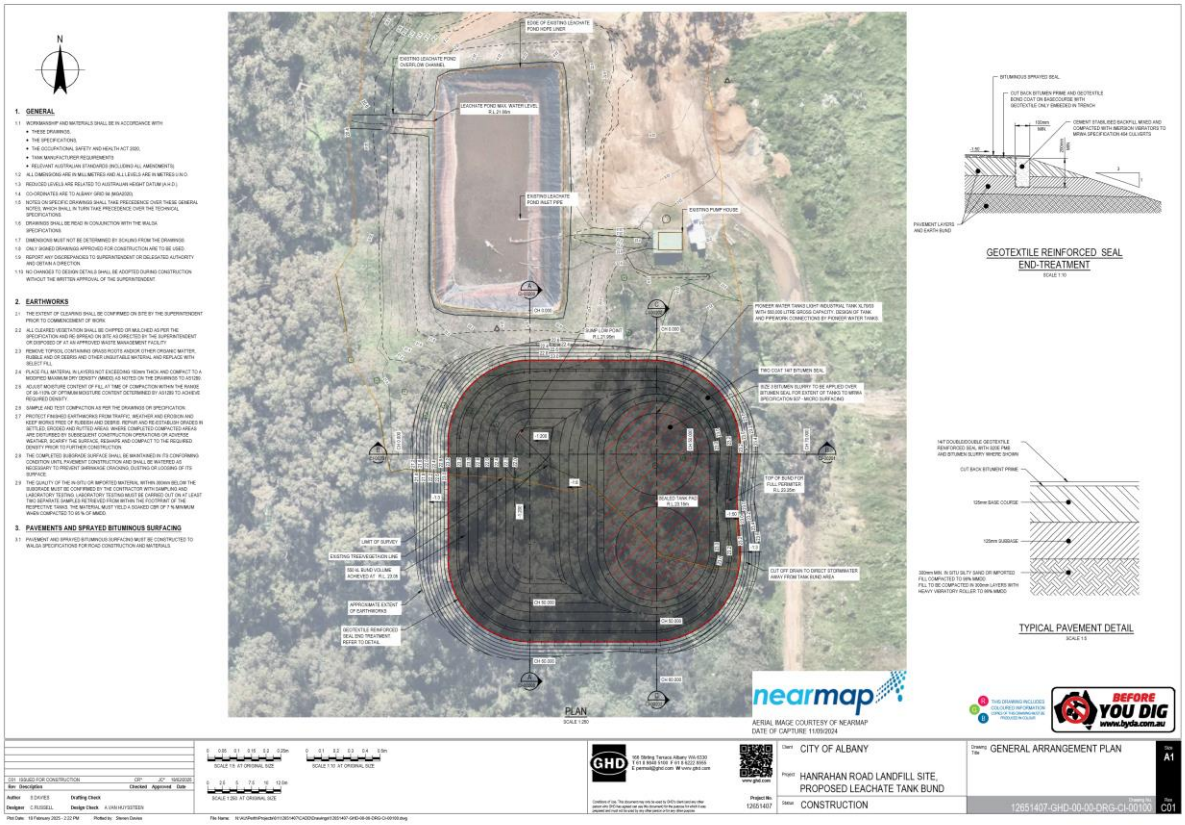

Figure 1: Leachate holding tank layout

The applicant has proposed an alternative hardstand/bund subgrade than that which was conditioned in the licence amendment granted on 13 June 2024. The updated design consists of a geotextile reinforced bunded area as depicted in Figure 2 below:

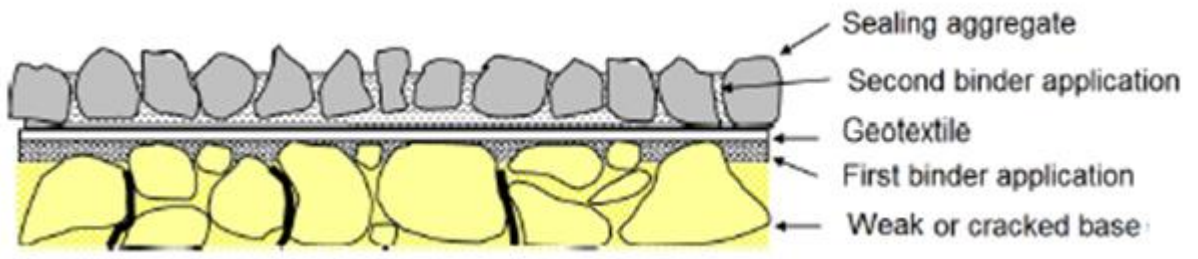

Figure 2: Leachate holding tank subgrade design

2.2.2 landfill gas management

Landfill gas emissions can result in fire and explosion and result in asphyxia at high concentrations. Landfill gas such as hydrogen sulphide generates odour and can also have toxic effects on the health and wellbeing of flora, fauna and human receptors.

In order to manage landfill gas, the licence holder proposes to install 33 vertical extraction wells with a typical well spacing of 40 to 50 m. Wells will nominally be constructed of a 200 mm HDPE well casing inserted into a 600 mm bore which is to be backfilled by a suitable drainage aggregate. The wells will be connected to a vacuum source (nominally at the power station and or flare) via a network of HDPE gas mains and well headers

Progressive installation of horizontal wells (perforated lateral pipework embedded in a free draining rock pack) will be undertaken as required. In operating cells, horizontal wells are typically installed every second waste lift (approximately 3-4m per lift) with each new series being offset from the previously installed pipework. This provides a staggered design within the waste mass and increases overall coverage.

The system is also designed so that condensate in the header pipework will be minimised by placing the wellhead stations at the top of the landfill, and therefore at the highest point in the collection system. All condensate that forms within the lateral flow lines will drain back the gas collection system or collected within J-traps before being returned to the underlying waste mass.

The collected landfill gas will be combusted via a flare. The proposed LMS flare has a maximum capacity of 1,000 m^3/hour with the ability for the destruction of greater than 98% of non-methane organic compounds.

2.2.3 Alternate daily landfill cover

The Licence Holder is proposing to use Posi-Shell as an alternative daily cover material. Posi-Shell is a patented blend of clay binders, reinforcing fibers, and polymers that, when mixed with water, produces a spray-applied mortar that dries in the form of a thin durable stucco.

Posi-Shell adheres to any surface and is effective in wet and dry forms. Posi-Shell's properties enable it to be used as daily cover, as an intermediate cover, or used in erosion control when applied with the use of durability enhancers. Posi-Shell is packaged in 15 kg bags or 125 kg bulk sacks and mixing is accomplished using hydroseeding units (mobile trailers).

The Licence Holder proposes to use Posi-shell as an alternate cover material for waste described in the licence as *"all other waste"*. Cover requirements for Special Waste Type 1 (asbestos), Special Waste Type 2 (biomedical waste) and Inert Waste Type 2 (tyres) remain unchanged. The Licence Holder proposes to use leachate, stormwater or other water sources to mix the Posi-Shell product prior to application to the active tipping area.

2.2.4 Temporary storage of comingled recycling

The Albany Transfer Station (L9191/2019/1) located at Lot 167 Cuming Rd, Mount Melville, and immediately adjacent to the Albany Refuse Site, is undergoing a change of operator and infrastructure upgrades. To facilitate this process, the Licence Holder requires the acceptance of up to 150 tonnes of comingled recycling that is sourced from the City of Albany municipal kerbside recycling collection. On 30 May 2025 the Licence Holder requested this proposal be incorporated into the application currently under assessment.

The recycling will be delivered to the premises in compactor trucks and transferred in hooklift bins to be temporarily stored adjacent to the weighbridge and the transfer shed, on existing hardstand areas. It is anticipated that a maximum of 35 tonnes of recycling will be stored at the premises at any one time.

Loads of recycling will be transferred offsite to an appropriately licenced premises within 24 to 48 hours.

This amendment is limited only to changes to Category 62 activities from the existing licence. No changes to Category 64 have been requested by the Licence Holder. Table 1 below outlines the proposed changes to the existing licence.

Table 1: Proposed throughput capacity changes

Category	Current design capacity	Proposed design capacity
Category 62: Solid waste depot: premises on which waste is stored or sorted, pending final disposal or re-use, other than in the course of operating – (a) A refund point (as defined in the *Waste Avoidance and Resource Recovery Act 2007* section 47C(1)) (a *refund point*); or (b) A facility or other place (an *aggregation point*) for the aggregation of containers that have been returned to refund points until those containers are accepted for processing or disposal.	5,000 tonnes per annual period	5,150 tonnes per annual period
Category 64: Class II or III putrescible landfill site: premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the *Landfill Waste Classification and Waste Definitions 1996*, is accepted for burial.	100,000 tonnes per annual period	100,000 tonnes per annual period

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 construction and operation which have been considered in this Amendment Report are detailed in Table 1 below. Table 1 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Sources	Emission	Potential pathways	Proposed controls
Cover putrescible waste with Posi-shell, vehicle movements, lift-off from tipping face. Earthworks and construction works associated with the installation of the bund, leachate holding tanks. Installation of landfill gas management system.	Dust	Air/windborne pathway	Posi-shell reduces dust emissions due to it's inert material and spray on cover range. The Posi-shell equipment sits on a mobile trailer. Dust emissions from the trailer itself will be negligible as speed is greatly reduced when moving/towing the trailer. Weekly monitoring of the Posi-shell effectiveness as an alternative daily cover will be undertaken for 12 weeks.
Cover putrescible waste with Posi-shell and vehicle movements. Earthworks and construction works associated with the installation of the bund, leachate holding tanks. Installation of landfill gas management infrastructure.	Noise	Air/windborne pathway	Maintenance of equipment/machinery to optimise performance and reduce noise emissions. Conduct screening (if required) as per the *Draft Guideline: assessment of environmental noise emissions.*
Storage of leachate in tanks Disturbance of waste mass during installation of landfill gas management infrastructure. Flaring of landfill gas Use of Pos-shell as alternative daily cover.	Odour	Air/windborne pathway	Monitor in accordance with current licence conditions. Leachate tanks to be emptied as required. Leachate tanks to be comprised of steel with an impervious lining system. Landfill gas wells balancing will occur on a regular basis to ensure efficient destruction of landfill gas. No controls have been proposed for the disturbance of waste during installation of the landfill gas management infrastructure. Weekly monitoring of the Posi-shell effectiveness as an alternative daily cover will be undertaken for 12 weeks.
Handling of leachate, conveyance of leachate,	Leachate	Overland	Tanks to be emptied as

Sources	Emission	Potential pathways	Proposed controls
storage of leachate in tanks and overtopping of leachate pond Use of Posi-shell as alternative daily cover.		runoff Seepage through soil to groundwater	required during. Tanks to be comprised of steel with an impervious lining system. Leachate tanks to be installed within a bitumen bunded area. The use of Posi-shell as a daily cover material will reduce infiltration of stormwater through the waste mass, thus minimizing leachate generation. Weekly monitoring of the Posi-shell effectiveness as an alternative daily cover will be undertaken for 12 weeks.
Handling of leachate, conveyance of leachate, storage of leachate in tanks Use of Posi-shell as alternative daily cover.	Contaminated stormwater	Overland runoff Seepage through soil to groundwater	The use of Posi-shell as a daily cover material will reduce the potential for stormwater to come in contact with waste. All captured stormwater within the bunded area will be transferred to the leachate pond. Weekly monitoring of the Posi-shell effectiveness as an alternative daily cover will be undertaken for 12 weeks.
Landfill gas generated through the decomposition of waste within the landfill	Landfill gas	Air/windborne pathway	Construction and operation of landfill gas management infrastructure. Flaring of captured landfill gas. Ongoing monitoring of the landfill gas management infrastructure. Development of an Emergency Response Plan for the operation of the landfill gas management system. Monitoring of perimeter landfill gas wells
Use of Posi-shell as alternative daily cover. Disturbance of waste mass	Windblown waste	Air/windborne pathway	Clean fill suitable for end of day cover will be retained on site and used as end of day

Sources	Emission	Potential pathways	Proposed controls
during installation of landfill gas management infrastructure.			cover if Posi-shell fails to provide adequate control of windblown waste. If unexpected windblown waste occurs the City of Albany retains several casual staff who will be brought in to collect windblown waste escaped from the tip face. Weekly monitoring of the Posi-shell effectiveness as an alternative daily cover will be undertaken for 12 weeks.
Use of Posi-shell as alternative daily cover. Disturbance of waste mass during installation of landfill gas management infrastructure.	Pest/vermin	Air/windborne pathway	Clean fill suitable for end of day cover will be retained on site and used as end of day cover if Posi-shell fails to provide adequate control of access to waste by pest/vermin. Weekly monitoring of the Posi-shell effectiveness as an alternative daily cover will be undertaken for 12 weeks.
Disturbance of waste mass during installation of landfill gas management infrastructure.	Asbestos	Air/windborne pathway	No further controls proposed.
Acceptance of commingled recycling from municipal kerbside collection	Contaminated stormwater / leachate	Overland runoff Seepage through soil to groundwater	Storage only, no reprocessing. Stored within hooklift bins and upon hardstand pads.
	Windblown waste	Air/windborne pathway	Storage of received comingled recycling in hooklift bins to prevent the escape of waste. Fencing surrounding the premises.

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 3 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 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Residential Premises	285m southwest of the prescribed premises boundary 190 m northeast of prescribed premises boundary 250 m east of the prescribed premises boundary 300m north of prescribed premises boundary
Parklands Primary School	680 m north of the prescribed premises boundary
Kardarup/ Mount Melville Lookout Tower	Approximately 450 m east of the prescribed premises boundary
Industrial premises	220 m southwest of the prescribed premises boundary 300m west of the prescribed premises boundary Fossickers tip shop located 30 m north of the prescribed premises boundary
Environmental receptors	**Distance from prescribed activity**
Threatened Fauna *Isoodon fusciventer (Quenda)* *Pseudocheirus occidentalis (Ringtail Possum)*	Within and in close proximity to prescribed premises boundary
Priority Ecological Communities	Subtropical and Temperate Coastal Saltmarsh (Priority 3) within 1 km of prescribed activity
Surface waters/stormwater collection points on premises	Stormwater collection ponds are located within the premises boundary. Surface water flows into Munster Hill drainage system and from there into Princess Royal Harbour
Princess Royal Harbour	Approximately 733 m south of the premises boundary
Underlying groundwater	Groundwater is located Approximately 1.5 to 8 m bgl Hydraulic gradient runs north-east to south west. Located within weather granitoid rocks, with groundwater infiltration charged via rainfall and runoff. The site sits within the gazette Albany Waterways Management Area. The Proclaimed Albany Groundwater area (RIWI Act) is located 175m southwest from the premises. Located within weathered granitoid rocks, with groundwater infiltration charged via rainfall and runoff.

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 4.

The Revised Licence L6925/1997/8 that accompanies this Amendment Report authorises emissions associated with the construction and operation of landfill gas management infrastructure, changes to the approved leachate storage tank infrastructure, and the use of Posi-Shell system as an alternate daily landfill cover.

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

Table 4. Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source / Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Earthworks and construction works associated with the installation of the bund, leachate holding tanks	Dust	Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km Parklands School 1.3 km north Kardarup / Mount Melville Lookout Tower 740 m east Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	Yes	N/A	Emission to be regulated under the general provisions of the EP Act
	Noise			Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	Yes	N/A	Emission to be regulated under the *Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations)
Earthworks and construction works associated with the installation of landfill gas infrastructure Disturbance of landfilled material	Dust	Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km Parklands School 1.3 km north Kardarup / Mount Melville Lookout Tower 740 m east Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	Yes	N/A	Emission to be regulated under the general provisions of the EP Act
	Noise			Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	Yes	N/A	Emission to be regulated under the *Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations)
	Odour			Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	No	**Condition 11**	Additional regulatory controls have been added to the licence to ensure all waste that is uncovered or excavated during the construction of the landfill gas infrastructure is immediately landfilled following disturbance.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source / Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	Asbestos			Refer to Section 3.1.1	C = Severe L = Unlikely **High Risk**	No	**Conditions 11 & 12**	Additional controls relating to the discovery and management of unexpected asbestos finds have been included within the licence.
	Pests / vermin	Biological pathway causing impacts to health and amenity	Residents within 1.1 km Parklands School 1.3 km north Kardarup / Mount Melville Lookout Tower 740 m east Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	No	Condition 5 **Condition 11**	Additional regulatory controls have been added to the licence to ensure all waste that is uncovered or excavated during the construction of the landfill gas infrastructure is immediately landfilled following disturbance.
Operation								
Operation of Posi-shell machinery Use of Posi-shell as cover material	Dust	Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km of activity Parklands School 1.3 km north of activity Kardarup / Mount Melville Lookout Tower 740 m east of activity Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Yes	N/A	Emission to be regulated under the general provisions of the EP Act
	Noise	Air/windborne pathway causing impacts to health and amenity		Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Yes	N/A	Emission to be regulated under the *Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations)
Decomposition of buried waste	Landfill gas	Air/windborne pathway causing impacts to health	Residents within 1.1 km of activity	Refer to Section 3.1.1	C = Major	No	Condition 10 **Conditions 13 &**	Condition 10 is added to the Licence to ensure that the landfill gas management

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source / Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
		and amenity	Parklands School 1.3 km north of activity Kardarup / Mount Melville Lookout Tower 740 m east of activity Industrial premises within 600 m of activity		L = Unlikely **Medium Risk**		**14**	infrastructure is constructed as designed. Conditions 13 and 14 are added to certify that the infrastructure was constructed as per the specifications.
Capture and transfer of landfill gas generated through the decomposition of waste within the landfill Flaring of captured landfill gas	Noise	Air/windborne pathway causing impacts to health and amenity Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km of activity Parklands School 1.3 km north of activity Kardarup / Mount Melville Lookout Tower 740 m east of activity Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Yes	N/A	Emission to be regulated under the *Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations)
	Odour			Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	No	Condition 10, 30, 31, 32 **Conditions 13, 14, 33 & 40**	Additional regulatory controls have been added to the licence to ensure the efficient destruction of landfill gas that has the potential to generate odour emissions.
	Fugitive landfill gas	Air / wind dispersion, lateral migration of landfill gas through the soil profile and passive venting to air causing impacts to health and amenity lateral migration of landfill gas through the soil profile causing explosive risk	Residents within 1.1 km of activity Parklands School 1.3 km north of activity Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Major L = Rare **Medium Risk**	Yes	N/A	The Delegated Office note that the installation of landfill gas management infrastructure will result in reduction in the likelihood of landfill gas passively venting to the atmosphere or migrating laterally from the landfill.
	Leachate from landfill gas	Overland runoff / migration onto	Recreational users of	Refer to Section 3.1.1	C = Moderate	Yes	N/A	All condensate formed within the landfill gas

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source / Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	condensate	surrounding land and into waterways causing ecosystem disturbance Seepage through soil and to groundwater causing contamination and impacting water quality Direct dermal contact and ingestion of contaminated surface water causing impacts to human health.	Princess Royal Harbour TEC within 1 km of activity Princess Royal Harbour 1 km south of activity Underlying groundwater approx. 15 m bgl		L = Unlikely **Medium Risk**			management system will drain back into the landfill waste mass.
Handling of leachate, conveyance of leachate, storage of leachate in tanks and overtopping of leachate pond	Odour	Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km of activity Parklands School 1.3 km north of activity Kardarup / Mount Melville Lookout Tower 740 m east of activity Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Moderate L = Possible **Medium Risk**	Yes	Conditions 9, 13, 14 & 16	N/A
	Leachate	Overtopping / loss of containment causing overland runoff and infiltration into land and waterways causing ecosystem disturbance Seepage through soil and to groundwater causing contamination and impacting water	TEC within 1 km of activity Princess Royal Harbour 1 km south of activity Underlying groundwater approx. 15 m bgl	Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Yes	Conditions 10, 11, 12, 13 & 14	No further regulatory controls have been added to those already imposed under the licence amendment granted on 13 June 2024. The alterations to the tank bund and leachate holding tanks do not alter the risk as previously assessed for this infrastructure.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source / Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
		quality						
	Contaminated stormwater	Overland runoff / migration onto surrounding land and into waterways causing ecosystem disturbance Seepage through soil and to groundwater causing contamination and impacting water quality Direct dermal contact and ingestion of contaminated surface water causing impacts to human health.	Recreational users of Princess Royal Harbour Residents 680 m south of activity TEC within 1 km of activity Princess Royal Harbour 1 km south of activity Underlying groundwater approx. 15 m bgl	Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Yes	Condition 16	All captured stormwater within the bunded area will be transferred to the leachate pond. Condition 16 gives effect to this.
Acceptance of commingled recycling sourced from municipal kerbside collection	Dust	Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km of activity Parklands School 1.3 km north of activity Kardarup / Mount Melville Lookout Tower 740 m east of activity Industrial premises within 600 m of activity	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Yes	N/A	N/A
	Noise	Air/windborne pathway causing impacts to health and amenity		Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Yes	N/A	N/A
	Windblown waste	Air/windborne pathway causing impacts to health and amenity	Residents within 1.1 km Parklands School 1.3 km north Kardarup /	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Yes	N/A	Existing conditions within the licence are sufficient to manage any windblown waste that should escape the hooklift bins during the short duration storage of comingled recycling at the

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source / Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
			Mount Melville Lookout Tower 740 m east Industrial premises within 600 m of activity Recreational users of Princess Royal Harbour TEC within 1 km of activity Princess Royal Harbour 1 km south of activity					premises.
	Contaminated stormwater / leachate	Overland runoff/seepage through soil, potentially causing ecosystem disturbance or impacting surface water, soil and groundwater quality	Princess Royal Harbour 1 km south of activity Underlying groundwater approx. 15 m bgl	Refer to Section 3.1.1	C = Moderate L = Rare **Medium Risk**	Yes	Conditions 1 & 2	The Delegated Officer does not consider the risk of impacts to groundwater receptors associated within the acceptance and temporary storage of commingled recycling sourced from municipal kerbside collection to be significant. The controls proposed by the Licence Holder to contain and store the commingled recycling are considered sufficient to manage the risk to groundwater and Princess Royal Harbour.

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 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 20 March 2025	The Licence Holder provided comments on the draft package on 11/04/2025 and 29/05/2025 which are summarised in Appendix 1. On 17/04/2025 the Licence Holder provided updated design plans for the leachate tanks and bunded area. On 30/05/2025 the Licence Holder requested the acceptance of commingled recycling sourced from municipal kerbside collection.	See Appendix 1.
Licence Holder was provided with a second draft amendment on 18 June 2025.	The Licence Holder sent communication to the department on 24 June 2025 supporting the draft amendments to licence L6925/1997 and waived the reminder of the comment period.	N/A

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 6 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 6: Summary of licence amendments

Condition no.	Proposed amendments
Condition 1 Table 1	Inclusion of an additional 150 tonnes of acceptance and storage of commingled recycling sourced from municipal kerbside recycling bins.
Condition3 Table 2	Inclusion of processing specification for the acceptance and storage of commingled recycling sourced from municipal kerbside recycling bins.
Condition 5 Table 3	Cover requirements amended to include the use of Posi-shell as an alternative daily cover.
Condition 9 Table 4	Amendment to design and construction requirements for the leachate management bund and leachate holding tanks.

Condition no.	Proposed amendments
Condition 10 Table 5	Inclusion of design and construction requirements relating to landfill gas management infrastructure.
Condition 11	Inclusion of ensuring waste is not uncovered or excavated unless for the installation of the landfill gas collection and management system infrastructure
Condition 12	Requirements for the identification of Special Waste Type 1 (ACM) during installation of the landfill gas management infrastructure.
Condition 13 Condition 14 Condition 15	Amendment to compliance reporting conditions to include the landfill gas management infrastructure.
Condition 16 Table 6	Amendment to operational requirements for leachate management bund
Condition 30 Table 13 Condition 31 Table 14	Inclusion of Landfill gas monitoring requirements.
Condition 32 Table 15 Condition 33	Inclusion of Landfill gas trigger levels and corrective actions
Condition 40 Table 18	Amendment to annual reporting requirements for the inclusion of landfill gas infrastructure and monitoring and leachate management system
Definitions	Inclusion of definition for Modified Maximum Dry Density
Figures	Amendment to Figure 4 (Leachate management bund design and construction specifications) Addition of Figure 5: Leachate management bund design and construction – cross-section Update to Figure 6: Stormwater management infrastructure Addition of Figure 7: Landfill gas management infrastructure layout Addition of Figure 8: Landfill gas management infrastructure design and construction specifications
Schedule 2	Deletion of prescribed premises boundary coordinates.
Schedule 3	Renamed to Schedule 2 due to deletion of Schedule 2
Schedule 4	Renamed to Schedule 3 due to deletion of Schedule 2
Schedule 5	Renamed to Schedule 4 due to deletion of Schedule 2

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.
4. LMS ENERGY Pty Ltd (LMS) 2024*, Hanrahan Rd Landfill Biogas Extraction System Management Plan.*

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

Section	Summary of Licence Holder's comment	Department's response
Condition 5 Table 3	3-5mm of Posi-Shell (as per Waste Management Review October 2018 & April 2025 article exploring global and Australian practice with Posi-Shell)	Noted.
Condition 10 Table 5	Replace "prevent" with "minimise" in first row (as LFG collection is one part of the system to control emissions, along with final capping. Gas extraction wells: Layout may alter pending onsite conditions while installing the system (e.g., solid waste that obstructs drilling). Landfill gas flare: Request to remove temperature reference as flare can be operated at lower temperatures if required. Add 7m "minimum height" for the flare	Updated as requested. The landfill gas extraction well layout has been updated with the new figure supplied by the applicant. Should installation differ to that conditioned, this should be reported in the compliance reporting. The required flare temperature has been removed, and the minimum height requirement has been added to the licence. The requirement to minimise landfill gas migration, minimise landfill gas emissions and optimise utilisation remains.
Condition 12	Condition related to ACM could potentially see entire site closed to all incoming vehicles, which would be difficult to manage and may pose other unintended health risks for the community. COA proposes that if ACM is excavated or uncovered it be managed in accordance with the City of Albany Handling, Removal and Disposal of Asbestos Containing Materials Policy	The condition will be updated to reflect the work area where the ACM is discovered. The requirement to protect the general public remains. Re-burial and management conditions have been simplified to align with current ACM management and disposal practices at the premises. DWER cannot condition requirements contained within management plans of policies. The requirements of a management plan have been included as licence conditions as required.
Condition 12(e)(v)	Could be covered by using the asbestos register to record these details and GPS the relevant sites	Condition has been updated to include a reference to Condition 39 (register of Special Waste Type 1). Re-burial and management conditions have been simplified to align with current ACM management and disposal practices at the premises.

Section	Summary of Licence Holder's comment	Department's response
Condition 16 Table 6	Landfill gas: replace "prevent" with "minimise". See comments at Table 5	Updated as requested.
Condition 30 Table 13	Monitoring Point: "Each well, as per proposed layout." Method: GFMS Parameter: Change "Nitrogen" to "Balance gas" Gas temperature: Remove as not recorded with GFMS Pressure: Remove as LFG is extracted by vacuum, not positive pressure. Various pressures are present within the system to draw out the LFG pending quality of the gas and the gas system is balanced as a whole.	Proposed layout figure updated and references as requested. A definition of balance gas and GFMS has been added to the licence. Monitoring parameters have been updated to ensure monitoring is achievable, whilst being capable of detecting a landfill fire should one occur at the premises. Regular monitoring of the landfill gas collection system will facilitate the prevention and early detection of fires, enable balancing of the gas field and ensure that landfill gas is being extracted efficiently.
Condition 31 Table 14	Request removal of Table 14 and refer instead to LFG Management Plan, otherwise any update will require licence amendment. Suggest changing to: "Specified monitoring activities shall occur as detailed with the LFG Management Plan for the site". Remove volume parameter - current wording triggers notification every time flare is turned off, which can happen multiple times (i.e., if flare is restarted, turned off for maintenance and many other scenarios. It will create many unnecessary notifications required from standard operations". Any significant downtime of flare gets reported within LMS monthly report (as stated in LFGMP)	As discussed above, DWER cannot condition requirements contained within management plans or policies. The requirements of a management plan or policy will be included as licence conditions as required. Monitoring parameters have been updated to ensure monitoring is achievable, whilst being capable of detecting a landfill fire should one occur at the premises. Regular monitoring of the landfill gas collection system will facilitate the prevention and early detection of fires, enable balancing of the gas field and ensure that landfill gas is being extracted efficiently. Monitoring Conditions have been updated to exclude maintenance scenarios.
Condition 32 Table 15	Recommend remove or reword. These numbers are "general LFG" numbers. Specific LFG generated at the site will vary dramatically from these depending on many environmental factors. Methane – Carbon dioxide ratio: Remove. Gas composition cannot be controlled. It is a factor of organic material breaking down.	The Delegated Officer has reviewed the corrective actions and reporting requirements and updated them as required. As the site progresses to closure and landfill gas profile changes, the department would expect a licence amendment application to be submitted to reflect the change in the landfill gas quality and volumes generated at the premises whilst ensuring the on-going suitability of the flare to manage landfill gas at the premises.

Section	Summary of Licence Holder's comment	Department's response
	Parameters: Remove as per Table 14 comments. These parameters are general gas compositions and may never be able to be achieved. Trigger levels: Remove. These numbers are "general LFG" numbers. Specific LFG generated at the site will vary dramatically from these depending on many environmental factors. Numbers do not allow for "later in life" operations of the landfill when the gas quality declines.	
Figure 7 and 8	Proposed layout only (see revised proposed layout – wells intended to be installed in circled locations, but may vary pending onsite conditions once drilling commences)	Proposed layout and typical design and construction specification diagrams for vertical wells, horizontal wells, condensate traps and connection pipework figures have been updated as supplied. Should installation differ to that conditioned, this should be reported in the compliance reporting.