



Amendment Report

Application for Works Approval Amendment

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

Works Approval Number	W6814/2023/1
Works Approval Holder	City of Armadale
File Number	DER2023/000358
Premises	City of Armadale Landfill and Recycling Facility 145-147 Hopkinson Road HILBERT WA 6112 Legal description – Lot 600 on Deposited Plan 400460 Certificate of Title Volume 2828 Folio 800 As defined by the coordinates in Schedule 2 of the Revised Works Approval
Date of Report	22 January 2024
Proposed Decision	Intent to grant revised works approval

**A/MANAGER WASTE INDUSTRIES
REGULATORY SERVICES**

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

Table of Contents

1. Decision summary	2
2. Scope of assessment	2
2.1 Regulatory framework	2
2.2 Application summary	2
3. Risk assessment	3
3.1 Source-pathways and receptors	3
3.1.1 Emissions and controls	3
3.1.2 Receptors	3
3.2 Risk ratings	5
4. Consultation	7
5. Conclusion	7
5.1 Summary of amendments	7
6. References	8

Table 1: Works Approval Holder controls	3
Table 2: Sensitive human and environmental receptors and distance from prescribed activity	4
Table 3. Risk assessment of potential emissions and discharges from the Premises during construction	6
Table 4: Consultation	7
Table 5: Summary of works approval amendments	7

1. Decision summary

Works Approval W6814/2023/1 is held by the City of Armadale (Works Approval Holder; the City) for the City of Armadale Landfill and Recycling Facility (the Premises), located at 145-147 Hopkinson Road, Hilbert.

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 of the Premises. As a result of this assessment, Revised Works Approval W6814/2023/1 has been granted.

The Revised Works Approval issued as a result of this amendment consolidates and supersedes the existing Works Approval previously granted in relation to the Premises. The Revised Works Approval has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

On 11 January 2024, the Works Approval Holder submitted an application to the department to amend Works Approval W6814/2023/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Removal of requirement in condition 1, row 7 of Table 1 for a temporary gas flare to be installed and utilised whenever the existing landfill gas flare is taken offline;
- removal of requirement in condition 1, row 7 of Table 1 for the temporary landfill gas flare to be located away from construction activities; and
- to allow for the existing landfill gas flare to be disconnected and for flaring to cease for a period of up to 28 days to allow for the flare to be relocated to its proposed permanent location as shown in Figure 10 of existing Works Approval W6814/2023/1.

The existing landfill gas flare is located in the south-eastern portion of the landfill where two new leachate ponds are proposed to be constructed. Therefore, the flare will need to be disconnected from the landfill gas pipework and relocated for leachate pond construction works to proceed. A temporary flare was originally proposed to be installed immediately adjacent to the existing landfill gas extraction ring main for use whenever the existing flare needed to be taken offline. The flare was proposed to be used for a period of six months to 2.5 years during construction works and until the existing flare could be permanently relocated. The City has since advised that they have been unable to source a temporary flare in the current market.

The City has completed a significant portion of the leachate pond works and works to enable movement of the existing flare into its permanent position. However, delays have been encountered in obtaining the pipework and associated infrastructure, making relocation of the existing flare likely unfeasible until early February 2024. However, construction of the leachate ponds has progressed, requiring removal of the existing flare from its current location as soon as possible. Therefore, no flaring will be able to occur once the existing flare is disconnected, until it is relocated to its permanent position (a period of up to 28 days).

No changes to operational activities post construction have been proposed in this amendment.

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

Table 1: Works Approval Holder controls

Emission	Sources	Potential pathways	Proposed controls
Landfill gas (including odour)	Disconnection of landfill gas flare and no flaring for a period of up to 28 days	Vertical and lateral migration through soil Air/windborne pathway	<p>Currently extraction of landfill gas occurs via a vacuum pump which creates a negative pressure bubble under the existing landfill cap. The City expects that the negative bubble will equalise in approximately one week and it will take a further week for a positive pressure bubble to form under the landfill cap.</p> <p>The City proposes to monitor the pressure bubble with assistance and advice from the Gas Flare contractor and will report any proposed venting of landfill gas to DWER.</p> <p>Additional Hydrogen Sulphide and methane gas monitoring of the covered area of the landfill is also proposed to ensure that safe levels of the gas are maintained. If safe levels are exceeded, the City will implement a contingency plan with the establishment of an exclusion zone. Increases outside of permissible levels will be reported as a non-compliance if required.</p>

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Works Approval 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 2 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 2: Sensitive human and environmental receptors and distance from prescribed

activity

Human receptors	Distance from prescribed activity
Closest sensitive receptors (south)– Rural residential homesteads	Between approximately 350 – 375 m south of the landfill area
Closest sensitive receptors (southeast) – Rural residential homesteads	Between approximately 415 m – 545 m southeast of the landfill area
Closest sensitive receptors (east) – Rural residential homesteads	Between approximately 380 m – 545 m east of the landfill area
Closest sensitive receptors (northeast) – Rural residential homesteads	Between approximately 585 m – 1,350 m northeast of the landfill area
Closest sensitive receptors (north) – Urban residential development	Approximately 855 m north of the landfill area
Closest sensitive receptors (northwest) – Rural residential homesteads	Between approximately 310 m – 1,310 m northwest of the landfill area
Closest sensitive receptors (west) – Rural residential homesteads	Between approximately 430 m – 500 m west of the landfill area
Closest sensitive receptors (southwest) – Rural residential homesteads	Between approximately 490 m – 1,345 m southwest of the landfill area

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 Works Approval 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 Works Approval Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the Works Approval Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

The Revised Works Approval W6814/2023/1 that accompanies this Amendment Report authorises construction and time-limited operations. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises. A risk assessment for the operational phase has been included in this Amendment Report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3. Risk assessment of potential emissions and discharges from the Premises during construction

Risk Event					Risk rating ¹ C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
Construction								
Disconnection of landfill gas flare and no flaring for a period of up to 28 days	Landfill gas (including odour)	Vertical and lateral migration through soil Air/windborne pathway causing impacts to health and amenity	Closest sensitive human receptors as per Table 2	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	N	<u>Condition 1, 3 and 15</u>	<p>The delegated officer considers it unlikely that there will be significant impacts from the landfill gas management system being offline for a period of up to 28 days, particularly as this will occur in the summer months when conditions are dry, and leachate and gas production is decreased.</p> <p>However, given the proximity of sensitive receptors, the delegated officer considers it appropriate for landfill gas levels for hydrogen sulphide and methane to be closely monitored during this period.</p> <p>Requirements for landfill gas monitoring and trigger levels for management action have been stipulated within the Works Approval. These have been sourced from the EPA Victoria BEPM, 2015, and Safe Work Australia Workplace Exposure Standards.</p>

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

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

4. Consultation

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

Table 4: Consultation

Consultation method	Comments received	Department response
Works Approval was provided with draft amendment to the City of Armadale on 19/01/2024	The City of Armadale advised on 19/01/2024 that they had no objections to the draft conditions	N/A

5. Conclusion

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

5.1 Summary of amendments

Table 5 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Works Approval as part of the amendment process.

Table 5: Summary of works approval amendments

Condition no.	Proposed amendments
1, Table 1, Row 7	<p>Deletion of the following:</p> <ul style="list-style-type: none"> (a) <i>A temporary landfill gas flare must be installed and utilised whenever the existing landfill gas flare is taken offline;</i> (b) <i>The temporary landfill gas flare must be located away from construction activities;</i> <p>Replacement with:</p> <ul style="list-style-type: none"> (a) <i>The existing landfill gas flare must be disconnected and relocated to its new permanent location as shown in Figure 10 by 21 February 2024.</i> (b) <i>Gas pressure under the landfill cap must be monitored by a landfill gas management specialist whilst the landfill gas flare is offline.</i> (c) <i>Any proposed venting of landfill gas must be reported to the CEO within 24 hours prior to the event and be supported with the following information as a minimum:</i> <ul style="list-style-type: none"> i. <i>the reason for venting of landfill gas;</i> ii. <i>the duration of the proposed venting;</i> iii. <i>the type of monitoring that will be undertaken to ensure that the venting is conducted safely and not to cause offsite impacts.</i> (d) <i>Landfill gas monitoring must be undertaken in accordance with Condition 3, under the supervision of a landfill gas management specialist.</i> <p>Renumbering of remaining conditions within Row 7.</p>
3	<p>Within 14 days of the gas flare being disconnected the licence holder must undertake landfill gas surface monitoring in accordance with the requirements set out in Table 3 and Schedule 3.</p>
4	<p>Should surface landfill gas monitoring identify exceedances to the action levels specified in Schedule 3 then these must be reported to the CEO within 24 hours, along with a written</p>

	action plan to address the matter.
3 & 4	Surface landfill monitoring conditions added.
Table 3	Monitoring of Landfill Gas requirements
Schedule 3	Addition of Schedule 3 with landfill gas monitoring requirements and management action trigger levels.
15(a)	A record and reporting requirement was included for Condition 3

6. 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. Environmental Protection Authority (EPA) Victoria 2015, *Best Practice Environmental Management: Siting, design, operation and rehabilitation of landfills*, Carlton, NSW
5. Environmental Protection Authority (EPA) Victoria February 2018, *Landfill gas fugitive emissions monitoring guideline*, Carlton, NSW
6. Safe Work Australia, *Workplace exposure standards for airborne contaminants*, accessed 18 January 2024