

Amendment Report

Application for Licence Amendment

Part V Division 3 of the Environmental Protection Act 1986

Licence Number	L6297/1993/11
Licence Holder	CLEANAWAY CO PTY LTD
ACN	127 853 561
File Number	2012/001161-1
Premises	Cleanaway Co Pty Ltd (Kwinana)
	Mason Road
	KWINANA BEACH WA 6167
	Lot 15 on Diagram 87731
Date of Report	21/09/2022
Decision	Revised licence granted

MANAGER WASTE INDUSTRIES REGULATORY SERVICES

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

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1. Decision summary

Licence L6297/1993/11 is held by Cleanaway Co Pty Ltd for the Toxfree (Kwinana) premises (the Premises), located at Mason Road in Kwinana Beach.

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 operation of the Premises. As a result of this assessment, Revised Licence L6297/1993/11 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 Application summary

On 22 February 2022, the Licence Holder submitted an application to the department to amend Licence L6297/1993/11 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). This amendment seeks to revise the Storage and Processing Areas figure of the licence to reflect the optimal use of the Premises following 5 months operation of the new dangerous goods store.

No changes to activities other than updating the dangerous goods storage locations is proposed. Figure 1 shows the current Storage and Processing Areas, while Figure 2 shows the proposed Storage and Processing Areas.

In assessing the application, the department initiated administrative amendments to per- and poly-fluoroalkyl substances (PFAS) contaminated waste processing conditions, providing consistency with similar processes at premises occupied by the licence holder.

Following the submission of a 2021 Groundwater Monitoring Event Report (360 Environmental, 13 January 2022) (GMER) to the department on 29 April 2022, the department has also initiated amendments relating to groundwater monitoring. The GMER was submitted to the department in accordance with the *Contaminated Sites Act 2003* (CS Act), as the premises is currently classified as 'Contaminated - restricted use' under the CS Act (Parcel ID No. 4208), having been classified on 26/06/2013 for the presence of organochlorine pesticides (such as aldrin and dieldrin) in the soil.

Figure 1. Current Storage and Processing Areas

Storage and processing area plan

The storage and processing areas referred to in Table 2 are shown in Figure 3 below.



Figure 2. Proposed Storage and Processing Areas



Licence: L6297/1993/11

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 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.

Due to the limited scope of the proposal, with no inconsistencies with the existing process requirements of the infrastructure, no change to existing emissions will occur. However, emissions to groundwater have been considered due to the department initiated groundwater amendment.

Table 1: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Contaminated	Waste	Seepage and	Existing controls as specified in L6297/1993/11
stormwater	unloading/loading,	run-off to soil	
and liquid	treatment and	and	
waste spills	disposal	groundwater	

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 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 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 (*Guidance Statement: Environmental Siting* (DER 2016)).

Please note that only environmental receptors relating to water have been considered due to the department initiated groundwater amendment as no other receptors are likely to be impacted from the licence holder's proposed changes.

Table 2: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Cockburn Sound	Approx. 1.7km north-west of premises boundary
Cockburn Groundwater Area	Approx. 4.0m to groundwater, with a salinity of 500 to 1000mg/L (considered to be fresh)

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) 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 3.

The Revised Licence L6297/1993/11 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

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

Risk Event					Risk rating ¹	Licence Helderie		Justification for
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	additional regulatory controls
Operation								
Acceptance, storage, processing and disposal of waste	Contaminated stormwater and liquid waste spills	Overland runoff potentially causing ecosystem disturbance or via seepage (infiltration) impacting underlying groundwater. Potential for impacted groundwater to migrate off-site and impact sensitive water catchments and down-gradient groundwater users.	Beneficial users of groundwater. Adjacent industrial premises.	Existing controls as specified in L6297/1993/11	C = Moderate L = Possible Medium Risk	Ν	<u>Condition 17, 18, 19, 20</u> and 29	Refer Section 3.3

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

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

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

3.3 Detailed risk assessment groundwater emissions

3.3.1 Groundwater Monitoring Event Report

On 29 April 2022, Cleanaway submitted a 2021 Groundwater Monitoring Event Report (360 Environmental, 13 January 2022) (GMER) to the department as an attachment to their Annual Environmental Report.

The premises is currently classified as 'Contaminated - restricted use' under the *Contaminated Sites Act 2003* (CS Act) (Parcel ID No. 4208), having been classified on 26/06/2013 for the presence of organochlorine pesticides (such as aldrin and dieldrin) in the soil.

A summary of 360 Environmental's findings from the GMER is provided as follows:

- Dissolved heavy metals arsenic, copper, and zinc were detected in groundwater with concentrations exceeding the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) Marine Water 95% (MWG) and/or Australian Drinking Water Guidelines (ADWG) criteria. Dissolved metal detections were generally representative of those detected historically from 2008-2020 and are considered to represent background levels at the premises. The exception to this is zinc in MW7 which increased from 2020-2021 and arsenic in MW5 which has been increasing from 2017.
- The marine water assessment criteria¹ for total nitrogen and NOx as N continue to be exceeded at all sampling locations.
- Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN), organochlorine pesticides and chlorinated hydrocarbons were not detected above the limit of reporting during the 2021 monitoring event.
- The results of the PFAS analysis indicate that there are two forms of aqueous firefighting foam (AFFF) intermixed on site, more modern shorter-chain foam (C6) as represented by 6:2 FTSA and PFHxS and more standard older longer-chain AFFF foam represented by PFOS and PFOA.
- PFOS results were detected above the 95% marine water guideline from the PFAS National Environmental Management Plan (NEMP) at MW7 (centre portion of the site), MW3 and MW5 (western portion of the site) and GW10 (offsite to the west). 360 Environmental interpreted the data as indicating that there is no current source of PFOS contamination present on the site. The concentration of PFOS detected in upgradient monitoring well MW01 may indicate the presence of an upgradient offsite source but may also be attributed to the leaching of PFOS from hardstand surfaces on the eastern boundary of the site.
- The data suggests an existing PFAS plume is migrating offsite to the west in conjunction with the groundwater flow direction. Based on these results, 360 Environmental concluded that the premises is considered a 'source site' under the *Contaminated Sites Act 2003.*
- Total oxidisable precursor assay (TOPA) pre-treatment of PFAS samples resulted in PFHxS, PFOS and PFOA concentrations above, but within the same order of magnitude, as the primary PFAS analysis for several sample locations on site. This indicates that further degradation of other PFAS compounds is likely to occur and therefore result in continuing PFHxS, PFOS and PFOA releases on site. The TOPA

¹360 Environmental assessed total nitrogen and nitrate against the default trigger values for physical and chemical stressors for south-west Australia for slightly disturbed ecosystems, as per Table 3.3.6 of ANZECC and ARMCANZ (2000), rather than updated default guideline values in ANZG (2018).

concentrations for 6:2 FTSA were reduced to below the LOR when compared to the standard analysis of this compound and is indicative of reduced or no future release of this contaminant at the site.

Based on the Perth Groundwater Map, the regional groundwater flow direction of the superficial aquifer in the vicinity of the premises is to the west north-west towards the coast. The GMER reported that groundwater level monitoring indicated a local groundwater flow direction to the south-west, however this flow direction is strongly influenced by groundwater levels measured at MW3. 360 Environmental recommended that MW3 be resurveyed to verify the validity of groundwater levels calculated at this location.

3.3.2 Aquifer description

The superficial formations beneath the premises contain two distinct aquifers that are generally separated by a thin (less than 1 metre thick) shelly clay bed that forms a locally important aquitard which can limit water flow between the two aquifers. This aquitard is not laterally continuous (especially to the west of the site), and consequently, water from the shallower of the two aquifers may locally leak into the deeper aquifer.

The shallower of the two superficial aquifers consists of unconsolidated sediments of the Becher and Safety Bay Sands that have a combined thickness of about 15 metres in the area. The regional groundwater flow direction in this aquifer is in a westerly to north-westerly direction. The sediments in this aquifer mostly consist of unconsolidated silty sands that have a low to moderate hydraulic conductivity (probably of the order of 1-5 m/day).

The deeper aquifer at the site consists of karstic limestone and interbedded coarse-grained sand that form the Tamala Limestone aquifer, which also has a saturated thickness of about 15 metres near the premises. This aquifer has a high hydraulic conductivity, which is typically in the range of about 50 to 100 m/day. Groundwater in this aquifer also flows in a westerly to north-westerly direction towards the coast.

Unlike the shallower sandy aquifer, the Tamala Limestone aquifer is used by nearby industrial premises as an industrial water supply, which could be disrupted by significant groundwater contamination. Consequently, groundwater in the area that is used for industrial water supply can be readily contaminated by activities at nearby premises.

3.3.3 Technical advice

Industry Regulation considers that the potential risks to groundwater from activities on the premises provide sufficient justification to impose a groundwater monitoring program at the premises under the conditions of the licence. Given the requirements under the CS Act, the application was referred to the department's Contaminated Sites Branch (CSB), Science and Planning, for technical advice. This advice, received on 19 July 2022, is summarised below.

- (i). Contamination of the limestone aquifer is of much greater concern than of the shallower aquifer. This is due to the much higher rate of groundwater flow in the deeper aquifer, and the use of this aquifer by nearby industries for water supply. However, based on the information that has been provided by Industry Regulation, it appears that no monitoring bores at the Cleanaway site have been installed in the Tamala Limestone aquifer.
- (ii). Water levels monitored at the site suggest that the local direction of groundwater flow is to the south-west, rather than to the north-west which is indicated by monitoring at neighbouring sites. The most likely explanation for this is that there has been an error in surveying the elevation of one of the boreholes, as the water level elevation contours appear to have been heavily biased by one data point near the south-western corner of the site. The steepness of the hydraulic gradient also suggests that there has been a surveying error, as such a steep gradient would not be expected in the shallower aquifer unless there is a nearby pumping bore (which seems to be unlikely at

this particular location). Given these issues, it is recommended that a decision on the need for any additional monitoring bores (specifically one in the south-western corner of the premises) is delayed until the existing monitoring bore network has been resurveyed. This would be necessary to ensure that the elevations of the bore headworks have been correctly levelled. This surveying exercise would indicate whether the groundwater flow direction indicated by the Licence Holder is correct or not.

- (iii). It is recommended that two additional monitoring bores are drilled and constructed to monitor groundwater quality within the Tamala Limestone aquifer: one on the upgradient boundary of the site near bore MW1; and one on the downgradient boundary of the site near bore GW9.
- (iv). It is recommended that the suite of major ions (*i.e.*, sodium, potassium, calcium, magnesium, bicarbonate, chloride and sulfate ions) is included in the groundwater monitoring program. The reason for doing this is that changes in the chemical composition of groundwater can be an indication of leakage between aquifers, and, in some circumstances, can be an early-warning indicator of the approach of a groundwater contamination plume.

Key findings:

- 1. The suite of analytical parameters proposed for the licence are consistent with the current groundwater sampling program at the premises, as per the 2021 GMER, whereby the suite includes major ions, metals, hydrocarbons and PFAS in accord with the waste types accepted at the premises. It is noted that the proposed groundwater monitoring program is not intended to investigate groundwater contamination associated with historical activities at the premises or satisfy potential investigative requirements under the CS Act, such as delineation of the down gradient extent of PFAS impacts identified in the GMER. Rather, it is proposed as a tool to assess and verify the integrity of waste containment infrastructure and operational practices at the premises.
- 2. The department recommends that a decision to construct a new shallow bore at the south-western corner of the premises, as proposed in the GMER, is delayed until after the existing bore network has been resurveyed. This is because it is considered to be likely the groundwater flow direction indicated by monitoring at the site is incorrect due to one or more surveying errors of bore headworks.
- 3. The department recommends that the licence holder drill and construct two additional monitoring bores to monitor groundwater quality within the Tamala Limestone aquifer: one on the upgradient boundary of the site near bore MW1; and one on the downgradient boundary of the site near bore GW9. In undertaking this recommendation, care would be required drilling the bores to prevent any contamination from the shallower aquifer leaking into the Tamala Limestone aquifer. As such, it is advised that these bores are drilled and constructed by drillers that have expertise in installing bores in confined aquifers (refer to the national guidance document *Minimum Construction Requirements for Water Bores in Australia*²). The preferred method of drilling these bores would be to drill a pilot hole through the shallower aquifer and seating the base of the hole in the clay aquitard at the base of this aquifer.

² https://adia.com.au/waterwell/water-bore-construction/

Each of these boreholes should then be pressure cemented to the surface. Subsequently, a second borehole should be drilled through each of the cemented pilot holes into the Tamala Limestone aquifer. It is recommended that each of these bores is constructed with a six-metre screened interval within the Tamala Limestone aquifer.

4. The recommendation outlined in point (3) will not be conditioned in the Part V licence. However, the licence holder should consider this in relation to their obligations under the *Contaminated Sites Act 2003*.

3.3.4 Determination

Regulatory controls have been specified within the licence to align with the technical advice, notably in relation to:

- Condition 17: Groundwater monitoring of ambient concentrations from the existing groundwater well network.
- Condition 18: Groundwater monitoring to occur in accordance with the field quality assurance and quality control procedures as specified in Schedule B2 of the Assessment of Site Contamination NEPM.
- Condition 19: Groundwater sample analysis to be undertaken by laboratories with current accreditation from the National Association of Testing Authorities (NATA),
- Condition 20: Re-surveying of groundwater monitoring wells to determine the groundwater flow direction.
- Condition 29: Groundwater monitoring annual reporting requirements.

Based on the above information the Delegated Officer has determined the Consequence of groundwater emissions from the premises to be '**Moderate**' (Specific Consequence Criteria for environment are at risk of not being met) while the Likelihood of the risk event occurring is '**Possible**' (the risk event could occur at some time). The resulting risk rating is therefore deemed as '**Medium**' (Acceptable, generally subject to regulatory controls).

4. Consultation

The Licence Holder was provided with the draft Amendment Report on 12 August 2022. On 19 September 2022 the Licence Holder waived the comment period.

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 2 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.

Condition no.	Proposed amendments
Registered address	Updated
Condition 4, Table 1	Reference to the PFAS National Environmental Management Plan added.
Condition 5	Removed ambiguous wording in requirements of the condition and included clear, enforceable requirements for the timely removal of non-conforming waste from the premises (to be removed within 7 business days of receival).
Condition 6, Table 2	The storage locations of dangerous goods waste have been updated.
	PFAS contaminated liquid waste processing requirements aligned with similar processes at premises occupied by the licence holder.
Condition 17	Groundwater monitoring requirements included.
Condition 18	Groundwater monitoring field quality assurance and quality control requirements included.
Condition 19	National Association of Testing Authorities (NATA) accreditation required for sample analysis.
Condition 20	Re-surveying of groundwater monitoring wells included.
Condition 29	Groundwater monitoring report requirements included.
Schedule 1, Figure 3	Figure 3: Storage and processing area plan has been updated.
Schedule 1, Figure 5	Inclusion of Figure 5: Groundwater monitoring well locations

Table 2: Summary of Licence amendments

References

- 1. Department of Environment Regulation (DER) 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
- 2. DER 2015, Guidance Statement: Setting Conditions, Perth, Western Australia.
- 3. Department of Water and Environmental Regulation (DWER) 2019, Guideline: Decision Making, Perth, Western Australia
- 4. DWER 2019, Guideline: Industry Regulation Guide to Licensing, Perth, Western Australia

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval					
		Relevant works approval number:		None	
		Has the works approving the works approved the works approximately approxi	Has the works approval been complied with?		No 🗆
Licence		Has time limited operations under the works approval demonstrated acceptable operations?		Yes □	No 🗆 N/A 🗆
		Environmental Com Critical Containmen Report submitted?	pliance Report / t Infrastructure	Yes □	No 🗆
		Date Report receive	ed:		
Renewal		Current licence number:			
Amendment to works approval		Current works approval number:	rrent works proval number:		
Amondmont to licence		Current licence number:	L6297/1993/12		
Amenament to licence	X	Relevant works approval number:		N/A	
Registration		Current works approval number:		None	
Date application received		22 February 2022			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Cleanaway CO Pty Ltd (Kwinana)			
Premises name		Cleanaway Co Pty Ltd (Kwinana)			
Premises location		Mason Road KWINANA BEACH WA 6167			
Local Government Authority		City of Kwinana			
Application documents					
HPCM file reference number:		2012/001161-1			
Key application documents (additional to application form):		Attachment 2: Site plan			
Scope of application/assessment					

	Licence amendment
Summary of proposed activities or changes to existing operations.	Further to the amendment to Licence granted by DWER in July 2021 and subsequent provision of updated Figures (Site Plan [Figure 2] and Storage and Processing Areas [Figure 3]), Cleanaway is seeking revision to the Storage and Processing Areas figure. The revision is required to further optimise use of the yard following 5-months operation of the new DG store. No changes to activities other than updating the DG storage locations is proposed.

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 61: Liquid waste facility	100,000 tonnes per annual period	No change proposed
Category 61A: Solid waste facility:	100,000 tonnes per annual period	No change proposed

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 🗆 No 🛛	Referral decision No: Managed under Part V □ Assessed under Part IV □
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes 🗆 No 🗆	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes 🗆 No 🛛	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes 🛛 No 🗆	Certificate of title General lease Expiry: Mining lease / tenement Expiry: Other evidence Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ⊠ No □ N/A □	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 🗆 No 🗵	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 🗆 No 🛛	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes 🗆 No 🗆	Application reference No: Licence/permit No: Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes □ No □	Name: N/A Type: Has Regulatory Services (Water) been consulted? Yes □ No □ N/A □ Regional office:
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠	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 No N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes ⊠ No □	Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. Environmental Protection (Controlled Waste) Regulations 2004
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes 🗆 No 🛛	
Is the Premises subject to any EPP requirements?	Yes 🗆 No 🗵	

Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?		Site ID 4208 Classification: contaminated – restricted use (C–RU)
		Date of classification: 26 June 2013
	Yes 🛛 No 🗆	The land use of the site is restricted to commercial/industrial use.
		The summary of records states that "The integrity of the bitumen hardstand over contaminated soil and the stormwater containment system must be maintained."