



Amendment Notice 1

Licence Number	L6964/1997/11
Licence Holder	City of Armadale
ACN	N/A
Registered business address	7 Orchard Avenue ARMADALE WA 6112
Date of amendment	1 December 2016
Prescribed Premises	Category 62: Solid Waste Depot Category 64: Class II or III Putrescible Landfill Site
Premises	City of Armadale Landfill and Recycling Facility Lots 185 and 186 on Plan 152818, Lot 1120 on Plan 152811 and Lot 1 on Diagram 12494, Hopkinson Road HILBERT WA 6112

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice.

Date signed: 01 December 2016

Alan Kietzmann

MANAGER LICENSING (WASTE INDUSTRIES)

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

Amendment Notice

This Notice is issued under section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

Amendment Description

The City of Armadale (Licence Holder) operates the Armadale Landfill and Recycling Facility (the Premises) under Licence L6964/1997/11. The licence was granted on 5 September 2013 and was amended by DER on 29 April 2016 to extend the expiry date to 5 September 2029. The Licence Holder is authorised to receive 100 000 tonnes of waste per annual period. The current licence does not authorise any direct discharges, and contains groundwater monitoring requirements

The premises is located on Lot 600 on Plan 400460 Hilbert, within the City of Armadale and is immediately surrounded by the Shire of Serpentine-Jarrahdale suburbs of Darling Downs and Oakford. The nearest residential receptor is a house located approximately 360 meters (m) south of the active landfill area, and a number of semi-rural properties are distributed within 500 m to the east, west and south of the premises. The lot immediately north of the premises is currently vacant land but is zoned for residential development. Tonkin highway is located adjacent to the western boundary.

Soils at the premises are predominately low permeability clays. DER's GIS mapping system indicates that groundwater is located approximately 3 m below ground level and there is no surface water within 2 kilometres (km) of the premises.

The Licence Holder was also granted a Works Approval W5608/2014/1 on the 15 May 2014 to install an engineered landfill gas extraction and flare system at the Premises. The Licence Holder submitted a compliance document to the CEO on the 16 July 2014 confirming the works were constructed in accordance with the conditions of the works approval.

In the assessment of the works approval, the Delegated Officer determined that emissions to air of landfill gases may cause a reduction in the amenity due to odour, and some individuals may experience health impacts. The Licence Holder (also the Works Approval Holder) proposed the following controls in W5608/2014/1 to reduce the risk of emissions to air during operation:

- Continual monitoring for instantaneous and average gas flow and temperature;
- Alerts if the flare has stopped operating, and ability to reignite via telephone or computer;
- Operating at a minimum temperature of 760 degrees Celsius with a minimum retention time of 0.6 seconds; and
- Monitoring will be undertaken to validate operational efficiency

This amendment notice is a DER initiated amendment to incorporate the operational regulatory controls proposed for the landfill gas extraction and flare system. The inclusion of these conditions have been justified and determined in the granted works approval W5608/2014/1, in which the emissions and discharges associated with the installation and the operation of the landfill infrastructure was assessed. They also reflect commitments made at the time by the Works Approval Holder.

Consultation

The Licence Holder was provided a draft copy of the amendment notice on the 29 September 2016. The Licence Holder responded on the 18 November 2016 citing concerns over proposed quarterly monitoring for sulfur dioxide, nitrogen oxides, carbon monoxide and carbon dioxide due to significant cost to the Licence Holder and inconsistencies with similarly licenced facilities.

The Delegated officer has considered these comments in finalising the documentation and has determined that a once off test of the system emissions to demonstrate operating efficiency is sufficient and poses no risk to human health or the environment. Future monitoring requirements will be determined based on the results.

Decision

The Delegated Officer has determined that an amendment is to be made to:

- Permit point source emissions to air (gas flare)
- Update the premises map to include reference to the gas flare emission point
- Require ongoing monitoring (gas flow, temperature) and a once off validation of sulfur dioxide, nitrogen oxides, carbon monoxide and carbon dioxide emissions.
- Require reporting of gas flare monitoring
- Specify a 300mm compacted clay cap cover
- Update relevant definitions

In the event that monitoring data or other information demonstrates a failure of control measures or alteration of the risk profile the Delegated Officer may determine that additional controls or monitoring parameters are required. There are no other changes to the licence.

Amendment History

Instrument	Issued	Amendment
L6964/1997/11	5/09/2013	Issued Licence
L6964/1997/11	29/05/2016	Amendment Notice to extend expiry date
L6964/1997/11	1/12/2016	Amendment Notice 1. Amendment to incorporate operational conditions specified by W5608/2014/1 assessment of gas collection infrastructure.

Amendments

1. The following definitions have been added to the licence:

‘quarterly’ means the 4 inclusive periods from 1 January to 31 March , 1 April to 30 June, 1 July to 30 September, 1 October to 31 December.

‘USEPA’ means United States (of America) Environmental Protection Agency;

‘USEPA Method 2’ means the USEPA Method 2 – *Determination of stack gas velocity and volumetric flow rate*

‘USEPA Method 3A’ means the USEPA Method 3A – *Determination of oxygen and carbon dioxide concentrations in emissions from stationary sources*

‘USEPA Method 6’ means the USEPA Method 6 – *Determination of sulfur dioxide emissions from stationary sources*

‘USEPA Method 7E’ means the USEPA Method 7E – *Determination of nitrogen oxide emissions from stationary sources (instrumental analyser procedure)*

‘USEPA Method 7D’ means the USEPA Method 7D – *Determination of nitrogen oxides from stationary sources (ion chromatographic method)*

‘USEPA Method 10’ means the USEPA Method 10 – *Determination of carbon monoxide emissions from stationary sources*

2. Condition 4 of the licence is amended by the insertion of the red text shown in underline below:

4. *The licensee shall take the following measures when landfilling activities are conducted at the premises:*

- (i) dispose of waste on the premises at least 35 metres from the premises boundary;*
- (ii) place waste within a defined trench or within an area enclosed by earthen or other bunds;*
- (iii) restrict each of the non-greenwaste tipping areas to a maximum linear length of 30 metres;*
- (iv) cover waste with at least 150 mm of cover every day;*
- (v) cover municipal waste within 24 hours of delivery;*
- (vi) stockpile sufficient cover material to allow waste to be covered in accordance with Condition 7(iv) and 7(v) of this licence and to cover waste in the event of a fire;*
- (vii) except where trenches are used, initially spread waste in layers not more than 500 mm thickness prior to being compacted;*
- (viii) waste is placed and compacted to ensure all faces are stable and capable of retaining cover material;*

- (ix) *manage the active landfill area such that at no time does landfilling result in an exposed face exceeding two metres in vertical height; and*
- (x) *cover waste with a final soil cover of at least one metre-; including at least 300mm of compacted clay cover.*

3. Condition 12 is amended by the insertion of the red text shown in underline below:

12(d) *The licensee shall provide details of:*

- (i) *groundwater monitoring results referred to in conditions 9(a), 9(b) and 9(c);*
- (ii) *measures taken to control pests and vermin;*
- (iii) *number and severity of any fires on site;*
- (iv) *measures taken to suppress dust;*
- (v) *measures taken to control windblown waste;*
- (vi) *average compaction rates; and*
- (vii) *the number and type of complaints received including complainants name, address, nature of complaint (where appropriate cross referenced with prevailing wind directions) and action taken-; and*
- (viii) *gas flare monitoring results referred to in condition 15*

4. The licence is amended with the insertion with the following conditions 14, 15, 16, and 17:

GAS FLARE MANAGEMENT

- 14 *The Licence Holder shall ensure that where waste is emitted to air from the emission points in Table 2 and identified on the map of emission points in Attachment 5, it is done so in accordance with the conditions of this Licence.*

Table 2: Emission points to air

Emission point reference	Emission point reference on Map of emission points	Emission Point	Emission point height (m)	Source, including any abatement
A1	F	Flare	10	Landfill gas wells

- 15 *The Licence Holder shall monitor for the parameters listed in Table 3 according to the specifications in that table.*

Table 3: Monitoring of point source emissions to air

Emission point reference	Parameter	Units	Averaging period	Frequency	Method
A1	Volumetric flow rate	m ³ /s	n/a	Continuous	USEPA Method 2
	Temperature	°C	n/a	Continuous	N/A

- 16 The Licence Holder shall conduct verification of the emissions for the parameters listed in Table 4 according to the specifications in that table and provide the data to the CEO by the 28 April 2017.

Table 4: Verification of point source emissions to air

Emission point reference	Parameter	Units	Averaging period	Method
A1	Sulfur dioxide	mg/m ³ g/s	20 min	USEPA Method 6
	Nitrogen oxides	mg/m ³ g/s	20 min	USEPA Method 7E or 7D
	Carbon monoxide	mg/m ³ g/s	20 min	USEPA Method 10
	Carbon dioxide	mg/m ³ g/s	20 min	USEPA Method 3A

- 17 The Licence Holder shall ensure that all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

5. The Plan of Premises is amended to include the location of the landfill gas flare:

ATTACHMENT 5 – PLAN OF PREMISES

The red line depicts the Premises boundary. The letter F in a yellow circle depicts the location of the gas flare (emission point to air).

