Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: City of Karratha

Licence: L7021/1997/15

Registered office: City of Karratha
Welcome Road
KARRATHA WA 6714

Premises address: Seven Mile Waste Disposal Facility
Seven Mile Road
GAP RIDGE WA 6714
Being Lot 85 on Plan 180017 and Lot 552 on Plan 71049
As depicted in Schedule 1.

Issue date: Thursday, 11 June 2015

Commencement date: Sunday, 21 June 2015

Expiry date: Saturday, 20 June 2034

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved premises production or design capacity
57	Used tyre storage (general): premises (other than premises within category 56) on which used tyres are stored	100 tyres or more	174,000 tyres
61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated	100 tonnes or more per year	116 500 tonnes per annual period
62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use	500 tonnes or more per year	20 000 tonnes per annual period
64	Class II or Class III putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the CEO and as amended from time to time) is accepted for burial	20 tonnes or more per year	100 000 tonnes per annual period

Conditions
This Licence is subject to the conditions set out in the attached pages.

Date signed: 18 May 2017
.....
Steve Checker
MANAGER LICENSING (WASTE INDUSTRIES)
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role
The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER works with the business owners, community, consultants, industry and other representatives to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements
This Licence is issued under Part V of the Act. Conditions contained within the licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:
http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises Description and Licence Summary
The Seven Mile Waste Disposal Facility (the Landfill) is operated by the City of Karratha. The Landfill is located approximately 8km west-south west of the town of Karratha. Baynton West, a residential area, is 3.2km away and the Gap Ridge Industrial Estate is 2km north of the Landfill.

The Landfill is approximately 100ha in size and has been in operation since 1997. It receives an estimated 100,000 tonnes per annum of Clean Fill, Inert Waste Type 1 and 2, Putrescible Waste, Special Waste Type 1 and 2, Quarantine Waste, Green Waste, and Contaminated Solid Waste (meeting the requirements of a Class I or II landfill). Both residential and commercial waste is received at the facility.

The premises currently consists of:

- Waste transfer Station;
- Unlined Class II landfill;
- Tyre disposal area;
- Construction and demolition (C&D) waste stockpile area;
- Borrow pit;
- Liquid waste ponds;
- Hazardous waste disposal area; and
- Bulk metal area.

The main emissions from the site are dust, odour, windblown waste and hydrocarbon spills.

The licences and works approvals issued for the Premises since 26 July 2000 are:

Instrument Log		
Instrument	**Issued**	**Description**
L7021/1997/1 – L7021/1997/3	Previous archived licences.	
L7021/1997/4	26 July 2000	Licence re-issue – First licence noted in Industry Licensing System.
L7021/1997/5	20 June 2001	Licence re-issue
L7021/1997/6	20 June 2002	Licence re-issue
L7021/1997/7	20 June 2003	Licence re-issue
L7021/1997/8	20 June 2004	Licence re-issue
L7021/1997/9	20 June 2005	Licence re-issue
L7021/1997/10	20 June 2006	Licence re-issue
L7021/1997/11	20 June 2007	Licence re-issue
L7021/1997/12	20 June 2008	Licence re-issue
L7021/1997/13	20 June 2009	Licence re-issue
L7021/1997/14	20 June 2012	Licence re-issue
L7021/1997/14	23 August 2013	Licence amendment for two evaporation ponds
L7021/1997/14	30 October 2014	Licence amendment for addition of category 62 and conversion to new format

L7021/1997/15	11 June 2015	Licence reissue
L7021/1997/15	3 December 2015	Licence amendment for administrative changes
L7021/1997/15	23 December 2016	Licence amendment to accepted oily saline water for disposal via evaporation
L7021/1997/15	18 May 2017	Licence amendment for construction of Class III and rehabilitation of existing landfill cell.

Severance
It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence Conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'acceptance criteria' has the meaning defined in Landfill Definitions;

'ACM' means asbestos containing material and has the meaning defined in the Guidelines for Assessment, Remediation and Management of Asbestos Contaminated Sites, Western Australia, (DOH, 2009);

'Act' means the *Environmental Protection Act 1986;*

'AHD' means the Australian Height Datum;

'Anniversary Date' means 1 January of each year

'Annual Audit Compliance Report' means a report in a format approved by the CEO as presented by the Licensee or as specified by the CEO from time to time and published on the Department's website.

'annual period' means the inclusive period from 1 January until 31 December in the same year;

'AQIS' means Australian Quarantine and Inspection Service;

'asbestos' means the asbestiform variety of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals and includes actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite and any mixture containing two or more of those;

'AS/NZS 5667.1' means the current version of Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*;

'AS/NZS 5667.11' means the current version of Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*;

'averaging period' means the time over which a limit or target is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' means for the purpose of correspondence means:

Chief Executive Officer
Department Div 3, Part V EP Act
Locked Bag 33 Cloisters Square
PERTH WA 6850
Telephone: (08) 9333 7510
Facsimile: (08) 9333 7550
Email: info@der.wa.gov.au;

'clean fill' has the meaning defined in Landfill Definitions;

'construction and demolition waste' has the meaning defined in the Landfill Definitions;

'contaminated solid waste' has the meaning defined in Landfill Definitions;

'controlled waste' has the definition in *Environmental Protection (Controlled Waste) Regulations* 2004;

'dangerous goods' has the meaning defined in the *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations* 2007;

'Department' means the department established under s.35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V of the *Environmental Protection Act 1986*;

'designated burning area' means an area of a landfill site that has been designated by the occupier of the site as a designated burning area;

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'greenwaste' means waste that originates from flora;

'GRI GM 13' means Geosynthetic Research Institute's Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes

'hardstanding' means a surface with a permeability of 10^{-9} metres/second or less;

'hazardous waste' has the meaning defined in Landfill Definitions;

'inert waste type 1' has the meaning defined in Landfill Definitions;

'inert waste type 2' has the meaning defined in Landfill Definitions;

'Landfill Definitions' means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department of Environment and as amended from time to time;

'Licence' means this Licence numbered L7021/1997/15 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means the submission of a sample to a laboratory which is NATA accredited for the analysis specified at the time of the analysis;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'putrescible waste' has the meaning defined in Landfill Waste Definitions;

'quarantined storage area or container' means a hardstand storage area or sealed-bottom container that is separate and isolated from authorised waste disposal areas and is capable of containing all non-conforming waste and its constituents, these areas must be clearly marked and their access restricted to authorised personnel;

'quarterly period' means the 4 inclusive periods from 1 January to 31 March,1 April to 30 June, 1 July to 30 September and 1 October to 31 December;

'rehabilitation' means the completion of the engineering of a landfill cell and includes capping and/or final cover;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'Special Waste Type 1' has the meaning defined in Landfill Definitions;

'Special Waste Type 2' has the meaning defined in Landfill Definitions;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'tipping area' means the area of the landfill in which waste other than cover material is being deposited;

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia; and

'Waste Code' means the Waste Code assigned to a type of controlled waste for purposes of waste tracking and reporting as specified in the Department of Environment Regulation "Controlled Waste Category List" (July 2014), as amended from time to time.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice force from time to time and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 General conditions

1.2.1 The Licensee must ensure that the proposed Works specified in Column 1 of Table 1.2.1 are designed and constructed to meet or exceed the specifications in Column 2 of Table 1.2.1 for the infrastructure in each row of Table 1.2.1:

1.2.2 The Licensee must not depart from the specifications in Table 1.2.1 except:
- (a) where such departure is minor in nature and does not materially change or affect the infrastructure; or
- (b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment; and
- (c) and all other Conditions in this Licence are still satisfied.

Table 1.2.1: Works specifications	
Column 1 Infrastructure	Column 2 Specifications (design and construction)
Proposed Landfill Cells 1 - 12	The Licensee must ensure that : 1. Compacted subgrade to be smooth and free of debris; 2. Proposed Cells 1-12 are lined with a GCL with a permeability (as manufactured) ≤ 5 x 10^{-11} m/s; 3. GCL has a moisture content of ≤ 50% at time of installation; 4. A primary impermeable barrier (2mm high density polyethylene (HDPE) geomembrane, in accordance with GRI GM 13) is installed above the GCL; 5. A non-woven polypropylene geotextile protection/cushion layer is placed over the primary impermeable barrier; 6. Installation of a 300mm leachate collection layer, pipework and extraction system; 7. A non-woven polypropylene separation geotextile placed over the leachate collection layer; and; 8. Cell Lining shall be subject to construction quality assurance processes in accordance with Level 1 of Australian Standard AS3798-2007 Guidelines on Earthworks for Commercial and Residential Developments.

1.2.3 Where departures under Condition 1.2.2 are claimed, the Licensee must provide the CEO with a list of departures which are certified as complying with Condition 1.2.2 at the same time as the certifications under Condition 1.2.5.

1.2.4 The Licensee must submit a construction compliance document to the CEO, following the construction of each Cell 1-12 and prior to commissioning of the same.

1.2.5 The Licensee must ensure the construction compliance document:

(a) is certified by a suitably qualified professional engineer that each item of infrastructure specified in Specifications 1-7 in Condition 1.2.2, Table 1.2.1 has been constructed in accordance with the Conditions of the Licence with no material defects;

(b) includes a Construction Quality Assurance Report which demonstrates compliance with Specification 8 in Condition 1.2.2, Table 1.2.1 and is signed by a suitably qualified engineer; and

(c) be signed by a person authorised to represent the Licensee and contain the printed name and position of that person within the company.

1.3 Premises operation

1.3.1 The Licensee shall only accept waste on to the Premises if:

(a) it is of a type listed in Table 1.3.1;

(b) the quantity accepted is below any quantity limit listed in Table 1.3.1; and

(c) it meets any specification listed in Table 1.3.1.

Table 1.3.1: Waste acceptance			
Waste	**Waste Code**	**Quantity Limit**	**Specification** [1]
Clean Fill	N/A	Combined total limit of 120 000 tonnes per annual period	None specified.
Contaminated Solid Waste	N/A		Must meet the acceptance criteria for Class II landfill.
Inert Waste Type 1	N/A		None specified.
Inert Waste Type 2	T140 (used tyres)		Tyres and plastic only.
Putrescible Waste (including green waste)	N/A		None specified.
Solid Hazardous Waste	B100, D220, D221, N100		Limit to acidic solutions, lead and lead compounds, used lead acid

	N160		batteries, engine oil filters, aerosol cans, empty drums and Quarantine Waste.
Liquid Hazardous Waste	D300,J100, J120, J170, L100, L150 N205		Limited to waste oil, oily wastes (e.g. from oil filters), industrial wash waters and saline water.
Special Waste Type 1	N220		Cement bonded asbestos only. No fibrous asbestos shall be accepted.
Special Waste Type 2	R100, R120, R130, R140		Biomedical / clinical waste that is not radioactive[2].
Liquid waste (Septage waste, Sewerage waste, waste from grease traps)	K110, K130, K210	Combined total limit of 116 500 tonnes per annual period	Biological waste (septage and grease trap waste only). Tankered into the premises and discharged in one of the three receiving ponds.

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.
Note 2: Information relating to the classification of radioactive waste can be found in the *Western Australian Radiation Safety Act 1975*.

1.3.2 The Licensee shall ensure that where waste does not meet the waste acceptance criteria set out in condition 1.3.1 it is removed from the Premises by the delivery vehicle or, where that is not possible, stored in a quarantined storage area or container and removed to an appropriately authorised facility as soon as practicable.

1.3.3 The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the processes set out in Table 1.3.2 and in accordance with any process limits described in that Table.

Table 1.3.2: Waste processing

Waste type(s)	Process	Process limits [1,2]
All	Disposal of waste by landfilling	• Shall only take place within designated landfill trenches or cells; • No waste shall be temporarily stored or landfilled within 35m from the boundary of the premises; and • The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2m.
Clean Fill	Receipt, handling and disposal by landfilling (solid hazardous wastes only) Receipt handling disposal via evaporation and storage prior to disposal offsite (liquid hazardous waste)	None specified.
Contaminated Solid Waste		None specified.
Liquid and Solid Hazardous Wastes		• DrumMuster products must be triple rinsed prior to acceptance on the premises; • Waste oil, paint, vehicle batteries must be stored in a fully enclosed bunded area/container; and • D300 saline oily water may be disposed of via evaporation into Pond 7. <u>Acceptance of Quarantine Waste</u> • complete and sign the original waste transport certificate, noting in writing, any discrepancies between waste declared and waste received; • ensure quarantine waste is buried in accordance with the AQIS; • keep a log of quarantine waste accepted at the premises including, but not limited to transport details, waste

Table 1.3.2: Waste processing		
Waste type(s)	**Process**	**Process limits** [1,2]
		generator, waste description and volume, time and date of burial and in the case of deep burials, location of the burial site indicated by GPS co-ordinates and burial depth; • ensure that the disposal areas are not excavated or uncovered during subsequent landfill operations; • restrict access to the landfill area where quarantine waste is buried to authorised personnel only during disposal; and • make information available for viewing or copying by a DER officer during any inspection of the premises.
Inert Waste Type1		None specified.
Inert Waste Type 2 - Tyres	Receipt, handling, storage prior to re-use or disposal by landfilling	Refer to conditions 1.3.13 – 1.3.16.
Putrescible Waste	Receipt, handling and storage prior to disposal	None specified.
	Disposal by Burning	Only green waste is to be burnt on site. Greenwaste shall only be burnt if; • it has been dried and seasoned for at least 2 months before burning; • it takes place in a designated burning area at least 25m from the boundary of any active disposal areas; • it takes place in trenches or windrows; • it takes place only when an adequate supply of water is available to effectively manage the burning process; and • it is free of any contaminant.
Special Waste Type 1 (asbestos waste)	Receipt, handling and disposal by landfilling	• only to be disposed of into a designated asbestos disposal area within the landfill; • not to be deposited within 2m of the final tipping surface of the landfill; and • no works shall be carried out on the landfill that could lead to a release of asbestos fibres.
Special Waste Type 2 (Biomedical and Clinical Waste)		• only to be disposed of into a designated biomedical waste disposal area within the landfill; • not to be deposited within 2m of the final tipping surface of the landfill; and • no works shall be carried out on the landfill that could lead to biomedical wastes being excavated or uncovered.
Liquid waste (Septage waste, Sewerage waste, waste from grease traps	Physical, biological and chemical treatment	• pH to be maintained at 6.5 to 9.

Note 1: Requirements for landfilling tyres are set out in Part 6 of *the Environmental Protection Regulations 1987*.

Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

1.3.4 The Licensee shall manage the landfilling activities to ensure:
(a) the size of the tipping face is kept to a minimum and not larger than 30m in length and 2m in height;
(b) waste is levelled and compacted to ensure all faces are stable and capable of retaining rehabilitation material; and
(c) rehabilitation of a cell or phase takes place within 12 months after disposal in that cell or phase has been completed.

1.3.5 The Licensee shall ensure that cover is applied to waste in accordance with Table 1.3.3 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.3.3: Cover requirements

Waste Type	Material	Depth	Timescales
Inert Waste Type 2	Inert Waste Type 1 or soil	100mm	As soon as practicable after deposit
Putrescible Wastes	Inert Waste Type 1, soil or clay	150mm	As soon as practicable and not later than the end of the working day
	Inert Waste Type 1, soil, or clay	1,000mm	Within 3 months of achieving final waste contours
Special Waste Type 1	Inert Waste Type 1 or clean fill	300mm	As soon as practicable and not later than the end of the working day after deposit.
	Solid waste or soil	1,000mm	As soon as practicable after deposit
Special Waste Type 2	Inert Waste Type 1 or clean fill	300mm	As soon as practicable and not later than the end of the working day after deposit and prior to compaction
	Solid waste or soil	1,000mm	As soon as practicable after deposit

Note 1: Additional requirements for the covering of tyres are set out in Part 6 of the *Environmental Protection Regulations* 1987.

1.3.6 The Licensee shall implement the following security measures at the site:
(a) erect and maintain suitable fencing to prevent unauthorised access to the site;
(b) ensure that any entrance gates to the Premises are securely locked when the premises are unattended; and
(c) undertake regular inspections of all security measures and repair damage as soon as practicable.

1.3.7 The Licensee shall install and maintain a sign at the entrance to the Premises which clearly displays the following information:
(a) hours of operation;
(b) contact telephone number;
(c) a warning indicating penalties for people lighting fires; and
(d) list of materials accepted for recycling and the location of where they can be deposited on the premises.

1.3.8 The Licensee shall take all reasonable and practical measures to ensure that no windblown waste escapes from the Premises and that windblown waste is collected on at least a weekly basis and returned to the tipping area.

1.3.9 The Licensee shall ensure fire fighting equipment stored on site is capable of controlling and extinguishing a tyre fire.

1.3.10 The Licensee shall ensure that water and other liquid waste that may result from fire fighting on the Premises is captured and contained within the Premises.

1.3.11 The Licensee shall ensure that any fire water is removed from the Premises by a carrier licensed under the *Environmental Protection (Controlled Waste) Regulations* 2004.

1.3.12 The Licensee shall ensure that an unauthorised fire on the Premises is extinguished as soon as possible.

1.3.13 The Licensee shall ensure that all tyres are stacked on their side walls or if stored on their treads, are baled with a non-combustible securing device.

1.3.14 The Licensee shall ensure that tyres are only stacked on level ground at the Premises.

1.3.15 The Licensee shall ensure that tyre storage complies with the following:
(a) each stockpile is located at a minimum of 6m from any fence, combustible material or wall;
(b) each stockpile is a maximum of 100m^2 in area; and
(c) each stockpile is a maximum of 3m in height.

1.3.16 The Licensee shall ensure that tyre stacks at the Premises do not obscure fire protection equipment (including fire hydrants and fire hoses) or related signage.

1.3.17 The Licensee shall ensure that waste material is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 1.3.4.

Table 1.3.4: Containment infrastructure

Vessel or compound	Material	Requirements
Pond 1 (Aerated Receiving Pond)	Wastewater	Clay lined to achieve a permeability of 10^{-9} m/s or less (or equivalent)
Pond 2 (Aerated Receiving Pond)	Wastewater	Clay lined to achieve a permeability of 10^{-9} m/s or less (or equivalent)
Pond 3 (Aerated Receiving Pond)	Wastewater	Clay lined to achieve a permeability of 10^{-9} m/s or less (or equivalent)
Pond 4 (Sedimentation Pond)	Treated Wastewater	Clay lined to achieve a permeability of 10^{-9} m/s or less (or equivalent)
Ponds 5 & 6 (Evaporation ponds)	Treated wastewater	HDPE lined to achieve a permeability of 10^{-9} m/s or less (or equivalent)
Pond 7 (Evaporation pond)	Treated wastewater and oily saline water	HDPE lined to achieve a permeability of 10^{-9} m/s or less (or equivalent)

1.3.18 The Licensee shall manage all wastewater treatment and evaporation ponds such that:
(a) overtopping of the ponds does not occur;
(b) a freeboard equal to, or greater than, 500mm is maintained;
(c) the integrity of the containment infrastructure is maintained;
(d) trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter; and
(e) vegetation and floating debris (emergent or otherwise) is prevented from encroaching onto pond surfaces or inner pond embankments.

1.2.19 The Licensee shall immediately recover, or remove and dispose of spills (outside of an engineered containment system) of hydrocarbons, septage, sewage, grease trap waste, industrial wash waters, paint, biomedical/clinical wastes, leachate, acids, bases or chemicals associated with the disposal or handling of waste onsite.

1.2.20 The licensee shall ensure that stormwater within the premises is adequately managed so that it is diverted from areas of the premises where there is waste.

2 Monitoring

2.1 General monitoring

2.1.1 The licensee shall ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1, with the exception of holding times where these are not achievable;

(b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and

(c) all laboratory samples are submitted to a laboratory with current NATA accreditation for the parameters to be measured unless indicated otherwise in the relevant table.

2.1.2 The Licensee shall ensure that quarterly monitoring is undertaken at least 45 days apart.

2.1.3 The Licensee shall have all monitoring equipment referred to in any condition of the Licence calibrated in accordance with the manufacturer's specifications.

2.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

2.2 Monitoring of inputs and outputs

2.2.1 The Licensee shall undertake the monitoring in Table 2.2.1 according to the specifications in that table.

Table 2.2.1 Monitoring of inputs and outputs

Input/Output	Parameter	Units	Averaging Period	Frequency
Waste inputs	Clean Fill, Contaminated Solid Waste, Liquid Hazardous Waste, Solid Hazardous Wastes Inert Waste Type 1, Inert Waste Type 2, Putrescible Waste, Green Waste, Special Waste Type 1, Special Waste Type 2 and Liquid Waste	Tonnes	N/A	Each load arriving at the Premises
Waste outputs	Waste type as defined in the Landfill Definitions			Each load leaving or rejected from the Premises

2.3 Ambient environmental quality monitoring

2.3.1 The Licensee shall undertake the monitoring in Table 2.3.1 according to the specifications in that table.

Table 2.3.1: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
BH 1 - 8	pH[1]	pH units	Spot sample	Quarterly
	Electrical conductivity	µS/cm		

Table 2.3.1: Monitoring of ambient groundwater quality				
Monitoring point reference and location	**Parameter**	**Units**	**Averaging period**	**Frequency**
	Standing water level (SWL)[2]	m AHD (and mbgl)		
	Biochemical oxygen demand	mg/L		
	Reactive phosphorus			
	Total phosphorus			
	Chloride			
	Total recoverable hydrocarbons			
	Total Nitrogen			
	Nitrate- nitrogen			
	Ammonia-nitrogen			
	Hexavalent chromium			
	Total chromium			
	Cadmium			
	Cobalt			
	Copper			
	Mercury			
	Molybdenum			
	Nickel			
	Lead			
	Zinc			

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: SWL shall be determined prior to collection of other water samples.

3 Information

3.1 Records

3.1.1 All information and records required by the Licence shall:
- (a) be legible; and
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval; and
- (c) except for records listed in 3.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

3.1.2 The Licensee must submit to the CEO within 90 days after the Anniversary Date, an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the Conditions in this Licence for the Annual Period.

3.1.3 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

3.1.4 The Licensee shall maintain a register of Special Waste Type 1 (asbestos waste) and Special Waste Type 2 (biomedical and clinical waste) disposed of at the Premises which

shall include a plan showing the position of Special Waste Type 1 (asbestos waste) and Special Waste Type 2 (biomedical and clinical waste) disposed of at the Premises.

3.2 Reporting

3.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 90 calendar days after the end of the annual period. The report shall contain the information listed in Table 3.2.1 in the format or form specified in that table.

Table 3.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form
Table 2.2.1	Monitoring of inputs and outputs	Tabular form
Table 2.3.1	Monitoring of ambient groundwater quality	Tabular form
-	Summary of any failure or malfunction of any pollution control equipment and any incidents that have occurred during the annual period and any action taken	None specified
3.1.3	Complaints summary	None specified

Note 1: Forms are in Schedule 2

3.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:
(a) an assessment of the information contained within the report against previous monitoring results and Licence limits and/or targets; and
(b) a list of any original monitoring reports submitted to the Licensee from third parties for the annual period and make these reports available on request.

3.3 Notification

3.3.1 The Licensee shall ensure that the parameters listed in Table 3.3.1 are notified to the CEO accordance with the notification requirements of the table.

Table 3.3.1: Notification requirements

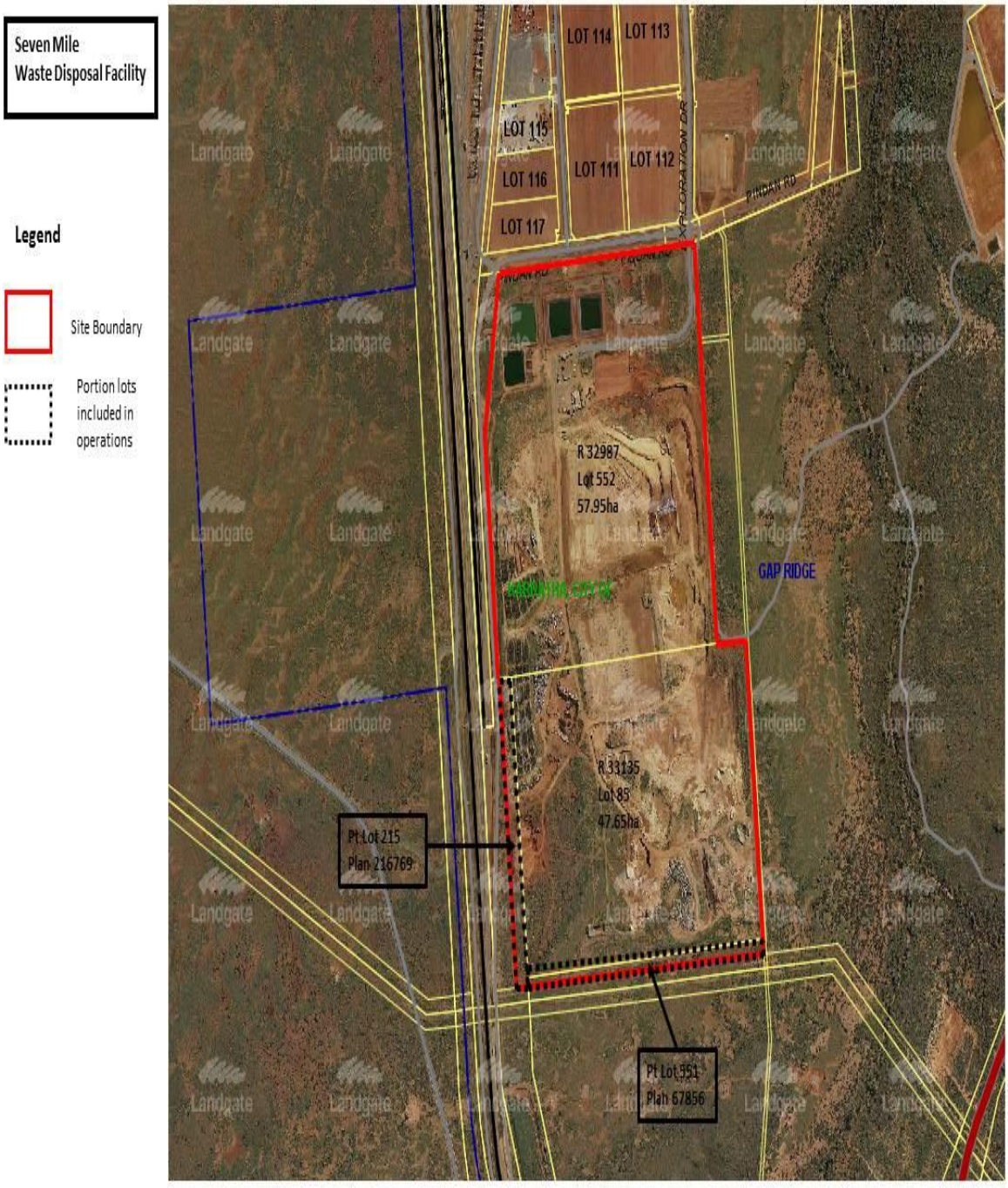
Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
1.3.12	Unauthorised fire	Within 14 days of unauthorised fire	ET1
2.1.1	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
-	Any failure or malfunction of any pollution control equipment or any incident, which has caused, is causing or may cause pollution		

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

Schedule 1: Maps

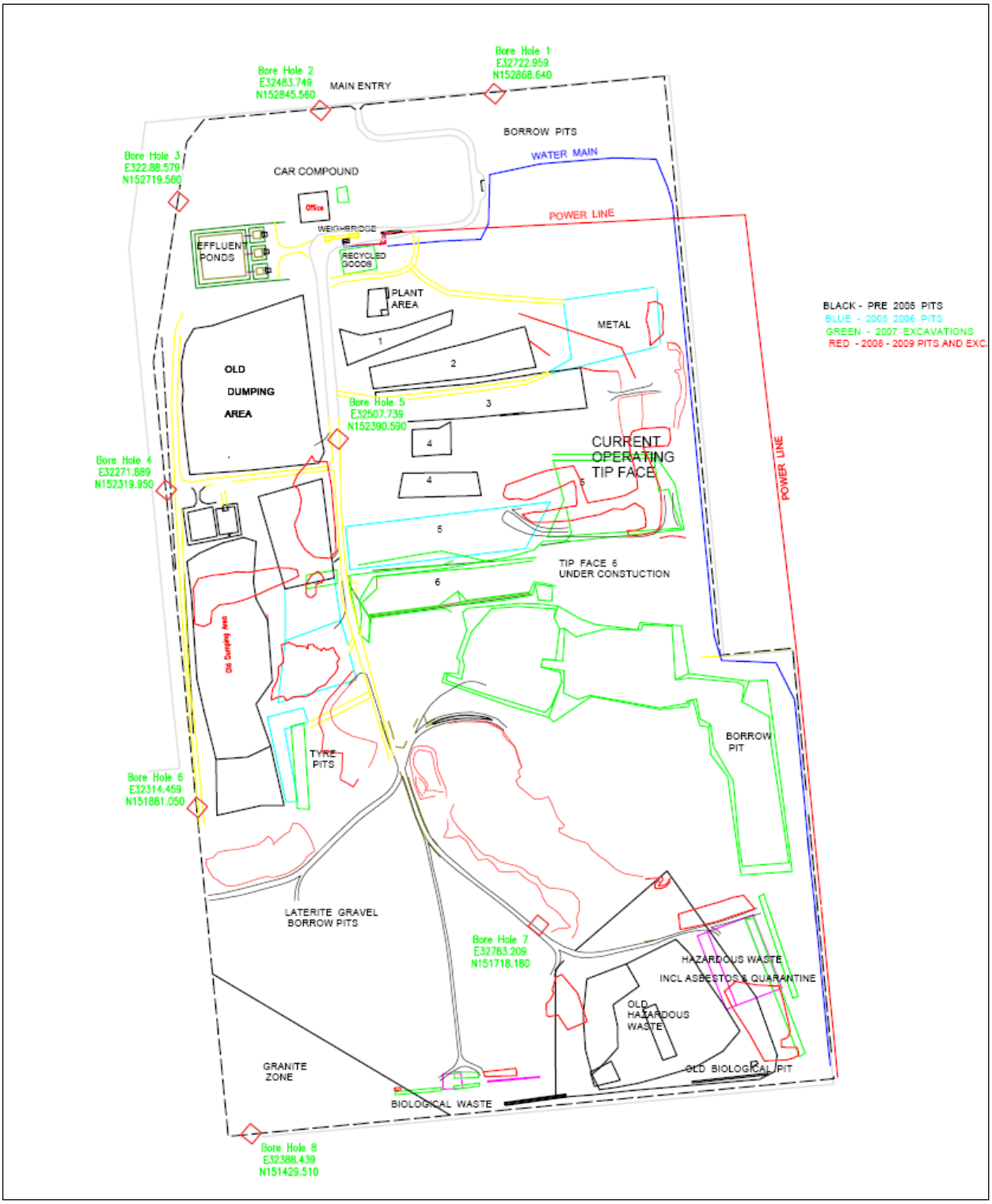
Premises Map

The Premises is shown in the map below. The red line depicts the Premises boundary.



Map of monitoring locations

The locations of the monitoring points defined in Table 2.3.1 are shown below. The red squares depict the groundwater monitoring bore locations.



Schedule 2: Reporting and Notification Forms

Licence: L7021/1997/14 Licensee: City of Karratha
Form: N1 Date of breach:

Notification of detection of the breach of a limit or any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution.

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Notification requirements for any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution	
Date and time of event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken , or intended to be taken, to stop any emission	
Description of the failure or accident	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of City of Karratha	
Date	

Licence: L7201/1997/14
Form: ET1
Name: Unauthorised Fire

Licensee: City of Karratha
Period:

Form ET1: Unauthorised Fire
Please provide details of unauthorised fire on the premises, including but not limited to: (a) details of the date, time and location of the fire; (b) the time the fire was declared safe by the Fire Control Officer for the premises; (c) the cause, or suspected cause, of the fire; and (d) a description measures taken or planned to be taken, to prevent recurrence of the unauthorised fires.

Signed on behalf of City of Karratha …….. Date: …….

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: City of Karratha

Licence: L7021/1997/15

Registered office: City of Karratha
Welcome Road
KARRATHA WA 6714

Premises address: Seven Mile Waste Disposal Facility
Seven Mile Road
GAP RIDGE WA 6714
Being Lot 85 on Plan 180017 and Lot 552 on Plan 71049

Issue date: Thursday, 11 June 2015

Commencement date: Sunday, 21 June 2015

Expiry date: Saturday, 20 June 2034

Decision

Based on the assessment detailed in this document the Delegated Officer, has decided to issue an amended licence. The Delegated Officer considers that in reaching this decision, all relevant considerations have been taken into account.

Decision Document prepared by: Chris Slavin
Licensing Officer

Decision Document authorised by: Steve Checker
Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	57	174 000 used tyres
	61	116 500 tonnes per annual period
	62	20 000 tonnes per annual period
	64	100 000 tonnes per annual period
Application verified Application fee paid	Date: N/A Date: N/A	
Works Approval has been complied with Compliance Certificate received	Yes☐ No☐ N/A☒ Yes☐ No☐ N/A☒	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes☐ No☒ If Yes, include details here, eg Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal and assessment

Background
The Seven Mile Waste Disposal Facility (the Landfill) is located on Seven Mile Road, in the Gap Ridge Industrial Estate, approximately 8km west-south-west from Karratha town centre and 9.2 km south from Dampier. The Landfill is operated by the City of Karratha (the City) on Crown Reserve's (32987 & 33135) that is vested to the City under a Management Order and covers an area of approximately 100 hectares. The landfill is currently licensed for the following prescribed activities:

- Category 64: The Landfill current accepts up to 100,000 tonnes of Class I and Class II waste in accordance with the Landfill Waste Classification and Waste Definitions 1996 for disposal within an unlined cell.
- Category 62: The City operates a Waste Transfer Station (WTS) for the general public, domestic ratepayers in Karratha and Dampier and, limited commercial users (commercial green waste only). The WTS accepts waste oil, batteries, glass bottles and recyclables, tyres, greenwaste and general waste.
- Category 61: The City operates a Liquid Waste Facility (LWF) at the Landfill. The LWF accepts both septage waste and grease trap waste for biological treatment in a series of concrete, geosynthetic clay lined and HDPE lined ponds.
- Category 57: The City is licensed to store 174,000 used tyres. The used tyres are stored in dedicated tyre bunds.

Amendment Application
The City has submitted a licence application for the construction of new landfill cells at the Landfill. The current unlined landfill cell is reaching the end of its capacity (2-4 years capacity until capping). The City wishes to construct new Class III lined landfill cells in a staged approach over the next 20 years to increase the life of the Landfill. Class III waste will be accepted in accordance with the Landfill Waste Classification and Waste Definition 1996 (As amended December 2009).

The City have outlined that the new Class III landfill cells will be constructed in accordance with the Victorian Environmental Protection Authority's Best Practice Environmental Management (Siting design, operation and rehabilitation of landfills). The proposed landfill cells will include a composite impermeable environmental barrier commonly known as a Basal Liner (Figure 1).

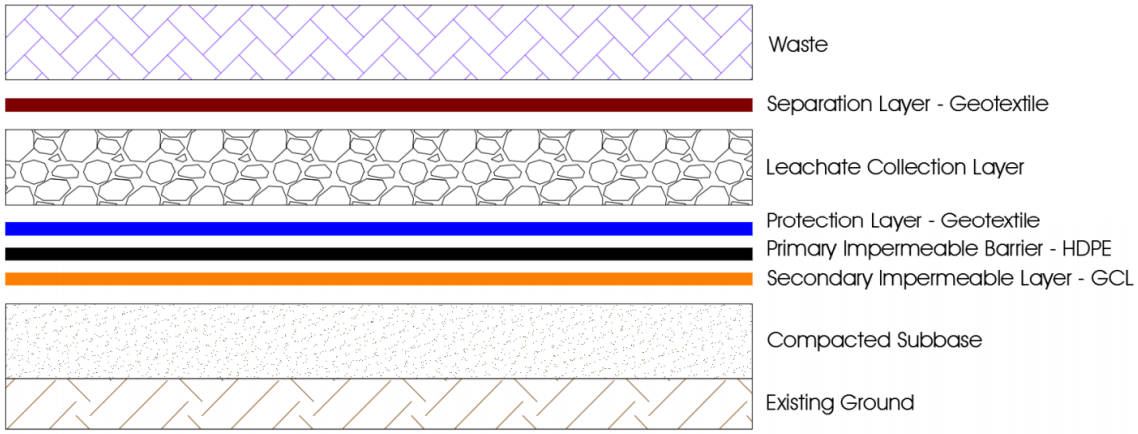


Figure 1: Typical Basal Liner system

This will include a composite basal containment layer composed of geosynthetic clay liner (GCL) and overlain by a 2mm high density polyethylene (HDPE) geomembrane. This containment layer will be utilised across the base and the embankments of the new lined landfill cells. The basal containment layer will include a protection geotextile to prevent any long-term damage from the overlying leachate collection layer and waste fill. The cell floors will be graded to divert leachate to the external edges to form leachate extraction sumps.

A leachate management system will be constructed as part of the new lined landfill cells. The system will include a leachate collection system to divert leachate to a sump and leachate extraction side risers to remove the excess leachate and maintain the correct levels. Any leachate that is removed will be pumped via a permanent leachate rising main to a leachate pond.

The existing Evaporation Pond 7 to the north of the Landfill will be repurposed as a leachate storage/evaporation pond for the new line landfill cells. The pond was constructed with compacted sub-base and a 2mm HDPE impermeable liner. The City will conduct an integrity inspection prior to use followed by inspections at six monthly intervals thereafter. Leachate will be transferred to the new leachate storage pond by a leachate rising main that will be installed around the perimeter of the landfill area.

As part of this amendment, the City intends to cap the existing landfill cell. The City will use a low permeability clay cap design for the waste mass consisting of 500mm low permeability clay and 500mm of subsoils. The maximum capping gradients are over the existing operational facility, with approximately 1V:4H over a vertical height of 10m, with 1V:5H proposed for a further 6m; then 1V:20H to the maximum pre-settlement elevation (approximately +35.0m AHD).

Siting in Environmental Context

The surface geology of the site consists of 'Pindan' Sands', which comprise red-brown alluvial sand, silt and clay. The Pindan Sands contain frequent pebbles and gravels throughout with harder lenses of calcrete below the surface. The Pindan Sand is underlain by Archaean bedrock of the northern Pilbara Craton, of the granite-greenstone volcanics sequence.

Depth to groundwater at the premises is between 7.5 – 13 metres below ground level (mbgl) at the Landfill. An ephemeral drainage line (Seven Mile Creek) is located 500m east of the Landfill.

The Landfill is located within the Gap Ridge Industrial Estate. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises.

Risk Assessment

As a result of the amendment application DER has assessed the emission and discharges from the proposed and existing operations and the suitability of the regulatory controls on the current licence. The main emissions from the Landfill are leachate contaminating groundwater and landfill gas from the decomposing of putrescible and biological wastes. Odour may also be present at the landfill from septage and grease trap processed at the LWF and from putrescible waste accepted for burial.

4 Decision table

The overarching legislative framework of this assessment is the Environmental Protection Act 1986 (EP Act) and the Environmental Protection Regulations 1987 (EP Regulations).
DER Guidance Statements which inform the assessment in accordance with the legislation include:

- Guidance Statement: Regulatory Principles (July 2015)
- Guidance Statement: Setting Conditions (October 2015)
- Guidance Statement: Land Use Planning (October 2015)
- Guidance Statement: Licence Duration (November 2015)
- Guidance Statement: Decision Making (February 2017)
- Guidance Statement: Risk Assessment (February 2017)

Where other references have been used in making the decision they are detailed in the Decision Document.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Introduction	N/A	Table of contents updated. Administrative changes have been included within the Licence amendment process in accordance with DER protocol. Premises description and Licence summary section updated. Instrument log table updated.	N/A
Interpretation	L1.1.1	Definitions updated. Previous Licence Condition 1.1.5 has been removed as it was not consistent DER's *Guidance Statement: Setting Conditions* as it relates to general advice rather than an enforceable condition. This condition was worded as follows: "*Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:*	DER's *Guidance Statement: Regulatory Principles* DER's *Guidance Statement:*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		(a) pollution; *(b) unreasonable emission;* *(c) discharge of waste in circumstances likely to cause pollution; or* *(d) being contrary to any written law*."	*Setting Conditions* DER's *Guidance Statement: Licence and works approval process*
General conditions	L1.2.1 – L1.2.6	L1.2.1 has been added to the Licence to ensure construction activities meets or exceeds the standards defined within Table 1.2.1. L1.2.2 has been added to the Licence to ensure the Licensee constructs the proposed landfill cells in accordance with the specifications listed in Table 1.2.1 These specifications are consistent with the application requirements submitted by the proponent for the construction of the works. Condition 1.2.3 has been added to the Licence, which requires the Licensee to submit to the CEO any deviations/departures from the construction specifications listed in Table 1.2.2. This ensures that departures from the approved works can be assessed and actioned as required by the Delegated Officer. Conditions1.2.4 and 1.2.5 have been added to the Licence, which requires the Licensee to submit s compliance document to the CEO to outline that the works were carried out as per the plans and specifications listed in table 1.2.2 and are signed and certified by an authorised representative of the Licensee. The condition also requires submission of a Construction Quality Assurance Report to ensure the proposed landfill cell liner is installed in accordance with the supporting documentation.	Guidance Statement: Regulatory Principles (July 2015) Guidance Statement: Setting Conditions (October 2015) Guidance Statement: Decision Making (February 2017) Guidance Statement: Risk Assessment (February 2017)

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Previous Licence condition's 1.2.1 and 1.2.2 are now Premises operation conditions 1.3.19 and 1.3.20 respectively. This is consist with DER's *Guidance Statement: Setting Conditions*	
Premises operation	L1.3.1 – L1.3.20	**Fire Risk Assessment** Emission Description *Emission:* Smoke emissions from fire at premises (green waste stockpiles, unintentionally mixing of incompatible waste streams) and/or contaminated fire-fighting water used to supress fire entering the environment. Fire spreading to adjacent premises. *Impact:* Smoke may cause nuisance impacts or exacerbate respiratory issues at nearby receptors. Smoke may impact local flora and fauna. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises. Contaminated stormwater may enter surface waters in the area causing aquatic organism death or bioaccumulation of contaminants in the surrounding ecosystems. Depth to groundwater at the premises is between 7.5 – 13 mbgl at the Landfill. There are no known groundwater uses in Karratha. An ephemeral drainage line (Seven Mile Creek) is located 500m east of the Landfill. *Controls:* The Licensee proposes the following measures to prevent unauthorised fires at the Landfill: • Site security be maintained to prevent unauthorised access during and outside operational hours; • Prohibited wastes which have the capacity to potentially initiate a fire (e.g. reactive and hot waste) be refused at the site entrance; • Waste which shows evidence of burning due to discharge of heat or smoke (e.g. smouldering waste) be directed to an authorised disposal location on-site for pre-treatment prior to landfilling;	Guidance Statement: Regulatory Principles (July 2015) Guidance Statement: Setting Conditions (October 2015) Guidance Statement: Decision Making (February 2017) Guidance Statement: Risk Assessment (February 2017)

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		• Waste be promptly emplaced, compacted and covered in well-defined cells to prevent the ingress of air; • Adequate mobile plant equipment be available on-site for the placement compaction and covering of waste; • Landfill compactors and other machinery on-site are fitted with an appropriate fire suppression system or extinguisher for equipment fires; and • Firebreaks to be maintained around the inside of the perimeter security fence. <u>Risk Assessment</u> *Consequence:* Minor *Likelihood*: Unlikely *Risk Rating:* Medium <u>Regulatory Controls</u> Condition 1.3.10 requires the Licensee to ensure fire contaminated water to be captured and prevented from discharging from the site to reduce potential impacts on surface water drainage systems and groundwater. Condition 1.3.11 requires the Licensee to remove fire contaminated water by a licensed controlled waste carrier to prevent soil, and groundwater contamination. Condition 1.3.12 requires the Licensee to extinguished as soon as possible. Condition 3.3.1 requires the Licensee to notify DER within 14 days of an unauthorised fire at the premises. <u>Residual Risk</u>	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Consequence: Minor *Likelihood*: Rare *Risk Rating:* Low **Stormwater Risk Assessment** <u>Emission Description</u> *Emission:* Stormwater contaminated with leachate generated from landfilling of putrescible waste and storage of greenwaste. *Impact:* Contaminated stormwater may enter surface waters in the area causing aquatic organism death or bioaccumulation of contaminants in the surrounding ecosystems. Depth to groundwater at the premises is between 7.5 – 13 mbgl at the Landfill. There are no known groundwater uses in Karratha. An ephemeral drainage line (Seven Mile Creek) is located 500m east of the Landfill. *Controls:* The Shire directs stormwater via drainage channels to areas outside active landfilling areas. <u>Risk Assessment</u> *Consequence:* Minor *Likelihood*: Rare *Risk Rating:* Low <u>Regulator Controls</u> Licence condition 1.2.20 requires the Licensee to divert stormwater from areas where there is waste to reduce the potential of stormwater mixing with landfill leachate. <u>Residual Risk</u> *Consequence:* Minor	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Likelihood: Rare *Risk Rating:* Low **Liquid Waste Facility Risk Assessment** <u>Emission Description</u> *Emission:* Spilling/overtopping of partially treated wastewater. *Impact:* Potential to enrich soil and groundwater with excess nutrients and pollutants, and negatively impact on the ecology of groundwater, surface water bodies. Depth to groundwater at the premises is between 7.5 – 13 mbgl at the Landfill. There are no known groundwater uses in Karratha. An ephemeral drainage line (Seven Mile Creek) is located 500m east of the Landfill. *Controls*: The City have committed to contain any spillages at the Landfill with spill kits and absorption materials. <u>Risk Assessment</u> *Consequence:* Minor *Likelihood*: Unlikely *Risk Rating:* Medium <u>Regulatory Controls</u> Licence condition 1.3.18 requires the licensee to ensure overtopping of the ponds does not occur and that a freeboard of 500mm or greater is maintained on all treatment ponds. The Delegated Officer considers this condition sufficient to prevent overtopping of liquid waste ponds. <u>Residual Risk</u> *Consequence:* Minor	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Likelihood: Rare *Risk Rating:* Low Previous condition 1.3.19 has been removed as it was not consistent DER's *Guidance Statement: Setting Conditions* as it required compliance with the proponent's own internal management document. The Delegated Officer is satisfied that the licence conditions provide an adequate level of regulatory control for operations at the premises. The condition read as follows: *"The Licensee shall undertake activities on the Premises in accordance with the City of Karratha Environmental Management Plan – 7 Mile Waste Disposal Facility"* **Landfill Gas Risk Assessment** Please refer to Appendix A **Landfill Leachate Risk Assessment** Please refer to Appendix A	
Fugitive emissions	N/A	**Construction** <u>Emission Description</u> *Emission:* Dust generated from earthworks machinery constructing the new landfill cells and from increased vehicle movement throughout the site. *Impacts*: Dust can negatively impact the health, welfare and amenity of those on nearby properties. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises. *Controls*: The Shire will implement the following measures to mitigate dust: • Watering down of unsealed traffic areas as required; • Suspension of activities that have a high potential for dust generation during	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		adverse weather conditions (e.g. strong winds); • Appropriate training of staff on how to use equipment to minimise dust generation; • Limiting speed limit on access roads; and • All truck with loads that enter or leave the Landfill will be covered. Risk Assessment *Consequence:* Minor *Likelihood*: Rare *Risk Rating:* Low Regulatory Controls Given the low risk of fugitive emissions during construction, fugitive dust conditions have not been included in the Licence for the construction of the landfill cells. The Delegated Officer considers that dust emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986.* Residual Risk *Consequence:* Minor *Likelihood*: Rare *Risk Rating:* Low **Operation** Emission Description *Emission:* Dust emissions generated from use of clean fill as cover requirements and vehicular movements throughout the Landfill. *Impacts*: Dust can negatively impact the health, welfare and amenity of those on nearby properties. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		are located adjacently north of the premises. *Controls*: The Shire will implement the following measures to mitigate dust: • Materials excavated as part of the earthworks activities are stockpiled within specific locations to reduce dust emissions at the site boundary; • Unsealed roads, exposed areas and earthworks are watered down regularly; • All site traffic will adhere to the site speed limit of 30 km/hr; and • A Complaints Register is used to record any complaints received; date, nature, and resolution action undertaken. Risk Assessment *Consequence:* Minor *Likelihood*: Rare *Risk Rating:* Low Regulatory Controls The Delegated Officer notes that DER records indicate that dust complaints have not been received in relation to the premises and that dust generation from operations are expected to similar to historical levels. Given the low risk of fugitive emissions conditions have not been included in the Licence. The Delegated Officer considers that dust emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986.* Residual Risk *Consequence:* Minor *Likelihood*: Rare *Risk Rating:* Low	
Odour	N/A	**Operation** Emission Description *Emission:* Objectionable odours emanating from putrescible waste and biological	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		wastes decomposing over time. Odour emitted from the LWF. Impacts: Odour can negatively impact on the welfare and amenity of those on nearby properties. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises. *Controls:* The Shire will implement the following measures to mitigate odour: • All wastes delivered to the site are contained in a covered vehicle to minimise potential odour emissions; • Odorous waste is covered immediately upon receipt; • Only one tipping face for putrescible waste is active at any time, where the surface area of the active tipping face is kept as small as possible; • Daily inspections of the tipping face are undertaken by Landfill staff; and • Liquid waste is discharged into the LWF receival ponds in such a manner that causes minimal disruption to the crust on the ponds. <u>Risk Assessment</u> *Consequence:* Minor *Likelihood*: Unlikely *Risk Rating:* Medium <u>Regulatory Controls</u> The Delegated Officer considers that separation distances to sensitive receptors are sufficient, however regulatory controls are required to ensure that odour impacts do not present an unacceptable risk to public amenity. Condition 1.3.1 requires the Licensee to ensure only biological waste is tankered into the premises and discharged into one of three receiving ponds to reduce the potential from raw septage odours to be emitted from the Landfill.	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Condition 1.3.3 requires the Licensee to landfill waste within designated landfill cells to ensure waste is disposed of to mitigate impacts to human health from odours. This condition also requires biomedical and clinical waste to be disposed of into a dedicated area not the Landfill and to not carry out works at the Landfill which may result in biomedical wastes being excavated or uncovered. Condition 1.3.5 requires the Licensee to cover putrescible waste with 150mm of material by the end of the working day and 1000mm of material within 3 months of achieving final waste contours. <u>Residual Risk</u> *Consequence:* Minor *Likelihood*: Rare *Risk Rating:* Low	
Noise	N/A	**Construction** <u>Emission Description</u> *Emission:* Noise generated from earthworks machinery during construction of landfill cells and increased vehicle movement. *Impact:* Noise can cause a nuisance for receptors on nearby properties and may disturb native fauna. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises. *Controls:* The City have not proposed any controls to mitigate potential noise from construction activities. <u>Risk Assessment</u> *Consequence:* Slight *Likelihood*: Unlikely	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Risk Rating: Low Regulatory Controls The Delegated Officer considers that separation distances to sensitive receptors are sufficient to mitigate noise impacts. Given the Low risk of noise emissions during construction, the Delegated Officer considers the *Environmental Protection (Noise) Regulations 1997* sufficient to regulate noise at the Landfill. Residual Risk *Consequence:* Slight *Likelihood*: Unlikely *Risk Rating:* Low	
General monitoring	L2.1.1 – L2.1.4	Condition 2.1.1 requires the Licensee to collect groundwater samples in accordance with Australian Standards and are analysed at a NATA accredited laboratory. Condition 2.1.2 requires the Licensee to undertake quarterly monitoring at least 45 days apart. Condition 2.1.3 requires the Licensee to calibrate all monitoring equipment in accordance with the manufacturer's specifications to ensure accurate samples and results are obtained. Condition 2.1.4 has requires the Licensee to report to DER when requirements for calibration cannot be met or there is a discrepancy in calibration results.	
Monitoring of inputs and outputs	L2.2.1	Condition 2.1.1 requires the Licensee to monitor inputs and outputs. This information is required to determine compliance with condition 1.2.1 throughput limits and validate annual fee submissions.	
Ambient	L2.3.1	Condition 2.3.1 requires the licence to monitor groundwater on a quarterly basis.	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
quality monitoring		Monitoring groundwater at the Landfill will assist in identify the potential rate of leachate percolating through the soil profile and contaminating groundwater	
Information	L3.1.1 – 3.3.1	Condition 3.1.1 sets out the requirements for any records that are required under this licence, such as ensuring they are legible and retained for 6 years which assists DER is regulating the conditions of this licence. Condition 3.1.2 requires the occupier to undertake an audit of their operations against the conditions of the licence and to report on this compliance in an Annual Audit Compliance Report (AACR). This condition assists DER in regulating the occupier's compliance with licence conditions and allows and opportunity for DER to review the occupier's environmental performance. Condition 3.1.3 requires a complaints management system to be implemented where the occupier can internally address any issues that arise from premises operations. This condition is required as per the risk assessments conducted above for nuisance emissions. DER will review these complaints as reported in the Annual Environmental Report (AER) and will consider whether a reassessment of any regulatory controls is required to address any complaints. Condition 3.2.1 requires the licensee to submit an Annual Environmental Report (AER). The AER is required to include a summary of the complaints required under condition 3.1.3. The AER is also required to provide results for the monitoring of inputs/output, monitoring of asbestos content of recycled products and a summary of malfunction of pollution control equipment or any environmental incidents. DER reviews all of the data provided in the AER to assess compliance with the licence conditions and to monitor the environmental impacts from the premises. Condition 3.3.1 requires the licensee to notify the CEO if there is a breach of any	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		licence limit (i.e. processing limits). The notifications required under this condition give DER appropriate notice of any environmental impacts at the premises so that DER can determine if any further action is required to address the incident. Previous condition 3.1.2 was removed from the licence as the Delegated Officer considers it redundant as lack awareness of licence conditions is not a valid defence for instances of non-compliance. This condition read: *"The Licensee shall ensure that:* *(a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and* *(b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing."*	
Licence duration	N/A	The current Licence expires on 20 June 2034. The Delegated Officer has determined that this date is suitable and in accordance with DER's *Guidance Statement: Licence Duration (November 2015)*.	Guidance Statement: Licence Duration (November 2015)

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
31/03/2017	Draft package sent to proponent	Comments were received on 1 May 2017, which are stated below 1. Table 1.2.1 did not truly reflect the engineering proposed, and stipulates requirements that misrepresent or do not clearly define minimum performance standards required. 2. Request Table 1.3.2 be amended to vary separation distance between the base of the landfill and highest groundwater level to from 3m to 2m. 3. Request condition 1.3.4 be amended for the City to rehabilitate a cell or phase within 6 months after disposal in that cell or phase has been completed to 12 months due to the ability to undertake works during extreme weather events. 4. Request to amended Table 1.3.4 to remove 'infiltration from the description of Ponds 5,6 and 7 as they are all lined ponds. 5. Request to add controlled waste category D300 to the Licence. The City of Karratha was issued an Amendment Notice on 13 January to accept oily saline water to be disposed of via evaporation. The controlled waste category was listed as J120 in the Amendment Notice, however it has now been deemed to be	1. Further specifications were provided by the City of Karratha, which the Delegated Officer added to Table 1.2.1 to better reflect the infrastructure design and requirements. 2. Table 1.3.2 amended as requested as the Delegated Officer has considered the risk of groundwater contamination from possible leachate and has determined that the risk will be low. 3. Condition 1.3.4 amended as requested. The Delegated Officer considers the rehabilitation of a cell or phase within 12 months of after final disposal to be adequate for minimising potential environmental and public health risks. 4. Table 1.3.4 amended as requested. 5. The controlled waste category has been amended to D300 as requested. The Delegated Officer has deemed this change as an administrative error and the activity of disposal via evaporation of saline oily water had previously been assessed.

Date	Event	Comments received/Notes	How comments were taken into consideration
		controlled waste D300	

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Appendix A

Landfill Gas Risk Assessment

Emission Description

Emission: Landfill gas in the form of methane and carbon dioxide generated from the degradation of putrescible and biodegradable waste migrating laterally from the from the landfill cap and proposed lined landfill cells impacting on local residences. Waste landfilled in the current cell has been limited to Inert Wastes Type 1 and Type 2, Putrescible Waste and Contaminated soils meeting Class II specifications.

Impact: Potential fire and explosion event at local residences and other sensitive receptors from concentrations of methane in the landfill causing irreversible harm, loss of life and long term health effects. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises. The Delegated Officer considers that suitable conditions for the generation of landfill gas will occur rarely given the annual evaporation rate (3300mm) in Karratha is significantly greater than the annual rainfall (298mm).

Controls: The City intend to cap the current landfill cell with the following materials:

- Jute / soil erosion matting;
- Growth medium/mulch layer;
- 0.5m thick restoration subsoil;
- 0.5m engineered low permeability clay; and
- Waste regulation layer placed in contact with waste.

The City will construct the new proposed landfill cells with a gas collection layer which will be installed in direct contact with the waste beneath the low permeability capping layer. The City will also develop a Construction Quality Assurance (CQA) Plan for the closure and capping of the new cells. The CQA Plan will include either a gas collection to be constructed of retro-fitted drilled gas wells connected to a collection system or a shallow trench system to passive gas wells with aspiromatic cowls.

Risk Assessment

Consequence: Major
Likelihood: Rare
Risk Rating: Medium

Regulator Controls

DER will require the City to provide the CQA Plan for the closure and capping of the new cells when the Shire intend to cap and rehabilitate the new cells

Residual Risk

Consequence: Major
Likelihood: Rare
Risk Rating: Medium

Landfill Leachate Risk Assessment

Emission Description

Emission: Landfill leachate percolating through the soil profile of the landfill contaminating groundwater at the current unlined landfill cell and proposed new landfill cells.

Impact: : Contamination of surrounding land and surface water drainage systems. Potential impacts on ecology of surface water from the addition of nutrients, pathogens and heavy metals. Depth to groundwater at the premises is between 7.5 – 13 metres below ground level (mbgl) at the Landfill. An

ephemeral drainage line (Seven Mile Creek) is located 500m east of the Landfill. There are no known groundwater uses in the area.
C*ontrols*: The City does not have any controls for the potential management of leachate at the current landfill cell. Ongoing groundwater monitoring at the site suggest that there is little to no leachate generation at the Landfill.

For the new line cells a leachate management system will be constructed. The system will include a leachate collection system to divert leachate to a sump and leachate extraction side risers to remove the excess leachate and maintain the correct levels. Any leachate that is removed will be pumped via a permanent leachate rising main to a leachate pond. The leachate collection system will be laid within the leachate collection layer above the liner on the cell floor. The collection system will be comprised of slotted pipework. An additional 2mm thick HDPE liner shall be laid to protect the barrier liner at the location of the pump sleeve. A HDPE side riser pipe will be laid on the slope of each new cell at the location of each sump, at the lowest point of the cell. This side riser pipe will act as a pump sleeve, which shall be a guide for a submersible leachate pump in the landfill sump. A reinforced concrete headwall will be constructed at the top of the embankment where the leachate side riser terminates. Existing pond (evaporation pond 3 will be repurposed as leachate storage/evaporation pond for the new cells. The pond was constructed with compacted sub-base and a 2mm HDPE impermeable liner. An integrity inspection will be undertaken prior to use followed by inspections at six monthly intervals thereafter. Leachate will be transferred to the new leachate storage pond by a leachate rising main that will be installed around the perimeter of the landfill area.

As part of the application, the City submitted a Seepage Assessment to estimate the rate of production of leachate from the proposed new cells. The City used the Hydrologic Evaluation of Landfill Performance (HELP version 3.95D) model to estimate leachate production. The HELP program is a quasi-two-dimensional hydrologic model of water movement across, into, through and out of landfills. The HELP model requires weather, soil and design data and uses solution techniques that account for the effects of surface storage, runoff, infiltration, evapotranspiration, vegetative growth, soil moisture storage, and leakage through soil, geomembrane or composite liners. The HELP simulations suggested that the leachate production rate in a capped landfill cell would be less than about 0.003 mm/m^2/year and 0.0002 during operation due to the low annual rainfall and the high rate of evapotranspiration at the Landfill. The Delegated Officer has reviewed the inputs to the HELP model and considers the

Risk Assessment
Consequence: Minor
Likelihood: Rare
Risk Rating: Low

Regulatory Controls
The Delegated Officer considers that regulatory controls are required to ensure that the risks to public health and the environment from leachate generation remain low. Groundwater monitoring will be continued on the licence to verify that this low risk status is maintained

L1.2.2 has been added to the Licence to ensure the Licensee constructs the proposed landfill cells in accordance with the specifications listed in Table 1.2.1 These specifications are consistent with the application requirements submitted by the proponent for the construction of the works.

Conditions1.2.4 and 1.2.5 have been added to the License, which requires the Licensee to submit s compliance document to DER to outline that the works were carried out as per the plans and specifications listed in table 1.2.2 and are signed and certified by an authorised representative of the Licensee.

Condition 1.2.6 has been added to the licence for the Licensee to submit a Construction Quality Assurance Report to ensure the proposed landfill cells were constructed in accordance with the supporting documentation.

Condition 2.3.1 requires the licence to monitor groundwater on a quarterly basis. Monitoring groundwater at the Landfill will assist in identify the potential rate of leachate percolating through the soil profile and contaminating groundwater

Residual Risk
Consequence: Minor
Likelihood: Rare
Risk Rating: Low

Landfill Capping Stability Risk Assessment
Emission description
Emission: Rain falling on the capping of the current landfill cell can enter the landfill cell if causing leachate to percolate from the landfill. Differential settlement (based on differing degradation of waste types) can also result in stresses on the capping layer that could result in failure and potentially result in release of fugitive landfill gases. Inappropriate profiles of the capping may result in compromising the capping through erosion of the covering soils or ponding and infiltration of ponding water into the landfill.
Impacts: Release of fugitive landfill gas or leachate percolating through the base of the Landfill. The nearest sensitive receptor is the Ausco Stayover Kingfisher Village located 1.45km south east of the Landfill. Industrial premises are located adjacently north of the premises. Depth to groundwater at the premises is between 7.5 – 13 metres below ground level (mbgl) at the Landfill. An ephemeral drainage line (Seven Mile Creek) is located 500m east of the Landfill. There are no known groundwater uses in the area.
Controls: The City has submitted a geotechnical Stability Risk Assessment with the licence amendment application. Existing waste slopes on the current landfill cell is currently standing at a gradient of about 1V:3.5H to 1V:4.0H.The maximum capping gradients over the current landfill cell will be 1V:4H over a vertical height of 10m, with 1V:5H for a further 6m; then 1V:20H to the maximum pre-settlement elevation (approximately +35.0mAOD). The City have referenced the *Victorian EPA Best Practice Environmental Management Guideline: Siting, Design, Operation and Rehabilitation of Landfills 2015* where referring to capping gradients

Risk Assessment
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Medium

Regulatory Controls
Condition 1.2.6 has been added to the Licence for the City to provide a CQA Report to the CEO to determine environmental performance against the design specification set out in the Licence amendment documentation, which includes outlining how the current landfill cell is capped. Condition 1.2.6 also requires the Licensee to take measures to meet the design specifications of the capping system where the design specifications have not been met.

Risk Assessment
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Medium