Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Abbotts Liquid Salvage Pty Ltd

Licence: L7827/2001/5

Registered office: 8 Princess Royal Drive
ALBANY WA 6330

ACN: 125 634 004

Premises address: Abbotts Liquid Salvage
35494 Albany Hwy
DROME WA 6330
Being Part of Lot 4638 on Plan 157018 within co-ordinates (MGA Zone 50) -34.9376S, 117.7778E; -34.9375S, 117.7827E; -34.935S, 117.7827E; -34.9351S, 117.7810E; -34.9346S, 117.7770E; -34.9339S, 117.7806E
as depicted in Schedule 1.

Issue date: Thursday, 10 January 2013

Commencement date: Sunday, 20 January 2013

Expiry date: Sunday, 19 January 2020

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
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	20 000 tonnes per year
67A	Compost manufacturing and soil blending: premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils	1 000 tonnes or more per year	7 500 tonnes per year

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

Date signed 14 July 2016
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Caron Goodbourn
A/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 regulates 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
Abbotts Liquid Salvage Pty Ltd (ALS) operates a liquid waste facility under Licence L7827/2001/5, on part of Lot 4638 on Plan 157018 on Albany Highway (Premises). The Premises is located approximately 14km north of the City of Albany. The Premises accepts biological waste, non-toxic salts and low strength wastewater for treatment within a pond system consisting of three anaerobic ponds and two facultative ponds. The treated wastewater is stored within a storage dam prior to irrigation of plantation timber within the Premises. Sludge from the treatment ponds is collected and dried within a contained sludge drying bed within the Premises. The proponent proposes to undertake composting of the dried sludge to produce a soil amendment product. The proponent received additional development approval from the City of Albany on 10 November 2015 to allow for composting operations to occur at the premises.

The ALS liquid waste treatment system consists of a liquid waste receival tank, a non-conforming load storage tank, the three anaerobic ponds, two facultative ponds and a storage dam. The non-conforming load tank is a partially submerged impervious concrete tank not connected to the ponds. The facility may accept up to 20 000kL of liquid wastes per year into the treatment ponds. The existing storage pond has a capacity of approximately 18 100kL (excluding the freeboard). Water balance calculations for the pond system shows that the 18 100kL capacity is sufficient considering all current inputs and outputs; accepted liquid wastes, rainfall from 1 in 20 year rainfall events and a 1 in 10 year wet year, evaporation and irrigation. The treatment ponds are lined with a synthetic liner material with a permeability of less than $2x10^{-10}$m/s, and the storage dam is clay lined with a permeability of less than $1x10^{-9}$m/s.

During a high rainfall year total annual irrigation may need to be up to 15 000kL, based on the acceptance of 20 000kL of liquid waste per annum. ALS have an irrigation schedule in place with a Nutrient Irrigation Management Plan for the irrigation of up to 15 000kL per annum. The schedule does not include any irrigation for the 5 month high rainfall period from May to September. At the end of summer the storage dam level will be reduced to a minimum through the irrigation of the water to the Blue Gum trees.

The composting process involves the mixing of dried sludge with green waste at a ratio of approximately 1:4 to form windrows approximately 3 metres wide and 2 metres high. Compost windrows will be irrigated with wastewater sourced from the leachate dam on site to maintain the necessary moisture levels within the windrows. No liquid wastes other than onsite generated leachate may be applied as a feedstock to the composting process. Windrows will be mechanically turned approximately once every three days to maintain aerobic conditions within the windrows. After the internal temperature of the windows has reached 55 degrees Celsius for a minimum of 15 days, several windrows will be combined to produce a conditioning pile. The conditioning piles will then be tested to determine the pathogen and contaminant levels within the compost, prior to being stockpiled for sale. The final compost product is proposed to be sold for unrestricted use provided that the product meets the necessary pathogen and contaminant levels. ALS will be required to follow the requirements of Australian Standard AS 4454 *Composts, soil conditioners and mulches* (AS4454) and meet the P1C1 within the document *Western Australia*

Guidelines for Biosolids Management (Department of Environment and Conservation 2012). If the appropriate classification level is not achieved, the compost may be returned to a composting windrow for further treatment, or if the P2C2 grading is achieved the compost may be used for spreading on agricultural land. The composting facility will not include the shredding of green waste within the Premises.

The main potential emissions from the Premises during operation of the liquid waste ponds and composting facility are dust, odour, leachate/contaminated stormwater and emission to land. Odour generation during operations will be minimised by maintaining an aerobic state within the composting windrows. Leachate and contaminated stormwater will be contained on the composting hardstand and within the leachate storage dam, which will be required to be constructed to appropriately contain the leachate. A 500mm freeboard will be maintained on the dam at all times.

This Licence is the result of an amendment sought by the Licensee to add Category 67A to the licence and to allow for the operation of the compositing facility and to extend the premises boundary to incorporate the new composting facility infrastructure.

The licences and works approvals issued for the Premises 20/1/2003 are for the licences and works approvals prior to issue of this Licence are:

Instrument log		
Instrument	**Issued**	**Description**
W3546/2001/1	18/03/2/002	New Works Approval
L7827/2001/5	20/01/2003	New application
L7827/2001/5	12/1/2004	Licence re-issue
L7827/2001/5	12/1/2005	Licence re-issue
W4390/2007/1	18/03/2/002	Works Approval
L7827/2001/5	14/1/2010	Licence re-issue
L7827/2001/5	19/11/2012	Licence amendment
L7827/2001/5	10/1/2013	Licence re-issue
L7827/2001/5	16/12/2015	Licence amendment to extend duration of the expiry date
L7827/2001/5	26/04/2016	Licence amendment to extend duration of the expiry date
W5905/2015/1	11/2/2016	Works Approval to allow construction of composting facility
L7827/2001/5	14/07/2016	Licence amendment to add Category 67A to allow operation of the composting facility

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:

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

'AHD' means the Australian height datum;

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

'AS/NZS 5667.1' means the 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 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

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

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

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

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department of Environment Regulation
Locked Bag 33
CLOISTERS SQUARE WA 6850
Telephone: (08) 9333 7510
Facsimile: (08) 9333 7550
Email: info@der.wa.gov.au;

'compost' means an organic product that has undergone controlled aerobic and thermophilic biological transformation through the composting process;

'composting' the process whereby organic materials are microbiologically transformed under controlled aerobic conditions.

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

'dS/m' means deciSiemens per metre;

'extreme rainfall event' means a one in ten year rainfall event of 72 hours duration;

'feedstock' means the organic material used in the composting process and listed in Table 1.3.1;

'flooded' means inundated with water;

'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 untreated trees or plants;

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

'leachate' means liquid released by or water that has percolated through waste and which contains some of its constituents.

'Licence' means this Licence numbered L7827/2001/5 and issued under the Act;

'**Licensed landfill'** means a landfill licensed 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 in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Non-Conforming Load Tank' means the partially submerged concrete tank not connected to the treatment ponds as depicted in Schedule 1 Maps;

'pasteurisation' means the process whereby organic materials are treated to significantly reduce the numbers of plant and animal pathogens and plant propagules;

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

'quarterly' 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 and in the year;

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

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

'six monthly' means the 2 inclusive periods from 1 January to 30 June to 1 July to 31 December in the year;

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

'unrestricted use' means compost use where the product is marketed or distributed in bags and in bulk in an unrestricted manner in all market sectors including domestic use, urban landscaping, agriculture and land rehabilitation;

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

'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;

'Windrow' means greenwaste or compost or soil conditioned stockpiles; and

'**wire stock fence'** means a fence at least 1.2 metres in height, constructed from five strand plain or barbed wire or a ring lock fence with at least one strand of plain or barbed wire on the top.

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 in 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 Premises operation

1.2.1 The Licensee shall only accept waste on to the Premises if:
(a) it is of a type listed in Table 1.2.1;
(b) the quantity accepted is below any quantity limit listed in Table 1.2.1;
(c) it meets any specification listed in Table 1.2.1.

Table 1.2.1: Waste acceptance

Liquid Waste type	Waste Code	Quantity Limit	Specification[1]
Animal Effluent and Residues	K100	Combined total of no more than 20,000 tonnes per annual period	None specified
Liquid waste - septage waste	K210		
Liquid waste – grease trap waste	K110		
Food and beverage processing wastes	K200		
Sewage and reticulated sewerage system	K130		
Tannery wastes not containing chromium	K140		
Wool scouring wastes	K190		
Non-toxic salts	D300		
Liquid waste – industrial wash water	L150		
Car and truck wash water	L100		
Fire debris and washwater	N140		
Pond water			
Stormwater			
Non-Liquid Waste			
Greenwaste		6000 tonnes per annual period	

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*.

1.2.2 The Licensee shall ensure that where waste does not meet the waste acceptance criteria set out in condition 1.2.1 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.

1.2.3 The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the processes set out in Table 1.2.2 and in accordance with any process limits described in that Table.

Table 1.2.2: Waste processing

Waste type	Process	Process limits
Liquid waste – all types specified in Table 1.2.1	Receipt, handling, storage and treatment prior to discharge to irrigation	Treatment of all liquid waste shall be at or below the treatment capacity of 20,000 tonnes per annual period.
Composting material which includes a mixture of sludge/greenwaste (feedstock)	Receipt, handling and storage prior to composting	• Waste shall not be stored for longer than 7 days before being added to the composting process. • Waste shall not be stored within 20 metres of the Premises boundary.
	Treatment by composting and pasteurisation	• Windrows shall be turned regularly to ensure aerobic conditions are maintained. • The core temperature of the composting pile is maintained between 55 ºC and 65 ºC for a period of at least 15 days. • Moisture level in the composting piles shall be maintained between 40 to 65 per cent. • Windrows shall not exceed 3 metres high, and 3 metres wide and 20 metres long. • Windrows shall be separated by at least 10 metres of clear ground. • Composting leachate is collected and returned to the composting process. • Ensure that, as a minimum, compost sold commercially for export of-site meets physical and chemical requirements set out by AS4454 and meets P1C1 within the document *Western Australia Guidelines for Biosolids Management* (Department of Environment and Conservation 2012). • Shall produce no more than 6500 tonnes per annual period of compost. • Liquid wastes (other than composting leachate) are not permitted to be composted. • Only sludges generated from the onsite liquid waste facility may be accepted for composting
Greenwaste only	Receipt, handling, storage prior to composting	• Windrows shall not exceed 2 metres high, and 3 metres wide and 20 metres long. • Temperatures within windrows are monitored on a weekly basis; • Windrows with an internal temperature exceeding 80 degrees Celsius are turned, mixed or otherwise treated, to reduce the temperature; and • A 10 metre fire break shall be maintained around greenwaste windrows. • The shredding or grinding of green waste shall not be undertaken at the Premises.

1.2.4 The Licensee shall ensure that waste material is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 1.2.3.

Table 1.2.3: Containment infrastructure

Vessel or compound	Material	Requirements
Liquid waste receival tank	Liquid waste specified in Table 1.2.1	• Impervious concrete tank • Concrete hardstand area shall direct wastewater spillages to the receival tank for anaerobic ponds.
Non-Conforming Load Tank	J130- Oil interceptor waste J120 - Waste oil and water mixtures or emulsions and hydrocarbon and water mixtures or emulsions J180 - Oil Sludge J100 - Waste oils unfit for their intended purpose; J170 - Used oil filters.	• Impervious concrete tank. • Concrete hardstand area shall direct wastewater spillages to the receival tank for anaerobic ponds.
Three anaerobic storage ponds	Treated effluent	• Synthetic liner with a permeability of at least $2x10^{-10}$ m/s. • Freeboard of 800mm.
Two facultative ponds	Treated effluent	• Synthetic liner with a permeability of at least $2x10^{-10}$ m/s. • Freeboard of 800mm.
Liquid waste storage pond	Treated effluent	• Clay lined with a permeability of at least $1x10^{-9}$ m/s. • Freeboard of 500mm.
Compost Facility Hardstand Pad	Compost	• have a minimum 2% drainage gradient to ensure the free drainage of all leachate to leachate collection infrastructure. • Bunded hardstand area. • kerbing/bunding of at least 150mm in height • have a seal between the hardstand and any bunding/kerbing that is impervious ($1x10^{-9}$m/s). • be covered with a protective layer that will protect the liner from damage as a result of day-to-day activities or machinery movements.
Leachate collection infrastructure	Compost leachate	have a permeability of at least $1x10^{-9}$ m/s.
Composting Facility Leachate Storage Dam	Compost leachate	• have a permeability of at least $1x10^{-9}$ m/s. • Freeboard of 500mm.

1.2.5 The Licensee shall implement the following security measures at the site:
(a) maintain a wire stock fence 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.

1.2.6 The Licensee shall manage all wastewater treatment ponds such that:
(a) overtopping of the ponds does not occur except as a result of an extreme rainfall event;
(b) the integrity of the containment infrastructure is maintained;
(c) the discharge of liquid waste to the anaerobic pond does not disrupt the anaerobic crust;
(d) the pH in the anaerobic lagoon is maintained between 6.5 and 9;
(e) trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter;
(f) vegetation and floating debris (emergent or otherwise) is prevented from encroaching onto pond surfaces or inner pond embankments

1.2.7 The Licensee shall ensure that any leachate transferred from the composting facility leachate dam is only discharged into an anaerobic pond.

1.2.8 The Licensee shall ensure that the irrigation of treated wastewater meets the following:
(a) no irrigation generated run-off, spray drift or discharge occurs beyond the boundary of the irrigation area;
(b) wastewater is evenly distributed over the irrigation area;
(c) soil erosion is prevented from occurring; and
(d) irrigation shall not occur during periods of rainfall or onto flooded areas.

1.2.9 The Licensee shall ensure that no greenwaste or compost is burnt on the premises.

2 Emissions

2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Emissions to land

2.2.1 The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.2.1 [and identified on the map of emission points in Schedule 1] it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emissions to land

Emission point reference and location on Map of emission points	Description	Source including abatement
L1	Pipe feeding irrigation 4 ha of Blue gum woodland.	Treated wastewater from liquid waste storage dam

2.2.2 The Licensee shall not cause or allow emissions to land greater than the limits listed in Table 2.2.2.

Table 2.2.2: Emission limits to land			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
L1	Biochemical Oxygen Demand	150mg/L	Spot sample
	Total Nitrogen	50mg/L	
	Total Phosphorus	10mg/L	
	Electrical Conductivity	5dS/m	

3 Monitoring

3.1 General monitoring

3.1.1 The licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
(d) all soil sampling is conducted in accordance with AS 4482.1 and AS 4482.2 as relevant; and
(e) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured [unless indicated otherwise in the relevant table].

3.1.2 The Licensee shall ensure that :
(a) daily monitoring is undertaken every day;
(b) monthly monitoring is undertaken at least 15 days apart;
(c) quarterly monitoring is undertaken at least 45 days apart;
(d) six monthly monitoring is undertaken at least 5 months apart; and
(e) annual monitoring is undertaken in December.

3.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications and the requirements of the Licence.

3.1.4 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.

3.2 Monitoring of emissions to land

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of emissions to land

Emission point reference	Monitoring point and reference location	Parameter	Units	Frequency
L1	Irrigation flow meter	Volumetric flow rate	kL/day	Daily
L2	Liquid waste storage dam	pH	pH units	Monthly
		Total Nitrogen	mg/L	
		Nitrate-nitrogen		
		Total Phosphorus		
		Biochemical Oxygen Demand		
		Total Dissolved Solids		
		Oil and grease		
		Electrical Conductivity	dS/m	
		Aluminium	mg/L	Annually
		Arsenic		
		Cadmium		
		Chromium		
		Copper		
		Manganese		
		Nickel		
		Lead		
		Zinc		
L3	Stormwater run-off dam	pH	pH units	Quarterly
		Electrical Conductivity	dS/m	

3.3 Monitoring of inputs and outputs

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of inputs and outputs

Input/Output	Parameter	Units	Averaging period	Frequency
Waste input	Liquid wastes: All liquid wastes as specified in Table 1.2.1	kL/day	N/A	Each load arriving at the Premises
Waste input	Greenwaste	tonnes	N/A	Each load arriving at the Premises
Waste Outputs	Compost sold commercially	tonnes	One year	Each load leaving the Premises

3.4 Process monitoring

3.4.1 The Licensee shall undertake the monitoring in Table 3.4.1 according to the specifications in that table.

Table 3.4.1: Process monitoring

Monitoring point reference	Process description	Parameter	Units	Frequency	Method
Compost windrows	Composting	Temperature	ºC	Weekly	None specified
		Moisture content	%	Weekly	None specified
		Compost quality	None specified	As required in AS 4454	Sampling and testing in accordance with AS 4454

3.5 Ambient environmental quality monitoring

3.5.1 The Licensee shall undertake the monitoring in Tables 3.5.1and 3.5.2 according to the specifications in those tables and record and investigate results that do not meet any limit specified.

Table 3.5.1: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
MW1, MW2, MW3, MW6	Standing water level	m(AHD)	Spot sample	Six monthly
	pH	pH units		
	Total Nitrogen	mg/L		
	Nitrate-nitrogen			
	Total Phosphorus			
	Biochemical Oxygen Demand			
	Total Dissolved Solids			
	Zinc			
	Aluminium			
	Arsenic			
	Cadmium			
	Chromium			
	Copper			
	Manganese			
	Nickel			
	Lead			
	Zinc			
	Electrical Conductivity	dS/m		
MW4, MW5, MW7 and MW8	Standing water level	m(AHD)		
	pH	pH units		
	Total Nitrogen	mg/L		
	Nitrate-nitrogen			
	Nitrogen ammonium			
	Total Phosphorus			
	Biochemical Oxygen Demand			
	Total Dissolved Solids			
	Zinc			
	Aluminium			
	Arsenic			

	Cadmium			
	Chromium			
	Copper			
	Manganese			
	Nickel			
	Lead			
	Zinc			
	Sodium			
	Potassium			
	Calcium			
	Magnesium			
	Chloride			
	Sulphate			
	bicarbonate			
	Beryllium			
	Cobalt			
	Mercury			
	Molybdenum			
	Vanadium			

Table 3.5.2: Monitoring of ambient soil quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
S1	Phosphorus Retention Indices	-	Spot sample	Annually
	Electrical conductivity	dS/m		

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 4.1.1(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.

4.1.2 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.3 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.

4.1.4 The Licensee shall:

(a) implement and maintain a system which ensures that a record is made of:

(i) the waste type, quantity and date of arrival of each load accepted at the Premises;

(ii) the waste type, quantity, date of removal and destination (recycled material/recycling site/landfill etc) of each load removed from the site; and

(iii) rejected loads including details of the waste producer, waste carrier, registration number of the vehicle and the date and reason for rejection.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report by 28 February each yea. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table for the annual period.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 1.2.1	Summary of any waste acceptance limit exceedances and any action taken	None specified
Table 1.2.3	Summary of any freeboard limit exceedances and any action taken	None specified
Table 2.2.2	Limit exceedances and any action taken	None specified
Table 3.2.1	Monitoring of emissions to land	None specified
Table 3.3.1	Monitoring of inputs and outputs	None specified
Table 3.4.1	Process monitoring	None specified
Table 3.5.1	Monitoring of ambient groundwater quality	None specified
Table 3.5.2	Monitoring of ambient soil quality	None specified
4.1.2	Compliance	Annual Audit Compliance Report (AACR)
4.1.3	Complaints summary	None specified
4.1.4	Summary of waste types and quantities accepted and removed from the Premises in the reporting year	None specified
	Summary of rejected loads	

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form[1]
-	Copies of original monitoring reports submitted to the Licensee by third	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

	parties			

Note 1: Forms are in Schedule 2

4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
2.2.2	Limit exceedance where management action taken	As soon as practicable but no later than 5pm of the next usual working day.	None specified
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
3.1.4	Calibration report	As soon as practicable.	None specified
1.2.11	Fire at the premises	As soon as practicable	None specified
-	Taking a process equipment offline for maintenance works that may result in increased odour emissions	No less than 72 hours in advance of works	None specified
-	Removal of sewage sludge from a treatment pond, sewage sludge storage pond or Geobag	No less than 14 days in advance of works[2]	None specified

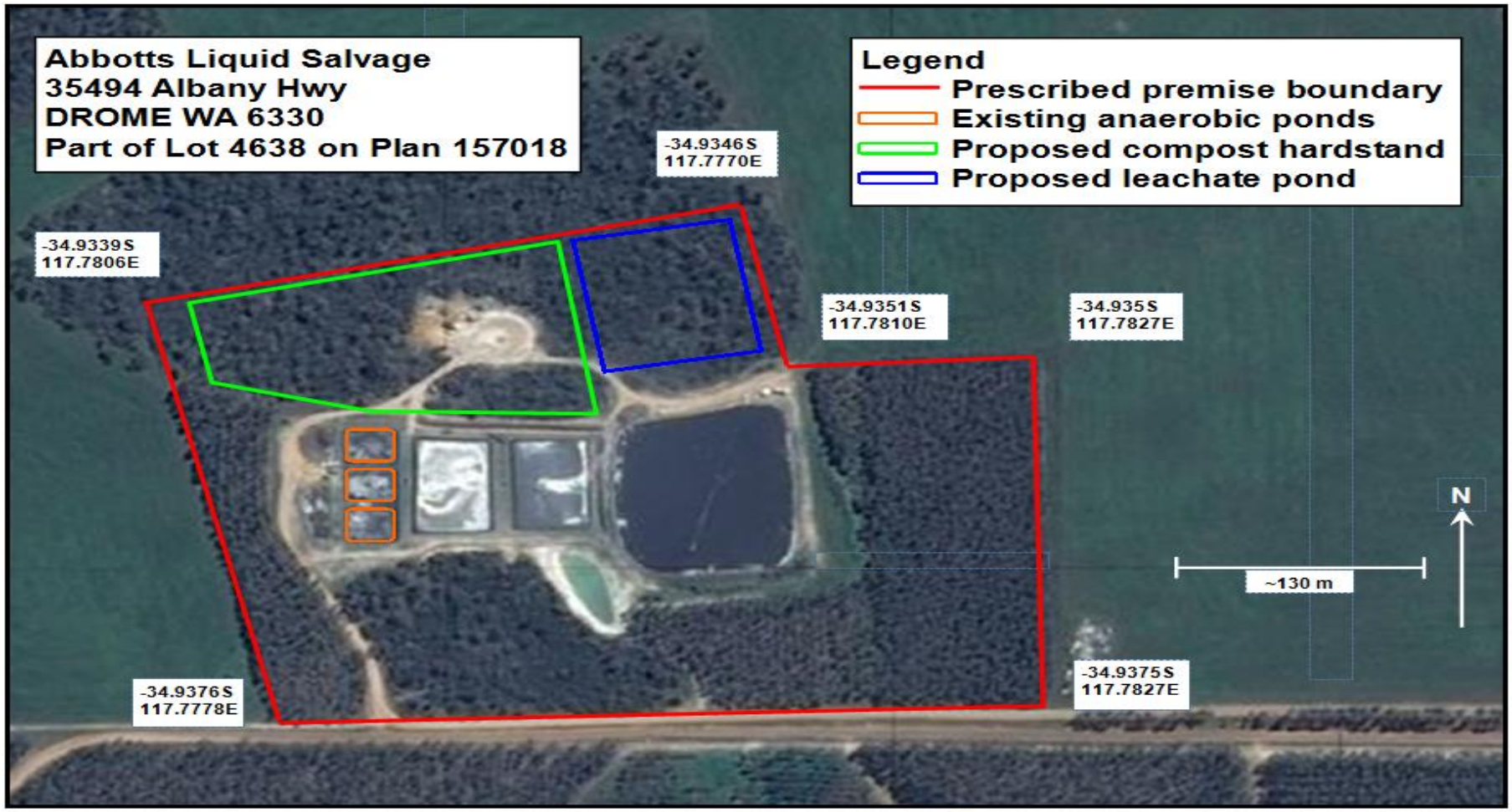
Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

Note 2: Forms are in Schedule 2

Schedule 1: Maps

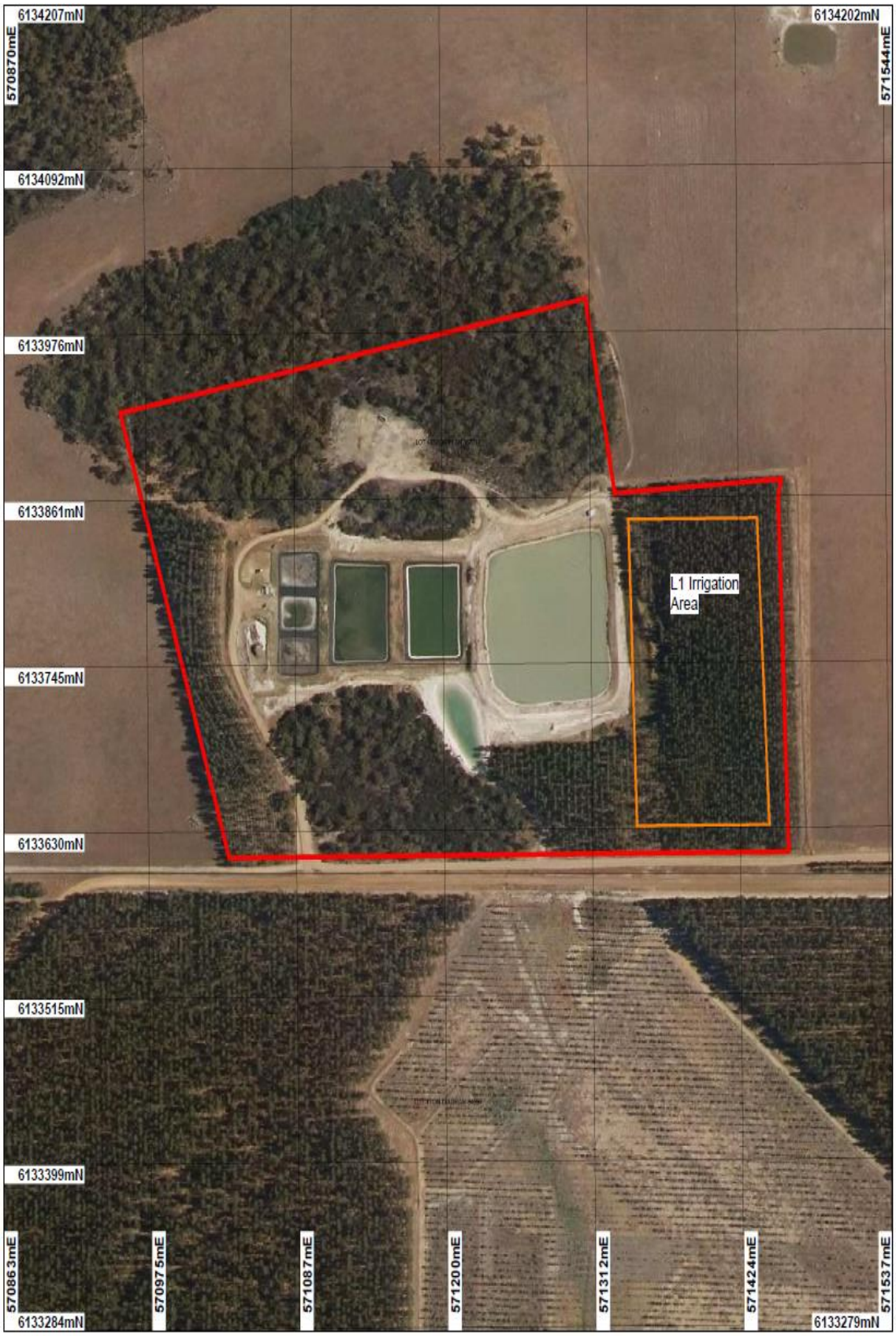
Premises map

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



Map of emission points

The locations of the emission points defined in Tables 2.2.1 and 2.2.2 are shown below.



Map of monitoring locations

The locations of the monitoring points defined in Tables 3.2.1, 3.5.1 and 3.5.2 are shown below.


6134168mN
6134164mN
570910mE
571480mE
6134070mN
6133973mN
MW8
MW5
MW4
MW7
6133875mN
6133777mN
MW2
MW1
MW6
6133679mN
MW3
6133582mN
6133484mN
570904mE
570999mE
571094mE
571189mE
571284mE
571379mE
571474mE
6133386mN
6133382mN

Map of storage locations

The location of the storage areas defined in Table 1.2.3 are shown below.

Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of the non compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L7827/2001/5 Licensee: Abbotts Liquid Salvage Pty Ltd
Form: N1 Date of breach:

Notification of detection of the breach of a limit.

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	

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	
Date	

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Abbotts Liquid Salvage Pty Ltd

Works Approval: L7827/2001/5

Registered office:	8 Princess Royal Drive ALBANY WA 6330
ACN:	125 634 004
Premises address:	Abbotts Liquid Salvage 35494 Albany Hwy DROME WA 6330 Being Part of Lot 4638 on Plan 157018 within co-ordinates (MGA Zone 50) -34.9376S, 117.7778E; -34.9375S, 117.7827E; -34.935S, 117.7827E; -34.9351S, 117.7810E; -34.9346S, 117.7770E; -34.9339S, 117.7806E.
Issue date:	Thursday, 10 January 2013
Commencement date:	Sunday, 20 January 2013
Expiry date:	Sunday, 19 January 2020

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue a works approval. DER considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by:	Damian Thomas Licensing Officer
Decision Document authorised by:	Caron Goodbourn 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**
	61	20 000 tonnes per annum
	67A	7500 tonnes per annum
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		
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☒		
Is the Premises subject to any EPP requirements? Yes☐ No☒		

3 Executive summary of proposal and assessment

Abbotts Liquid Salvage Pty Ltd (ALS) currently operates a liquid waste facility under Licence L7827/2001/5, on part of Lot 4638 on Plan 157018 on Albany Highway (Premises). The Premises is located approximately 14km north of the City of Albany. The Premises accepts biological waste, non-toxic salts and low strength wastewater for treatment within a pond system consisting of three anaerobic ponds and two facultative ponds. The treated wastewater is stored within a storage dam prior to irrigation of plantation timber within the Premises. Sludge from the treatment ponds is collected and dried within a contained sludge drying bed within the Premises. The proponent proposes to undertake composting of up to 1500 tonnes per annum of the dried sludge to produce a soil amendment product. The proponent received additional development approval from the City of Albany on 10 November 2015 to allow for composting operations to occur at the premises. Works Approval W5905/2015/1 was granted to allow the construction of the proposed compositing infrastructure and ALS has submitted the construction compliance document.

The ALS liquid waste treatment system consists of a liquid waste receival tank, a non-conforming load storage tank, the three anaerobic ponds, two facultative ponds and a storage dam. The non-conforming load tank is a partially submerged impervious concrete tank not connected to the ponds. The facility may accept up to 20 000kL of liquid wastes per year into the treatment ponds. The treatment ponds have been designed with a 0.8metre freeboard and the storage dam has been designed with a 0.5metre freeboard. The existing storage pond has a capacity of approximately 18 100kL (excluding the freeboard). Water balance calculations for the pond system shows that the 18 100kL capacity is sufficient considering all current inputs and outputs; accepted liquid wastes, rainfall from 1 in 20 year rainfall events and a 1 in 10 year wet year, evaporation and irrigation. The treatment ponds are lined with a synthetic liner material with a permeability of less than $2x10^{-10}$m/s, and the storage dam is clay lined with a permeability of less than $1x10^{-9}$m/s.

During a high rainfall year total annual irrigation may need to be up to 15 000kL, based on the acceptance of 20 000kL of liquid waste per annum. ALS have an irrigation schedule in place with a Nutrient Irrigation Management Plan for the irrigation of up to 15 000kL per annum. The schedule does not include any irrigation for the 5 month high rainfall period from May to September. At the end of summer the storage dam level will be reduced to a minimum through the irrigation of the water to the Blue Gum trees. Due to the nature of extraction using a floating intake structure, the system will not be pumped dry, therefore drying and cracking of the liner will not occur.

There is a buffer of rain fed trees around the boundary of the irrigation area. The buffer is 20m wide on the southern boundary and 10m wide on the remaining boundaries. The irrigation area is also surrounded by a cut off drain to ensure that irrigated water does not flow over the premises boundary. Flow from the cut off drains is collected in a clay lined runoff dam. The tree buffer is intended as a means of facilitating the uptake of irrigation water than may have migrated from the irrigation area.

Now that the composting infrastructure has been constructed ALS have submitted a licence amendment application to add category 67A to the licence and to allow the operation of the facility.

Location
The composting facility is located directly north of the existing ALS operations however; the Premises boundary specified within the existing licence has been extended to include the boundary of the Premises as defined in W5905/2015/1.

The surrounding landscape is predominantly used for agriculture. There are seasonal creeks located approximately 1.5km east, 1.5km south east and 2km south west of the Premises. There are several dams located on neighbouring agricultural properties, the closest of which is located

approximately 700m south east of the Premises. Topographic contours indicate that the direction of surface water flow is generally towards the south-south east. Groundwater monitoring at bores located around the existing ALS Premises indicate that groundwater within the area is approximately 12m - 14m below ground level. The Department of Water has advised that the groundwater at the site is likely to follow surface topography, so is likely to flow in a southerly direction. The Premises itself is not within a Public Drinking Water Source Area (PDWSA), however part of the south west portion of Lot 4638 is located within a Priority 2 PDWSA. The Premises itself will be located less than 50m from the boundary of the PDWSA. The nearest neighbouring residences are approximately 1km to the east and approximately 1.2km to the south-west. Immediately south of the Premises is a blue gum plantation on which broad scale irrigation of treated wastewater from the Albany Wastewater Treatment Plant occurs.

The Environmental Protection Authority guidance document *Separation Distances Between Industrial and Sensitive Land Uses* (June 2005) recommends a buffer distance of 500m for composting facilities with outdoor uncovered regularly turned windrows using biosolids, and a distance of 1000m for outdoor uncovered regularly turned windrows using manures.

The location of the composting facility is currently within an area of native vegetation which has been cleared. The clearing was determined to be exempt from requiring a clearing permit as it was carried out in accordance with Regulation 5, Item 1 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

Process

The composting process involves the mixing of dried pond sludge with green waste at a ratio of approximately 1:4 to form windrows approximately 3 metres wide and 2 metres high. Compost windrows will be irrigated with wastewater sourced from the leachate dam on site to maintain the necessary moisture levels within the windrows. No liquid wastes (other than onsite generated leachate) may be applied as a feedstock to the composting process. Windrows will be mechanically turned approximately once every three days to maintain aerobic conditions within the windrows. After the internal temperature of the windows has reached 55 degrees Celsius for a minimum of 15 days, several windrows will be combined to produce a conditioning pile. The conditioning piles will then be tested to determine the pathogen and contaminant levels within the compost, prior to being stockpiled for sale. The final compost product is proposed to be sold for unrestricted use provided that the product meets the necessary pathogen and contaminant levels. ALS will be required to follow the requirements of Australian Standard AS 4454 *Composts, soil conditioners and mulches* (AS4454) and meet the P1C1 within the document *Western Australia Guidelines for Biosolids Management* (Department of Environment and Conservation 2012). If the appropriate classification level is not achieved, the compost may be returned to a composting windrow for further treatment, or if the P2C2 grading is achieved the compost may be used for spreading on agricultural land. The composting facility will not include the shredding of green waste within the Premises.

Infrastructure

The composting infrastructure includes the construction of a hardstand pad approximately 25 000m^2 in size and a leachate storage dam approximately 22 000m^2 in size. The hardstand has been constructed from compacted clay and compacted cover material, and graded such that runoff from the hardstand will collect in the adjacent leachate storage dam. The leachate storage dam is approximately 22 000m^2 and 2m deep (providing a total capacity of approximately 40 000m^3, excluding freeboard) and is lined with a compacted clay liner. Water balance calculations have been completed for the hardstand pad and leachate dam under two different scenarios; mean monthly rainfall and 90th percentile monthly rainfall (see water balance in Appendix A). Under the mean monthly rainfall scenario, the proposed dam total storage capacity of approximately 40 000m^3 is more than sufficient for the storage of all rainfall inputs (including a 1 in 20 year 72 hour storm event) less evaporation and use in windrow irrigation. However, under the 90th percentile monthly rainfall scenario, the storage capacity of the dam would not be sufficient for the storage of all rainfall inputs considering that the storm event capacity needs to be maintained. It is proposed that up to 11 000 kilolitres of wastewater from the leachate dam may be transferred to the existing storage dam within the Premises (part of the current ALS liquid waste facility) if needed to reduce the wastewater level within the dam. The wastewater within the

existing storage dam is subject to emission limits and is irrigated to a 4 hectare blue gum plantation area within the Premises.

All composting activities will be required under respective licence conditions to be undertaken on the lined hardstand area which includes the hardstand pad, leachate storage dam and leachate collection infrastructure, Composting activities include the storage of green waste, dried sludge and finished compost product. Works Approval W5905/2015/1 required the hardstand area, including the bunds and the seal between the hardstand pad and bunding, be lined to meet a permeability of $1x10^{-9}$ m/s with a bunding height of at least 150mm. The hardstand area is at least 300mm thick and comprises two separate layers of clay liner. ASL have submitted the construction compliance document for W5905/2015/1 and advised DER that the construction of the composting facility hardstand area complies with the requirements of the works approval conditions.

Potential emissions and controls
The main potential emissions from the Premises during operation of the composting facility are dust, odour, leachate/contaminated stormwater and emission to land. Odour generation during operations will be minimised by maintaining an aerobic state within the composting windrows. Leachate and contaminated stormwater will be contained on the composting hardstand and within the leachate storage dam, which will be required to be constructed to appropriately contain the leachate. A 500mm freeboard will be maintained on the dam at all times.

ALS is currently licensed to irrigate treated wastewater from the existing category 61 liquid waste facility storage dam to a blue gum plantation within the Premises. With the addition of category 67A to the licence to allow composting activities, the proposal now includes the transfer of up to 11 000 kilolitres of wastewater from the composting leachate dam to the existing storage dam of the ALS liquid waste facility. Based on the risk assessment undertaken for the emission to land during operation, the wastewater from the composting leachate dam will be required to be only transferred to the existing anaerobic treatment ponds within the Premises, rather than the storage dam. The wastewater from the composting facility leachate dam will therefore be subject to treatment via the existing liquid waste pond system prior to discharge via irrigation. There are existing conditions within Licence L7827/2001/5 which regulate how the treated wastewater from the storage dam is discharged to land, including limits on the quality of the wastewater.

Monitoring
During operation of the composting activity, monitoring of the dried sludge feedstock, compost windrows and compost product is required. Monitoring will include sampling to determine pathogen and contaminant levels and the monitoring of other parameters such as temperature and moisture content. Monitoring of additional parameters is proposed for three existing groundwater bores, currently monitored biannually under the requirements of Licence 7827/2001/5 for the existing liquid waste facility. The additional monitoring bore constructed under W5905/2015/1 will be added to the licence also.

This amendment is to add Category 67A to the licence and to allow for the operation of the compositing facility constructed under W5905/2015/1 and to extend the premises boundary to incorporate the new composting facility infrastructure. DER has considered whether the risk profile of emissions and discharges from the Premises has significantly changed since the previous licence was amended. No significant changes have occurred and therefore DER has not amended conditions relating to emissions and discharges except for the operation of the composting facility as discussed in the decision table below. The licence has been converted into the new licence format.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. 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**
Interpretation	L1.1.1 – 1.1.4	**Operation** Conditions 1.1.1 – 1.1.4 require that terminology used within the Licence is referenced to the appropriate definitions where applicable and that any reference to a standard or guideline is to the most current version of that standard or guideline.	General provisions of the *Environmental Protection Act 1986*
General conditions	L1.2.1 – 1.2.9	**Operation** The risk assessments informing the regulatory requirements under Contaminated and un-contaminated Stormwater emissions and composting are contained in Appendix B. Previous licence condition 1 has been converted to condition L1.2.1 and Table 1.2.1. Previous licence condition 2 has been converted to condition L1.2.4 and Table 1.2.3. Previous licence condition 3 has been converted to condition L1.2.1 and Table 1.2.1. Previous licence condition 4 and 5 has been converted to condition L1.2.5. Previous licence condition 6 has been removed from the licence in line with DER Operational Procedure IR-OP-02 Redundant Conditions. Previous licence condition 7 has been converted to condition L1.2.6 and L1.2.3 Table 1.2.3.	Application supporting documentation L7827/2001/5 *Environmental Protection (Unauthorised Discharges) Regulations 2004* General provisions of the *Environmental Protection Act 1986* Australian Standard

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 8 has been converted to condition L1.2.4 and Table 1.2.3. Previous licence condition 12 has been converted to condition L1.2.8. Licence condition 1.2.1 Table 1.2.1 has been drafted onto the licence to limit the waste types and quantities that can be accepted at the Premises. Licence condition 1.2.2 has been drafted onto the licence to regulate waste types that are not permitted to be accepted onto the Premises. Licence condition 1.2.3 Table 1.2.2 has been drafted onto the licence to regulate waste processing at the Premises. This includes, but is not limited to, the core temperature of the composting windrows must be maintained above 55 degrees Celsius for a period of at least 15 days for sufficient pasteurisation, maintenance of windrow stockpiles, moisture levels and final product quality prior to sale to ensure public health is not impacted and the shredding of green waste shall not be undertaken, as this has not been proposed with the application supporting documentation and therefore potential emissions from this activity have not been assessed. Licence condition 1.2.4 Table 1.2.3 has been drafted onto the licence to regulate containment infrastructure for all the liquid waste and composting operations and includes, but not limited to, the storage of dried sludge, green waste, the process of composting and pasteurisation and the storage of final compost product must be on the composting hardstand, a freeboard of 500mm must be maintained on the leachate storage dam and that leachate may only be transferred to the anaerobic ponds within the Premises and Infrastructure containment requirements for the hardstand, leachate collection and conveyance infrastructure and the leachate storage dam, which will reflect the design and construction specifications included within the premises Works Approvals that meet the required permeability stipulated	AS 4454 – 2012 Composts, soil conditioners and mulches

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		during construction. Licence condition 1.2.7 has been drafted onto the licence to direct and liquid leachate from the composting facility leachate dam to the anaerobic ponds. This will ensure that any leachate is treated prior to discharge to land when it is irrigated at the Blue-gum plantation. As green waste will be imported onto site (and will comprise ground Blue gum timber) and composted with bio-sludge from the ponds to produce commercial compost, there is the potential for fires to occur in the compost stockpiles. Accordingly DER has drafted licence condition L1.2.9 onto the licence which does not allow waste or compost to be burnt on site. As only composting feedstocks of green waste and bio-sludges from the on-site liquid waste facility have been assessed, no off site generated sludges or biosolids may be accepted for composting. Liquid wastes may also not be added to the composting process. Licence condition 1.2.3 has been added to specify the allowable composting feedstocks.	
Emissions to land including monitoring	L2.1.1 L2.2.1 L2.2.2 L3.2.1	**Operation** The risk assessments informing the regulatory requirements under emissions to land are contained in Appendix B. Previous licence condition 13 has been converted to condition L2.2.2 Table 2.2.2. Previous licence condition 16 has been converted to condition L3.2.1 so that irrigation flow meter data is recorded, liquid waste from the storage dam irrigated to land and overflow water is sampled and analysed. Licence condition 2.2.1 has been drafted onto the licence so that any emission to	Application supporting documentation L7827/2001/5, 201. Report, Abbotts Liquid Salvage, February 2015.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		land via irrigation shall only be authorised at the Blue-gum Plantation.	
Fugitive emissions	N/A	**Operation** Emission Description *Emission:* Dust may be generated by vehicle and machinery movement within the Premises. Green waste grinding/shredding is not permitted to occur on site, so there will not be any dust emissions from this activity. *Impact:* Reduced local air quality from airborne particulates. The closest residence is located approximately 1km east of the proposed Premises. The surrounding land is used for agriculture, with a blue gum plantation located immediately south of the Premises. *Controls:* No dust controls are proposed by the Licensee in regards to the operation of the composting activity. Risk Assessment *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low Regulatory Controls Fugitive dust conditions have not been included in the licence in accordance with Departmental reform as published on DER's website under "*Administrative changes implemented within the Department of Environment Regulation*" www.der.wa.gov.au. It is considered that the provisions of Section 49 of the *Environmental Protection Act 1986* are sufficient to regulate dust emissions	Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		during operation of the composting facility. Residual Risk *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	
Odour	N/A	**Operation** Emission Description *Emission:* Odour emissions may be generated from the storage of dried sludge, leachate and the movement of sludge in the initial stages of commencement of composting. Some odour may be generated during turning of windrows in initial stages of composting. Odour may also be generated from the compost windrows during the composting process itself. The storage of green waste is not expected to generate significant odour. Anaerobic conditions are the greatest cause of odour emission and should not occur under normal operating conditions. *Impact:* Odour emissions may interfere with the health or comfort of sensitive receptors. The closest residence is located approximately 1km east of the proposed Premises. The surrounding land is used for agriculture, with a blue gum plantation located immediately south of the Premises. *Controls:* It is proposed that compost windrows will be mechanically turned approximately once every three days to facilitate aeration of the pile and maintain aerobic microbial activity. Maintaining an aerobic environment within the windrows will reduce odour generation. Risk Assessment *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Regulatory Controls Odour conditions will not be included in the licence in accordance with Departmental reform as published on DER's website under "*Administrative changes implemented within the Department of Environment Regulation*" www.der.wa.gov.au.. It is considered that the provisions of Section 49 of the *Environmental Protection Act 1986* are sufficient to regulate odour emissions during operation of the composting facility Condition 1.2.3 has been drafted requiring that compost windrows are regularly turned to ensure that aerobic conditions are maintained. Condition1.2.3 has been drafted in the amended licence restricting the composting feedstocks to green waste and dried sludge sourced from the existing ALS treatment ponds, therefore preventing potential odorous feedstocks (e.g. manures, grease trap waste) from being used in the composting process. Residual Risk *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	
Noise	N/A	**Operation** Emission Description *Emission:* Noise arising from vehicle movement and the operation of machinery used for windrow formation and turning. *Impact:* Nuisance caused to nearby residences. The closest residence is located approximately 1km east of the proposed Premises. *Controls:* No noise controls are proposed by the Licensee in regards to the operation of the composting activity.	Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Risk Assessment *Consequence*: Insignificant *Likelihood:* Rare *Risk Rating:* Low Regulatory Controls No specific noise management conditions will be included in the licence. It is considered that the provisions of *Environmental Protection (Noise) Regulations 1997* will be sufficient to regulate noise emissions during operation. Residual Risk *Consequence*: Insignificant *Likelihood:* Rare *Risk Rating:* Low	
Monitoring general	L3.1	**Operation** Previous licence condition 9 has been converted to licence condition L3.1.1. Previous licence condition 17 and 18 has been converted to condition L3.1.1 Table 3.3.1.	Application supporting documentation L7827/2001/5
Monitoring of inputs and outputs	L3.3.1	**Operation** Previous licence condition 15 has been converted to condition L3.3.1 Table 3.3.1. Previous licence condition 19 has been converted to condition L3.1.3 and 3.1.4. The licence amendment will include a condition within Table 3.3.1 requiring the monitoring of the volume of waste inputs and the volume of final compost produced	Application supporting documentation L7827/2001/5

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		output. This requirement will allow DER to regulate the volume of waste in compliance with the licence condition specifying waste acceptance and the approved production capacity.	
Process monitoring	L3.4.1	**Operation** During operation of the composting activity following licence amendment, monitoring of the dried sludge feedstock, compost windrows and compost product is proposed. The monitoring will include sampling to determine pathogen and contaminant levels and the monitoring of other parameters such as temperature and moisture content. Condition L3.4.1 has been drafted onto the licence requiring the monitoring of compost quality. Key pathogen and contaminant requirements as identified in AS 4454 will be required to be monitored in the final compost product.	Application supporting documentation
Ambient quality monitoring	L3.5.1	**Operation** The proponent has proposed groundwater monitoring for three existing bores (MW4, MW5 and MW7) for pH, Biological Oxygen Demand, Total Dissolved Solids and a range of nutrients, major ions and metals. The monitoring was proposed to be undertaken bimonthly within the application supporting documentation. DER does not consider it necessary to undertake groundwater monitoring at this frequency, given the controls that will be in place to prevent the contamination of land or groundwater. Groundwater quality monitoring of seven (7) existing bores is currently required every six months under the Abbotts Liquid Salvage Licence L7827/2001/5. This requirement will remain in place on the licence for the operation of the new composting facility, however some additional parameters will be required to be monitored for bores MW4, MW5, MW7 and MW8 (along with the provision of the additional monitoring bore MW8, required to be installed under the works approval W5905/2015/1 (see Appendix B)), in accordance with the parameters proposed to be monitored by the proponent.	Application supporting documentation L7827/2001/5

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 16 has been converted to licence condition 3.5.1 and the condition has been amended to include the additional bore MW8 constructed under W5905 with additional parameters to be sampled (vanadium, molybdenum, mercury, cobalt, beryllium, bicarbonate, sulphate, chloride, magnesium, calcium, potassium, sodium, nitrogen ammonium). Previous licence condition 16 soil sampling has been converted to licence condition L3.5.1 Table 3.5.2.	
Information	L4.1 L4.2 L4.3	**Operation** Previous licence condition 20 has been converted to licence condition 4.2.1 and 4.2.2. Previous licence condition 21 has been converted to licence condition 4.1.2. Previous licence condition 11 has been converted to licence condition 4.3.1. Licence condition 4.1.3 requires a complaint register while condition 4.1.4 requires implementation and maintenance of records for waste types.	Application supporting documentation L7827/2001/5
Licence Duration	N/A	The licence has been issued with an expiry date of 19 January 2020. There are no circumstances in the operation of the composting facility that warrant amending the expiry date.	

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
30/06/2016	Proponent sent a copy of draft instrument	Request to increase Production and Design Capacity (P&DC) of Category 67A from 6500 to 7500 tonnes	Documents changed to reflect new P&DC.

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				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

Appendix A

Water balance calculations provided within application supporting documentation

	Inputs				Outputs					Storage Dam Volumes			
										90th Percentile Rainfall		Mean Rainfall	
Month	90th Percentile rainfall (mm)	90th Percentile Volume (kl)	Mean Average Rainfall (mm)	Mean rainfall Volume (kl)	Mean Monthly Evaporation (mm)	Evaporation loss form Leachate Storage Dam (kl)	Windrow Irrigation use (kl)	Forestry Irrigation Use (kl)	Total outputs (kl)	Net Gain/loss from storage dam (kl)	Cumulative Monthly Dam Volume (kl)	Net Gain/loss from storage dam (kl)	Cumulative Monthly Volume (kl)
Jan	65.7	2,957	24	1,062	205	4,501	2,000	2,000	8,501	-5,545	**0**	**-7,439**	**0**
Feb	47.9	2,156	22	1,004	175	3,853	2,000	2,000	7,853	-5,698	**0**	**-6,850**	**0**
Mar	66	2,970	34	1,512	155	3,410	1,500	1,000	5,910	-2,940	**0**	**-4,398**	**0**
Apr	115.2	5,184	61	2,759	99	2,178	1,500	1,000	4,678	506	**506**	**-1,920**	**0**
May	135.7	6,107	90	4,041	68	1,500	0	0	1,500	4,606	**5,112**	**2,541**	**2,336**
Jun	168	7,560	108	4,860	57	1,254	0	0	1,254	6,306	**11,418**	**3,606**	**6,147**
Jul	167	7,515	119	5,369	59	1,296	0	0	1,296	6,219	**17,637**	**4,073**	**7,679**
Aug	145.3	6,539	107	4,806	71	1,569	0	0	1,569	4,970	**22,607**	**3,237**	**7,310**
Sep	134.2	6,039	89	3,983	84	1,848	0	0	1,848	4,191	**26,798**	**2,135**	**5,372**
Oct	104	4,680	71	3,186	112	2,455	0	1,000	3,455	1,225	**28,023**	**-269**	**0**
Nov	76.1	3,425	47	2,115	141	3,102	1,500	2,000	6,602	-3,178	**24,846**	**-4,487**	**0**
Dec	61.9	2,786	28	1,251	186	4,092	2,000	2,000	8,092	-5,307	**19,539**	**-6,841**	**0**
Jan	65.7	2,957	24	1,062	205	4,501	2,000	2,000	8,501	-5,545	**13,994**	**-7,439**	**0**
Feb	47.9	2,156	22	1,004	175	3,853	2,000	2,000	7,853	-5,698	**8,297**	**-6,850**	**0**
Mar	66	2,970	34	1,512	155	3,410	1,500	1,000	5,910	-2,940	**5,357**	**-4,398**	**0**
Apr	115.2	5,184	61	2,759	99	2,178	1,500	1,000	4,678	506	**5,863**	**-1,920**	**0**
May	135.7	6,107	90	4,041	68	1,500	0	0	1,500	4,606	**10,469**	**2,541**	**2,336**
Jun	168	7,560	108	4,860	57	1,254	0	0	1,254	6,306	**16,775**	**3,606**	**6,147**

	Inputs				Outputs					Storage Dam Volumes			
										90th Percentile Rainfall		Mean Rainfall	
Month	90th Percentile rainfall (mm)	90th Percentile Volume (kl)	Mean Average Rainfall (mm)	Mean rainfall Volume (kl)	Mean Monthly Evaporation (mm)	Evaporation loss form Leachate Storage Dam (kl)	Windrow Irrigation use (kl)	Forestry Irrigation Use (kl)	Total outputs (kl)	Net Gain/loss from storage dam (kl)	Cumulative Monthly Dam Volume (kl)	Net Gain/loss from storage dam (kl)	Cumulative Monthly Volume (kl)
Jul	167	7,515	119	5,369	59	1,296	0	0	1,296	6,219	**22,994**	**4,073**	**7,679**
Aug	145.3	6,539	107	4,806	71	1,569	0	0	1,569	4,970	**27,964**	**3,237**	**7,310**
Sep	134.2	6,039	89	3,983	84	1,848	0	0	1,848	4,191	**32,155**	**2,135**	**5,372**
Oct	104	4,680	71	3,186	112	2,455	0	1,000	3,455	1,225	**33,380**	**-269**	**1,865**
Nov	76.1	3,425	47	2,115	141	3,102	1,500	2,000	6,602	-3,178	**30,202**	**-4,487**	**0**
Dec	61.9	2,786	28	1,251	186	4,092	2,000	2,000	8,092	-5,307	**24,896**	**-6,841**	**0**
Annual	**959**	**57,915**	**799**	**35,946**	**1,412**	**31,059**	**10,500**	**11,000**	**52,559**				

Storm event

The total volume for a 1 in 20 year 72 hour storm event has been based on a rainfall rate of 2mm/hr, which equals 150mm over 72 hours. The total proposed area for leachate catchment is 45 000m^2. The total volume for a 1 in 20 year 72 hours storm event equals 6750kL (150x45000/1000).

Appendix B

Emission risk – leachate/leachate contaminated stormwater emission during operation

Emission Description

Emission: Leachate (and leachate contaminated stormwater) emission to land via runoff from the composting hardstand, overflow of the leachate dam, or infiltration through integrity failure of the composting hardstand, leachate dam or inadequate containment during the transfer of leachate between the hardstand, leachate dam and the existing anaerobic treatment ponds. The dried sludge proposed to be used within the composting process will be sourced from the treatment ponds of the existing ALS liquid waste facility operation under Licence L7827/2001/5. The liquid waste facility accepts biological waste, non-toxic salts and low strength wastewater. The sludge leachate or leachate from the compost windrows may contain pathogens, elevated nutrients and a range of other contaminants including heavy metals. Stored green waste and final compost product may also generate leachate containing elevated nutrient levels and other contaminants.

Impact: Contamination of land and groundwater. Surface water flow at the site is generally towards the south-south east and the Department of Water has advised that the groundwater flow is also expected to be in a southerly direction. Groundwater monitoring at bores located around the existing ALS Premises indicate that groundwater within the area is approximately 12m - 14m below ground level. The Premises itself is located less than 50m from the boundary of a Priority 2 PDWSA. There are seasonal creeks located approximately 1.5km east, 1.5km south east and 2km south west of the Premises. There are several dams located on neighbouring agricultural properties, the closest of which is located approximately 700m south east of the Premises.

Controls: All composting activities will occur on a lined hardstand pad with a permeability of $1x10^{-9}$ m/s. This includes the storage of dried sludge and green waste feedstock, the composting of these wastes within windrows and the storage of the final compost stockpiles. The hardstand pad is graded such that runoff from the hardstand will collect in an adjacent leachate storage dam. The leachate storage dam and the infrastructure for the flow of leachate from the hardstand pad to the leachate dam are constructed with a clay liner that meets the permeability of $1x10^{-9}$ m/s. A 500mm freeboard will be maintained within the leachate dam.

Groundwater monitoring is required for three existing bores on the southern border of the composting facility and an additional bore on the northern border (MW8 - control bore) has been installed and will be drafted onto the licence. See the ambient quality monitoring section in the decision table for further details of the monitoring proposed.

Risk Assessment

Consequence: Moderate
Likelihood: Rare
Risk Rating: Moderate

Regulatory Controls

It is considered that the provisions of Section 49 of the *Environmental Protection Act 1986* and the provisions of the *Environmental Protection (Unauthorised Discharge) Regulations 2004* are sufficient to regulate the emissions of stormwater during operation of the composting facility.

The Licence amendment for the operation of the compost facility will include a condition specifying that the storage of dried sludge and green waste, the process of composting and pasteurisation, and the storage of final compost product must only occur on the lined composting hardstand that has a permeability of $1x10^{-9}$ m/s. This permeability limits ingress of leachate into the environment. A

condition will be included requiring that a freeboard of 500mm is maintained on the leachate dam. This will prevent overflows from the leachate dam. If leachate from the composting leachate dam is required to be transferred to the anaerobic ponds for treatment and disposal via irrigation, the proponent has made the commitment that leachate will be pumped from dam to pond in impervious pipes and should not enter the environment. The transfer of leachate from the dam to the anaerobic ponds should not occur on a regular basis.

Current Licence condition require the existing groundwater bores MW4, MW5 and MW7, which are located along the southern boundary of the new composting area, to be monitored. Department of Water (DoW) advised DER that the groundwater at the site is likely to flow in a southerly direction, so as required under Works Approval W5905/2015/1, an additional monitoring bore (MW8) has been installed up-gradient of the compost hardstand. This new bore will require monitoring consistent with the other premises bores. This bore would act as a control bore located up-hydrogeological gradient of the composting facility. A control bore is considered necessary as the monitoring results may then be compared against the monitoring results from the bores located south down-gradient (most likely impact zone) of the composting facility, and will help to indicate whether the composting facility is having any effect on the groundwater at the site. See the ambient quality monitoring section of the decision table for further details of the monitoring that will be required during the operation of the facility. Ambient monitoring data is required to be sampled and submitted in the annual report for all the bores surrounding the compost facility. This provides information on any possible leachate contamination from the compositing facility.

Residual Risk
Consequence: Moderate
Likelihood: Rare
Risk Rating: Moderate

Emission risk - contaminated stormwater (other than leachate contaminated stormwater) emission during operation
Emission: Contaminated stormwater discharge to land. Outside of the proposed contained areas Stormwater may come into contact with contaminants (e.g. hydrocarbons) or become loaded with sediment.

Impact: Contaminated stormwater may contribute to contaminant loads within soils, surface water or groundwater. Topographic contours indicate that the direction of surface water flow is generally towards the south-south east. The DoW has advised that the groundwater at the site is likely to follow surface topography, so is likely to flow in a southerly direction. Groundwater monitoring at bores located around the existing ALS Premises indicate that groundwater within the area is approximately 12m - 14m below ground level. The Premises itself is located less than 50m from the boundary of a Priority 2 PDWSA. There are seasonal creeks located approximately 1.5km east, 1.5km south east and 2km south west of the Premises. There are several dams located on neighbouring agricultural properties, the closest of which is located approximately 700m south east of the Premises.

Controls: The proponent has not commented on controls for stormwater management other than in regards to the containment of leachate contaminated stormwater (which has been addressed separately).

Risk assessment:
Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

Regulatory controls:
It is considered that the provisions of Section 49 of the *Environmental Protection Act 1986* and the provisions of the *Environmental Protection (Unauthorised Discharge) Regulations 2004* are sufficient to regulate this potential emission during operation of the facility.

Residual risk:
Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

Emission risk - emission to land (irrigation) during operation
The proponent has calculated the composting facility leachate dam water balance capacity under two different scenarios (Appendix A); mean monthly rainfall and 90th percentile monthly rainfall. Under the mean monthly rainfall scenario, the proposed dam capacity of approximately 40 000m^3 is more than sufficient for the storage of all rainfall inputs (including a 1 in 20 year storm event) less evaporation and use in windrow irrigation. However, under the 90th percentile monthly rainfall scenario, the storage capacity of the dam would not be sufficient for the storage of all rainfall inputs considering that the storm event capacity needs to be maintained.

It is proposed that up to 11 000 kilolitres of wastewater from the composting facility leachate dam may be transferred to the existing liquid waste storage dam within the Premises (part of the current ALS liquid waste facility) if needed to reduce the wastewater level within the composting facility leachate dam (based on the water balance using 90th percentile monthly rainfall). The wastewater that has undergone treatment via the liquid waste pond system is stored within the existing storage dam and irrigated to a plantation timber area within the current ALS Premises. The application supporting documentation states that the forestry irrigation system is currently operating at approximately 10% capacity, and therefore there is sufficient capacity for the surplus wastewater from the composting facility leachate dam to be disposed via irrigation to land.

The ALS liquid waste facility may accept up to 20 000kL of liquid wastes per year into the treatment ponds. The existing storage pond has a capacity of approximately 18 100kL (excluding the 500mm freeboard). Water balance calculations for existing liquid waste facility pond system summarised within the Environmental Assessment Report (EAR) completed for the issue of the ALS Liquid Waste Facility Licence L7827/2001/5 shows that the 18 100kL capacity is sufficient considering all current inputs and outputs; accepted liquid wastes, rainfall from 1 in 20 year rainfall events and a 1 in 10 year wet year, evaporation and irrigation. During a high rainfall year total annual irrigation may need to be up to 15 000kL, based on the acceptance of 20 000kL of liquid waste per annum.

The volumes of treated wastewater irrigated to land that were reported in 2014 and 2013 were 2804kL and 3342kL respectively. While significantly less than the maximum 15 000kL is being irrigated currently, this does not indicate that the transfer of leachate from the proposed leachate dam to the existing treatment ponds is an appropriate contingency. It would only be in the case of a year with particularly high rainfall that there may be a need to transfer leachate from the composting facility leachate dam to the existing treatment ponds. If this were the case, the existing treatment ponds and storage dam may not have sufficient capacity for any excess water from the composting leachate dam. However, there would be capacity within the existing treatment ponds and storage dam if ALS had accepted significantly less liquid wastes into the treatment ponds than the approved maximum of 20 000kL. In 2014 approximately 8734kL of liquid wastes were accepted at the facility.

Emission Description
Emission: Irrigation of leachate (sourced from the composting facility leachate dam via the existing storage dam) to the plantation timber area within the current ALS Premises.

Impact: contamination of land or groundwater in the case that the leachate contains high nutrient or contaminant levels. Excessive irrigation could result in soil erosion. Surface water flow at the site is generally towards the south-south east and the DoW has advised that the groundwater flow is also expected to be in a southerly direction. Groundwater monitoring at bores located around the existing ALS Premises indicate that groundwater within the area is approximately 12m - 14m below ground level. The Premises itself is located less than 50m from the boundary of a Priority 2 PDWSA. There are seasonal creeks located approximately 1.5km east, 1.5km south east and 2km south west of the Premises. There are several dams located on neighbouring agricultural properties, the closest of which is located approximately 700m south east of the Premises.

Controls: The transfer of wastewater from the leachate dam to the existing storage dam is proposed only as a contingency measure if the 500mm freeboard within the leachate dam is breached. The application supporting documentation does not specify any controls in regards to the irrigation of wastewater. Information in the EAR completed for the issue of the ALS Liquid Waste Facility Licence L7827/2001/5 states that the irrigation area has a buffer of rain fed trees around the boundary of the irrigation area. The buffer is 20m wide on the southern boundary and 10m wide on the remaining boundaries. The irrigation area is also surrounded by a cut off drain to ensure that irrigated water does not flow over the Premises boundary. Flow from the cut off drains is collected in a clay lined runoff dam. The tree buffer is intended as a means of facilitating the uptake of irrigation water than may have migrated from the irrigation area. The EAR states that the treatment ponds are lined with a synthetic liner material with a permeability of less than $2x10^{-10}$m/s, and the storage dam is clay lined with a permeability of less than $1x10^{-9}$m/s. ALS have an irrigation schedule in place with a Nutrient Irrigation Management Plan for the irrigation of up to 15 000kL per annum. The schedule does not include any irrigation for the 5 month high rainfall period from May to September.

Risk Assessment
Consequence: Moderate
Likelihood: Rare
Risk Rating: Moderate

Regulatory Controls
A condition (licence condition 1.2.7) will be included within the Licence amendment specifying that leachate from the leachate dam may only be transferred to the anaerobic ponds within the Premises. The transfer of the leachate to the anaerobic ponds will ensure that the leachate undergoes treatment within the pond system. This is expected to help maintain the quality of the wastewater discharged from the liquid waste facility storage dam.

There are conditions within Licence L7827/2001/5 which regulate how the treated wastewater from the storage dam is discharged to land, including limits on the quality of the wastewater. Conditions require that no soil erosion or ponding of wastewater occurs as a result of irrigation and that irrigation does not occur during periods of rainfall or onto flooded areas. Wastewater quality limits for Total Nitrogen, Total Phosphorus, Electrical Conductivity and Biochemical Oxygen Demand are included within the licence. The Licence also requires the monitoring of wastewater volumes discharged to the irrigation area, monthly monitoring of parameters corresponding to the emission limits and annual monitoring of a range of metals. Biannual groundwater monitoring is undertaken for seven bores located around the perimeter of the current ALS liquid waste facility Premises.

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

Emission risk – compost distribution during operation

Emission Description

Emission: Distribution of compost product for unrestricted use in the environment which contain pathogens and contaminants (including heavy metals and pesticides) in excess of AS4454.

Impact: Local contamination of soils, surface water and groundwater from the use of compost which may have unacceptable levels of heavy metals and pathogens. Could result in secondary human health impacts on a regional scale where compost is used in the production of foods.

Controls: Dried sludge (prior to mixing with green waste) and the compost windrows will be tested for pathogen and contaminant levels. The temperature of the composting windrows will be monitored continuously using data loggers. The windrows will be required to reach an internal temperature of 55 degrees Celsius for a minimum of 15 days, for the destruction of pathogens, before being combined to form conditioning piles. The conditioning piles will be tested to determine the pathogen and contaminant levels within the compost, prior to being stockpiled for sale. ALS propose to follow the requirements of Australian Standard AS 4454 *Composts, soil conditioners and mulches* (AS4454) and meet the P1C1 within the document *Western Australia Guidelines for Biosolids Management* (Department of Environment and Conservation 2012). If the appropriate classification level is not achieved, the compost may be returned to a composting windrow for further treatment, or if the P2C2 grading is achieved the compost may be used for spreading on agricultural land.

Risk Assessment

Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

Regulatory Controls

The current licence for the liquid waste facility currently restricts the liquid wastes that can be accepted into the pond system (biological waste, non-toxic salts and low strength wastewater). This restriction will be retained within the Licence when it is amended.

A condition will be included within the Licence specifying that the core temperature of the composting windrows must be maintained above 55 degrees Celsius for a period of at least 15 days.

A condition will be included within the Licence specifying the chemical (heavy metals and pesticides) and pathogen requirements (as per AS4454) for final compost quality prior to sale or distribution to the public for unrestricted use. It is considered that this requirement will reduce the risk to public health and the environment where the final use of the product is uncontrolled. ‘Unrestricted use’ will be defined as ‘compost use where the product is marketed or distributed in bags and in bulk in an unrestricted manner in all market sectors including domestic use, urban landscaping, agriculture and land rehabilitation’.

Residual Risk

Consequence: Moderate
Likelihood: Unlikely
Risk Rating: Moderate