Government of Western Australia
Department of Environment Regulation

Licence

Licence Number	**L8995/2016/1**
Licence Holder	**International Livestock Export Pty Ltd**
ACN	**009 400 846**
Registered business address	72 Kings Park Rd WEST PERTH WA 6005
Duration	15/2/5017 to 15/2/2037
Prescribed Premises	**Category 68: Cattle Feedlot** **Category 67A: Compost Manufacturing**
Premises	**Cullalla Feedlot** **431 Cullalla Road** **MOONDAH WA 6503** **being Part Lot 51 on Plan 14305** **as depicted in Schedule 1**

This Licence is granted to the Licence Holder, subject to the following conditions, on 15-2-2017, by:

Date signed: 15 February 2017

Caron Goodbourn
MANAGER LICENSING (PROCESS INDUSTRIES)

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

Conditions

Environmental compliance

1. The ***Licence Holder*** must comply with the ***EP Act*** and all regulations prescribed under the EP Act and applicable to the Premises, including:

(a) The duties of an occupier under s 61;

(b) The duty to notify the ***CEO*** of discharges of waste under s 72; and

(c) Not causing, or doing anything that is likely to cause, an offence under the ***EP Act***

except where the ***Licence Holder*** does something in accordance with a ***Condition*** which expressly states that a defence under s 74A of the ***EP Act*** may be available.

Notification of Material Change

2. The ***Licence Holder*** must notify the ***CEO*** of any ***Material Change*** within 14 days of a ***Material Change*** occurring and such notification (which the ***CEO*** will make publicly available) must:

(a) be in writing;

(b) include details of the changes, including duration, infrastructure details (if any); and

(c) include risk analysis of the changes, including proposed controls to mitigate risks.

Nothing in this Condition constitutes a defence to offences under the ***EP Act***.

3. The ***Licence Holder*** must provide to the ***CEO*** any additional information the ***CEO*** may reasonably require to assess the ***Material Change*** under ***Condition 4*** and in order for the ***CEO*** to determine if an amendment is required under the ***EP Act***.

4. The ***Licence Holder*** must cease carrying out, or modify, a ***Material Change*** in the manner and at the time required by the ***CEO*** if:

(a) the ***CEO*** forms the view, acting reasonably, that the ***Material Change*** has or may have an unacceptable impact on public health, amenity or the environment; and

(b) the ***CEO*** has provided written notice (which the ***CEO*** will make publicly available) to the Licence Holder specifying the grounds for the ***CEO's*** views.

Nothing in this ***Condition*** prevents the Licence Holder subsequently submitting an amendment in relation to the ***Material Change***.

Infrastructure and Equipment

5. The ***Licence Holder*** must maintain and operate the infrastructure and equipment specified in column 1 of Table 8 in Schedule 3, in accordance with the requirements specified in columns 2 and 3 of Table 8 in Schedule 3.

6. The ***Licence Holder*** must ensure that the infrastructure and equipment specified in Table 5 of Schedule 3 are maintained in good working order.

Specified Actions

7. The ***Licence Holder*** must ensure that feedlot pens are cleared and cleaned with a frequency sufficient to prevent the accumulation of animal waste causing the emission of odour off-site.

8. The ***Licence Holder*** shall only accept waste on to the Premises if:

(a) it is of a type listed in Table 1;
(b) the quantity accepted is below any quantity limit listed in Table 1; and
(c) it meets any specification listed in Table 1.

Table 1: Waste Acceptance Criteria

Waste acceptance			
Waste type	**Quantity limit (tonnes per annual period)**	**Description**	**Specification**[1]
Straw	3,000	None specified	None specified
Green waste	8,000	None specified	None specified

9. The ***Licence Holder*** must ensure that animal manures used in composting are generated at the premises and do not include poultry or pig manure.

10. The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the processes set out in Table 2 and in accordance with any process requirements described in that Table.

Table 2: Processing of Materials

Processing of materials		
Waste type	**Process**	**Process requirements**
As detailed in Table 1.3.1	Receipt, handling and storage prior to composting	i) Waste shall not be stored within 20 metres of the Premises boundary.
	Mixing; Treatment by composting and pasteurisation	i) An input nutrient balance (carbon: nitrogen ratio) of 25:1 to 35:1 is to be maintained; ii) Windrows shall be turned regularly to ensure aerobic conditions are maintained; iii) The core temperature of the composting pile is maintained between 55 ºC and 65 ºC for a period of at least three days; iv) Moisture level in the composting piles shall be maintained between 40 to 65 per cent; v) Windrows shall not exceed 3.5 metres high, 5 metres wide and 100 metres long; vi) Leachate from the holding pond shall not be added to the compost after the initial composting process, and; vii) Composting must be undertaken on a surface with a permeability no greater than $1x10^{-8}$ m/s (or equivalent).

11. The ***Licence Holder*** must ensure all drains are maintained free of debris and accumulations of sediment.

12. The ***Licence Holder*** must ensure that earth and clay bunds and pond walls are free of vegetation.

13. The ***Licence Holder*** must ensure that feedlot pens, composting pad and trafficable areas are sufficiently moist or sealed to prevent dust emissions.

Emissions

14. The ***Licence Holder*** must not cause any ***Emissions*** from the ***Premises*** except for Specified Emissions and General Emissions described in column 1 of Table 3, subject to the exclusions, limitations or requirements specified in column 2, of Table 3 below.

If the ***Licence Holder*** proves that it has acted in accordance with this ***Condition***, it may be a defence under s 74A of the ***EP Act*** to proceedings for offences under the ***EP Act*** (including offences under section 56).

Table 3: Emissions Table

Column 1	**Column 2**
***Emission* Type**	**Exclusions/Limitations/Requirements**
Specified Emissions	
Fugitive dust	Subject to compliance with: • rows 10 and 11 of Table 8 in Schedule 3; and • Conditions 12 and 13.
General Emissions (excluding Specified Emissions)	
Emissions which: • arise from the activities on the ***Premises*** through matters set out in, or incidental to the matters set out in, the ***General Description*** in Schedule 2; or • arise from a ***Material Change*** (except where Condition 4 applies).	***Emissions*** excluded from General Emissions are: • ***Unreasonable Emissions***; or • emissions that result in, or are likely to result in, ***Pollution, Material Environmental Harm*** or ***Serious Environmental Harm***; or • ***Discharges*** of ***Waste*** in circumstances likely to cause ***Pollution***; or • emissions that result, or are likely to result in, the ***Discharge*** or abandonment of ***Waste*** in water to which the public has access; or • ***Emissions*** or ***Discharges*** which do not comply with an ***Approved Policy***; or • ***Emissions*** or ***Discharges*** which do not comply with prescribed standard; or • ***Emissions*** or ***Discharges*** which do not comply with the conditions in an ***Implementation Agreement or Decision***; or • ***Emissions*** or ***Discharges*** the subject of offences under regulations

Column 1	Column 2
***Emission* Type**	**Exclusions/Limitations/Requirements**
	prescribed under the ***EP Act***, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004*.

Monitoring

Product testing

15. The Licensee shall undertake the testing of saleable composted products according to the specifications in Table 4.

Table 4: Product Testing Specifications

Product testing					
Testing reference	**Parameter**	**Limit**	**Units**	**Frequency**	**Method**
Each batch of final compost product which is sold or offered for sale in transactions of 5 m^3 or less	Arsenic	20	mg/kg	As required in AS 4454	Sampling and testing in accordance with AS 4454
	Boron	100	mg/kg		
	Cadmium	1	mg/kg		
	Chromium	100	mg/kg		
	Copper	150	mg/kg		
	Lead	150	mg/kg		
	Mercury	1	mg/kg		
	Nickel	60	mg/kg		
	Selenium	5	mg/kg		
	Zinc	300	mg/kg		
	DDT/DDD/DDE	0.5	mg/kg		
	Aldrin	0.02	mg/kg		
	Dieldrin	0.02	mg/kg		
	Chlordane	0.02	mg/kg		
	Heptachlor	0.02	mg/kg		
	HCB	0.02	mg/kg		
	Lindane	0.02	mg/kg		
	BHC	0.02	mg/kg		
	PCBs	<0.2	mg/kg		
	E. coli	<100	CFU per 1g of dry product	One sample of each compost product, per each 1,000 tonnes per annual period or part thereof of sewage sludge used in the production of that product	Not specified
	Salmonella spp.	< 1	CFU per 50g of dry product		
	Coliphage	<10	CFU per 1g of dry product		

Groundwater monitoring

16. The ***Licence Holder*** must monitor the parameters specified in column 1 from the locations specified in column 2 in Table 5. Monitoring results are to be reported for the period specified in column 3. Monitoring methods to be undertaken as specified in columns 4 and 5 in Table 5.

Table 5: Groundwater Monitoring

Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
Parameter	**Location**	**Period**	**Sample**	**Method**
Standing water level m(AHD) pH Total Phosphorous (mg/L) Total Nitrogen (mg/L) Ammonia Nitrogen as NH_3-H^+ (mg/L) Nitrate Nitrogen as NO_3^- (mg/L)	Monitoring Bores 1 to 4 as shown in Map 3 of Schedule 1	6 Monthly	Grab sample	***AS5667.11***

17. Upon request by the ***CEO***, the ***Licence Holder*** must provide such information as reasonably necessary to demonstrate compliance with monitoring requirements specified in ***Condition 16***.

18. The ***Licence Holder*** must provide the monitoring data referred to in ***Condition 16*** in the format approved by the ***CEO*** as presented by the ***Licence Holder*** or as specified by the ***CEO*** from time to time.

19. The Licensee must ensure that the groundwater monitoring bores specified in ***Condition 16*** are:

(a) Installed to meet the requirements of Minimum Construction Requirements for Water Bores in Australia (AIH 2012); and

(b) Sited in accordance with *Water Quality Protection Note 30: Groundwater Monitoring Bores (Department of Water, 2009);* and

(c) Surveyed to allow the ground level (to Australian Height Datum) at each location to be accurately determined.

Information

20. The ***Licence Holder*** must maintain accurate and auditable records in relation to:

(a) the calculation of fees payable in respect of this ***Licence***; and

(b) any ***Material Change***.

21. If an emission of the type referred under ***Condition 14*** occurs on the ***Premises***, then the ***Licence Holder*** must:

(a) investigate why the ***Emission*** occurred;

(b) take all reasonable steps to prevent the ***Emission*** occurring again;

(c) record the details of the investigation and all steps taken; and

(d) provide a copy of the record to the ***CEO*** within 21 days of the date ***Licence Holder*** became aware of the ***Emission*** occurring.

22. The ***Licence Holder*** must record the number and details of any complaints received by the ***Licence Holder*** relating to the ***Premises***, and any action taken by the ***Licence Holder*** in response to the complaint. Details of complaints must include:

(a) an accurate record of the concerns or issues raised, for example a copy of any written complaint or a written note of any verbal complaints made;

(b) the name and contact details of the complainant, if provided by the complainant;

(c) the date of the complaint; and

(d) the details and dates of the actions taken by the ***Licence Holder*** in response to the complaints.

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

24. The Licensee must submit to the ***CEO*** within 90 days after the ***Anniversary Date***, an ***Annual Environmental Report***. The Annual Environmental Report must include:

(a) monitoring data required by any condition of this Licence;
(b) a comparison of the monitoring data against emission or discharge limits specified in any condition of this Licence;
(c) an assessment and interpretation of the monitoring data contained within the report against the previous 5 years monitoring results ; and
(d) a summary of complaints data recorded in accordance with ***Condition 22***.

25. The ***Licence Holder*** must comply with a ***CEO*** Request, within 7 days from the date of the ***CEO Request*** or such other period specified in the ***CEO Request***.

Definitions and Interpretation

Definitions

In this Licence, the following terms have the following meanings:

Anniversary Date means 30 November of each year.

Annual Period means a 12 month period commencing from 1 December until 30 November in the following year.

BOD means biological oxygen demand

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

CEO for the purposes of notification means:

Chief Executive Officer
Department Div. 3 Pt. V EP Act
Locked Bag 33 Cloisters Square
Perth WA 6850
info@der.wa.gov.au

CEO Request means a request made by the ***CEO*** to the ***Licence Holder*** in writing, sent to the ***Licence Holder's*** address for notifications, as described at the front of this

Compliance Report means a report in a format approved by the ***CEO*** as presented by the Licence Holder or as specified by the ***CEO*** from time to time.

Licence, in relation to:

(a) information, records or reports in relation to specific matters in connection with this ***Licence*** including in relation to compliance with any ***Conditions*** and the calculation of fees (whether or not a breach of condition or the EP Act is suspected); or

(b) reporting, records or administrative matters:

(i) which apply to all ***Licences*** granted under the ***EP Act***; or

(ii) which apply to specified categories of ***Licences*** within which this ***Licence*** falls.

Condition means a condition to which this ***Licence*** is subject under s 62 of the ***EP Act***.

Discharge has the same meaning given to that term under the ***EP Act***.

Emission has the same meaning given to that term under the ***EP Act***.

Environmental Harm has the same meaning given to that term under the ***EP Act***.

EP Act means the *Environmental Protection Act 1986* (WA).

EP Regulations means the *Environmental Protection Regulations 1987* (WA).

General Description means the description of activities and operations carried out on the Premises as set out in Schedule 2 of this Licence.

Licence refers to this document, which evidences the grant of ***Licence*** by the ***CEO*** under s 57 of the EP Act, subject to the ***Conditions***.

Licence Holder refers to the occupier of the premises being the person to whom this ***Licence*** has been granted, as specified at the front of this ***Licence***.

Material Change means a change to the activities carried out on the ***Premises*** as described in the ***General Description*** set out in Schedule 2 and:

(a) that may result in an increased risk to public health, amenity or the environment; and

(b) includes the types of changes specified in Schedule 2; and

(c) does not include the excluded changes specified in Schedule 2.

Material Environmental Harm has the same meaning given to that term under the ***EP Act***.

Pollution has the same meaning given to that term under the ***EP Act***.

Premises refers to the premises to which this ***Licence*** applies, as specified at the front of this ***Licence*** and as shown on the map in Schedule 1 to this ***Licence***.

Serious Environmental Harm has the same meaning given to that term under the ***EP***

Act.

Unreasonable Emission has the same meaning given to that term under the ***EP Act***.

Waste has the same meaning given to that term under the ***EP Act***.

Interpretation

In this Licence:

(a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

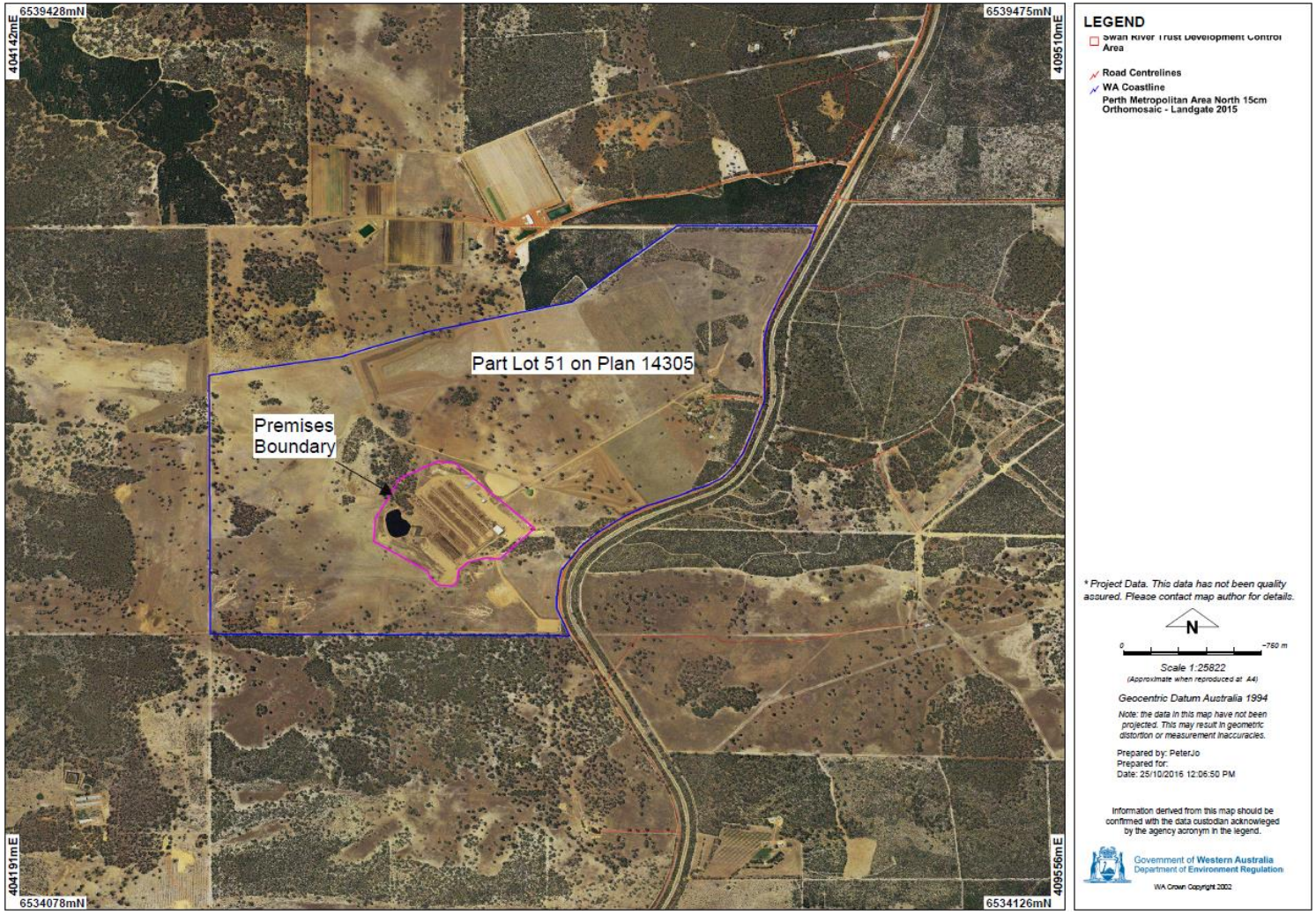
(c) where tables are used in a ***Condition***, each row in a table constitutes a separate ***Condition***; and

(d) any reference to an Australian or other standard, guideline or code of practice in this ***Licence*** means the version of the standard, guideline or code of practice in force at the time of granting of this ***Licence*** and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the ***Licence***.

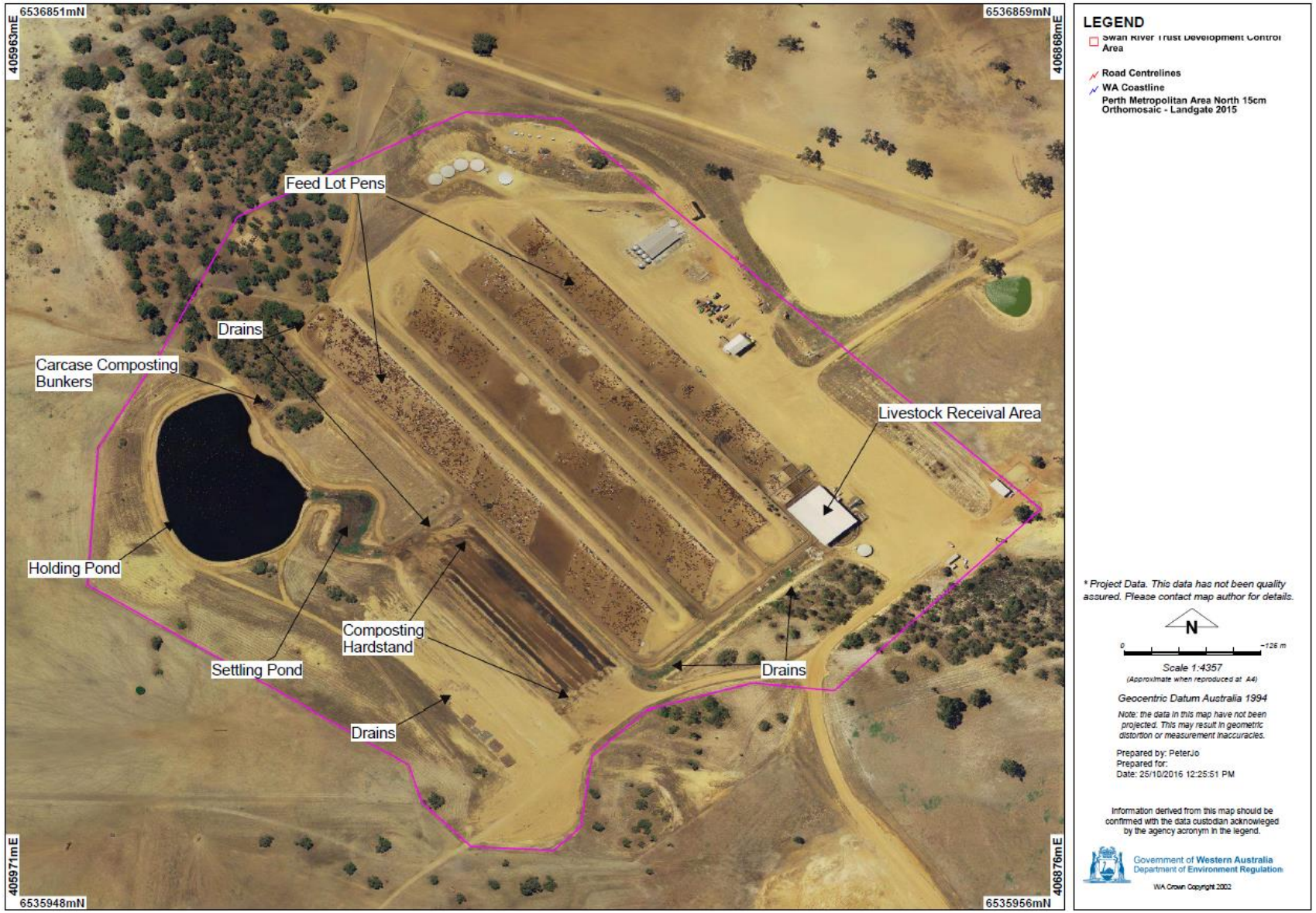
Schedule 1: Maps

Map 1: Premises Map

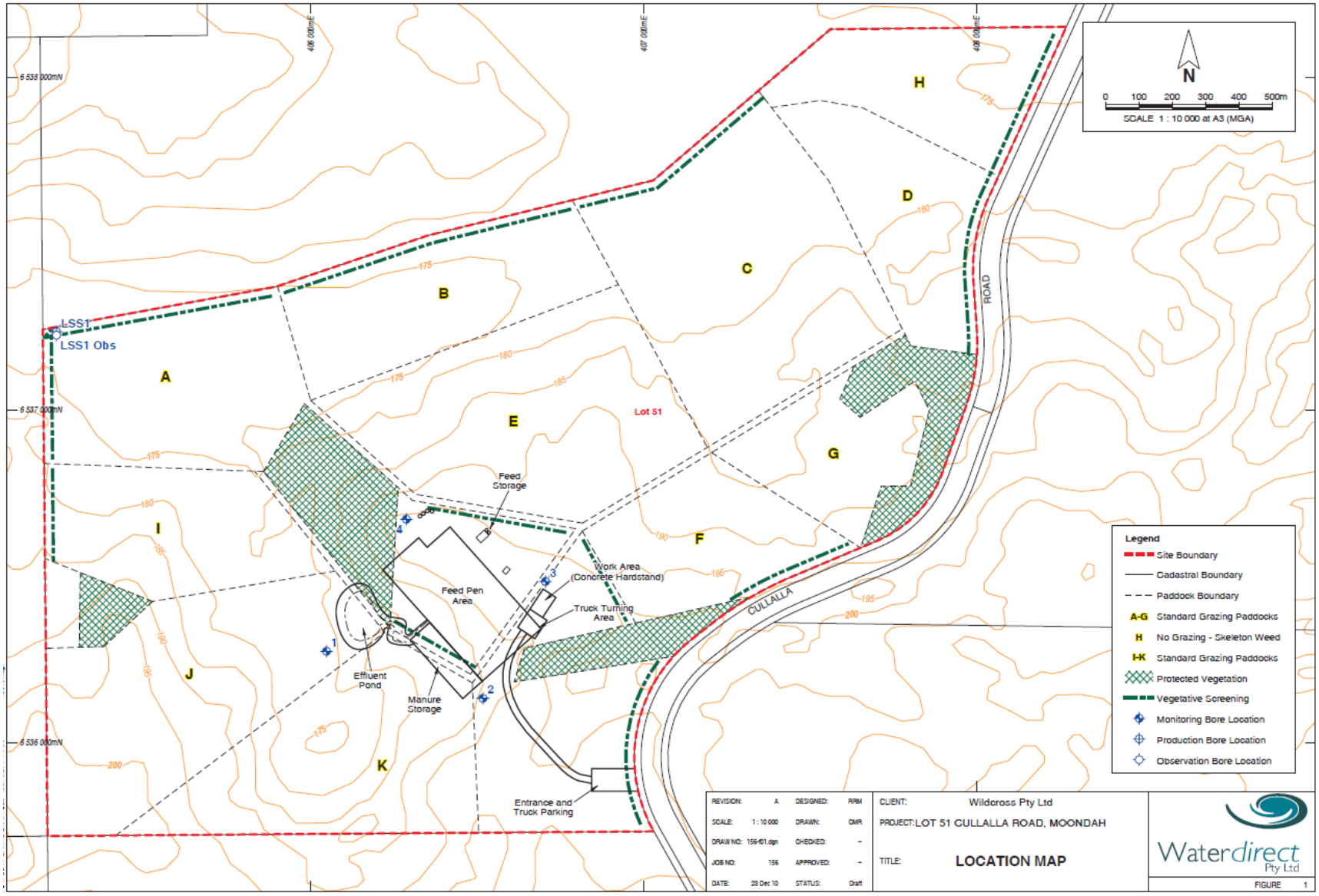
The ***Premises*** is shown in the map below. The pink line depicts the boundary to the ***Premises*** and the blue line depicts the boundary of Lot 51 on Plan 14305.



Map 2: General Layout Map



Map 3: Monitoring Bore and Production Bore Map



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Schedule 2: General Description

At the time of assessment, the following activities and operations were considered in the determination of the risk and related conditions for the ***Premises***.

The ***Licence Holder*** is carrying out activities at the ***Premises*** which fall within the meaning of Prescribed ***Premises*** under the ***EP Act***. The ***Premises*** constitute:

1. Category 68 ***Premises*** on which the watering and feeding of more than 500 cattle occurs where the premises is situated 100 metres or more form a water course and the number of cattle per hectare exceeds 50.
2. Category 67A ***Premises*** on which 1 000 tonnes or more per year of organic material or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost.

Infrastructure and equipment

The infrastructure and equipment situated on the ***Premises*** *are detailed in* Table 6:

Table 6: Infrastructure and equipment situated on the *Premises*

	Infrastructure	Plan reference
1	Concrete Hardstand area for livestock receival and dispatch	General Layout Map
2	Pens for feeding and housing of livestock with compacted clay hardstand	General Layout Map
3	Clay lined drains for directing wastewater and contaminated run-off to the settling pond and holding pond	General Layout Map
4	Compacted clay hardstand for storing compost in windrows	General Layout Map
5	Three sided concrete bins for composting of animal carcases	General Layout Map
6	Settling pond with compacted clay liner	General Layout Map
7	Holding pond with compacted clay liner	General Layout Map

Site layout

The infrastructure and equipment are set out on the ***Premises*** in accordance with the site layout specified on the ***Premises*** General Layout Map in Schedule 1.

Cattle Feedlot

The ***Licence Holder*** owns and operates a cattle feedlot with a maximum capacity of 6,000 SCU. The cattle are housed, fed and watered prior to export. Cattle arrive and depart the site by truck.

Table 7: Cattle Feedlot Capacity

Product	Number of animals at one time
Cattle Housed	Up to 6,000 SCU

Compost Manufacture

The Licence Holder manufactures compost where manure from the cattle pens is removed to a composting hardstand area where it is mixed with straw and greenwaste and stored in windrows and turned for composting. Animal carcasses are composted separately in three sided concrete bins and the resulting composted material is mixed with the general compost. From time to time, lime is used to improve the compost manufacturing process.

Examples of Material Change

- Increase animals kept or compost production exceeding 10%;
- Changes to the site layout of infrastructure and equipment specified on the plans in Schedule 1.

Non-Material Change

Improvements or additions to, or replacement of, infrastructure and equipment that do not increase the risk of emissions and discharge.

Schedule 3: Infrastructure and Equipment

Table 8: Infrastructure and Equipment Controls Table

	Column 1	Column 2	Column 3	Column 4
	Site Infrastructure	**Description**	**Operation details**	**Plan Reference**
	Controls for odour			
1	Animal carcass composting bins	Three-sided concrete bunkers with concrete floor	Carcases covered with composting material and lime.	Schedule 1: General Layout Plan
2	Compost windrows	Animal waste, straw and greenwaste stored in windrows	Windrows are turned and maintained to prevent emission of odours.	
	Controls for contaminated runoff			
3	Feedlot hardstand	Compacted clay hardstand sloping to allow drainage	Waste is cleared to prevent obstruction of free drainage.	
4	Fresh water bund upslope from feedlot	Concrete curbing bund to prevent ingress of surface stormwater into pens	Bund is maintained and repaired if damaged.	
5	Composting Hardstand	Compacted clay hardstand sloping to allow drainage.	Compost windrows constructed parallel to a slope to allow free drainage of water between the rows.	
6	Clay or concrete lined drains and bunds	Drains and bunds direct all potentially contaminated run-off from feedlot and composting area to the settling pond.	Drain floor and wall maintained and repaired where necessary. Drain is lined with concrete it slope is likely to cause erosion of clay liner.	
7	Settling Pond	Clay lined settling pond with adjustable height weir to prevent sediment entering the holding pond.	Sediment removed from settling pond annually or sooner if required.	
	Controls to prevent emissions to groundwater			
8	Feedlot and composting hardstand	Hardstand constructed and tested to have permeability less than $1x10^{-9}$ m/sec.	Hardstand maintained and repaired if necessary.	
9	Settling pond and Holding	Clay lined settling and holding ponds constructed and	Liners are maintained and inspected. Liners will be	

	Column 1	Column 2	Column 3	Column 4
	Site Infrastructure	**Description**	**Operation details**	**Plan Reference**
	Pond	maintained to have permeability of less than 1x 10^{-9} m/sec.	assessed if ground water monitoring shows an increasing trend in analytes.	
	Controls for dust			
10	Sprinklers and hoses	Sprinklers and hoses installed on pens and composting area.	Sufficient water to be available to operate sprinklers and hoses for dust suppression.	
11	Water tanker truck.	Water truck on site to suppress dust on roads and other trafficable areas.	Water truck to be available at all times dust is likely to occur.	

Decision Report

Application for Licence

Division 3, Part V *Environmental Protection Act 1986*

Applicant:	**International Livestock Export Pty Ltd**
ACN:	**009 400 846**
Licence Number:	**L8995/2016/1**
File Number:	**DER2016/001665**
Premises:	**Cullalla Feedlot** **431 Cullalla Road** **MOONDAH WA 6503** **Part Lot 51 on Plan 14305**
Date of report:	**Wednesday, 15 February 2017**
Status of Report	**Final**

Table of Contents

Definitions of terms and acronyms

Term	Definition
AACR	Annual Audit Compliance Report
AER	Annual Environment Report
Category/Categories (Cat.)	categories of prescribed premises as set out in Schedule 1 of the EP Regulations
DER	Department of Environment Regulation
Decision Report	This document
Delegated Officer	An officer under section 20 of the EP Act.
DPAW	Department of Parks and Wildlife
isopleth	a line on a map connecting points having equal incidence of a specified feature (for example incidence of odour intensity)
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Licence Holder	International Livestock Export Pty Ltd
mg/L	Milligrams per litre
Minister	the Minister responsible for the EP Act and associated regulations
NEPM	National Environmental Protection Measure
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	is defined in the EP Act to mean a person who is in occupation or control of a premises, or part of a premises, whether or not that person is the owner of the premises or part of the premises.
OEPA	Office of the Environmental Protection Authority
OU	odour units
Premises	Cullalla Feedlot Part Lot 51 on Plan 14305, Cullalla Road, Moondah
PM	Particulate Matter
PM_{10}	Used to describe particulate matter that is small than 10 microns (µm) in diameter.
Prescribed Premises	Premises prescribed under Schedule 1 to the EP Regulations

Term	Definition
SCU	Standard Cattle Unit
Standard Cattle Unit	Animal of 600 kg liveweight.
UDR	*Environmental Protection (Unauthorised Discharge) Regulations 2004* (WA)

1. Purpose and scope of assessment

This assessment has been conducted as a result of an application for a licence by International Livestock Export Pty Ltd. The premises was constructed in accordance with works approval W4537/2009/1 and has not previously been the subject of a licence. The application includes Category 67A for compost manufacture and Category 68 for a feedlot.

2. Background

International Livestock Export (ILE) was granted works approval W4537/2009/1 on 30 April 2009 to construct a cattle feedlot and composting facility on part Lot 51 on Plan 14305 Cullalla Road, Moondah.

The works were completed in 2010 and an application for registration was received by DER on 21 October 2010 to enable ILE to operate a feedlot under category 68. The compliance documents required by Condition 2 of the Works Approval were not submitted by ILE.

On 15 August 2016, ILE applied for a licence to operate a composting facility on the premises. In receiving this licence application, it was determined by DER that the application for registration received in 2010 had not been progressed.

Table 1 shows the prescribed premises categories which apply to the premises. According to the *Environmental Protection Regulations 1987,* Category 68 premises (cattle feedlots) are regulated under a registration whilst Category 67A premises (compost manufacturing) are regulated under a licence. Where such multiple categories apply, a licence is granted for the Schedule 1 Part 1 prescribed activities (in this case, Category 67A), and an additional category is added to the licence to cover the activities of the Schedule 1 Part 2 activity (in this case, Category 68).

Table 1: Prescribed Premises Categories

Classification of Premises	**Description**	***Approved premises production or design capacity or throughput***
Category 68	Cattle feedlot: premises on which the watering and feeding of cattle occurs, being premises — (a) situated 100 m or more from a watercourse; and (b) on which the number of cattle per hectare exceeds 50.	6 000 SCUs
Category 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	17 000 tonnes of compost per annum

3. Overview of Site Operations

3.1 Infrastructure

The Cullalla Feedlot facility infrastructure, as it relates to Category 68 and 67A activities, is detailed in Table 2. Refer to the Site Plan presented in the attached issued Licence.

Table 2: Cullalla Feedlot Categories 67A and 68 Infrastructure

	Infrastructure
	Prescribed Activity Category 68: Cattle Feedlot
Cattle are received on site to a concrete floored shed and placed into pens where they are fed and watered. Cattle leave the site for shipping when the transport ships are in port.	
1	Concrete hardstand area for stock receival and dispatch
2	Pens for feeding and housing of livestock with compacted clay hardstand
3	Drains and weirs for directing wastewater and contaminated run-off to the wastewater treatment system (see below).
	Prescribed Activity Category 67A: Compost Manufacturing
Manure is collected from the feedlot and mixed with straw and greenwaste and laid out in windrows on the composting pad. Animal carcases are composted in separate three-sided bins and the resulting compost is mixed with material in the main windrows. The windrows are turned as required. The final product, after testing by the Department of Agriculture, is either distributed on site, taken to other properties owned by ILE or sold to garden supply businesses and direct to other farms.	
1	Compacted clay hardstand for storing compost in windrows
2	Three sided concrete bins for composting of animal carcases
3	Clay lined drains for directing wastewater and contaminated run-off to the settling pond and holding pond
4	Settling pond with compacted clay liner
5	Holding pond with compacted clay liner

3.2 Operational aspects

Cullalla Feedlot has a maximum capacity of approximately 6 000 SCUs. The animals are expected to be cattle most of the time, but there is the possibility that other animals such as sheep may be housed at some time. The premises has 41 outdoor pens where cattle are kept, fed and watered prior to export. Cattle arrive and depart the site by truck.

Manure from the cattle pens is removed to a composting hard stand area where it is mixed with straw and greenwaste and stored in windrows for composting. Animal carcasses are composted separately in three-sided concrete bins and the resulting compost is mixed with the general compost.

The facility is located on sloping land (see Figure 1). Water from the animal pens and composting area is directed via clay lined drains to a clay-lined settling pond which discharges to a clay-lined holding pond. Some of the water in the holding pond is reused in the composting process and the rest evaporates over the summer period.

Groundwater is monitored using four monitoring bores on site.

Figure 1: View uphill showing composting and feedlot toward feed shed

Figure 2: Area for composting of animal carcasses

4. Legislative context

4.1 Contaminated sites

The site has not been classified under the *Contaminated Sites Act 2003*.

4.2 Other relevant approvals

4.2.1 Planning approvals

The premises has planning approval and is registered with the Shire of Gingin as an offensive trade (compost facility). However at the time of application the feedlot had planning approval but the composting did not.

The Shire of Gingin advised DER on 9 February 2017 that the composting facility had been approved with conditions at a council meeting on 17 January 2017.

4.2.2 Department of Water

The property holds a Groundwater Licence (GWL) under the *Rights in Water Irrigation Act 1914* (GWL 109932) which permits extraction of water from the Mirrabooka Aquifer for intensive livestock watering.

4.3 Part V of the EP Act

4.3.1 Guidance Statements

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

DER Guidance Statements which inform this assessment are:

- Guidance Statement: Regulatory Principles (July 2015)
- Guidance Statement: Licence and works approval process (September 2015)
- Guidance Statement: Setting Conditions (October 2015)
- Guidance Statement: Land Use Planning (October 2015)
- Guidance Statement: Licence Duration (November 2015)

4.3.2 Works approvals

Works Approval W4537/2009/1 to construct a cattle feedlot and composting facility was granted on 30 April 2009. The Applicant did not submit a compliance document as required by Condition 2 of the works approval on completion of the works in 2010. However, a registration for a Category 68 cattle feedlot was applied for on 21 October 2010 and the facility has been operating since shortly after this date.

4.3.3 Compliance history check

There have been two odour complaints in the last 6 years which have not been verified by DER: one in July 2011 and one in June 2016.

4.3.4 Modelling and monitoring data

The Applicant has conducted quarterly groundwater monitoring of the superficial aquifer since 2011 and has submitted the results as part of this application. The monitoring was conducted as part of the management plan submitted by the Applicant at the time of the works approval and to be consistent with other sites the Applicant operates. The data is discussed in Section

7.6.

The Applicant submitted a document, *EAS Revised Odour Impact Assessment* dated 27 January 2006, with the original works approval application. The document included modelling of the odour impacts from the facility. The modelling is discussed in Section 7.5.

5. Consultation

The application was advertised in the *West Australian* on 10 October 2016 for a comment period ending on 31 October 2016. A letter inviting comment was also sent to the Shire of Gingin on 10 October 2016.

The Shire of Gingin advised DER in writing on 25 and 28 of October 2016 that the Shire did not object to the operation provided it was conducted in accordance with planning approval. The Shire further advised that although the feedlot had planning approval and the composting activity was registered as an offensive trade; the composting did not have planning approval. The Shire has subsequently granted planning approval.

6. Location and siting

6.1 Siting context

The premises occupies approximately 20 hectares of a 465 hectare rural lot, about 9.3 km north-east of Gingin. The facility is surrounded by other rural lots including residences associated with farming activity.

6.2 Residential and sensitive premises

Residential and sensitive receptors have been identified and are presented in Table 3.

Table 3: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential Premises	Dwellings on nearby rural lots are located: • 1.3km north on Lot 54, • 1.6 km south on Lot M2076, and • 2.0 km south east on Lot M1364. Residential area: • 9.3km (Gingin).

6.3 Specified ecosystems

The distances to specified ecosystems are shown in Table 4.

Table 4: Specified ecosystems

Specified ecosystems	Distance from the Premises
Geomorphic wetlands conservation category (DPAW classification)	Approximately 3km to the east and south-east of the feedlot. (Note: Drainage at the site is to the west and north).

6.4 Groundwater and water sources

The Applicant provided a consultant's report (*Hydrogeological Report Lot 51, Cullalla Road, Gingin* Water Direct Limited March 2002) investigating the water resources on site. The key findings of the report are summarised in Table 5.

Table 5: Groundwater and water sources

Groundwater and Water Sources	Distance from Premises	Environmental Value
Mirrabooka Aquifer	The top of the Mirrabooka Aquifer is about 35m below the surface at the site of the feedlot and composting facility; it extends to a depth of about 78 metres. There is an overlying clay layer reducing the interaction between the Mirrabooka aquifer and the surficial aquifers. Analysis shows that the water quality of the two aquifers is significantly different, suggesting little interaction around the site of the facility.	The Mirrabooka Aquifer has a high environmental value as a water source for agriculture. The feedlot and surrounding agricultural enterprises draw water from the Mirrabooka Aquifer under licence with from the Department of Water (DOW).
Various surficial aquifers	Surficial aquifers on the site are inhomogenous, anisotropic unconfined aquifers in sands and laterites. Depth of the surficial aquifers in the monitoring bores on site is between 21 and 30 metres.	Water is not used for potable or industrial use. There is a prospect of lateral flow to ephemeral drains and wetlands, however there are no sensitive ecosystems subject to these impacts immediately down gradient.

6.5 Soil type

The soils at the site are lateritic materials consisting of yellow mottled soils and containing ironstone gravel close to the surface. The lower layers consist of lateritic gravels and mottled clays (DER Geographical Information System).

There is a clay layer between the superficial aquifers and the Mirrabooka aquifer.

6.6 Meteorology

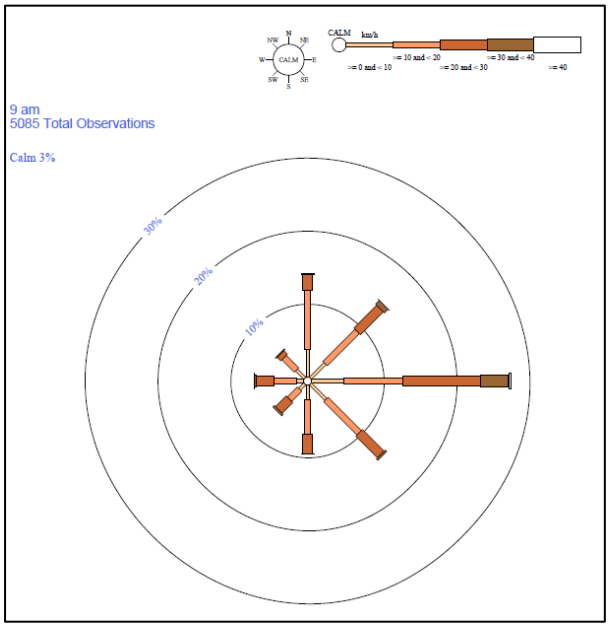
6.6.1 Regional climatic aspects

Gingin has a mild climate with cool, wet winters and warm to hot dry summers.

6.6.2 Wind direction and strength

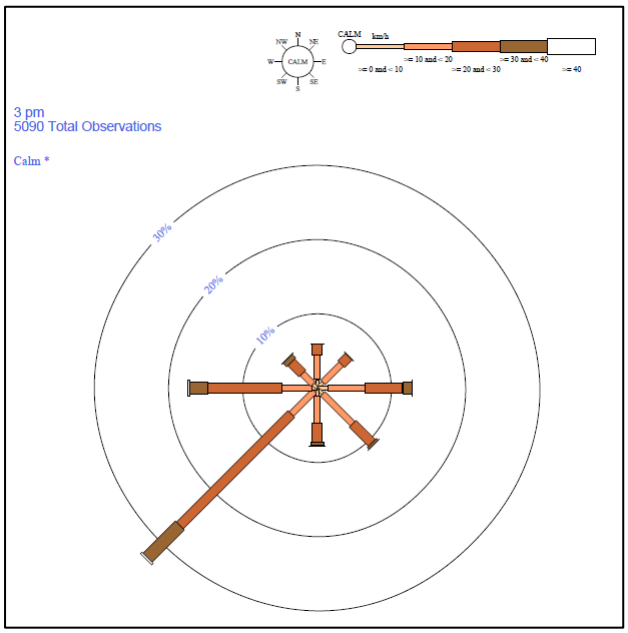
Wind roses for 9 am and 3 pm are depicted in Figure 3 and Figure 4.

Figure 3: Gingin Aero Club 9 am Wind Rose



Source: Bureau of Meteorology website www.bom.gov.au

Figure 4: Gingin Aero Club 3pm Wind Rose

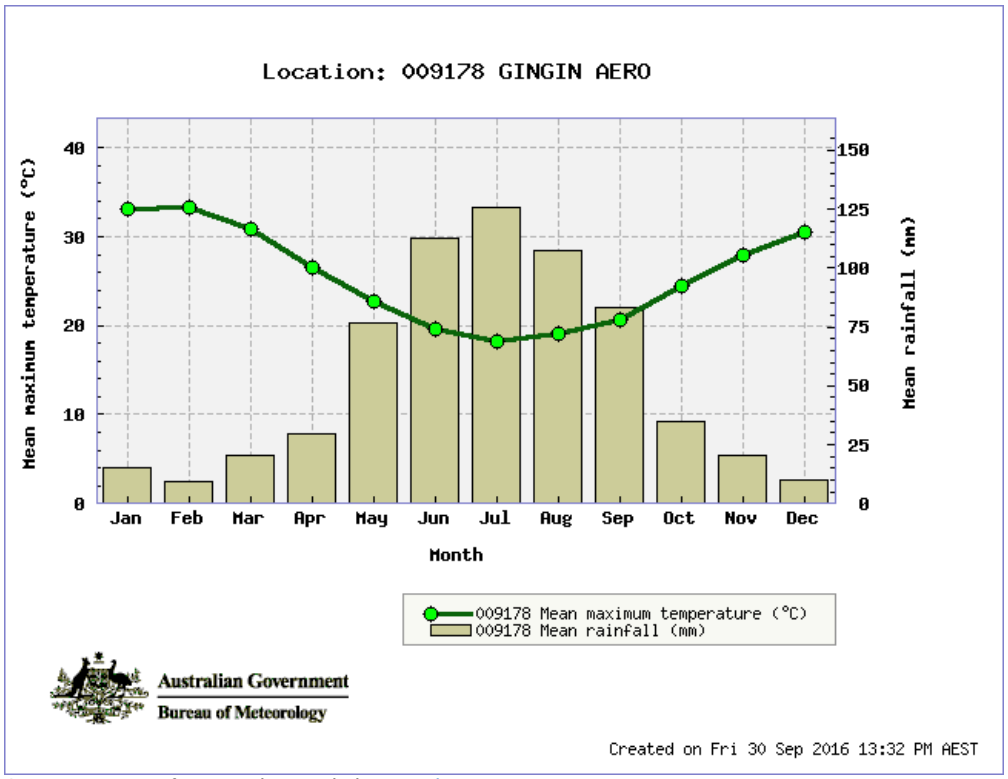


Source: Bureau of Meteorology website www.bom.gov.au

It is important to note that these wind roses show historical wind speed and wind direction data for Gingin Airport weather station and should not be used to predict future data.

6.6.3 Rainfall and temperature

Figure 5: Rainfall and Temperature Averages for Gingin Aero Club



Source: Bureau of Meteorology website www.bom.gov.au

7. Risk assessment

7.1 Confirmation of potential impacts

Identification of key potential emissions, pathways, receptors and confirmation of potential impacts are set out in Table 6 below. Table 6 also identifies which potential emissions will be progressed to a full risk assessment. Some potential emissions/impacts may not receive a full risk assessment where a potential receptor or pathway cannot be identified or where the emission/impacts are regulated under a Ministerial Statement.

Table 6: Identification of key emissions during operation

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment?	Reasoning
Source (see Section 3.2 for infrastructure references)	**Feedlot operations**	Receival and despatch of cattle	Dust	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.4
		Housing and feeding of cattle in pens	Dust	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.4
			Odour	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.5
			Noise	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	No	The Delegated Officer considers the distance to the nearest sensitive receptor (being approx. 1.3km) will provide sufficient buffer for impact to amenity. Noise impact is adequately addressed by the EP (Noise) Regs.

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment?	Reasoning
			Wastewater runoff from cattle pens.	Agricultural land, drains and seepage to groundwater	Direct discharge and infiltration through soil	Contamination of soil, surface water and groundwater	Yes	See Section 7.6
			Management of solid waste (manure).	Land and drains	Direct discharge	Nutrient contamination of groundwater and local drains.	Yes	See Section 7.6
	Composting of manures	Transfer of manures to composting area	Odour	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.5
			Dust	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.4
		Composting of manures	Odour	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.5
			Dust	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity	Yes	See Section 7.4
			Contaminated runoff	Agricultural land, drains and seepage to groundwater	Direct discharge	Contamination of soils, surface water and groundwater	Yes	See Section 7.6
		Composting of animal carcases	Odour	Neighbouring properties, closest being 1.3km north-west	Air / wind dispersion	Loss of amenity for neighbouring residents	Yes	See Section 7.5

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment?	Reasoning
		Settling and Holding ponds for waste water	Groundwater Contamination	Surficial aquifer	Infiltration through soil	Nutrient and salt contamination of groundwater	Yes	See Section 7.7
		Sale of compost off site	Pathogen and contaminant carried off-site in compost.	Land, groundwater and surface water in areas of human habitation and recreation.	Direct application of compost	Elevated levels of pathogens and contaminants could potentially impact human health Contamination of land groundwater and surfacewater	Yes	See Section 7.8

7.2 Risk Criteria

During the assessment the risk criteria in Table 10 below will be applied to determine a risk rating set out in this section 7.

Table 7: Risk Criteria

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

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the risk / opportunity occurring.		The following criteria has been used to determine the consequences of a risk occurring:		
			Public Health	Ecosystem/ Environmental
Almost Certain	The event is expected to occur in most circumstances	Severe	• Loss of life • Exposure to hazard with permanent prolonged adverse health effects expected to large population • Health criteria is significantly exceeded	• Irreversible impact to significant high value or sensitive ecosystem expected • Irreversible and significant impact on a wide scale • Total loss of a threatened species expected • Ecosystem criteria is significantly exceeded
Likely	The event will probably occur in most circumstances	Major	• Exposure to hazard with permanent prolonged adverse health effects expected to small population • Significant impact to amenity for extended periods expected to large population • Health criteria is exceeded	• Long-term impact to significant high value or sensitive ecosystem expected • Long-term impact on a wide scale • Adverse impact to a listed species expected • Ecosystem criteria is exceeded
Possible	The event could occur at some time	Moderate	• Exposure to hazard with short-term adverse health effects expected requiring treatment • Impact to amenity expected for short periods to large population • Health criteria is at risk of not being met	• Minor and short-term impact to high value or sensitive ecosystem expected • Off-site impacts at a local scale • Ecosystem criteria is at risk of not being met
Unlikely	The event is unlikely to occur	Minor	• Exposure to hazard with short-term adverse health effects expected • Impact to amenity expected for short periods to small population • Health criteria are likely to be met	• Moderate to minor impact to ecosystem component (physical, chemical or biological) • Minor off-site impacts at a local scale • Ecosystem criteria are likely to be met
Rare	The event may only occur in exceptional circumstances	Insignificant	• No detectable impacts to health • No detectable impacts to amenity • Health criteria met	• None or insignificant impact to ecosystem component (physical, chemical or biological) expected with no effect on ecosystem function • Ecosystem criteria met

7.3 Risk Treatment

DER will treat risks in accordance with the Risk Treatment Matrix in Table 11 below:

Table 8: Risk Treatment

Risk Rating	Acceptability	Treatment
Extreme	Unacceptable.	Risks will not be tolerated. DER will refuse proposals.
High	Acceptable subject to primary and secondary controls.	Risks will be subject to multiple regulatory controls including primary and secondary controls. This will include both outcome-based and management conditions.
Moderate	Acceptable, generally subject to primary controls.	Risks will be subject to regulatory controls with a preference for outcome-based conditions where practical and appropriate.
Low	Acceptable, generally not requiring controls beyond the proponents controls.	Risks are acceptable and will generally not be subject to regulatory controls.

7.4 Risk Assessment – Dust

7.4.1 General hazard characterisation and impact

There is potential for dust being raised by the animals in the feedlot and the composting and handling of animal waste. The dust will consist of topsoil and organic matter from housing and movement of animals. The dust can cause a loss of amenity to neighbouring properties.

7.4.2 Criteria for assessment

The NEPM air quality criteria is applicable to determine air quality within residential areas in reference to dust/particulate matter. The NEPM sets ambient particles as PM_{10} being 50µg/m^3 over one day averaging period with the maximum allowable exceedance not more than 5 days a year.

The nearest residential area is 9.3 km away in Gingin. DER expects the facility to be operated in a manner that meets the criteria at nearby rural dwellings.

7.4.3 Applicant controls

The siting of the premises at a distance in excess of 1000m from the nearest dwellings significantly controls the potential of offsite nuisance caused by dust emissions . Further controls proposed by the Applicant for the feedlot and composting facilities are presented in Table 9 and

Table 10, respectively.

Table 9: Applicant infrastructure controls for dust generated by feedlot area

Infrastructure/ Equipment	Infrastructure Details	Operational Details	Reference to Issued Licence Plan (Attachment 1)
Trafficable areas	Hardstand of compacted clay and limestone/	Speed limits of 20 km/h to be observed.	N/A
Water truck	1 x water truck	Used as required to prevent dust lift-off from trafficable areas	N/A
Feedlot sprinkler system	Sprinklers using bore water stored in tanks and having sufficient throw to cover the pens.	Used as required to prevent dust lift off from holding of cattle.	N/A

Table 10: Applicant infrastructure controls for dust generated by composting activities

Site Infrastructure	Infrastructure Details	Operational Details	Reference to Issued Licence Plan (Attachment 1)
Trafficable areas	Hardstand of compacted clay and limestone/	Speed limits of 20 km/h to be observed.	N/A
Sprinklers and hoses	Water storage tanks for bore water Sprinklers having sufficient throw to cover the composting area.	Used as required to ensure windrows and pad is kept moist to prevent dust emissions	Site Plan

7.4.4 Consequence

Based upon the siting and constructed infrastructure on the site, the Delegated Officer has determined that the impact of dust will be minor off-site impacts at a local scale. Therefore, the Delegated Officer considers the consequence to be **minor**.

7.4.5 Likelihood of consequence

Based upon the siting of premises which is greater than 1 kilometre from the nearest sensitive receptor, infrastructure in place and management actions proposed by the Applicant, the Delegated Officer has determined that the dust impacts will only occur in exceptional circumstances. Therefore, the Delegated Officer considers the consequence to be **rare**.

7.4.6 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 7) and determined that the overall rating for the risk of contaminated run-off during operation is **low**.

7.5 Risk Assessment - Odour

7.5.1 General hazard characterisation and impact

The feedlot will generate a large quantity of urine and manure which have the capacity to cause offensive odours affecting the amenity of nearby sensitive receptors.

Some activities conducted at the premises pose a higher risk of odour emissions, including cleaning out of the pens, laying out manure for composting, and turning of compost windrows. The composting process must be conducted at appropriate temperatures and moisture content to reduce the risk of odour.

The animal manures stored on site are limited to those generated on site; this is mainly cattle manure, but there is possibility sheep manure may be generated at some time. These manures have a significantly lower risk of odour emissions than poultry or pig manure.

Odour from the disposal of animal carcasses by composting will managed by composting in designated bins and the addition of lime.

7.5.2 Criteria for assessment

There are no set threshold or concentration criteria for odour assessment. The general provisions of the EP Act make it an offence to cause or allow unreasonable emissions which include emissions of odour that unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person.

7.5.3 Odour modelling and complaints history

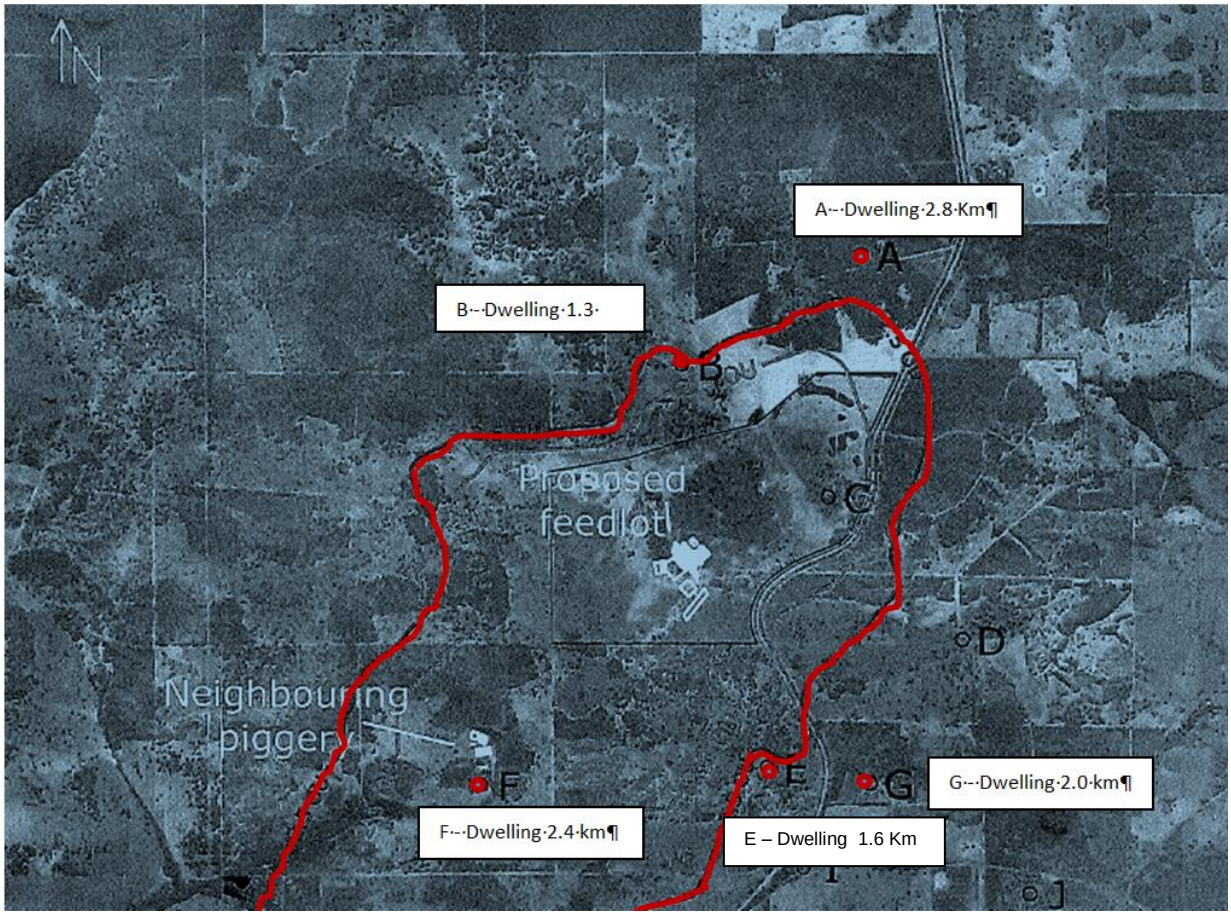
Odour modelling was originally submitted to the Department of Environment (DoE) in October 2005. After assessment and comment by DER's Air Quality Branch, a revised document dated 27 January 2006 was submitted by the Applicant.

The predictive criteria used for the modelling was based on the Queensland guideline, *Odour Impact Assessment for Developments (Qld EPA, 2004),* which was DoE policy at the time. The criterion for acceptable odour impacts is 2.5 odour units (OU) for a 1 hour average, 99.5th percentile. The model predicted an isopleth at this level which included one neighbouring dwelling which was inside the isopleth and two dwellings that were on or near the isopleth. Figure 6 shows the relationship of these dwellings to the 2.5 odour unit isopleth.

Dwelling F located within the isopleth (as shown in Figure 6) is a dwelling associated with an adjacent piggery. The consultant's report notes that the proximity of two other dwellings (Dwelling B and Dwelling E) to the 2.5 OU isopleth implies that these residences may be affected if non-standard operations cause increased odour emissions from the premises.

The facility has been in operation since the beginning of 2011 and in that time DER has received two complaints from one household, one on 20 July 2011 and the other on 3 June 2016. The dwelling concerned is not one of those identified as close to the isopleth in the modelling and is not in the direction of either the morning or afternoon prevailing winds. Notably both complaints were in winter and it may be that the odour emissions were at least in part caused by the manure in the pens becoming too wet.

Figure 6: 2.5 odour units (OU) for a 1 hour average, 99.5th percentile



7.5.4 Proponent controls

Correspondence from EAS Systems on behalf of ILE, dated 11 February 2005 and 4 May 2005, details the handling and composting of animal waste on the premises. Details are summarised below.

Compost manufacture on the premises is conducted in accordance with *AS4454 Compost, Soil Conditioners and Mulches 1999.*

Manure will be scraped from the pens using a front end loader every 30 – 35 days and stockpiled on the hardstand before transport to the composting area. Should odour become a problem, the offending pens will be cleaned immediately.

Manure is placed in windrows running parallel to the slope of the site so that water runoff is not impeded. Straw and greenwaste is mixed with the manure for composting to maintain an optimal carbon to nitrogen ratio. Compost is turned regularly and maintained at 54 to 66°C.

Composting of carcases is conducted in a separate area with manure greenwaste and lime, and screened before adding to windrows (see Figure 2).

The required infrastructure installed by the Applicant is outlined in Table 11.

Table 11: Applicant infrastructure controls for fugitive odour emissions

Site Area	Infrastructure Details	Operational Details	Reference to Issued Licence Plan
Category 68: Feedlot			
Feedlot	Concrete bund with drain on upslope side of feedlot to prevent stormwater entering the pens.	Drains are maintained clear of debris and sediment build-up	Site Plan
	Pens are constructed on compacted clay hardstand graded to drain to the west into compacted clay drains.	Pens cleared every 30 to 35 days or more frequently if required. Pens are cleared of animal waste to prevent build-up of offensive materials	N/A
	Drains conducting liquid waste to the settling and holding ponds.	Drains are maintained clear of debris and sediment build-up	Site Plan
Category 67A: Composting			
Composting	Manure composting pad is graded to prevent ponding of liquids.	Windrows to be maintained and turned so as not to prevent drainage	Site Plan
	Carcass composting is conducted in three-sided concrete bunkers inside the controlled drainage area of the facility.	Compost material screened before adding to the main compost.	Site Plan

7.5.5 Consequence

Based upon siting, infrastructure and management of animal waste at the site, the Delegated Officer has determined that the impact of odour will be off-site impacts at a local scale. Therefore, the Delegated Officer considers the consequence to be **Moderate**.

7.5.6 Likelihood of consequence

Based upon infrastructure and management of animal waste at the site, the Delegated Officer has determined that the likelihood of odour affecting off site receptors will be that the event could occur at some time. Therefore, the Delegated Officer considers the consequence to be **Possible**.

7.5.7 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 7) and determined that the overall rating for the risk of odour on sensitive receptors during operation is **Moderate**.

7.6 Risk Assessment – Contaminated Runoff

7.6.1 General hazard characterisation and impact

Stormwater that comes into contact with the feedlot operations and composting on site has the potential to become nutrient rich and carry sediment off site. Excess nutrients affecting surface water bodies could cause algal blooms and upset the ecosystem favouring introduced over native plant species. Solids from un-composted manure carry seeds and could increase the spread of weeds if they are discharged to land.

7.6.2 Criteria for assessment

Discharge of contaminated water should not occur during the operation of the feedlot and composting facility.

7.6.3 Proponent controls

Drainage from the feedlot and composting pad is directed to the settling pond and holding pond. A clay bund with a clay lined drain borders the lowest part of the site directing any run-off to the settling pond. Drains from the feed lot are concrete lined where the flow is steep and clay lined elsewhere. The settling pond is cleared of sludge and sediment at the end of winter and the materials used in composting.

The infrastructure controls for the control of contaminated runoff is shown in Table 12.

Table 12: Applicant infrastructure controls for contaminated runoff

Site Area	Infrastructure Details	Operational Details	Reference to Issued Licence Plan
Category 68: Feedlot Operations			
Feedlot	Feedlot is on a sloping hardstand providing drainage	Manure will be cleared from pens to prevent accumulations preventing drainage.	Site Plan
	Concrete bund above the feedlot to prevent ingress of stormwater	To be maintained free of debris and sediment.	Site Plan
	Drains conducting liquid waste to the settling and holding ponds.	Drains are maintained clear of debris and sediment build-up.	Site Plan
Category 67A: Composting Operations			
Composting	Manure composting pad is graded to prevent ponding of liquids	Windrows constructed up a slope to allow drainage of water between the windrows.	Site Plan
	Bund and spoon drain at lowest part of the premises conducting runoff to the settling and holding pond	Drains are maintained clear of debris and sediment build-up.	Site Plan

Site Area	Infrastructure Details	Operational Details	Reference to Issued Licence Plan
Category 68: Feedlot Operations			
	Clay lined settling pond with adjustable weir collecting solids	Sludge and sediment removed from pond annually or sooner if required.	Site Plan
	19 megalitre clay lined holding pond	Pond to be maintained without leaks and water held for evaporation or recycling through the composting process.	Site Plan

7.6.4 Consequence

Based upon the siting and constructed infrastructure on the site, the Delegated Officer has determined that the impact of contaminated runoff will be most likely limited to off-site impacts at a local scale. Therefore, the Delegated Officer considers the consequence to be **moderate**.

7.6.5 Likelihood of consequence

Based upon infrastructure and management actions the Delegated Officer has determined that the likelihood of contaminated runoff is unlikely to occur. Therefore, the Delegated Officer considers the consequence to be **unlikely**.

7.6.6 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 7) and determined that the overall rating for the risk of contaminated run-off during operation is **Moderate**.

7.7 Risk Assessment – Groundwater Contamination

7.7.1 General hazard characterisation and impact

There is a potential impact on the surficial aquifer by contaminated water soaking into the ground. Groundwater contamination has the potential to move into surface waters down gradient from the site. There is some but very limited interaction between the surficial aquifer and confined aquifers below them which are used as a water resource. Contamination of groundwater is not likely to adversely affect nearby dwellings because the shallowest aquifers are surficial.

The most downgradient part of the site is occupied by the holding pond with Monitoring Bore 1 (MB1) immediately down gradient from the holding pond. Standing water levels in this bore indicate that the groundwater is about 20 metres below the level of the holding pond and up to 30 metres below the feedlot and composting area.

7.7.2 Monitoring

The Applicant has conducted quarterly monitoring tests for the superficial aquifer at 4 monitoring bore locations since 2010. The location of the bores is shown in Map 3 of Schedule 1 of the issued licence.

The location of the bores was determined by the consultant on behalf of ILE to allow the possible impact of activities on the site on the shallow aquifer to be monitored and determined.

The monitoring results show that the levels of nutrients and salts in the superficial aquifer adjacent to the holding pond and other site have not increased over the five years since the commencement of operation.

The chemical water quality measured over this period shows that the surficial aquifer and the confined Mirrabooka aquifer are significantly different indicating that there is not much interaction between the two aquifers in this area.

7.7.3 Criteria for assessment

Discharge of contaminated water to the groundwater is to be prevented.

7.7.4 Proponent controls

The feedlot, composting pad, settling pond and holding pond are lined with compacted clay. The Applicant has submitted compaction testing data to show that the permeability is less than 1×10^{-9}.

There are 4 monitoring bores on site which have been sampled quarterly since 2011.

The Applicant's infrastructure to control the impacts of the feedlot and composting facility are listed in Table 13.

Table 13: Applicant infrastructure controls for impact on groundwater

Site Infrastructure	Infrastructure Details	Operational details	Reference to Issued Licence Plan
Category 68: Feedlot			
Feedlot	Compact clay hardstand	Ensure activities (such as cleaning out pens) does not compromise the clay hardstand.	Site Plan
Category 67A: Composting			
Composting	Compact clay hardstand	Ensure activities (such as creating and turning compost windrows) does not compromise the clay hardstand	Site Plan
	Clay lined settling pond with adjustable weir collecting solids	Maintain integrity of the clay liner	Site Plan
	19 megalitre capacity clay lined holding pond.	Pond to be maintained without leaks.	Site Plan
	Groundwater monitoring bores	Groundwater is monitored quarterly and assessed against historical data for trends or increases in contaminant load.	Site Plan

7.7.5 Consequence

Based upon the siting and constructed infrastructure on the site, the Delegated Officer has

determined that the impact on groundwater will be off-site impacts at a local scale. Therefore, the Delegated Officer considers the consequence to be **moderate**.

7.7.6 Likelihood of consequence

Based upon infrastructure and management actions the Delegated Officer has determined that the likelihood of activities affecting the groundwater is unlikely to occur. Therefore, the Delegated Officer considers the consequence to be **unlikely**.

7.7.7 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 7) and determined that the overall rating for the risk of contaminated run-off during operation is **Moderate**.

7.8 Risk Assessment – Export of pathogens by off-site sale of compost

7.8.1 General hazard characterisation and impact

Any products supplied for off-site use with elevated pathogen or contaminant levels may cause contamination of offsite land, groundwater and surface water and/or health impacts to end users.

7.8.2 Criteria for Assessment

The criteria for quality of compost are those set out in Australian Standard AS 4454 *Composts, soil conditioners and mulches* and the Department of Health Product Approval - F-AA 03781

7.8.3 Proponent Controls

The Licence Holder has compost tested periodically by the Department of Agriculture.

Large scale commercial operations will address this by contract between the parties but sale of quantities in small quantities is not controlled.

7.8.4 Consequence

Based upon the potential risk to health of in properly processed compost the Delegated Officer has determined that potential impacts to end user health include those requiring mid-level or frequent medical treatment. Therefor the Delegated Officer considers the risk to be **major**

7.8.5 Likelihood of Consequence

Based upon the risk of contamination from the highly restricted feedstock the Delegated Officer has determined that the likelihood of activities affecting human health and the environment is that it will only occur in extreme circumstances. Therefore, the Delegated Officer considers the consequence to be **rare.**

7.8.6 Overall Rating

The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Table 7) and determined that the overall rating for the risk of off-site contamination from sale of compost is **Moderate**.

7.9 Summary of risk assessment and acceptability

A summary of the risk assessment and the acceptability of the risks with treatments are set

out in Table 14 below. Controls are described further in Section 8.

Table 14: Risk assessment summary

	Emission		Pathway and Receptor	Proponent controls	Impact	Risk Rating	Acceptability with treatment (conditions on instrument)
	Type	**Source**					
1.	Dust	Feedlot	Air/Wind	Sprinklers and water truck	Impact on local amenity. Reduced visibility	Minor consequence Rare **Low risk**	Acceptable subject to proponent controls
2.	Dust	Composting	Air/Wind	Sprinklers and hoses.	Impact on local amenity. Reduced visibility	Minor consequence Rare **Low risk**	Acceptable subject to proponent controls
3.	Odour	Feedlot	Air/Wind	Clearing of manure from pens. Drainage of liquid wasts	Impacts on local amenity	Moderate consequence Possible **Moderate risk**	Acceptable subject to proponent controls conditioned
4.	Odour	Composting	Air/Wind	Turning and management of compost. Preventing manures and compost becoming too moist	Impact on local amenity	Moderate consequence Possible **Moderate risk**	Acceptable subject to proponent controls conditioned
5.	Contaminated runoff	Feedlot	Direct from infrastructure.	Capture of liquid waste from pens and direction to settling and holding ponds. Compacted hardstand.	Impact on ecosystems with excess nutrients and spread of weeds.	Moderate consequence Unlikely **Moderate risk**	Acceptable subject to proponent controls conditioned
6.	Contaminated runoff	Composting	Direct from infrastructure.	Capture of liquid waste from pens and direction to settling and holding ponds	Impact on ecosystems with excess nutrients and spread of weeds.	Moderate consequence Unlikely **Moderate risk**	Acceptable subject to proponent controls conditioned

	Emission		Pathway and Receptor	Proponent controls	Impact	Risk Rating	Acceptability with treatment (conditions on instrument)
	Type	**Source**					
7.	Discharge to groundwater	Composting	Direct from infrastructure	Siting and compaction of hardstand to low permeability and lining of drains and ponds Groundwater monitoring	Contamination of groundwater affecting other users or discharge to surface water by spring affecting surface water ecosystems.	Moderate consequence Rare **Moderate risk**	Acceptable subject to proponent controls and monitoring
8.	Pathogens	Compost sold off-site in small quantities	Direct application of compost to land	Optimise composting conditions	Elevated levels of pathogens and contaminants could potentially impact human health Contamination of land groundwater and surfacewater	Major consequence Rare **Moderate risk**	Acceptable subject to proponent controls and monitoring

8. Determined Regulatory Controls

A summary of the risks with corresponding controls are set out in Table 15. The risks are set out in the assessment in section 7 and the controls are detailed in this section 8. Controls will form the basis of conditions in the licence set out in Attachment 1.

Table 15: Summary of regulatory controls to be applied

		Controls (references are to sections below setting out details of controls)		
		8.1 Infrastructure and Equipment	8.2 Specified Action	8.3Monitoring
Risk Items (see risk analysis in section 7)	Dust	●	●	
	Odour		●	
	Contaminated run-off	●	●	
	Groundwater contamination	●		●
	Pathogens			●

8.1 Infrastructure and Equipment

8.1.1 Infrastructure and equipment to control dust

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for dust management:

- Sprinklers at feedlot pens; and
- Sprinklers, taps and hoses at composting area.

Condition: 5

8.1.2 Infrastructure and equipment to control contaminated runoff

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for the control of contaminated runoff:

- Concrete bund located upslope of the feedlot preventing ingress of stormwater to the feedlot and composting area;
- Concrete or clay lined drains directing potentially contaminated water to the settling pond;
- Clay lined settling pond, and
- Clay lined holding pond (19 megalitre volume).

Condition: 5

8.1.3 Infrastructure and equipment to control groundwater contamination

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for the control of groundwater contamination:

- Feedlot hardstand constructed with permeability less than 1x 10^{-9};
- Composting pad hardstand constructed with permeability less than 1x 10^{-9};
- Clay lined settling pond constructed with permeability less than 1x 10^{-9}; and
- Clay lined holding pond constructed with permeability less than 1x 10^{-9}.

Condition: 5

8.2 Specified Actions

8.2.1 Specified actions to control dust

The following management actions should be maintained to prevent dust:

- Ensure that feedlot pens, composting pad and trafficable areas are sufficiently moist to prevent dust lift-off.

Condition: 12, 13

8.2.2 Specified actions to control odour

The following management actions should be maintained to control odour:

- Feedlot pens shall be cleaned to prevent accumulations of animal waste causing odour;
- Materials for composting are limited to manures generated on site, animal carcasses from on-site feedlot operations, straw, uncontaminated greenwaste and lime; and
- Compost windrows are turned to maintain aerobic conditions.

Conditions: 7, 8 and 9

8.2.3 Specified actions to control contaminated run-off

The following management actions should be maintained to prevent contaminated run-off:

- Maintain clay drains free of debris and accumulations of sediment; and
- Remove vegetation growing in clay bunds

Conditions: 10 and 11

8.3 Monitoring

8.3.1 Product testing

The following monitoring should be conducted to ensure that off-site application of compost does not cause health or environment damage:

- Composting and testing of final products to AS 4454 standards and compliance with Department of Health Product Approval - F-AA 03781.

8.3.2 Monitoring of ground water

The following monitoring should be conducted to ensure that groundwater is not being impacted:

- Conduct sampling of groundwater from the surficial aquifer using the four monitoring bores six monthly;
- Samples will be analysed for standing water level, pH, electrical conductivity, BOD, total phosphorous, total nitrogen, ammoniacal nitrogen and nitrate nitrogen; and
- Results will be compared against historical data and graphed to show trends.

Conditions: 14, 15, and 22

9. Appropriateness of Licence conditions

The conditions in the Issued Licence in Attachment 1 have been determined in accordance with DER's *Guidance Statement on Setting Conditions*.

DER's *Guidance Statement on Licence Duration* has been applied and the Issued Licence expires in 20 years from date of issue.

Condition Ref	Grounds
Environmental Compliance Condition 1	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act.
Notification of Material Change Conditions 2, 3 and 4	These conditions are valid, risk-based and enable flexibility in operations.
Infrastructure and Equipment Conditions 5 and 6	These conditions are valid, risk-based and contain appropriate controls (see section 8).
Specified Actions Conditions 7, 8, 9, 10,11,12 and 13	These conditions are valid, risk-based and contain appropriate controls (see section 8).
Emissions Condition 14	This condition is valid, risk-based and consistent with the EP Act.
Product testing 15	The condition is valid, risk based and consistent with the EP Act.
Groundwater Monitoring Conditions 16 and 17	These conditions are valid, risk-based and contain appropriate controls (see section 8).
Information Conditions 18, 19, 20, 21, 22 and 23	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DER notes that it may review the appropriateness and adequacy of controls at any time and, following a review, DER may initiate amendments to the licence under the EP Act.

10. Applicant's comments

The Applicant was provided with the draft decision report and draft licence on 20 December 2016. The applicant replied 24 January 2017 requesting cattle numbers be expressed in Standard Cattle Units (SCUs) and requesting clarification of meaning of certain conditions. Applicant confirmed in telephone conversation on 10 February 2017 that he was now satisfied with the package.

11. Conclusion

This assessment of the risks of activities on the premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this decision report (summarised in Appendix 1). This assessment was also informed by a site inspection by DER officers on 25 August 2016.

Based on this assessment, it has been determined that the Issued Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Caron Goodbourn
Manager Licensing (Process Industries)
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key Documents

	Document Title	In text ref	Availability
1	International Livestock Export Pty Ltd Application for Licence 11 August 2016	--	DER records (A1175267)
2	Correspondence from EAS Systems on behalf of International Livestock Export Pty Ltd dated 11 February 2005	--	DER records (A117528)
3	*EAS Revised Odour Impact Assessment* 27 January 2006	--	DER records (A1175285)
4	DER *Guidance Statement on Regulatory principles,* July 2015	DER 2015a	accessed at http://www.der.wa.gov.au
5	DER *Guidance Statement on Setting conditions,* September 2015	DER 2015b	
6	DER *Guidance Statement on Licence duration,* November 2014	DER 2014	
7	DER *Guidance Statement on Licensing and works approvals processes,* September 2015	DER 2015c	

Attachment 1: Issued Licence L8995/2016/1