Government of **Western Australia**
Department of **Environment and Conservation**

Your ref: L8547/2011/1
Our ref: 2011/001550
Enquiries: Margaret Redfern
Phone: 9622 8940
Fax: 9622 8947
Email: Margaret.redfern@dec.wa.gov.au

The Manager
Kylagh Feedlot
PO Box 93
Tammin WA 6409

Dear Mr Rogers

Environmental Protection Act 1986
Licence: L8547/2011/1
Occupier: Ivan Robert Rogers & Simon Anthony Rogers
Premises: Kylagh Feedlot

You are hereby advised that a licence under the *Environmental Protection Act 1986* (the Act) has been granted for the above premises. The Department of Environment and Conservation will advertise the issuing of this licence in the public notices section of The West Australian newspaper.

The licence is subject to the attached conditions. Under section 58 of the Act, it is an offence to contravene a licence condition. This offence carries a penalty of up to $125,000, with a daily penalty of up to $25,000.

In accordance with section 102(1)(c) of the Act, you are afforded 21 days to appeal the conditions of the licence. Under section 102(3)(a) of the Act, any other person may also appeal the conditions of the licence.

To make an appeal or check if any appeals have been made, contact the Office of the Appeals Convenor on 6467 5190. Please direct all other inquiries to the Licensing Officer above.

Yours faithfully,

Peter Skitmore
Manager, Licensing & Permitting Branch

Thursday, 8 September 2011

enc: Environmental Protection Act 1986 Licence L8547/2011/1

Government of **Western Australia**
Department of **Environment and Conservation**

LICENCE FOR PRESCRIBED PREMISES
Environmental Protection Act 1986

LICENCE NUMBER: L8547/2011/1 **FILE NUMBER** 2011/001550

LICENSEE AND OCCUPIER OF PREMISES
Ivan Robert Rogers & Simon Anthony Rogers
PO Box 93
TAMMIN, WA 6409

NAME AND LOCATION OF PREMISES
Kylagh Feedlot
Lot 10456 and Lot 10457 on Plan 126953, and Lot 20612 on Plan 088222,
Quartermaine Road
Quairading, WA 6383

PRESCRIBED PREMISES CATEGORY
Schedule 1 of the Environmental Protection Regulations 1987

CATEGORY	DESCRIPTION	CAPACITY
1	Cattle feedlot: premises on which the watering and feeding of cattle occurs, being premises – (a) situated less than 100 metres from a watercourse; and (b) on which the number of cattle per hectare exceeds 50.	3,500 head

CONDITIONS OF LICENCE
Subject to the conditions of licence set out in the attached pages.

Officer delegated under Section 20
of the *Environmental Protection Act 1986*

ISSUE DATE Thursday, 8 September 2011
COMMENCEMENT DATE: Thursday, 8 September 2011
EXPIRY DATE: Wednesday, 7 September 2016

CONDITIONS OF LICENCE
Environmental Protection Act 1986

LICENCE NUMBER L8547/2011/1 **FILE NUMBER** 2011/001550

DEFINITIONS

In these conditions of licence, unless inconsistent with the text or subject matter, the following conditions apply:

"*Code of Practice*" means National Beef Cattle Feedlot Environmental Code of Practice, 2nd Edition (Draft);

"Director" means Director, Environmental Regulation Division of the Department of Environment and Conservation for and on behalf of the Chief Executive Officer as delegated under Section 20 of *the Environmental Protection Act 1986*;

"Director" or "Department of Environment and Conservation" for the purpose of any correspondence means-

Department of Environment and Conservation
C/- Wheatbelt Regional Office
PO Box 100 Phone: 9622 8940
NARROGIN WA 6312 Facsimile: 9622 8947;

"Irrigation Management Plan" means the section 5: Feedlot Effluent Irrigation and Table 10 of the *Works Approval Application Proposed Cattle Feedlot Expansion "Kylagh Feedlot" 2008* referring to effluent irrigation; and

"premises" means Lot 10456 and Lot 10457 on Plan 126953, and Lot 20612 on Plan 088222, Quartermaine Road, Quairading, WA 6383 (as depicted in Attachment 2).

GENERAL CONDITIONS

FEEDLOT CAPACITY

1. The licensee shall ensure that no more than 3500 head of cattle are held on the feedlot premises at any one time.

COMPLAINTS REGISTER

2. The licensee shall accurately record all complaints received concerning the environmental impact arising from activities at the premises. The record must be in a form of a bound volume with numbered pages and must record the following:
   (ii) date and time of complaint;
   (iii) location from which the complaint arose;
   (iv) general description/nature of complaint;
   (v) likely source of the recorded problem (if known); and
   (vi) action taken by the licensee.

ENVIRONMENTAL IMPROVEMENT PLAN

3.. The licensee shall submit for approval by the Director an Environmental Improvement Plan for the sections of the feedlot not constructed and not operating in accordance with the draft *Code of Practice* within 12 months of this licence being issued.

4. Once approved by the Director, the licensee shall implement the Environmental Improvement Plan.

DISCHARGES TO LAND

WASTE AND DISCHARGE TO LAND

5. The licensee shall only irrigate wastewater in accordance with the Irrigation Management Plan.

6. The licensee shall ensure that no waste, or any water or stormwater contaminated with waste is discharged at or beyond the boundary of the premises.

REPORTING REQUIREMENTS

ANNUAL AUDIT COMPLIANCE REPORT

7. The licensee shall by **1 September in each year**, provide to the Director an Annual Audit Compliance Report in the form in Attachment 1 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the Act for the Premises, during the period beginning 1 July the previous year and ending on 30 June in that year.

8. The licensee shall, for the period 1 January to 31 December each calendar year, provide an annual environmental report to the Director, no later than 31 January for that previous year containing:

   (a) the monthly records of the number of head of cattle held at the premises in a tabular format;
   (b) the number and type of complaints received as recorded by condition 2;
   (c) monthly records of effluent irrigation volumes;
   (d) results from any water quality monitoring samples taken; and
   (e) any changes to premises infrastructure including boundaries, location of groundwater monitoring bores, feedlot infrastructure or surface drainage channels.

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 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 initialed by the person(s) who signs Section C of this annual audit compliance report

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 DEC?	
☐ Yes ☐ Reported to DEC verbally Date _____ ☐ Reported to DEC in writing Date _____	☐ No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
e) Summary of particulars of 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 initialed by the person(s) who signs Section C of this annual audit compliance report

INITIAL:_____

SECTION C - SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report may only be signed by a person(s) with legal authority to sign it. The ways in which the Annual Audit Compliance Report 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 Annual Audit Compliance Report 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 and Conservation 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 and Conservation.
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 and Conservation.
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 and Conservation.
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: _____ SIGNATURE: _____

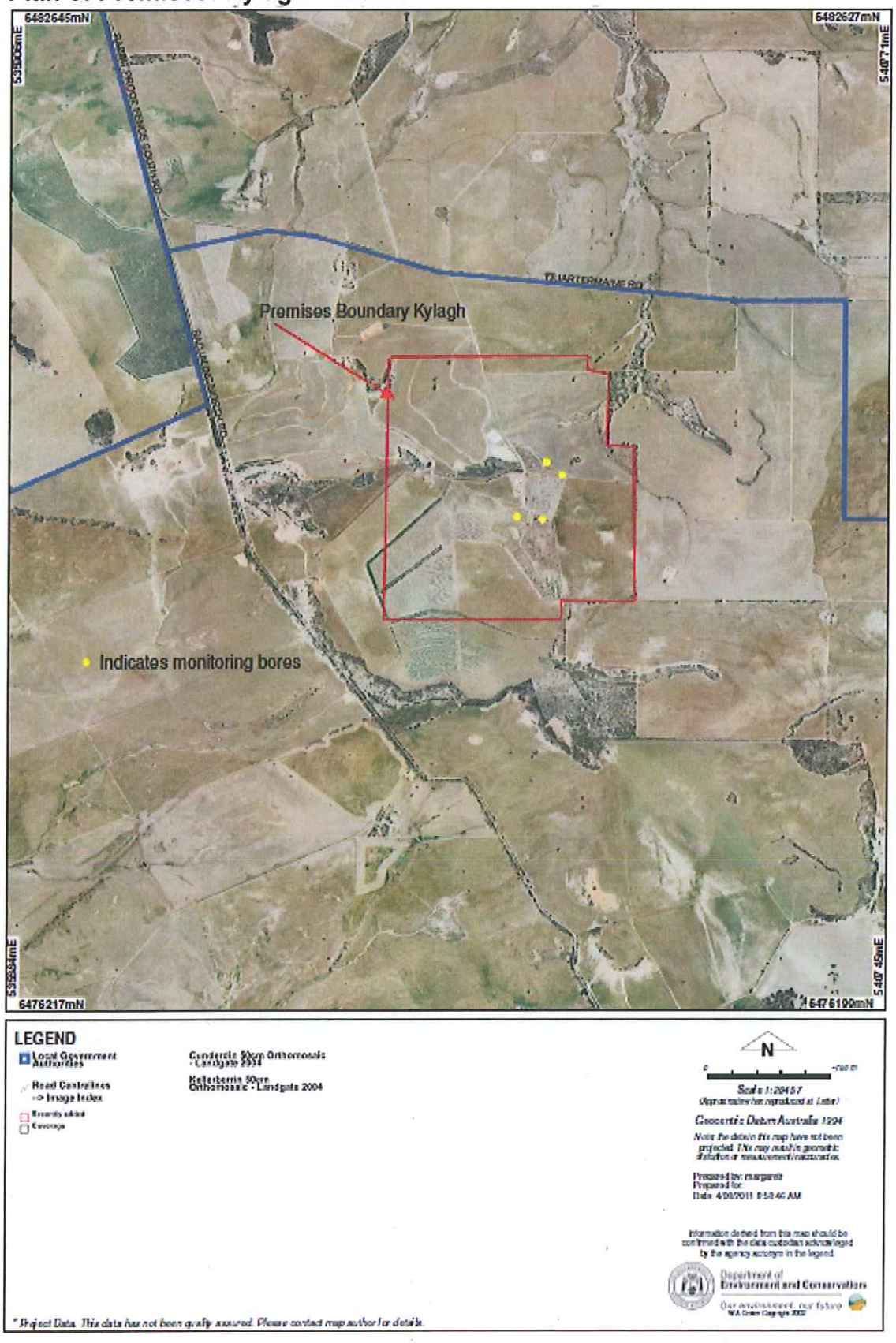
NAME: (printed) _____ NAME: (printed) _____

POSITION: _____ POSITION: _____

DATE: _____/_____/_____ DATE: _____/_____/_____

SEAL (if signing under seal)

Plan of Premises: Kylagh Feedlot.



Government of **Western Australia**
Department of **Environment and Conservation**

ENVIRONMENTAL ASSESSMENT REPORT

LICENCE NUMBER: L8547/2011/1
LICENCE FILE NUMBER: 2011/003643
APPLICATION DATE: 21 June 2011
EXPIRY DATE: 7 September 2016

PREMISES DETAILS

LICENSEE AND OCCUPIER
Ivan Robert Rogers & Simon Anthony Rogers
PO Box 93
TAMMIN, WA 6409
ABN: 38 563 987 087

PREMISES
Kylagh Feedlot
Lot 10456 and Lot 10457 on Plan 126953, and Lot 20612 on Plan 088222,
Quartermaine Road
Quairading, WA 6383 (Appendix B & D)

PRESCRIBED PREMISES CATEGORY

Table 1: Prescribed Premises Category from Schedule 1 of the Environmental Protection Regulations 1987.

Category number*	Category Description*	Category Production or Design Capacity*	Nominated Premises Throughput#	Premises Capacity#
1	Cattle feedlot: premises on which the watering and feeding of cattle occurs, being premises – (a) situated less than 100 metres from a watercourse; and (b) on which the number of cattle per hectare exceeds 50.	More than 2000 animals but not more than 5000 animals	3,500 head	3,500 head

* From Schedule 4 of the Environmental Protection Regulations 1987
# From application Works Approval 4541

This Environmental Assessment Report (EAR) has been drafted for the purposes of detailing information on the management and mitigation of emissions and discharges from the prescribed premises. The objective of the EAR is to provide a risk assessment of emissions and discharges, and information on the management of other activities occurring onsite which are not related to the control of emissions and discharges from the prescribed premises activity. This does not restrict the Department of Environment and Conservation (DEC) to assessing only those emissions and discharges generated from the activities that cause the premises to become prescribed premises.

Basis of Assessment
The Kylagh Feedlot, which has been assessed as a "prescribed premises" under category number 1 within Schedule 1 of the Environmental Protection Regulations 1987. Cattle are fed and held in pens before sale.

The feedlot has an existing pen area of 6.49ha with an approved expansion (Works Approval 4541/2009/1) that will increase the pen area to 7.46ha.

The main emissions and discharges from operation of the Kylagh feedlot will be odour and dust, spreading of composted manure to land and irrigation of effluent. The proponent anticipates that approximately 4008 tonnes of solids (dry basis) comprising manure and carcasses will be produced each year. Solids (manure and carcass) will be composted and applied as a fertiliser (337.8ha) to grow cereal crops including wheat and barley. The proponent has identified 48.6ha of the property which will be irrigated with effluent from the holding pond for growing lucerne crops (see Appendix D: Effluent irrigation area and solids reuse area).

Approximately 80 percent of all cattle fed in the feedlot are destined for the local trade market, while the remaining 20 percent will be sold into the export market. All cattle will be fed for an 80 day period.

1.0 BACKGROUND

1.1 GENERAL COMPANY DESCRIPTION

I.R Rogers and S.A Rogers operate the "Kylagh" feedlot located on Quartermaine Rd, Quairading, WA. Feed-lotting operations began in November 1999. The original feedlot was a 500 head facility with the next stage of 1000 head being constructed in 2003. The feedlot has operated continuously since that time and now has a current capacity of 3500 head. There have been constant upgrades and extensions to all parts of the feedlot over the past eight years (FSA, 2008).

1.2 LOCATION OF PREMISES

The feedlot site is located within the Shire of Quairading. The nearest townships are: Quairading (18.6km south of the site), Tammin (19.0km north of the site), Cunderdin (21.2km northwest of the site), and Kellerberrin (33.1km north east of the site). The separation distances between the feedlot site and the nearest sensitive receptors are 1660m, 3580m and 5080m.

The feedlot site is located within the Avon River Waterways Management Area. The mean annual rainfall of the area is 344mm/yr. The site slopes from the south west to the north east and the fall of the land is approximately 3 percent. Although most of the vegetation on the property has been previously cleared for agricultural purposes, some vegetation exists along drainage lines.

An area of remnant vegetation is known to exist at approximately 1000m to the west of the feedlot. This vegetation has been fenced off and is protected under a covenant between Greening Australia WA Ltd and the applicant.

Two soil landscapes were identified in the surrounding area of the feedlot. These include deep sandy and sandy earth soils, and texture contrast soils. The deep sandy and sandy earth soils are characterised by yellow deep sands and yellow and brown sandy earths, often with a gravelly subsoil. The texture contrast soils are characterised by sandy, and sandy and loamy duplexes with non-alkaline subsoils.

1.3 PROCESS DESCRIPTION

The capacity of the feedlot is currently 3,500 head but will increase to 5000 head at a stocking density of 15m^2/head after expansion. When fully developed the cattle feedlot will consist of 35 production pens.

Pens

A feed bunk is used in each pen and has a 3.0m concrete apron extending from the bunk into the pen. However, some of the older pens do not have this infrastructure. These pens will be compliant with the National Beef Cattle Feedlot Environmental Code of Practice (draft 2nd Edition) after completion of the Environmental Improvement Plan. A water trough is located on the dividing fence line towards the bottom of the pen. Sick animals are removed from the production pens and taken to designated hospital yards for treatment.

The surface of the proposed new pens will be graded to produce a uniform pen gradient, which is durable under the constant loading of cattle hooves. The area where the feedlot pens are to be established has been previously cleared of trees and scrub. The roots will be grubbed to a depth of at least 300mm below the natural ground surface. The existing pens are on a similar gradient.

Cattle lanes and drains

Cattle lanes and drains are located at the bottom of each row of pens. The drains below the pens direct pen runoff to a common drain, located on the northern side of the facility. Runoff in this drain is directed into the sedimentation basin before entering the effluent holding pond.

Stormwater Runoff and Diversion Bank

Stormwater runoff from within the controlled drainage area of the feedlot is captured and stored within the controlled drainage area of the feedlot. The controlled drainage system consists of drains, a sedimentation basin and effluent holding pond. Where necessary, clean water diversion banks exist around the feedlot pens and manure stockpile/carcass composting area to exclude extraneous runoff and to contain all contaminated runoff within the feedlot's controlled drainage system.

The effluent pond will have a freeboard of at least 600mm between the spillway (bywash) and the embankment crest as per the *Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia* (FSA, 2008).

Kylagh proposes to irrigate 48.6ha of the property with effluent from the holding pond for growing lucerne crops.

Effluent holding pond

The existing feedlot uses a sedimentation basin to settle out the solids from the pen runoff. The volume of the sedimentation basin is designed to cater for the peak flow rate from a design storm having an average recurrence interval (ARI) of 1 in 20 years and using runoff coefficients of 0.8 from feedlot pens, roadways and other hard stand areas and 0.4 for grassed areas within the controlled drainage area (FSA, 2008).

The sedimentation basin overflows into the water holding pond. The sediment basin and effluent holding pond is compacted to a coefficient of permeability of 1 X 10 $^{-9}$ m/s in accordance with the specifications contained in the *QDPI Standard Specification – Clay Lining of Drains, Sedimentation Systems, Holding Ponds and Manure Stockpiles* (FSA, 2008).

The base of the sedimentation basin slopes gently (approximately 0.1 percent) towards the sediment pond overflow. Solids are deposited in thin layers over a large area for drying. Solids from the sedimentation basin are removed on a six monthly basis preferably when they are dry.

Solids from the basin are placed in the stockpile area. Any wet solids are to be blended with dry solids (FSA Consulting, Environmental Management Plan, 2009).

According to the *Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia* (2004), for feedlots without roof or cover, the capacity of the settling pond should not be less than 15 litres per square metre. In calculating the volume for the sedimentation basin, the feedlot area was assumed to be the feedlot pens which have an area of 74600m^2. Therefore, the following formula was used for calculating the minimum volume of the sedimentation basin: 74600m^2 x 15L= 1119m^3. The design capacity, based on annual water balance calculations is 10.5ML to meet this requirement.

The size of the sediment basin and the irrigation pond relate to the size of the controlled drainage area (CDA). The CDA is usually about two to three times the area of the feedlot pens.

Contaminated storm water runoff from the pens enter the drains and is conveyed to the sedimentation basin and then the effluent holding pond. Most of the heavier material (manure) in the runoff settle in the drains. Wet manure causes increased odour emissions, therefore drains are constructed with a slope of 0.7 percent to ensure sufficient drainage is achieved while conveying contaminated runoff at a non-scouring velocity. Settled dry manure is scraped from the drains on a six monthly basis. The manure will be transported to the manure stockpile area.

Composting process

Manure and spilt feed scraped from the feed pens, laneways and roads around the feedlot is stockpiled in the solids stockpile/carcass composting area. The manure and solids are laid out in windrows and allowed to decompose anaerobically. Management measures of dead animals include:

- carcasses are placed on a minimum of 300mm of solids that have been scraped from the feedlot pens;
- after each carcass is placed in the windrow at least 500mm of solids is placed on top of the carcass to reduce odour emission and prevent fly and vermin infestation; and
- the base of the composting area is on a hardstand pad to prevent leachate from contaminating groundwater.

Following a period of 6-12 months, most of the carcasses, including the bones are completely composted. After the composting process is completed, the composted material is utilised on the feedlot property. Solids from the sedimentation basin will be removed on a six monthly basis preferably when they dry and incorporated into the composting process.

The applicant has identified 337.8ha of land on the feedlot property that is suitable for applying solids from the feedlot for growing cereal crops including wheat and barley.

Operation

The life of the feedlot is indefinite. Hours of work will normally range between 6am and 7pm. This includes feed distribution, cattle handling, induction and dispatch and general maintenance procedures in and around the facility.

Heavy traffic movements will be confined from 6am to 7pm. Some heavy transport movements will occur outside normal operating hours during the summer as transporting cattle at night or in the early hours of the morning is desirable for animal welfare reasons.

1.4 REGULATORY CONTEXT

1.4.1 Part IV Environmental Protection Act 1986, Environmental Impact Assessment

The proposal has not been referred to the Environmental Protection Authority for assessment under Part IV of the *Environmental Protection Act 1986*.

1.4.2 Part V Environmental Protection Act 1986, Environmental Management

The proposal has been assessed under Category 1 within Schedule 1 of the Environmental Protection Regulations 1987, however, the initial parts of the premises has not been constructed according to a works approval; a works approval has been issued for the expansion of the premises and includes the management of effluent.

Other activities which may or may not be prescribed occurring onsite include:

- Effluent irrigation;
- Manure/carcass composting; and
- Manure/compost spreading.

Relevant policies and guidelines include:

- Draft National Beef Cattle Feedlot Environmental Code of Practice (2rd edition);
- Draft National Guidelines for Beef Cattle Feedlots in Australia (3rd edition);
- Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia (2004);
- EPA Guidance Statement No.3: Separation Distances between Industrial and Sensitive Land Uses;
- Water Quality Protection Note 22: Irrigation with nutrient-rich water (DoW, 2008);
- Water Quality Protection Note 33: Nutrient and irrigation management plans (DoW, 2006); and
- Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia (Department of Primary Industries and Resources SA, 2006).

1.4.3 Other Decision Making Authorities' Legislation which applies

Local Government Authority
The Shire of Quairading has approved the cattle feedlot.

Department of Agriculture and Food (DAFWA)
DAFWA assists the agricultural sector to be sustainable and profitable, with a focus on meeting standards for quality (of products), safety and the environment.

1.4.4 Rights in Water Irrigation Act 1914

As per advice from the Department of Water (DoW) on 8 July 2009, the Kylagh Feedlot (Shire of Quairading) is in an unproclaimed groundwater area. Water can be taken in unproclaimed groundwater areas without a licence so long as the water is not from an artesian aquifer.

1.4.5 Local Government Authority

The area comprising the Kylagh feedlot has been identified as part of Town Planning Scheme 2 Amendment 4 for the Shire of Quairading. All lots comprising the entire Kylagh Property are located within the Shire of Quairading except for Lot 27242 which is located within the Shire of Tammin.

2.0 STAKEHOLDER AND COMMUNITY CONSULTATION

SUBMISSIONS RECEIVED DURING 21 DAY PUBLIC COMMENT PERIOD

The Application for Licence details for this facility was advertised in the West Australian newspaper on 27 June 2011 as a means of advising stakeholders and to seek public comments. No submissions were received.

3.0 EMISSIONS AND DISCHARGES RISK ASSESSMENT

DEC considers that conditions should focus on regulating emissions and discharges of significance. Where appropriate, emissions and discharges which are not significant should be managed and regulated by other legislative tools or management mechanisms.

The following section assesses the environmental risk of potential emissions from the Kylagh feedlot. In order to determine the site's appropriate environmental regulation, an emissions and discharges risk assessment was conducted of the Kylagh feedlot using the environmental risk matrix outlined in Appendix B. The results of this are summarised in Table 2.

Table 2: Risk assessment and regulatory response summary table.

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DEC Regulation (EP Act - Part V)	EAR Reference	Other management (legislation,tools,agencies)
Air emissions (point source)	N/A	Low	E – No regulation, other management mechanisms	LIC – no conditions		General provisions of the EP Act
Dust emissions	1 See appendix A	Low. The closest sensitive land use receptors are 1660m south west, 3580m south, 5080m north east of the feedlot site.	E – No regulation, other management mechanisms	LIC – no conditions		*Environmental Management Plan & Environmental Procedures Manual* (FSA, 2009) *Sediment and Erosion Control Management Plan* (FSA, 2008)
Odour emissions	2 Managed within feedlot operational management plan (Works Approval application) See appendix A	Low. The closest sensitive land use receptors are 1660m south west, 3580m south, 5080m north east of the feedlot site.	D – EIPs, other management mechanisms, licence conditions for monitoring/ Reporting, other regulatory tools.	LIC- no conditions other than recording complaints.		Draft *National Beef Cattle Feedlot Environmental Code of Practice* (2rd edition) Draft *National Guidelines for Beef Cattle Feedlots in Australia* (3rd edition) *Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia* (2004) *Environmental Management Plan & Environmental Procedures Manual* (FSA, 2009) *Works Approval Application, Proposed Cattle Feedlot Expansion "Kylagh Feedlot"* (FSA, 2008) *Earth pad preparation requirements for deep litter pig production systems and solid waste stockpile and composting areas* (Queensland Department of Primary Industries and Fisheries, 2005)

Noise emissions	1. See appendix A	Low. The closest sensitive land use receptors are 1660m south west, 3580m south, 5080m north east of the feedlot site.	N/A	LIC– no conditions		*Environmental Protection (Noise) Regulations 1997* *Environmental Management Plan & Environmental Procedures Manual* (FSA, 2009)
Light emissions	N/A					
Discharges to water	N/A					
Discharges to land	2. See Appendix A	Low. The closest sensitive land use receptors are 1660m south west, 3580m south, 5080m north east of the feedlot site.	E – No regulation, other management mechanisms	LIC – conditions (Irrigation Management Plan)	Appendix D: Effluent irrigation area and solids reuse area	Draft *National Code of Practice* (3rd edition) *Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia* (2004) *Sediment and Erosion Control Management Plan* (FSA, 2008) *Water Quality Protection Note 22: Irrigation with nutrient-rich water* (DoW, 2008) *Environmental Management Plan & Environmental Procedures Manual* (FSA, 2009) *Works Approval Application, Proposed Cattle Feedlot Expansion "Kylagh Feedlot"* (FSA, 2008) *Environmental Protection Act 1986*
Solid / liquid wastes	2. See appendix A	Low.	E – No regulation, other management mechanisms	LIC- no conditions		Draft *National Code of Practice* (3rd edition) *Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia* (2004) *Water Quality Protection Note 22: Irrigation with nutrient-rich water* (DoW, 2008) *Environmental Management Plan & Environmental Procedures Manual* (FSA, 2009) *Works Approval Application, Proposed Cattle Feedlot Expansion "Kylagh Feedlot"* (FSA, 2008)
Hydrocarbon/ chemical storage	N/A	Low.				*Environmental Management Plan & Environmental Procedures Manual* (FSA, 2009)
Native vegetation clearing	Nil- land is cleared					
Contaminated site identification	N/A					

4.0 GENERAL SUMMARY AND COMMENTS

As shown in Table 2, emissions and discharges related to the expansion and operation of the Kylagh Feedlot should not pose a significant risk to the environment if managed correctly. The cattle feedlot is also subject to the general provisions of the *Environmental Protection Act 1986* relating to the causing and reporting of pollution and will be subject to regular inspections by DEC officers.

This EAR is an update of the report compiled by Wildaliz de Jesus and endorsed by Marko Pasalich for the Kylagh Works Approval (W4541/2009/1).

Kylagh is a low risk premises and it is recommended that the licence is issued for 10 years.

OFFICER PREPARING REPORT

Margaret Redfern
Position: Environmental Officer
Wheatbelt Regional Office
Department of Environment
9622 8940

7 April 2011

ENDORSEMENT

Alan Kietzmann
Position: Regional Coordinator, Industry Regulation
Wheatbelt Regional Office
Department of Environment
9622 8940

5 August 2011

APPENDIX A: EMISSIONS AND DISCHARGES OF SIGNIFICANCE

1.1 DUST EMISSIONS

During operations Significance of 1

Feedlot operations that could generate dust emissions are: feed delivery, pen cleaning, feed processing activities and the transport of livestock, ration components and composted material.

Pen dust emissions
Maintain a stocking density (15m^2 /head) within the pens to ensure sufficient moisture (urine and faeces) is deposited on the pen surface; and
If necessary, pens will be watered when required to minimise off-site impacts.

General feedlot operations
Water roads around the feedlot if required;
Pen cleaning activities when prevailing winds will take any dust emissions away from neighbouring residences;
Transport composted material in appropriately covered trucks; and
Reduce vehicle speed around the feedlot to 20km/hr.

1.2 ODOUR EMISSIONS

Level of significance of emissions - 2

Areas of the feedlot that may create odour are:

- feedlot pens;
- manure; stockpile/carcass composting area;
- drains;
- irrigation of effluent;
- spreading of manure;
- waste storage area;
- receival and dispatch hardstand;
- effluent holding pond; and
- proposed manure stockpile/carcass composting area.

Proposed odour management measures:

Pen cleaning and maintenance operations:

- will ensure a highly dense, plastic, manure-soil interface layer forms an effective barrier against seepage of contaminants below the pen surface into the soil profile;
- manure will be scraped from the pens at intervals less than 26 weeks; and
- dead animals will be removed from the pens immediately.

Manure stockpile/carcass composting area-

- carcasses will be placed on a minimum of 300mm of solids that has been scraped from the feedlot pens;
- after each carcass is placed in the windrow at least 500mm of solids will be placed on top of the carcass to reduce odour emission and prevent fly and vermin infestation;
- the base of the composting area will have a pad prepared to prevent leachate from contaminating groundwater resources; and
- following a period of 6-12 months, most of the carcass, including the bones will be completely composted.

Drain
Contaminated storm water runoff from the pens will enter the drains and be conveyed to the effluent holding pond. Most of the heavier material (manure) in the runoff will settle in the drains. Wet manure causes increased odour emissions, therefore drains will be constructed with a slope of 0.7% to ensure sufficient drainage is achieved while conveying contaminated runoff at a non-scouring velocity. Settled dry manure will be scraped from the drains on a 6 monthly basis. The manure will be transported to the manure stockpile area.

Effluent irrigation- will be undertaken using a travelling irrigator to ensure that very little odour escapes from this practice. The applicant will undertake the practice of irrigating effluent from the feedlot, only when prevailing climatic conditions are unlikely to result in odour to nearby residences. Proponent proposes to consider wind direction and strength, the time of the day and atmospheric stability. In addition, the following measures for mitigating odour due to effluent irrigation are proposed:

- avoid irrigation of effluent when wind direction is towards a nearby residence;
- regular light applications of effluent will be less likely to cause nuisance than infrequent large applications;
- irrigation of effluent will be limited to the morning or early afternoons under fine sunny conditions when thermal currents are more likely to disperse any odours;
- liquid effluent will be applied as uniformly as possible with the use of a low-pressure travelling irrigator; and
- effluent will not be irrigated during public holidays or on weekends.

Manure spreading- proposed measures for odour management include

- avoid spreading solid wastes that are too dry (below 15% moisture content);
- consider wind speed and direction at time of spreading. Solids will not be spread if the wind direction is towards sensitive receptors, or if it is very windy;
- incorporate solid wastes shortly after spreading;
- undertake application activities at times that minimise the risk of odour nuisance at off-site locations (e.g. during the day on week-days, not on weekends); and
- apply waste products when the soil is not saturated and when rain is not predicted.

Regular cleaning and maintenance - will be undertaken with a:

- bobcat – under fence cleaning and removal of solids from around feed and water troughs;
- front end loader – loading solids out of the pens and solids stockpile; and
- tip truck – removing solids from the pens to the solids stockpile area.

1.2 NOISE EMISSIONS
Level of significance of emissions - 1

Noise generation will be controlled by limiting traffic movements and work hours from 6am to 7pm as much as practical (regular business hours are from 8am – 5pm):

- the delivery and dispatch of livestock, delivery of ration components to the property and feeding out operations will be limited to after 6am and before 7pm. However, during summer months some cattle movement will be outside normal operating hours which is desirable for animal welfare reasons;
- noise generation will be controlled by regular maintenance of on-site machinery and vehicles. If a vehicle/machine is creating excessive noise, maintenance will be undertaken to correct the problem; and
- contractors and staff will be informed of noise nuisance concerns and requested to limit noise generation (e.g. air brakes and horns during delivery and dispatch of livestock, pen cleaning and removal of composted carcasses and solids from the property).

1.3 DISCHARGES TO LAND

Level of significance of emissions - 2

Effluent irrigation:

Proponent will irrigate 48.6ha of the property with effluent from the holding pond for growing lucerne crops. Measures to minimise the risk of nutrient runoff from the effluent irrigation area are:

- effluent will only be irrigated when a crop is being grown (when there is good ground cover) in the area to minimise erosion and nutrient export;
- establishment of buffers- buffer zones will be maintained at all times between the effluent irrigation and solids spreading areas on the property. Irrigation of effluent and/or spreading of solids will not occur in the buffer zones. A buffer zone of 100 metres will be maintained between the effluent and manure spreading zones and watercourses;
- regular monitoring of irrigation practices and soil nutrient levels will be undertaken;
- effluent will be irrigated using a travelling low pressure irrigator. This will ensure uniformity of application, reduce the potential for runoff and allow for smaller, more frequent applications, to more closely balance pasture requirements and utilise more effluent;
- the nutrient loading rates are based on matching crop requirement, therefore there will not be a surplus available for loss to local surface water. The expected nutrient application rates are less than those of artificial fertilisers in typical intensive cropping situation; and
- erosion from the proposed effluent irrigation area is expected to be minimal as the area is relatively flat. Effluent will only be irrigated when there is good ground cover (i.e. when a crop is being grown in the area). This ground cover will minimise erosion and nutrient export.

Manure/carcass spreading:

Solids from the feedlot will include:

- manure and spilt feed harvested from the pens, drains/lanes and sedimentation basins; and
- carcass compost.

It is anticipated that approximately 4008 tonnes of solids (dry basis) will be produced each year.

The proposed solids reuse areas are currently used for growing cereal crops including wheat and barley. The applicant has identified 337.8ha of land on the feedlot property that is suitable for applying solids from the feedlot. Anticipated spreading rates will not exceed the figures shown in Table 5 *Guidelines for the Environmental Management of Beef Cattle Feedlots in Western Australia* (2004).

Buffers of 100m will be maintained between the proposed solids reuse areas and watercourses.

A manure spreader will be used to apply the solids.

1.4 SOLID/LIQUID WASTE

Level of significance of emissions - 2

Solid wastes

Solids from the feedlot will include:

- manure and spilt feed harvested from the pens, drains/lanes and sedimentation basins; and
- carcass compost.

It is anticipated that approximately 4008 tonnes of solids (dry basis) will be produced each year.

The proposed solids reuse areas are currently used for growing cereal crops including wheat and barley. The applicant has identified 337.8ha of land on the feedlot property that is suitable for

applying solids from the feedlot. For a description of the manure and carcass composting on-site see 1.2 Odour Emissions.

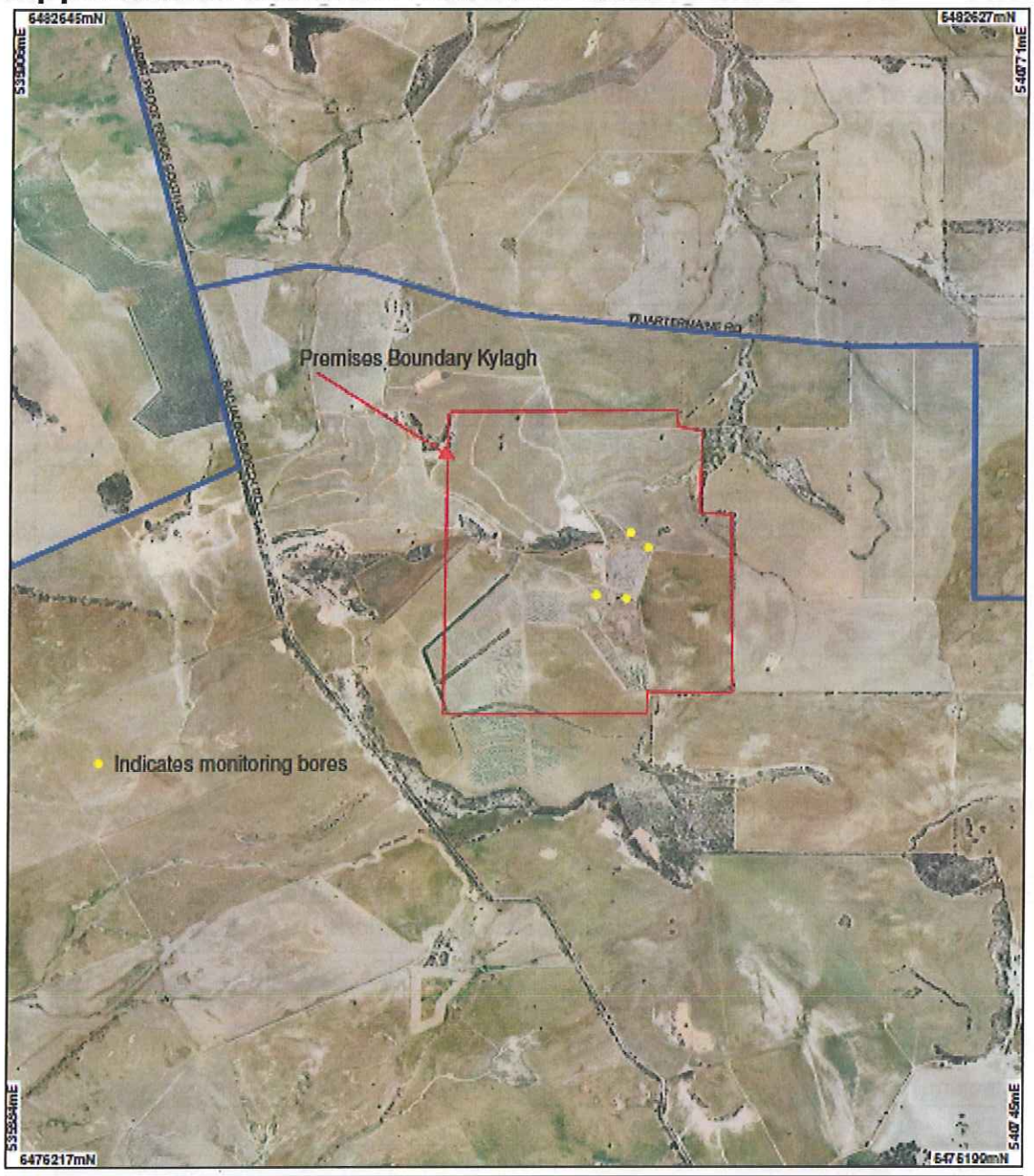
Liquid wastes management

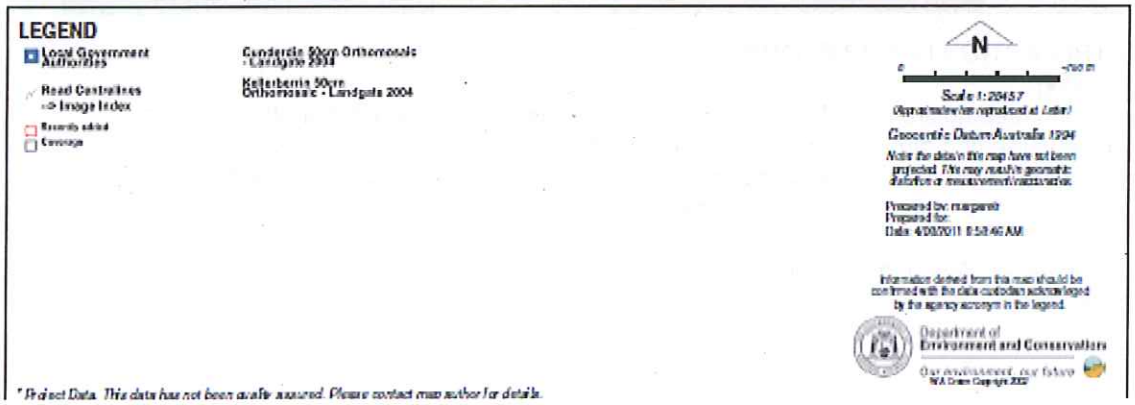
- The effluent holding pond will have a permeability of 10^{-9}m/s or less to safeguard against leachate to groundwater and sufficient freeboard to prevent overtopping;
- runoff from the pens will be directed into the sedimentation basin and effluent pond; and
- the collected effluent will be used for irrigation of 48.6ha for growing lucerne crops.

1.5 HYDROCARBON/CHEMICAL STORAGE

Chemicals will be stored in properly designed containers. Where practical, when dangerous chemicals are stored in sheds, the area surrounding them will be bunded to prevent spreading of the chemical should a spillage occur. To prevent fires welding equipment and similar equipment will not be used in close proximity to these chemicals. Veterinary chemicals will also be stored in properly designed and lockable containers. In some cases these chemicals will need refrigeration and may be stored in a dedicated locked refrigerator at the farm house on-site. The Kylagh feedlot has National Feedlot Accreditation Scheme (NFSA) certification. This certification requires all such chemicals to be correctly stored and disposed of in accordance with manufacturer's recommendations. Auditing of the quality assurance manuals and procedures will be undertaken annually.

Appendix B: LOCATION AND SITE MAP





APPENDIX C: EMISSIONS AND DISCHARGES RISK ASSESSMENT MATRIX

Table 3: Measures of Significance of Emissions

Emissions as a percentage of the relevant emission or ambient standard		Worst Case Operating Conditions (95th Percentile)			
		>100%	50 – 100%	20 – 50%	<20%*
Normal Operating Conditions (50th Percentil	>100%	5	N/A	N/A	N/A
	50 – 100%	4	3	N/A	N/A
	20 – 50%	4	3	2	N/A
	<20%*	3	3	2	1

*For reliable technology, this figure could increase to 30%

Table 4: Socio-Political Context of Each Regulated Emission

		Relative proximity of the interested party with regards to the emission				
		Immediately Adjacent	Adjacent	Nearby	Distant	Isolated
Level of Community Interest or Concern*	5	High	High	Medium High	Medium	Low
	4	High	High	Medium High	Medium	Low
	3	Medium High	Medium High	Medium	Low	No
	2	Low	Low	Low	Low	No
	1	No	No	No	No	No

Note: These examples are not exclusive and professional judgement is needed to evaluate each specific case

*This is determined by DEC using the DEC "Officer's Guide to Emissions and Discharges Risk Assessment" May 2006.

Table 5: Emissions Risk Reduction Matrix

		Significance of Emissions				
		5	4	3	2	1
Socio-Political Context	High	A	A	B	C	D
	Medium High	A	A	B	C	D
	Medium	A	B	B	D	E
	Low	A	B	C	D	E
	No	B	C	D	E	E

PRIORITY MATRIX ACTION DESCRIPTORS
A = Do not allow (fix)
B = licence condition (setting limits + EMPs - short timeframes)(setting targets optional)
C = licence condition (setting targets + EMPs - longer timeframes)
D= EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools
E = No regulation, other management mechanisms

Note: The above matrix is taken from the DEC Officer's Guide to Emissions and Discharges Risk Assessment May 2006.

APPENDIX D: EFFLUENT IRRIGATION AREA AND SOLIDS REUSE AREA PLAN