

# Engreen Environmental Consultants Ltd.

---

**Title:** Environmental Risk and Impact Assessment

---

**Client:** Woolley Bros (Wholesale Meats) Limited– Rother Valley Abattoir

---

**Date:** October 2020

---

**Report Reference:** P179-R02-F1

---

---

**Submitted to:**

Environment Agency

---

**Main Contributors:**

Edward Bennett

---

**Issued by:**



David Green  
MA, C Eng, FICHEM E

---

Report Issue History		
Report Number	Date	Comments
P179-R02-ID1	June 2020	Internal Draft
P179-R02-D1	September 2020	Final draft issued for client review.
P179-R02-F1	19.10.20	Final for EA Issue

# CONTENTS

1	Introduction	1
1.1	Background	1
1.2	General Approach	1
1.3	Detail of Approach	1
1.4	Report Format	2
2	Screening Assessment	3
2.1	Methodology	3
2.2	Screening Assessment Tables	3
2.2.1	Normal Operations	3
2.2.2	Abnormal Operations / Accident Situations	5
3	Environmental Risk Assessment	9
3.1	Introduction	9
3.2	Receptors	9
3.3	Environmental Risk Assessment Methodology	10
3.3.1	Key Policies and Procedures	11
3.4	Risk Assessments	12
3.4.1	Introduction	12
3.4.2	Table Key	12
3.4.3	Assessment Tables	12
4	Detailed Operational Impact Assessment	17
4.1	Introduction	17
4.2	Impacts Assessed	17
4.2.1	Waste	17
4.2.2	GWP and POCP	17
4.3	Waste	18
4.3.1	Waste Streams	18
4.4	Global Warming and Photochemical Ozone Creation Potential	19
4.4.1	Introduction	19
4.4.2	Assessment	19
5	Conclusions	20
5.1	Summary	20

# 1 Introduction

---

## 1.1 Background

Woolley Bros are applying for Variation of their Environmental Permit that allows them to operate a red meat abattoir in Holbrook to the South East of Sheffield.

As part of the Permit Variation application process, the site is required to demonstrate how potential environmental risks and impacts of varied operations have been identified and quantified. This 'Environmental Risk and Impact Assessment' (ERA) is a systematic evaluation of these potential risks and impacts. The methodology and results for this assessment process are presented in this report, which should be read in conjunction with the other permit application documents.

## 1.2 General Approach

This ERA follows the basic structure as required by the Environment Agency's gov.uk guidance for undertaking Environmental Risk Assessments including the old H1 Annexes where required. In summary, the approach to evaluating and reporting potential risks and impacts addresses the following possible impacts:

- Amenity - litter / vermin / mud / fire;
- Odour;
- Noise;
- Fugitive Air Releases – dust / bioaerosols;
- Surface Water;
- Groundwater;
- Air;
- Waste Produced;
- Global Warming Potential (GWP) / Photochemical Ozone Creation Potential (POP).

## 1.3 Detail of Approach

For varied activities only, impact and risk assessments for both normal operations and for reasonably foreseeable accident and abnormal conditions has been carried out below. The following definitions are used for assessing possible impacts under the different scenarios or operating conditions:

<b><i>Normal (N)</i></b>	Routine activity on site
<b><i>Abnormal (A)</i></b>	Planned, or reasonably foreseeable, deviations from normal operating conditions
<b><i>Emergency (E)</i></b>	Unplanned deviations from normal operating conditions ( <i>accident situations</i> )

The initial step is a screening assessment to screen out the processes and ancillary operations that, even under the reasonably foreseeable abnormal and emergency conditions identified, would be incapable of causing a significant environmental impact. Those aspects that do not screen out fall into two categories for more detailed evaluation:

- Emissions under normal operations for which a detailed assessment of environmental impacts is required.
- Normal, abnormal and accident scenarios for which there is a need to carry out a detailed environmental risk assessment.

## 1.4 Report Format

This Environmental Risk and Impact Assessment is set out as follows:

- Introduction;
- Screening Assessment;
- Environmental Risk Assessments;
- Environmental Impact Evaluations;
- Conclusions and Improvements.

## 2 Screening Assessment

### 2.1 Methodology

For the initial screening assessment, the potential risks and impacts of both normal operations and abnormal/accident situations have been considered. Tables 2.2.1 and 2.2.2 below set out these initial screening assessments to determine which combinations of operations and potential impacts warrant further assessment.

Where it is considered that there is minimal or no potential for an impact to occur, a brief explanation has been provided for each impact criterion and activity. For those potential risks and impacts that cannot immediately be screened out and which, therefore, require further evaluation:

- ‘**RA**’ is placed in the relevant box where further evaluation for assessing environmental risk has been undertaken in Section 4 of this report, for normal operations, abnormal operations or accident situations;
- ‘**DA**’ is placed in the relevant box where more detailed evaluation of emissions is required and has been undertaken in Section 5 of this report.

### 2.2 Screening Assessment Tables

#### 2.2.1 Normal Operations

Impact	Activity					
	Production	Drainage and Effluent Control	Waste / ABP storage	Waste / ABP Transfer and Collection	Refrigeration	Dispatch vehicles
<b>Amenity (litter / vermin / mud / fire)</b>	HACCP system in place to prevent and prevent and control pests. No other plausible amenity issues.	No plausible amenity issues.	Designated waste / ABP storage areas. As a consequence, there is an insignificant additional risk of litter nuisance. HACCP system in place to prevent and prevent and control pests.	Waste / ABP removed from site in enclosed or covered vehicles, minimising potential for litter.	Equipment subject to planned preventative maintenance. No plausible amenity issues.	No plausible amenity issues.
<b>Odour</b>	No additional plausible issues due to enclosed nature of process.	No plausible odour issues due to nature of process.	<b>RA</b>	<b>RA</b>	No plausible odour issues due to nature of process.	Product dispatched in refrigerated vehicles, therefore, no plausible odour issues.

Impact	Activity					
	Production	Drainage and Effluent Control	Waste / ABP storage	Waste / ABP Transfer and Collection	Refrigeration	Dispatch vehicles
<b>Noise</b>	No plausible noise issues due to internal and enclosed nature of production operations.	Negligible potential for noise associated with new drainage infrastructure	Storage activity – no noise	<b>RA</b>	Equipment subject to planned preventative maintenance. No plausible noise issues.	<b>RA</b>
<b>Fugitive Air Releases</b> <sup>1,2</sup>	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	Vehicle routes concreted. No potential for relevant fugitive emissions.
<b>Surface Water</b>	Contained systems. No potential for releases to surface water under normal operations.	Contained systems. No potential for releases to surface water under normal operations.	No potential for releases to surface water under normal operations since yard areas concreted.	<b>RA</b>	Contained systems. No potential for releases to surface water under normal operations.	<b>RA</b>
<b>Groundwater</b>	Internal and contained operations. No potential for releases to ground water under normal operations.	No potential for releases to ground water under normal operations.	No potential for releases to ground water under normal operations since yard areas concreted.	No potential for releases to ground water under normal operations since yard areas concreted.	Internal and contained operations. No potential for releases to ground water under normal operations.	No potential for releases to ground water under normal operations since yard areas concreted.
<b>Air</b>	No point source emissions to air except for trivial releases from domestic boiler.	No point source emissions to air.	No point source emissions.	No point source emissions except from vehicles.	No point source emissions to air.	No point source emissions to air except from site vehicles.
<b>Waste Production</b>	<b>DA</b>	No waste production.	No further waste production.	No further waste production.	No waste production.	No waste production under normal operations.
<b>GWP / POP</b>	<b>DA</b>	No point source or fugitive emissions	No point source or fugitive emissions	No point source or fugitive emissions which site have control over.	No point source or fugitive emissions	No point source or fugitive emissions which site have control over.

Notes:  
1 – Excluding odour and Noise (dealt with separately).  
2 – Releases to air that are not from point source emissions e.g. dust, leaks.

## 2.2.2 Abnormal Operations / Accident Situations

Table 2.2.2: Screening Assessment – Abnormal Operations / Emergency (Accident) Situations						
Impact	Activity					
	Production	Drainage and Effluent Control	Waste / ABP storage	Waste / ABP Transfer and Collection	Refrigeration	Dispatch vehicles
<b>Amenity (litter / vermin / mud / fire)</b>	HACCP system in place to prevent and control pests.  Production area fitted with smoke / fire detection equipment. No other plausible amenity issues.	No plausible amenity issues.	HACCP system in place to prevent and control pests.  No other plausible amenity issues.	HACCP system in place to prevent and control pests.  No other plausible amenity issues.	Equipment subject to planned preventative maintenance. No plausible amenity issues.	No plausible amenity issues.
<b>Odour</b>	No plausible odour issues	RA	RA	RA	RA	No plausible amenity issues.

<b>Table 2.2.2: Screening Assessment – Abnormal Operations / Emergency (Accident) Situations</b>						
<b>Impact</b>	<b>Activity</b>					
	<b>Production</b>	<b>Drainage and Effluent Control</b>	<b>Waste / ABP storage</b>	<b>Waste / ABP Transfer and Collection</b>	<b>Refrigeration</b>	<b>Dispatch vehicles</b>
<b>Noise</b>	No plausible noise issues due to internal and enclosed nature of production operations.	Negligible potential for noise associated with new drainage infrastructure	Storage activity – no noise	<b>RA</b>	<b>RA</b>	<b>RA</b>
<b>Fugitive Air Releases<sup>1, 2</sup></b>	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	No potential for relevant fugitive emissions.	<b>RA</b>	Vehicle routes concreted. No potential for relevant fugitive
<b>Surface Water</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	Internal and contained systems.	<b>RA</b>
<b>Groundwater</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	Internal and contained systems.	<b>RA</b>



<b>Table 2.2.2: Screening Assessment – Abnormal Operations / Emergency (Accident) Situations</b>						
<b>Impact</b>	<b>Activity</b>					
	<b>Production</b>	<b>Drainage and Effluent Control</b>	<b>Waste / ABP storage</b>	<b>Waste / ABP Transfer and Collection</b>	<b>Refrigeration</b>	<b>Dispatch vehicles</b>
<b>Air</b>	No point source emissions to air except for trivial releases from domestic boiler.	No point source emissions to air.	No point source emissions.	No point source emissions except from vehicles.	No point source emissions to air.	No point source emissions to air except from site vehicles.
<b>Waste Production</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	Equipment subject to planned preventative maintenance. No plausible prolonged fault issues that could lead to significant waste production.	<b>RA</b>
<b>GWP / POP</b>	<b>DA</b>	No point source or fugitive emissions	No point source or fugitive emissions	No point source or fugitive emissions which site have control over.	No point source or fugitive emissions	No point source or fugitive emissions which site have control over.

<b>Table 2.2.2: Screening Assessment – Abnormal Operations / Emergency (Accident) Situations</b>						
<b>Impact</b>	<b>Activity</b>					
	<b>Production</b>	<b>Drainage and Effluent Control</b>	<b>Waste / ABP storage</b>	<b>Waste / ABP Transfer and Collection</b>	<b>Refrigeration</b>	<b>Dispatch vehicles</b>
Notes: 1 – Excluding odour and Noise (dealt with separately). 2 – Releases to air that are not from point source emissions e.g. dust, leaks.						

## 3 Environmental Risk Assessment

### 3.1 Introduction

The screening assessment above has identified several possible scenarios where normal operations, abnormal operations or emergency (accident) situations might have the potential to lead to an environmental impact. Those scenarios marked with 'RA' in the screening assessment are assessed more fully in this section.

The further evaluation methodology utilised within this report is set out below and has been based on principles outlined on the Environment Agency's .gov website. The assessment has been undertaken by identifying the potential sensitive receptors and applying the risk scoring mechanism detailed in section 3.3 below.

### 3.2 Receptors

Table 3.1 below details the identified sensitive receptors within a 2 kilometre radius (unless otherwise specified) of the proposed installation boundary. Only the closest receptor in each direction is listed.

<b>Table 3.1: Summary of Sensitive Receptors Identified</b>				
<b>Nature of Receptor</b>		<b>Direction</b>	<b>Approximate Distance from the Proposed Installation Boundary<sup>3</sup></b>	<b>Plan Reference <sup>7</sup></b>
Residential*		NNW	c. 125 metres	R1
		NE	c. 1.49 km	R2
		ESE	c. 1.18 km	R3
		SSE	c. 740 metres	R4
		SW	c. 840 metres	R5
Educational*		WNW	c. 820 metres	R6
Industrial / Commercial / Offices*		N	c. 20 metres	R7
		E	c. 430 metres	R8
		S	c. 30 metres	R9
		W	c. 25 metres	R10
Nature and Conservation	Deciduous Woodland Biodiversity Action Plan Priority Habitat	S & E	Adjacent	R11
	The Nature and Heritage Conservation Screening Report has identified a number of other habitat receptors within a 2km radius of site. Local Wildlife Sites and Ancient Woodland were identified as part of the search results and have been taken into consideration when undertaking the risk assessment below.			
Water Resource	Land Drain	NE	c. 380 metres	R12
	Rother Valley Lake	E	c. 260 metres	R13

<b>Table 3.1: Summary of Sensitive Receptors Identified</b>				
<b>Nature of Receptor</b>		<b>Direction</b>	<b>Approximate Distance from the Proposed Installation Boundary<sup>3</sup></b>	<b>Plan Reference <sup>7</sup></b>
	Pond	S	c. 325 metres	R14
	Pond	SW	c. 250 metres	R15
Water Resources – Groundwater <sup>1</sup>		Site is not located within a Groundwater Source Protection Zone. It is anticipated the underlying geology will have variable permeability.		
Highways and Transportation – Rother Valley Way <sup>2</sup>		W	Adjacent	R16
Air Quality Management Areas <sup>5</sup>		Within Sheffield Citywide AQMA– Declared Pollutants - Nitrogen Dioxide NO <sub>2</sub> & Particulate Matter PM <sub>10</sub>		
Notes: *: Closest receptor identified; 1: Groundwater Source Protection Zones / NVZ status identified using the MAGIC Website, September 2020. 2: Closest local road network only; 3: Distance shown measured using Ordnance Survey data provided by Promap; 4: AQMA locations reviewed through DEFRA’s website – September 2020 5: Locations shown on Sensitive Receptor Plan, Report Ref P179-R06-F1				

### 3.3 Environmental Risk Assessment Methodology

The risk assessment has been undertaken for each potential environmental risk identified in the tables set out in section 2.2 above for normal operations, abnormal operations and accident situations. The risk classification assigned has been evaluated by assessing the likelihood of an incident occurring and the severity of impact should it occur, using the following methodology.

<b>Table 3.2 - Probability of an event occurring</b>		
<b>Score</b>	<b>Description</b>	<b>Definition</b>
1	Very Low	Extremely unlikely to occur (<1 per 10 years)
2	Low	Unlikely to occur (<1 per year)
3	Moderate	Could occur (1 per year)
4	High	Could occur frequently (>1 per year)
5	Very High	Could occur continuously

<b>Table 3.3 - Severity of impact should the event occur</b>		
<b>Score</b>	<b>Description</b>	<b>Definition</b>
1	Very Low	Negligible impact
2	Low	Minor impact (contained in localised area on site & recoverable)
3	Moderate	Medium impact (contained within site boundary & recoverable)
4	High	Major impact (spread off site &/or difficult to recover)
5	Very High	Major impact (spread off-site & long term/permanent damage)

**Risk Assessment:**

The Probability (P) and Severity (S) scores assigned to each item are then multiplied together to provide a total risk assessment score (R):

$$P \times S = R$$

Scores are considered to be high or low risk using the following risk classification:

**< 10 – Low Risk – Insignificant**

**≥10 – High Risk - Significant Risk**

Where the residual risks are found to be significant a more detailed assessment will be undertaken, or improvements to mitigate the risks will be recommended within the conclusions section of this report.

**3.3.1 Key Policies and Procedures**

The procedures and policies in place at the site to minimise the potential for environmental risk and form part of the Environmental Management System are summarised within the report referenced P179-R04-F1. These procedures, along with the identified impact control measures, have been taken into consideration when calculating the residual risk.

### 3.4 Risk Assessments

#### 3.4.1 Introduction

The tables set out below detail the risk assessments undertaken based on the methodology outlined above, for those activities and associated impacts where a 'RA' has been recorded in Tables 2.2.1 and 2.2.2.

#### 3.4.2 Table Key

P = Probability

S = Severity (Impact / Consequence)

R = Risk Level

1 = All contingency planning requirements are dealt with in the Environmental Accident Management Plan and associated procedures;

2 = No account of Health and Safety risk assessments (human receptors) have been considered.

3 = Applicable operating conditions: N – Normal; A – Abnormal; E – Emergency (accident).

#### 3.4.3 Assessment Tables

Table 3.4.1: Activity – Production							
Identification of Potential Risks <sup>1</sup>				Control Measures		Assessment	
Environmental Receptors	Risk and	Initiating Event	Condition N/A/E <sup>3</sup>	Risk Management Controls <sup>2</sup>	Residual Risk		
					P	S	R
<b>Surface Water</b> Wash down waters, leaks or spills to ground, ground water, sewer and surface water. The closest surface watercourse is a pond c.250 metres to the South West.		Building containment failure leading to significant spillage of materials, including wash waters that escape off site.	A/E	Production areas cleaned down by dedicated cleaning teams. Yard areas concreted and laid to fall to drainage system. Drains discharge to combined sewer. Regular monitoring of site infrastructure as part of EMS.	1	5	5
<b>Groundwater</b> Leaks or spills to ground, ground water		Building containment failure leading to significant spillage of materials, including wash waters that escape off site. Materials enter ground through hardstand/drain leaks	A/E	Production areas cleaned down by dedicated cleaning teams. Yard areas concreted and laid to fall to drainage system. Drains discharge to combined sewer. Regular monitoring of site infrastructure as part of EMS.	1	5	5
<b>Waste Production</b>		Production breakdowns leading to wastage.	A/E	Production equipment maintained as part of planned preventative maintenance programmes and under contracts where appropriate.	3	2	6

<b>Table 3.4.2: Activity – Drainage and Effluent Control</b>						
<i>Identification of Potential Risks<sup>1</sup></i>				<i>Control Measures</i>		<i>Assessment</i>
<b>Environmental Risk and Receptors</b>	<b>Initiating Event</b>	<b>Condition N/A/E<sup>3</sup></b>	<b>Risk Management Controls<sup>2</sup></b>	<b>Residual Risk</b>		
				<b>P</b>	<b>S</b>	<b>R</b>
<b>Odour - Humans.</b> The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.125 to the NNW.	Drain blockages left to degrade giving rise to odours.	A/E	New production areas cleaned down daily.	3	2	<b>6</b>
<b>Surface Water</b> Fugitive emissions to ground, ground water, sewer and surface water. All process effluent discharges to sewer network and none to surface water.	Leaks or spills could enter ground and groundwater, leading to surface waters	A/E	New drainage systems on site comprises foul/effluent drains for domestic and process effluent. Drains will form part of infrastructure monitoring programme within existing EMS. Housekeeping measures to ensure site kept clean and tidy. Drainage plan on site.	1	5	<b>5</b>
<b>Groundwater</b> Fugitive emissions to ground, ground water.	Failure of drainage containment leading to loss of materials from drains.	A/E	Regular monitoring of site infrastructure as part of EMS.	1	5	<b>5</b>
<b>Waste Production</b>	Wastes materials generated due to drain blockages.	A/E	New production areas cleaned down daily.	3	2	<b>6</b>

<b>Table 3.4.3: Activity – Waste &amp; ABP Storage</b>						
<i>Identification of Potential Risks<sup>1</sup></i>				<i>Control Measures</i>		<i>Assessment</i>
<b>Environmental Risk and Receptors</b>	<b>Initiating Event</b>	<b>Condition N/A/E<sup>3</sup></b>	<b>Risk Management Controls<sup>2</sup></b>	<b>Residual Risk</b>		
				<b>P</b>	<b>S</b>	<b>R</b>
<b>Odour - Humans.</b> The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.125 to the NNW.	Wastes / ABP could give rise to odorous releases. Applicable in both windy or in still conditions.	N/A/E	ABP removed from site approximately every 48 hours as a minimum. Trailers covered at the end of the working day. Implementation of Odour Management Plan on site.	2	3	<b>6</b>
<b>Surface Water</b> Fugitive emissions to surface water.	Spillage / leaks.	A/E	Site areas concreted, laid to fall to drainage system. Drains discharge to combined sewer. Spill kits provided. Site Areas inspected as part of EMS.	3	2	<b>6</b>

Table 3.4.3: Activity – Waste & ABP Storage							
Identification of Potential Risks <sup>1</sup>				Control Measures		Assessment	
Environmental Receptors	Risk and	Initiating Event	Condition N/A/E <sup>3</sup>	Risk Management Controls <sup>2</sup>	Residual Risk		
					P	S	R
<b>Groundwater</b> Leaks or spills to ground, ground water.		Spills or leaks from waste vessels. Failure of the concrete yard area or leaks in drains serving the yard areas, resulting in pollutants entering ground water	A/E	Yard areas clean down daily. Regular monitoring of site infrastructure Spill cleaned by yard staff. Spill kits provided. Areas inspected as part of EMS	2	4	8
<b>Waste Production</b>		Spillages during transfer / failure of containment will lead to spills of materials which may need to be cleaned up and disposed of as waste.	A/E	Waste areas inspected as part of EMS	3	2	6

Table 3.4.4: Activity – Waste & ABP Transfer and Collection							
Identification of Potential Risks <sup>1</sup>				Control Measures		Assessment	
Environmental Receptors	Risk and	Initiating Event	Condition N/A/E <sup>3</sup>	Risk Management Controls <sup>2</sup>	Residual Risk		
					P	S	R
<b>Odour - Humans.</b> The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.125 to the NNW.		Movement and handling of waste materials can give rise to odorous releases, particularly if spilled and left to degrade. Applicable in both windy or in still conditions.	N/A/E	Waste / ABP removed from site every 48 hours as a minimum.. Vehicles covered before leaving site Spills/Leaks cleaned. Spill kits provided. Areas inspected as part of EMS	2	3	6
<b>Noise - Humans.</b> The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.740m to the SSE.		Noise from site due to vehicles moving / unloading / loading, including the sound vibrating parts. Noise is more likely to be an issue in still conditions. Noise from poorly maintained vehicles.	N/A/E	Drivers instructed not to rev engines unnecessarily or accelerate excessively when leaving the site. Vehicles maintained under service contracts to minimise the potential of noise emissions from vibrating parts. Site speed limit.	4	2	8
<b>Surface Water</b> Fugitive emissions to ground, ground water, sewer and surface water.		Spillages / leaks	A/E	Site areas concreted, laid to fall to drainage system. Drains discharge to combined sewer. Spill kits on site Areas inspected as part of EMS	3	2	6
<b>Groundwater</b> Leaks or spills to ground, ground water		Spills or leaks from waste / ABP vessels. Failure of the hardstand or leaks in drains serving the Yard areas, resulting in pollutants entering ground water	A/E	Site areas concreted, laid to fall to drainage system. Drains discharge to combined sewer. Spill kits on site Areas inspected as part of EMS	2	4	8



Table 3.4.4: Activity – Waste & ABP Transfer and Collection							
Identification of Potential Risks <sup>1</sup>				Control Measures		Assessment	
Environmental Receptors	Risk and	Initiating Event	Condition N/A/E <sup>3</sup>	Risk Management Controls <sup>2</sup>	Residual Risk		
					P	S	R
Waste Production		Spillages during transfer / failure of containment will lead to spills of materials which may need to be cleaned up and disposed of as waste.	A/E	Waste areas inspected as part of EMS	3	2	6

Table 3.4.5: Activity – Refrigeration Systems							
Identification of Potential Risks <sup>1</sup>				Control Measures		Assessment	
Environmental Receptors	Risk and	Initiating Event	Condition N/A/E <sup>3</sup>	Risk Management Controls <sup>2</sup>	Residual Risk		
					P	S	R
<b>Odour</b> - Humans. The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.125 to the NNW.		Refrigeration system breakdown resulting in process materials / products being left to degrade.	A/E	Refrigeration systems maintained as part of planned preventative maintenance programme under contract.	1	4	4
<b>Noise</b> - Humans. The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.740m to the SSE.		Noise from the refrigeration units. Poorly maintained fans, pumps, compressors.	A/E	Refrigeration equipment maintained as part of planned preventative maintenance programme by site engineers and under service contract to ensure minimal noise potential from moving and vibrating parts. Refrigeration systems housed internally.	2	4	8
<b>Fugitive Releases to Air</b> Gaseous Refrigerants used on site		Leak from the refrigeration systems resulting in escaped gases into atmosphere.	A/E	Refrigeration systems maintained as part of planned preventative maintenance programme by site engineers and under service contract.	1	4	4

Table 3.4.6: Activity – Delivery, Site and Dispatch Vehicles							
Identification of Potential Risks <sup>1</sup>				Control Measures		Assessment	
Environmental Receptors	Risk and	Initiating Event	Condition N/A/E <sup>3</sup>	Risk Management Controls <sup>2</sup>	Residual Risk		
					P	S	R
<b>Noise</b> - Humans. The closest human occupied receptors are c. 20 m from the installation boundary to the N. The closest residential receptors are c.740m to the SSE.		Noise from site due to vehicles moving / unloading / loading. Noise is more likely to be an issue in still conditions. Noise from poorly maintained vehicles.	N/A/E	Drivers instructed not to rev engines unnecessarily or accelerate excessively when leaving the site. Vehicles maintained under service contracts to minimise the potential of noise emissions from vibrating parts. Site speed limit.	3	2	6

<b>Table 3.4.6: Activity – Delivery, Site and Dispatch Vehicles</b>						
<i>Identification of Potential Risks<sup>1</sup></i>				<i>Control Measures</i>		<i>Assessment</i>
<b>Environmental Receptors</b>	<b>Risk and Initiating Event</b>	<b>Condition N/A/E<sup>3</sup></b>	<b>Risk Management Controls<sup>2</sup></b>	<b>Residual Risk</b>		
				<b>P</b>	<b>S</b>	<b>R</b>
<b>Surface Water</b> Leaks or spills to ground, ground water that lead to surface water.	Delivery / collection vehicle containment failure or collision leading to significant spillage of materials, including vehicle fuels and oils.	A/E	Provision of spill kits at delivery and collection points. Vehicles maintained under service contracts. All site roads covered by concrete. Site speed limit. Interceptors in surface drainage system Regular monitoring of site infrastructure as part of EMS	2	4	<b>8</b>
	Fuel / oils leaking from parked vehicles.	A/E	Provision of spill kits at delivery and collection points. Vehicles maintained under service contracts. All site roads covered by concrete. Site speed limit. Interceptors in surface drainage system Regular monitoring of site infrastructure as part of EMS	2	4	<b>8</b>
<b>Groundwater</b> Leaks or spills to ground, ground water	Delivery / collection vehicle containment failure or collision leading to significant spillage of materials, including vehicle fuels and oils.	A/E	Provision of spill kits at delivery and collection points. Vehicles maintained under service contracts. All site roads covered by concrete. Site speed limit. Regular monitoring of site infrastructure as part of EMS	2	4	<b>8</b>
	Fuel / oils leaking from parked vehicles.	A/E	Provision of spill kits at delivery and collection points. Vehicles maintained under service contracts. All site roads covered by concrete. Site speed limit. Regular monitoring of site infrastructure as part of EMS	2	4	<b>8</b>
<b>Waste Production</b>	Failure of vehicle containment will lead to spills of materials which need to be cleaned up and disposed of as waste.	A/E	Site speed limit.	1	4	<b>4</b>

## 4 Detailed Operational Impact Assessment

---

### 4.1 Introduction

As set out in the screening assessment above a number of activities are deemed as requiring a detailed assessment of their impacts under normal operations. This section of the report sets out the assessment methodology and the impact calculations for each of these aspects.

### 4.2 Impacts Assessed

The Tables 2.2.1 and 2.2.2 in Section 2 set out the initial screening assessment to determine which combinations of operations and potential impacts warrant further assessment. The screening assessment has identified the following emissions that require detailed assessment of their potential impacts:

- Waste generated from the production process;
- GWP / POCP from the production process and boilers.

The methodologies used to undertake these detailed assessments have been provided in further detail below.

As stated above in Section 1.2, the approach in determining impacts follows the detailed guidance provided and in the old H1 annexes. In this particular instance, it was not felt necessary to use the H1 software tool: several potential impacts were shown by the ERA not to require further assessment and the wastes are almost exclusively sent for recovery which attracts an insignificant evaluation.

#### 4.2.1 Waste

The waste streams produced from the site's new operations have been established within the Installation Information report. The identified waste streams have then been assessed using the scoring system provided on the Environment Agency's .gov website [https://www.gov.uk/guidance/select-a-waste-recovery-or-disposal-method-for-your-environmental-permit#:~:text=incineration%20\(with%20energy%20recovery\)%20%2D,%20D3%2C%20D12%20%2D%20score%2017](https://www.gov.uk/guidance/select-a-waste-recovery-or-disposal-method-for-your-environmental-permit#:~:text=incineration%20(with%20energy%20recovery)%20%2D,%20D3%2C%20D12%20%2D%20score%2017).

#### 4.2.2 GWP and POCP

The Global Warming Potential (GWP) and Photochemical Ozone Creation Potential (POCP) have been calculated from direct emissions from the facility and the indirect emissions from the use of energy detailed within the Installation Information report. The GWP and POCP have been calculated using factors provided within the Environment Agency's H1 Annex H guidance note where available. Where other factors have been used, these have been referenced accordingly.

### 4.3 Waste

#### 4.3.1 Waste Streams

Table 4.1 below identifies the waste streams produced on-site and scores them based on the system outlined on the Environment Agency's .Gov website. Animal By-Product (ABP) have been included within the assessment below for completeness.

Table 4.1: Waste Inventory and Assessment							
E.W.C / Waste	Origin	Nature of the Wastes	Annual Volumes (t / yr)	Waste hierarchy - Recovery / Disposal Option (Description and Code)	Nature of the Waste .Gov Score	Disposal / Recovery Option . Gov Score	Score (Volume x Nature x Option)
02.02.02	Animal By-Product	Production	Unknown. Anticipated to be a slight increase on current levels due to expanded cutting / processing operations.	R3 Licensed recovery/treatment			Not assessed further due to minimal quantities expected to be produced and the fact that material sent for recovery and therefore insignificant.
20.03.01	General Waste	Canteen wastes, other non-hazardous waste streams.	Unknown. Anticipated to be a slight increase due to domestic facilities provided within the new building / expanded processing operations.	D5 – Landfill			Not assessed further due to unknown quantities. Considered insignificant due to minimal quantity anticipated to be produced.
15.01.01	Paper & Cardboard	Mostly packaging waste	Unknown. Anticipated to be a slight increase on current levels due to expanded cutting / processing operations.	R3 – Paper recyclers			Not assessed further due to unknown quantities and fact that material sent for recovery and therefore insignificant.

A review of wastes will be undertaken as required in the timescales specified in the Environmental Permit to provide a complete assessment of waste recovery. The review will be able to quantify any increases in wastes produced because of expanded site operations.

## 4.4 Global Warming and Photochemical Ozone Creation Potential

### 4.4.1 Introduction

Both the direct emissions from the facility and the indirect emissions from the use of energy have global warming potential (GWP) and these need to be calculated along with the Photochemical Ozone Creation Potential (POCP) of the site.

### 4.4.2 Assessment

The table below outlines the GWP and POCP of the site based on the estimated energy consumption provided within the P179-R01-F1 – Installation Information Report.

This application relates to proposed increases in production capability at the site and the energy consumption values have been estimated from the existing annual values. The annual energy quantities used to derive GWP and POCP values and their derivation are listed in Report P179-R01-F1 and are:

- Electricity = 2175 MWh

Emission factors have been applied where necessary to the energy data which has then been converted to show GWP as a tonnes / year (t / yr) CO<sub>2</sub> equivalent. The calculations and references to the applicable factors have been shown in the table below along with a summary of the total GWP.

Table 5.1 – Global Warming Potential Assessment								
Energy Source	Quantity of Fuel Used	Delivered Energy (MWh)	Primary Energy (MWh)	GWP CO <sub>2</sub> (tonnes)	N <sub>2</sub> O (GWP t CO <sub>2</sub> equivalent)	VOC (GWP as t CO <sub>2</sub> equivalent)	Total GWP (t / yr CO <sub>2</sub> Equivalent)	Total POCP (kg / yr)
Electricity		2260	5424	900			900	
Reference Factors								
Electricity	Electricity converted to primary energy factor of 2.4;							
	Electricity converted to CO <sub>2</sub> apply EA's H1 factor 0.166 t / MWh Primary							

## 5 Conclusions

---

### 5.1 Summary

The H1 - Environmental Screening Assessment has identified those processes and activities on site that have the potential to create an environmental impact on identified environmentally sensitive receptors, under normal, abnormal and emergency (accident) scenarios.

The results Environmental Screening Assessment has been summarised in Table 5.1 below.

<b>Table 5.1 Assessment Summary</b>	
<b>Possible Impact</b>	<b>Significance / Further Assessment</b>
Amenity (litter / vermin / mud / fire)	Insignificant impact, no further assessment required.
Odour	Insignificant impact, no further assessment required.
Noise	Insignificant impact, no further assessment required.
Fugitive Air Releases	Insignificant impact, no further assessment required.
Surface Water	Insignificant impact, no further assessment required.
Groundwater	Insignificant impact, no further assessment required.
Air	Insignificant impact, no further assessment required.
Waste Produced	Insignificant impact, no further assessment required.
Global Warming Potential (GWP) / Photochemical Ozone Creation Potential (POP).	Values calculated.