Environmental Risk Assessment for Waste4Generation Corby

High-Rate AD, Feedstock Generation and R&D Facility

Waste4Generation Ltd

12B Earlstrees Road, Corby, Northamptonshire

NN17 4AZ

Introduction

This report sets out to define the risk assessment for the following: Noise and vibration; odour; particulate matter; litter, birds, vermin and insects; and mud on the road. The risk screening approach as set out in the Environment Agency's publication H1 Guidance and H1 Annex A 'Amenity & Accident Risk from Installations & Waste Activities, has been used as the basis for this work as well as other Annex guidance provided by the Environment Agency. This risk assessment has been developed to address the hazards and management methods for the materials to be treated at the High-Rate Anaerobic Digestion Facility at 12B Earlstrees Road, Corby, NN17 4AZ. With the upgrading of the site's permit, Waste4Generation has undertaken external odour, bunding & drainage, bioaerosol and noise & vibration assessments which determined minimal risk from the facility with the precautionary measures taken/proposed on expansion. In regard to pests & vermin, the site has an external management company, who assess and monitor the site's needs to keep the site pests and vermin free.

Risk Identification Matrix

A copy of the completed matrices is available in Appendix (Appendix 1, 2 & 3) for Annex A: Amenity & Accident Risk from installations & waste activities.
This assessment primarily focuses to assess the risks from the following:

- Odour
- Litter & Vermin
- Visible Plumes
- Noise & Vibration
- Fugitive Emissions
- Accidents

The site itself will have no visible plumes. In particular there are found to be no possibility of significant risks with the remaining parameters assessed. A complete Odour Management Plan has been produced to access and mitigate potential odours. A copy of the Odour Management Plan is available in the site office.

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Roller Shutter Doors (1)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Standard operating procedures. Warehouse is to be kept clean as per cleaning schedule. There is an odour barrier (plastic sheeting) in place when doors open. Doors are only to be opened when receiving loads into warehouse. The feedstock manager and site director are responsible for ensuring that the cleaning and unloading procedures and in place, carried out and inspected.	Low	Odour Annoyance	Low
Odour	Solids Bay (1)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Standard operating procedures. Solids bay to be emptied out and cleaned daily. Deep clean using ozone disinfection weekly. The doors of the solids bay are only opened to received loads. The feedstock manager and site director are responsible for ensuring that the cleaning and unloading procedures are in place, carried out and inspected.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	RT1 Loading Bay	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Any spillages cleaned up immediately and disinfected with nano-bubble/ozone treated water. Waste unloaded using RT1 reception pump. If the tanker pump is used, the off gases are connected to the odour abatement facility. The feedstock manager and site director are responsible for ensuring that the cleaning and unloading procedures are in place, carried out and inspected.	Low	Odour Annoyance	Low
Odour	Roller Shutter Doors (2)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Standard operating procedures. Warehouse is to be kept clean as per cleaning schedule. There is an odour barrier (plastic sheeting) in place when doors open. Doors are only to be opened when receiving loads into warehouse. The feedstock manager and site director are responsible for ensuring that the cleaning and unloading procedures and in place, carried out and inspected.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Onsite Pumping Stations	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Pumping station is fully enclosed, is emptied daily and washed down daily. Weekly, it is emptied and cleaned with nano bubble/ozone treated water. Weekly checks on the pumps. Onsite spares and a petrol pump back up. Standard operating procedures. Warehouse to be kept clean with cleaning schedule. Feedstock manager and site director are responsible for ensuring that the cleaning and unloading procedures are in place, carried out and inspected.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Odour Scrubber (Centralised Odour Abatement System)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Sodium hypochlorite dosing optimised. Daily checks. Operational parameters & reactor design to minimise any dissolved methane concentration within the effluent. Upgraded to a site management treatment facility utilising nano bubble & ozone technology. Peroxide dosing will also be implemented as required. Scheduled cleaning including de-sludging and pump maintenance carried out weekly. Technical responsible for the odour treatment performance.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Feedstock Reception	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Acceptance Procedures, Sealed tanks within bunded area. Onsite pump to remove waste from tanker. Tanker displaced air to be connected to the centralised odour abatement system. Dedicated and inspected fit for purpose hoses. Competent & qualified haulage contractors. Competent and experienced operators. Spillages cleaned up & disinfected immediately. Feedstock manager and site director responsible that scheduled checks and maintenance are completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	RT2 Reception	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Acceptance Procedures, Sealed tanks within bunded area. Onsite pump to remove waste from tanker. Tanker displaced air to be connected to the centralised odour abatement system. Dedicated and inspected fit for purpose hoses. Competent & qualified haulage contractors. Competent and experienced operators. Spillages cleaned up & disinfected immediately. Feedstock manager and site director responsible that scheduled checks and maintenance are completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Flares	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Both standby and back-up flares onsite. Should the standby failure, the back-up flare will kick in. If either flare fails operationally, feeding will already be reduced or stopped to minimise gas production whilst the CHP is not in operation. Should both flares fail, the AD process will be stopped. AD plant manager and site director responsible for flare operation and performance.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	CHP	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Biogas scrubbing. High efficiency engine. Emissions with EU emissions limits. Complete combustion. High quality gas with 70+% methane and low H_2S concentration. Emissions monitoring in line with BAT & permit requirements. The biogas scrubber utilises high efficiency dry media for H_2S removal. Regular scheduled media changes and operational checks. Feedstock manager and site director responsibility to ensure that scheduled checks and maintenance are completed.	Low	Odour Annoyance	Low
Odour	ABP/MBT	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Sealed Tank. Connected to carbon scrubbers for treatment of displaced air. Acceptance & rejection procedures. Blending of waste testing prior to acceptance. AD plant and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Main Break Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Enclosed Tanks. SCADA control. Displaced air treated via a carbon scrubber.	Low	Odour Annoyance	Low
Odour	Reactor 1 (Nano Bubble Treatment)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	The nano bubble unit can be replaced by the onsite compressor where required. Scheduled maintenance. Reduce or stop incoming loads for AD processing. Spare & replacement parts onsite. AD plant manager and & site director responsibility to oversee and ensure operational.	Low	Odour Annoyance	Low
Odour	Reactor 6 Feedstock Storage	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Carbon scrubber checks daily and weekly. All covers securely in place. Quarterly emptying and disinfection using ozone and nano bubble treated water. Fully empty if odour becomes detectable. Feedstock manager and site director responsibility to ensure scheduled checks and maintenance are completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Grey Feedstock Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Carbon scrubber daily & weekly checks. All covers and lids securely in place. Quarterly empty and disinfection with ozone / nano-bubble treated water. Fully empty is odour becomes detectable. Feedstock manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low
Odour	Gold Feedstock Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Carbon scrubber daily & weekly checks. All covers and lids securely in place. Quarterly empty and disinfection with ozone / nano-bubble treated water. Fully empty is odour becomes detectable. Feedstock manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	White Feedstock Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Carbon scrubber daily & weekly checks. All covers and lids securely in place. Quarterly empty and disinfection with ozone / nano-bubble treated water. Fully empty is odour becomes detectable. Feedstock manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low
Odour	R&D Plant for Leachate, Complex Wastes & FOGs	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Carbon Scrubber, Bunded Area, Site Cleaning Procedures. Connected to the centralised odour abatement system. Sealed tanks. Nano bubble & ozone technology. Competent & experienced operatives. Immediate repair of equipment and cleaning & disinfection of spillages. AD plant manager and sire director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Reactor PRVs	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Enclosed tanks. SCADA control & alarms. Ferric treatment of sulphides. Pre-acceptance & acceptance procedures. Selected waste streams to produce minimal odours. Carbon scrubbers. Operational Flare & CHP. Back-up flare & additional gas storage. AD plant manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low
Odour	Reactor Overflows	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	SCADA system, Operational Flare, CHP, Water traps & PRVs. Back-up flares. AD plant manager and site directors' responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low
Odour	Inlet DAF	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Enclosed DAF system. Daily cleaning to prevent build-up of waste. Regular cleaning and emptied weekly to prevent build-up of residues. AD plant manager and site directors' responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	DAF Break Tank (1)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	DAF break tank is a sealed unit. Sludges and residues are emptied weekly. This tank is to be cleaned out monthly and disinfected with ozone / nano bubble treated water. Off-gases are connected to activated carbon scrubber. AD plant manager and site director responsibility to schedule checks and ensure maintenance is carried out.	Low	Odour Annoyance	Low
Odour	Effluent DAF (2)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Plastic covered sheet. Daily de-sludging. Weekly the unit is to be emptied and disinfected. The influent has been treated via ozone/nano-bubble technology plus peroxide/polymer/coagulant/flocculant and has been pH corrected to achieve final effluent discharge consent. AD manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Complex DAF (3)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Plastic covered sheet. Daily de-sludging. Weekly emptied & disinfected. AD manager and site director responsibility to schedule checks and ensure maintenance is completed.	Medium	Odour Annoyance	Low
Odour	FOG Storage Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Sealed tank. The off gases are treated via a carbon scrubber and the odour abatement system. Monthly emptying and disinfection using nano bubble / ozone treated water. AD manager and site director responsibility to schedule checks and ensure maintenance completed.	Low	Odour Annoyance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	DAF 3 Break Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	The DAF break tank is sealed. Sludges and residues emptied weekly. Clean out and disinfected monthly using ozone / nano bubble treatment. The off gases are treated via a carbon scrubber and the odour abatement system. AD manager and site director responsibility to schedule checks and ensure maintenance completed.	Low	Odour Annoyance	Low
Odour	Heating Oil Storage Tank	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Sealed unit. AD manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low
Odour	Boiler	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	The boiler is regularly services as per recommended service schedule. Set up to comply with emission standards. AD manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

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Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	TF1 Tank Farm	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Double bunded sealed tank. Clean out and disinfected monthly using nano bubble / ozone treated water. Off-gases are connected to a carbon scrubber. Feedstock manager and site director responsibilities to schedule checks and ensure maintenance completed.	Low	Odour Annoyance	Low
Odour	TF9 Tank Farm	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Double bunded sealed tank. Clean out and disinfected monthly using nano bubble / ozone treated water. Off-gases are connected to a carbon scrubber. Feedstock manager and site director responsibilities to schedule checks and ensure maintenance completed.	Low	Odour Annoyance	Low
Odour	Site Drainage – Operations	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Water	Bunded area. Site Cleaning Procedures. Regular de-gritting & cleaned out.	Low	Odour Annoyance	Low

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Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Odour	Tanker Washdown - Operations	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Water	No highly contaminated vehicles permitted on to site. Non-conformance raised for contamination. Where required, washdown on arrival and prior to departure within bunded area. DEFRA approved disinfectants. Site Cleaning Procedures. Feedstock manager and site director responsibilities to schedule checks and ensure maintenance completed.	Low	Odour Annoyance	Low
Odour	Treated effluent - Operations	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Water	Enclosed discharge point (no access to air or water) Process parameters. Daily site checks. Chemically treated by sodium hypochlorite, hydrogen peroxide, nano bubble & ozone (where required). AD plant manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Odour Annoyance	Low

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Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Litter & Vermin	Rubbish & Excrement	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air/Water	Daily site inspection. Pest control service contract is in place. PPE, cleaning and disinfection procedures in place. Immediate cleaning up of spillages. All waste and products stored within sealed vessels. Feedstock manager and site director	Low	Odour Annoyance, Environmental Contamination, Risk to Health	Low
Visible Plumes	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Noise & Vibration	Tanker Reception	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Engine noise. Located on and industrial estate. Procedures to minimise time required at waste reception. Utilising waste reception pump will minimise the time for waste being loaded & unloaded. Tanker reception will only take place during operational hours. Feedstock manager and site director responsibility to schedule checks and ensure maintenance completed.	Medium	Noise Nuisance	Low

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Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Noise & Vibration	CHP	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Engine acoustically insulated. Noise survey to determine CHP not above the surrounding baseline level. Noise & vibration risk assessment found not be significant. AD plant manager and site director responsibility to schedule checks and ensure maintenance completed.	Low	Noise Nuisance	Low
Noise & Vibration	Pumps & machinery	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Energy efficient pumps on skids, noise survey and noise & vibration risk assessment completed. Pumps are housed and positive displacement pumps will not be audible beyond the site boundary. Maintenance manager is responsible for ensuring all repairs, spares and maintenance is up to date, scheduled and completed.	Low	Noise Nuisance	Low

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Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Noise & Vibration	Onsite Telehandler (Forklift)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Intermittent operation. Noise from forklift movements within supplier design parameters. Operated only during operational hours. AD plant manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Noise Nuisance	Low
Noise & Vibration	Engineering works	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Minimal engineering / civils works in site preparation. Minimal maintenance required of the plant. (No heavy machinery required for maintenance). Works will take place only during operational hours. The maintenance manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Noise Nuisance	Low
Noise & Vibration	Check noise & vibration assessment	Industrial, Commercial, Domestic, Public, Footpath, & Roads. All staff.	Air	The maintenance manager and site director responsibility to schedule checks and ensure maintenance is completed.	Low	Noise Nuisance	Low

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Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Fugitive Emissions	Pests	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site cleaning procedures. Enclosed system & tanks. External pest management company (including bait boxes where appropriate). Routine checks by pest management company. Should pests be spotted, this is escalated to the pest management company, and the management / eradication is escalated. Site director and feedstock manager responsibility for ensuring site compliance and safety.	Low	Potential complaints from local receptors & potential adverse effects to health	Low
Fugitive Emissions	Vermin	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site cleaning procedures. Enclosed system & tanks. External pest management company (including bait boxes where appropriate). Routine checks by pest management company. Should pests be spotted, this is escalated to the pest management company, and the management / eradication is escalated. Site director and feedstock manager responsibility for ensuring site compliance and safety.	Low	Potential complaints from local receptors & potential adverse effects to health	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Fugitive Emissions	Birds	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site cleaning procedures. Enclosed system & tanks. External pest management company (including bait boxes where appropriate). Routine checks by pest management company. Should pests be spotted, this is escalated to the pest management company, and the management / eradication is escalated. Site director and feedstock manager responsibility to ensure site compliance and safety.	Low	Potential complaints from local receptors & potential adverse effects to health	Low
Fugitive Emissions	Insects	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site cleaning procedures. Enclosed system & tanks. External pest management company (including bait boxes where appropriate). Routine checks by pest management company. Should pests be spotted, this is escalated to the pest management company, and the management / eradication is escalated. Site director and feedstock manager responsibility to ensure site compliance and safety.	Low	Potential complaints from local receptors & potential adverse effects to health	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Fugitive Emissions	Dust (Vehicle Movements)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site Cleaning Procedures. Wheel washing of incoming tankers (where required). Rejection of contaminated tankers. Site director and feedstock manager responsibility for ensuring site compliance and safety.	Low	Nuisance & complaints from local receptors	Low
Fugitive Emissions	Dust (Mud on Incoming Tankers)	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site Cleaning Procedures. Wheel washing of incoming tankers (where required). Rejection of contaminated tankers. Site director and feedstock manager responsibility for ensuring site compliance and safety.	Low	Nuisance & complaints from local receptors	Low
Fugitive Emissions	Litter	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air / Land	Site Cleaning Procedures. Primarily treat liquid waste. Solid wastes non contaminated. No de-packaging or shredding undertaken onsite. No source of litter. Lidded refuse & recycling bins. Site director and feedstock manager responsibility for ensuring site compliance and safety.	Low	Nuisance & complaints from local receptors	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Fugitive Emissions	Raw material release to Air	Industrial, Commercial, Domestic, Public Footpath & Roads. All staff.	Air	Enclosed system. Site cleaning procedures. Direct tanker connection to reception tanks. Unloading & loading equipment fit for purpose and regularly inspected. Site director, feedstock manager and AD plant manager responsibility for ensuring site compliance and safety. Site director, feedstock manager and AD plant manager responsibility for ensuring site compliance and safety.	Low	Nuisance & complaints from local receptors	Low
Fugitive Emissions	Uncontrolled Run-Off	*Sewer & Surface Water run-off*	Air / Land	Reception area fully bunded. All run-off & spills collected and pumped to reception tank. Separate surface water run-off. Back-up pumps & bund capacity. High level bund alarm. CIRIA 736 assessment. Site director, feedstock manager and AD plant manager responsibility for ensuring site compliance and safety.	Medium	Nuisance & complaints from local receptors	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Flooding	Plant & Process, System Operation	Air / Land	Site is situated in a Flood Risk Zone 1, with less than a 1 in 1000 annual probability of river/sea flooding (<0.1%). Plant is designed to be operated outdoors. IP55, 56, 65 & 66 depending on location. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Low	Plant temporary shutdown. Risk to staff determined.	Low
Accidents	Vandalism	Plant & Process, System Operation	Land	Two sets of access gates to reach plant & equipment. SCADA controlled panel within locked control room. CCTV and alarms onsite and external lighting. Remote monitoring and onsite security. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Low	Plant temporary shutdown. Risk to staff determined.	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Fire	Staff, Local receptors, plant & process, system operation.	Air	Non-smoking site. Flammable chemicals stored according to regulations. Oil stored in suitable bunded tanks. DSEAR study undertaken. Fire procedures in place instigated by emergency team / site manager. Fire risk assessment and prevent plan. Fire marshal training for staff. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Low	Smoke, local nuisance, risk of fire spreading to other areas or premises.	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Transferring of material (loading/unloading)	Industrial, Commercial, Domestic, Public Footpath & Roads (Potential Odours) Staff on site.	Air / Land	Acceptance / reception procedures, all transfers supervised by operatives. Reception in a bunded area, spills will be cleaned up immediately and according to site cleaning procedures. Leaks to be isolated and plant maintenance undertaken immediately as per contingency plans. Fit for purpose equipment, regularly inspected. Competent and trained operatives. The use of site pumps will eliminate odours discharge from the tankers whilst transfers are taking place. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Low	Odour Annoyance / Contamination / Nuisance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Overfilling of tanks	Spillages, odour & contamination	Air / Land	All tanks fitted with tank level transmitters which are connected to SCADA with alarms and pump control. The loading will be supervised by a trained operative. Level transmitter cleaned and manually verified weekly. Tanks interconnected to minimise overfilling. Tanker's volumes & weights determined prior to unloading into tanks. Tank levels checked to ensure sufficient available capacity to accept the load. Competent operatives. High level alarms. Spillages immediately cleaned up & disinfected. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Low	Odour annoyance / Contamination / Nuisance	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Plant or Equipment Failure	Industrial, Commercial, Domestic, Public Footpath & Roads (Potential Odour). Staff on site	Air / Land	Contingency Plans. Key spares on site. Isolation of critical equipment. Failsafe procedures in place (HAZOP). Plant fails safe. Competent staff on site. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Low	Odour Annoyance / Contamination / Nuisance	Low
Accidents	Wrong Connections (Drains / other systems)	Spillages, Water and contamination (odour)	Water	Site drainage diagrams kept on site. Domestic sewage, surface run-off and trade effluent connections all verified with Anglian Water. Tanker connection to reception tank all directed, signposted and supervised by plant operators. Site bunded off, nothing gets discharged without approval. Site director, feedstock manager, AD plant manager responsibility to ensure site compliance and safety.	Extremely Low	Contamination of Surface Water	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Poor Storage Arrangement of Hazardous Chemicals	Staff, Local Receptors, Contamination	Air / Land / Water	All chemicals stored either in bunded chemical tanks (trace heating where required). Chemicals delivered in IBCs stored in individual IBC bunds. MSDS and handling instructions of all chemicals strictly adhered to. All staff COSHH trained. Minimum volumes and strengths kept on site. Technical director & site director responsibility for the correct storage and use of all onsite chemicals.	Low	Chemical storage, risk to staff.	Low

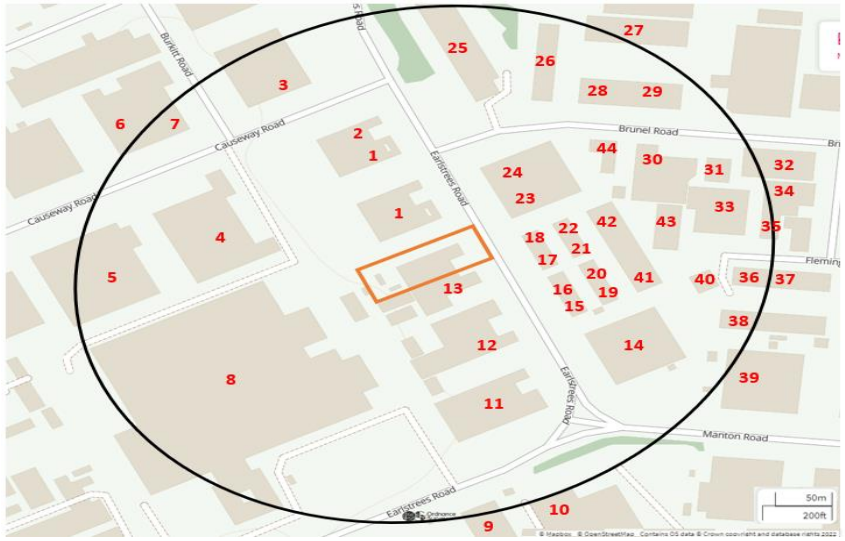
Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Incompatible substances coming into contact	Reaction of harmful substances, such as the liberation of chlorine gas from contact of ferric chloride and sodium hypochlorite.	Air	Ensuring that no mixing of chemicals is done. No transfer between tanks or IBC's, no use of attachments without first flushing lines. Spill procedures and chemical handling in place. Chemicals to be dosed directly into line, to mix with effluent. Sufficient mixing with effluent should occur before the addition of chemicals. Technical training and supervision. Qualified and competent technical staff. Technical director & site director responsibility for the correct storage and use of all onsite chemicals.	Medium	Dangerous to staff. Plant close until remediated.	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Unwanted reactions / runaway reactions	Blending of wastes which could react, foam, crystallise etc.	Air / Water / Land	Blending procedures in place for incoming wastes following pre-acceptance analysis. No blending of new waste streams. Every waste stream and blend are tested in the lab prior to onsite processing. Technical director & site director responsibility for the correct storage and use of all onsite chemicals.	Low	Inefficiency or inhibition of AD process. Potential contamination of waste streams. Spillage.	Low

Environmental Risk Sector	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Odour, Litter & Vermin, Visible Plumes, Noise & Vibration, Fugitive Emissions & Accidents	*What has the potential to cause harm?*	*What is at risk? What do I wish to protect?*	*How can the hazard reach the receptor?*	*What measures will you take to reduce the risk? If it occurs, who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence*
Accidents	Emission of an effluent without adequately checking its composition.	Breach of trade effluent consent.	Water / discharge	All final effluent will be sampled at least daily to ensure trade effluent consent compliance. Plant will be placed on recirculation should the parameters be outside of consent, to allow for further treatment, to prevent discharge of effluent likely to breach. The effluent has continually analysis through the process and is treated via a number of processes. Competent and trained staff. Technical and site directors' responsibility to ensure the correct storage and use of all onsite chemicals.	Low	Breach of trade effluent consent. Plant closure.	Low

Potential Receptors

The site is located within a well-established industrial estate where there are existing waste management and anaerobic digestion facilities, as well as numerous sources of both odour and potential waste streams. The properties on either side of the proposed site are both fabrication & polymer processing companies and are the most likely receptors to be affected by the plant operations. The closest residential property is situated more than 420 metres to the west, however there are numerous sensitive receptors within 250m of the site.



The area is within close proximity to an already operational AD plant as well as numerous waste management facilities as well as waste & odour generating activities. Since the site's re-opening in May 2021, the site has been undertaking substantial upgrade works and re-commissioning works. One of the key aspects of the upgrade works being undertaken is to upgrade our odour abatement systems to BAT requirements and reduce potential odour nuisance to our neighbours and receptors. The site is located in the middle of an industrial estate. There are a significant number of industrial and commercial properties situated within 500 metres of the site. The nearest domestic property is more than 420 metres away to the West. The majority of risks highlighted should not affect the neighbouring properties even if operating outside the standard operating parameters, therefore it is highly unlikely that the domestic properties will ever be affected by the plant operation. The Environmental Risk Assessment will be re-reviewed following plant commissioning to ensure all risks are mitigated.

Environmental Risk Assessment Matrix (Odour)

Risk Type	Odour Hazard																																						
Generic Receptors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
Domestic Dwelling																																						
Schools & Colleges																																						
Hospitals																																						
Offices & Commercial Premises																																						
Industrial Premises																																						
Public Footpath & Bridleway																																						
Highways or Roads																																						
Parks & Public Open Spaces																																						
Farmland & Livestock																																						
Farmland Arable																																						
Nature Reserve (Local)																																						
Special Areas of Conservation (2k)																																						
Special Conservation (5k)																																						
Special Conservation (10k)																																						
Railway																																						
Airport																																						
Surface Water																																						

Environmental Risk Assessment Matrix (Noise)

Risk Type	Noise & Vibration				
Generic Receptors	Tanker Reception	CHP	Pumps & Machinery	Engineering Works	Noise & Vibration Assessment
Domestic Dwelling					
Schools & Colleges					
Hospitals					
Offices & Commercial Premises					
Industrial Premises					
Public Footpath & Bridleway					
Highways or Roads					
Parks & Public Open Spaces					
Farmland & Livestock					
Farmland Arable					
Nature Reserve (Local)					
Special Areas of Conservation (2k)					
Special Conservation (5k)					
Special Conservation (10k)					
Railway					
Airport					
Surface Water					

Environmental Risk Assessment Matrix (Fugitive Emissions)

Risk Type	Fugitive Emissions									
Generic Receptors	Pests	Vermin	Birds	Insects	Dust (Vehicle Movements)	Dust (Mud on Incoming Tankers)	Litter	Raw Material Release to Air	Uncontrolled Run-Off	Rubbish / Animal Excrement
Domestic Dwelling										
Schools & Colleges										
Hospitals										
Offices & Commercial Premises										
Industrial Premises										
Public Footpath & Bridleway										
Highways or Roads										
Parks & Public Open Spaces										
Farmland & Livestock										
Farmland Arable										
Nature Reserve (Local)										
Special Areas of Conservation (2k)										
Special Conservation (5k)										
Special Conservation (10k)										
Railway										
Airport										
Surface Water										

Environmental Risk Assessment Matrix (Accidents)

Risk Type	Accidental Hazards											
Generic Receptors	Flooding	Vandalism	Fire	Transfer of Material	Overfilling of Tanks	Plant or Equipment Failure	Wrong Connection	Poor Storage of Hazardous Chemicals	Incompatible Substances	Unwanted Reactions	Emission of Effluent	
Domestic Dwelling												
Schools & Colleges												
Hospitals												
Offices & Commercial Premises												
Industrial Premises												
Public Footpath & Bridleway												
Highways or Roads												
Parks & Public Open Spaces												
Farmland & Livestock												
Farmland Arable												
Nature Reserve (Local)												
Special Areas of Conservation (2k)												
Special Conservation (5k)												
Special Conservation (10k)												
Railway												
Airport												
Surface Water												