



Accident Management Plan - EPR/JP3925SN/P001

Glentham Anaerobic Digestion Plant

Glentham Green Energy Limited

CRM.0166.001.PE.R.010



Contact Details:

Enzygo Ltd. (Bristol Office)
The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

tel: 01454 269237
email: steph.charnaud@enzygo.com
www: enzygo.com

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For:	Glenthams Green Energy Limited
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Author:	Daniel Mills, Senior Permitting Consultant
Reviewer:	Peter Cumberlidge, Director

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Registered Office: Gresham House, 5-7 St. Pauls Street, Leeds, England, LS1 2JG

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1.0 Introduction

1.1 Purpose and Scope

1.1.1 This Accident Management Plan (AMP) has been prepared as part of the Bespoke Environmental Permit application, being applied for by Glentham Green Energy (the 'Operator') at Glentham Anaerobic Digestion Plant, Barff Lane, Glentham, Lincolnshire, LN8 2EY (the 'Facility').

1.1.2 This AMP has been written to be used as a working document for the operational staff on a day-to-day basis. It identifies accidents that that could result in pollution or harm to human health and describes the likelihood and consequence of potential incidents occurring. It then specifies the measures taken to avoid such incidents occurring and the measures taken to minimise the impacts if an incident were to occur. It also provides details on how incidents and breaches of the Permit will be recorded, investigated, and remediated.

1.1.3 This AMP will be transposed into the Facility's Environmental Management System (EMS) once approved by the Environment Agency (EA). The AMP will be updated and reviewed in accordance with the requirements of the Facility's management systems.

1.2 Relevant Guidance

1.2.1 This AMP has been prepared in line with the following relevant guidance:

- Environmental Permitting (England & Wales) Regulations 2016 (as Amended);
- Environment Agency Guidance – Risk assessments for your environmental permit, published 1st February 2016 (updated 21st November 2023); and
- Environment Agency Guidance – Develop a management system: environmental permits, published 1st February 2016 (updated 3rd April 2023).

1.3 Regulated Activities

1.3.1 The proposed listed activities within this Permit Application are outlined within Table 1.3.1 below.

Table 1.3.1: Regulated Activities

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
Activity Listed in Schedule 1 of EPR		
Part A (1) Section 5.4 Part A(1) (b)(i) Anaerobic Digestion Plant – Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment is anaerobic	R13: Storage of wastes pending the operations numbered R1, R3 and D10. R3: Recycling or reclamation of organic substances that are not used as solvents.	From receipt of waste through to digestion and recovery of by-products (digestate). Total capacity of 41 070 tonnes per annum. Daily treatment capacity of 120 tonnes per day.

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC- (i) biological treatment		
Directly Associated Activities		
DAA 1 Storage of waste pending recovery or disposal	R13: Storage of waste pending the operations numbered R1 and R3 (excluding the temporary storage, pending collection, on the site where it is produced).	From the receipt of waste to dispatch off site for recovery and/or disposal. Storage of waste in covered clamps on an impermeable surface with sealed drainage. Storage of liquid digestate. Storage of solid digestate. Storage of dirty water from the process in dirty water lagoon prior to use in the AD process.
DAA 2 Physical treatment for the purpose of recycling	R3: Recycling or reclamation of organic substances which are not used as solvents	From the receipt of waste to despatch for anaerobic digestion or despatch off site for recovery and/or disposal. Storage of waste in covered clamps on an impermeable surface with sealed drainage. Treatment of non-waste straw by crushing, wetting, chopping, maceration and extrusion prior to despatch into the anaerobic digestion process.
DAA 3 Natural gas combusted in 2no. combined heat and power (CHP) engine to produce heat and power	R1: Use Principally as a fuel to generate energy	Combustion of natural gas in 2no combined heat and power (CHP) engines each with an aggregated thermal input of 3.495 MWth, with the release of combustion gasses.
DAA 5 Treating biogas and biomethane	R13: Storage of waste pending the operations numbered R3 (excluding temporary storage, pending collection, on the site where it is produced) R3: Recycling/reclamation of organic substances which are not used as solvents	From the receipt of biogas produced at the on-site anaerobic digestion process to upgrading and despatch to the national gas grid

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
DAA 6 Emergency flare operation	D10: Incineration on land	From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gas. Use of one auxiliary flare required for periods of breakdown or maintenance of the biogas upgrading plant or in the case of an emergency only
DAA 7 Emergency Diesel Generator	Combustion of diesel within a emergency diesel generator	Combustion of diesel within one emergency generator with a thermal input of 0.432kWth. For use in an emergency <50 hours per annum.
DAA 7 Biogas Storage	R3: Recycling or reclamation of organic substances which are not used as solvents Storage of biogas produced by the on-site anaerobic digestion of permitted waste and non-waste maize, grass and rye silage.	From the receipt of biogas produced at the on-site anaerobic digestion process to despatch for use within the facility.
DAA 8 Biogas upgrading	R3: Recycling or reclamation of organic substances which are not used as solvents Cleaning, upgrading and compression of biogas using membrane separation technology and propane injection	From the receipt of biogas produced at the on-site to biomethane for compression and export to the grid. This includes return of off specification biogas for combustion to either the biogas holder or the emergency flare.
DAA 9 Raw material storage	Storage of raw materials including maize, and/or rye silage, straw lubrication oils, diesel, ferric chloride, ethyl glycol, propane, anti foaming agent	From the receipt of raw materials to despatch for use within the facility.
DAA 10 Digestate Storage	Storage of liquid digestate in the onsite lagoon and of solid digestate	From the receipt of digestate produced from the on-site anaerobic digestion process to dispatch for use off site. Storage of processed liquid digestate in a digestate lagoon.
DAA 11 Surface water collection and storage	Collection and storage of uncontaminated site surface rainwater	From the collection of uncontaminated roof and site surface water from non-operational areas only to reuse within the facility or discharge to the drainage ditch.
DAA 12	Collection and storage of process water in a dirty water lagoon	From the collection storage of effluent from the storage of feedstocks to re-use within the facility.

1.3.2 The proposed CHP Units each have a net rated thermal input of >1MWth, (3.495MWth) therefore fall under the requirements of Schedule 25a of the Environment Permitting (England and Wales) Regulations 2016 (as amended).

1.3.3 The CHP units will also provide electricity (and heat) to the facility, however there is not a capacity agreement or agreement to provide a balancing service in place and it is not part of a wider specified generator group therefore it will not fall under the requirements of Schedule 25b of the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

1.4 Non-Permitted Activities

1.4.1 The Operator is not proposing to undertake any activities at the Facility other than those which will be included in the Environmental Permit. All activities will be carried out within the Permit Boundary.

1.5 Site Location

1.5.1 The Facility is located at:

Glentham Anaerobic Digestion Plant
Barff Lane
Glentham
Lincolnshire
LN8 2EY

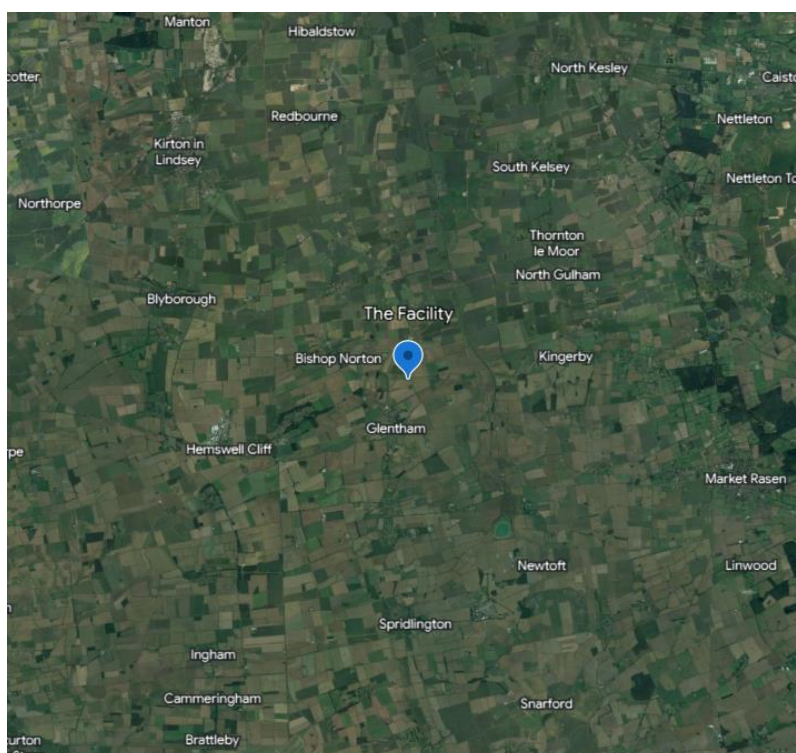


Figure 1.5.1: Site Location

©Google Earth 2023

1.5.2 The proposed Facility's layout is shown on drawing 'Proposed Site Layout', referenced 28248/005 Rev X contained within the Drawings section of the Operational Techniques and Monitoring Plan (OTMP).

1.5.3 The National Grid Reference (NGR) for the proposed Facility is TF 00584 91928. The proposed Facility covers an area of approximately 3.5 hectares. The village of Glentham is located

approximately 721m to the southwest and the village of Bishop Norton is situated approximately 1,785m to the northwest.

1.5.4 The site currently comprises arable agricultural land. The site is bound to the north by a drainage ditch, running in a roughly east - west orientation, beyond which are agricultural fields. An access track bounds the site to the east, beyond which are agricultural fields with Barff Lane located south of the field. The site is bound to the south by an irrigation lagoon with further agricultural fields beyond. The west of the site is bound by agricultural fields.

1.5.5 A review of the flood map for planning on the Gov.UK website, indicates that the proposed Facility is located within a Flood Zone 1. Land lying within Flood Zone 1 has a low probability of flooding. The Flood Map for Planning from the Gov.uk website is shown in Figure 1.5.2 below.

Figure: 1.5.2: Flood Risk Map



1.5.6 The site is located over an undifferentiated secondary aquifer within the superficial geology and the northwestern corner of the site is located over a secondary A aquifer within the bedrock geology.

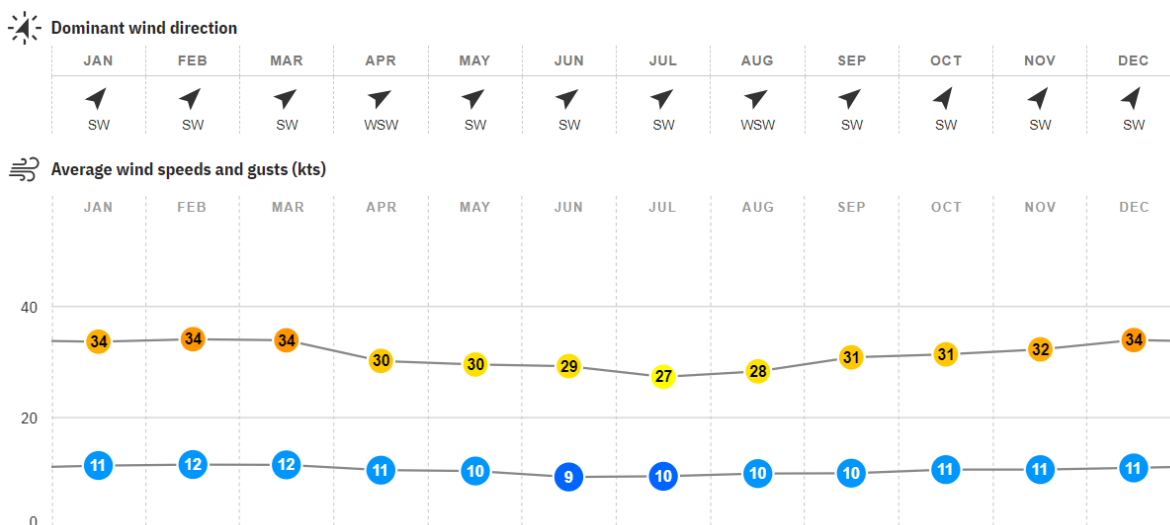
1.5.7 The site is located within a drinking water safeguard zone for surface water and a Nitrate Vulnerable Zone (NVZ).

1.5.8 The prevailing winds at the proposed Facility are from the southwest and west southwest, based on historic daily observation data sourced from the Humberside Airport weather station. The weather station is located approximately 20km north northeast of the proposed Facility (based on data provided by www.windfinder.com). The wind direction speed and direction is shown within Figure 1.5.3 below.

Figure 1.5.3: Local Weather Station Wind Data

Statistics based on observations taken between 11/2000 - 07/2023.

Monthly wind speed statistics and directions for Humberside Airport



©Windfinder.com 2024

1.6 Environmental Setting

- 1.6.1 Nearby receptors within 2,000m of the Facility have been identified as part of this Application. Key receptors that have the potential to be impacted by emissions from the Facility are summarised in Table 1.6.1 below.
- 1.6.2 There are no Special Protection Areas (SPA), Special Areas of Conservation (SAC) Local Nature Reserves (LNR), National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) or Ramsar sites within 3km of the proposed Facility based on a search carried out using Defra’s Magic website.
- 1.6.3 The EAs Nature and Heritage Conservation Screening assessment has identified no protected sites or species within the designated screening distance for an AD facility at this site.
- 1.6.4 The Nearest designated site is located approximately 3,000m from the Facility at Normanby Meadow SSSI.
- 1.6.5 The nearest residential property to the proposed Facility lies approximately 650m to the south.
- 1.6.6 The nearest natural surface water feature is the drainage ditch adjacent to the northern site boundary. The drainage ditch is a tributary of a main river, Norton Beck. However, the nearest main river to the proposed Facility is Seggimoor Beck located approximately 592m to the southeast.

Table 1.6.1: Sensitive Receptors

Receptor	Type	Distance (m)	Direction
Undifferentiated secondary aquifer (superficial geology)	Hydrogeological	-	Onsite
Secondary A aquifer (bedrock geology)	Hydrogeological	-	Onsite

Drinking water safeguard zone (surface water)	Hydrological	-	Onsite
Nitrate vulnerable zone	Hydrological	-	Onsite
Irrigation lagoon	Agricultural	0	S
Unnamed drainage ditch	Hydrological	0	N
Agricultural fields	Agricultural	0	N, E, S, W
Seggimoor Beck	Hydrological	592	SE
Pond	Hydrological	674	W
Pond	Hydrological	688	WNW
Mellow's Beck	Hydrological	689	WNW
Residential property off Prospect Lane	Residential	706	SSW
Glentham Farming Co	Residential and commercial	832	SW
Glentham village	Residential	836	SSW
Beck farm	Residential	938	NNW
The bungalow	Residential	942	E
Low place	Residential	948	NE
Glentham Sewage Treatment Plant	Commercial	1020	SSW
Norton Sandhayes Farmhouse	Residential	1270	N
The Chestnuts	Residential	1330	S
Glentham Grange Farmhouse	Residential	1350	SE
St Peters Church	Community	1360	SSW
Glentham Motors	Business	1500	S
Barff Farm PT Moore	Residential	1560	S
Glebe Farm House	Residential	1630	SSE
Allotments at Bishop Norton	Recreational	1800	NNW
Business Units at Barff Farm	Business	1830	S
White House Farm, Bishop Norton	Residential	1900	NNW
The Spinney	Residential	2001	NW

2.0 Overview of Facility Operations

2.1 Overview of Anaerobic Digestion Process

2.1.1 A detailed process description is included within the Operational Techniques and Monitoring Plan (OTMP) referenced CRM.0166.001.PE.R.006. The basic steps of the anaerobic digestion process are as follows.

- The feedstock to be processed at the Facility will be maize, straw, chicken manure, potato peelings, straw, pig/cattle manure/slurry, farmyard manure and occasionally rye. The Facility will accept a maximum of 41,070 tonnes of feedstock per year.
- The feedstocks will be separately stored within purpose-built clamps at the Facility. Any straw delivered to the Facility will first undergo pre-treatment prior to storage. The pre-treatment will consist of string removal, bale breaking, impact crushing, water addition and extrusion. The extruded straw would then be stored within the appropriate clamp.
- When required the feedstock will be fed into one of the two identical anaerobic digestion treatment lines. The feedstock will be placed into the feed hopper, where initial mixing of the feedstock will take place before transferring the materials into the Continuous Stirred Tank Reactors (CSTR).
- The materials are retained within the CSTR for 25 days at which point the resulting digestate passes through to a Plug Flow Reactor (PFR). The biogas generated within the CSTR is also routed into the PFR.
- The PFR feedstock is retained for a total of 25 days as it passes through the PFR pipework. The final digestate produced from the PFR digestion process passes through a screw press to separate the solid and liquid fractions. The liquid fraction is routed to a digestate lagoon for storage prior to use for irrigation on the adjacent agricultural land. The solid fraction is stored within a bunker prior to use as a soil improver on the adjacent agricultural land.
- The biogas resulting from the PFR digestion process is then piped from the PFR to be upgraded and injected into the grid via a network entry facility.
- Two CHP units, each with a net rated thermal input of 3.495WTh, fuelled by natural gas will deliver heat and power to the Facility.

2.2 Operating Hours

2.2.1 The anaerobic digestion process, operation of the CHP units and upgrading biogas and injection into the national gas grid will occur continuously, with the exception of any downtime required for maintenance.

2.2.2 Deliveries and collections will be confined to the following hours:

- 08:00 – 17:00 Monday to Sunday
- No deliveries on bank holidays

2.3 Management of the Facility

- 2.3.1 The Operator has overall responsibility for environmental practice and will ensure that the policy is properly implemented, monitored and periodically reviewed, in accordance with the relevant statutory provisions.
- 2.3.2 The Operator has a WAMITAB holder and full details are provided within the OTMP. At least one WAMITAB COTC certified person will be available to manage the Facility's operations and ensure the correct activities and procedures are being carried out. These persons are notified to the Agency, and if any changes occur the company will inform the Regulatory Authority in writing or by email. The Facility will also be appropriately manned to ensure safe and efficient operation at all times.
- 2.3.3 The Operator implements a written EMS on site which meets EA requirements. The EMS identifies and addresses the relevant environmental and legal requirements and environmental standards that the Facility needs to comply with to carry out safe and environmentally sound operations.
- 2.3.4 Activities will be carried out in accordance with the Facility's EMS and by the stringent management controls in place. Where required, the EMS and associated procedures will be updated to reflect any proposed changes. This AMP will be transposed into the Facility's EMS and it will be used as a reference working document for operational staff on a day-to-day basis.

3.0 Accident Management

3.1 Overview

3.1.1 The following section of the AMP summarises all potential accidents and incidents that could impact off site receptors and describes how incidents will be managed and minimised.

3.1.2 An Accident Control Matrix is presented in Appendix A.

3.2 Failure of Containment and Spillages

3.2.1 Most of the permitted area is paved with 175mm thickness reinforced concrete slab with sealed construction joints. The remainder of the site is made up of both grassed open ground and asphalt roadways. All impermeable concrete hardstanding areas are laid with a shallow gradient to direct any liquids to the gullies located around the permitter.

3.2.2 All effluent captured within the gullies of operational areas is directed through the Facility's sealed drainage system to the dirty water/leachate storage lagoon. All clean rainwater from the non-operational areas will be captured separately and directed to the surface water holding lagoon. Any rainwater falling on the grassed open ground percolates through to the underlying groundwater.

3.2.3 The main potential for leaks will be runoff from the feedstocks and digestate, both during and after the anaerobic digestion process. There is also the potential for leaks and spillages from chemicals, oils and fuels stored on site for use in the Facility's plant and equipment.

3.2.4 All feedstocks are stored within dedicated clamps constructed of 175mm thick reinforced concrete slabs with sealed construction joints. The clamps are also served by the Facility's sealed drainage system which will direct any runoff to the dirty water/leachate storage lagoon. Feedstocks will also be covered except during addition or removal of the feedstock, in order to prevent ingress of rainfall.

3.2.5 All tanks, including the anaerobic digestion tanks, are constructed to CIRIA 736 standard. The CSTR and PFR tanks are stored within a bunded area capable of containing 125% of the largest tanks volume.

3.2.6 The dirty water/leachate storage lagoon and the liquid digestate lagoons are constructed of an impermeable liner with leak detection installed below. The leak detection system will be checked as part of the weekly site checks carried out at the Facility.

3.2.7 The lagoons will be periodically drained down completely to allow for a visual internal inspection of the impermeable liner and allow any maintenance or repair works to be carried out.

3.2.8 Shutoff valves are fitted to the two clean surface water discharge points in order to prevent offsite migration of contamination. When the shutoff valves are activated, all surface waters will be retained in the surface water holding lagoon.

3.2.9 All oil and diesel tanks are made of double lined steel with bunding around them to contain either 20% of the total volume of all tanks within the bund or 110% of the largest tanks volume, whichever is greater as per Environment Agency Guidance and Oils Storage Regulations.

3.2.10 All fill points are provided with secondary containment and spill kits will be located nearby for containing and absorbing any minor spillages. Training will be provided to all staff in relation to

use of spill kits and spill clean-up procedures. The spill response procedure in the Environmental Management System will be followed in all cases.

- 3.2.11 All site personnel will be tasked with monitoring for evidence of spillages and debris during their day-to-day routine. Any evidence of spillage or debris will be reported to site management who will arrange remedial action. All tanks, pipework and containment will be subjected to regular visual inspections by appropriately qualified personnel with records of all inspections kept on site. Any noted damage or defects will be repaired with all remedial actions recorded.
- 3.2.12 High level alarms and automatic shut off valves will be fitted to all tanks to prevent overfilling. The tank filling process is controlled electronically via the SCADA system which can be accessed remotely. Any abnormal conditions (e.g. high level alarms) will trigger automatic shut-down procedures and appropriate controls to prevent overfilling.
- 3.2.13 All chemicals will be handled in accordance with COSHH Regulations and stored accordingly with appropriate signage and labelling. Full product data sheets will be available for review by personnel on site.
- 3.2.14 Chemicals used within the process include ferric chloride and anti-foaming agent, which are stored in bunded IBCs which are contained within the bunded site area. The activated carbon and ethylene glycol used at the Facility are contained within sealed systems which are controlled by the SCADA system with alarms fitted.
- 3.2.15 Following an incident, an incident report form will be completed and a root cause analysis will be undertaken to determine why the incident occurred. This analysis will also review and update the procedures in place at the facility, if required, to prevent a repeat of the incident. The Environment Agency will be notified as per the conditions of the permit.

3.3 Gas Leak

- 3.3.1 Biogas is produced at the facility and the Facility is connected to the national gas grid. A gas leak procedure is in place for the Facility.
- 3.3.2 All personnel are tasked with monitoring for evidence of gas leakage during their daily routine. All tanks, pipework and containment will be subjected to regular visual inspections by appropriately qualified personnel with records of all inspections kept on site. Any noted damage or defects will be repaired with all remedial actions recorded.
- 3.3.3 The Facility has a SCADA system in place which monitors gas pressure and production. Alerts are issued directly to the plant manager and operators should the Facility operate outside defined parameters.
- 3.3.4 Operatives will be provided with personal gas monitors in areas where there is a potential for gas build ups. In the event of a gas monitor alarm sounding, indicating a potential hazardous concentration of gas, personnel will evacuate their workstations to the muster point.

3.4 Fire and Explosion

- 3.4.1 The Operator has a Fire Response Procedure with site plans showing the location of fire extinguishers (under annual inspection contract), fire alarm call points, assembly points, and pollution prevention features such as drainage shut off valves. Staff training is carried out regularly and drills are undertaken by site management.

- 3.4.2 The anaerobic digestion process and CHP are controlled electronically via SCADA which can be accessed remotely. Any abnormal conditions will trigger automatic shut-down procedures and appropriate controls to prevent the build-up of an explosive atmosphere.
- 3.4.3 If abnormal operation occurs, or an issue is perceived, gas will be directed to the Facility's emergency flare. Should the emergency flare fail, digesters and the upgrading unit are fitted with emergency pressure release valves to avoid overpressure. All records of the use of PRVs will be kept on site and the reason for use documented.
- 3.4.4 Site security systems are in place to prevent entrance to the Facility by unauthorised persons, reducing the possibility of arson. These include security fencing around the perimeter of the Facility, lockable security gates, CCTV and security patrols.
- 3.4.5 The Facility will operate a strict no smoking policy across the entirety of the site.
- 3.4.6 Lightning protection is installed at the Facility to British Standard BS EN 62305.
- 3.4.7 Contaminated firewater will be stored in the dirty water/leachate storage lagoon and surface water holding lagoon before being tankered off site for disposal by a third-party contractor. The lagoons are fitted with shut off valves, which shall be manually activated in the event of a fire to prevent any water migrating into the process.
- 3.4.8 Shutoff valves are also fitted to the discharge point to the drainage ditch north of the Facility. Valves will be shut off in the case of an emergency, including fire, to prevent the offsite migration of firewater.
- 3.4.9 Following a fire, an incident form will be completed and a root cause analysis will be undertaken to determine why it occurred. A review of procedures in place at the facility will be undertaken following any incident and procedures will be updated and enhanced as required. The Environment Agency will be notified as per the conditions of the permit.
- 3.4.10 In the event of plant or essential equipment malfunction or breakdown which means that the plant cannot accept or process feedstock, arrangements will be implemented to manage and divert any waste deliveries until normal operations resume. Alternative recovery or disposal routes will follow the principles of the Waste Hierarchy where possible.

3.5 Flooding

- 3.5.1 The Facility is located within a flood zone 1, which is recorded to have a low probability of flooding according to the Gov.uk website's Flood Map for Planning.
- 3.5.2 In the unlikely event of flooding on site, the following measures will be assumed to avoid or minimise accidents.
- Feedstock, digestate, oil and fuel storage areas and all processing areas are surfaced with impermeable hardstanding with runoff directed via sealed drainage systems to the dirty water/leachate storage lagoon, which has a capacity of 2,165m³. Clean surface water is directed to the surface water holding lagoon, which has a capacity of 415m³.
 - Emergency shut down procedures will be carried out in the event of flood waters reaching plant areas.
 - Arrangements will be implemented to manage and divert any waste deliveries until normal operations resume. Alternative recovery or disposal routes will follow the principles of the Waste Hierarchy where possible.

3.5.3 After an incident of flooding, a root cause analysis will be undertaken to determine why the incident occurred and to assess the effectiveness of flood defence and mitigation measures at the Facility, including surface water drainage systems. Following this analysis, a review of procedures in place at the facility will be undertaken and these will be updated if required.

3.5.4 The accident and incident report form located in the Environmental Management System will also be completed.

3.6 Failure of Plant and Equipment

3.6.1 All plant and equipment is operated and maintained in accordance with manufacturers recommendations. Routine preventative maintenance programs are set out within the Facility's EMS. A breakdown contract in place for plant and equipment and full provision of critical spare parts are maintained on site.

3.6.2 In the event of plant or essential equipment malfunction or breakdown which means that the plant cannot accept or process feedstock, arrangements will be implemented to manage and divert any waste deliveries until normal operations resume. Alternative recovery or disposal routes will follow the principles of the Waste Hierarchy where possible.

3.6.3 Following any incident due to plant and equipment failure, an incident report form will be completed. A root cause analysis will be undertaken to determine why the incident occurred. This analysis will also review and update the procedures in place at the facility if required.

3.7 Incorrect Waste Types or Quantities

3.7.1 Deliveries to the Facility are scheduled and no ad-hoc deliveries will be received. All feedstock received at the Facility will be supplied by approved suppliers who are appointed to supply feedstocks compliant to the appropriate specification under a supply agreement.

3.7.2 Waste will only be received in accordance with the Facility's Waste Acceptance Procedures. Operatives will carry out waste Duty of Care paperwork checks prior to accepting waste and any non-conforming wastes will be rejected.

3.7.3 All loads delivered by road to the Facility are weighed using the on site weighbridge.

3.7.4 The operator has a system in place for visually inspecting the feedstocks as they are delivered. Records of the checks are maintained on site to provide a record of compliance.

3.7.5 In the event that non-compliant waste is delivered to the facility, the delivery vehicle will be refused entry and turned away. This will be raised as a priority with the supplier to understand the reason for non-compliant waste being delivered and the steps to be undertaken to ensure that the risk of a repeat incident is minimised.

3.8 Failure of Mains Services

3.8.1 The Operator has contracts with utility suppliers and will keep informed of any planned utility outages and adjust activities at the Facility to ensure that no harm to human health or pollution to the environment can occur.

3.8.2 The onsite CHP units will be capable of supplying the required power to the Facility during normal operating conditions. The Facility combusts natural gas within the CHP units which can fulfil the requirements of the Facility. A backup diesel generator is present at the Facility in order to supply power to critical plant in the event of a failure of the CHPs or loss of natural gas supply.

3.8.3 A Water outage procedure is in place at the Facility in the event of a loss of mains water supply. Water from both the dirty water/leachate storage lagoon and surface water holding lagoon is used at the Facility as part of the standard operation. In the event of loss of mains water these supplies can be used until a mains water supply can be reestablished.

3.9 Staff Shortages

3.9.1 Short term staff shortages (such as a few days illness) will not affect the ability of the Facility to operate effectively as other employees can be reassigned to critical operations. Longer term absences require forward planning to ensure that risks are mitigated.

3.9.2 A staff standby rota is in place for the Facility and is actively managed. Staff are trained and able to undertake different roles at the Facility.

3.9.3 In the event of prolonged absence of employees, temporary staff will be recruited and appropriately trained to fulfil non-critical roles whilst other more experienced staff members are reassigned.

3.10 Vandalism and Arson

3.10.1 The entire perimeter of the Facility is surrounded by security fencing with security gates installed at all entrances and exits. All security gates will be kept locked outside of the hours of their use. All visitors and staff must report to the site offices in order to gain access to the Facility. Security patrols are carried out during the night and CCTV is installed throughout the Facility. All boundary fencing is inspected regularly with repairs carried out by on site maintenance staff or external contactors.

3.10.2 Should any act of arson occur then the Fire Response Procedure within the Facility's EMS will be activated.

3.10.3 Following any incident of arson, vandalism or unauthorised access to the Facility an incident report form will be completed. A root cause analysis will also be undertaken to determine why the incident occurred. This analysis will also review and update procedures in place at the facility if required.

3.11 Vehicle Collision

3.11.1 To reduce the likelihood of vehicle collision and a vehicle collision leading to the release of waste or potentially polluting liquids, the following measures are taken to avoid/minimise effects:

- Deliveries and collections are to be scheduled and supervised to ensure limitation of vehicles on site reducing risk of collision, and correct procedures for the delivery and collection of materials are followed.
- The storage of oils and fuels is within dedicated areas separated from vehicle movements.
- A dedicated access route to the Facility is in operation, with dedicated loading and unloading points in place.
- Speed limits and a strict one-way system are in place on site.
- All drivers must report to the Facility's site office where they will be instructed of the site rules and given appropriate directions.

- Drivers of site vehicles such as telehandlers are suitably qualified.

3.11.2 Following any incident involving a vehicle, an incident report form will be completed and a root cause analysis will be undertaken to determine why the incident occurred. This analysis will also review and update procedures in place at the facility if required.

4.0 Records and Reporting

4.1 Incident Review

- 4.1.1 Records will be made of all incidents and accidents which occur at the Facility. All records of incidents, accidents and actions taken will be retained as per the requirements of the Environmental Permit.
- 4.1.2 Where an accident or incident occurs, an investigation will take place to determine the root cause of the accident, to help to inform how to prevent the accident reoccurring. All findings of the investigation will be reported to the management of the Operator and will be shared with all employees, so preventative measures can be developed and incorporated into future works.
- 4.1.3 A formal review of all on site processes will be undertaken by the Operator following any major accident or incident. Any changes to processes or procedures required as a result of the formal review will be communicated to the management and employees at the Facility.

4.2 Notifying the Environment Agency

- 4.2.1 In the event of a significant accident or incident, the Operator will notify the EA as soon as practically possible, using the emergency 24hr phone line (0800 80 70 60). The Operator will also notify the EA Regulatory Officer should any complaints be received directly to the Facility as a result and advise what remedial measures or actions have been taken to address the problem. Copies of any material complaints received will be made available to the EA for review.

4.3 Accident Management Plan Review

- 4.3.1 This AMP will be reviewed by senior management every four years or immediately following any major accident or event.
- 4.3.2 Any technical or managerial changes on site will also initiate a review of the AMP to ensure that the control techniques remain appropriate for the Facility.

Appendix A – Accident Control Matrix

Table 1: Accident Control Matrix

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
Containment Failure or Spillage					
Contaminated run-off/rainwater from the Facility; Failure of anaerobic digestion, fuel or oil tanks; Spillages during delivery of feedstock or inputting of feedstock into anaerobic digester; Spillages during refuelling of plant and equipment or deliveries of fuel and oil; Overfilling of anaerobic digestors; Overfilling of oil or fuel storage tanks; Leakage of anaerobic digestion tanks; Leakage of dirty water/leachate storage	High	High – Contamination of land and pollution of local groundwater and surface water including ecological sites.	Areas where wastes and digestate are handled or stored are paved with 175mm thickness reinforced concrete slab with sealed construction joints. These areas are served by a sealed drainage system which directs liquids to the dirty water/leachate storage lagoon. Feedstocks are covered except during addition or removal of the feedstock, in order to prevent ingress of rainfall. All tanks, including the anaerobic digestion tanks, are constructed to CIRIA 736 standard. All tanks are stored within a bunded area capable of containing 125% of the largest tanks volume. The dirty water/leachate storage lagoon and the liquid digestate lagoons are constructed of an impermeable liner with leak detection installed below. High level alarms and automatic shut off valves are fitted on all storage tanks and controlled by the SCADA system. All fuel and feedstock deliveries and collections are supervised. Liquid digestate lagoon is covered to prevent rainwater ingress.	Low	All spillages will be cleaned up as soon as practicable. Follow the spill response procedure in the Facility's EMS.

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
and/or liquid digestate lagoons; Leakage of oil or fuel storage tanks; Leakage from site vehicles or delivery/collection vehicles.			Secondary containment is present within all tank filling and emptying areas and spill kits are on hand. Refuelling of equipment in dedicated areas with impermeable surface and spill kits are on hand. All primary and secondary containment systems are regularly inspected with any repairs carried out promptly and records kept. All hardstanding areas are inspected for damage daily and repairs carried out promptly to original specification. The drainage system and lagoons are inspected and maintained on a regular basis. The clean surface water drainage can be shut off on site, so in case of emergencies the surface water can be sealed to prevent any contamination migrating off site.		
Gas Leak					
Gas Leakage from digestors, biogas storage, gas to grid plant, gas main or any associated pipework.	Medium	High – Air pollution, creation of explosive atmosphere and Risk to health and safety of workforce.	Regular visual inspections of all tanks and pipework by appropriately qualified personnel. A programme of Planned Preventative Maintenance (PPM) is in place with all remedial actions recorded. Processes at the Facility are controlled electronically via SCADA system which can trigger automatic shut-down procedures and appropriate controls to prevent the build-up of an explosive atmosphere.	Low	Shutdown of all potential combustion sources. Follow the gas leak procedure in the Facility’s EMS.

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
			Operatives will be provided with personal gas monitors in areas where there is a potential for gas build ups. No smoking policy at the Facility.		
Fire and Explosion					
Fire within the Facility's boundary; Explosion within the Facility's boundary; Lightning strike.	Medium	High - Smoke and air pollution, escape of firewater, wastes and oils causing contamination of land, surface water and groundwater. Risk to health and safety of workforce and neighbouring receptors from fire and explosion of biogas.	Separation of incompatible materials and of combustible materials and ignition sources. Fire detection and alarm systems in place within buildings. Adequate firewater supply on-site and fire water containment procedures in place. Processes at the Facility are controlled electronically via SCADA system which can trigger automatic shut-down procedures and appropriate controls to prevent the build-up of an explosive atmosphere. Site security systems to prevent unauthorised access including perimeter fencing, security gates, security patrols and CCTV monitoring. The gates will be kept locked and secured outside the site's delivery hours. Programme of PPM in place for all plant and equipment. All plant and equipment and electrical installations will be kept in good working order and will be subject to a routine inspection and maintenance schedule. Staff training on fire procedures and use of equipment where appropriate. No smoking policy at the Facility. Lightning protection installed at the Facility	Low	Automatic shutdown procedures of all processes. Follow the fire procedure in the Facility's EMS. Follow the explosion procedure in the Facility's EMS.

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
Flooding					
Flooding on site	Low	High – Wastes, digestate and fuels mobilising off site causing contamination of land, surface water and groundwater.	<p>Site is located in a Flood Zone 1.</p> <p>Waste, digestate and fuel storage and processing areas are surfaced with impermeable hardstanding with runoff directed via sealed drainage systems to the dirty water/leachate storage lagoon, which has a capacity of 2,165m³.</p> <p>Clean surface water is directed to the surface water holding lagoon, which has a capacity of 415m³.</p> <p>Clean surface water can be discharged to the adjacent drainage ditch to prevent overtopping of surface water holding lagoon.</p> <p>In the event the flood water ingress occurs into plant areas Emergency shutdown procedures will be implemented.</p>	Low	<p>Automatic shutdown procedures of all processes if flooding extends to plant areas.</p> <p>Follow the flood procedure in the Facility's EMS.</p>
Failure of Plant and Equipment					
<p>Unplanned breakdown of key plant or equipment.</p> <p>Leakages; due to faulty pipe work, valves, over-pressure, blockages, corrosion, severe weather, vehicle impact etc.</p>	Low	<p>Medium – Leaking wastes, digestate and/or fuels causing contamination of land, surface water and groundwater.</p> <p>Partially treated wastes creating odorous emissions.</p>	<p>Machinery and plant used to process the wastes will be operated, serviced and maintained in line with the manufacturers recommendations to prevent failure.</p> <p>Contingency arrangements in place for all feedstocks.</p> <p>Breakdown contract in place.</p> <p>Full provision of spare parts on-site.</p>	Low	<p>Arrangements will be implemented to manage and divert any waste deliveries until normal operations resume.</p>
Incorrect Waste Types or Quantities					
Too much waste received;	Low	High – Reaction of incompatible or incorrect	All deliveries are scheduled and no ad-hoc deliveries will be received.	Low	In the event of plant or essential equipment

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
<p>Incorrect and inappropriate waste types accepted at the Facility;</p> <p>Mixing of incompatible materials or incorrect storage.</p>		<p>wastes causing tank foaming, explosion and loss of digestate causing contamination of land, surface water and groundwater.</p> <p>Inappropriate wastes could reduce treatment equipment efficacy and contamination of resulting digestate.</p>	<p>All feedstocks will be supplied by approved suppliers who are appointed to supply feedstock compliant to a supply agreement. Waste will only be received in accordance with the Facility's Waste Acceptance Procedures.</p> <p>Operatives will carry out waste Duty of Care paperwork checks prior to accepting waste and any non-conforming wastes will be rejected.</p> <p>All loads delivered by road to the Facility are weighed using the on site weighbridge.</p> <p>All feedstock deliveries will be supervised to ensure that they are stored in the appropriate areas.</p>		<p>malfunction or breakdown which means that the plant cannot accept or process feedstock, arrangements will be implemented to manage and divert any waste deliveries until normal operations resume.</p> <p>Ongoing regular contact with suppliers to ensure that only appropriate waste types are delivered</p>
Failure of Mains Services					
<p>Failure of service supply – Water, gas, electric</p>	Low	<p>Medium – Contamination of land, air, surface water and groundwater due to inability or insufficient waste treatment.</p> <p>Partially treated wastes creating odorous emissions.</p>	<p>The Operator will keep informed of any planned utility outages and adjust activities at the Facility as required.</p> <p>CHP on site to generate power for the Facility.</p> <p>Emergency diesel generator will provide power to critical plant in the event of a loss of gas services.</p> <p>Water captured within the dirty water/leachate storage lagoon and the surface water holding lagoon will be used at the Facility.</p>	Low	<p>Follow the gas outage procedure in the Facility's EMS.</p> <p>Follow the water outage procedure in the Facility's EMS.</p>
Staff Shortage					
<p>Staff absence</p>	Low	<p>Low – Inability to operate plant to its full capability</p>	<p>Staff are trained and able to undertake different roles at the Facility.</p>	Low	<p>Recruitment of staff to undertake less critical roles</p>

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
		leading to inefficient treatment of wastes	Emergency rota in place to enable replacement staff to be called up at short notice.		and reassignment of more experienced staff into more critical roles. Use of temporary staff if required. If required, Facility will cease operating and waste will be diverted.
Vandalism or Arson					
Vandalism to plant, equipment or storage vessels; Fire damage to plant, equipment or storage vessels.	Low	High – Explosion and fire due to ignition of biogas. Damage or fire impacting containment of wastes, fuels and/or digestate causing contamination of land, surface water and groundwater.	Security fencing around the perimeter with security gates installed at all entrances and exits. All security gates will be kept locked outside of the hours of their use. All visitors and staff must report to the site office on arrival. Security patrols carried out during the night. CCTV installed throughout the Facility.	Low	Follow the spill procedure in the Facility’s EMS. Follow the fire response procedure in the Facility’s EMS.
Vehicle Collision					
Release of wastes, fuels or digestate as a result of vehicle collision Injury to site personnel	Low	Medium – Vehicle impact damaging containment of wastes, fuels and/or oils causing contamination of land, surface water and groundwater.	Deliveries and collections are to be scheduled and supervised. Storage of waste material within dedicated areas separated from vehicle movements, where possible. Dedicated access route to the Facility with dedicated loading and unloading points in place. Speed limits and a strict one-way system. All drivers must report to the Facility’s site office where they will be instructed of the site rules and given appropriate directions.	Low	Follow the spill procedure in the Facility’s EMS.

Event	Likelihood	Consequence of Occurrence	Avoidance Measures to be Taken	Residual Risk	Response Measures
			Drivers of site vehicles are suitably qualified.		

Appendix B – Emergency Contacts

KEY CONTACTS – Last Updated November 2022			
Location: Glentham Anaerobic Digestion Plant, Barff Lane, Glentham, Lincolnshire			
Postcode: LN8 2EY			
Site Access Grid Reference: TF 00584 91928			
SITE CONTACTS	Name	Office Hours and contact	Out of hours
Director:			
Operations Manager:			
Operations Manager:			
Site Supervisor:			
Site Supervisor:			
Site Supervisor:			
Landowner / Agent:			
EMERGENCY SERVICES		Office Hours and contact	Out of hours
Emergency		999	999
Medical (non-emergency):			
Police:		101	
Fire:		999	
REGULATORS		Office Hours and contact	Out of hours
Health and Safety Executive (HSE) in incident hotline		Monday to Friday 8.30 am to 5 pm - 0345 300 9923	0151 922 9235
Lincolnshire County Council		01522 552222	
Environment Agency (24-hour emergency hotline)		0800 80 70 60	
Local EA Officer –			
Environment Agency (non-emergency)		Monday to Friday 8 am to 6 pm - 03708 506 506	
UTILITY / KEY SERVICES	Name	Office Hours and contact	Out of hours
Water and Sewerage Supplier:			
Sewerage undertaker:			
Gas supplier:			



Electricity Supplier:			
Oil supplier:			
Fuel supplier:			
Chemical supplier:			
Oil spill contractor:			
Maintenance contractor:			
OTHER KEY CONTACTS	Name	Office Hours and contact	Out of hours
Specialist advisors:	Enzygo	Monday to Friday 9 am to 5 pm - 01454 269 237	

Appendix C – Incident Report Form

Name of person(s) responding to incident:				
Date of incident:		Time of incident:	_ _ : _ _	
Type of incident: (spill, explosion, fire, plant failure etc)				
Details of any spilled material				
What was it?				
How much of it?				
Medium into which the release occurred? <i>Please circle</i>	Air	Land	Drain	Water course
For Waste delivery spillages please give details of the following:				
Company?			Vehicle registration?	
Describe the incident <i>(include details of circumstances causing the incident, any hazardous situation(s) observed and clean up information. Photographic evidence to be taken)</i>				
Have photos have been taken?	Yes	No	Was any leak stopped?	Yes No N/A
Was the Environment Agency informed?	Yes	No	Were the Emergency Services involved?	Yes No
Was the load accepted?	Yes	No	If NO has Operations Manager been informed?	Yes No
Were contents of the spill kit used?	Yes	No	Were the contaminated items used disposed of properly?	Yes No
If Yes please give details of spill kit contents used:				
Signed:				
Incident Review				



Has an incident review been undertaken?	Yes	No		
Reviewer's comments: Print name: 				
Actions as a result of the incident review				
Note Action(s) taken and further action(s) required by a specific date				Date
Incident closure sign off				
Reviewed by (Site Supervisor)	Signed		Date:	
Reviewed by (Operations Manager)	Signed		Date:	
Additional comments:				



Enzygo specialise in a wide range of technical services:

- Property and Sites**
- Waste and Mineral Planning**
- Flooding, Drainage and Hydrology**
- Landscape Architecture**
- Arboriculture**
- Permitting and Regulation**
- Waste Technologies and Renewables**
- Waste Contract Procurement**
- Noise and Vibration**
- Ecology Services**
- Contaminated Land and Geotechnical**
- Traffic and Transportation**
- Planning Services**

BRISTOL

The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Tel: 01454 269 237

SHEFFIELD

Samuel House
5 Fox Valley Way
Stocksbridge
Sheffield S36 2AA
Tel: 0114 321 5151

MANCHESTER

Ducie House
Ducie Street
Manchester
M1 2JW
Tel: 0161 413 6444

CARDIFF

Regus House
Malthouse Avenue
Cardiff Gate Business Park
CF23 8RU
Tel: 02920 023 700

Please visit our website for more information.

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