



Accident Management Plan

Anaerobic Digestion Facility, Kirkburn, East Yorkshire

Version 08

Prepared For: GWE Biogas Ltd
Eastburn
Driffield
East Yorkshire
YO25 9DP



DOCUMENT CONTROL		
Prepared by: WRM Ltd 18 Manor Square Otley LS21 3AY		March 2018 – Version 01
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1. EMERGENCY

1.1. Site Location Details

Company:	GWE Biogas Ltd
Access via:	A614
Office Phone:	01377 229425
Site Mobile Phone:	07940 255281
Site Grid Reference:	Easting 498777, Northing 456365

1.2. Emergency Contacts

Emergency Services:	999
Local Police:	101
Environment Agency Hotline:	0800 807 060
Health and Safety Executive:	0345 300 9923
Electricity Supplier:	0800 66 88 77
Local Authority:	01482 393939
Waste Disposal Contractor:	01347 825636
Gas Supplier:	Not applicable
Sewerage Undertaker:	Not Applicable
Fuel Supplier:	Not Applicable

1.3. Out of Hours

Site Manager:	Mike Walters	07944 312699
Company Director:	Tom Megginson	07701 00321
	Matthew Girking	07957357336

1.4. Responsibilities

Individual responsibilities in response to each emergency are indicated within each emergency procedure listed in section 1.5. Certain hazards do not possess a dedicated accident procedure and where this is the case the responsibilities involved are included within section 2.3 below. In addition to the above, the site manager is the primary person responsible for implementing the emergency procedure, except where procedures specifically state another person as the primary person responsible. During/following an accident at site the site manager will also be responsible for liaising with the environment agency to ensure they are aware of the situation and to seek guidance, if required.

1.5. Procedures

GWE Biogas possess a number of emergency procedures for varying scenarios which need to be read in conjunction with this accident management plan. These are as follows:

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- SMS EP 01 - Action to be taken in the event of a fire
- SMS EP 02 - Action to be taken in the event of a leaking feedstock delivery
- SMS EP 03 - Action to be taken in the event of a gas leak in an engine compartment
- SMS EP 04 - Action to be taken in the event of a leaking process tank
- SMS EP 05 - Action to be taken in the event of a spill or leak of oil or diesel
- SMS EP 06 - Action to be taken in the event of a spill or leak of ferric chloride
- P3/00082132/0614/01: high level foam procedure

2. ACCIDENT MANAGEMENT PLAN

Development of this Accident Management Plan has been made in line with the requirements set out in Section 2.8 of S5.06. For accident management, there are three particular components:

- identification of the hazards posed by the installation/activity;
- assessment of the risks (hazard x probability) of accidents and their possible consequences; and
- implementation of measures to reduce the risks of accidents, and contingency plans for any accidents that do occur.

2.1. Identified Hazards

The following hazards have been identified for the proposed facility requiring assessment and management:

- Breach of site secondary containment,
- Failure of site infrastructure,
- Site security failures/vandalism,
- Failure of mains services,
- Accidental explosion of biogas / fire,
- Noise pollution and vibrations,
- Odour,
- Impact of gas emissions leaving site,
- Spread of animal diseases,
- Pests,
- Arson and/or vandalism,
- Spills.

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2.2. Assessment of the Risks

Hazard	Source Frequency	Risk Evaluation	Emission Prediction	Consequences	Risk
Breach of site secondary containment.	Rare – tanks are bunded.	Nitrogen rich leachate, digestate or fuel from tanks/fuel refilling station.	No emissions to external environment.	None unless occurs in conjunction with failure of site infrastructure below as this would lead to nitrification or contamination of surface and groundwater with potential ecological harm.	Low probability of event. Operational area is fully bunded so leachate, digestate and fuel will be contained preventing surface runoff and infiltration to sensitive groundwater. Foaming may occur in a digestion tank due to unforeseen processing conditions. Lagoon is fully lined and covered to prevent material from contaminating groundwater.
Failure of site infrastructure.	Rare – infrastructure regularly maintained. Emergency flare operation for periods of maintenance or breakdown.	Damage of pipework and corrosion of components.	Leachate/digestate infiltration to site surface. Gas emissions to atmosphere.	Failure of site infrastructure could result in risks of leachate/digestate leaks, fire, explosions, gas leaks, odour emissions or temporary closure of the site.	Low probability of event with a high potential consequence.
Site security failures / vandalism.	Extremely Rare – fully fenced facility. No history of vandalism on site.	Damage to infrastructure and arson.	As per predictions of failure of site infrastructure.	As per consequences of failure of site infrastructure.	Low risk given no history of vandalism on site.
Accidental explosion of biogas / fire.	Extremely Rare - reduced by effective management systems.	Damage to human health, local environment and infrastructure.	Spillages and digestate direct run-off from site and via surface water drains and ditches, if bunding is breached.	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Pollution of water or land.	Low risk with a high potential consequence.

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Hazard	Source Frequency	Risk Evaluation	Emission Prediction	Consequences	Risk
			Release of polluting materials to air (smoke or fumes), water or land.		
Noise pollution and vibrations.	Low - Local residents often sensitive to noise and vibration but there is low potential for exposure due to location of nearest receptors.	Noise through the air and vibration through the ground.	As a standard rule, emissions shall be free from noise and vibration, or where unavoidable follow a specially produced management plan.	Environmental Nuisance complaints, loss of amenity and loss of sleep.	Low potential for exposure, follow a specially produced noise and vibration management plan if required.
Odour.	Low - Local residents often sensitive to odour but there is low potential for exposure due to location of nearest receptors.	Air transport and inhalation.	Odour detected in local area.	Environmental nuisance complaints and loss of amenity for local population.	Low potential as all storage tanks are covered and AD is an enclosed process. Small range of input materials reduces range of odours which may be released.
Gas Leaks– Methane, Carbon Dioxide, Carbon Monoxide, Hydrogen Sulphide and Ammonia.	Low - Potential for exposure for site operatives.	Air transport and inhalation of toxic gases. Potential for fire or explosion. Release of greenhouse gases into the atmosphere.	Gas releases that are flammable, explosive or immediately toxic. Greenhouse gas emissions contribute to pollution of the atmosphere.	Risk of fire, explosion, damage to infrastructure, damage to human health- at low concentrations; eye irritation, respiratory irritation, nausea and headaches, leading to asphyxiation at higher concentrations.	Low- activities shall be operated in accordance with a management system (including inspection and maintenance of equipment).
Spread of animal or human disease.	Low - Acceptance of incorrect feedstock inputs or failure to pasteurise Digestate.	Ineffective load rejection controls and process controls may fail to eliminate pathogens in addition to noxious weeds.	Spread of disease, pathogens and weeds when digestate is deployed to land.	Potential to spread disease to farm animals grazing on fields where digestate has been deployed.	Low - A HACCP plan shall be produced which introduces steps to prevent the spread of animal and human disease.
Pests.	Low - inappropriate storage of feedstock may increase pests such as rats and flies.	Population explosions of pests such as rats may have detrimental impact on the surrounding biodiversity and increased	Increased pest pollutions such as rats or other pests.	Cross contamination of digestate, disease, annoyance for local sensitive receptors and negative effect on the	Low - Good housekeeping and if required, a pests management plan should mitigate against the risk.

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Hazard	Source Frequency	Risk Evaluation	Emission Prediction	Consequences	Risk
		risk of the spread of diseases.		biodiversity of the surrounding area.	
Spills.	Low to medium – spills can occur from operative error or failure in infrastructure pipework or plant.	Nitrogen rich leachate, digestate or fuel from tanks/refuelling station.	No emissions to external environment due to contained drainage system.	None unless occurs in conjunction with failure of site infrastructure above as this would lead to nitrification or contamination of surface and groundwater with potential ecological harm.	Low probability of event. Operational area is fully bunded so leachate, digestate and fuel will be contained preventing surface runoff and infiltration to sensitive groundwater.

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2.3. Risk Mitigation Measures

Hazard	Equipment at Risk	Preventative Measures	Who to Inform	Monitoring Mitigation	Response Measures	System Procedures
Breach of site secondary containment.	Leachate tanks and fuel storage.	<ul style="list-style-type: none"> Regular inspection of tanks to review integrity. 	<ul style="list-style-type: none"> Environment Agency. 	<ul style="list-style-type: none"> Site checks. 	<ul style="list-style-type: none"> If a leak occurs at a processing tank, inform Site Manager upon detection. Follow emergency procedure (<i>SMS EP 04 Action to be taken in the event of a leaking process tank</i>). Try to contain liquids, where possible, with temporary bunds (operational area is fully bunded, so this is to prevent spread across operational area). Inform the EA as soon as possible to make them aware of the situation. If foaming occurs in one of the process tanks, follow the emergency procedure (<i>P3/00082132/0614/01: high level foam procedure</i>). 	<ul style="list-style-type: none"> Management System. Accident Management Plan. SMS EP 04 Action to be taken in the event of a leaking process tank. P3/00082132/0614/01: high level foam procedure.
Failure of site infrastructure.	Digester tanks and drainage. Site Lagoon.	<ul style="list-style-type: none"> Infrastructure regularly checked with maintenance programmes. Leak detection system installed on lagoon. 	<ul style="list-style-type: none"> Environment Agency. 	<ul style="list-style-type: none"> Routine daily inspections of integrity. 	<ul style="list-style-type: none"> Inform Site Manager upon detection. Arrange for remedial works to be carried out immediately. Inform the EA of failure and proposed timescale to repair. Depending on the severity of the failure and timescale to repair, reception or processing of material would not be undertaken until agreed with the EA. 	<ul style="list-style-type: none"> Management System. Accident Management Plan.
Site security failures / vandalism.	All	<ul style="list-style-type: none"> Perimeter of the site is made up of 1.8m chain link fence. All visitors to the site to sign in and out and to be supervised. 	<ul style="list-style-type: none"> Police. Environment Agency (if leading to pollution incident). 	<ul style="list-style-type: none"> Daily lock up at end of each working day. 	<ul style="list-style-type: none"> Inform site management. Site manager to assess damage and mitigate any damage / pollution caused. Consult emergency procedure (<i>SMS EP 01 Actions to be taken the event of a fire</i>) if damage has caused a fire. Inform Police. Inform EA if required. 	<ul style="list-style-type: none"> Management System. Accident Management Plan.

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Hazard	Equipment at Risk	Preventative Measures	Who to Inform	Monitoring Mitigation	Response Measures	System Procedures
					<ul style="list-style-type: none"> • Record incident in the general accident form. 	
<p>Accidental explosion of biogas / fire.</p>	<p>Digestion tanks and any equipment in vicinity of explosion / fallout.</p>	<ul style="list-style-type: none"> • Gas flare to dispose of excessive gas build ups. • Automated plant monitoring. • Staff trained to a competent level to operate the digester safely. • Maintenance of digester. • No smoking near the digester or related biogas lines and equipment. 	<ul style="list-style-type: none"> • Emergency Services. • Environment Agency. 	<ul style="list-style-type: none"> • Automated plant monitoring. 	<ul style="list-style-type: none"> • If a fire occurs on site, follow emergency procedure (<i>SMS EP 01 Actions to be taken the event of a fire</i>). This procedure identifies action during operational hours and out of hours. • Flaring of gas to prevent an explosion. • Evacuation of site and assemble at fire assembly points. • If possible, switch off machinery which may trigger a secondary explosion. • Call fire service and other emergency services as required. • Inform site management. • Post member of staff at site entrance to direct emergency services. • Liaise with and follow instructions of emergency team, making them aware of any hazards on site. • Site bunding will prevent fire waters causing pollution on site, unless damaged by explosion. If damaged, block escape of water with temporary bunding, if possible. • Fire water contained within storage tanks will be disposed of at an appropriate water treatment works. • Depending on the severity of the explosion, site critical equipment may have been damaged and no further reception or processing of material 	<ul style="list-style-type: none"> • Accident Management Plan. • Staff training and competencies for operating the digester. • SMS EP 01 Actions to be taken in the event of a fire.

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Hazard	Equipment at Risk	Preventative Measures	Who to Inform	Monitoring Mitigation	Response Measures	System Procedures
					<p>would be undertaken until agreed with the EA.</p> <ul style="list-style-type: none"> If equipment will be inoperable for extended periods of time, consideration will be given to the removal of material from site until repairs are effectuated. Record incident. Route cause analysis of the cause of the incident is to be undertaken. 	
Noise pollution and vibrations.	N/A	<ul style="list-style-type: none"> Staff will be provided with appropriate PPE (Ear defenders). 	<ul style="list-style-type: none"> The site manager will be informed of any nuisance complaints. 	<ul style="list-style-type: none"> Noise complaints from sensitive receptors will be investigated. 	<ul style="list-style-type: none"> Noise complaints from sensitive receptors will be investigated and recorded within the general complaints log form. If the situation is considered to be an emergency by the TCM (or designated responsible person) then the mitigation measures (see section 7.1 of the noise management plan) will be immediately implemented and the manager will consider limiting the hours of operation or immediately suspending the site operations/plant creating the unacceptable levels of noise. These measures will be considered on a case by case basis. 	<ul style="list-style-type: none"> Management System complaints procedure. Noise Management Plan.
Odour.	N/A	<ul style="list-style-type: none"> As defined in Odour Management Plan. 	<ul style="list-style-type: none"> Environment Agency. Local sensitive receptors. 	<ul style="list-style-type: none"> Daily odour detection at the site boundary. Records of odour monitoring are maintained. 	<ul style="list-style-type: none"> The operator shall undertake olfactory monitoring in line with section 10.1.1 of the odour management plan. A written report, summarising the outcome of the monitoring, shall be submitted to the Environment Agency. Where practicable mitigations measures will be implemented in line with section 12 of the odour management plan. 	<ul style="list-style-type: none"> Odour Management Plan.

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Hazard	Equipment at Risk	Preventative Measures	Who to Inform	Monitoring Mitigation	Response Measures	System Procedures
Gas Leaks– Methane, Carbon Dioxide, Carbon Monoxide, Hydrogen Sulphide and Ammonia.	Biogas and liquids that cause rapid corrosion or failure of electrical equipment, gas handling piping and building components.	<ul style="list-style-type: none"> Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme shall have MCERTS certification or accreditation. Continuous monitoring. Gas monitors calibrated every six months as per manufacturer's instructions. 	<ul style="list-style-type: none"> Emergency Services. Environment Agency Local sensitive receptors. 	<ul style="list-style-type: none"> The operator shall undertake monitoring of the gas sampling port for total VOCs, H2S and odour. Monitoring to be undertaken 12 months after start. Following commissioning monitoring to be undertaken in the event the flare has been operational for more than 10% of a year (876 hours). 	<ul style="list-style-type: none"> If a gas leak occurs at the CHP engines, gas to grid connection or the desulphurisation tower, follow emergency procedure (<i>SMS EP 03 Actions to be taken in the event of a gas leak in an engine compartment</i>). If required, the site manager can instigate the emergency plant shut down procedure contained at section 8 of SMS EP 01. Following a gas leak the site manager will inform the EA to make them aware of the situation. 	<ul style="list-style-type: none"> Fugitive Emissions Management Plan, Accident Management Plan, SMS EP 03 Actions to be taken in the event of a gas leak in an engine compartment.
Spread of animal or human disease.	N.A.	<ul style="list-style-type: none"> Good housekeeping practices. Vehicle and machinery washing facilities HACCP plan. 	<ul style="list-style-type: none"> ABPR regulator. Environment Agency. 	<ul style="list-style-type: none"> Monitoring of Critical Control Points within the HACCP process as detailed with the sites HACCP plan. 	<ul style="list-style-type: none"> Waste will be inspected when delivered to site to ensure it is a permitted waste. Non permitted wastes will be rejected. If a leaking feedstock delivery occurs on site, follow emergency procedure (<i>SMS EP 02 Actions to be taken in the event of a leaking feedstock delivery</i>). Following implementation of emergency procedure, record accident on digestate incident record form. Waste material is processed and particle size reduction is validated. 	<ul style="list-style-type: none"> HACCP Management Plan. SMS EP 02 Actions to be taken in the event of a leaking feedstock delivery.

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Hazard	Equipment at Risk	Preventative Measures	Who to Inform	Monitoring Mitigation	Response Measures	System Procedures
					<ul style="list-style-type: none"> Time and temperature requirements for the digester are validated. Periodic testing of the end product is undertaken to ensure the sanitisation process is effective. 	
Pests.	Waste reception hall. Processing tanks.	<ul style="list-style-type: none"> Good housekeeping practices Pest Management Plan, if required. 	<ul style="list-style-type: none"> Environment Agency. Pest Control. 	<ul style="list-style-type: none"> Externally contracted. 	<ul style="list-style-type: none"> Follow EA guidelines on pest control. On detection or notification of pest infestations, or evidence of such, immediate action shall be taken to secure the attendance of a professional pest control contractor, to eliminate the pest infestation. The incident and the remedial action shall be recorded in the vermin control record folder which is kept in the weighbridge office. 	<ul style="list-style-type: none"> Pests Management Plan, if required. Fugitive Emissions Management Plan.
Spills.	N/A.	<ul style="list-style-type: none"> Impermeable surface with contained drainage system. Operatives tasked with refuelling vehicles or connecting tankers to the digestate line are trained in how to correctly carry out these tasks. 	<ul style="list-style-type: none"> Environment Agency (if leading to pollution incident). 	<ul style="list-style-type: none"> Site checks. Routine daily inspections of integrity of site infrastructure. 	<ul style="list-style-type: none"> If a leaking feedstock delivery occurs on site, follow emergency procedure (<i>SMS EP 02 Actions to be taken in the event of a leaking feedstock delivery</i>). Following implementation of emergency procedure, record accident on digestate incident record form. If a spill or leak of oil or diesel occurs on site, follow emergency procedure (<i>SMS EP 05 Actions to be taken in the event of a spill or leak of oil or diesel</i>). Following implementation of emergency procedure, record accident on general accident form. If a spill or leak of ferric chloride occurs on site, follow emergency procedure (<i>SMS EP 06 Actions to be taken in the event of a spill or</i> 	<ul style="list-style-type: none"> Management System. Accident Management Plan. SMS EP 02 Actions to be taken in the event of a leaking feedstock delivery. SMS EP 05 Actions to be taken in the event of a spill or leak of oil or diesel. SMS EP 06 Actions to be taken in the event of a spill or leak of ferric chloride.

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Hazard	Equipment at Risk	Preventative Measures	Who to Inform	Monitoring Mitigation	Response Measures	System Procedures
					<i>leak of ferric chloride</i>). Following implementation of emergency procedure, record accident on general accident form.	

2.4. Fugitive Releases

The site has a full Fugitive Emissions Management Plan reviewed on a yearly basis, or as necessary, as identified by the processes installed within the management plan.