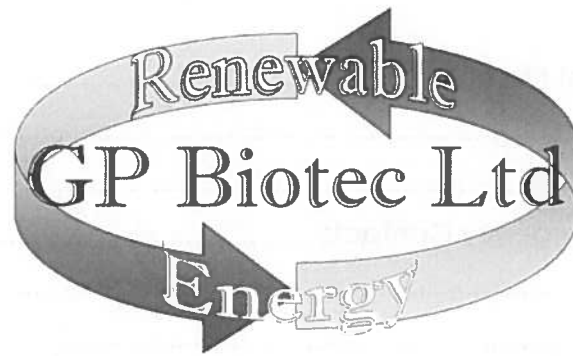




GP Biotec Ltd

Great Porthamel, Talgarth

Accident Management Plan

Date: July 2015

Review Date: July 2016

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Accident Management Plan

1 Summary

This document identifies the potential accidents and incidents associated with the anaerobic digestion process at GP Biotec, and details the current management systems in place to minimise these from occurring. The document also details the management systems in place to deal with an accident or incident if it occurred.

The Accident Management Plan (AMP) has been produced in accordance with Environment Agency/Natural Resources Wales (NRW) guidance Document 'How to Comply with your Environmental Permit (EPR 1.00).

The AMP includes the following information:

- Site Plan
- Key Site and Emergency Contacts
- List of Substances and Storage Facilities
- Preventing Accidents/Incidents and what to do if they happen

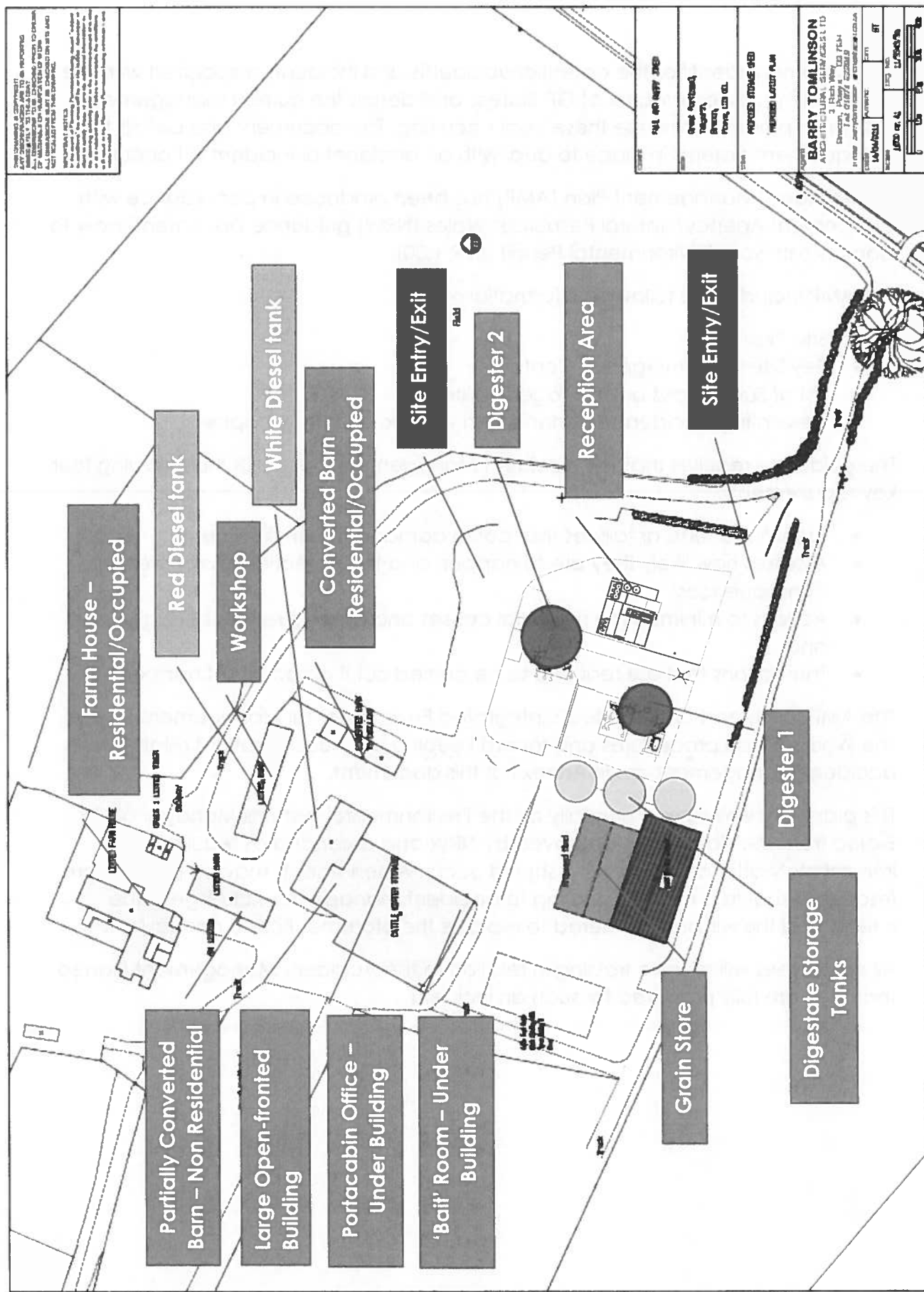
The guidance requires that the Accident Management Plan fulfils the following four key requirements:

- Identifies events or failures that could damage the environment;
- Assesses how likely they are to happen and the potential environmental consequences;
- Actions to minimise the potential causes and consequences of accidents; and
- The actions that are required to be carried out if an accident happens.

The AMP forms part of GP Biotec's integrated Environmental Management System. The Working Plan procedures and record keeping methods/locations related to accident management are in Annex I of this document.

This plan will be reviewed annually by the Environmental Systems Manager at GP Biotec from the date it was approved by NRW and amended as required or immediately after an incident if it should occur. Amendments may be made more frequently should a method relating to accident management change in the interim and this will be considered to replace the aforementioned annual review.

All employees will receive training in relation to the Accident Management Plan so that they are fully prepared for such an incident.



3 Key Site and Emergency Contacts

3.1 Site Details

Location	Great Porthamel Farm, Talgarth, Brecon, Powys
Postcode	LD3 0DL
Site Access Grid Reference:	Reference OS X (Eastings) 316023 ; OS Y (Northings) 235046 Grid reference SO160350.

3.2 Site Contacts

[illegible]

3.3 Emergency Services

Emergency Contacts	Office Hours (8am-6pm Mon-Fri)	Out of hours
Emergency	999	999
Medical	Talgarth Medical Centre (01874 713 000) or 999	999
Police	999	999
Fire	999	999

3.4 Regulators

Emergency Contacts	Office Hours (8am-6pm Mon-Fri)	Out of hours
Environmental Health	01938 551273	N/A
Local Authority	Powys County Council 01597 826000	Powys County Council 0845 0544847
National Resources Wales (Local)	0300 065 3000	
National Resources Wales (24 hour emergency hotline)	0800 80 70 60 (24hrs)	0800 80 70 60 (24hrs)
Animal & Plant Health Agency (APHA)	0300 303 8268	

3.5 Utility and Key Services

Providers/Suppliers	Office Hours (8am-6pm Mon-Fri)	Out of hours
Water provider	Private Spring	Private Spring
Sewerage provider	Private Septic Tank	Private Septic Tank
Electricity supplier	Opus Energy 0845 0405795	Opus Energy 0845 0405795
Fuel supplier	OJ Williams 01497 847 881	N/A
Chemical supplier	Engine Oil – Fuchs 01782 203700 Carbon for filter – Pure Air Solutions 0774002 4047 Glycol – Fuchs 01782 203700	
Maintenance contractors		

Electrician		
Plumber		
Locksmith		

3.6 Other Key Contacts

Other Key Contacts	Office Hours (8am-6pm Mon-Fri)	Out of hours
Adjacent landowners		N/A
Neighbours		
Specialist advisors		N/A
Town Council – Town Clerk		N/A
Community Liaison Group		N/A

4 List of Substances and Storage Facilities

Material	Maximum Quantity	Type and size of storage	Secondary Containment	Product Data	COSHH
CHP Engine Oil	1000 litres	Up to 1000 litres tank	Bunded tanks	See Annex III	Health and Safety SR19 (Annex IV)
Dirty Engine Oil	1000 litres	Up to 1000 litre in dirty oil tank	Bunded tanks	See above	See above
Glycol	205 litres	In workshop	No	Yes Annex III	
Activated Carbon	1000 kg	In engine container.	No	Yes Annex III	
Grease	80	In Workshop – Sealed Alloy Lubricant Store	Yes – in sealed cartridges and then a box	Yes Annex III	
Alternator Grease	1 kg	Engine container	Yes – in sealed cartridges and then a box	See Annex III	
Gearbox Oil (EP90)	205 litres	In Workshop – Sealed Alloy Lubricant Store	Yes	See Annex III	
Disinfectant	5 litres	Disinfectant Shed	Yes	N/A	
Hydrogen Sulphide (H ₂ S)	N/A	N/A	N/A	Safety Data Sheet – Annex III	
Carbon dioxide (CO ₂)	N/A	N/A	N/A	Safety Data Sheet – Annex III	
Methane (CH ₄)	N/A	N/A	N/A	Safety Data Sheet – Annex III	

Assessment of accident risks

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
1. Spillages					
1.1 Spillage during transfer of wastes from tankers to pre-storage tanks (blood/DAF/waste water)	LOW	LOW to MODERATE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Inspect and validate all in-coming wastes (see Procedure GP-E02/GP-E03/GP-E04 Annex I). Staff trained in unloading of waste deliveries, all transfers of waste to be supervised by Site Managers (see Procedure GP-E05 Annex I and Training Records in Site Office) Sealed drainage and containment system for storage tanks and Reception Area where waste is transferred to storage tanks, so spillages are contained. Tanks visually inspected daily by Site Manager to ensure continued integrity of tanks and identify any necessary remedial action. (See Daily Checks Procedure Annex I)	Follow the spill response procedure (See Section 6 of the Accident Management Plan) It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan	LOW
1.2 Spillage during delivery of oil to CHP engine	LOW	MODERATE Contamination of land, drains, groundwater and watercourses with potentially polluting materials, e.g. oils, anti-freeze	Site Managers to supervise fuel deliveries. CHP Container is banded. (See CHP Engine Maintenance Schedule Annex V).	Follow the spill response procedure (See Section 6 of the Accident Management Plan) It describes what to do in the event of a spill and where the equipment is kept.	LOW
1.3 Spillages during refilling Gas Pressure Valve Sight Glasses	LOW		Manufacturers guidance adhered to for refilling See Operating and maintenance manual – Flexovalve 1000 – overpressure and underpressure protection (See Operating Manuals file Site Office)	Refer to Safety Data Sheet for CHP Engine Oil and Gycol (Annex III)	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
			Plant and equipment refuelled in designated areas with impervious surface, by Site Managers.		
2. Slow Seepage/Leakage					
2.1 Leakages from tankers during transfer of liquid waste to pre-storage tanks	LOW	LOW Odour Contamination of land, drains, groundwater and watercourses with waste materials	Staff trained in unloading of waste deliveries, all transfers of waste to be supervised by Site Managers (see Procedure GP-E05 Annex I and Training Records in Site Office) Sealed drainage and containment system for storage tanks and Reception Area where waste is transferred to storage tanks, so spillages are contained. All vehicles owned by the on-site haulage business, GP Services therefore all vehicles maintained and known to GP Biotec. No outside haulage used.	Follow the spill response procedure (See Section 6 of the Accident Management Plan) It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan	LOW
2.2 Slow seepage/ leakage of liquid wastes from liquid waste Storage tanks	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Liquid waste storage tanks contained in an impervious bund Daily visual inspection by Site Manager to ensure continued integrity of tanks and identify any necessary remedial action. (See Daily Checks Procedure Annex I)	Follow the spill response procedure (See Section 6 of the Accident Management Plan) It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan	LOW
2.3 Slow seepage/ leakage from pipework	LOW			Follow the spill response procedure. (See Section	LOW

Possible Accident / Incident	Probability of Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
between waste storage tanks and digesters		MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	High quality pipework, built and welded to BS ISO 8085 HDPE (High Density Polyethylene) Leak Detection System (see Daily Check Procedure Annex I) Pipework within banded area	6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan	
2.4 Slow seepage/ leakage of digestate from pipes between Primary to Secondary Digester					
2.5 Slow seepage/ leakage of digestate during transfer from Secondary Digester to Pasteurisers	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Pump checked daily (See Daily Check Procedure) High quality pipework, built and welded to BS ISO 8085 HDPE (High Density Polyethylene) Leak detection chambers (See Daily Check Procedure Annex I) Pipework within banded area	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	LOW
2.6 Slow seepage/ leakage of contents from Primary and Secondary digesters	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and	High quality pipework, built and welded to BS ISO 8085 HDPE (High Density Polyethylene) Digesters contained within impervious bund. Leak detection chambers (See Daily Check Procedure Annex I)	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
		watercourses with waste materials		and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	
2.7 Slow seepage/ leakage of digestate from pasteurisers	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Pasteurisers contained in a bunded room with 110% capacity of the pasteurisers; pasteurisers inspected daily (See Daily Check Procedure Annex I) See Manufacturers Report for correct installation and inspection (Annex VI)	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	LOW
2.8 Slow seepage/ leakage of digestate en route from pasteuriser to storage tanks - via pipe	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	High quality pipework, built and welded to BS ISO 8085 HDPE (High Density Polyethylene) Pipes are guaranteed at 12.5 bar pressure and pressure alarms are set at 5 bar. (See Daily Check Procedure Annex I) Pipework within bunded area	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
				Refer to Odour Management Plan Refer to Maintenance Schedule	
2.9 Slow seepage/ leakage of digestate during transfer from storage tank to lagoon via lay flat pipework	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Twice daily visual inspection of pipework (See Daily Check Procedure)	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	LOW - MODERATE
2.10 Spillage/ seepage of digestate during transfer from lagoon into tankers via pump	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with digestate	Staff trained in Spill Procedure and supervised by Site Managers. Equipment maintenance checks (See Daily Check Procedure Annex I and Maintenance Schedule Annex V)	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
				Refer to Maintenance Schedule	
2.12 Leakages and spillages of digestate whilst spreading/injecting	LOW	Contamination of land, drains, groundwater and watercourses with digestate	See separate Accident Management Plan for Spreading – Annex XIV	See separate Accident Management Plan for Spreading – Annex XIV	LOW
2.13 Leakages from hot water pipes	LOW	LOW/MEDIUM No environmental impact – Health and Safety Issue (see Health and Safety Procedures)	Pipework built to BSN ISO 8085 Equipment maintenance checks (See Daily Check Procedure Annex I and Maintenance Schedule Annex V)	See Hot Water Header Maintenance/Instruction documents – Annex V	LOW
2.14 Leakages; due to faulty pipe work, valves, over-pressure, blockages, corrosion, severe weather, ground movement etc.	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Pipework built to BSN ISO 8085 Twice daily visual inspection and maintenance schedule. (See Daily Check Procedure Annex I and Maintenance Schedule Annex V)	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
2.13 Gas Leakages from the Digester Tanks	LOW	MODERATE TO SEVERE Explosion Odour Contamination of land, drains, groundwater and watercourses with waste materials	The digesters are both placed within a DSEAR Explosion Zone and therefore all electrical and spark producing equipment is ATEX compliant (See Manufacturer Safety Document Annex VII). The digesters are fitted with: - Atex Gas pressure Sensor (See Daily Check Procedure) - Gas tight air blown covers (See Daily Check Procedure) Pressure sensors monitored by the SCADA system and in turn the Daily Check Procedure would alert the Site Manager to a gas leak) H₂S Gas Monitor worn at all times around the site. Lightening Protection System	- Prevent continued 'feeding' - Empty the gas storage facilities - Avoid ignition sources - Authorised persons only allowed with adequate ventilation and accompanied by a second person with a protection device Safety barrier against unauthorized See Section 2.1 Behaviour in the case of an emergency - Operating and maintenance instructions – Flexxodomer (Annex VIII)	LOW
Overfilling					
3.1 Overfilling of liquid waste Storage tanks	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and	Stock level control checks made by Site Manager daily (See Procedure GP-E01/E02 and Daily Checks Procedure Annex I) Staff trained to fill storage tanks safely (See training schedule and records in Site Office).	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
		watercourses with waste materials	Deliveries supervised by Site Managers (See Procedure GP-E05 Annex I). Overflow pipes flow into concreted bunded area which would contain liquid waste (see Daily Check Procedure Annex I and Maintenance Schedule Annex V).	and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	
3.2 Overfilling of digester tanks	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	High Level alarms (see Daily Check Procedure and Maintenance Schedule). Can't find ref to these Computer software prevents overfilling via interlocks. (See Daily Check Procedure and Maintenance Schedule). Digestate would be contained in the bunded area. (See Daily Check Procedure and Maintenance Schedule).	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	LOW
3.3 Overfilling of pasteurisers	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	High Level alarms (see Daily Check Procedure and Maintenance Schedule). Computer software prevents overfilling via interlocks. (See Daily Check Procedure and Maintenance Schedule). Digestate would be contained in the bunded area which can hold 110% capacity of the	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
			pasteurisers. (See Daily Check Procedure and Maintenance Schedule).	Refer to Odour Management Plan Refer to Maintenance Schedule	
3.4 Overfilling of digester Storth storage tanks	MEDIUM	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Staff trained to fill Storth storage tanks safely and under supervision of the Site Manager (See Staff training records). See Daily Checks Procedure and Maintenance Schedule. Digestate would be contained in the bunded area. (See Daily Check Procedure and Maintenance Schedule).	Follow the spill response procedure. (See Section 6 of the Accident Management Plan It describes what to do in the event of a spill and where the equipment is kept. Refer to Odour Management Plan Refer to Maintenance Schedule	LOW
Failure of Plant or Equipment					
4.1 DIGESTER					

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
4.1.1 Failure of Anaerobic Digestion process e.g. foaming, waste feedstock could contain impurities that impede/prevent the anaerobic digestion process	LOW	MEDIUM Odour If foam occurs it can enter the gas overpressure relief pipes and clog them, therefore resulting in a dangerous build-up of overpressure in the digester (See Operating and maintenance instructions – Flexxodomer Double Membrane Cover (Section 2.8.2))	All wastes accepted onto site have been subject to 'pre-acceptance' and acceptance in accordance with Procedure GP-E01/E02 All incoming wastes are inspected in accordance with Procedure GP-E03 When in the waste reception area non-conforming wastes will be rejected in accordance with Procedure GP-E03/E04 Records of incidents involving incompatible waste will be kept on site together with a summary of the remedial action taken in line with Procedure GP-E03/E04. (See Daily Checks Procedure and Maintenance Schedule)	Stop feeding. Contact Biogas Analytic for advice Circulate contents of Tank 2 into Tank 1 to dilute contents of tank 1 to increase bacteria in Tank 1. Additives to prevent foaming e.g. oil seed rape oil Hire a boiler to maintain temperature. Pasteurise contents of digester and then transfer to storage in our Standard Rules Permitted Site (EPR/GB3631AP)	LOW
4.1.2 Failure of hot water pipe in digester	LOW	MEDIUM Odour Heating System would fail and digester would have to be	Daily Checks Procedure (Annex I).	Stop feeding. Speed up pasteurisation of Tank 2 contents. Empty the contents of Tank 1 into Tank 2. Repair pipe.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
		emptied to repair it.		If it happened in Tank 2: Speed up pasteurisation of Tank 2 contents, in order to empty tank and then repair pipe.	
4.1.3 Roof level/blower failure	MEDIUM	LOW	Daily Check Procedure (Annex I)	Replace the roof blower (we have one in stock for this eventuality as per the advice in Operating and maintenance instructions – Flexxodomer Double membrane cover Annex VIII)	LOW
4.1.5 Failure of over/under pressure valves	LOW	MEDIUM	EC Declaration of Conformity (see Annex X) Daily Check Procedure/Maintenance (see Operating Manual Gas Pressure Safety Device Type: HSOP700 - Section 8 See Operating Manual File))	Repair – refer to Operating Manual Gas Pressure Safety Device Type: HSOP700 See Operating Manual File)	LOW
4.1.9 Puncture of waste storage tanks	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and	Tanks contained within impervious bund. Daily Check Procedure (Annex I)	Remove waste with vacuum tanker and then feed to the digester direct from this tanker until empty, whilst repairs take place.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
		watercourses with waste materials			
4.1.10 Puncture of roof membrane of digester tanks	LOW	MEDIUM/HIGH Biogas released to the atmosphere Short term risk of explosion before gas dispersed	Membrane is double layered. Daily Checks Procedures (Annex I). See Annex VIII (Operating and Maintenance instructions – Flexxodomer Double Membrane Cover (Section 11)) ATEX explosion zones identified (see Annex IX) and all electrical installations/devices within the defined zones are ATEX compliant (see EC Declaration of Compliance document Annex X)) Lightening protection system	- Prevent continued 'feeding' - Empty the gas storage facilities - Avoid ignition sources - Authorised persons only allowed with adequate ventilation and accompanied by a second person with a protection device - Safety barrier against unauthorized access (if necessary outside the site) Depending on size of tear either employ a company using breathing apparatus to repair the roof. For more extensive damage the tank would be emptied of digestate and the repair could	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
				take place once this has been done. See Operating and maintenance instructions – Flexxodomer Double Membrane Cover (Section 2.1)	
4.1.11 Puncture of digester tank	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Digesters contained within impervious bund. Leak detection chambers - checked daily (see Daily Check Procedure Annex I)	Use vacuum tanker to remove the digestate from the bund and empty into storage in our Standard Rules Permitted Site (EPR/GB3631 AP). Repair the tank and then transfer back into the digester.	LOW
4.1.12 Paddle Mixer	LOW	LOW/MODERATE	Daily Check Procedure (Annex I) and Maintenance Schedule (Annex V See Operating Instructions Hydromixer) Mechanical parts are external and therefore repairs can be carried out easily.	Repair. (See Annex V Operating Instructions Hydromixer – (Section 7 Wear and Replacement Parts list and Section 8 Troubleshooting)	LOW
4.2 ENGINE					
4.2.1 CHP Engine failure	LOW	LOW	Daily Checks (Annex I) and Maintenance Schedule (Annex V)	Refer to MWM Operating Manual –	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
				Trouble Shooting Section 8 (Annex XI) Repair	
4.2.2 Cooling System failure	LOW	LOW	Daily Checks (Annex I) and Maintenance Schedule (Annex V)	Repair	LOW
4.2.3 Flare failure	LOW	LOW Odour	Daily Checks (Annex I) and Maintenance Schedule (Annex V) Over pressure values would release gas into the atmosphere. Under normal circumstances the overpressure safety will not be used. It is guaranteed that the safety after opening will close completely. At a possible problem (e.g. a long lasting interruption of the CHP unit) the biogas will be offered to the flare. If the flare is also out of order the surplus of biogas will be emitted through the overpressure safety. The overpressure of the digester has a maximum pressure of about 3,5 mbar. Also the feed to the digester will be stopped, this results also in a stop of the feed to the secondary digester. This will result in a collapse of the biogas production in time. (See TAB4 Safety Document	Repair	LOW
4.2.4 Carbon filter failure	LOW	MEDIUM Possible odour of biogas	Daily Checks (Annex I) and Maintenance Schedule (Annex V)	Stop engine if H ₂ S levels rise above 200ppm.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
				Stop engine and flare the gas until filter issue resolved	
4.3 RECEPTION AREA/FEEDER					
4.3.1 Failure of ABP Solid Feeder	LOW	MEDIUM	Maintenance Schedule and Daily Checks Procedure (See Instruction Manual for Raw Material Handling Sections 5-13 Annex V)	GP Biotec to repair problem (See Instruction Manual for Raw Material Handling Sections 5-13 Annex V)	LOW
4.3.2 Failure of carbon filter	LOW	MEDIUM/SEVERE Depending on the weather conditions odour could be an issue.	Daily Checks Procedure (Annex I) includes checking that the filter is in good working order	Plan refrigeration system, essential in backing up the filter for odour control	LOW
4.3.3 Failure of Non-ABP Solid feeder	LOW	LOW	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair problem	LOW
4.3.4 Failure of Quick Mix	LOW	LOW	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair problem	LOW
4.3.5 Failure of Biocutter	LOW	LOW	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair problem	LOW
4.3.6 Failure of Liquid Waste filter	LOW	LOW	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair problem	LOW
4.3.7 Failure of Liquid Waste pump	LOW	LOW	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair problem	LOW
4.3.8 Puncture; of vessels and tanks etc. due to	LOW	MODERATE TO SEVERE	Tanks and vessels generally located within / on secondary containment facilities.	GP Biotec/GP Services to make repairs	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
impact – such as fork lift trucks.		Contamination of land, drains, groundwater and watercourses with potentially polluting materials, including oils, waste materials	Storage locations of drums and non-permanent vessels protected by use of barriers or fencing. Movement of drums and containers using safe techniques.		
4.4 PASTEURISER					
4.4.1 Failure of Pasteuriser(s)	LOW	MODERATE Inability to fulfil the Quality Protocol and achieve PAS:110 and APHA standards.	Annual calibration of probes (see Maintenance Schedule Annex V) Interlocks and fail safe SCADA system	Re-pasteurise failed batch	LOW
4.4.2 Failure of pasteuriser transfer pumps	LOW	LOW	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair	LOW
4.5 HEATING SYSTEM					
4.5.1 Failure of pressure in heating system	LOW	MEDIUM	Maintenance Schedule (Annex 5) and Daily Checks Procedure (Annex I)	GP Biotec to repair	LOW
4.6 OTHER					

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
4.6.1 Leakages; due to faulty pipe work, valves, over-pressure, blockages, corrosion, severe weather, ground movement etc.	LOW	MODERATE TO SEVERE Contamination of land, drains, groundwater and watercourses with potentially polluting materials, including oils, waste materials	Pipework built to BSN ISO 8085 Daily visual inspection and completion of weekly inspection checklist record (Annex I). Any underground pipes and tanks will be tested for integrity. Insulation and protection of pipe work.	Close taps to isolate leak and GP Biotec to repair	LOW
3. Fire					
5.1 Fire on site Electrical equipment that could provide an ignition source e.g. in the CHP engine room	LOW See Fire Risk Assessment Annex I	MEDIUM Smoke and pollution, odour. Firewater causes contamination of land groundwater and watercourses.	All plant is subject to a planned preventative maintenance schedule (GP E11 Infrastructure Management and Monitoring Programme) Separation of incompatible materials and of combustible materials and ignition sources. Incorporation of fire breaks into site layout and containment of fire water. No smoking policy. Maintain tidy site and minimize stockpile of combustible materials. Fire training and emergency drills. The plant has been specified to be intrinsically safe and earthed in accordance to best practice. Maintenance of up to date drainage plan.	Isolate gas and electricity from affected area and contact Fire Brigade See Fire Risk Assessment document and Action Plan	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
			Maintenance of inventory of substances with material property details. Procedure for contractors to work on site including induction training and permit to work. Fail-safe filling systems. See Document TAB 4 Safety - Digester		
Flood					
6.1 Due to ingress of watercourse floodwater, blocked drains, burst water main, use of fire water.		Contamination of raw materials, buildings, land, drainage system, groundwater and watercourses with fire and flood water.	Maintenance of drains (see Annex I Daily Check Procedure). Fitting of flap / non return valves on drains. Safe location for storage of hazardous materials. All parts of the operation have sealed drainage and bunding systems which would prevent the inflow of off-site flood water into critical areas (bunds, tanks, storage etc)	Flood procedure describing what to do in the event of a flood warning such as installation of barge boards, use of sand bags, movement or protection of sensitive materials.	LOW
6.2 Heavy rain	LOW The site is situated in Flood Zone 1, therefore is considered an area of low probability with	LOW	Maintenance of drains (see Annex I Daily Check Procedure). Fitting of flap / non return valves on drains. Safe location for storage of hazardous materials. All parts of the operation have sealed drainage and bunding systems which would prevent the inflow of off-site flood water into critical areas (bunds, tanks, storage etc)	Clear blockage with jetter and tanker equipment on site.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
	regards to flooding.		In cases of extreme rainfall, the site containment systems will contain all water falling on site.		
Failure of Services					
7.1 Due to failure of supply; water, electricity, gas supply and of sewerage system.	MEDIUM	LOW If power is restored within 12 hours. Failure of carbon filter system which forms odour abatement on the liquid waste storage tanks and reception building. Medium to high risk of odour.	Provision of standby facilities (e.g. hire generator if power off for over 6 hours) Maintenance of up to date plans showing location of utility services. Procedure for contractors to work on site including induction training and permit to work.	Utility supply failure procedure describing what to in the event of services supply failure such as manual shut down of process valves, start-up of emergency generator, use of standby materials etc. Relieve pressure at over pressure valve until power restored (See Annex III) Operating and maintenance instructions – Flexxodomer Double Membrane Cover (Section 2.8.5) Flood and fire procedure as described above.	LOW
7.2 Due to utility supply being struck and broken / cut.	LOW	LOW	Maintain good contact with Western Power Distribution.	Hire generator if power off for over 6 hours.	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
			Installation of second engine with Island Mode in Feb 2015 will negate any issues with power supply failure.		
Failure of Containment					
8.1 Failure of containment facilities due to land movement, impact, corrosion etc.	LOW	MODERATE TO SEVERE Odour Contamination of land, drains, groundwater and watercourses with waste materials	Provision of secondary containment for hazardous liquids. Inspection of primary and secondary containment facilities. Integrity testing of tanks and bunds & pressure loss alarms.	Spill response procedure as described above.	LOW
Vandalism					
9.1 Unauthorised entry and tampering or malicious damage to property, plant and equipment.	LOW	Contamination of land, drains, groundwater and watercourses.	Secure gate and perimeter fence. Site locked when un-manned, tanks and valves locked when not in use out of hours. Plant and equipment locked in secure storage out of hours. Security system installed including camera and recording facilities.	Spill response procedure as described above.	LOW
Extreme Weather					
9.1 Freezing Conditions	LOW	Freezing of Over/under pressure valve liquid	Daily Check Procedure/Maintenance When conditions outside are around 4°C the device must be filled with anti-freeze (glycol) (see Operating Manual Gas Pressure Safety Device	Repair – refer to Operating Manual Gas Pressure Safety Device Type: HSOP700 See Operating Manual File)	LOW

Possible Accident / Incident	Probability of Accident/ Incident Occurring	Potential Impact	Risk Management	Action Plan in the event of Accident/Incident Occurring	Risk following Mitigation
	LOW	Freezing of valve N5, no significant damage would be caused, the condensate would freeze.	Type: HSOP700 - Section 7 See Operating Manual File) Daily Check Procedure Be aware of freezing conditions and protect the valve N5 from freezing (see TAB 8 Annex) by insulating the carbon filter with lagging ¹ . The gas that goes through the filter is warm and we have had temperatures of -5 before with no issues	Defrost the condensate with warm water	LOW
9.2 High Winds	LOW	Debris being blown onto digester roofs	Landscaped site with no mature trees near the site. Buildings near the digesters are kept in good repair e.g. no loose roof panels etc. Site kept tidy so no loose items that could be blown onto the digesters thereby causing damage.	To be vigilant in checking the site, particularly the digester roofs during periods of high winds	LOW
9.3 Snow	LOW	Impact on digester roof	Snow loads will drop off due to the roofs pitch and temperatures from the gas storage roof The support air in the space between the membranes counteracts the snow load on the outside. (See Operating and maintenance instructions – Flexxodomer Double Membrane Cover (Section 3.2.9.3 Snow Load)	In case of heavy snow loads, Site Manager to remove instantly.	LOW

¹ Insulation of CHP carbon filters to be carried out before next winter.

5 Incident Response Procedure

In line with BAT stated in EA Additional guidance for: Anaerobic Digestion Reference LIT 8737 Report version 1.0 and November 2013, and in line with permit condition 4.3.1 and the use of the Schedule 5 – Notification form (see Permit Annex XIII), the procedure for investigating, communicating and reporting an actual/potential non-compliance with operating procedures and emissions limit is stated below.

Table 5.1 Emission Limits

Type of Emission	Limit
Emissions to water	No point source emissions
Emissions to air	No point source emissions except from sources and emission points listed in Schedule 3 tables S3.1 of GP Biotecs environmental permit which shall not be exceeded ²
Emissions to land	No point source emissions

5.1 Investigation

A thorough investigation will be carried out by the Site Manager and Environmental Systems Manager to establish the following:

- what happened;
- how did it happen;
- how well did we respond;
- how well did we follow the Incident Response Plan;
- did the plan work, what went well and what didn't;
- what was the overall impact of the spill, both to the environment and costs to the business;
- what changes need to be made to the Environmental Management System (EMS) to prevent the incident happening again;
- set a time frame for the changes to be made and if necessary arrange re-training for staff.

This information will be recorded in the Incident Response Form (see Annex XII) and a Schedule 5 – Notification form will be sent to NRW within 24 hours of the event.

² See GP Biotec Permit in Annex XIII

5.2 Communication

Once the incident has been investigated and the Incident Response Form has been completed, updates will be made to the relevant parts of the EMS. Natural Resources Wales (NRW) will be sent the amended documents for approval. Once approved by NRW updated versions of the relevant sections of the EMS will replace the old version in the Site Office.

Staff will be updated on the amendments/re-trained if appropriate – this will be recorded in the personnel training records.

5.3 Reporting

A report will be kept on file in the Site Office detailing the investigation and the outcome.

INCIDENT RESPONSE FORM	
Time and date of incident:	Date: Time:
Incident Reported by:	
Report made by:	
What happened?	
How did it happen?	
How well did we respond?	
How well did we follow the Incident Response Plan?	
Did the plan work, what went well and what didn't?	
What was the overall impact of the incident, both to the environment and costs to the business?	

What changes need to be made to the Environmental Management System (EMS) to prevent the incident happening again?		
Actions taken:		
Form completed by:	Date:	Signed;

6 Spill Response Plan

6.1 Minor Spills

Feedstock (any organic material entering the digester) and digestate (any material exiting the digester) should be carefully transferred and contained. In the event of a minor spill staff have been trained to clean up and wash down the affected areas. NRW will be notified if such an event occurs.

6.2 Major Spills

In the event of a major feedstock or digestate spill, staff should exercise caution when containing the material and follow the steps below:

Step 1 – Control the source of the spill and contact NRW via a phone call.

Step 2 – Once the source is controlled, contain the spill by constructing temporary containment structures around the affected area, reducing potential damage to nearby buildings and contamination of surface waters and sensitive areas.

Step 3 – Site clean-up and restoration.

Step 4 – Records made of the incident in the Accident Book including type of spillage, causes, staff involved.

Step 5 – Schedule 5 – Notification³ completed and sent to NRW

Step 6 – Review the incident and identify improvements to prevent it from happening again (see section 5.1); amend Accident Management Plan accordingly.

6.3 Spillage Equipment at Site

GP Biotec has equipment on site to deal with minor and major spillages, these include:

- Spill kits (for both oil based spills and other types of spills)
- Vacuum tanker
- Jetter

These are maintained by GP Services.

6.4 Reviewing Incidents

A thorough internal investigation will be carried out in the event of a major spillage by the Site Manager and the Environmental Systems Manager; unless Natural

³ GP Biotec EA Permit – Schedule 5

Resources Wales deem the incident worthy of inspection by an external body, who will carry out an additional independent investigation. The following information will be investigated:

- what happened;
- how did it happen;
- how well did we respond;
- how well did we follow the Spill Response Plan;
- did the plan work, what went well and what didn't;
- what was the overall impact of the spill, both to the environment and costs to the business.

As a result of the investigation GP Biotec will then decide whether to:

- review and improve management procedures to make sure whatever caused the spill can't happen again;
- review staff training for management procedures and incident response;
- update the Spillage Response Plan if something didn't work or could be improved.

