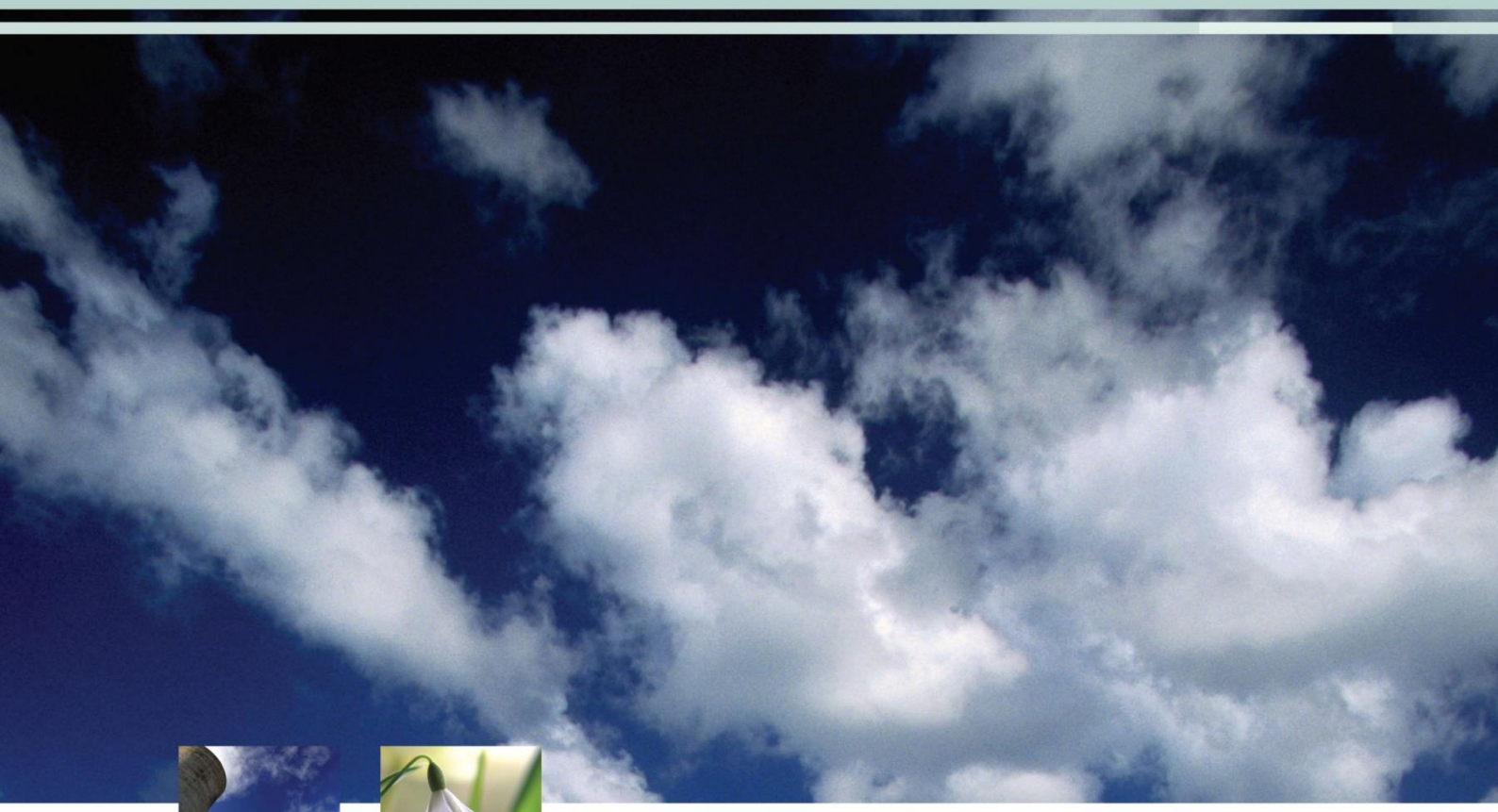

ACCIDENT MANAGEMENT PLAN
GP Biotec Ltd

Great Porthamel AD Plant

Prepared by:
Sol Environment Ltd

Date:
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Project or Issue Number:
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1 INTRODUCTION

This document has been prepared by Sol Environment Ltd on the behalf of GP Biotec Ltd (hereafter referred to as "the applicant") in support of a Normal Variation Permit Application to vary the existing EPR permit (EPR/AB3233DW) under The Environmental Permitting (England and Wales) Regulations 2016 (as amended) at Great Porthamel AD Plant.

This document represents the Accident Management Plan (AMP) submitted as part of the Application package to Natural Resources Wales (NRW) (Sol Environment Ref. SOL_21_P001_GPB).

GP Biotec Ltd site (*'the Site')* is located at Great Porthamel Farm, Talgarth, Brecon, Powys, LD3 0DL.

This Accident Management Plan has been produced in accordance with NRW guidance Document *'How to comply with your Environmental Permit (EPR 1.00)'*.

It is stipulated under this guidance document 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.

This Accident Management Plan will be implemented and maintained at the site as part of the company's Environmental Management System and will ensure the site and all operatives within are fully prepared for such incidents.

A number of the control measures cited within this document refer to the operators suite of Environmental Procedures and new procedures which will need to be drafted in response to the proposed new operations at site.

These documents should be referred to for detailed actions in relation to emergency response and control.

- Waste Pre-Acceptance;
- Waste Acceptance;
- Waste Rejection;
- Off Site Waste Transfers;
- Waste Reception;
- Anaerobic Digestion;
- Daily Check and Maintenance Schedule;
- Process Monitoring and Control;
- Compliance to the ADQP and Biomethane from Waste QP;

- Environmental Records;
- Control of Vermin and Scavenging Birds;
- Environmental Management and Monitoring;
- Incident Response Procedure;
- Spill Response Plan; and
- Infrastructure Management and Monitoring.

The Accident Management Plan and all associated procedures will be reviewed at least every four years or as soon as practicable after an incident, with changes made accordingly to minimise the risk of occurrence / recurrence.

2 RISK MAGNITUDE ESTIMATIONS

The Accident Management Plan (Table 2.2 overleaf) has adopted a risk assessment approach to each potential hazard by combining the probability and magnitude of the potential risk to give an estimation of the risk prior to any mitigation measures. The risk management measures, which are designed to reduce the likelihood of occurrence, are then detailed followed by an estimation of the actual risk post-mitigation (Residual Risk Rating).

The DEFRA guide to risk assessment[1] indicates the approach of subjectively classifying the magnitude of potential consequences into four categories depending upon the degree of the impact that the potential risk could have and the context in which the risk is being assessed. The classification is used as a guide in this Risk Assessment.

The four categories are as follows:

- **Severe:** Possible irreparable damage to environmental resources;
- **Moderate:** Possible damage to environmental resources which are limited within a regional context;
- **Mild**: Possible effects might be transient damage to environmental resources which are commonplace on a regional basis and alternative sources are readily available;
- **Negligible:** The effects are negligible or might cause very slight temporary deterioration in the current environmental resource quality.

The matrix shown below considers the probability of the potential risk against the magnitude of the potential impact, thereby giving an estimation of the resulting likelihood of the risk occurring.

Table 2.1: Risk Estimation Matrix

Probability of potential Risk	Magnitude of Potential Impact			
	Severe	Moderate	Mild	Negligible
High	High	High	Medium/Low	Near Zero
Medium	High	Medium	Low	Near Zero
Low	Medium	Medium	Low	Near Zero
Negligible	Medium	Medium/Low	Low	Near Zero

The qualitative risk assessment for the Accident Management Plan has been based on the matrix outlined above.

The final stage of the risk assessment is the judgment of the severity of the residual risk following implementation of the mitigation measures.

[1] A Guide to Risk Assessment and the Risk Management for Environmental Protection, 1995.

Table 2.2: Accident Management Plan					
Accident Scenario	Probability of Accident Occurring	Magnitude of Potential Impact	Risk Rating before mitigation	Risk Management	Residual Risk Rating (following Mitigation)
1 - Spills and Leaks / Loss of containment / transfer of Substances / Overfilling of Vessels	Medium	Moderate to Severe Spillage and leakage could occur during feedstock deliveries, feedstock transfers / tank chemical reactions. Other incidents could involve vehicle refuelling, vehicle breakdowns/ accidents and or damage to tanks or bunds. Loss of containment could result in potentially polluting materials (including oils and chemicals) being discharged in surface water drainage systems and to controlled waters. Loss of odorant/propane could result in odour nuisance.	High/Medium	• A sealed drainage and containment system for all tanks containing potentially polluting liquids has been constructed so that any leaks / spills are contained; • Electronic monitoring (i.e. level gauges, feedback loops etc) is installed on all vessels; • All external delivery areas are contained within a sealed drainage and containment system that incorporates bund walls, appropriate falls and drains; • All storage vessels have been constructed to the appropriate British Standard; • Tanks are inspected visually on a daily basis by site staff to ensure continued integrity of tanks, and identify any necessary remedial action; • Minor spills to be cleaned up immediately, using sand or proprietary absorbent. Resultant materials to be placed in container for off-site disposal to appropriate facility, if necessary; • Immediate action to be taken in event of major spill which is likely to cause polluting emissions to the environment to prevent liquid from entering surface water drains or any adjacent unsurfaced ground. Spillage to be cleared immediately and placed in containers for offsite disposal. NRW to be informed; • The plant has been designed to include an automated alarm system in the vent that any tanks are approaching overfilling; • The new odorant and propane tanks will benefit from secondary containment and regular inspection. • The propane tanks will be supplied by a UK supply leader and maintained as part of the planned preventative maintenance programme. Gas tight seals and gas detection systems will be used to mitigate risk of leaks.	Low

2 - Vandalism	Low	Moderate The site could be subject to intentional vandalism and damage by intruders/ trespassers who could cause damage or harm to the plant and equipment, spills and leaks to tanks or cause fires.	Medium	• On-site security measures: • Security lighting 24 hours a day; • Security cameras are installed at key areas of the site; • Security fencing extends around the site perimeter; – 2m palisade or equivalent; • Lockable gates are located at the site entrance; • Gates will be locked whenever the site is closed; • Gates and fencing are inspected daily by operations staff to identify deterioration and damage and the need for repair; • Fencing and gates are maintained and repaired to ensure their continued integrity. If damage is sustained, repair will be made within the same working day. If this is not possible, suitable measures will be taken to prevent unauthorised access to the site and permanent repairs will be affected as soon as is practicable; • All visitors to the site are required to register in the visitor's book and sign out again on exit, thereby minimising the risk of unauthorised visitors on the site; • Operational procedures have been implemented including regular inspections, ensuring continual monitoring of security provision at the site.	Low
3 - Flooding	Low/Medium: The AD site is situated in Flood Zone 1, therefore is considered an area of low probability with regards to flooding. The access road to site which is adjacent to the new biogas upgrading plant is located in a Flood Zone 2 for surface	Mild	Low	• All activities at the operation have sealed drainage and bunding systems which will prevent the inflow of off-site flood water into critical areas (bunds, tanks, storage etc). • In cases of extreme rainfall, the site containment systems will contain all water falling on site.	Low

	water.				
4 – Fire /explosion on site Explosion of biogas / biomethane / propane; Plant malfunction; Electrical equipment that could provide an ignition source; Waste products / raw materials that may support combustion.	Medium	Severe	High	• All plant is subject to a planned preventative maintenance schedule (Infrastructure Management and Monitoring Programme) • All plant has been specified to be intrinsically safe and earthed in accordance to best practice; • All aspects of the plant and buildings are constructed of non-combustible materials; • The plant, including the new biogas upgrading plant, has been designed to shut down (fail safe) in the event of an emergency (all gases will be directed to Emergency Flare); • The control system will monitor all relevant process data for the biogas upgrading plant (flows in/out, operating temperatures and pressures etc). Biomethane flowing to the grid must at all times be compliant with the requirements of the Gas Safety (Management) Regulations 1996; • Remote access to the control system will be provided; • Should any abnormal incident occur affecting operation of the biogas upgrader, the unit will automatically shut down and biogas can be diverted to the flare; • There will be a ROV to enable the Gas grid operator to shut down biomethane offtake (from the biogas upgrading plant) in the event of operation issues. • The propane tanks will be supplied by a UK supply leader and maintained as part of the planned preventative maintenance programme. • Containment system: all tanks and vessels containing flammable and potentially polluting liquids are constructed so that any leaks/spillages are contained and responded to in accordance with established emergency procedures; • Fire suppression (utilising Nitrogen) and monitoring systems have been installed; • Separation of combustible materials from the source prior to processing; – All waste feedstock is stored within dedicated areas; – All flammable process consumables shall be stored in bunded tanks. • In the event of a fire, the following actions will be taken: – The fire brigade will be notified immediately and NRW as soon as practicable.	Low

				– All containment valves and systems will be closed. – The site will be immediately evacuated. • Records of fire incidences will be kept on site together with a summary of remedial action taken. • The entire site has been subject to a third party DSEAR assessment and all recommendations / mitigation measures incorporated • NRW will be advised of all incidents of fire as soon as is practicable; • Smoking will not be permitted in the operations areas of the site. • Automated fire sprinkler systems have been installed within the Reception Area.	
Incompatible Feedstock/ Unwanted Reactions: Some of the raw materials and waste inputs at the site could contain impurities that impede / prevent the anaerobic digestion process.	Low	Moderate / Severe	Medium	The following methods will be implemented to ensure that incompatible feedstocks do not compromise the safe operation of the plant: • All wastes accepted onto site have been subject to 'pre-acceptance' in accordance to established procedure; • All incoming wastes are inspected in accordance with established 'acceptance' procedure; • When in the waste reception areas, any non-conforming waste will be removed prior to acceptance in accordance with established procedure; • Records of incidents involving incompatible waste will be kept on site together with a summary of the remedial action taken.	Low
Failure of Mains Services: Failure in the mains services, water or electricity.	Medium	Mild	Low	In the event that mains services of water and electricity supplied to the site are unavailable, the following actions will occur: • In the event of sudden disconnection of the grid the ID fan will cease to operate, thus no emissions will be released to atmosphere; • All feed drives will stop and no more materials will be fed to the plant; • All pump sets will cease operating so no further transfer of material can occur; • The biogas upgrading plant will automatically stop and the biogas will be diverted to flare. • There will be a ROV to enable the Gas grid operator to shut down biomethane offtake (from the biogas upgrading plant) in the event of operation issues.	Negligible
Operator Error / Failure of Equipment: The unexpected breakdown of any part of the plant could	Medium	Mild	Low	The plant has been designed with a number of fail safe and automatic shutdown systems, where appropriate. • The design of the plant includes sufficient storage capacity for a number of weeks production and waste storage; • Should the above storage capacity be exceeded, incoming waste will	Negligible

result in short term buildup of waste in the reception areas or the incomplete treatment of waste. The result of operator error could result in the plant not functioning efficiently or a risk of fugitive emissions to air through uncontrolled decomposition of waste.				be diverted to nearby processing and / or landfill facilities. • In the case that a major plant failure occurs, no waste will be accepted on to site. • All equipment is subject to a Planned and Preventative Maintenance Programme (PPM), to minimise unplanned failures (GP-E11 Infrastructure Management and Monitoring) • The plant also has in place a number of Emergency Shutdown Controls to ensure safe shut down in emergency. • The new standby boiler will be used to provide heat and hot water to the facility in the event of CHP breakdown. • The biogas will be diverted to flare where necessary (i.e. if it cannot be burnt in the CHPs or standby biogas boiler). • There will be a ROV to enable the Gas grid operator to shut down biomethane offtake (from the biogas upgrading plant) in the event of operation issues.	

3 SUMMARY & CONCLUSION

This document has been prepared to meet the requirements pertaining to Accident Management Plans within the NRW guidance document EPR1.00 *'How to Comply with your Permit'.*

It is concluded that despite the Installation having the potential for a high-low environmental impact to the environment, the mitigation measures incorporated into the design of the plant and the site infrastructure are sufficient to mitigate the risks.

The company continues to operate using an established suite of procedures for the control and management of all materials and plant in use in their process. These procedures detail the required actions to be taken in the event of an emergency and should be used in the first instance for any accident and emergency at site.

A simplified process flow is provided in Figure 3.1 below.