CAMBST Accident Management Plan

Site Location.

The STC is located within the existing Cambridge WRC situated to the north of Cambridge city. It is bounded by the A14 in the north, by commercial establishments to the West and South and Railway track to the East.

Site Process.

2 spark ignition CHP engines (Biogas fuelled)

3 hot water boilers (Biogas or oil fuelled)

Gas holder

Enzymic hydrolysis plant

Anaerobic digesters (3)

Operation of the Installation produces a number of waste streams; including spent engine oil, and CHP engine consumables. There is also a siloxane gas scrubber. This will require carbon regeneration / replacement during the course of its operational life.

1.1 Overview

The EP Regulations require the identification of potential accidents associated with the operation of an Installation and implementation of measures to avoid or minimise the effects of an accident, should they occur. An environmental risk assessment is provided in Section 3.6 of the main supporting document which sets out the potential risks to the environment associated with the Plant. This section sets out the measures to be adopted at the Plant to minimise potential risks to the environment.

1.2 Loss of Containment

1.2.1 Gas Escape

Loss of containment of gaseous materials at the Plant could result in the escape of biogas or other gases to the atmosphere around the site. In order to minimise the potential for accidental releases of gas from the Plant the following measures have been adopted:

- The biogas holder is of steel construction with an inner bag and has been manufactured to the appropriate British Standard using appropriate grade materials;
- All pipework at the site used for the transfer of gaseous products has been manufactured to the appropriate British Standard using appropriate grade materials and all pipe joints and seals are also designed to meet the required British Standard;
- Regular monitoring of storage vessels, pipework and gas levels is undertaken to ensure no fugitive emissions are being released;

- Storage vessels and pipework are subject to regular visual inspection to ensure the structural integrity of the system remains uncompromised;
- All staff with responsibility for the handling or transfer of gaseous materials receive appropriate training for their role; and
- All staff on site receive training in site emergency procedures and the actions to take in the event of discovering a gas leak as part of their mandatory site induction training.
- The gas system has safety pressure release valves, which are designed to prevent over pressurisation of the system. Gas emissions from this point are monitored on telemetry with immediate call-out of staff to remedy.
- A waste gas burner is incorporated to deal with excess biogas and is the first point of relief for excess gas or pressure

In the event of a loss of containment of gaseous materials at the site the Emergency Gas Plan will be followed. Preventative measures incorporated into normal operations include a risk assessment in accordance with the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR) that will be periodically reviewed and updated against the latest DSEAR regulations and guidance to ensure best practice is adopted at the Plant.

1.2.2 Liquid Escape

Failure of the liquid containment systems at the Plant could potentially lead to reagents and effluents discharging to surface waters and ground waters in proximity to the site. Potential risks associated with this have been reduced through the implementation of the following measures:

- The storage vessels for all liquid materials for sludge treatment on-site are double skinned or bunded to 110% capacity and have been manufactured to the required British Standard using appropriate grade materials;
- All pipework at the site used for the transfer of liquids has been manufactured to the appropriate British Standard using appropriate grade materials and all pipe joints and seals are also designed to meet the required British Standard;
- Regular monitoring of storage vessels, pipework and fluid levels is undertaken to ensure no fugitive emissions are being released;
- Storage vessels, bunds and pipework are subject to regular inspection by site operational and maintenance teams to ensure the structural integrity of the system remains uncompromised;
- Spill kits comprising suitable materials for the containment of liquid spills have been placed appropriately throughout the site for the use of all staff;
- Site surfaces surrounding liquid storage areas and transfer pipes are constructed of impermeable material and equipped with appropriate drainage structures to prevent escape of fluids to surface waters or groundwaters;
- All staff with responsibility for the handling or transfer of liquid materials receive appropriate training for their role; and
- All staff on site must receive training in site emergency procedures and the actions to take in the event of discovering a liquid spillage and the use of spill containment measures as part of their mandatory site induction training.

1.2.3 Material Storage

Storage tanks for process chemicals are equipped with level monitoring devices, linked to overfill alarms. Fuel Oil tanks have visible overflow warning pipes which would enable delivery to be stopped

During deliveries of material to site, special care is taken to ensure that all storage tank levels and contents are checked in order to prevent the accidental overfilling of tanks or the inadvertent mixing of substances. Specific measures are in place for the discharging of sludge from delivery tankers to reduce the risk of overfilling of the tank and spillages during discharge.

Appropriate training is provided to personnel involved in receipt and handling of deliveries and specific procedures for the filling of tanks have been developed within the Plant management systems.

The emergency procedures were developed during the commissioning of the Plant and followed in the event of spills at the site.

1.2.4 Odorous Emissions

Regular inspection of site storage facilities and pipework is undertaken to ensure that the structural integrity of the system remains intact.

Regular site inspections and sniff checks are undertaken by the Treatment Manager and site team to ensure that no significant fugitive emissions of odour likely to cause pollution of the environment, adversely impact human health or significantly reduce the amenity of the local area are present. In the event of an accidental emission of odorous material from site storage facilities or pipework, the source of the emission will be isolated, investigated and, if required, operation suspended until the source of the emission has been sealed.

1.2.5 Vandalism and Unauthorised Access

Vandalism and unauthorised access to plant infrastructure and work areas has the potential to result in:

- Damage to plant infrastructure and equipment;
- Increased risk of injury to personnel; and
- Uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to the environment.

Operations and Maintenance (O&M) activities at the Plant occur on a continuous basis and high levels of site security are maintained to prevent unauthorised access to plant infrastructure and work areas. In light of this the potential for vandalism is considered to be effectively minimised. The following measures have also been adopted as security measures:

- Fencing has been erected around the site boundary to prevent unauthorised access;
- Security gates have been installed at the site entrances;
- Lighting has been incorporated to provide increased visibility and deter intruders;
- Warning notices have placed at site access points;

- Regular inspections of the perimeter fencing are undertaken to identify areas of damage and maintenance is undertaken where required;
- Keys and access codes are issued to suitably inducted and authorised staff and contractors and all visitors must be registered prior to entering the site and must sign out upon leaving.

1.2.6 Physical Protection Measures

The site has been designed to include protection of structures to minimise accident / incident issues. Potential risks associated with this have been reduced through the implementation of the following physical protection measures:

- All pipework at the site used for the transfer of gaseous products has been manufactured to the required British Standards using appropriate grade materials and all pipe joints and seals are also designed to meet the required British Standard; and
- Storage vessels and pipework are subject to regular inspection, by the site team to ensure the structural integrity of the system remains uncompromised.

1.3 Fire

Operational activities at the Plant are such that the potential for fire and explosion exists. Potential hazards arising from fire and explosion at the Plant include:

- Uncontrolled release of pollutants from Plant and infrastructure;
- Uncontrolled release of pollutants from Plant material stores; and
- Loss of containment of contaminated firewater.

Fire extinguishers are placed throughout the Plant, and operations staff are trained in their use for escape purposes only in order to minimise the risk to life posed by fire and explosion. However, the emergency policy is to evacuate the building in the event of a fire. Staff are informed during induction of the emergency procedures at the Plant to be followed in the event of fire incidents at the site. There is automatic gas escape and fire detection equipment installed which initiates a shutdown of processes if activated

Incident Response Review

Following the occurrence of any incident identified above, the incident will be logged within the company health and safety system and a review of the incident response and applicable emergency procedure will be undertaken. This review will assess:

- The cause of the incident;
- The effectiveness of the response measures;
- The effectiveness of the emergency response management team;
- Lessons learned;
- Recommendations for improvement.

If appropriate, the findings of this review process will be escalated and will inform immediate or future investment decisions and planning and revisions of the Accident Management Plan.

Competence and Training

Staff at the Installation have the competency to manage and operate activities without causing pollution. Competency is ensured through the appropriate training of all staff and the LTO process (Licence To Operate), covering:

- Awareness of the regulatory implications of the Environmental Permit and AMP for the activity and their work activities;
- Awareness of all potential environmental effects from operation under normal and abnormal circumstances;
- Awareness of the need to report any deviation from the Environmental Permit;
- Prevention of accidental emissions and action to be taken if accidental emissions occur.

Staff have clearly defined roles and responsibilities. Skills and competencies necessary for key posts are documented and records of training needs and training received for these posts maintained.

Training in the actions to be taken in the event of an accident or emergency is provided to all Operator and Contractor staff working on site as part of their mandatory site induction procedure. All staff are required to demonstrate their understanding of the AMP, and the actions and procedures contained therein, prior to undertaking any activities on-site. It is the responsibility of the site manager to ensure that all staff members have received this training.

Regular Installation drills are undertaken to ensure that all staff are aware of the actions to be taken in the event of an accident or emergency and those staff with specific responsibilities are fully versed in their duties.

Copies of the AMP are located in the on HAWK and are available for the review of all staff.

Distribution and Reviews

Master copies of the AMP are made available to all staff as part of their induction package and available on Sharepoint (AW Document system) for staff to review.

Review of the AMP will be undertaken following any accident or emergency or after a period of not more than every three years; whichever is the sooner. It is the responsibility of the site manager to ensure that this review is carried out. Should a need

for earlier review be identified, e.g. following an incident, a change in working practices or equipment at the Installation, this shall be undertaken by the Installation EMS Manager.

Image of Cambridge site

Taken from Google Maps

Tabular Accident Management Plan

Hazard	Likelihood	Consequences	Controls	Actions
Loss of containment – gas leakage	Low	Uncontrolled loss of pollutants from plant / infrastructure	Appropriate training Bunding of storage containers Sealed drainage & impermeable areas Pipework & fitting to appropriate British Standards Regular monitoring & inspection Spill kits available All chemical deliveries supervised All major plant is continually monitored on telemetry.	*See appropriate emergency procedure)*
		Loss from installation materials stores		
		Adverse impact on human health		
		Adverse impact on local ecology		
Loss of containment – liquid leakage	Low	Uncontrolled loss of pollutants from plant / infrastructure	See above section Auto-shut on some filling systems. Overflows to site return system	See emergency procedures as per POSWASTES COSHH assessments
		Loss from installation materials stores		
		Adverse impact on human health		
		Adverse impact on local ecology		

		Loss of amenity in local area		
Vandalism	Low	Uncontrolled loss of pollutants from plant / infrastructure	Site boundary fence and security measures CCTV & site lighting Smartwater marking of some plant items	
		Loss from installation materials stores		
		Adverse impact on local ecology		
		Loss of amenity in local area		
Unauthorised access	Low	Uncontrolled loss of pollutants from plant / infrastructure	Signing in, induction and permit systems.	
Equipment / plant failure	Medium	Uncontrolled loss of pollutants from plant / infrastructure	24/7 telemetry 24/7 control room and access to standby personnel Regular proactive and reactive maintenance	POSMAINT POSWASTE Work instructions

Fire	Low	Uncontrolled loss of pollutants from plant / infrastructure	Appropriate training (fire awareness) Fire extinguishers available in area. Bunding of storage containers Sealed drainage & impermeable areas Pipework & fitting to appropriate British Standards Regular monitoring & inspection Spill kits available All chemical deliveries supervised All major plant is continually monitored on telemetry.	POSMAINT POSWASTE Work instructions
		Loss from installation materials stores		
		Adverse impact on human health		
		Adverse impact on local ecology		
		Loss of amenity in local area		
		Loss of containment of fire water		

Health & Safety

Anglian Water has a comprehensive H&S management system. This includes numerous instruction and guidance procedures. All staff are trained in elements of H&S appropriate to their role.

All site managers are responsible for managing H&S within their sites' control, and do so by implementing and executing an H&S plan. These plans are regularly audited by company H&S personnel and corrective action logs maintained. Copies of these are available via the central computer system drives and in site manager's office.

The permitted areas do include specific plant and equipment which have specific safety considerations. These include pressure vessels and biogas combustion. These are subject to specific inspection and maintenance by competent suppliers/contractors.

Non-Compliance Procedures

Routine operation of the installation is subject to the conditions of the site CHP permit which details various requirements for actions and reporting for both routine and non-compliance.

The permit sections include:

Section 1 - Management of Installation

General management of the site, including handling and disposal of wastes

Section 2 Operation of Installation

General operation of permitted activities and improvements

Section 3 Emissions and Monitoring

Routine monitoring of all emissions (e.g. odour), including annual reporting of specified point emissions (e.g. various specified exhaust gases from CHPs)

Section 4 Records and Reporting

An important section that includes the reporting of non-compliance with any permitted element. The major elements of concern would be

1) Loss of containment of gaseous substance
2) Loss of containment of liquid substance
3) Equipment / plant failure causing loss of gas or liquid – inclusive of routine emissions monitoring.

Any losses or failures to comply with these areas require immediate notification to the Environment Agency, followed by "Schedule 6, Part A Notification" by email or paper means. The Part A must be submitted within 24hrs of detection of failure. "Part B" notification would then follow giving supporting information as soon as practicable.

Handling of the incident on site will be in line with relevant POSWASTES, Emproc and POSMAINT internal procedures. These are all subject to audit via internal and external audit protocols.