MOTT MACDONALD

Bexhill and Hastings Sludge Treatment Centre Accident Management Plan

August 2024

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Bexhill and Hastings Sludge Treatment Centre Accident Management Plan

August 2024

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01	January 2024	Amelia Luk	Shannon Stone	Anita Manns	Draft (January 2024 Resubmission)
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1 Introduction

This Accident Management Plan (AMP) describes the requirements, procedures and actions to be taken in the event of an environmental accident or incident at Bexhill & Hastings Sludge Treatment Centre (STC), also referred to as the "Site". This plan will support the Bexhill & Hastings STC Environmental Management System.

1.1 Scope

Environmental accidents and incidents shall cover emissions to air, land or water that can cause harm to the environment.

This plan is written in accordance with the IED Environmental Permit application requirements for Bexhill & Hastings; BAT, specifically BAT1; and associated written management systems and procedures. Southern Water is required to review this plan annually, unless there are incidents, operational or managerial changes at the site which would require an earlier review.

The Site is manned 24 hours a day, 7 days a week.

The Site also operates under an Incident Management Plan (IMP), to be read in conjunction with this Accident Management Plan, which is incorporated into Southern Water's Environmental Management System to prevent and manage environmental related accidents. The IMP includes an inventory of substances stored at the Site, details on storage facilities, inventory of pollution prevention equipment (spill kits and fire extinguishers), inventory of waste and storage capacities, contact details of internal contacts (Site manager, Environmental Governance Manager and key HSE staff), national and regional (where appropriate) contact details of emergency services and environmental regulators. The IMP is distributed to key staff, to supervise the implementation of the Plan, and shared with external contacts (emergency services and the Environment Agency). The IMP is accompanied by a Site Plan that identifies the locations of designated storage areas (and their maximum storage capacity), location of spill kits and fire extinguisher and storage locations and hazards posed by chemical substances.

The IMP references procedures to comply with environmental legislation and protect the environment and human health in regard to potential accidents:

- Spill prevention and management, and operation of safety valves
- Procedures for recovering spilled product
- Procedures for the prevention of overfilling vessels, and the management of plant and equipment failures
- Fire prevention and responses to fires, including fire water containment procedures
- Security measures to prevent unauthorised access, arson and vandalism
- Competence, training and awareness requirements
- Monitoring and measurement requirements
- Record keeping procedures for the recording of incidents, accidents and near misses
- Emergency procedures to notify relevant authorities, emergency services and neighbours

There are several different document types referenced in the IMP. These have been listed below:

- EMS – Environmental Management System
- FEC – Field Event Co-ordinator's Manual

- IMP – Incident Management Plan
- BCP – Business Continuity Plan
- CCM – Control Centre Manual
- SIB – Safety Instruction Book
- CAT – Catastrophe Plans

Southern Water is committed to continual environmental improvements, including minimising the risk of accidents both on the Site and its operations and in the wider environmental setting. This commitment is delivered through efficient control of processes, capital investments, and environmental training.

1.2 Roles and Responsibility

The Site Manager has overall responsibility for reviewing the processes on the Site to minimise the risk of accidents and reduce the impact of any accidents should they occur. This document is reviewed annually, but the review process is ongoing as part of the regular performance monitoring for the Site. Nominated key personnel and their responsibilities are identified in Table 1.1 below.

1.3 Roles and Responsibility

The Site Manager has overall responsibility for reviewing the processes on the Site to minimise the risk of accidents and reduce the impact of any accidents should they occur. This document is reviewed annually, but the review process is ongoing as part of the regular performance monitoring for the Site. In the case of an emergency, key contacts and communication details are listed in Table 1.1 below.

Table 1.1: Key contacts and communication in the case of an emergency

Contact	Office Hours	Out of Hours
Southern Water	Duty Manager, Control Centre 01903 272095	Duty Manager, Control Centre 01903 272095
Environment Agency	0800 807060 (Emergency Hotline) 0370 8506506 (Routine enquiries)	0800 807060 (Emergency Hotline) 0370 8506506 (Routine enquiries)
Emergency Services	999	999
Local Police	999	999
Local Hospital	Conquest Hospital, The Ridge, Hastings, Saint Leonards-on-sea TN37 7RD	999
EA Incident Hotline	0800 80 70 60	0800 80 70 60
EA Local Contact	0800 80 70 60	0800 80 70 60
Local Authority Emergency Planning Department	Emergency Planning Duty Officer (24 hr) Kent Resilience Team / Kent County Council 03000 414 999	03000 414 999
Borough Council	Hastings Rother	01424 451999 01424 787000
Water Company	Duty Manager, Control Centre 01903 272095	Duty Manager, Control Centre 01903 272095
Gas Company	0800 111 999	0800 111 999
Electricity Company	UK Power Networks 08433 102243	UK Power Networks 08433 102243
Framework Waste Contractor	MTS	MTS 01634 250326

Contact	Office Hours	Out of Hours
	01634 250326	
Specialist Spill Clean Up Contractor	MTS 01634 250326 Cappagh Browne 0330 3031279	MTS 01634 250326 Cappagh Browne 0330 3031279

2 Site information

2.1 Site location

The Site is located at the south of Worsham Ridge, east of the Pebsham area of Bexhill. The Site was built between 1999 and 2001 and serves the towns of Bexhill, Hastings & St Leonards on Sea and nearby villages with a population of approximately 141,260 (JR18).

Site address: Bexhill Road, Hastings East Sussex TN38 8FB.

National grid reference: TQ 76590 09381.

2.2 Summary of Site and sensitive receptors

The Site is surrounded by wooded areas to the west and the north. To the north, agricultural areas are present by beyond 75m north of the Site. Hastings Household Waste and Recycling Site is located approximately 300m south east, there is a residential estate approximately 250m south west of the Site as well as an industrial facility (catering supplies) located approximately 200m south of the Site.

There are a number of two sensitive receptors within 500250m of the potential emission sources at Bexhill and Hastings WTW and STC. The receptor closest to a potential emission source is an industrial facility, which is located approximately 220m south the PSTs and biological aeration tanks.

3 Accident Management Techniques

The IED 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. This section sets out the measures to be adopted at the Installation to minimise potential risks to the environment. See Section 6 for Emergency Response Procedures.

The Site has an IMP designed to give first response instruction and procedures to control any Incidents/Emergencies at the Site.

Details of the raw materials and process chemicals held on site and their storage arrangements are provided in Table 3.1 below. 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. Appropriate training is provided to personnel involved in receipt and handling of deliveries and specific procedures for the filling of tanks will be developed within the quality and environmental management system (QEMS) for the Site.

The volume of material in the receiving tanks will be measured and recorded manually prior to filling.

In the event of a spillage of polluting substances, absorbent material will be used to clear the spillage. The used materials will be removed and stored in suitable containers prior to authorised disposal. The Installation will incorporate impermeable paving with self-contained drainage.

Table 3.1 below provides a list, along with a brief description of each, of the procedures which form part of the IMP.

Table 3.1: Supporting Emergency Procedures – IMP

Procedure Reference	Brief Summary
EMS 234 Chemical and Oil Storage	Specifies the standard for storage of chemicals and oils. Outlines the amounts of substances that can be stored on site without consent from the Local Authority, and details how these substances should be safely stored. Also includes Information on the auditing, training requirements and any associated documents.
EMS 260 Pollution Prevention (standard)	Specifies the standard for managing and reducing the risk of land contamination. Outlines the tasks a manager should complete i.e., ensuring spill kits are available, and who to contact in the event of an incident. The document also lists the measures that Southern Water should take to prevent pollution incidents. Also includes Information on the auditing, training requirements and any associated documents.
EMS 265 Discharges (Standard)	Sets the minimum standard of operation in managing effluent and potable water process discharges. Details definitions which relate to the procedure and outlines the standard. Also includes Information on the auditing, training requirements and any associated documents.
EMS 360 Pollution Prevention Procedure	Outlines the responsibilities of staff in relation to the procedure. The Procedure includes details on items such as site drainage, working on or near watercourses and excavations. As well as addressing different spill types; chemical, oil and sludge/sewage. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 361 Chemical Risk Assessment (Procedure)	Defines the procedure for assessing the environmental risk from bulk chemicals. Outlines the procedure for undertaking a risk assessment, and where required which EMS procedures need to be followed. Also addresses

Procedure Reference	Brief Summary
	risk mitigation and employee awareness as well as the auditing, training requirements, reporting forms and any associated documents.
EMS 362 Environmental Fire Risk Assessment Procedure	Specifies the procedure for minimising the environmental consequence of a fire. Outlines the responsibilities of staff in relation to the procedure and provides a procedure for an Environmental Fire Risk Assessment. Information on the auditing, training requirements, reporting forms and any associated documents
EMS 363 Procedure for Managing oil spills on sites	Outlines the responsibilities of staff in relation to the procedure. The procedure details how to determine the severity of the spill for different scenarios; land, inland waters and coastal waters/beaches, and how to prevent, control and remediate the environmental damage caused by spillages from the site. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 364 Lime Spill Management Procedure	Outlines the procedure for managing lime chemical spills at STCs. Defines the responsibilities of staff, and the procedure for managing the spill including the spill assessment and notification and escalation. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 365 Discharges Procedure	Defines the procedure that must be adopted when managing intermittent discharges. Outlines the responsibilities of staff in relation to the procedure and outlines the procedure where an emergency discharge is foreseeable for both emergency and stormwater and potable water. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 381 Operational Waste Procedures	Specifies the procedure for managing wastes. The procedure addresses the definitions of different waste types and outlines a general procedure for managing waste. Identifies where further procedures should also be followed for specific waste types e.g., asbestos, WEEE and waste oils. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 382 Hazardous Waste Procedures	Specifies the procedure for moving hazardous waste between different sites. The procedure addresses identifying hazardous waste, storage of hazardous waste, consignment notes and record keeping. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 461 Chemical Risk Assessment (Form)	A template for a chemical risk assessment including the following: • Site details • Chemical details • Chemical classification • Risk activity • Risks for health, fire/DSEAR[1] and environment • Handling, usage and storage requirements • Management of spills • Disposal And the safety data sheet.
EMS 480 Waste Descriptions	Provides written descriptions of different waste types covering the following: • Process giving rise to the waste • Waste characteristics • Handling advice • Containment • Disposal • Name of waste • Waste classification • Producer and registered office details • EWC

[1] Dangerous Substances and Explosive Atmosphere Regulations

Procedure Reference	Brief Summary
	• Controlled Waste Regulations 2012 description • Waste type • Form • Temperature • SIC code Information on the auditing, training requirements, reporting forms and any associated documents.
FEC 307 Reporting of Unauthorised Access, Including Loss, Theft and Vandalism	Outlines the responsibilities of staff in relations to the reporting these incidents, and the procedure to be followed. Also includes Information on the auditing, training requirements and any associated documents.
FEC 320 Process Related Incidents	Specifies the procedures to follow in responding to process-related pollution incidents. Responsibilities of staff are outlined in the procedure, as well as contacting the FEC, FEC actions and reporting procedures. Information on the auditing, training requirements, reporting forms and any associated documents
FEC 322 – Spillage Procedure	Outlines the responsibilities of staff in relation to the procedure. The procedure outlines the process for handling spillages on site including: • Spillage assessment • Notifications and escalation • Containment • Awareness and training Information on the auditing, training requirements, reporting forms and any associated documents.
IMPO_101 – Overview of the Incident Management Plan	This document sets out the overall structure of the Incident Management Plans and provides a short overview of each of the main plans
IMP 217 and IMP 218 Team Roles – Objectives and Responsibilities	Sets out the Objectives and Responsibilities for roles within the Incident Management Team and provides guidance for the ELT Representative. IMP 217 identifies when Southern Water should contact the Environment Agency, and IMP 218 identifies the process for contacting other authorities.
BCP 415 Guidance on Reporting Potential Media Interest	Sets out the types of incidents to be reported back by Field Operations Staff & Contract staff working on behalf of Southern Water that will potentially attract media interest, including contact numbers.
CCM 302 Procedure Following the Receipt of a Fire Alarm	Provides a consistent regional approach to dealing with any formal notification of a fire alarm within the Company. Outlines the responsibilities of staff, the procedure for when a fire alarm notification is received, inspections/audits, training and any associated documents.
SIB 603 Risk Assessment and Safety Instructions for Fire Awareness	Covers the following: • Training needs of staff and fire wardens • What Managers must provide (i.e. fire safety meetings, plans) • Inspections • Safety instructions for occupied sites, unoccupied sites, and company vehicles • Firefighting procedure • Records to be completed
CAT 303 Actions Following Severe Weather or Flood Warnings	Outlines the plan of actions that should be undertaken following severe weather or floor warnings and the responsibilities of the staff under these circumstances. The procedure details checklists for the following scenarios: • impending severe weather, • flood watch, • flood warning, • severe flood warning, and • an all clear checklist. Also includes Information on the auditing, training requirements and any associated documents.

Procedure Reference	Brief Summary
Environmental Emergencies Poster (EMS)	A poster which should be displayed on all sites. The poster lists the type of emergency (fires, spills etc) and both the action which should be undertaken the contact phone number which should be called. The poster also highlights a list of things which should be checked prior to work starting such as the H&S notice boards, environmental notice boards and continuity plans.
Pollution 30 Minute Plan	Outlines a five-step plan for responding to a pollution incident in 30 minutes and outlines what should be done at each of the five stages.
Site Chemical Risk Register	Southern Water electronic database containing an inventory of hazardous substances used and stored by Southern Water and those relevant to individual sites, helping Southern Water to control substance use and comply with the COSHH regulations
Alternative Response Coordinators Booklet	These documents provide flowcharts and a step-by-step guide for completing the Alternative Response tasks. Section 5: Resilience Guidance identifies criteria on when to contact local authorities and other first responders

A site-specific Fire Prevention Plan is available for Bexhill & Hastings to reduce the risk of fire and explosion. Please see the site-specific Fire Prevention Plan for full details of corrective measures.

3.1 Loss of Containment

3.1.1 Gas Escape

Loss of containment of gaseous materials at the Site 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 Installation the following measures have been adopted:

- The gas holders are double-membrane inflatable bag type holders, constructed of a Type IV fabric[2], which is resistant to UV and microbial degradation. The stored gas is contained within the inner membrane. The exterior dimension of the gasholder remains constant
- 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 minimise release of fugitive emissions
- Storage vessels and pipework are subject to regular inspection, by the site operators to ensure the structural integrity of the system remains uncompromised
- All staff with responsibility for the handling or transfer of gaseous materials receive training for their role
- All staff on site will 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 as an emergency measure

[2] Type IV fabric is a biogas storage system that is constructed using a polyester fabric that has a PVC coating on both sides which makes it resistant to corrosive gas and heat.

The Site is designed to meet the Dangerous Substances and Explosive Atmosphere Regulations (DSEAR). Consideration of the requirements of DSEAR is included in the Designers Risk Assessment including information on the operation and maintenance of the Installation to ensure DSEAR requirements are met.

An IMP is in place for the Bexhill & Hastings site. The IMP includes actions to be followed in the event of a loss of containment of gaseous materials at the Installation.

Preventative measures incorporated into normal operations include a DSEAR operational risk assessment that will be periodically reviewed and updated against the lates DSEAR regulations and guidance to ensure best practice is adopted.

A Leak Detection and Repair (LDAR) plan is in place at the Bexhill & Hastings STC.

3.1.2 Liquid Escape

Failure of the liquid containment systems at the STC could potentially lead to oil bearing fluids, reagents and process effluents discharging to surface waters and ground waters in proximity to the Installation. Potential risks associated with this have been reduced through the implementation of the following measures:

- The storage vessels for all boiler feed water treatment chemicals and fuel storage liquid materials located within the installation are double-skinned or bunded to 110% capacity and have been manufactured to the required British Standard using appropriate grade materials
- Where applicable, on-site storage tanks are bunded to 110% of their storage capacity in line with environmental good practice and bunds are regularly inspected for liquid content and emptied if required
- 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 the Site Manager or the nominated deputy to ensure the structural integrity of the system remains uncompromised
- 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
- Spill kits comprising suitable materials for the containment of liquid spills have been placed throughout the site for the use of all staff
- Site surfaces surrounding liquid storage areas and transfer pipes are constructed of impermeable material and run off is diverted to appropriate drainage structures to prevent escape of fluids to surface waters or ground waters
- All staff with responsibility for the handling or transfer of liquid materials receive appropriate training for their role
- 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

3.1.3 Material Storage

All chemical tanks and stores must be clearly labelled and marked with appropriate warning signs and all delivery points must be kept locked except when in the presence of an Operations team member.

The levels of raw materials are checked and recorded.

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.

The following are requirements for deliveries on site:

- Each direct delivery must be checked for the correct quality and strength and to ensure that no damage etc. has occurred in transit
- Supplier's Advice Notes must be checked, to ensure that the goods match the documentation, and then signed
- Retain copies of Supplier's Advice Notes
- All chemical deliveries must be supervised by nominated personnel as detailed on the current list
- Chemical deliveries must be recorded and must include a declaration that they conform to the required standard, either on the delivery note, or as a separate certificate of conformance
- 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 management systems

3.1.4 Odour

Biogas is a naturally odorous material; however, the high alkaline conditions present within the STC digesters, scrub most of the hydrogen sulphide (H_2S) (an odorous constituent) from the biogas, resulting in relatively low concentrations. In addition, there will be no other odour emissions at the site from normal operations at the Installation.

Sewage, sewage sludges and returned liquors can all contribute to odour on a STC. A number of odour release points/areas have been identified in Bexhill & Hastings STC, and a combination of good baseline site management and odour control measures have been implemented to manage these sources. Two odour control units are installed on the Site.

Regular inspection of site storage facilities and pipework will be undertaken to ensure that the structural integrity of the system remains intact in line with the Bexhill & Hastings STC LDAR plan and Odour Management Plan (OMP).

Regular site inspections and sniff checks are undertaken by the 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.

3.1.5 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
- Uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to the environment

Operations and Maintenance (O&M) activities at the STC occur on a continuous basis and high levels of site security are maintained to prevent unauthorised access to plant infrastructure and work areas in accordance with Field Event Coordinator’s Manual (FEC) in relation to Reporting

of Unauthorised Access, Including Loss, Theft and Vandalism (FEC 307). In light of this the potential for vandalism is considered to be effectively minimised.

The following measures have also been adopted as security measures:

- For visitors and unauthorised personnel, an intercom system at the Site entrance is used before entry is allowed
- On arrival at site, visitors must sign the visitor's book located in the entrance to the AAD office building and also announce their arrival to staff in the control room located on the first floor
- The site is manned 24/7
- CCTV is installed across the site
- Fencing has been erected around the site boundary to prevent unauthorised access
- 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
- Out-of-hour intruder alarms are set for buildings
- CCTV cameras onsite as a deterrent to any unauthorised visitors

3.1.6 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
- Storage vessels and pipework are subject to regular inspection, by the site team to ensure the structural integrity of the system remains uncompromised.

3.1.7 Overfilling of tanks

Details of the raw materials and process chemicals held on site and their storage arrangements are provided in Table 3.1 below. 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. Appropriate training is provided to personnel involved in receipt and handling of deliveries and specific procedures for the filling of tanks will be developed within the quality and environmental management system (QEMS) for the Site.

The volume of material in the receiving tanks will be measured and recorded manually prior to filling.

In the event of a spillage of polluting substances, absorbent material will be used to clear the spillage. The used materials will be removed and stored in suitable containers prior to authorised disposal. The Installation will incorporate impermeable paving with self-contained drainage.

Table 3.2: Raw Material and Process Chemical Storage

Raw Material / Process Chemical	Maximum storage amount (tonnes or m^3)	Storage
Biogas	900m^3 bag	Gas bag
Diesel Oil	17000 Litres	Tank
Sludge	60m^3	silo
Limed Sludge Cake	100m^3 Max	Silo
Polymer	14X 750kg bags for Centrifuge 6x 750kg bags for GBT's	Bags
Lime	34 Tonne	Tank
Lime (Dust).	Variable this is an unusual activity	In bags
Gas Cylinders	Welding / burning Equip.	Gas Bottles stored in a locked building overnight.
Ferric Chloride	Redundant	Storage tank.
Ferric Sulphate	Redundant	Storage tank.
Sodium Hypochlorite	21.4 Tonne	Tank IBCs
Sodium Hydroxide	9T	Tank
Aerosol Leaks of Biogas	Not known as would be formed by leaks	Gas bag Digesters Pipelines Flare Stack CHP Engine
JCB Loader / MTS Tankers & Chemical Delivery tankers.	Diesel Fuel tank on machine <3000 litres	Vehicle stored outside over night.
Antifoam	1m^3	Intermediate Bulk Container (IBC)
Polymer	10 x 1050 kg as liquid in IBC	Bags
Wastewater	36336.09 m^3 8734.8 m^3 11513.88 m^3	Tanks and lanes
Sludge	7596 m^3 1575m^3	Tanks

3.1.8 Fire

Operational activities at the STC are such that the potential for fire and explosion exists. However, the local Fire Service has not carried out any risk assessment investigations on site. Potential hazards arising from fire and explosion at the Site include:

- Uncontrolled release of pollutants from equipment, plant and infrastructure

- Uncontrolled release of pollutants from material stores
- Loss of containment of contaminated firewater

Fire detectors and fire alarms are fitted in all buildings. Fire extinguishers are located at strategic points throughout the STC. All fire extinguishers are clearly marked and tested to confirm their functionality. All personnel will be made aware of their location and 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 Site to be followed in the event of fire incidents at the Site.

To reduce the risk of fires from the Anaerobic Digestion process, it is managed by controlling KPI's on process control on a SCADA control system, DSEAR risk assessments are in place, with 12 monthly service agreements in place around the Biogas system. Six monthly inspections on the Boilers and CHP systems are also conducted.

Controls to reduce the risk of fires are good signage and EX zoned areas with fencing and locked gate policy around DSEAR areas. Lightning protection is also in place on Biogas storage bags. Operational and maintenance staff in both Biogas awareness and DSEAR training have also been trained.

The Digestion process risks are managed by DSEAR risk assessments, Zonal areas & Biogas training for site operators and Maintenance staff along with Gas safe contractors carrying out programmed maintenance activities.

3.1.9 Arson risks

With flammable or combustible materials there is always a risk of arson on a site. This risk is controlled by secure perimeter fencing and an electric gate at the main entrance of the Bexhill & Hastings site, plus adherence to a locked gate policy.

3.1.10 Contingency for Sludge Treatment Issues

In the case of incidents with sludge treatment, the mitigation measures related to sludge treatment processes are listed in Table 3.3. A full list of mitigation measures covering different processes of the entire site can refer to the operational continuity plan of Bexhill & hastings.

Table 3.3: Mitigation measures with sludge treatment incidents

Incident	Mitigation measures
Strain Press x 2 (cess and indigenous – interchangeable)	• There are two Hydro series sludge screens operating in a duty/standby. • If both fail bypass of primary sludge flow to CBST'S can be achieved via manual hand valve in chamber 9. Prolonged use of this route will result in rag build up in the fill tank and require drain down and clean on reinstatement of sludge screens.
GBT X 3	• There are 3 Simon Hartley series 2 size 3 aqua belts installed. 2 feed pumps operate in duty/standby these are seepex progressive cavity pumps type BN 200 -6L /A1-C1-C6-F0-GA-X Size 200. • 15KW WEG Motor (Essential spare onsite in CBST compound) • The GBT'S are configured duty/assist/standby and are manifolded such that they can operate individually and any two can run in parallel. • Failure of all 3 will require adjustments to SAS rate and Primary sludge and if levels in CBST'S dictate Tankering may be required to allow SAS and primary sludge to continue. This is critical to maintain compliance on wastewater treatment side.

Incident	Mitigation measures
Centrifuges x 2	• There are two Guinard CF6121 centrifuges operating in a duty/standby configuration processing 27.46 m^3/H any single point failure of ancillaries. • The system can then be configured to run in an alternative setup. Essential spares are located in onsite container. • Failure of both centrifuges will require mobile centrifuge to be set up in main carpark. Connection made to PDST'S and centrate run through onsite drainage. This has been executed before and is a simple plan to put into place. Historically feed lines have suffered with struvite blockages and latterly lime calcium deposits. Pinch point was last section of pipework into centrifuges and has subsequently been modified with replicable hoses which are available onsite to swap out.
Whessoe Release	• Inform as a pollution. Try and get the flare stack or the CHP running ASAP. • Reduce/stop feed to digester to stop foam overs. Get DSL to flush the gas lines.
Power Failure	• Unable to power the whole site on generators alone. • Switch gear recently installed by UKPN and will need them out to change. Site has two incomers.
Hydraulic overload	• Not possible as flow is restricted by penstock, in the event of penstock failure the site can take up to 1050l/s flow to treatment for a short period. High priority to repair penstock. • On site crane available to aid with repairs. FFT could still be maintained by adjusting penstocks at the end of each FOG lane and management of incoming flows by SCADA. • Consideration of using Coombs Tunnel storage mode whilst repairs are undertaken.
Reduced Sludge Disposal	• There are two tanks on site but would need to get site tankered as these tanks will inhibit Lamella desludging.
Odour Control	• Odour sensitive site. Ensure any spills are cleaned up, shutter doors are closed and hatches covers are sealed down. • Follow odour management plan

4 Risk Assessment Methodology

The risk assessment has been undertaken by identifying hazards and source-pathway receptors and assigning a probability of exposure and a severity of consequence. These are assigned as described in Table 4.1 and Table 4.2 and are based on the generic risk assessments used for standard rules “SR2012 No11 and No12”, “SR2009 No 4” and “SR2008 No 19”, applicable to anaerobic digestion operations including use of the resultant biogas.

The probability and severity scores are then combined within a matrix to give an overall magnitude of the risk. This matrix is shown in Table 4.3 and is intended to illustrate the general approach to scoring.

Risks are categorised as either low, medium or high; this ranges from being a nuisance in some instances to potential health risks in others.

Table 4.1: Severity Index

Severity of harm	Severity index
Impact to people or designated receptor	
Impact to non-designated receptor	
All other impacts	

Table 4.2: Probability Index

Severity of harm	Severity index
Impact to people or designated receptor	
Impact to non-designated receptor	
All other impacts	

Table 4.3: Magnitude of risk

Magnitude of risk	Probability index		
Severity index	**Low**	**Medium**	**High**
Low	Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	High

Table 4.4: Accident risk assessment table

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
All surface waters close to and downstream of the Site.	Tank failure, spillages of digestate and/or liquids including oil. Damage to drainage system. Spillage of raw materials of sludge/liquor during delivery/storage. Contaminated run off from cake storage e.g. containing suspended solids.	Aquatic or chronic effects to aquatic life, contamination, and water deterioration of water quality.	Direct run-off from the Site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer. Transport through soil/groundwater then extraction/ abstraction at borehole or intake.	Medium	High	High	Potential for leaks from digestions tanks, storage vessels/bays and drainage system which may cause contamination or deterioration of surface water quality. The hardstanding and pavement across the site is in reasonable condition. Parts of the site are bunded including storage areas for raw materials and waste stored on-site, however there are areas of gravel and	The Site drainage plan is documented and all staff are trained in the event of emergency or accident. Impermeable surface and secondary containment, in the form of constructed bunds or portable bunds, is in place around storage areas of all wastes and raw materials surrounding the STC and WTW. There is a waste area to the south of the main building where all skips are and bins are stored on a hardstanding area. Additional containment around digesters and other storage vessels is subject to a risk assessment and will be undertaken as part of the BAT requirements and in accordance with the Construction Industry Research and Information Association (CIRIA) standard 736. Hardstanding is planned to be constructed (based on the recommendations of the CIRIA risk assessment) around the digesters.	Medium

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
							grassland across the site. There is gravel to the rear of the digester bunds and some plant growth at the concrete joins suggesting they may not be fully sealed or bunded. Where hardstanding is in place, all water flows to the drainage network which diverts all water to the head of works. There are also some grassed areas adjacent to hardstanding, including at a low point in the southern part of the Site.	All transfer of digestate and material takes place under supervision and with flow rate control. All tanks undergo a delegated inspection regime and the process parameters are monitored and understood by Site operatives. Digestion tanks are built to appropriate standard and require appropriate bunding. There is one cake storage silo on site, which is located within the main building, the silo is only ever filled to 80% capacity. Cake is moved through covered pipes and conveyors. Activities are managed and operated in accordance with the EMS. Spill procedures are in place under EMS363 and 364 as well as a pollution prevention procedure EMS360 All spillages are recorded in the site diary including actions taken. Site Manager ensures the programme of Planned Preventative Maintenance	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
							Holes in some of the tanks have been patched. Quantities of liquids stored are generally low. The nearest river to the Site is Combe Haven, and is located approximately 630m north-east. There are seven ponds are located within 250m of the Site, the closest is approximately 10m from the Site. No substantiated pollution incident to water, air, or land has been recorded within 250m of the Site.	(PPM) is implemented effectively to minimise the probability of equipment malfunction. Control of substances hazardous to health (COSHH) assessment undertaken for all raw materials. Both clean and contaminated surface water is directed to a pumping station which recirculates it back into the system. The surface drainage of potentially contaminated areas from within the Site boundary is routed into the head of the works with no discharge outside of the Site boundary. Regular inspections of the Site drainage systems and other equipment are undertaken, with any repairs and maintenance carried out if necessary. All complaints and other incidents are recorded in the site diary including actions taken. The condensate is clean, uncontaminated water and is small in quantity.	

Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Abstraction from watercourse downstream of facility (for agricultural or potable use).	Spillage of liquids, contaminated rainwater run-off from waste e.g. containing suspended solids.	Acute effects, closure of abstraction intakes.	Direct run-off from site across ground surface, via surface water drains etc. then abstraction.	Low	Medium	Low	Watercourse must have medium / high flow for abstraction to be permitted, which will dilute contaminated run-off. No groundwater abstractions are present on-site. No substantiated pollution incident to water, air or land has been recorded within 250m of the Site.		Low
Groundwater, land and surface water	Spillages of liquids, contaminated rainwater run-off from wate e.g. containing suspended solids. Sludge/liquid spillages as a result of loss of tank/pipe integrity	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole or closure of	Transport through soil/groundwater then extraction at borehole or intake.	Low	Medium	Low	Potential for leaks from digestion tanks and storage vessels. Site infrastructure and hardstanding is generally in		Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
	carelessness during transfer or overfilling	abstraction intakes. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land.					good condition. There are some grassed areas adjacent to the hardstanding which may enter the ground, including at a low point of the site in the south. The hardstanding and pavement across the key areas of the site is in good condition, with no cracks. Bunds surrounding the digesters have plant growth at the concrete joints, suggesting that the bunding may		

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
							not be fully sealed. Quantities of liquids stored are generally low.		
Groundwater, land and surface water	Spillages of sludge/liquids during transfer of imported and indigenous/unknown sludge and liquids from tankers.	Acute or chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole or closure of abstraction intakes. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land.	Transport through soil/groundwater then extraction/ abstraction at borehole or intake.	Low	Medium	Low	Potential for spillage during transfer of liquid/sludge from tankers. Sludge is not currently imported into site. Sludge cake is delivered in sealed containers and is unloaded inside main building. Cake is transported around the site via enclosed pipes and conveyors. Cake is dropped directly from	Impermeable surface required for storage of all waste. Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented to reduce spills when transferring liquids/sludges from tankers. Established procedures in place for the acceptance of tinkered trade waste (EMS387), waste duty of care (EMS380), operational waste procedures (EMS381) and waste rejection (EMS488). Compliance with the waste duty of care requirements to ensure waste accepted meets the permit conditions and relevant legislation. All liquid run off will be captured in the drainage	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
							the silo into the trucks.	network and returned to head of works.	
Groundwater, land and surface water	Flooding of site	If waste is washed off site it may contaminate natural habitats downstream.	Flood waters	Low	Medium	Low	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off site will add to the volume of the local post-flood clean up and may be hazardous to human health. Area is not known to flood, and there have been no previous floods recorded on the Site.	The drainage network sends water to the head of the works for treatment. There are no direct potentially contaminated discharges to controlled surface waters. Activities to be managed and operated in accordance with a management system and management plans and procedures implemented, including the removal of spilled waste and other pollutants (such as use of spill kits and mobile bunds) before these could enter any flood waters if an event was to occur.	Low
Local human population, domestic properties, site offices.	Spillages of odorous materials including oils, fuels, chemicals. Failure to clean up spillages.	Nuisance, loss of amenity.	Air transport, then inhalation.	Low	Medium	Low	Local residents and staff often sensitive to odour. There are three	Procedures for dealing with spillages are covered in the EMS under EMS363 and 364 for the Site. There is also a Field Event Co-ordinators (FEC) Manual which provides spillage	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
	Contaminated spill equipment not disposed of appropriately.						sensitive receptors within 500m of the Site, two places of work (catering supplies, and recycling landfill facility) and one residential area.	procedures for EP sites (FEC322). The Site Manager shall ensure all relevant staff are appropriately trained to use the spill kits and that all spillages are cleaned up immediately. All areas of the Site are to be cleaned regularly; Site Manager to oversee regular cleaning schedule, all staff trained on importance of good housekeeping and site cleanliness. All spills are recorded in the site diary including actions taken.	

Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population and local environment.	Flooding of the site.	If waste is washed off-site it may contaminate buildings / gardens / natural habitats downstream.	Flood waters	Low	Medium	Low	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off-site will add to the volume of the local post-flood clean up and may be hazardous to human health. The site is located within a Flood Zone 1 (less than 1 in 1,000 annual probability), and there have not been any reported flooding issues from the Site previously.	The drainage network sends water to the head of the works for treatment. There are no direct potentially contaminated discharges to controlled surface waters. Activities to be managed and operated in accordance with a management system and management plans and procedures implemented, including the removal of spilled waste and other pollutants (such as use of spill kits and mobile bunds) before these could enter any flood waters if an event was to occur.	Low
Local human population and / or livestock after gaining unauthorised access to the installation.	All on-site hazards: machinery, wastes and vehicles.	Bodily injury, death.	Direct physical contact.	Low	Medium	Low	Potential injury to on-site personnel as a result of vehicle movements or equipment malfunction or misuse. Direct physical contact is minimised by activity being carried out within	Overall management of the site is overseen by an experienced member of staff holding an appropriate Certificate of Technical Competence (CoTC) awarded by the Waste Management Industry Training and Advisory Board. This competent person delegates responsibilities to appropriately experienced and	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
							enclosed digesters so a low magnitude risk is estimated. Contact with waste is minimal with exception of leaks or spills from unloading of tanker and transfer of filter cake.	trained site operatives throughout the operating hours. All operational staff are fully trained in the site operating procedures and SWS' safety and environmental management procedures and are kept up to date on changes. Training includes awareness raising of the potential on-site hazards and health and safety measures to adhere to. Preventative measures will be under continuous review as part of the EMS procedures. Activities are managed and operated in accordance with the EMS – this includes site security measures to prevent unauthorised access. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification. The main site entrance is secured by an automictically operated gate approximately 2.4m high. Furthermore, a 2.4m high metal palisade fence surrounds the entire site boundary to prevent unauthorised access of pedestrians. The Site also benefits from a CCTV system,	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
								there are 20 CCTV cameras. Combination of fixed, 360 degree, thermal imaging and number plate recognition. All monitored and controlled from control room. Site floodlighting is provided at all reception facilities to give good visibility at all times of the day and night. The Site is staffed 24 hours a day, 7 days a week. Authorised personnel can gain access to the Site using a fob system. For visitors and unauthorised personnel an intercom system at the site entrance, is used. Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to site. Repairs are undertaken in accordance with the EMS requirements. Key sludge treatment and wastewater treatment activities undertaken within enclosed systems. Under current conditions seven ro-ro containers per day deliver sludge to the Site. Vehicle movements around the Site vary depending on	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
								what activities are being undertaken. Cake is moved to cake bays once a trailer is full. Cake is removed from the silo daily, the cake is dropped directly from the silo into trucks. Waste is removed as required. Therefore, frequent vehicle movements are typically undertaken only by site staff and maintenance contractors. Operator has produced a hazard review and risk assessment documents relating to this and other types of potential incidents, within the EMS, H&S and O&M manuals.	
Local human population and local environment.	Explosion of biogas causing release of polluting materials to air (smoke or fumes), water or land	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life,	Air transport Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater	Low	High	Medium	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. An explosion could cause injury to local residents and site staff from flying debris.	The key sludge treatment and WTW processes are undertaken within enclosed systems such as the AD and biogas systems. Sludge storage tanks are covered and enclosed. Activities are managed and operated in accordance with the EMS, H&S and O&M manuals – this includes site security measures to prevent unauthorised access. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification.	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
		contamination and deterioration of land and water quality.	then abstraction.				Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Permitted waste types limited to sludges and liquids.	Fire detection equipment is installed in the CHP containers and the boiler building which activate an alarm on detection of a fire. Slam shut valves on biogas lines will automatically close on detection of a fire to prevent any fuel being supplied to the CHP engines or boilers. Training and regular toolbox talks are given to operatives on-site and all operators and staff understand their role in an emergency.	
Local human population and local environment.	Explosion of pressurised tanks due to equipment and/ or process failure.	Respiratory irritation, illness and nuisance to local population. Fatality/injury to staff, fire fighters. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration		Low	Medium	Low	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke, fumes and material released from tanks may cause irritation, illness or nuisance to local residents and site staff. Impact from the tank explosion may cause external damages to other equipment,	The EMS includes procedures relating to maintenance and inspection of bunding of tanks. Site Manager shall ensure the programme PPM is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place. Adequate firefighting measures are implemented on-site. The main site entrance is secured by an automictically	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
		of land and water quality.					buildings located close to the epicentre of the explosion.	operated gate. Furthermore, a 2.4m high metal palisade fence surrounds the entire site boundary to prevent unauthorised access of pedestrians. The Site also benefits from a CCTV system. There are 20 CCTV cameras. Combination of fixed, 360 degree, thermal imaging and number plate recognition. All monitored and controlled from control room. The site is manned 24 hours a day, 7 days a week.	
Local human population and local environment	Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land. Equipment failure.	Respiratory irritation, illness and nuisance to local population. Injury to staff or fire fighters. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality.	Air transport Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction	Low	Medium	Low	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in	The key sludge treatment and WTW processes are undertaken within enclosed systems Storage tanks are enclosed and covered. Activities are managed and operated in accordance with the EMS, H&S and O&M manuals including, fire and spill management. Fire detection equipment is installed in the CHP containers and the boiler building which activate an alarm on detection of a fire. Slam shut valves on biogas lines will automatically close on detection of a fire to prevent any fuel being supplied to the CHP engines or boilers.	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
							containerised units or locked buildings. Risk of accidental combustion of waste is minimal. Permitted waste types limited to sludges and liquids.	A Fire Prevention Plan is not required to be submitted for the permit application as the biowaste process on site is wet anaerobic digestion. However, fire prevention and environmental fire risk assessment procedures are provided in the EMS, H&S manual and Safety Instruction Book (SIB) (EMS362, H&S204, H&S440, and SIB603). There is also Safety zoning of areas under DSEAR/PEXA on site and Smoking is only permitted in designated areas. Firewater within a newly bunded area will be contained by the bund and allow for appropriate disposal. There will be no gravity hydraulic connection from the bund to the drainage system/return to head of works. Manual intervention by an operator will be required to start the pumps and remains subject to the pre-acceptance (sample/test) procedure to ensure the water is appropriate for discharge to head of works. In the event of an incident, depending on the nature of the contamination (firewater in this context) the product will be held within the	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
								bund and be subject to alternative disposal methods. Depending on the scale and nature of the incident this may include temporary holding in road tankers to facilitate safe recovery activities. The detail regarding this procedure remains subject to further evaluation as solutions are designed and implemented. Firewater use on other process/equipment areas (which either have existing, or will be provided with new, impermeable surfaces) will drain to site drainage systems. A robust means of isolating the site drainage from returning to the head of works is required. Where sites have pumped return to head of works stopping the pump and ensuring no hydraulic link (syphoning) is required. Where return to head of works is (or could be) gravity returned, a new isolation valve is required which is to be shut in the event of an incident. Implementation of these measures will ensure no firewater returns to the WtW without appropriate controls including sampling/testing. Further design development is underway to determine the most appropriate solution to	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
								address this requirement and ensure compliance. Training and regular toolbox talks are given to operatives on-site and all operators and staff understand their role in an emergency. The EMS and Safety Instruction Book (SIB) includes procedures relating to maintenance and inspection of bunding of tanks, spills and environmental incidents. Site Manager shall ensure the programme of PPM is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place. Adequate firefighting measures are implemented on-site.	
Local human population and local environment.	Arson and/or vandalism causing the release of pollution materials to air (smoke and	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or vandals/arsonists.	Air transport. Spillages and contaminated firewater by direct run-off from site across ground	Low	Medium	Low	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or	The key sludge treatment and WTW processes are undertaken within enclosed systems such as AD and biogas systems. Storage tanks are covered and enclosed. Activities are managed and operated in accordance with	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
	fumes), water or land.	Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination of land and water quality.	surface, via surface water drains, ditches etc. Indirect run-off via the soil layer. Transport through soil/ groundwater then abstraction.				nuisance to local residents and site staff. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Risk of accidental combustion of waste is minimal. Permitted waste types limited to sludges and liquids	the EMS, H&S and O&M manuals – this includes site security measures to prevent unauthorised access, fire explosions and spill management. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification. Fire detection equipment is installed in the CHP containers and the boiler building which activate an alarm on detection of a fire. Slam shut valves on biogas lines will automatically close on detection of a fire to prevent any fuel being supplied to the CHP engines or boilers. A Fire Prevention Plan is not required to be submitted for the permit application as the biowaste process on site is wet anaerobic digestion. However, fire prevention and environmental fire risk assessment procedures are provided in the EMS and H&S manual (EMS362, H&S204 and H&S440). There is also Safety zoning of areas under DSEAR/PEXA on site and Smoking is only permitted in designated areas. Training and regular toolbox talks are given to operatives	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
								on-site and all operators and staff understand their role in an emergency. The EMS includes procedures relating to maintenance and inspection of bunding of tanks, spills and environmental incidents. Site Manager shall ensure the programme of PPM is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place. Adequate firefighting measures are implemented on-site. The main site entrance is secured by an automatically operated gate approximately 2.4m high. Furthermore, a 2.4m high metal palisade fence with spiked blades at the top and additional rotary bladesat some corners surrounds the entire site boundary to prevent unauthorised access of pedestrians. The Site also benefits from a CCTV system. There are 20 CCTV cameras. Combination of fixed, 360 degree, thermal imaging and number plate recognition. All	

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
								monitored and controlled from control room. Site floodlighting is provided at all reception facilities to give good visibility at all times of the day and night. The Site is staffed 24 hours a day, 7 days a week. Authorised personnel can gain access to the Site using a fob system. For visitors and unauthorised personnel an intercom system at the site entrance, is used. Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to the Site. Repairs are undertaken in accordance with the EMS requirements.	
Local human population and local environment.	Operator Error.	Pollution to air, land, surface water and groundwater and human health	Air transport, direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer.	Low	Medium	Low	Possible contamination to air, land, groundwater and surface water. Given the level of operator controls which are in place and management plans, it is considered the probability and	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. All equipment is checked under preventative maintenance plans and is checked and calibrated as per the manufacturer's instructions. Overall management of the Site is overseen by an	Low

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
			Transport through soil/ groundwater then abstraction.				magnitude will be low.	experienced member of staff holding an appropriate Certificate of Technical Competence (CoTC) awarded by the Waste Management Industry Training and Advisory Board. This competent person delegates responsibilities to appropriately experienced and trained site operatives throughout the operating hours. All operational staff are fully trained in the Site operating procedures and SWS' safety and environmental management procedures and are kept up-to-date on changes. Training includes awareness raising of the potential implications of failure to control operations and the potential impact on the environment. Preventative measures will be under continuous review as part of the EMS procedures. Emergency operating procedures are in place and detailed in the Site's Operational Contingency Plan Senior site-based management have direct responsibility for implementing risk management measures.	

5 Reporting and Recording

5.1 Reporting

The procedure employed by Southern Water for reporting, recording, investigating and responding to incidents or breaches of the permit is the EPR notification procedure. Notifications must be made to the Environment Agency without delay and within 24 hours of the detection of an accident that has caused, is causing or may cause significant pollution or a breach of a limit specified in the Site's Environmental Permit.

If an incident with potentially significant environmental consequences occurs, Southern Water will notify the Environment Agency without delay. Southern Water will also inform the Environment Agency should any complaints be received directly to the Site due to the incident and will advise what remedial measures or actions have been taken to address the issue. Copies of complaints received will be made available to the Environment Agency for review on request.

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

The permit sections typically 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:
  - Loss of containment of gaseous substance
  - Loss of containment of liquid substance
  - 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 incidents on Site will be in line with relevant internal incident and accident procedures. These are all subject to audit via internal and external audit protocols.

5.2 Recording

In the event of an accident, a Schedule 6 notification is completed following an incident with potentially significant environmental consequences. Relevant information that must be recorded includes:

- Date, time and location of the event
- Substances involved, including estimated quantities

- Immediate measures taken to minimise environmental impacts

Part A must be completed within 24 hours of detection of the incident and Part B is completed as soon as practicable. Records will be made of all incidents with potentially significant environmental consequences that occur at the Site. The associated actions arising will be held in Corporate Documents.

All records of events with potentially significant environmental consequences and the associated actions arising will be retained as required by the Environmental Permit. Where an incident with potentially significant environmental effects occurs, and the nature of the incident supports further investigation, a post incident review may be required.

5.3 Post-incident Review

Following an incident where potentially significant environmental effects occur, and the nature of the incident warrants it, the incident will be logged and an investigation will take place to determine both the root cause of the incident and how to prevent the incident re-occurring.

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

The findings of the investigation will be reported to Southern Water's management and shared with all relevant employees to enable the incorporation of good practice into future works.

Any changes to processes or procedures required as a result of the formal review will be communicated to Southern Water management and employees. If, as a result of the incident, this Accident Management Plan is subject to revision, it should be updated as part of this post-incident review and communicated to relevant Southern Water management and employees.

All safety equipment used to respond to an incident should be checked and replenished as required.

5.4 Competence and Training

Staff at the Site have the competency to manage and operate activities without causing pollution. Competency is ensured through the appropriate training of all staff, 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

All staff are aware of the implications of activities undertaken including the operation of the Site. 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 Works 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 available for the review of all staff.

6 Emergency Response Procedures (ERP)

The following Hazards are addressed in specific Emergency Response Procedures (ERP) which will be located at each Emergency Control Centre.

- Fire
- Explosion
- Pollution
- Flooding
- Road traffic accident impact or collision
- Collapse of a structure or building
- Spill transferring wastes
- Chemical spillage/leak
- Diesel spillage/leak
- Overfilling vessels
- Plant and equipment failures
- Containment failure
- Failure to contain firewater
- Incorrect connection leading to releases to drains and other systems
- Incompatible substances coming into contact

In the event of one or combination of the following incidents occurring, the actions listed in the relevant ERP must be followed.

6.1 Fire

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	Action
		Use the Model Fire Emergency plan on the H&S notice Board and in the Grab Pack container. This Model Emergency plan outlines responsibilities for site staff and call out staff during events.
		Raise the Site Alarm - call 999 and raise the alarm with the DM / RCC.
		SW rules are that we only fight fire to evacuate area or building.
		Attend the muster point and check register for any missing persons.
		If it is safe to do so, isolate any fuel sources.
		Make sure the fire brigade first response team are handed the Site Grab Pack on arrival.
		Liaise with the fire brigade on the area, mention if anyone is missing and confirm what is stored on site (e.g. chemicals, combustible materials, BIOGAS systems etc)
		Refer to plan of Fire Hydrants / Final effluent / Potable water points for use if required.

6.2 Explosion

N/A	**Done**	**The Incident controller will: -**
		Raise the Site Alarm - call 999 and raise the Alarm with the DM / RCC.
		Attend the muster point and check register for any missing persons.
		Make sure the fire brigade first response team are handed the Grab pack on arrival.

N/A	Done	The Incident controller will: -
		Liaise with the fire brigade on the area, mention if anyone is missing and confirm what is stored on site (e.g. chemicals, combustible materials, biogas systems etc – as per Sections above)
		Refer to plan of Fire Hydrants / Final effluent / Potable water points for use if required.

6.3 Pollution

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	Action
		Use the Pollution 30 Minute Plan.
		Consider whether the pollution event can be mitigated or stopped - use the 10-minute checks. If it is safe to do so, isolate the equipment to stop the pollution, the consequence of isolating any equipment needs to be considered.
		If not raise the Alarm with the FEC / Process scientist in hours and DM / RCC/ FEC out of hours.
		Liaise with the FPM/ Process scientist in hours & DM / RCC/ FEC out of hours to reduce the impact.

6.4 Flooding

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan.
		Raise the site alarm – call 999 as soon as the site starts to flood and notify the DM / RCC.
		Attend the muster point and check register for any missing persons.
		If it is safe to do so, try to understand why the site is flooding. This may be obvious like the river is overflowing – the river levels are controlled by the Environment Agency so it may be possible to be managed quickly.
		Make sure the Fire brigade/first response team are handed the KFB Grab pack on arrival.
		Liaise with the fire brigade on the area, mention if anyone is missing and confirm what is stored on site (e.g. chemicals, combustible materials, biogas systems etc

6.5 Road traffic accident impact or collision

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Raise the Site alarm - call 999 and raise the alarm with the DM / RCC.
		Keep the area isolated, do not move vehicles other than for freeing people.
		Cordon off area if the impact or accident is serious.
		Await instruction from the fire brigade or police depending on the nature of the event.
		Please see plan of Fire Hydrants / Final effluent / Potable water points for use if required.
		For leaking tankers after the event (Fuel or Chemicals) put out spill containment if safe to do so.

6.6 Collapse of a structure or building

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Raise the alarm - call 999 and raise the alarm with the DM / RCC.
		Attend the muster point and check register for any missing persons.
		Keep the area isolated, do not move debris other than for freeing people.
		Cordon off area if the collapse is serious.
		Await instruction from the fire brigade or police depending on the nature of the event.
		Please see plan of Fire Hydrants / Final effluent / Potable water for use if required.

6.7 Spill transferring wastes

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan.
		Stop the transfer if safe to do so and isolate if possible - complete Personnel Risk Assessment first.
		Contain the spill if safe to do so, using spill kits if small amounts, cover drains if possible
		Determine what has been spilt and where it has gone (i.e. to ground, to the site drains etc.)
		Report the incident to the FPM/DM/RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM.

6.8 Chemical spillage/leak

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Identify source and look to isolate the affected tank/pipework to prevent further leaks.
		Escalate & report to the pollutions team on 07557152385
		Instigate mitigation or remedial work • Contain the affected area – utilise spillage kits/pads to absorb the chemical • If chemical has made its way to the site drains please organise appropriate SST/tankers to remove contents from return liquor well/dirty water pumping station
		Collect evidence (photographs, samples & keep any parts of failed assets that will be needed as evidence)
		Assess the condition of the downstream processes to determine the level of contamination present and whether they will be adversely affected. On site sampling to be carried out and microscopy slides to be viewed.

6.9 Diesel spillage

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Identify source and look to isolate the affected tank/pipework to prevent further leaks.
		Escalate & report to the pollutions team on 07557152385
		Instigate mitigation or remedial work • Contain the affected area – utilise spillage kits/pads to absorb the diesel. • If diesel has made its way to the site drains consider isolating dirty water run off pumping station and remove contents with 2 x 4k tankers (if at full capacity)
		Collect evidence (photographs, samples & keep any parts of failed assets that will be needed as evidence)
		Assess the condition of the downstream processes to determine the level of contamination present. Instigate remedial action if necessary which could include skimming of tanks, draining of tanks or re-seeding if the biological process has been severely affected. On site sampling to be undertaken and microscopy slides to be viewed.

N/A	Done	The Incident controller will: -

6.10 Overfilling vessels

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Stop the transfer if safe to do so and isolate if possible - complete Personnel Risk Assessment first.
		Use the Pollution 30 Minute Plan.
		Contain the spill, if safe to do so, using spill kits if small amounts, cover drains if possible
		Determine what has been spilt and where it has gone (i.e. to ground to the site drains etc.)
		Report the incident to the FPM/DM/RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM.

6.11 Plant and equipment failures

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Stop the transfer or process if safe to do so and isolate if possible - complete Personnel Risk Assessment first.
		Use the Pollution 30 Minute Plan.
		Contain the spill, if safe to do so, using spill kits if small amounts, cover drains if possible
		Determine what has been spilt and where it has gone, including Biogas releases (i.e. release to ground, to the site drains or the atmosphere etc.)
		Report the incident to the FPM/DM/RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM.

6.12 Containment failure

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Stop the transfer or process if safe to do so by isolation - complete a personal Risk Assessment first.
		Use the Pollution 30 Minute Plan.
		Contain the spill, if safe to do so, using spill kits if small amounts, cover drains if possible
		Determine what has been spilt and where it has gone, including Biogas releases (i.e. release to ground, to the site drains or the atmosphere etc.)
		Report the incident to the FPM/DM/RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM.

6.13 Failure to contain firewater

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan.
		Contain the firewater if it is possible to do so, use spill kits if small amounts, cover drains if possible

N/A	Done	The Incident controller will: -
		Determine what amount has been spilt and where it has gone (e.g. site return WPS, to ground, to the site drains). Consider whether it can be contained and disposed of offsite.
		Report the incident to the FPM/DM/RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM. – Process Scientist to risk assess impact.

6.14 Incorrect connection leading to releases to drains and other systems

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan.
		Contain the spill, if safe to do so, using spill kits if small amounts, cover drains if possible
		Determine what amount has been spilt and where it has gone, is it in the site return WPS, has the release been to ground to the site drains. Consider whether it can be contained and disposed of offsite.
		Report the incident to the FPM/DM/RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM. – PS to Risk Assessment & impact.

6.15 Incompatible substances coming into contact

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan.
		Keep upwind of any potential fumes.
		Raise the Site alarm - call 999 if any fire or fumes are being generated, raise the Alarm with the DM / RCC.
		Discuss the impact of the spill with the FPM /Process Scientist/DM.
		Contain the liquid solution, if safe to do so, using spill kits if small amounts, cover drains if possible
		Determine what amount has been spilt and where it has gone (e.g. released to site return WPS, to ground, to the site drains). Consider whether it can be contained and disposed of offsite.
		Check the site COSHH register for both or all the components for likely reactions.

6.16 Emission of effluent or Biogas before composition checked

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan.
		Remember this emission may be a release of biogas to atmosphere. (We are Not able to sample biogas).
		Sample the effluent if it is safe to do so and notify the FPM/ Process scientist of results.
		Discuss the impact of the spill with the FPM /Process Scientist/DM for next steps.
		Report the incident to the DM/RCC/ SW Pollution team for Info.
		Stop the transfer if safe to do so and isolate if possible - complete Personnel Risk Assessment first.
		Contain the release if safe to do so, if there are spare containment tanks utilise these via discussion with Incident team.

N/A	Done	The Incident controller will: -
		Stop the process, use site spill kits if small amounts have been spilt, cover drains if possible.
		Determine what has been released and where it has gone (e.g. to ground, to the site drains etc.)

6.17 Theft & Vandalism

The Duty Operator on receiving either an automatic or a personnel-raised alarm will:

N/A	Done	The Incident controller will: -
		Use the Pollution 30 Minute Plan if the vandalism has affected the process.
		Remember pollution emission may be a release of biogas to atmosphere or poor effluent quality or a release from a process or fuel storage vessel to land or a water course.
		Discuss the impact of the theft or vandalism with the FPM /Process Scientist/DM.
		Report the incident to the DM/RCC/ SW Pollution team for inclusion in the morning 24-hour report.
		Make a thorough inspection of the SCADA and a walk of the Site if we have had intruders or vandalism on the Site as changes may have been made to the process.
		Report any thefts or vandalism to the police and ask for a crime reference number.

A. Grab Pack

Southern Water

Bexhill & Hastings WTW/STC

Emergency Grab pack.

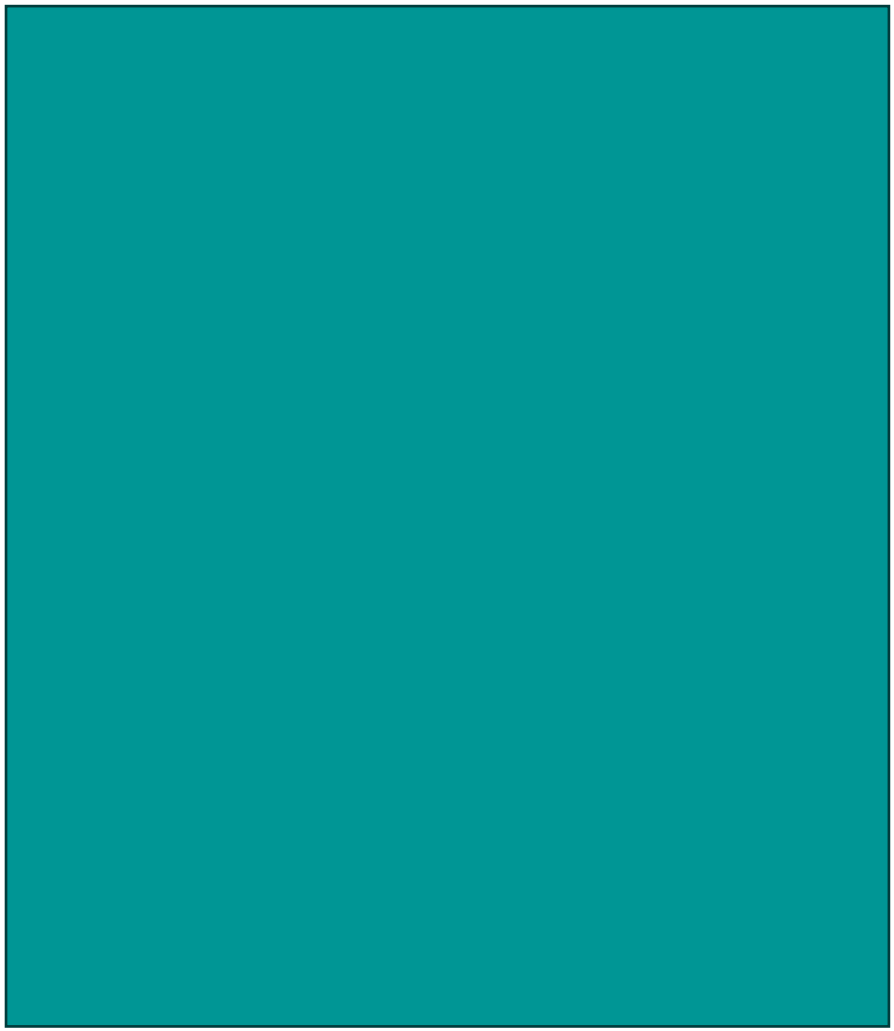
Nov 2023.

Final Draft

Version 2.0 Nov 2023

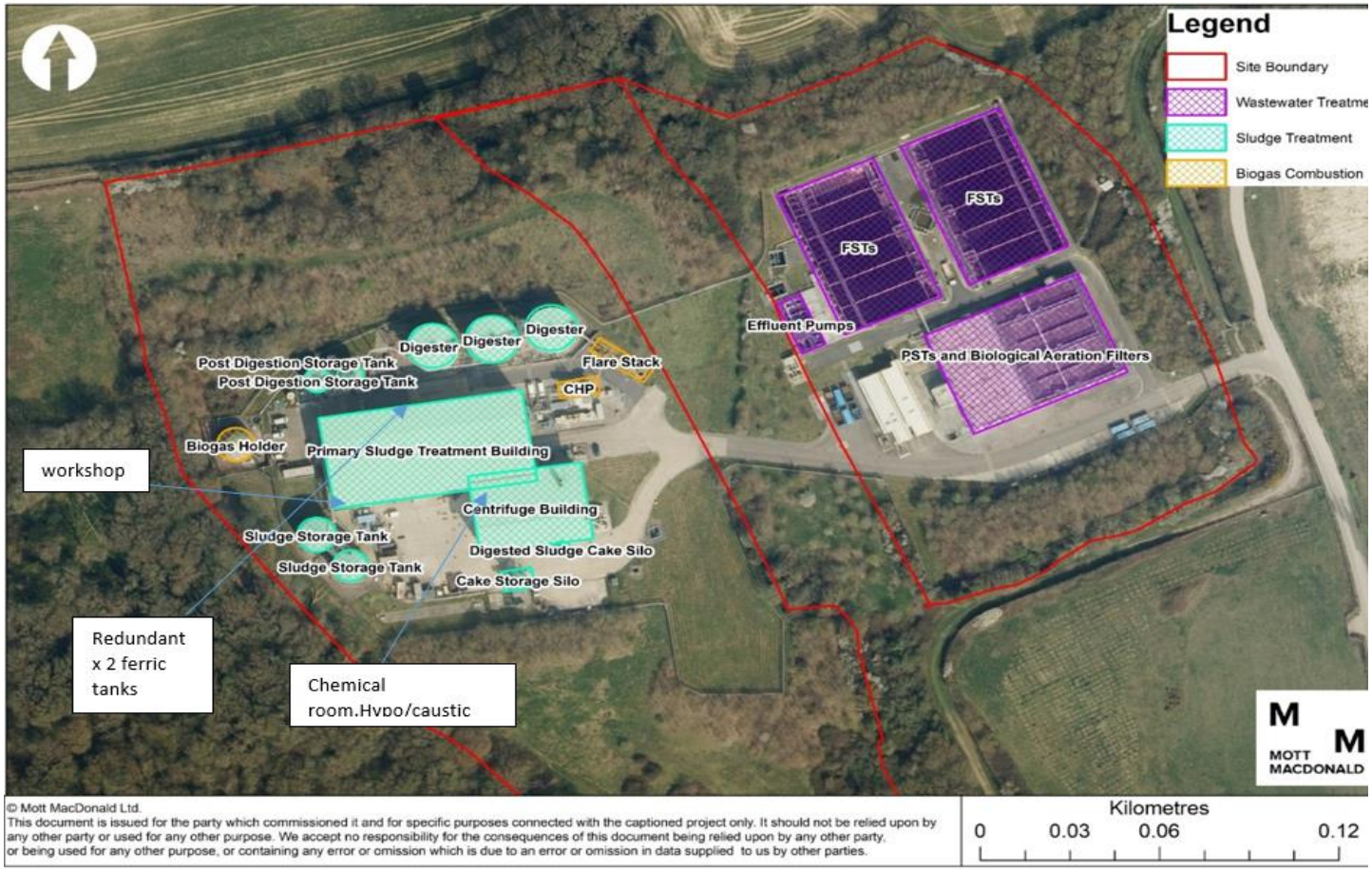
Contents

1. EMERGENCY CONTACT NUMBERS



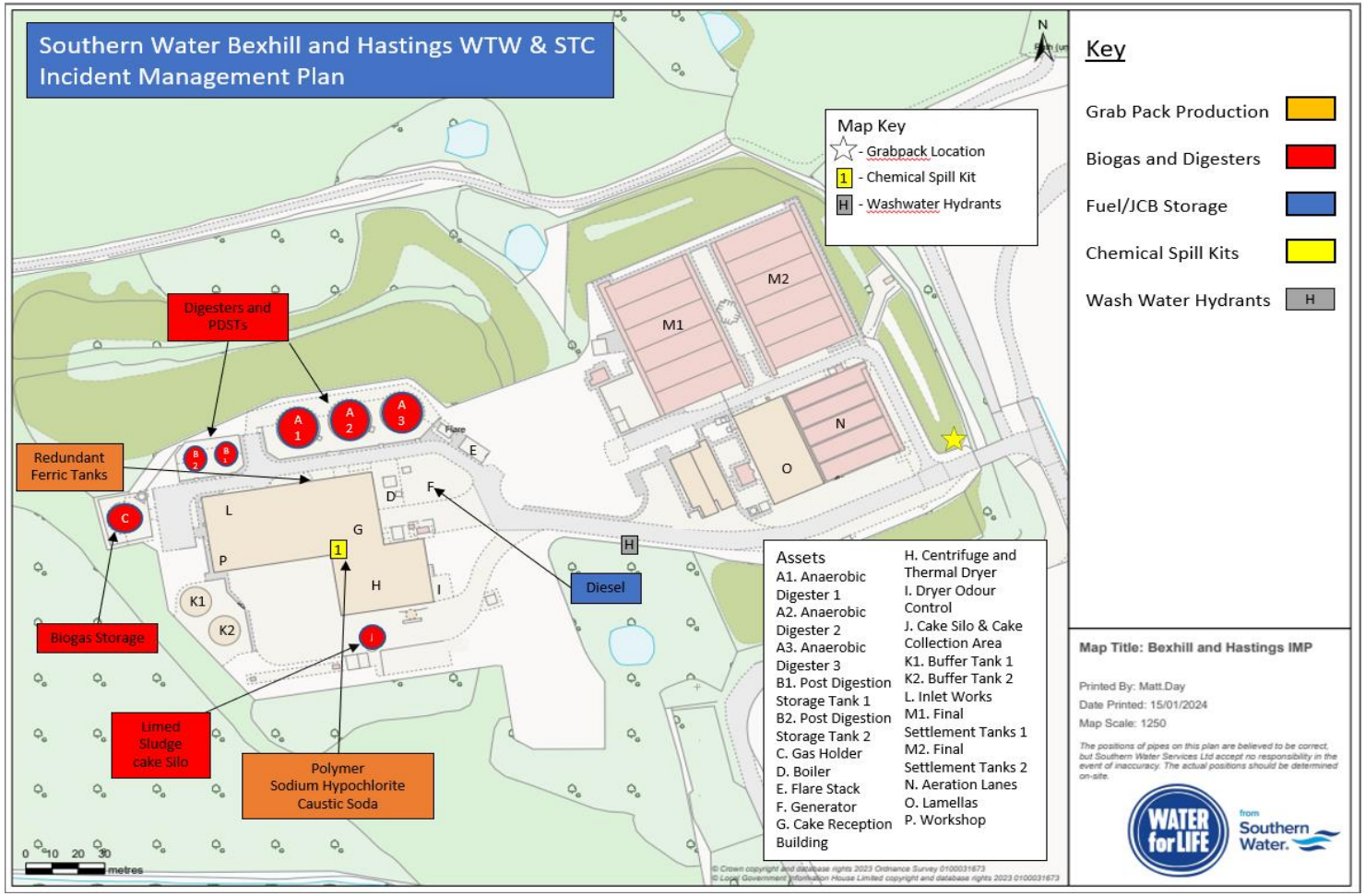
2. SITE PLANS

Map of Processes

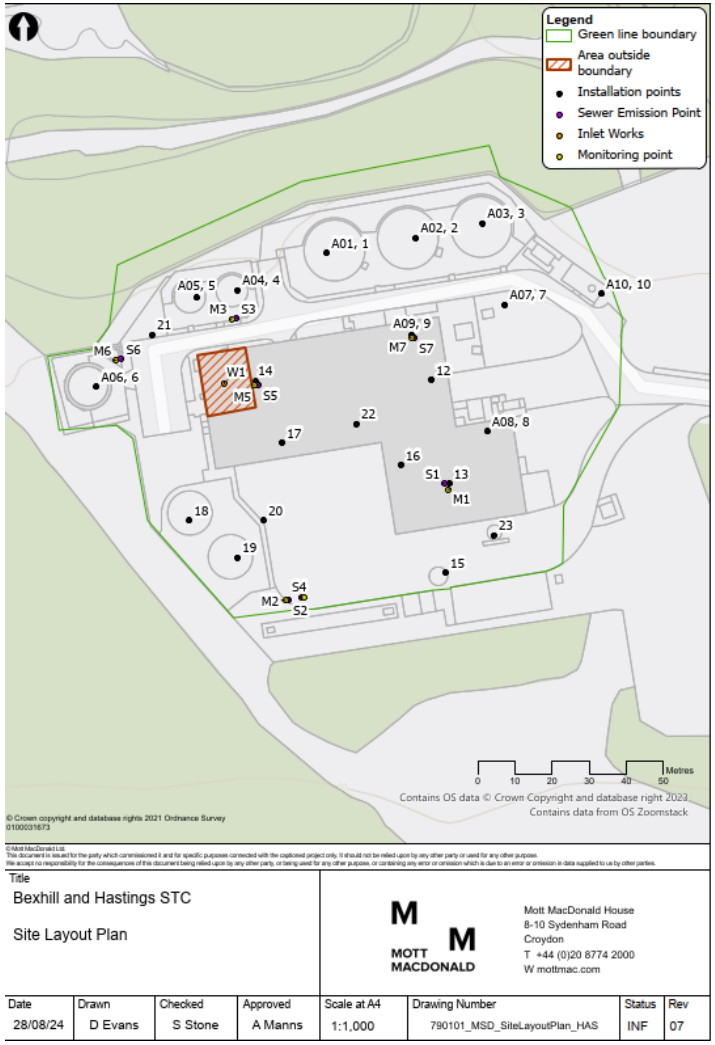


Map of flammable substances and fire hydrants

Site Plan – for KFB.

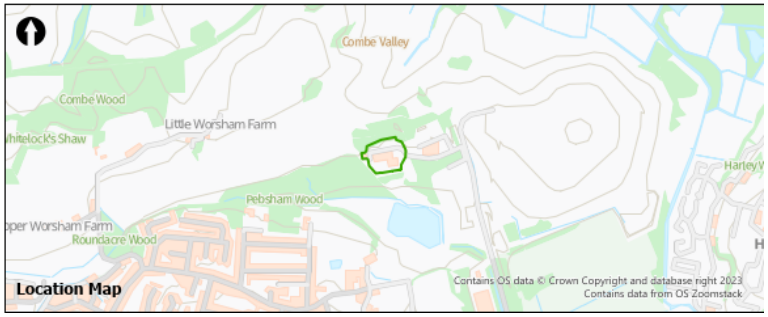


Map of biogas systems



Emissions Ref	Emissions Points	Assets Ref	Assets	X	Y
A01	Whessoe Valves 1	1	Anaerobic Digester 1	576567	109412
A02	Whessoe Valves 2	2	Anaerobic Digester 2	576591	109416
A03	Whessoe Valves 3	3	Anaerobic Digester 3	576609	109420
A04	Whessoe Valves 4	4	Post digestion storage tanks	576543	109402
A05	Whessoe Valves 5	5	Post digestion storage tanks	576532	109400
A06	Whessoe Valves 6	6	Gas Holder	576505	109376
A07	CHP Unit	7	CHP & Emission monitoring point	576615	109398
A08	Odour control unit	8	Odour scrubbers 1 and H2S Monitoring point	576610	109364
A09	Boiler	9	Boiler	576590	109390
A10	Flare stack	10	Flare stack	576641	109401
		12	Cake reception building	576595	109378
		13	Centrifuge	576600	109350
		14	Gravity Belt Thickeners	576548	109377
		15	Cake storage silo & cake collection area	576599	109326
		16	Polymer & chemical storage	576587	109355
		17	Screenings storage	576555	109361
		18	Combined sludge storage tank	576530	109340
		19	Combined sludge storage tank	576543	109330
		20	General waste skip	576550	109340
		21	Lime storage & lime dosing plant	576520	109390
		22	Thickened Sludge Storage Tank	576575	109366
		23	Cake silo	576612	109336
W1	Inlet works (context only)			576539	109377
S1	Centrifuge liquors			576599	109350
M1	Centrifuge liquors			576600	109348
S2	Surface water			576557	109319
M2	Surface water			576556	109318
S3	Northern bund drainage			576543	109394
M3	Northern bund drainage			576541	109394
S4	Southern bund drainage			576560	109319
M4	Southern bund drainage			576561	109319
M5	Gravity belt thickener liquors			576547	109376
S5	Gravity belt thickener liquors			576548	109376
S6	Gas condensate			576511	109383
M6	Gas condensate			576510	109383
S7	Boiler blowdown			576590	109389
M7	Boiler blowdown			576589	109389

AX: Air emissions SX: Sewer emission points MX: Monitoring Points



3 MATERIALS & CHEMICALS STORAGE ON SITE

List of combustible materials stored on site.

WASTE INVENTORY (See EMS 480)					
Trade Name/ Substance	**Solid/liquid/ gas/powder**	**UN Number**	**Max Stored on Site**	**Location Marked on Site Plan**	**Type of Containment**
Biogas	Biogas	UN1971	900m3 bag	Biogas Holder	Gas bag
Diesel Oil	Liquid	UN1202	17000 Litres	Next to the boiler and blower house	Tank
Sludge	Cake	Non - Hazardous	60m3	Imported cake Reception hopper	silo
Limed Sludge Cake	Sludge cake	N/A	100m3 Max	Sludge cake Silo.	Silo
Polymer	Powder	UN2923	14X 750kg bags for Centrifuge 6x 750kg bags for GBT's	Inside centrifuge building, or skip bay	Bags
Lime	Liquid	UN1956	34 Tonne	Liquid lime tank, near PDST's	Tank
Lime (Dust).	Solid (granules)	UN1956	Variable this is an unusual activity	Cake Bays	In bags
Gas Cylinders	Gas	N/A	Welding / burning Equip.	Stored in Workshop on plan.	Gas Bottles stored in a locked building overnight.
Ferric Chloride	Liquid	UN2582	redundant	N/A	Storage tank.
Ferric Sulphate	Liquid	UN1760	redundant	N/A	Storage tank.
Sodium Hypochlorite	Liquid	UN1791	21.4 Tonne	Hypo tank in chemical Room On temp dosing as tank condemed	Tank IBCs

Sodium Hydroxide	Liquid	N/A	9T	Chemical area	tank
Aerosol Leaks of Biogas	Gas	UN1971	Not Known as would be formed by leaks	Biogas Holder area Digester headspace	Gas bag Digesters Pipelines Flare Stack CHP Engine
JCB Loader / MTS Tankers & Chemical Delivery tankers.	Diesel Powered	UN1202	Diesel Fuel tank on machine <3000 litres	Stored outside out of hours but may be anywhere on site.	Vehicle stored outside over night.

Likely combustible waste management.

- Paper or cardboard – this is controlled by using sealed bins.
- Plastics – We do not store plastic waste other than in recycle Bins.
- Rags and textiles – rag is managed in skips by MTS for composting.
- Scrap metals contaminated or mixed with other waste such as oils or plastics – managed by Southern Water Scrap metal skips and Fly tipping requests to empty skips.
- De-polluted and un-depolluted ELVs – We do not break ELV's
- Refuse derived fuel (RDF) and solid recovered fuel (SRF) – N/A.
- Compost and plant material – Managed by MTS on SW behalf.
- Biomass – Managed In process control and via sludge cake.
- Mixed waste containing any combustible wastes – Via Sealed bins.
- Sludge cake Storage in cake bays.
- Lime used to treat Sludge cake could be stored on Cake Bays if in use.
- Limed sludge Cake Silo.
- WEEE – Managed via Locked Wee containers.
- Wood – Pallets are stored on site.

Non-Combustible.

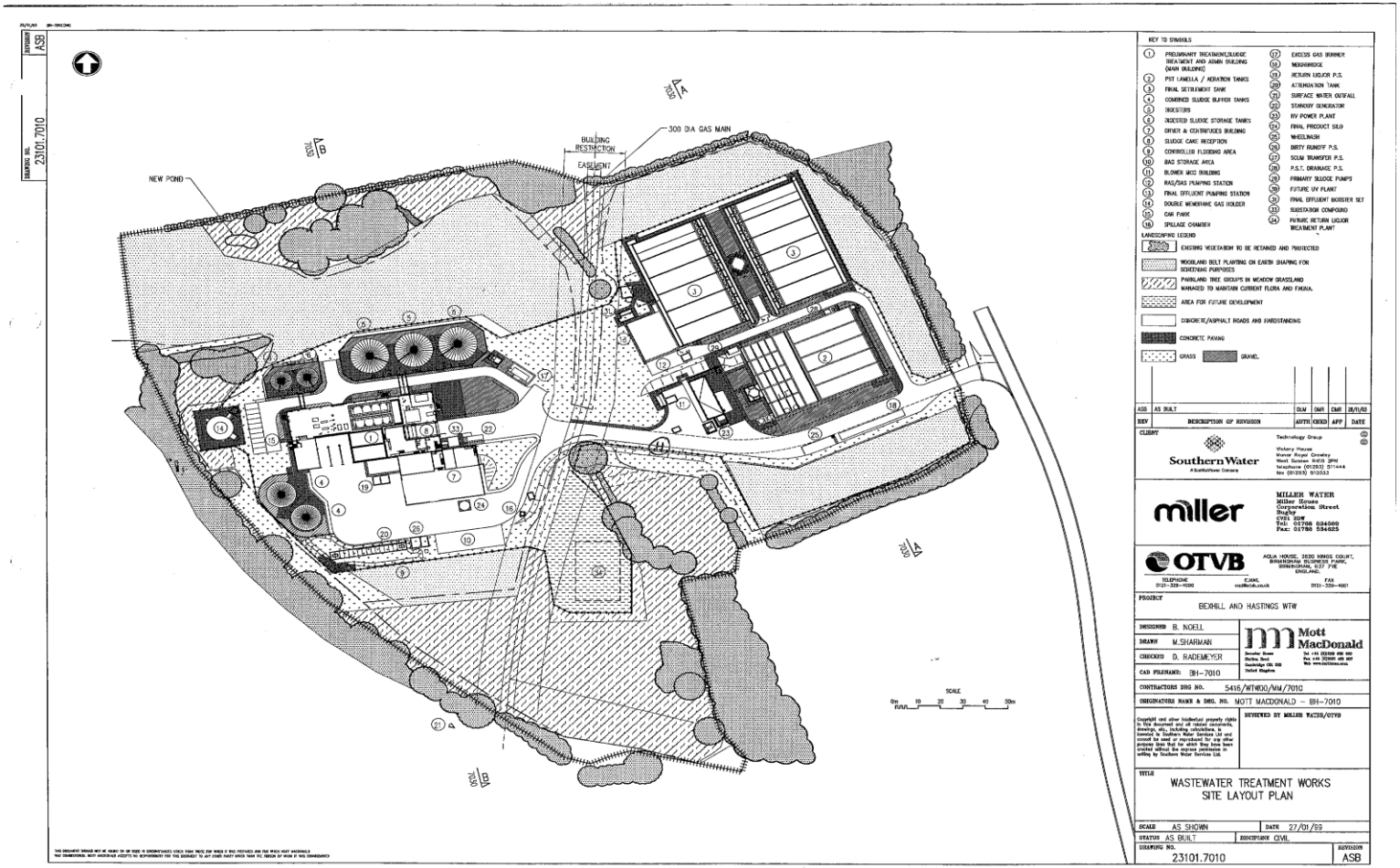
CHEMICAL PRODUCT INVENTORY (See relevant COSHH sheets)					
Trade Name/ Substance	**Solid/liquid/ gas/powder**	**UN Number**	**Max Stored on Site**	**Location Marked on Site Plan**	**Type of Containment**
Antifoam	Liquid	N/A	1m3	Inside centrifuge building.	Intermediate Bulk Container (IBC)
Polymer	powder	UN2923	10 x 1050 kg as liquid in IBC	Inside garages next to offices	bags
Wastewater	Liquid	N/A	36336.09 m^3	5 X Primary Settlement Tanks	Tanks
Wastewater	Liquid – Non-Buoyant	N/A	8734.8 m^3	5 x Aeration Lanes	Lanes
Wastewater	Liquid	N/A	11513.88 m^3	12 X Final Settlement Tanks	Tanks
Sludge	Liquid	N/A	7596 m3	3 X Digesters	Tanks
Sludge	Liquid	N/A	1575m3	Thickened Sludge Storage Tank x 2	Tank

4 LOCATION OF FIRE EXTINGUISHERS ON SITE.

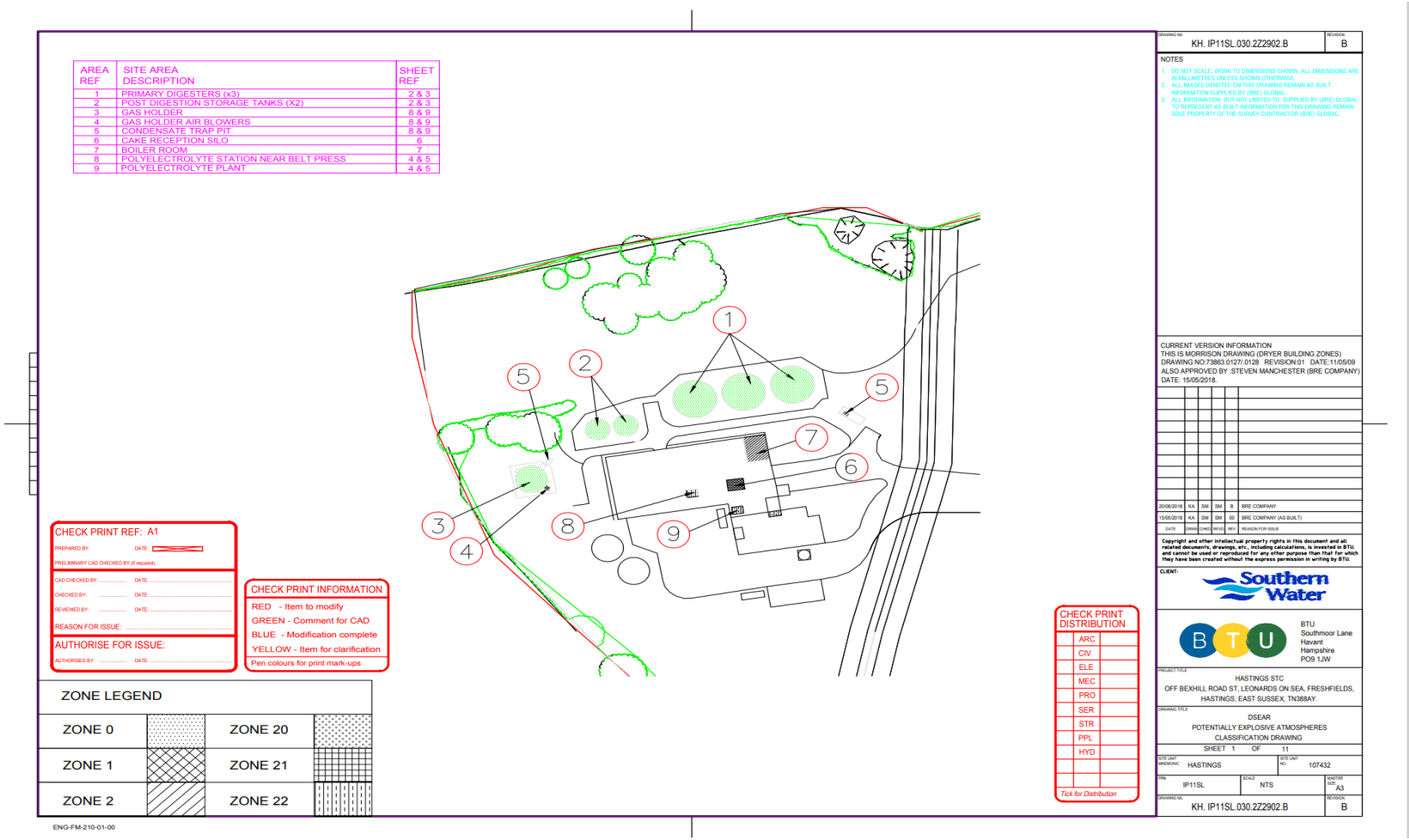
FIRE EXTINGUISHER POSITIONS HASTINGS STC TYPE	LOCATION	AMOUNT	STAFF CONTACT
FIRE EXTINGUISHER	Control room	2	
FIRE EXTINGUISHER	Communications room	1	
FIRE EXTINGUISHER	MCC 1	1	
FIRE EXTINGUISHER	Top floor hallway	2	
FIRE EXTINGUISHER	Top floor inlet	4	
FIRE EXTINGUISHER	MCC 2/4	2	
FIRE EXTINGUISHER	Boiler room	1	
FIRE EXTINGUISHER	Washpactor Hall	4	
FIRE EXTINGUISHER	Reception	1	
FIRE EXTINGUISHER	Workshop	1	
FIRE EXTINGUISHER	Centrifuge poly room	1	
FIRE EXTINGUISHER	Centrifuge Hall	5 (2 OUTSIDE)	
FIRE EXTINGUISHER	MCC 3	1	
FIRE EXTINGUISHER	Blower room	2	
FIRE EXTINGUISHER	Office floor stairs	2	

FIRE EXTINGUISHER	Office hallway	2	[redacted]
FIRE EXTINGUISHER	Lab	1	
FIRE EXTINGUISHER	Outside toilets	1	
FIRE EXTINGUISHER	LOCATED BY ALL EMERGENCY EXITS	MULTIPLE	

5 WASHATER MAINS & FIRE HYDRANTS



6. DSEAR DRAWINGS



AREA REF	SITE AREA DESCRIPTION	SHEET REF
1	PRIMARY DIGESTERS (x3)	2 & 3
2	POST DIGESTION STORAGE TANKS (X2)	2 & 3
3	GAS HOLDER	8 & 9
4	GAS HOLDER AIR BLOWERS	8 & 9
5	CONDENSATE TRAP PIT	8 & 9
6	CAKE RECEPTION SILO	6
7	BOILER ROOM	7
8	POLYELECTROLYTE STATION NEAR BELT PRESS	4 & 5
9	POLYELECTROLYTE PLANT	4 & 5

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PREPARED BY: DATE:

PRELIMINARY CAD CHECKED BY (if required):

CAD CHECKED BY: DATE:

CHECKED BY: DATE:

REVIEWED BY: DATE:

REASON FOR ISSUE:

AUTHORISE FOR ISSUE:

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ZONE 2		ZONE 22	

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THIS IS MORRISON DRAWING (DRYER BUILDING ZONES)
DRAWING NO:73863.0127/.0128 REVISION:01 DATE:11/05/09
ALSO APPROVED BY .STEVEN MANCHESTER (BRE COMPANY)
DATE: 15/05/2018.

DATE	DRWN	CHKD	REVIEW	REV	REASON FOR ISSUE
20/06/2018	KA	SM	SM	B	BRE COMPANY
15/05/2018	KA	SM	SM	00	BRE COMPANY (AS BUILT)

CLIENT: Southern Water

BTU
Southmoor Lane
Havant
Hampshire
PO9 1JW

PROJECT TITLE
HASTINGS STC
OFF BEXHILL ROAD ST, LEONARDS ON SEA, FRESHFIELDS, HASTINGS, EAST SUSSEX, TN388AY.

DRAWING TITLE
DSEAR
POTENTIALLY EXPLOSIVE ATMOSPHERES CLASSIFICATION DRAWING

SHEET 1 OF 11

SITE UNIT MNEMONIC: HASTINGS
SITE UNIT NO: 107432
PIN: IP11SL
SCALE: NTS
MASTER SIZE: A3
DRAWING NO: KH. IP11SL.030.2Z2902.B
REVISION: B

bre

5 Risk assessment

For each hazardous area a risk assessment table has been complied, giving a risk rating for the identified ignition hazards. The likelihood rating given to sparks generated by equipment is based on the number of non-ATEX equipment present. Equipment in each zoned area was catalogued. Where applicable any hazardous areas allocated are illustrated in hazardous zoning drawings of the site and relevant equipment.

5.1 Preliminary treatment

5.1.1 Inlet works

The inlet works at Hastings STC are located indoors, on the top floor of the reception building. The inlet works are not open to atmosphere.

According to Southern Water's MED 4004 2015[3] the inlet works have been allocated a zone 2 classification internally. This is due to the potential for flammable liquids such as petrol possibly being present in the accepted waste.

Figure 1: Inlet works.

Figure 2: Inlet works.

Methane is present (usually only in small quantities per litre) in the leachate waste accepted.[4] According to the "*Impact assessment leachate discharge*" report by *Ex-Solutions Consulting*, the methane from leachate only requires a zone 2 classification due to the presence of odour control acting as extraction, without extraction, the presence of leachate would require a zone 1 classification.[4] The inlet works have already been allocated a zone 2 classification due to the potential presence of petrol from an accidental or illegal spill.

bre

Raw sewage inlet works

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	1	2	2

bre

5.4 Sludge treatment

5.4.1 Digester 1

Zone 0 internally and zone 1 externally surrounding the top of the digester.

Figure 3: Sludge digesters

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks & hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones not allowed to be taken into zoned areas. Signs present.	1	2	2
Lightening	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	2	2	4

bre

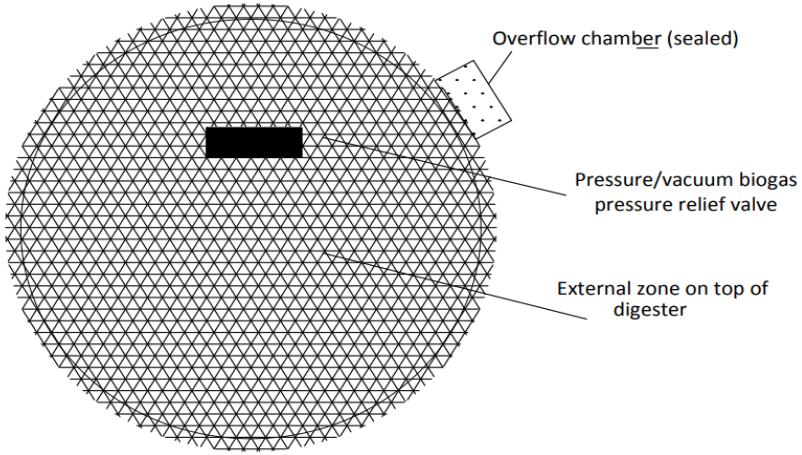
5.4.2 Digester 2

Zone 0 internally and zone 1 externally surrounding the top of the digester.

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks & hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones not allowed to be taken into zoned areas. Signs present.	1	2	2
Lightening	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	3	2	6

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.4.1.

DIGESTER & POST-DIGESTER PLAN



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ZONE LEGEND	REF	SITE AREA DESCRIPTION	ZONE	T CLASS	EXTENT OF ZONE (V-VERTICAL, H-HORIZONTAL) MEASURED FROM POINT OF POSSIBLE RELEASE
ZONE 0	A	OVERFLOW CHAMBER (SEALED)	0		INTERNALLY
	B	EXTERNAL ZONE ON TOP OF DIGESTER	1		EXTERNALLY
ZONE 1					EXTERNALLY 'V' + 'H' - 3m
ZONE 2					

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DIGESTER PLAN HZ

SHEET 2 OF 11

SITE UNIT MNEMONIC: HASTINGS — SITE UNIT NO: 107432

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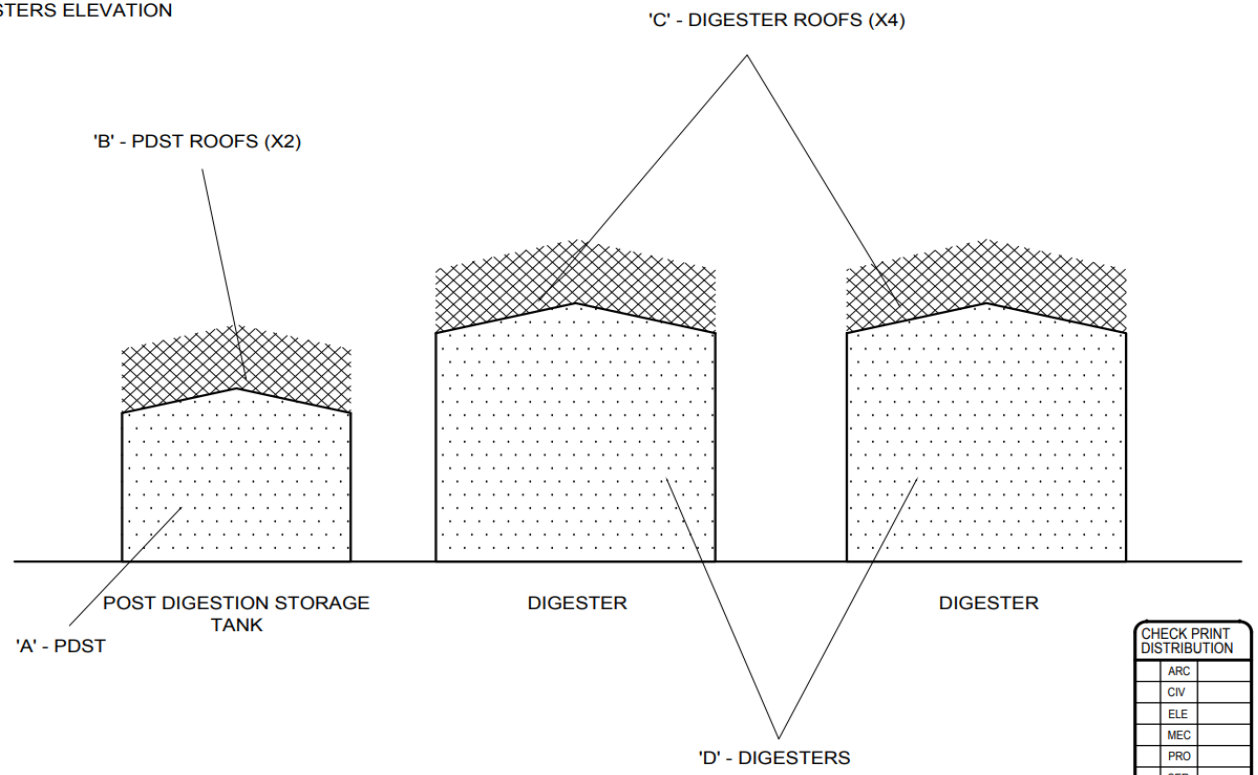
DIGESTERS & POST-DIGESTERS ELEVATION



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ZONE 0	A	POST DIGESTION STORAGE TANKS 1+2	0	2	INTERNALLY
	B	POST DIGESTION STORAGE TANKS 1+2 ROOFS	1	2	EXTERNALLY - 3m 'V' + 'H' TO EDGE OF ROOFS
ZONE 1	C	DIGESTERS NO. 1-4 ROOFS	1	2	EXTERNALLY - 3m 'V' + 'H' TO EDGE OF ROOFS
	D	DIGESTERS NO. 1-4	0	2	INTERNALLY
ZONE 2					

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5.4.3 Digester 3

Zone 0 internally and zone 1 externally surrounding the top of the digester.

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks & hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones not allowed to be taken into zoned areas. Signs present.	1	2	2
Lightening	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	1	2	2

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.4.1.

bre

5.4.4 Post digestion storage 1

Zone 0 internally and zone 1 externally surrounding the top of the post digestion

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	3	2	6

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.4.1.

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5.4.6 Polyelectrolyte

There are two polyelectrolyte dust hoppers / dispenser units on site. Both are located indoors in large, well ventilated buildings.

Following Southern Water's MED 4004 April 2015[3], the receiving vessel is allocated a zone 21 classification internally and the receiving hopper is allocated a zone 22 classification internally.

Figure 4: Polyelectrolyte hopper, inlet works building

Figure 5: Polyelectrolyte hopper, dryer building

bre

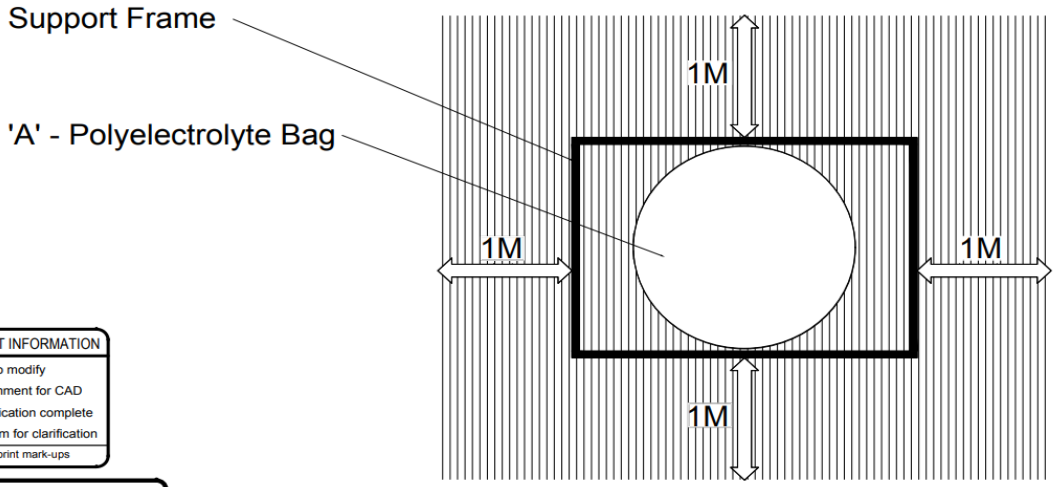
Polyelectrolyte hopper 1 (inlet works area)

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment or IP5x must be used as a minimum – see catalogued equipment.	2	2	4

Polyelectrolyte hopper 2 (dryer building)

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment or IP5x must be used as a minimum – see catalogued equipment.	2	2	4

POLYELECTROLYTE STATION - PLAN



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ZONE LEGEND	REF	SITE AREA DESCRIPTION	ZONE	T CLASS	EXTENT OF ZONE (V-VERTICAL, H-HORIZONTAL) MEASURED FROM POINT OF POSSIBLE RELEASE
ZONE 20	A	POLYELECTROLYTE STATION	22	4	EXTERNALLY - 1M 'H' AND 1M 'V' EXTENDING TO FLOOR
ZONE 21					
ZONE 22					

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POLYELECTROLYTE STATION PLAN

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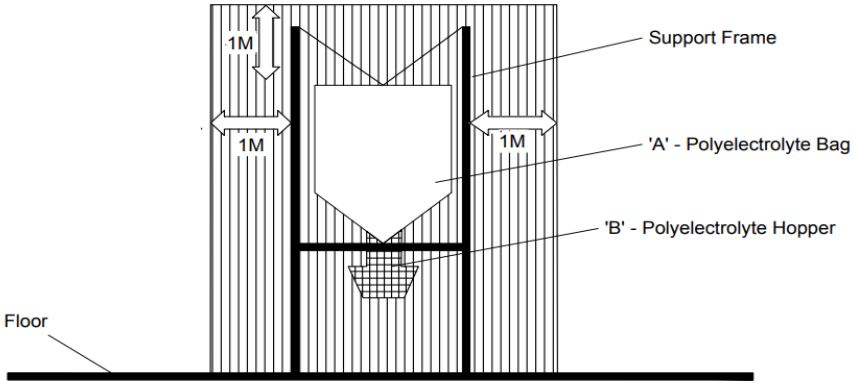
POLYELECTROLYTE STATION - ELEVATION



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ZONE 20	A	POLYELECTROLYTE BAG	22	4	EXTERNALLY - 1M 'H' AND 1M 'V' EXTENDING TO FLOOR
ZONE 21	B	POLYELECTROLYTE HOPPER	21		INTERNALLY - W ITHIN HOPPER
ZONE 22					

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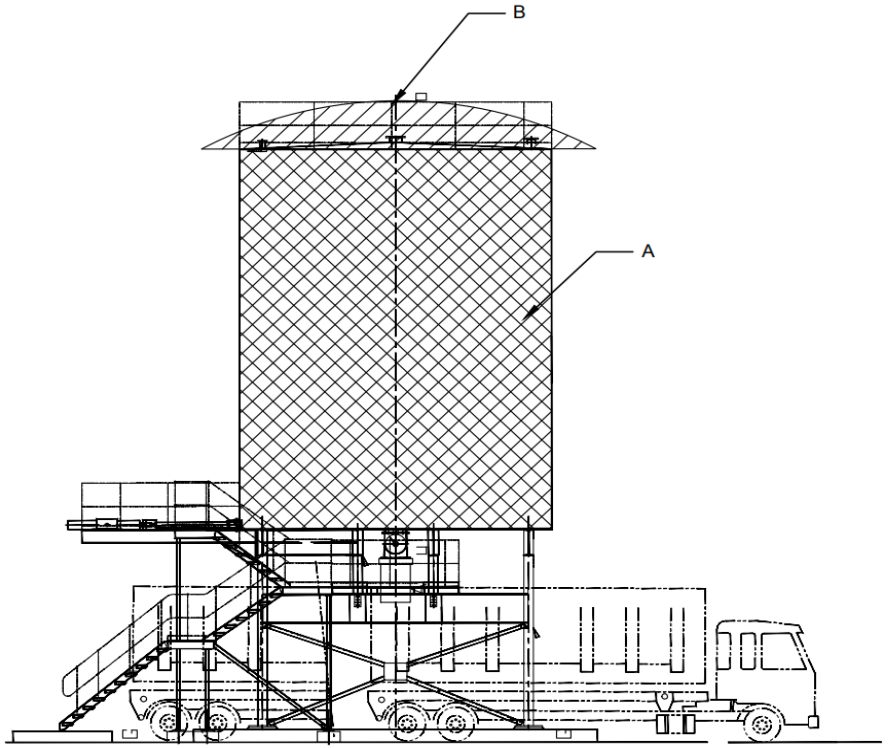
5.4.7 Post digestion sludge cake storage silo

Based on Southern Water's MED 4004 April 2015[3], the silo is allocated a zone 1 classification internally and a zone 2 classification externally extending above and around the top of the silo.

Figure 6: Post-digestion sludge cake storage silo

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	2	2	4
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	2	2	4

POST-DIGESTION STORAGE SILO



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ZONE LEGEND	
ZONE 0	
ZONE 1	
ZONE 2	

REF	SITE AREA DESCRIPTION	ZONE	GAS GROUP	T CLASS	EXTENT OF ZONE (V-VERTICAL, H-HORIZONTAL, MEASURED FROM POINT OF POSSIBLE RELEASE)
A	INTERNAL AREA OF SILO	1	11A	T3	INTERNAL + 1M FROM SILO ACCESS HATCH
B	EXTENT OF ZONE	2	11A	T3	1M FROM ALL OPENS ON THE TOP OF THE TANK

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POST-DIGESTION STORAGE SILO

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5.5 Gas storage

5.5.1 Boiler house

There is only one boiler at Hastings STC. It is located in the boiler house alongside the heat exchangers.

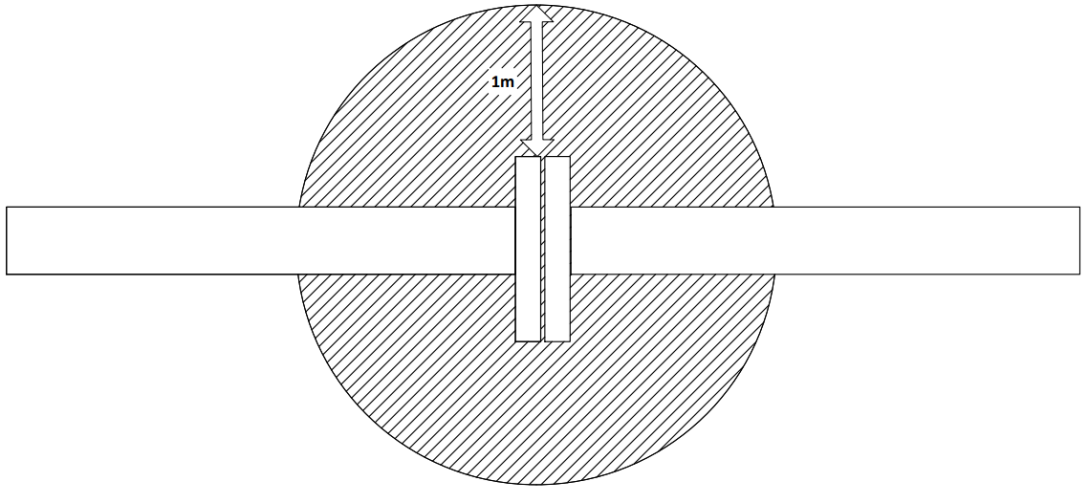
A zone 2 hazardous area is allocated extending 1m around all gas flanges and fittings on both natural and biogas pipelines.

Figure 7: Gas boiler

Figure 8: Water temperature controller.

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	3	2	6

BIOGAS AND NATURAL GAS PIPELINE - INTERNAL PIPEWORK ONLY



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- ALL GAS PIPEWORK IS ALLOCATED A ZONE 0 INTERNALLY.

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ZONE LEGEND	REF	SITE AREA DESCRIPTION	ZONE	T CLASS	EXTENT OF ZONE (V-VERTICAL, H-HORIZONTAL) MEASURED FROM POINT OF POSSIBLE RELEASE
ZONE 0	A	BIOGAS AND NATUAL GAS PIPEWORK	2		EXTERNALLY - 1M AROUND FLANGES AND FITTINGS
ZONE 1					
ZONE 2					

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5.5.2 Gas storage area

5.5.2.1 Double membrane gas bag

A zone 0 was allocated inside inner membrane, zone 1 in outer membrane and zone 2 around PRVs extending 3m. This agrees with Southern Water's MED 4004 April 2015[3].

Figure 9: Double membrane gas bag.

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	3	3
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	3	3
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	3	3
Lightning	Exposed zoned areas fitted with protection.	1	3	3
Electrostatic discharge	Earth bonding of equipment.	1	3	3
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	2	3	6

bre

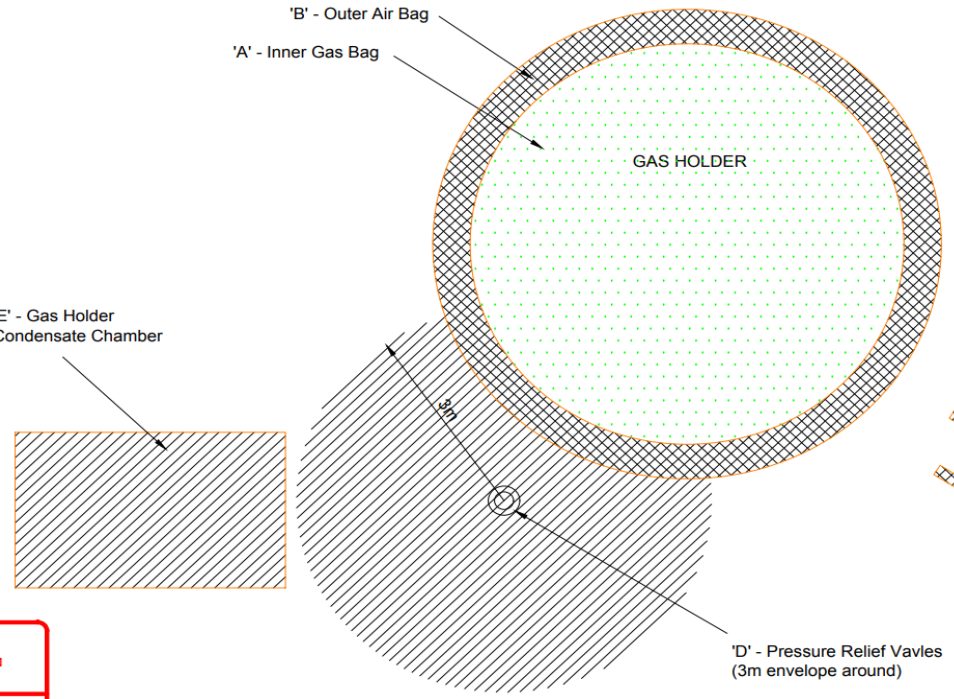
5.5.2.2 Gas condensate trap

Based on Southern Water's MED 4004 April 2015,[3] zone 2 internally.

Figure 10: Gas condensate trap, gas bag area

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	1	2	2

GAS HOLDER AREA PLAN



ZONE LEGEND	REF	SITE AREA DESCRIPTION	ZONE	T CLASS	EXTENT OF ZONE (V-VERTICAL, H-HORIZONTAL) MEASURED FROM POINT OF POSSIBLE RELEASE
ZONE 0	A	INNER GAS BAG	0	2	INTERNALLY
	B	OUTER AIR BAG	1	2	INTERNALLY
ZONE 1	C	AIR BLOWERS (x2)	1	2	INTERNALLY
	D	PRESSURE RELIEF VALVE	2	2	EXTERNALLY - 3M 'V' AND 'H'
ZONE 2	E	GAS HOLDER CONDENSATE CHAMBER	2	2	INTERNALLY

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POTENTIALLY EXPLOSIVE ATMOSPHERES
CLASSIFICATION DRAWING

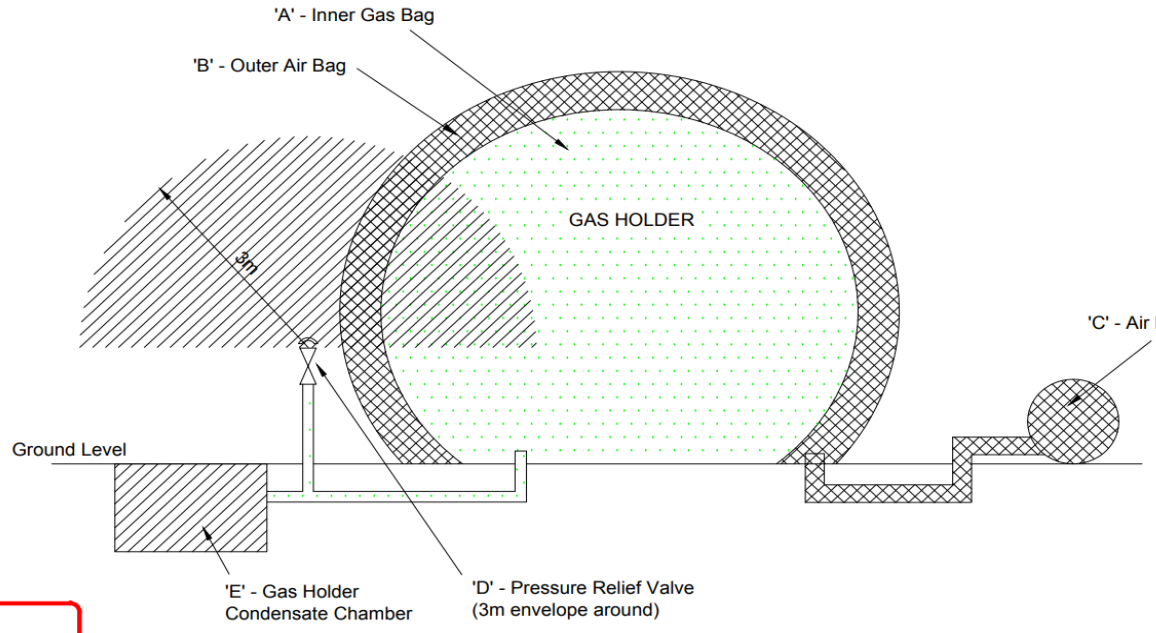
SHEET 8 OF 11

SITE UNIT MNEMONIC: HASTINGS — SITE UNIT NO.: 107432

PIN: IP11SL — SCALE: NTS — MASTER SIZE: A3

DRAWING NO. KH. IP11SL.030.2Z2903.A — REVISION A

GAS HOLDER AREA ELEVATION



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	B	OUTER AIR BAG	1	2	INTERNALLY
ZONE 1	C	AIR BLOWERS (X2)	1	2	INTERNALLY
	D	PRESSURE RELIEF VALVE	2	2	EXTERNALLY -3M, 'V' AND 'H'
ZONE 2	E	GAS HOLDER CONDENSATE CHAMBER	2	2	INTERNALLY

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5.5.3 CHP

The existing CHP plant is not allocated a zoned area. The CHP plant appeared to be identical to those at Budds Farm, Millbrook and Ashford and therefore the air flow through the CHP plant is sufficient to ensure a flammable atmosphere is highly unlikely to develop. This zone is based on continual operation of the ventilation system.

The biogas area, near the CHP is not classified according to Southern Water's MED 4004 April 2015[3].

5.5.4 Flare stack area

According to Southern Water's MED 4004 April 2015,[3] the flare stack area is unclassified.

BRE concludes the area should be unclassified, however internally the pipework will be allocated a zone 0 classification.

The equipment in the flare stack area was catalogued and is mostly Ex certified equipment.

Figure 11: Flare stack compound.

bre

5.5.5 Gas condensate trap (next to flare stack)

Based on Southern Water's MED 4004 April 2015,[3] zone 2 internally.

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	2	2	4

bre

5.6 Diesel storage

There are three diesel storage tanks on site at Hastings STC. One large tank for the generator and two smaller portable store tanks, predominantly for the JCB fuel.

According to guidance given in the "*Energy Institute: Model code of safe practice Part 15 – Area classification code for installation handling flammable fluids*"[5] the diesel tanks were allocated a zone 1 internally above the liquid level.

It was unclear if the tanks were double-skinned and therefore they were judged not to be as a worst-case-scenario.

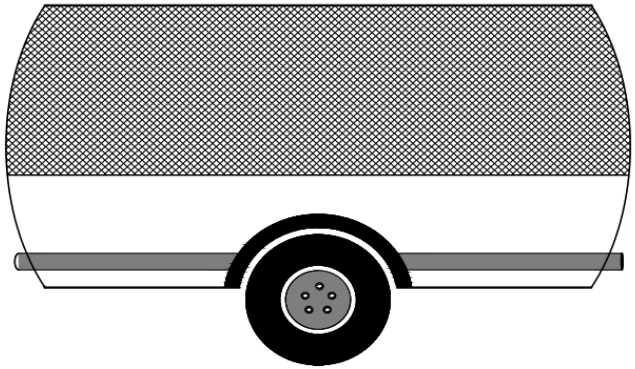
Figure 12: Large diesel storage tank.

Figure 13: Portable diesel tank.

Figure 14: Portable diesel tank.

Hazards	Control measures	Likelihood	Severity	Risk rating
Naked flames	No smoking policy on site except in designated areas. Signs present.	1	2	2
Welding / cutting: sparks and hot surfaces	Permit to work required before maintenance works can be undertaken.	1	2	2
Sparks from mobile phones	Mobile phones are not allowed to be taken into zoned areas. Signs present	1	2	2
Lightning	Exposed zoned areas fitted with protection.	1	2	2
Electrostatic discharge	Earth bonding of equipment.	1	2	2
Sparks from equipment	Ex rated equipment must be used – see catalogued equipment.	1	2	2

DIESEL TANK - PORTABLE



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DIESEL TANK HAZARDOUS

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ZONE 0	A	OVERFLOW CHAMBER (SEALED)	0		INTERNALLY
	B	EXTERNAL ZONE ON TOP OF DIGESTER	1		EXTERNALLY
ZONE 1					EXTERNALLY 'V' + 'H' - 3m
ZONE 2					

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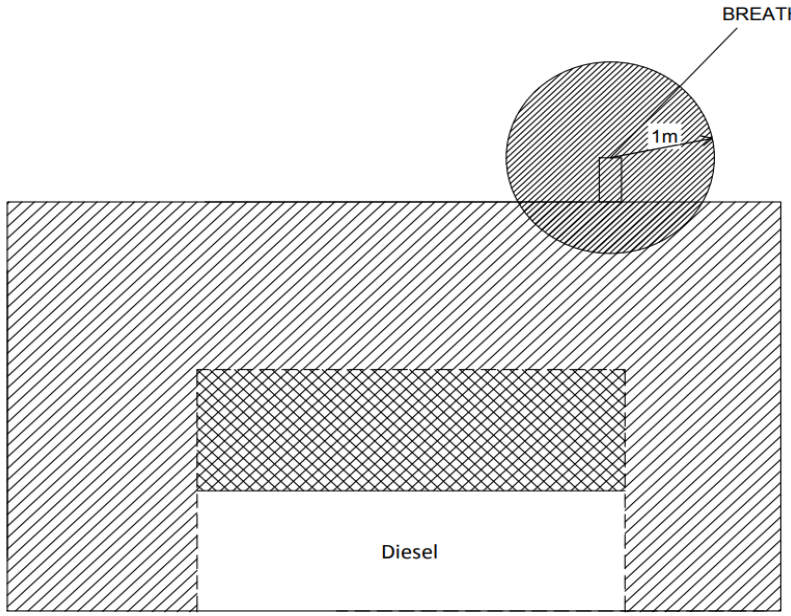
DIESEL TANK - DOUBLE SKINNED



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DIESEL TANK HAZARDOUS

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	B	EXTERNAL ZONE ON TOP OF DIGESTER	1		EXTERNALLY
ZONE 1					EXTERNALLY 'V' + 'H' - 3m
ZONE 2					

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7. FIRE RISK ASSESSMENT

Need to include a copy of the Fire risk assessment in with this pack.

Electronic copy link - Hastings STC 2022 FRA.pdf

8. COSHH DATA SHEET

COSHH data sheets for chemicals used on site should be Kept in a folder with the Grab Pack.

Electronic link to the Southern Water COSHH data sheets - COSHH (southernwater.co.uk)