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Ford Sludge Treatment Centre Accident Management Plan

February 2024

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Ford Sludge Treatment Centre Accident Management Plan

February 2024

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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 Ford Sludge Treatment Centre (STC), also referred to as the "Site". This plan will support the Ford 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 Ford; 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 staffed 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 overflowing 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.

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.

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	The Queen Mother hospital, St Peters Road, Margate, Kent. CT9 4AN	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) West Sussex Resilience Team / West Sussex County Council	03302 222400
Borough Council	West Sussex County Council 01243 777807	01243 777807
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

Contact	Office Hours	Out of Hours
Framework Waste Contractor	MTS 01634 250326	MTS 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 to the west of the hamlet of Ford, approximately 7km northeast of Bognor Regis. Ford WTW and STC serves a catchment with a population equivalent of 138,127.

Activity address: Ford Road, Arundel, West Sussex, BN18 0DD

National grid reference: SU 9971 0316

2.2 Summary of Site and sensitive receptors

The Site lies within a former airfield, Ford Airfield Industrial Estate. The surrounding area is a mix of industrial and agricultural use. To the north of the Site is a waste management centre with agricultural fields elsewhere. To the west and south there is agricultural fields surrounding the Site with areas of residential housing. To the southeast is HMP Ford, a large prison is located, with further agricultural fields surrounding this. Rutfield industrial estate is located 415m south of the Site.

There are a number of sensitive receptors located within 500m of the potential emission sources at Ford WTW and STC. The receptor closest to a potential emission source is a sports recreational facility west of the Site, which is located approximately 65m south the three post screening sludge 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.

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 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

Procedure Reference	Brief Summary
EMS 365 Discharges Procedure	<p>the auditing, training requirements, reporting forms and any associated documents.</p> <p>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.</p>
EMS 381 Operational Waste Procedures	<p>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.</p>
EMS 382 Hazardous Waste Procedures	<p>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.</p>
EMS 461 Chemical Risk Assessment (Form)	<p>A template for a chemical risk assessment including the following:</p> <ul style="list-style-type: none"> ● Site details ● Chemical details ● Chemical classification ● Risk activity ● Risks for health, fire/DSEAR¹ and environment ● Handling, usage and storage requirements ● Management of spills ● Disposal And the safety data sheet.
EMS 480 Waste Descriptions	<p>Provides written descriptions of different waste types covering the following:</p> <ul style="list-style-type: none"> ● Process giving rise to the waste ● Waste characteristics ● Handling advice ● Containment ● Disposal ● Name of waste ● Waste classification ● Producer and registered office details ● EWC ● Controlled Waste Regulations 2012 description ● Waste type ● Form ● Temperature ● SIC code <p>Information on the auditing, training requirements, reporting forms and any associated documents.</p>
FEC 307 Reporting of Unauthorised Access, Including Loss, Theft and Vandalism	<p>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.</p>
FEC 320 Process Related Incidents	<p>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</p>

¹ Dangerous Substances and Explosive Atmosphere Regulations

Procedure Reference	Brief Summary
FEC 322 – Spillage Procedure	<p>Outlines the responsibilities of staff in relation to the procedure. The procedure outlines the process for handling spillages on site including:</p> <ul style="list-style-type: none"> • Spillage assessment • Notifications and escalation • Containment • Awareness and training <p>Information on the auditing, training requirements, reporting forms and any associated documents.</p>
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	<p>Covers the following:</p> <ul style="list-style-type: none"> • 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	<p>Outlines the plan of actions that should be undertaken following severe weather or flood warnings and the responsibilities of the staff under these circumstances. The procedure details checklists for the following scenarios:</p> <ul style="list-style-type: none"> • impending severe weather, • flood watch, • flood warning, • severe flood warning, and • an all clear checklist. <p>Also includes Information on the auditing, training requirements and any associated documents.</p>
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 Ford 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 fabric², 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

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 Ford 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 latest DSEAR regulations and guidance to ensure best practice is adopted.

A Leak Detection and Repair (LDAR) plan is in place at the Ford 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:

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 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 (H₂S) (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 Ford 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 Ford 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 and, if required, operation suspended until the source of the emission has been sealed.

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 and also announce their arrival to staff in the control room
- The Site is staffed 24 hours a day, 7 days a week.
- CCTV cameras are positioned in key locations around the Site
- Access to Site and waste is restricted by 2.8m high chain link security fence
- 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
- 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
Sludge	1848m ³ (each)	Tank
Sludge	700m ³	Tank
Sludge	100m ³	Tank
Sludge biogas	352m ³ (Each)	Tank
Digested cake	100m ³	Silo
Biogas	670	Gas bag Digesters Pipelines Flare Stack CHP Engine
Diesel Oil	33989 Ltrs	Tank
Polymer (Centrifuge)	6 X 1m ³ /750kg bags	Bags
Polymer (Primary)	5 x 750Kg Bags	Bags
Antifoam	2 x 1050Kg IBC's	Intermediate Bulk Container (IBC)
Polymer	6 x 1050 kg as liquid in IBC	IBC
Ferric Chloride	30,000ltrs	Tank
Lime	Variable	Chemical Tank

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 Ford 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 Ford.

Table 3.3: Mitigation measures with sludge treatment incidents

Incident	Mitigation measures
Biogas	<ul style="list-style-type: none"> • In CHP emergency – activate emergency stop. Inform site FPM in hours/Duty Manager out of hours. Veolia to be informed ASAP. • Flarestack & CHP failure – will result in release of biogas from whessesoes. • P1 emergency job to be raised to contractors (Veolia/DSL). • All access to compound to be restricted. Report to pollution team [REDACTED] [REDACTED] Reduce or stop digester feed to reduce gas generation
Screening Strain presses (x2)	<ul style="list-style-type: none"> • P1 for M&E. Some critical spares held on site. P1 for M&N (contractor) for anything M&E cannot support. (servicing carried out by M&N).

Incident	Mitigation measures
Centrifuges (x2)	<ul style="list-style-type: none"> ● Imports to close. Call M&E/Brettex on P1 to repair. Some critical spares held on site (drive belts). ● In event of conveyor failure/blockage – centrifuge to be inhibited. ● Access request to be sent to FPM in hours (to be agreed by HOF and H&S SME with RA & H&S paperwork approved) or Duty Manager out of hours to unblock.
Digester (x3) faults	<p>Digester foaming / temperature issues:</p> <ul style="list-style-type: none"> ● Check digester feed ● Reduce by between 5 & 10% from previous day (consult Process Scientist if required) ● Check antifoam dosing – manual dose to be implemented if required ● Check recirc pump flows (M&E) ● Utilise MTS to carry out any clean up if digester has foamed over once foam has ceased. <p>If gas lines block:</p> <ul style="list-style-type: none"> ● Stop digester feed ● Call contractor (DSL) ASAP to attend to clear gas lines to prevent gas release via whessoes ● Escalate and report to pollutions team [REDACTED] ● If spill has occurred – mobilise MTS is required to carry out cleanup ● Manual dose antifoam if required ● Consult Process Scientist to gradually increase digester feed once resolved <p>Digester loss of temperature:</p> <ul style="list-style-type: none"> ● Feed will inhibit at a temperature <31 degrees. Temperature loss is usually gradual and will be noticed by site Ops before inhibit occurs. ● Check CHP is operational ● Check boilers are operational ● Check recirculation pumps and valves are operational ● Check heat exchanger is receiving hot water – jet valves if not ● Check sludge inlet and outlet temperatures – strip/jet heat exchanger is temperature is not correct <p>Digester recirculation pump failure/deterioration</p> <ul style="list-style-type: none"> ● No immediate impact from any failure however will start to see a loss in temperature gradually. ● Hire pump can be installed via Selwood until replacement pump is installed if required. (SewageSub 6"MT Chopper 13KW)
Sludge processing pumps	<ul style="list-style-type: none"> ● All pumps operate Duty/Stand-by so no immediate interruption if one pump fails. (Thickener feed pump / Thickened transfer pump / Thickener poly pump / Thickener poly makeup / Digester feed pump / Digester recirc pump / Centrifuge feed pump) <p>If both pumps fail (M&E):</p> <ul style="list-style-type: none"> ● Check critical spare list (held on site and updated) ● Use sludge tank levels on site to determine criticality of returning pump sets back to operation
Drum thickeners	<ul style="list-style-type: none"> ● Drum thickeners treat all indigenous and import sludge. Duty/stand-by. ● Loss of both drum thickeners result in reduction of import capacity/closure to imports. ● If unable to bring both back to service within <24 hours – cancel imported sludge
Whessoe Release	<ul style="list-style-type: none"> ● Inform pollution team on 0755 7152385. Return CHP/boiler/flare stack back to operation ASAP. Reduce feed to digesters. Refer to Veolia for call-out for any issues.

Incident	Mitigation measures
Tank leak/collapse	<ul style="list-style-type: none">● Inform pollution team. Some areas are banded – information in folder in SCADA control room. Clean-up to be arranged ASAP. Job to be raised for civils teams via contractors for repairs.
Power failure	<ul style="list-style-type: none">● Fixed generator on site. Manual reset of some assets may be required once supply has switched to generator (Ops/M&E with AP/ICA). Project currently running to replace HV switchgear.
Contaminated Trade	<ul style="list-style-type: none">● Liaise with network protection officer, increase the DO level to remove contaminants. No sources known in the catchment
Reduced Sludge Disposal	<ul style="list-style-type: none">● Imports to stop. All sludge on site to be removed if all three digesters fail.● Low likelihood
Odour Control	<ul style="list-style-type: none">● Portable odour units on site. ERG maintain fixed odour control assets

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	High
Impact to non-designated receptor	Medium
All other impacts	Low

Table 4.2: Probability Index

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

Table 4.3: Magnitude of risk

Severity index	Probability 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 or sludge /liquor during delivery/ storage Contaminated run off from cake storage e.g. containing suspended solids.	Acute or chronic effects to aquatic life, contamination and 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.	Low	High	Medium	Potential for leaks from digestions tanks, storage vessels/bays and drainage system which may cause contamination or deterioration of surface water quality. Some of the underground pipework is in poor condition and does not have leak detection, where the underground pipework was damaged it has now been changed to above ground in these areas. Pavement and hardstanding across the Site has cracks in some places, but is generally in good condition.	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 surrounding the STC and WTW. Bunding will also be implemented for all raw material storage. 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	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
							Raw materials are stored in bunded areas. Permeable gravel surfacing surrounding digesters and then concrete. Quantities of liquids stored are generally low. The River Arun is located 850m east of the Site, a drain located 200m south east of the Site flows into the River. There are no further drains located within 500m of the Site areas. The River Arun is listed in the OS Water Network Map as a tidal river; a river influenced by tidal action.	Association (CIRIA) standard 736. Hardstanding is potentially planned to be constructed (in line with the recommendations of the CIRIA risk assessment) around the digesters. 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. Cake is stored in a 100m ³ silo, there are also two emergency cake storage areas consisting of two 16 tonne ro-ro skips. The silo is emptied every Saturday and has the capacity for	
Abstraction from watercourse downstream of facility (for agricultural	Spillage of liquids, contaminated rainwater run-off from waste e.g. containing	Acute effects, closure of abstraction intakes.	Direct run-off from site across ground surface, via surface water drains, ditches etc. then abstraction.	Low	Medium	Low	Watercourse must have medium / high flow for abstraction to be permitted, which will dilute		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
or potable use).	suspended solids.						contaminated run-off. No abstraction is undertaken from nearby watercourses.	1-5 days of cake storage. 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	
Groundwater , land and surface water	Spillage of liquids, contaminated rainwater run-off from waste e.g. containing suspended solids. Sludge/liquid spillages as a result of loss of tank/pipe integrity/ carelessness during transfer or overfilling	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole or 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 at borehole or intake.	Low	Medium	Low	Potential for leaks from digestion tanks and storage vessels. The Site is in reasonable condition, there is some slight cracking of the roads and cake bays. The drainage surrounding the cake bays was noted as not being in great condition during the site visit, puddles in the bays occur when drains are blocked. The two cake bays do not get fully filled to keep the drainage gully's clear. Tanks are in good condition, with the exception of the TSST which has some holes in the	All spillages are recorded in the site diary including actions taken. Site Manager ensures the programme of Planned Preventative Maintenance (PPM) is implemented effectively to minimise the probability of equipment malfunction. Control of substances hazardous to health (COSHH) assessment undertaken for all raw materials.	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
							upper non-operational part of the tank. Quantities of liquids stored are generally low.	Drainage from the central areas of the Site sends water to the head of the works for treatment. Perimeter drainage goes to a soakaway. 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.	
Groundwater, land and surface water	Spillage 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	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 imported in tankers. On average 300m ³ is imported daily. Cake is removed from site every	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	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
		abstraction intakes. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land.					Saturday, approximately three tankers (20 tonnes each). Site infrastructure is generally in good condition with cracks in some places in the hardstanding and concrete.	reduce spills when transferring liquids/sludges from tankers. Established procedures in place for 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. Drainage from the central areas of the Site sends water to the head of the works for treatment. Perimeter drainage goes to a soakaway.	
Groundwater, land and surface water	Flooding of site.	If waste is washed off site it may contaminate natural habitats downstream.	Flood waters	Medium	Medium	Medium	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off site will add to the	The drainage network sends water to the head of the works for treatment. There are no direct potentially contaminated discharges to	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
							<p>volume of the local post-flood clean up and may be hazardous to human health. The majority of the site is located within a low risk flood extent area (less than 0.1% probability of flooding) with small areas within a low-risk zone (0.1% - 1% chance of flooding) including the site entrance road. Previous flooding at the Site has occurred behind the centrifuge building due to the soakaways.</p>	<p>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.</p>	
Local human population, domestic properties, site offices.	Spillage 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.	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.							<p>procedures for EP sites (FEC322).</p> <p>The Site Manager shall ensure all relevant staff are appropriately trained to use the spill kits and that all spillages are cleaned up immediately.</p> <p>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.</p> <p>All spills are recorded in the site diary including actions taken.</p>	
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	Medium	Medium	Medium	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	Most of the site can be isolated by penstocks or isolation valves. The drainage for the central areas of the Site goes to domestic pumping station and to the head of the works for treatment. Perimeter drains go to	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
							<p>may be hazardous to human health.</p> <p>The site is located within an area of groundwater flooding capability with potential flooding to property situated below ground level and at the surface. There is limited potential for groundwater flooding to occur, however there is the potential for groundwater flooding of property situated below ground level at the south west part of the Site.</p> <p>The majority of the site is located within a low risk flood extent area (less than 0.1% probability of flooding) with small areas</p>	<p>soakaways. There are no direct potentially contaminated discharges to controlled surface waters.</p> <p>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.</p>	

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
							within a low risk zone (0.1% - 1% chance of flooding) including the site entrance road. Previous flooding at the Site has occurred behind the centrifuge building due to the soakaways.		
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 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.	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 trained site operatives throughout the operating hours. All operational staff are fully trained 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
								<p>the site operating procedures and SWS' safety and environmental management procedures and are kept up to date on changes.</p> <p>Training includes awareness raising of the potential on-site hazards and health and safety measures to adhere to.</p> <p>Preventative measures will be under continuous review as part of the EMS procedures.</p> <p>Activities are managed and operated in accordance with the EMS – this includes site security measures to prevent unauthorised access.</p> <p>No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification.</p> <p>Access to site and waste is restricted by a 2.8m high chain</p>	

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
								link security fence. An 8ft high steel palisade gate secures the main access and is automatically operated. The Site is staffed 24 hours a day, 7 days a week. For visitors and unauthorised personnel an intercom system at the Site entrance is used. The Site also benefits from a CCTV system. 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.	

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
								<p>On average 300m³ of sludge imports a day in either 27m³ (6k) tankers, 18m³ (4k) tankers.</p> <p>Vehicle movements around the Site vary depending on what activities are being undertaken. Cake is moved to cake bays once a trailer is full. Cake is removed from the silo every Saturday; it requires three tankers to empty the silo.</p> <p>Waste is removed as required. Therefore, frequent vehicle movements are typically undertaken only by site staff and maintenance contractors.</p> <p>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.</p>	
Local human population	Explosion of biogas causing	Respiratory irritation,	Air transport	Low	Medium	Low	Emissions to air, land or water	The key sludge treatment and WTW	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
and local environment.	the release of polluting materials to air (smoke or fumes), water or land	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, contamination and deterioration of land and water quality.	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.				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. 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.	processes are undertaken within enclosed systems such as the anaerobic digestion (AD) and biogas systems. STC storage tanks are covered and are not considered a fire risk. 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. 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	

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	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 of land and water quality.		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, buildings located close to the epicentre of the explosion.	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. 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.	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
								<p>Adequate firefighting measures are implemented on-site.</p> <p>Access to site and waste is restricted by a 2.8m high chain link security fence.</p> <p>An 8ft high steel palisade gate secures the main access and is automatically operated. The Site is staffed 24 hours a day, 7 days a week.</p> <p>For visitors and unauthorised personnel an intercom system at the Site entrance is used. The Site also benefits from a CCTV system.</p> <p>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.</p> <p>Repairs are undertaken in accordance with the EMS requirements.</p>	

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
								<p>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).</p> <p>Firewater is diverted through the drainage system to the head of the works or to storm overflow allowing for contaminated fire water to be contained on-site and treated through the wastewater treatment system.</p> <p>There is also safety zoning of areas under the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR)/ Potentially</p>	

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
								Explosive Atmospheres (PEXA) on-site and smoking is only permitted in designated areas.	
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 containerised units or locked buildings. Risk of accidental combustion of waste is minimal.	The key sludge treatment and WTW processes are undertaken within enclosed systems such as the AD and biogas systems. STC sludge storage tanks are covered but not considered a fire risk. 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	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
							Permitted waste types limited to sludges and liquids	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, 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 is diverted through the drainage system to the head of the works or to storm overflow allowing for contaminated fire water to be	

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
								<p>contained on-site and treated through the wastewater treatment system.</p> <p>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.</p> <p>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.</p>	

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
								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 fumes), water or land	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or vandals/arsonists. 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 Spillages and contaminated firewater by 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 containerised units or locked buildings. Risk of accidental	The key sludge treatment and WTW processes are undertaken within enclosed systems such as the AD and biogas systems. STC sludge storage tanks are covered but not considered a fire risk. 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, 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	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
							combustion of waste is minimal. Permitted waste types limited to sludges and liquids	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.	

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
								<p>Training and regular toolbox talks are given to operatives 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.</p> <p>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.</p> <p>Emergency operating procedures are in place.</p> <p>Adequate firefighting measures are implemented on-site.</p> <p>Access to site and waste is restricted by</p>	

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
								<p>a 2.8m high chain link security fence. An 8ft high steel palisade gate secures the main access and is automatically operated. The Site is staffed 24 hours a day, 7 days a week. For visitors and unauthorised personnel an intercom system at the Site entrance is used. The Site also benefits from a CCTV system.</p> <p>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.</p> <p>Firewater is diverted through the drainage system to the head of the works or to storm overflow allowing for</p>	

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 fire water to be contained on-site and treated through the wastewater treatment system.	
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 Transport through soil/ groundwater then abstraction.	Low	Medium	Low	Possible contamination to air, land, groundwater and surface water.	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 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	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
								<p>delegates responsibilities to appropriately experienced and trained site operatives throughout the operating hours.</p> <p>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.</p> <p>Training includes awareness raising of the potential implications of failure to control operations and the potential impact on the environment.</p> <p>Preventative measures will be under continuous review as part of the EMS procedures.</p> <p>Emergency operating procedures are in place and detailed in the Site's</p>	

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
								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
- Spills transferring chemicals
- 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 Spills transferring chemicals

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.

6.9 Diesel 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 <ul style="list-style-type: none"> • 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,

N/A	Done	The Incident controller will: -
		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

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

Ford WTW/STC

Emergency Grab pack.

Nov 2023.

Final Draft

Author: [REDACTED]

Sponsor: [REDACTED]

Approved and signed off by: [REDACTED]

Version 2.0 Nov 2023

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1. EMERGENCY CONTACT NUMBERS

Management

RCC – 0330 3030261

[REDACTED]

[REDACTED]

SITE OPS

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

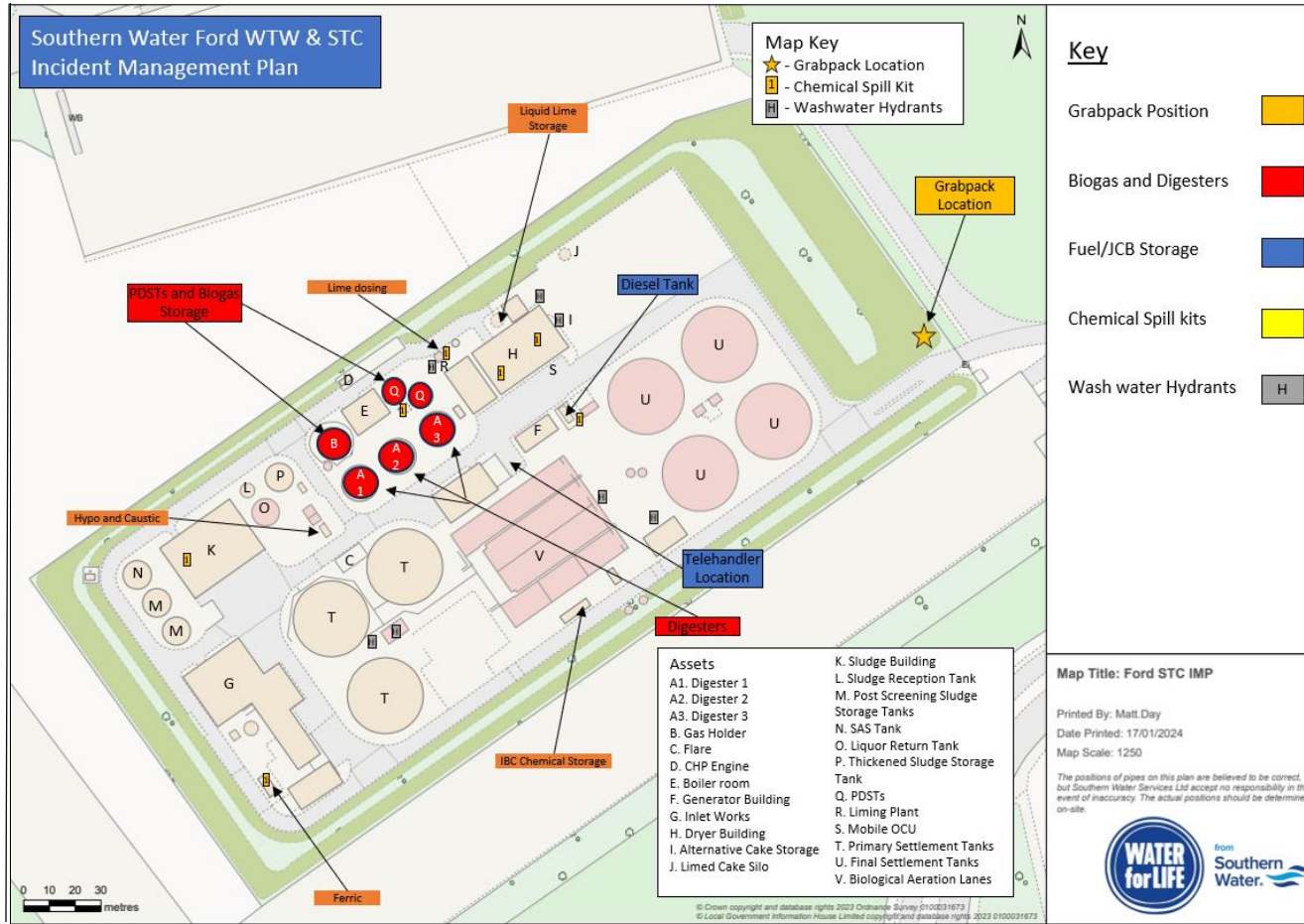
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2. SITE PLANS

Map of Processes



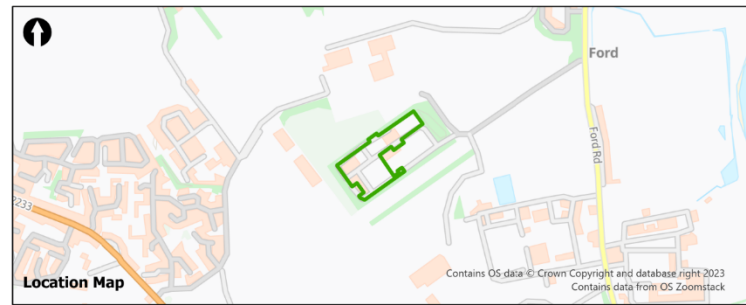
Map of flammable substances and fire hydrants.



Map of biogas systems



Emissions Ref	Emissions Points	Assets Ref	Assets	X	Y
A01	Whessoe relief valve 1	1	Digester 1	499457	103108
A02	Whessoe relief valve 2	2	Digester 2	499471	103119
A03	Whessoe relief valve 3	3	Digester 3	499486	103129
A04	Whessoe relief valve 4	4	Gas Holder	499442	103121
A05	Flare stack	5	Flare	499451	103077
A06	CHP engine	6	CHP engine	499462	103155
A07	Boiler exhaust stack	7	Boiler room	499459	103140
A08	Generator exhaust stack	8	Generator building	499525	103125
A09	Wet chemical scrubber	9	Wet chemical scrubber	499438	103094
A10	Carbon scrubber	10	Carbon scrubber	499401	103058
A11	Soakaway 1	11	Soakaway 1	499480	103158
A12	Soakaway 2	12	Soakaway 2	499492	103166
W1	Inlet works			499405	103030
		13	Dryer building	499516	103159
		14	Alternative cake storage	499535	103172
		15	Limed Cake silo	499536	103195
		16	Sludge building	499397	103082
		17	Sludge reception tank	499412	103105
		18	Ferric store 2 No.	499426	102984
		19	Post screening sludge storage tank	499378	103060
		20	Post screening sludge storage tank	499385	103049
		21	Surplus activated sludge tank	499370	103071
		22	Liquor return tank	499420	103095
		23	Thickened sludge storage tanks	499425	103110
		24	Post digestion storage tank	499469	103144
		25	Post digestion storage tank	499480	103141
		26	Liming plant	499488	103157
		27	Metal waste and mobile Odour Control Unit	499533	103153
		28	Diesel tank	499537	103135
		29	IBC chemical storage	499538	103056
		30	Hypo and caustic storage	499441	103093
		31	Condensate pit	499445	103114
		32	Liquid lime storage	499510	103171
		33	Lime dosing Pps	499489	103159



Title		M M		Mott MacDonald House 8-10 Sydenham Road Croydon T +44 (0)20 8774 2000 W mottmac.com			
Ford STC							
Site Layout Plan							
Date	Drawn	Checked	Approved	Scale at A4	Drawing Number	Status	Rev
05/12/23	M Pinney	S Stone	A Manns	1:1,500	790101_MSD_SiteLayoutPlan_FOR	INF	03

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	<3000m3	Biogas Holder Digester Headspace Limed sludge cake Silo Headspace PDST headspace	Gas bag Digesters Pipelines Flare Stack CHP Engine.
Diesel Oil	Liquid	UN1202	33989 Ltrs	Next to the Site Emergency Generator	Tank
Sludge	Liquid	Non - Hazardous	100m3	Sludge Reception Tank	Tank
Limed Sludge Cake	Dried Cake Biogas headspace	UN1971	100m3	Cake Silo	Silo tank
Polymer Centrifuge	Powder	UN2923	6 X 1m3/750kg bags	Inside centrifuge building	Bags
Polymer Primary Area	Powder	UN2923	5 x 1m3/ 750 kg bags	Inside Sludge Reception building	Bags
Lime (Dust).	Solid (granules)	UN1956	Variable this is an unusual activity	Cake Bays	In bags
Lime (Liquid)	Liquid Lime	UN1956	25000 ltrs	Lime plant storage tank	Chemical Tank
Gas Cylinders	Gas	N/A	Welding / burning Equip.	Workshop marked as building 13 on plan.	Gas Bottles stored in a locked building overnight.
Ferric Chloride	Liquid	UN2582	30,000 ltrs	Marked on the site plan.	Storage tank.
Methanol	Liquid	UN1230	None Stored or used on Site	N/A	Storage tank.
Aerosol Leaks of Biogas	Gas	UN1971	Not Known as would be formed by leaks	Biogas Holder area Digester headspace Limed sludge cake Silo Headspace	Gas bag Digesters Pipelines Flare Stack CHP Engine

JCB Loader / MTS Tankers & Chemical Delivery tankers.	Diesel Powered	UN1202	<300 ltrs Diesel Fuel tank on machine	Stored in outside STC control room over night but may be anywhere on site whilst in use.	Vehicle stored outside STC control room overnight.
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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 and Limed Sludge Cake Silo.
- Lime used to treat Sludge cake could be stored on Cake Bays if in use.
- WEEE – Managed via Locked Wee containers.
- Wood – Pallets are stored on site.

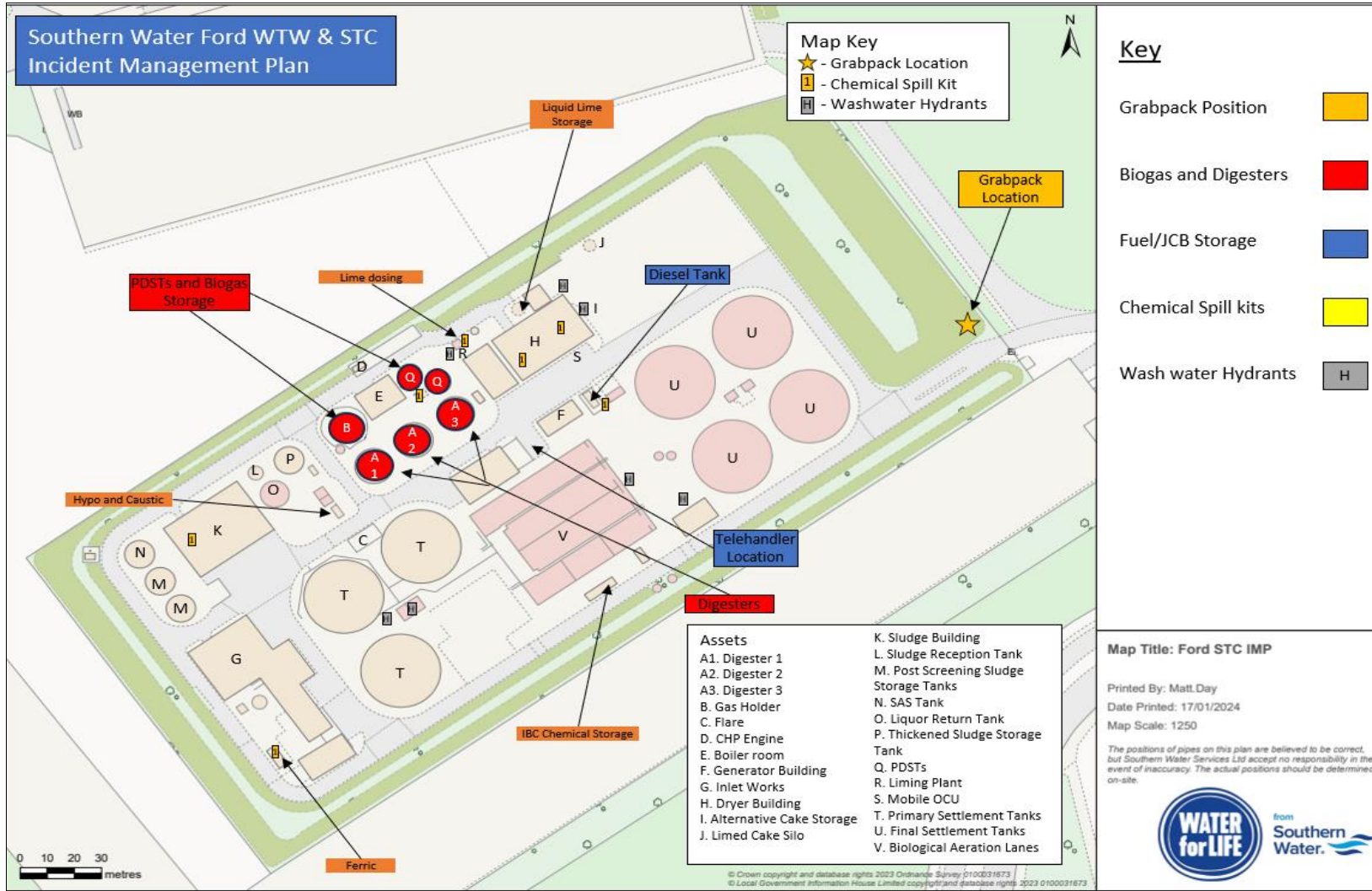
Non-Combustible

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	2 x 1050Kg IBC's	Inside centrifuge building.	Intermediate Bulk Container (IBC)
Wastewater	Liquid	N/A	1596m3 (Each)	3 X Primary Settlement Tanks	Tanks
Wastewater	Liquid – Non- Buoyant	N/A	2329m3 (Each)	4 x Aeration Lanes	Lanes
Wastewater	Liquid	N/A	2752m3 (Each)	4 X Final Settlement Tanks	Tanks
Sludge	Liquid	N/A	1848m3 (Each)	3 X Digesters	Tanks
Sludge	Liquid	N/A	700m3	Thickened Sludge Storage Tank	Tank

4 LOCATION OF FIRE EXTINGUISHERS ON SITE

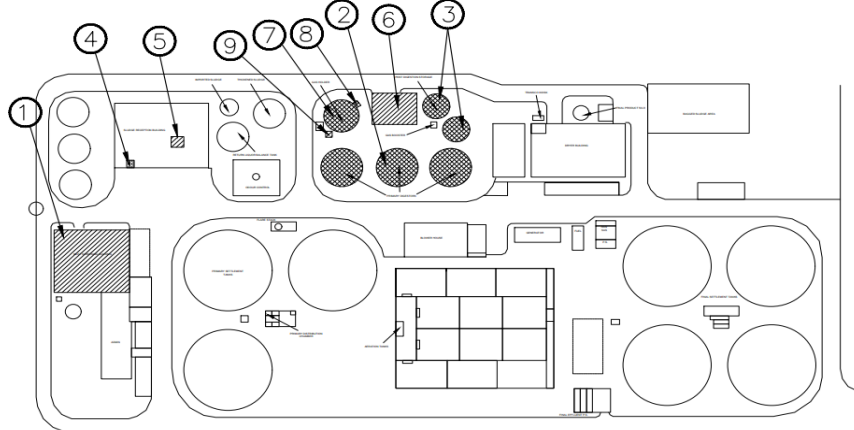
Ford Fire Extinguisher positions.			
Type	Location	Amount	Staff Contact
Fire Extinguishers	Dryer/Centrifuge Building	10	[REDACTED]
Fire Extinguishers	Control Room	5	[REDACTED]
Fire Extinguishers	Lab	2	[REDACTED]
Fire Extinguishers	Generator Building	1	[REDACTED]
Fire Extinguishers	Boiler Building	5	[REDACTED]
Fire Extinguishers	Sludge Reception Building	8	[REDACTED]
Fire Extinguishers	Inlet Building	4	[REDACTED]
Fire Extinguishers	Inlet MCC	1	[REDACTED]
Fire Extinguishers	M&E Workshop	1	[REDACTED]
Fire Extinguishers	Main Admin Building	1	[REDACTED]
Fire Extinguishers	M&E Stores	7	[REDACTED]
Fire Extinguishers	Final Effluent Building	1	[REDACTED]
Fire Extinguishers	Final Effluent Building	2	[REDACTED]
Fire Extinguishers	Oil Storage	1	[REDACTED]
Fire Extinguishers	Antifoam kiosk	1	[REDACTED]
Fire Extinguishers	Sludge reception	1	[REDACTED]
Spill Kits Polymer	polymer make-up room	1	[REDACTED]
	Top ups located in site storage container		

5 WASHATER MAINS & FIRE HYDRANTS. (H).



6. DSEAR DRAWINGS

AREA REF	SHEET No.	SITE AREA DESCRIPTION
1	-	INLET WORKS
2	2&3	PRIMARY DIGESTERS (X3)
3	2&3	SECONDARY DIGESTERS (X2)
4	4&5	POLYELECTROLYTE STATION
5	6	CAKE RECEPTION SILO
6	7	BOILER ROOM
7	8&9	GAS HOLDER
8	8&9	GAS HOLDER AIR BLOWERS
9	8&9	CONDENSATE CHAMBER
10	10	DIESEL



ZONE LEGEND			
ZONE 0		ZONE 20	
ZONE 1		ZONE 21	
ZONE 2		ZONE 22	

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PROJECT TITLE:
FORD WTW/STC
FORD ROAD, FORD, ARUNDEL,
WEST SUSSEX, BN18 0DD.

DRAWING TITLE:
DSEAR
SITE PLAN

SHEET 1 OF 10

DATE	DATE	DATE	DATE	DATE
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639382	NTS	107426/107427		
DRAWING NO:	DRAWING NO:	DRAWING NO:	DRAWING NO:	DRAWING NO:
KH. 639382.030.2Z2901.A				

ENG-FM-210-01-00



5 Risk assessment

For each hazardous area a risk assessment table has been compiled, 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

Access to the inlet works at Ford STC was not possible during the site visit due to construction works which were taking place. The inlet works at Ford STC are located indoors, all channels and screens are fully enclosed and 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.

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



5.1.2 Cess inlet

Cess is pumped from road tankers via pipework, located in a large empty tanker bay, into the inlet works. The cess pipework is allocated a zone 2 internally.

Cess inlet

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

5.2 Storm treatment

The storm treatment is unclassified.

5.3 Primary treatment

According to Southern Water's MED 4004 April 2015,^[3] the primary treatment process is unclassified.



5.4 Sludge treatment

5.4.1 Digester 1

There are three digesters at Ford STC.

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

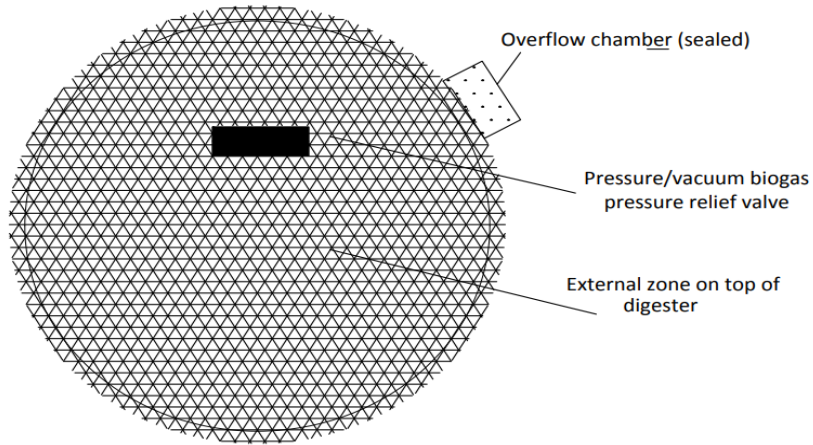


Figure 1: Digester 1.

Digester 1

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

DIGESTER (X3) & POST-DIGESTER PLAN (X2)



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DRAWING TITLE
 DSEAR
 DIGESTER & POST-DIGESTER PLAN

SHEET 2 OF 10

CLIENT REFERENCE: FORD WTW/STC SITE UNIT NO: 107426/107427

PROJ: 639382 SCALE: NTS DRAWER NO: A3

DRAWING NO: KH.639382.030.2Z2903.A REVISION: A

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



5.4.2 Digester 2

There are three digesters at Ford STC.

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

Digester 2

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



5.4.3 Digester 3

There are three digesters at Ford STC.

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

Digester 3

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



5.4.4 Post digester 1 (Secondary digester)

There are two post-digestion storage units at Ford STC.

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

Post digester 1

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

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



5.4.5 Post digester 2 (Secondary digester)

There are two post-digestion storage units at Ford STC.

Access was not possible to top of digester 2 during visit and so risk rating is based on Post Digester 1.

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

Post digester 2

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

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



5.4.6 Polyelectrolyte

There are three polyelectrolyte dust dispenser units on site at Ford STC. One is located indoors within a small, naturally ventilated building near the cess import area. The other two are in areas used for sludge thickening and sludge centrifuging. The equipment was not able to be recorded within these two other areas during the visit.

Following Southern Water's MED 4004 April 2015^[3], the receiving vessel is allocated a zone 21 classification internally and the external area is allocated a zone 22 classification for 1m.

Figure 2: Polyelectrolyte bag dispenser



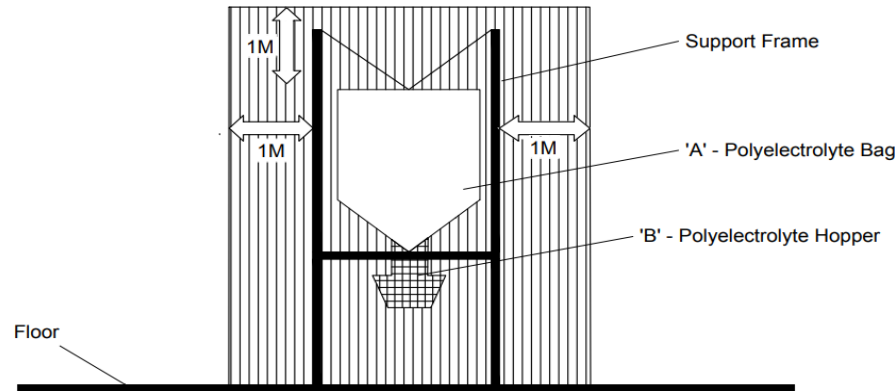
Figure 3: Polyelectrolyte conveyor and dosing station



Polyelectrolyte dispenser

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 DISPENSER ELEVATION



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 POLYELECTROLYTE DISPENSER ELEVATION

SHEET 5 OF 10

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REF: 639382 SCALE: NTS NUMBER OF SHEETS: A3

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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 DISPENSER	22	4	EXTERNALLY - 1M 'H' AND 1M 'V' EXTENDING TO FLOOR
ZONE 21					
ZONE 22					



5.4.7 Post digestion sludge cake storage silo

The sludge storage silo at Ford STC is located outside.

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.

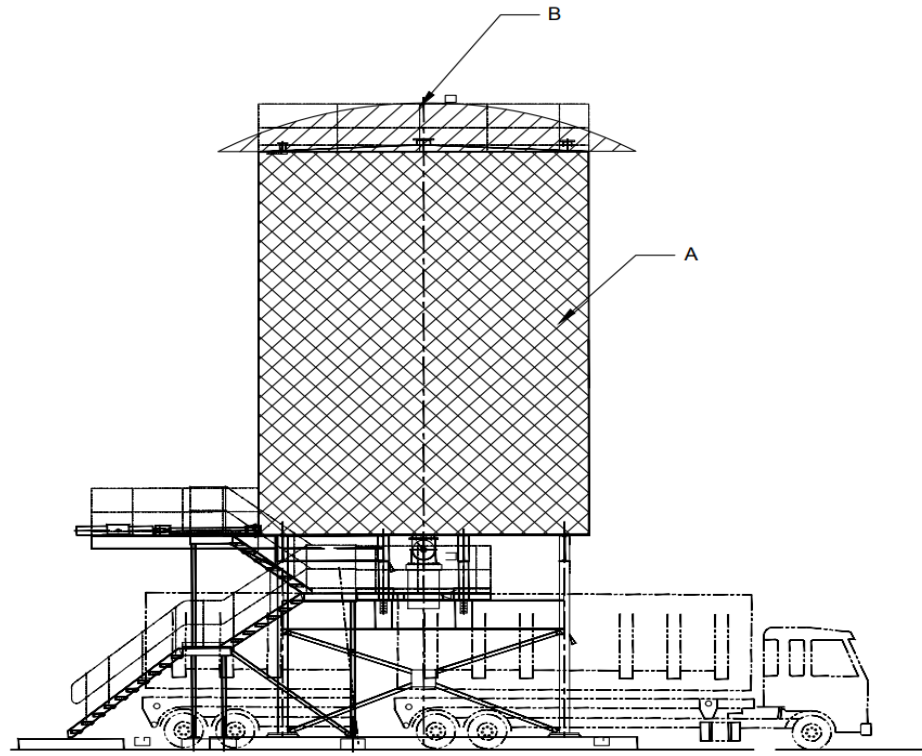


Figure 4: Post-digestion sludge cake storage silo



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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 POST-DIGESTION STORAGE SILO

SHEET 6 OF 10

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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



5.5 Gas storage

5.5.1 Boiler house

There is one boiler at Ford STC. It is located in the boiler house.

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



Figure 5: Boiler



Figure 6: Heat exchangers



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



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^[9].



Figure 7: 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	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



5.5.2.2 Gas condensate pit

The gas condensate pit was located just outside the gas bag compound was open to atmosphere.

Based on Southern Water's MED 4004 April 2015, ^[9] zone 2 internally.

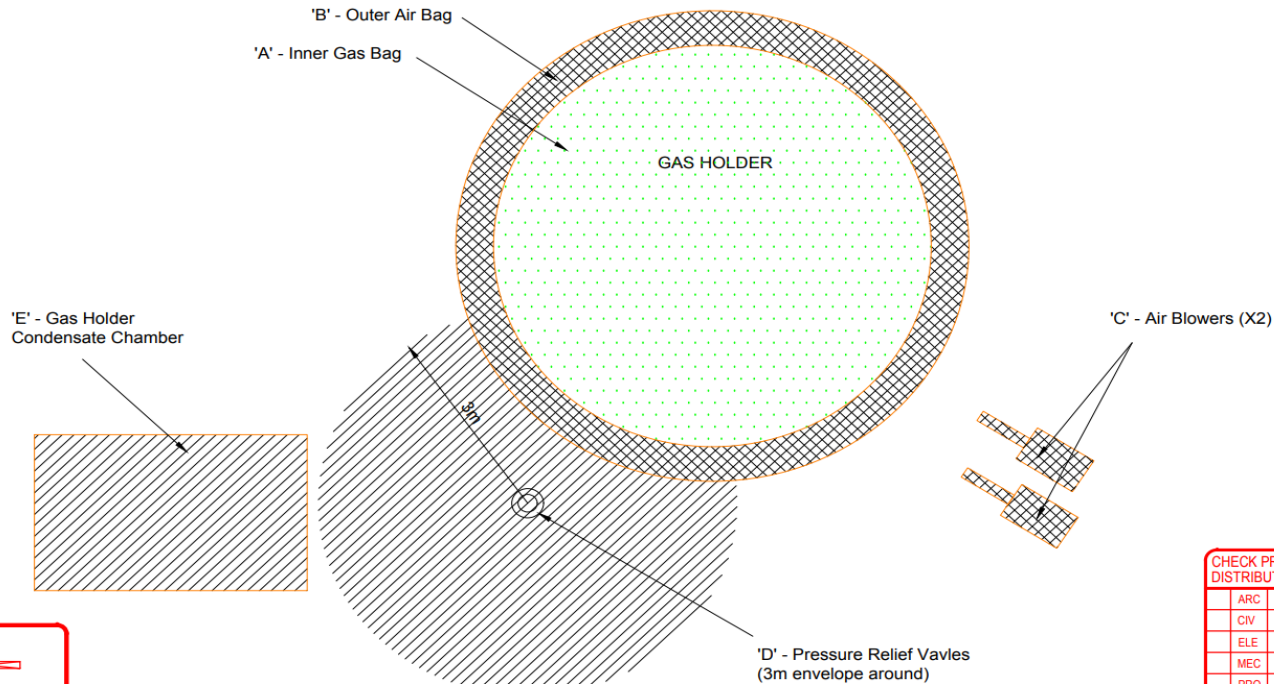
Equipment in condensate traps were not catalogued as BRE aren't contracted to work in confined spaces.



Figure 8: Gas condensate pit

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.	n/a	n/a	n/a

GAS HOLDER AREA PLAN



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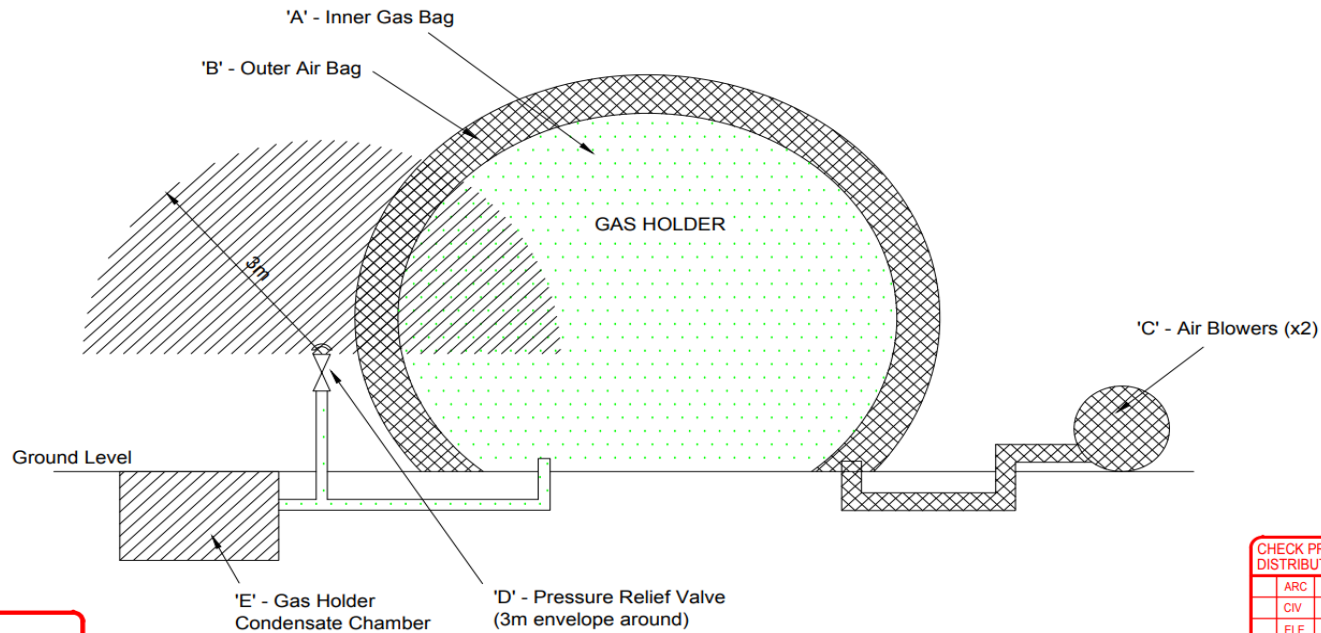
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ZONE 0	A	INNER GAS BAG	0	2	INTERNALLY
	B	OUTER AIR BAG	1	2	INTERNALLY
	C	AIR BLOWERS (x2)	1	2	INTERNALLY
ZONE 1	D	PRESSURE RELIEF VALVE	2	2	EXTERNALLY - 3M 'V' AND 'H'
	E	GAS HOLDER CONDENSATE CHAMBER	2	2	INTERNALLY
ZONE 2					

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SHEET 8 OF 10						
SITE UNIT NUMBERING:	FORD WTWSTC		SITE UNIT NO.:	107426/107427		
TRN:	639382	SCALE:	NTS	MASTER SIZE:	A3	
DRAWING NO.	KH. 639382.030.222909.A				REVISION:	A

GAS HOLDER AREA ELEVATION



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 DRAWING NO.73863.01277.0128 REVISION.00 DATE:24/01/19
 ALSO APPROVED BY :STEVEN MANCHESTER (BRE COMPANY)
 DATE: 25/02/2019.

DATE	AP	SM	DF	DT	DD	BRE COMPANY
25/02/2019	AP	SM	DF	DT	DD	BRE COMPANY
10/10/2005	SM	DF	DT	DD		BRE COMPANY (AS BUILT)

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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	INNER GAS BAG	0	2	INTERNALLY
	B	OUTER AIR BAG	1	2	INTERNALLY
	C	AIR BLOWERS (X2)	1	2	INTERNALLY
ZONE 1	D	PRESSURE RELIEF VALVE	2	2	EXTERNALLY -3M, 'V' AND 'H'
	E	GAS HOLDER CONDENSATE CHAMBER	2	2	INTERNALLY
ZONE 2					

PROJECT TITLE
 FORD WTW/STC
 FORD ROAD, FORD, ARUNDEL,
 WEST SUSSEX, BN18 0DD.

DRAWING TITLE
 DSEAR
 GAS BAG ELEVATION

SHEET 9 OF 10

SITE UNIT FORD WTW/STC **SITE UNIT NO.** 107426/107427

PROJ. 639382 **SCALE** NTS **WATER BOX** A3

DRAWING NO. KH. 639382.030.222910.A **REVISION** A



5.5.3 CHP

The existing CHP plant is not allocated a zoned area. The CHP plant appeared to be similar to those at other Southern Water STC sites 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.

5.5.4 Flare stack area

There is one flare stack compound at Ford STC. According to Southern Water’s MED 4004 April 2015,^[9] the flare stack area is unclassified.

The external area is unclassified, however internally the pipework will be allocated a zone 0 classification.

The equipment in the flare stack area was catalogued to determine Ex certification.



Figure 9: Flare stack 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	1	1



5.6 Diesel storage

There is one diesel tank on site at Ford STC. It is a single skinned with bund design and breather valve on top.

The guidance given in the "Energy Institute: Model code of safe practice Part 15 – Area classification code for installations handling flammable fluids"⁽⁴⁾ on zoning bulk fuel storage was followed to determine the appropriate hazardous zoning areas for the diesel storage tank.

Although diesel has a high flash point and is therefore unlikely to become flammable, the hazardous zoning is based on the possibility of the diesel rising above its flash point.

Internal: Zone 1

Zone 1 was determined as appropriate inside the tank above the liquid level.

External: Zone 2

Zone 2 was determined as appropriate outside the storage tank. The zoned area within the bund extends from above the liquid level or any leaked diesel to the height of the bund wall.

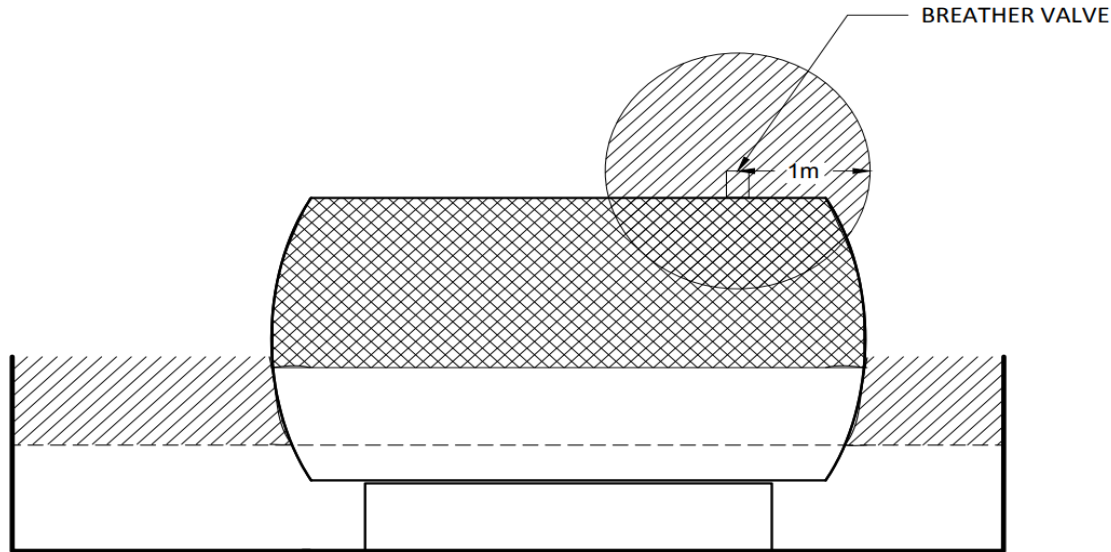


Figure 10: Diesel tank



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
	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 - SINGLE SKINNED



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 DIESEL SINGLE SKIN TANK
 APPROVED BY :STEVEN MANCHESTER (BRE COMPANY)
 DATE: 25/02/2019.

25/02/2019	AP	SM	SM	A	BRE COMPANY
22/11/2018	JK	SM	SM	00	BRE COMPANY (AS BUILT)
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PROJECT TITLE
 FORD WT/WSTC
 FORD ROAD, FORD, ARUNDEL,
 WEST SUSSEX, BN18 0DD.

DRAWING TITLE
 DSEAR
 DIESEL SINGLE SKIN TANK
 SHEET 10 OF 10

DESIGN NO: FORD WT/WSTC
 SCALE: NTS
 DATE: 10/7/2019

DRAWING NO: KH.639382.030.2Z2911.A
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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	ABOVE LIQUID SURFACE	1		INTERNALLY
	B	ABOVE LIQUID SURFACE IN BUND	2		EXTERNALLY
	C	AROUND BREATHER VALVE	2		EXTERNALLY
ZONE 1					
ZONE 2					

7 FIRE RISK ASSESSMENT

We need to make sure a copy of the Fire Risk Assessment is kept in with the grab pack.

Electronic link to Fire Risk assessment - [Ford 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 \(southernwater.co.uk\)](https://www.southernwater.co.uk/coshh)

