

Sandown STC

Incident Management Plan

November 2023
Final Draft for Review

Revision Tracking

Revision	Date	Author	Review	Approve
9.0	14.11.23	PG		



Sandown STC
Incident Management Plan

1	Site Details	4
2	Useful Internal & External telephone numbers contact list.	5
3	Site Overview & Storage of Chemicals and flammable substances:	6
4	List of Waste Inventory normally stored on site.	7
5	List of Chemical Inventory Normally stored on site.	7
6	List of Fire Extinguishers & Emergency spill kits on site.	8
7	When to use this Emergency plan.	10
	7.1 Site emergency plans and Fire service Grab packs	10
	7.2 Fire	11
	7.3 Explosion	11
	7.4 Pollution	12
	7.5 Flooding	12
	7.6 Road traffic accident impact or collision	13
	7.7 Collapse of a structure or building	13
	7.8 Spill transferring wastes	13
	7.9 Spills transferring chemicals	14
	7.10 Overfilling vessels	14
	7.11 Plant and equipment failures	15
	7.12 Containment failure	15
	7.13 Failure to contain firewater	15
	7.14 Incorrect connection leading to releases to drains and other systems	16
	7.15 Incompatible substances coming into contact	16
	7.16 Emission of effluent or Biogas before composition checked	17
	7.17 Theft & Vandalism	17
8	Reporting	17
	8.1 Incident Management Reporting	17
	8.2 Hazard & Near Miss reporting	18
9	Site Contingency plans	18
10	Prevention Measures	18
	10.1 Sandown Fire Prevention Plan	18

Sandown STC
Incident Management Plan

10.2	Fire and explosion preventative measures (all types of plants)	18
10.2.1	Housekeeping	18
10.2.2	Control of flammable materials	18
10.2.3	Permits	19
10.2.4	Access to information	19
10.2.5	Plant maintenance	19
10.2.6	Risk of Vehicle impact	19
10.2.7	SCO, CPAC procedures and Shift hand overs.	19
10.2.8	DSEAR Risk & Zonal areas.	19
10.2.9	Alarm Management	20
10.2.10	Maintaining control in an emergency	20
10.2.11	Critical Safety Equipment	20
10.2.12	Health Surveillance for Staff	20
10.2.13	Control of Smoking on site	20
10.2.14	Arson risks, Security & Control of entry onto site	20
10.3	Additional fire prevention and explosion preventative measures (AD plants only)	21
10.3.1	DSEAR Risk & Zonal areas	21
10.3.2	Fire Risk assessment	21
10.3.3	Biogas Digestion process.	21
11	Control of Major Accident Hazard (COMAH) Regulations 2015	21
12	Other useful documents	22
13	Appendix A – DSEAR Site Plans	22

1 Site Details.

SANDOWN WASTEWATER TREATMENT WORKS	
INCIDENT MANAGEMENT PLAN	
Company Name	Southern Water Services Limited
Company Address	Southern House, Yeoman Road, Durrington, West Sussex, BN13 3NX
Site Address	Sandown WTW – STC East Yar Road Sandown Isle of Wight PO36 9AX
Site NGR	SZ 60174 85159
What 3 Words location	///thing.sitting.uncouth
Site Activities	Treatment of wastewater and commercial waste to produce final effluent. Sludge treated on site and stored in cake bays.
Number of Staff	5 Shift Operators covering site 24/7 06:00 – 18:00 & 18:00 – 06:00 2 Day Operators Monday – Friday – 07:30 – 16:00 (Added Operators assisting as required from Mobile Rounds) FPM AND Assistant Manager
Surrounding Area	Industrial and Residential to one boundary and RSPB Marsh Land on two Boundary's , Local Council Land (Old Tip Land) on last Boundary
Plan Date	Nov 2023
Version Number	5
Plan Author	Paul Goring
Plan Authorised By	Richard Mumford
Review Date	Nov 23
Date of Next Review	Nov 24
Objective of Incident Management Plan	To compile all information needed on site to manage an Incident and minimise the impact upon the environment
External Plan Consultees	Police
	Fire Service
	Local Council
	Environment Agency
Distribution List	Site
	Duty Manager Control Centre
	Head of Health and Safety, Security and Wellbeing
	EMS Manager
	Fire Service
	Environment Agency
	Police
	Ambulance Service

2 Useful Internal & External telephone numbers contact list.

EXTERNAL CONTACTS		
Contact	Office Hours	Out of Hours
Emergency Services (Fire/ Police/ Ambulance)	999 / non-emergency 101	999 / non-emergency 101
Local Police	999	999
Local Hospital	St Mary's Hospital Parkhurst Road Newport PO30 5TG	999 01983 822099
EA Incident Hotline	0800 80 70 60	0800 80 70 60
EA Local Contact	0800 80 70 60	0800 80 70 60
Local Authority Emergency Planning Department	Emergency Planning Duty Officer (24 hr) Kent Resilience Team / Kent County Council 03000 414 999	03000 414 999
Borough Council	Isle of Wight Council County Hall High Street Newport Isle of Wight PO30 1UD	01983 821000
Water Company	Duty Manager, Control Centre 01903 272095	Duty Manager, Control Centre 01903 272095
Gas Company	0800 111 999	0800 111 999
Electricity Company	UK Power Networks 08433 102243	UK Power Networks 08433 102243
Framework Waste Contractor	MTS 01634 250326	MTS 01634 250326
Specialist Spill Clean Up Contractor	MTS 01634 250326 Cappagh Browne 0330 3031279	MTS 01634 250326 Cappagh Browne 0330 3031279
INTERNAL CONTACTS		
Names and Position of Staff trained to activate and coordinate Plan	Duty Manager, Control Centre 01903 272095 Site Manager Neil Semple 07880 258479	Duty Manager, Control Centre 01903 272095
CEO	Lawrence Gosden 01903 272393 Number withheld	Duty Manager, Control Centre 01903 272095
Site Manager	Richard Mumford 07884235764	Duty Manager, Control Centre 01903 272095
Environmental Management System Manager	Adam Glenister 07788 18352	Duty Manager, Control Centre 01903 272095
Head of Health and Safety, Security and Wellbeing	Sally Ford 07840 718058	Duty Manager, Control Centre 01903 272095
Framework Contractors	Duty Manager Control Centre 01903 272095	Duty Manager, Control Centre 01903 272095
Escalation of Incidents to RCC.	Duty Manager Control Centre 01903 272095	Duty Manager, Control Centre 01903 272095

3 Site Overview & Storage of Chemicals and flammable substances:

Sandown is a large STC site that treats waste from the catchment supplied by sewers but also treats Sludge and Cess delivered by road tankers.

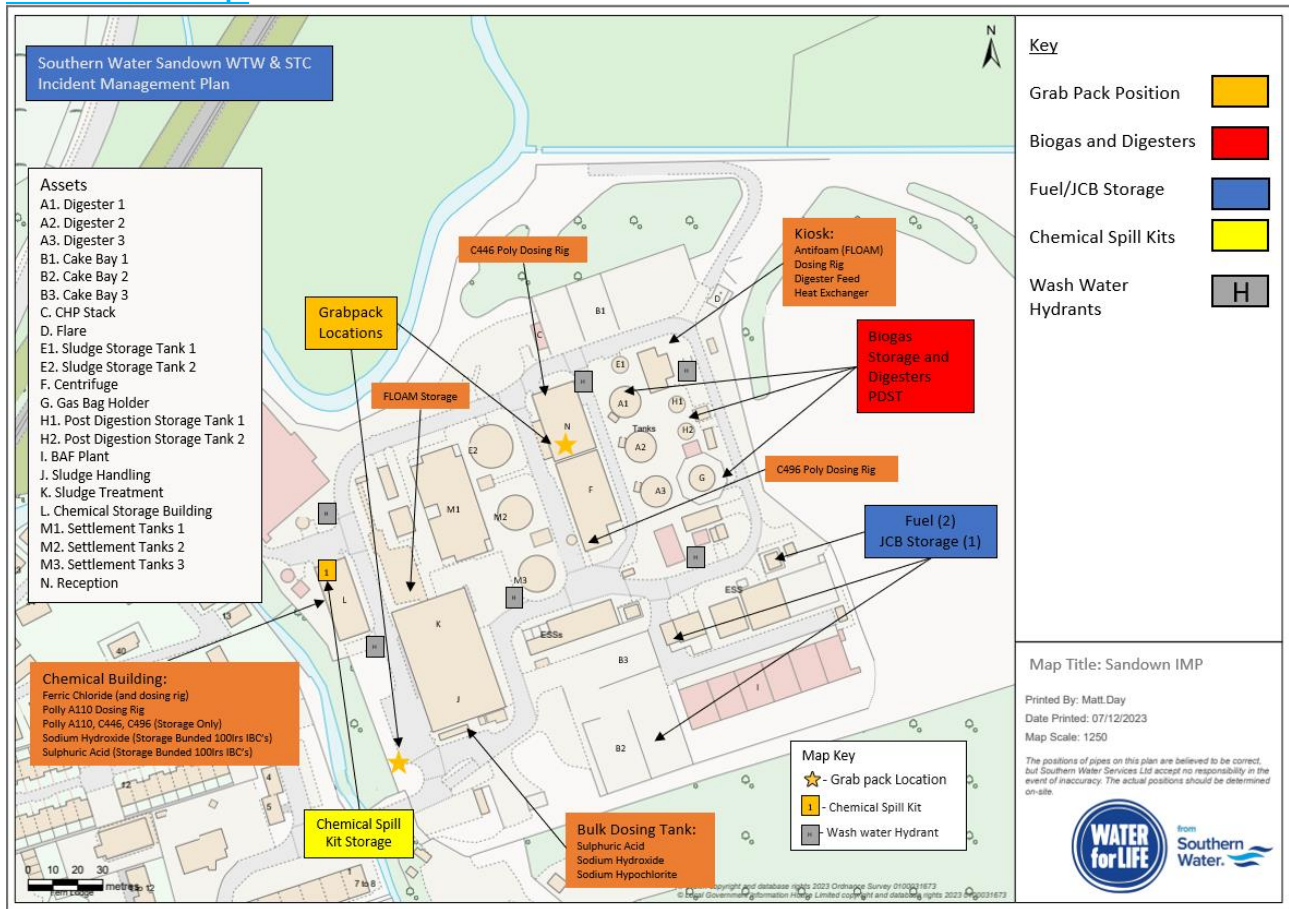
Sandown is an Anaerobic Digestion (AD) with three digesters and two secondary digesters, a biogas storage bag, and a CHP engine with five standby generator these are all managed under the DSEAR regulations.

There are a few large Cake bays where Sludge Cake is stored.

Sandown has six Aeration lanes of non-Buoyant water.

For details outlining the maximum storage capacity of any chemicals on site are listed below the site Map.

Sandown IMP map.



4 List of Waste Inventory normally 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
Wastewater	Liquid	N/A	2 x 1250m3 4x 1000m3	Storm Tank	Tank
Wastewater	Liquid	N/A	3940m3	4 X Primary Settlement Tanks	Tanks
Wastewater	Liquid – Non-Buoyant	N/A	3887m3	Aeration Lanes	Lanes
Wastewater	Liquid	N/A	1675m3	1 x Balance Tank	Tanks
Sludge	Liquid	N/A	2176m3	2X Post Settled Sludge Tanks	Tanks
Sludge	Liquid	N/A	250m3	Digester Feed Storage Tank	Tank
Sludge	Liquid	N/A	3855m3	3 x Primary Digesters Tank	Tank
Sludge Biogas	Biogas	1971	490m3	2 Secondary Digestion Tank	Tank
Sludge Cake	Liquid	N/A	Variable M3	Cake Bays	6 x Bays
Biogas	Biogas	1971	975 m3	Biogas Holder Digester Headspace	Gas bag Digesters Pipelines Flare Stack CHP Engine.

5 List of Chemical Inventory Normally stored on site.

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
Diesel Oil	Liquid	1202	1680,000Ltr s	4 Tanks – 2 next to Primary Generator Building & 2 next to Secondary Blower Room	Tank
Polymer - A110 Kemira	Powder	2923	4 X 750KG Bags	Chemical Building	Bags
Antifoam - FLOFOAM 681 F	Liquid	N/A	3 m3	Bunded storage Under FFT Flume	1 m3 Container (IBC)

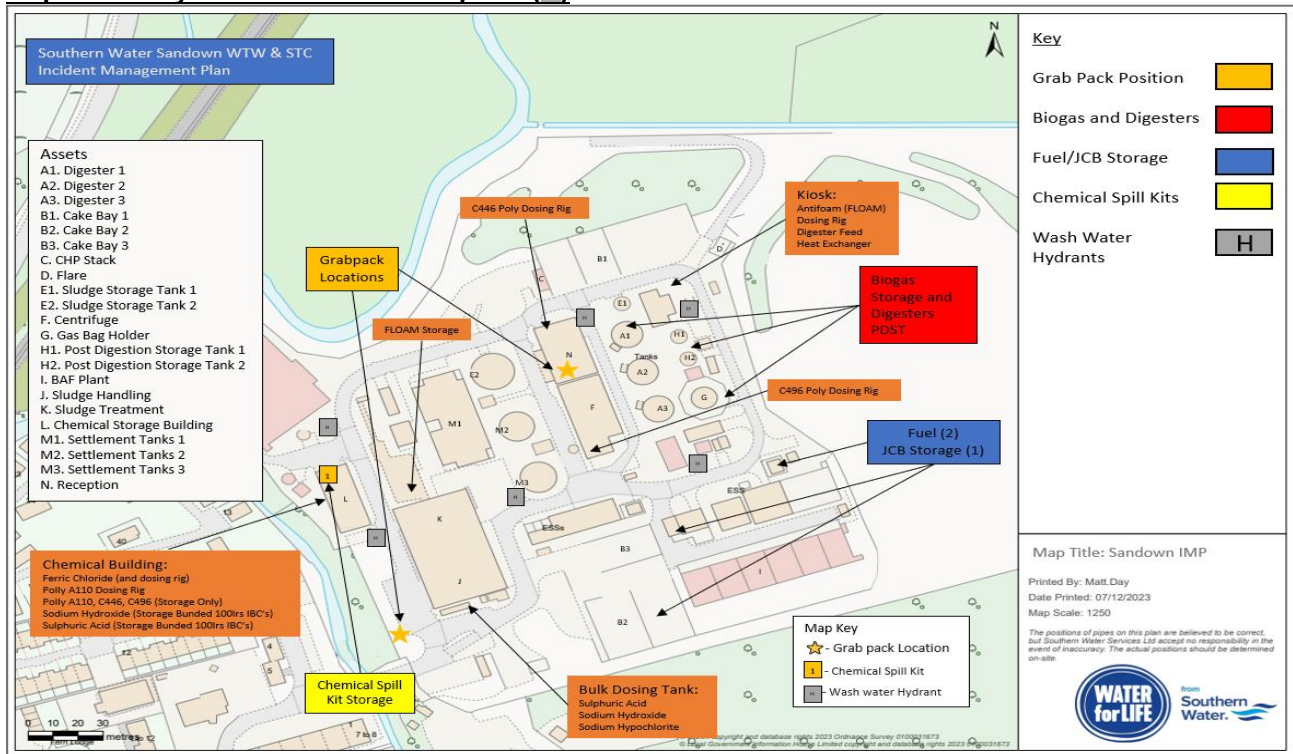
Polymer - C446	Powder	2923	4 X 750KG	Chemical Building and Gravity Belt Room	In Bags
Polymer - C996	Powder	2923	4 X 750KG	Chemical Building and Centrifuge Poly Make Room	In bags
Ferric Chloride 40%	Liquid	2582	2x 35600ltrs	Chemical Building	Two Bulk Storage Tanks Bundled
Sulphuric Acid 5-15%	Liquid	N/A	2000ltrs	Chemical Build & Inlet Building (Odour Control)	1m3 IBC & Bulk Tank Bundled
Sodium Hypochlorite 10% - 15%	Liquid	1791	29044ltrs	Inlet Building (Odour Control)	Bulk Tank Bundled
Sodium hydroxide solution, 5 - 51%	Liquid	N/A	3000ltrs	Chemical Build & Inlet Building (Odour Control)	1m3 IBC & Bulk Tank Bundled

6 List of Fire Extinguishers & Emergency spill kits on site.

POLLUTION PREVENTION EQUIPMENT INVENTORY (ON AND OFF-SITE RESOURCES) ILLUSTRATED ON SANDOWN IMP MAP			
Type	Location	Amount	Staff Contact
Fire Extinguishers	Library /Portacabin	2	Richard Mumford
Fire Extinguishers	Visitor Centre	2	Richard Mumford
Fire Extinguishers	Inlet Building Lower Level (at each exit)	8	Richard Mumford
Fire Extinguishers	Inlet Building Upper Level MCC1	2	Richard Mumford
Fire Extinguishers	Chemical building (at both exits)	2	Richard Mumford
Fire Extinguishers	MCC 3 / 4	2	Richard Mumford
Fire Extinguishers	Reception	2	Richard Mumford
Fire Extinguishers	MCC6	2	Richard Mumford
Fire Extinguishers	Sludge Belt Room	4	Richard Mumford
Fire Extinguishers	Boiler Room	2	Richard Mumford
Fire Extinguishers	Main Control Room	4	Richard Mumford
Fire Extinguishers	MCC7	1	Richard Mumford
Fire Extinguishers	Digester Feed & Recirc Kiosk	1	Richard Mumford
Fire Extinguishers	Leachate Kiosk	1	Richard Mumford
Fire Extinguishers	Centrifuge Feed Pump Kiosk	1	Richard Mumford
Fire Extinguishers	MCC5	2	Richard Mumford
Fire Extinguishers	Secondary Blower Room	2	Richard Mumford

Fire Extinguishers	Secondary Control Room	2	Richard Mumford
Fire Extinguishers	Secondary Generator Building	2	Richard Mumford
Fire Extinguishers	Secondary Screening Building	2	Richard Mumford
Fire Extinguishers	Primary Generator Building	2	Richard Mumford
Fire Extinguishers	ACB & LV Switch Room	2	Richard Mumford
Fire Extinguishers	HV Switch Room	2	Richard Mumford
Fire Extinguishers	Sludge Belt Feed Pump Kiosk	1	Richard Mumford
Fire Extinguishers	Primary Wash water Boost Kiosk 1		Richard Mumford
Fire Extinguishers	Old Drier Hall HVAC Control Room	1	Richard Mumford
Fire Extinguishers	Old Drier Building Stairway	1	Richard Mumford
Fire Extinguishers	Old Drier Building Control Room	1	Richard Mumford
Fire Extinguishers	Old Drier Hall Ground Floor (on exits)	4	Richard Mumford
Fire Extinguishers	Old Drier Hall Upper Level	1	Richard Mumford
Oil Spill Kits	Primary Generator Building	3 (also maintenance spill station)	Richard Mumford
Oil Spill Kits	Secondary Generator Building	2	Richard Mumford
Chemical Spill Kits	Ferric Delivery Point	1	Richard Mumford
Chemical Spill Kits	Chemical Building	1	Richard Mumford
Chemical Spill Kits	Sludge Belt Room Poly Station	1	Richard Mumford
Chemical Spill Kits	Centrifuge Poly Make up Room	1	Richard Mumford

Map of Fire Hydrant / Potable water point (H)



7 When to use this Emergency plan.

This plan and procedures within it should be used to control any Incidents/Emergencies at the site. Depending on the severity and the nature of the incident some or all these procedures below will help by adding guidance.

7.1 Site emergency plans and Fire service Grab packs

Each IED site will have an emergency plan designed to give a first response instruction for a number of likely events, each site also has an emergency “Grab Pack” for use primarily by the Fire Brigade attending an incident on the site.

Each IED site also has a LDAR plan with activities designed to reduce and identify any risks from leaks from tanks, pipelines, and releases of biogas in an uncontrolled manner that could lead to a fire risk.

Further documentations are available on the following link [Environmental Management System Manual \(sharepoint.com\)](#) and listed in the table below

SUPPORTING EMERGENCY PROCEDURES	
When this Plan should be Activated	EMS 260 Pollution Prevention (Standard) EMS 360 Pollution Prevention (Procedure) EMS 363 Procedure for Managing Oil Spills on Sites EMS 364 Lime Spill Management Procedure FEC 322 – Spillage Procedure
When to contact Emergency Services	IMP 217 and IMP 218 Team Roles – Objectives and Responsibilities Alternative Response Coordinator Role Booklet
When to contact Utility Companies	
When to Contact Local Authority	
Staff Evacuation Procedure	SIB 603 Risk Assessment and Safety Instructions for Fire Awareness



Special methods for dealing with Substances that pose a particular environmental risk	EMS 363 Procedure for Managing oil spills on sites EMS 364 Lime Spill Management Procedure
Fire Fighting Strategy	CCM 302 Procedure Following the Receipt of a Fire Alarm SIB 603 Risk Assessment and Safety Instructions for Fire Awareness
Use of Spill Kits and other pollution control equipment	EMS 234 Chemical and Oil storage EMS 360 Pollution Prevention Procedure
Procedure for recovering spilled product and legal disposal of waste	EMS 360 Pollution Prevention Procedure EMS 363 Procedure for Managing oil spills on sites
Handling Media enquiries	BCP 415 Guidance on Reporting Potential Media Interest

The procedures listed below should be followed in the event of an incident, site specific plans should be coordinated using **Sandown IMP Map** and the equipment listed above.

7.2 Fire

- 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's 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 Sections Above)
- Please see plan of Fire Hydrants / Final effluent / Potable water points for use if required. Map in Section above.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Fires	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 362 Environmental Fire Risk Assessment Procedure EMS 363 (oil) Procedure for Managing Oil Spills on Sites EMS 382 Hazardous Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Site Chemical Risk Register SIB 603 Risk Assessment and Safety Instructions for Fire Awareness KFB Site Grab Pack.

7.3 Explosion

- 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.



- 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)
- Please see plan of Fire Hydrants / Final effluent / Potable water points for use if required. Map on page 6.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Explosion	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 362 Environmental Fire Risk Assessment Procedure EMS 363 (oil) Procedure for Managing Oil Spills on Sites EMS 382 Hazardous Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Site Chemical Risk Register SIB 603 Risk Assessment and Safety Instructions for Fire Awareness KFB Grab pack

7.4 Pollution

- Use the Pollution 30 Minute Plan.
- Can we mitigate or stop the pollution event - 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Pollution	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 362 Environmental Fire Risk Assessment Procedure EMS 363 (oil) Procedure for Managing Oil Spills on Sites EMS 382 Hazardous Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Site Chemical Risk Register SIB 603 Risk Assessment and Safety Instructions for Fire Awareness Pollution 30 Minute Plan

7.5 Flooding

- 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's 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 EA 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 – as per Sections above)

Useful SW documents

Incident	Southern Water Procedure to be Followed
Flooding	CAT 303 FEC 322 Spillage Procedure Pollution 30 Minute Plan

7.6 Road traffic accident impact or collision

- 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.
- Barrier 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.
- Leaking tankers after event – Fuel or Chemicals- put out spill containment if safe to do so.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Road traffic accident impact or collision.	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 381 Operational Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Pollution 30 Minute Plan

7.7 Collapse of a structure or building

- 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.
- Barrier 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Collapse of a Structure or Building.	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 381 Operational Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Pollution 30 Minute Plan

7.8 Spill transferring wastes

- 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 use Spill kits if small amounts, cover drains if possible
- Need to understand 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Spill transferring wastes	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 381 Operational Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Pollution 30 Minute Plan

7.9 Spills transferring chemicals

- 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, use Spill kits if small amounts, cover drains if possible
- Need to understand 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Spill transferring chemicals	FEC 322 Spillage Procedure EMS 234 Chemical and Oil Storage EMS 381 Operational Waste Procedures EMS 382 Hazardous Waste Procedures EMS 361 Chemical Risk Assessment Procedure Site Chemical Risk Register Pollution 30 Minute Plan

7.10 Overfilling vessels

- 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, use Spill kits if small amounts, cover drains if possible
- Need to understand 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Overfilling vessels	FEC 322 Spillage Procedure FEC 320 Process Related Incidents EMS 260 Pollution Prevention (Standard) EMS 234 Chemical and Oil Storage EMS 360 Pollution Prevention Procedure EMS 363 Procedure for Managing Oil Spills on Sites EMS 382 Hazardous Waste Procedures EMS 480 Waste Descriptions Site Chemical Risk Register Pollution 30 Minute Plan



7.11 Plant and equipment failures

- 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, use Spill kits if small amounts, cover drains if possible
- Need to understand 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Plant and equipment failures	FEC 322 Spillage Procedure FEC 320 Process Related Incidents EMS 260 Pollution Prevention Standard EMS 360 Pollution Prevention Procedure EMS 363 Procedure for Managing Oil Spills on Sites EMS 382 Hazardous Waste Procedures EMS 480 Waste Descriptions Pollution 30 Minute Plan

7.12 Containment failure

- 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, use Spill kits if small amounts, cover drains if possible
- Need to understand 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Containment failure	FEC 322 Spillage Procedure EMS 234 Chemical and Oil Storage EMS 260 Pollution Prevention (Standard) EMS 360 Pollution Prevention Procedure EMS 363 Procedure for Managing Oil Spills on Sites EMS 381 Operational Waste Procedures EMS 382 Hazardous Waste Procedures Pollution 30 Minute Plan

7.13 Failure to contain firewater

- 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
- Need to understand what amount has been spilt and where it has gone (e.g. site return WPS, to ground, to the site drains). Can it be contained and disposed off site?
- Report the incident to the FPM/DM/RCC.
- Discuss the impact of the spill with the FPM /Process Scientist/DM. – PS to risk assess impact.



Useful SW documents

Incident	Southern Water Procedure to be Followed
Failure to contain firewater	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 362 Environmental Fire Risk Assessment Procedure EMS 381 Operational Waste Procedures EMS 382 Hazardous Waste Procedures EMS 480 Waste Descriptions Environmental Emergencies Poster (EMS) Pollution 30 Minute plan

7.14 Incorrect connection leading to releases to drains and other systems

- Use the Pollution 30 Minute Plan.
- Contain the spillage or if it is possible to do so, use Spill kits if small amounts, cover drains if possible
- Need to understand 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. Can it be contained and disposed off 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Incorrect connection to drains and other systems	FEC 322 Spillage Procedure EMS 360 Pollution Prevention Procedure EMS 365 Discharges Procedure Environmental Emergencies Poster (EMS) Pollution 30 Minute plan

7.15 Incompatible substances coming into contact

- 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 solution if it is possible to do so, use Spill kits if small amounts, cover drains if possible
- Need to understand what amount has been spilt and where it has gone (e.g. released to site return WPS, to ground, to the site drains). Can it be contained and disposed off offsite?
- Check the site COSHH register for both or all the components for likely reactions.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Incompatible substances coming into contact & Unwanted/ runaway reactions	FEC 322 Spillage Procedure EMS 234 Chemical and Oil Storage EMS 360 Pollution Prevention Procedure EMS 361 Chemical Risk Assessment (Procedure) EMS 461 Chemical Risk Assessment (Form) EMS 480 Waste Descriptions Site Chemical Risk Register Pollution 30 Minute plan

7.16 Emission of effluent or Biogas before composition checked

- 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.
- Stop the process, use site spill kits if small amounts have been spilt, cover drains if possible.
- Need to understand what has been released and where it has gone (e.g. to ground, to the site drains etc.)

Useful SW documents

Incident	Southern Water Procedure to be Followed
Emission of effluent or Biogas before composition checked	FEC 322 Spillage Procedure EMS 265 Discharges (Standard) EMS 365 Discharges (Procedure) Pollution 30 Minute plan

7.17 Theft & Vandalism

- 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.

Useful SW documents

Incident	Southern Water Procedure to be Followed
Vandalism	FEC 307 Reporting of Unauthorised Access, Including Loss, Theft and Vandalism Environmental Emergencies Poster (EMS) Pollution 30 Minute plan

8 Reporting

8.1 Incident Management Reporting

- Make your manager aware of any incidents, they will use the Rule of Two for reporting of all accidents & Incidents.
- Use the pollution teams phone number to raise any pollution events on 07557152385.
- Follow the Pollution 30 Minute plan when dealing with any pollution events.
- Remember that emission may be a released of Biogas to Atmosphere, which is a pollution event.



- If you see anything that you regard as unsafe – make the area safe (if it's safe to do so) and raise it as a hazard.
- Contact the Site FPM in hours or Duty manager if you believe the situation requires an incident response, this will then allow the FPM or duty manager to escalate to a Green, Amber or Red incident and be managed appropriately.

8.2 Hazard & Near Miss reporting

- If you see anything that you regard as unsafe – make the area safe (if safe to do so) and raise it as a Hazard or Near Miss.
- Contact the Site FPM in hours or Duty manager if you believe the situation requires an incident response, this will then allow the FPM or duty manager to escalate to a Green, Amber or Red incident.
- Make your colleagues aware of any Hazards you have identified.
- Raise a job for corrective action to eliminate or mitigate the hazard.

9 Site Contingency plans

The Sandown Site specific contingency plan is available on the site notice board or electronically by following this link - [Operational Continuity Templates - WWAG \(southernwater.co.uk\)](https://www.southernwater.co.uk/Operational-Continuity-Templates-WWAG).

Print a copy for the site and store with the Incident Management Plan and KFB Grab Pack.

10 Prevention Measures

10.1 Sandown STC Fire Prevention Plan

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

10.2 Fire and explosion preventative measures (all types of plants)

Examples of good preventative measures:

10.2.1 Housekeeping

Managing good housekeeping on site. – This is covered by our Site standards checks and FPM audits EMS 418 Environmental Management site check form for wastewater.

The Sandown site is included in the gold, silver and bronze site standards awards, this system is awarded for site standards including housekeeping standards, this ensures the site is kept clean and tidy and is audited by the FPM of the site and senior managers and will ensure we don't get build ups of dust and fluff around the site.

10.2.2 Control of flammable materials

The storage of flammable materials should always be in Flammable cupboards to prevent the risk of fire, we use systems to help control our risks such as DSEAR risk assessments.

Ex rated equipment is used in DSEAR zoned areas along with good EX Signage and locked gates and compounds stop untrained personnel accessing Gas safe areas.

In the Control of Flammable materials, we provide a 6m Gap between the storage of flammable materials and any ignition sources reducing the likelihood of fires.

We prevent self-combustion by preventing the uncontrolled decomposition and self-heating of stored waste by managing and monitoring temperature and moisture – we don't really store waste other than pallets and both General waste and Recyclable waste that are in Bins and Skips that are changed frequently to reduce fire risk.

10.2.3 Permits

Southern water uses written systems such as a Permit to Work (PTW) to provide a safe system of work including Hot Works Permit system and we work to DSEAR risk assessments and use EX rated equipment in Zoned areas to prevent unsafe situations arising during site operations, repair, and maintenance tasks.

We use trained competent Technicians to carry out maintenance work; on Biogas systems we use contractors that are Gas safe trained, and they produce Risk assessments and Method statements for their work.

The hot works are carried out under a PTW system, with Risk assessment and Method statements as part of a safe system of works. This includes checking for combustible materials, gas checks and measures to take after the Hot work is completed (e.g. one-hour fire watch).

10.2.4 Access to information

All the operational team have access to a Tablet and can access the safety documentation from the tablet.

The Emergency grab pack is available in a sealed container at the entrance to the site so would be assessable in an emergency event.

10.2.5 Plant maintenance

We maintain plant in a good state through a preventive maintenance programme and a control and testing programme with our Asset Maintenance team and a clear approved list of Maintenance tasks. We also have a list of Operational SOPs for operational staff to complete, to ensure equipment is fit for use – Relevant work orders will then be placed of the back of these SOP findings.

10.2.6 Risk of Vehicle impact

Some specific areas where risk is more significant are barriered off.

The speed limit on all sites is 15 MPH and a one-way system is in place at Sandown to reduce the likelihood of a vehicle impact.

10.2.7 SCO, CPAC procedures and Shift hand overs.

We have a comprehensive hand over logbook on the SW sites, this details Plant Out Of Action and any issues from a compliance perspective and is used as a daily hand over to the following shift, a Control of Processes and Compliance system and a Safe Control of Operations system is used when maintaining plant or taking kit offline for maintenance, training is provided on these systems for both operational and maintenance staff.

10.2.8 DSEAR Risk & Zonal areas.

We use DSEAR risk assessment to control working in high-risk areas where explosive atmospheres could exist, we have clear Zonal drawings on the site safety notice board along with secure fenced locked areas around the Biogas bag storage area and the Flare stack area, with appropriate Gas safe signage.

EX rated equipment is used in these areas, we maintain equipment using Gas Safe trained contractors, all our staff that work in these areas are trained in Biogas awareness and DSEAR awareness.

10.2.9 Alarm Management

We have a few levels of Alarm management controls. The Alarm severity settings are checked and set appropriately for the correct level. All alarms will generate a warning banner on the SCADA system alerting operators to a problem.

If the operators fail to respond we also have a Regional Control Centre who also monitors alarms and will phone the site operators if the alarm is at a level 5 or above. They will also respond with an out of hours standby operator when the site is unmanned.

10.2.10 Maintaining control in an emergency

Southern water maintains plant control in an emergency by using a combination of the following measures:

- Alarms & a system of escalation if not responded to the original alarm.
- Process trips and interlocks to stop safety critical equipment – slam shut valves etc.
- We have automatic systems based on microprocessor control and valve control via SCADA.
- We use automated tank level readings such as ultrasonic gauges, high level warnings, process interlocks and process parameters to stop feed pumps on high level etc.
- We store Biogas in the Biogas bag and use a flare to manage biogas in AD systems.
- High pressure relief valves are also installed to regulate Digester over pressure.

10.2.11 Critical Safety Equipment

All critical safety equipment is maintained appropriately via a Gas safe contractor or trained Asset Maintenance staff. The flares are maintained by a Gas Safe contractor and are serviced at 6 monthly intervals as are the boilers and CHP. Yearly inspections and maintenance are carried out on Digesters (outer permitter) and Biogas bags.

10.2.12 Health Surveillance for Staff

All SW operational on-site staff are issued with a personal blackline Gas monitor which records and alerts operators in the workplace to instant (short-term exposure) high levels of harmful gases (e.g. H₂S) and exposure from a shift point of view (long-term exposure). These are designed to alarm out at levels below the Health and Safety Executive (HSE) guidelines and regulations.

The Operational front line site operators also have a yearly health check by a service provider.

10.2.13 Control of Smoking on site

Smoking is only allowed in designated safe areas with signage and a butt bin to collect discarded smoking materials.

Vapour use and storage – designated area only same rules as cigarettes and matches.

10.2.14 Arson risks, Security & Control of entry onto site

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

We have intruder alarms that are set for buildings out of hours.

We also have CCTV cameras on site as a deterrent to any unauthorised visitors.

10.3 Additional fire prevention and explosion preventative measures (AD plants only)

The following measures only apply to AD plants:

10.3.1 DSEAR Risk & Zonal areas

We use DSEAR risk assessment to control working in high-risk areas where explosive atmospheres could exist, we have clear Zonal drawings on the site safety notice board along with secure fenced locked areas around the Biogas bag storage area and the Flare stack area, with appropriate Gas safe signage.

EX rated equipment is used in these areas, we maintain equipment using Gas Safe trained contractors, all our staff that work in these areas are trained in Biogas awareness and DSEAR awareness.

If a DSEAR risk assessment has identified potential explosion hazards you must make sure the design and planning of your plant includes appropriate structural, technical, and organisational fire protection measures.

DSEAR zones are available in Appendix A on page 22.

10.3.2 Fire Risk assessment

A fire risk assessment has been conducted by a qualified person on the Sandown site, this is reviewed and amended when there are any changes to site conditions or following a period of 1 year, records should be kept for 6 years.

10.3.3 Biogas Digestion process.

The Anaerobic Digestion process is managed by controlling KPI's on process control on a SCADA control system, we have DSEAR risk assessments in place, we have 12 monthly service agreements in place around the Biogas system, we also conduct 6 monthly inspections on the Boilers and CHP systems.

Signage and Rules, Fencing and locked gate policy around DSEAR areas, Lightning protection.

Trained staff with both Biogas awareness and DSEAR training.

The Biogas storage bag has Lightning conductors fitted in accordance with BS EN 62305-2.

11 Control of Major Accident Hazard (COMAH) Regulations 2015

We must consider whether the Control of Major Accident Hazard (COMAH) Regulations 2015 apply to our activities, for example, the quantity of flammable gas (biogas) in combination with any other dangerous substances stored on site. The current calculation for Sandown (XX%) suggest this site is below the lower-tier threshold and is therefore not under COMAH regulations.

This calculation is to be updated and checked if there are plans to introduce new fuel, chemical or gas storage on site.

12 Other useful documents

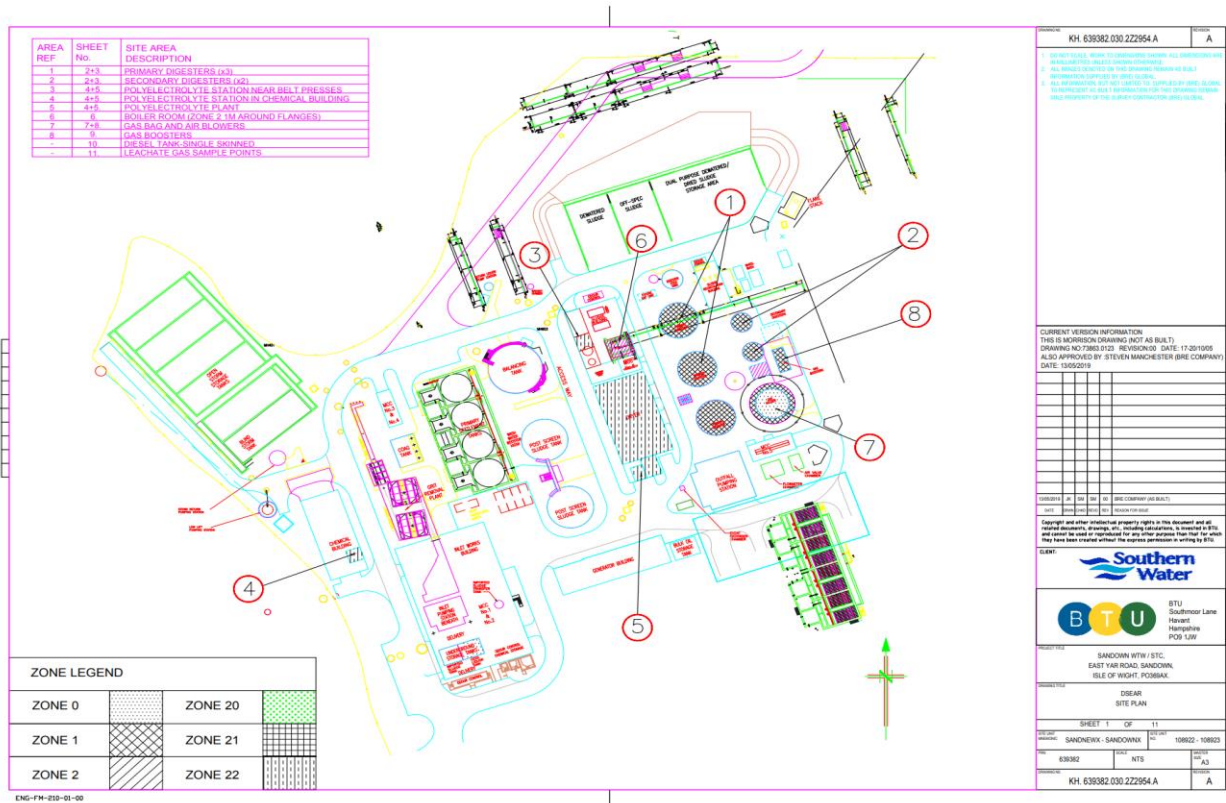
Each IED site will have a Fire Prevention plan designed to reduce the risk of Fire and Explosion.

Each IED site also has an emergency “Grab Pack” for use primarily by the Fire Brigade attending an incident on the site.

Each IED site also has a Leak Detection and Repair (LDAR) plan with activities designed to reduce and identify any risks from leaks from tanks, pipelines, and releases of biogas in an uncontrolled manner that could lead to a fire risk. -

13 Appendix A – DSEAR Site Plans

DSEAR site plan classifications below



Sandown STC Incident Management Plan

DSEAR assessment of Sandown STC

Report Number: P104203-11885
Issue: 1

DSEAR assessment of Sandown STC

Report Number: P104203-11885
Issue: 1

bre

2 Site overview

2.1 Preliminary treatment

Inlet works

There is only one inlet works at Sandown STC.

Flow from the inlet works to treatment passes through preliminary treatment (screened and grit removed) and primary settlement before secondary treatment and final settlement.

2.2 Storm treatment

Excess flow above the capacity of the inlet works weirs over into the storm treatment area.

2.3 Primary treatment

The flow feeds into the primary settlement tanks (PSTs). Effluent gravitates from the distribution chambers into the tanks where the suspended solids (primary sludge) and effluent are separated. Sludge settles to the floor of each tank and is drawn towards the tank hopper by a continuously operating full bridge scraper and removed to the sludge recycling centre by a dedicated transfer pump. Primary effluent gravitates over a weir on the perimeter of each PST and is collected in the effluent collection chamber, prior to being channelled to secondary treatment.

2.4 Sludge treatment

Sludge digestion

The incoming sludge displaces the outgoing sludge over a weir. The displaced sludge then gravitates to the digested sludge storage tanks. Periodically, the base of each digester is automatically de-gritted in turn via an actuated de-gritting valve which opens for a preset (adjustable) time. This draw-off also passes to the digested sludge storage tanks. The storage tanks are each equipped with an actuated inlet and outlet valve which control automatic filling and emptying on a duty/standby basis. Biogas from the digesters and the digested sludge storage tanks is piped to the gas holder, the flowrates of each being constantly monitored by gas flowmeters.

Secondary heating for digestion

The digesters are heated by circulating sludge through heat exchangers. Each of the digesters is equipped with a dedicated sludge recirculation pump which continuously draws sludge from the digester at low level, passes it through a dedicated heat exchanger and returns it to the digester feed line.

Each heat exchanger is fed with hot water from a common recirculating manifold. The hot water is circulated by a pair of pumps which run continuously on a duty/standby basis. Duty/Assist/Standby dual fuel boilers provide a secondary heat source, in the event that the CHP is unavailable, or unable to provide sufficient surplus heat capacity. The boilers' primary fuel source is biogas (piped from the gas holder), with automatic changeover to natural gas if insufficient biogas is available.

Commercial in Confidence

© BRE Global Ltd 2019

Page 10 of 56

Commercial in Confidence

© BRE Global Ltd 2019

Page 11 of 56

bre

2.5 Gas storage

The biogas produced in the digesters and the digested sludge storage tanks is piped to a common gas holder, which acts as a short-term buffer.

The gas holder is a double skinned membrane type, maintained at constant pressure by a duty/standby pair of air blowers which discharge between the outer and inner skins. Surplus air discharged from the outer skin is monitored by a gas detector, which provides indication of any leaks through the inner membrane. The lowest point of the gas lines is fitted with a condensation trap (located next to the gas holder), which collects condensate from the biogas and drains it to the liquor return sump, via a submersible pump.

Biogas from the gas holder is routed to the dual fuel boilers and the CHP. Any excess biogas (indicated by high gas holder level) is automatically routed to the flare stack via an actuated valve and burned off, the flowrate being monitored by a gas flowmeter.



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

The inlet works at Sandown STC are all enclosed. The screening building is very large & has ventilation.



Figure 1: Inlet works, from screening platform.

The inlet works is fitted with odour control at multiple stages prior to screening and the screens also have odour control. During the site visit it was established that the odour control was working as the air flow through the odour control pipework had sufficient velocity to be felt by touch.



Figure 2: Odour control on screening.

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.

The zone will exist above the liquid surface within all enclosed inlet works prior to screening.



Figure 3: Open hatch to inlet works.

Any areas where the inlet works are open to the building atmosphere will have a zone 2 extending 1m horizontally and vertically from the opening.

No leachate will be present in the inlet works as any leachate waste is fed into the condensate trap next to the flare stack, see section 5.6.5.



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

5.1.1.1 Cess inlet

Cess is imported from tankers in a large empty tanker bay. The cess pipework & hopper is allocated a zone 2 internally.



Figure 4: Cess tanker bay.

The cess is pumped to a hopper where it is allowed to settle before being pumped to the inlet works, see Figure 3.



Figure 5: Cess settling tank / hopper.

**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 Cake storage

The undigested cake is stored outside in open bays and is therefore unclassified.

DSEAR assessment of Sandown STC

Report Number: P104203-11885
Issue: 1

DSEAR assessment of Sandown STC

Report Number: P104203-11885
Issue: 1



5.5 Sludge treatment

5.5.1 Digester 1

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



Figure 6: 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

Commercial in Confidence

© BRE Global Ltd 2019

Page 19 of 56



5.5.2 Digester 2

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



Figure 7: 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

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.5.1.

Commercial in Confidence

© BRE Global Ltd 2019

Page 23 of 56



5.5.3 Digester 3

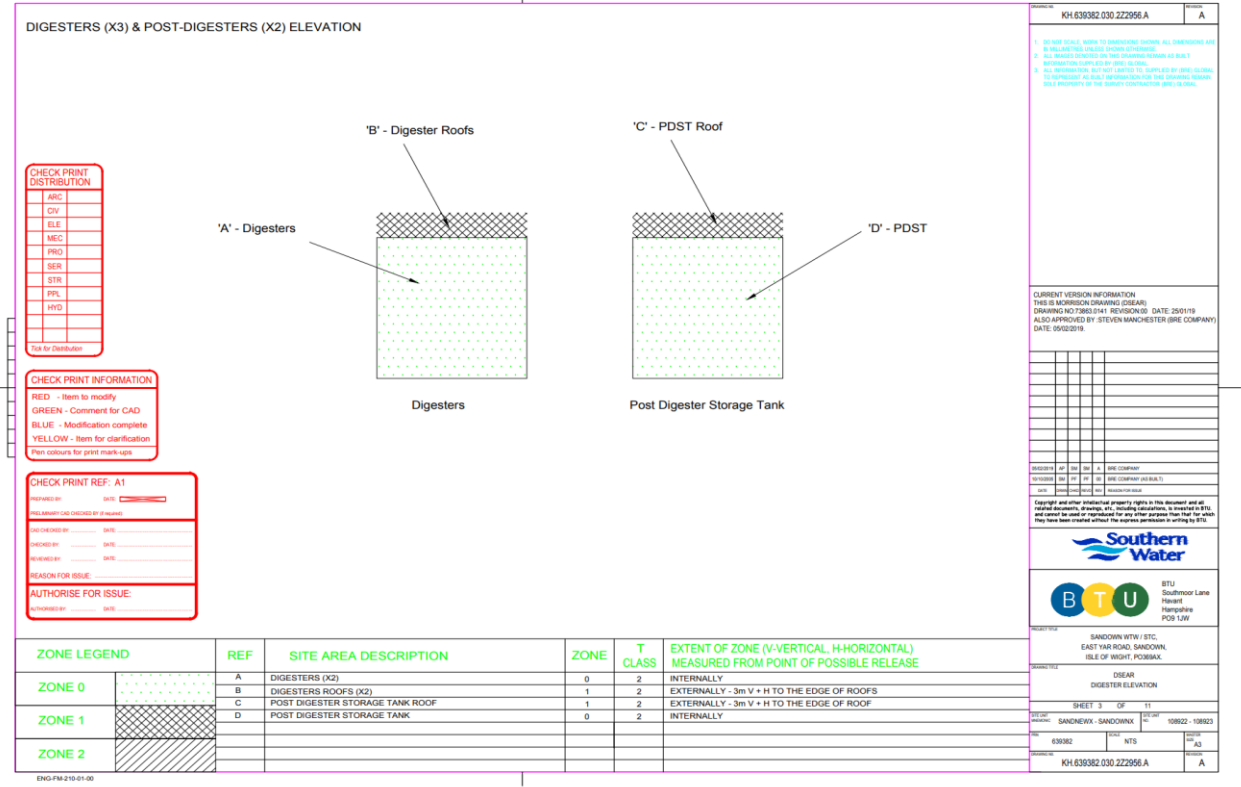
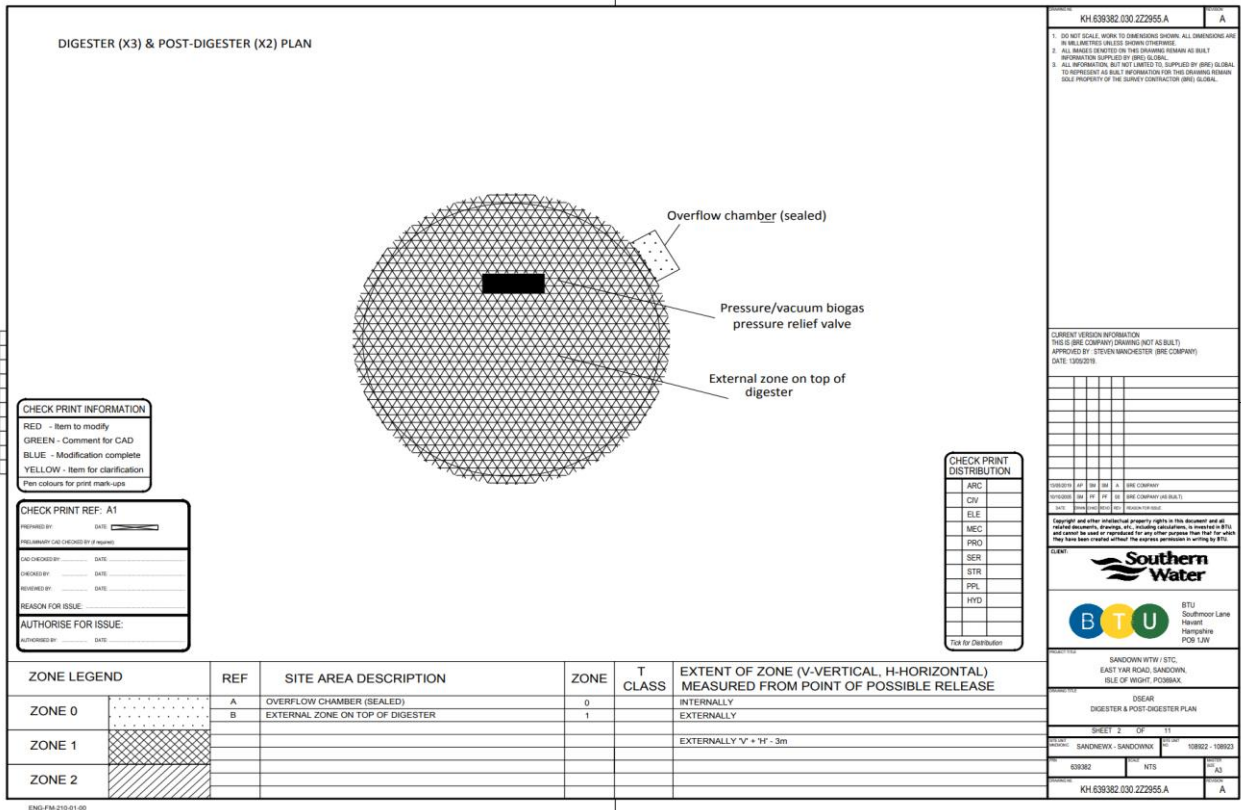
Zone 0 internally and zone 1 externally surrounding the top of the digester.



Figure 8: 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

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.5.1.



DSEAR assessment of Sandown STC

Report Number: P104203-11885
Issue: 1

DSEAR assessment of Sandown STC

Report Number: P104203-11885
Issue: 1



5.5.4 Post digester 1

According to Southern Water's MED 4004 April 2015,¹³ post digestion tanks or secondary digesters are allocated a zone 0 internally and a zone 1 externally surrounding the top of the post digester.



Figure 9: 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.	1	2	2

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.5.1.

Commercial in Confidence

© BRE Global Ltd 2019

Page 27 of 56



5.5.5 Post digester 2

According to Southern Water's MED 4004 April 2015,¹³ post digestion tanks or secondary digesters are allocated a zone 0 internally and a zone 1 externally surrounding the top of the post digester.



Figure 10: 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.	1	2	2

The drawing illustrating the extent of the hazardous zoning around the digesters and post-digesters is included in section 5.5.1.

Commercial in Confidence

© BRE Global Ltd 2019

Page 29 of 56





5.5.6 Polyelectrolyte

There are three polyelectrolyte dust hoppers / dispensers on site; one in the chemical building, one next to the boiler house and one in the centrifuge building.

Following Southern Water's MED 4004 April 2015⁵⁴, the receiving vessel is allocated a zone 21 classification internally and the external area is allocated a zone 22 classification.



Figure 11: Polyelectrolyte dispenser 1, chemical building.

The polyelectrolyte dispenser in the chemical building has a slightly different setup, as can be seen in Figure 11, and as such has an additional hopper and pipework that is allocated a zone 21.



Figure 12: Polyelectrolyte dispenser 2, next to boiler house.

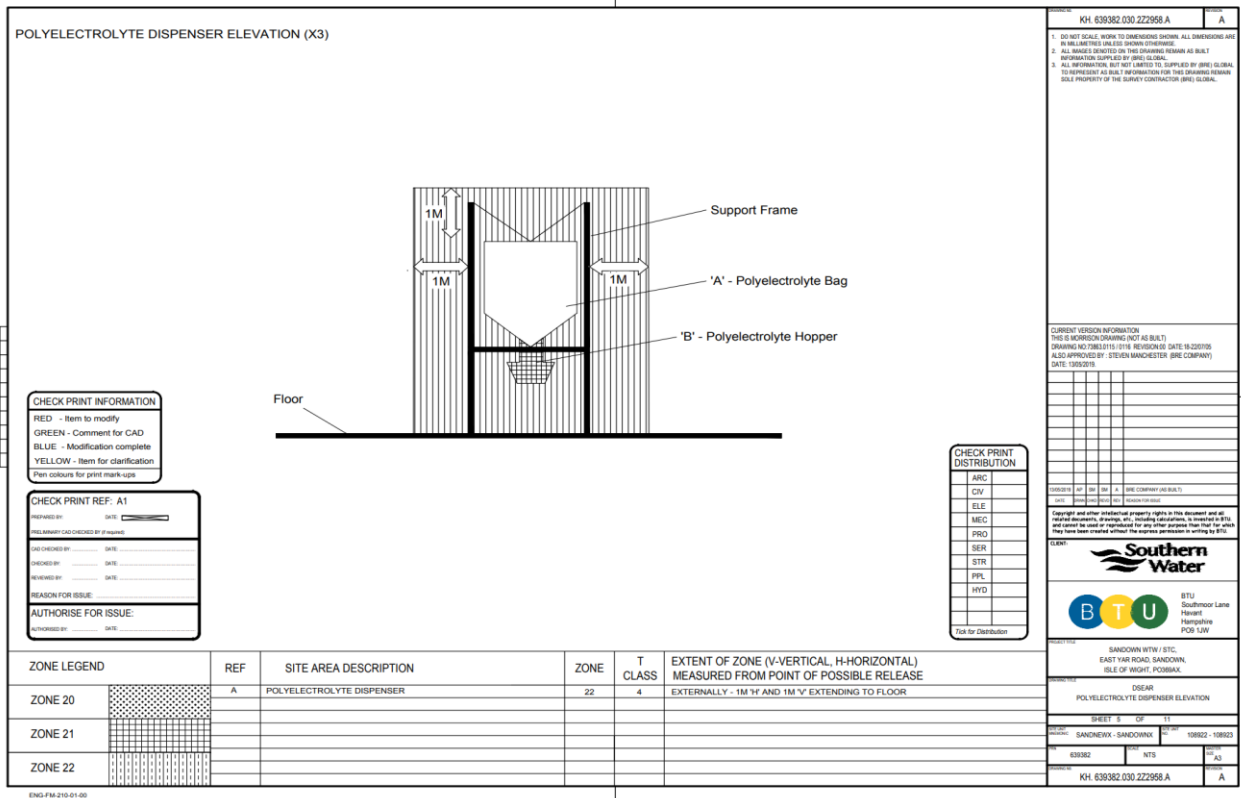
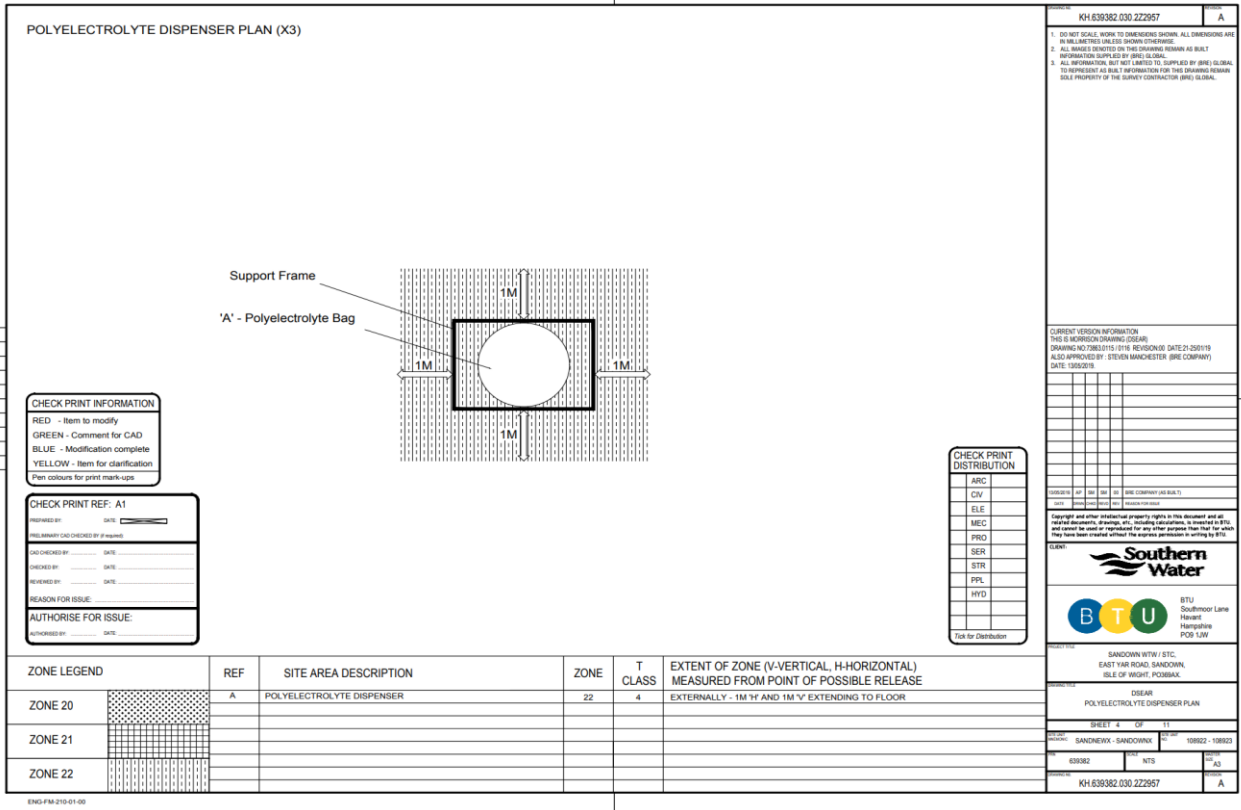


Figure 13: Polyelectrolyte dispenser 3, centrifuge building.



Polyelectrolyte dispensers

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





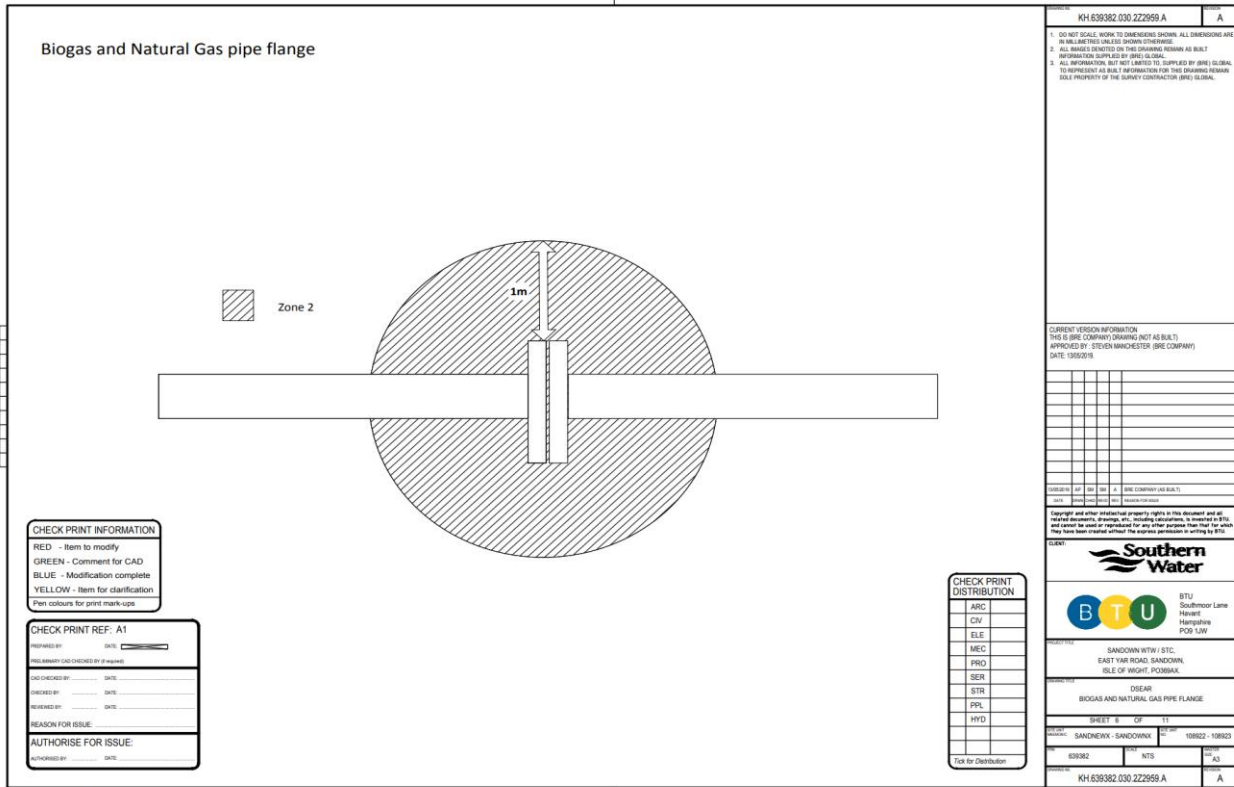
5.6 Gas storage

5.6.1 Boiler house

There are two boilers at Sandown STC. They are both dual-fuel and 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.

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





5.6.2 Gas storage area

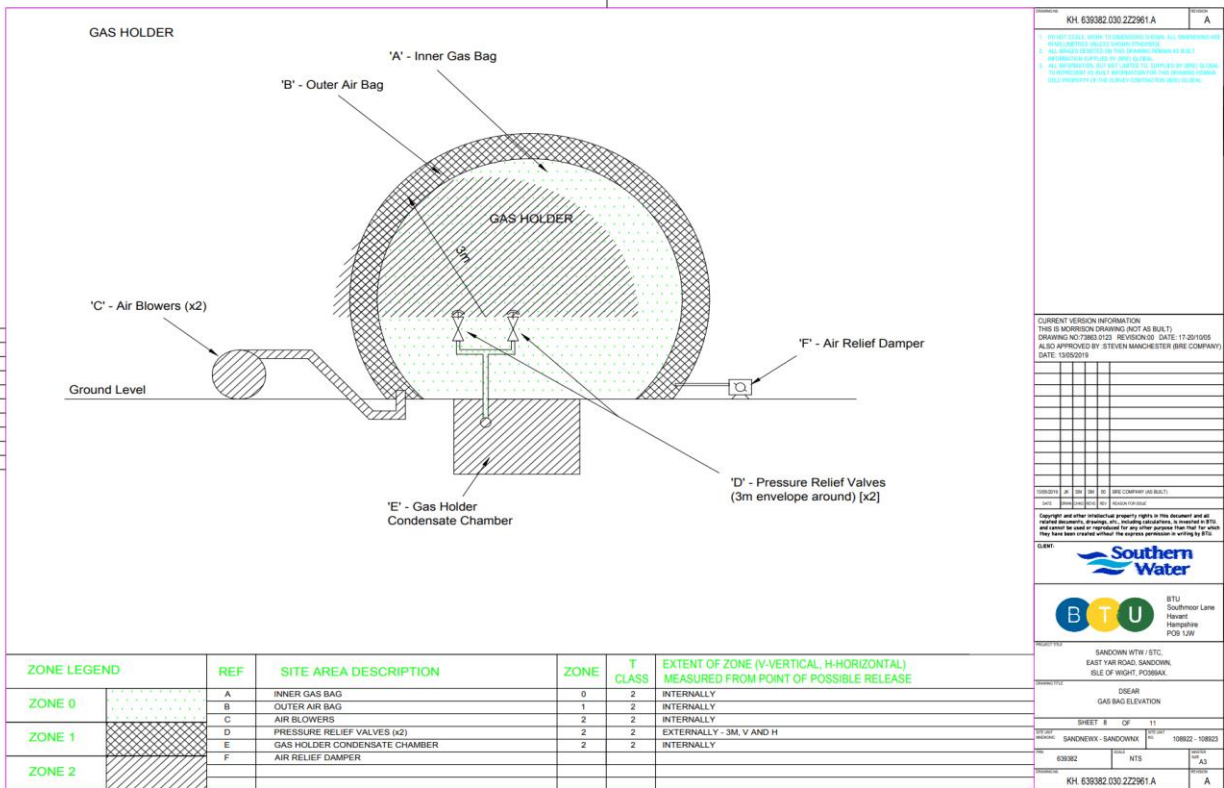
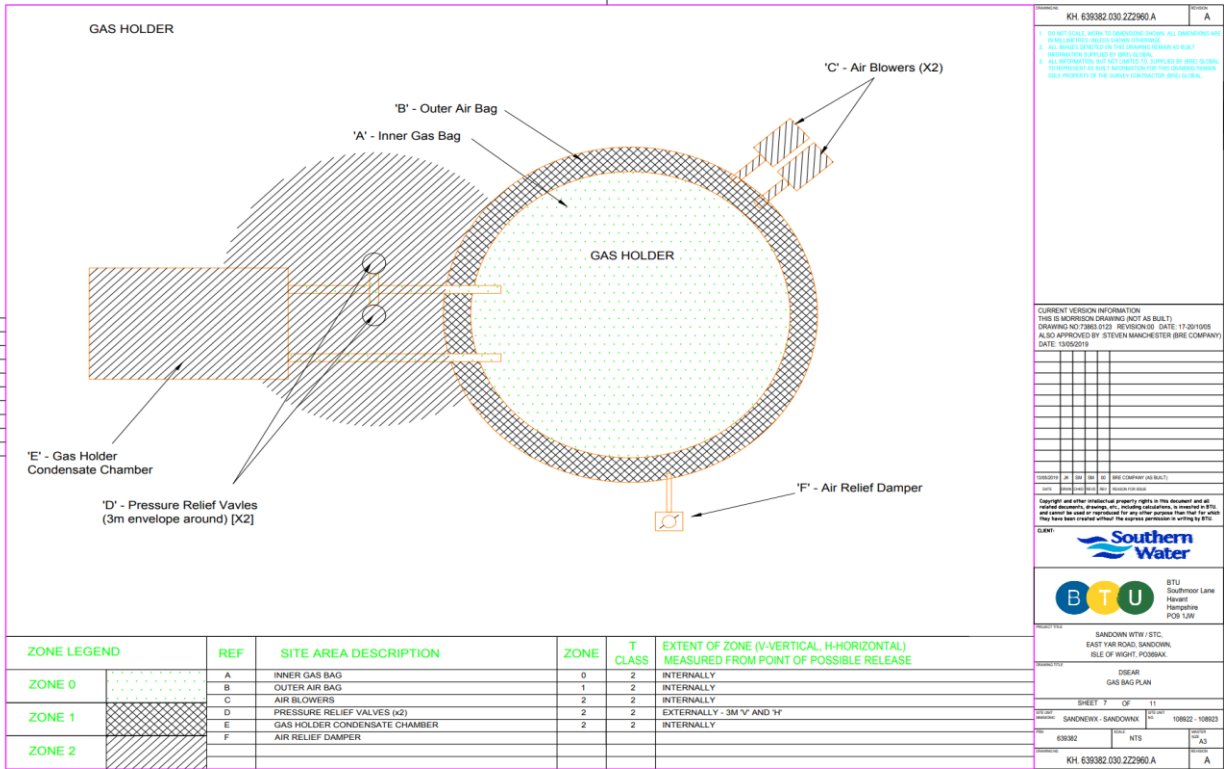
5.6.2.1 Double membrane gas bag

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 14: 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.	1	2	2



KH 639382.030.222960.A A

DO NOT SCALE. REFER TO DIMENSIONS SHOWN. ALL DIMENSIONS ARE UNLESS OTHERWISE SPECIFIED IN METRES. DIMENSIONS SHOWN IN THIS DRAWING ARE AS BUILT. DIMENSIONS SHOWN IN THIS DRAWING ARE APPROXIMATE. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

CURRENT VERSION INFORMATION
THIS IS MORRISON DRAWING (NOT AS BUILT)
DRAWING NO 7383.0123 REVISION NO DATE: 17-09-1955
ALSO APPROVED BY STEVEN MANCHESTER (BRE COMPANY)
DATE: 13/09/2019

Copyright and other intellectual property rights in this document and all associated documents, drawings, and related information, is reserved to BTU and cannot be used or reproduced for any other purpose than that for which they have been created without the express permission in writing by BTU.

CLIENT: **Southern Water**

BTU Southern Lane Havant Hampshire PO9 1JW

PROJECT: SANDOWN WTW / STC EAST VAB ROAD, SANDOWN, ISLE OF WIGHT, PO384K.

DESCRIPTION: GEAR GAS BAG PLAN

SHEET 7 OF 11

DATE: SANDOWN - SANDOWN DATE: 19892 - 19893

NO: 639382 NTS

KH 639382.030.222960.A A

KH 639382.030.222961.A A

DO NOT SCALE. REFER TO DIMENSIONS SHOWN. ALL DIMENSIONS ARE UNLESS OTHERWISE SPECIFIED IN METRES. DIMENSIONS SHOWN IN THIS DRAWING ARE AS BUILT. DIMENSIONS SHOWN IN THIS DRAWING ARE APPROXIMATE. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

CURRENT VERSION INFORMATION
THIS IS MORRISON DRAWING (NOT AS BUILT)
DRAWING NO 7383.0123 REVISION NO DATE: 17-09-1955
ALSO APPROVED BY STEVEN MANCHESTER (BRE COMPANY)
DATE: 13/09/2019

Copyright and other intellectual property rights in this document and all associated documents, drawings, and related information, is reserved to BTU and cannot be used or reproduced for any other purpose than that for which they have been created without the express permission in writing by BTU.

CLIENT: **Southern Water**

BTU Southern Lane Havant Hampshire PO9 1JW

PROJECT: SANDOWN WTW / STC EAST VAB ROAD, SANDOWN, ISLE OF WIGHT, PO384K.

DESCRIPTION: GEAR GAS BAG ELEVATION

SHEET 8 OF 11

DATE: SANDOWN - SANDOWN DATE: 19892 - 19893

NO: 639382 NTS

KH 639382.030.222961.A A





5.6.2.2 Gas boosters

The gas boosters at Sandown are not located in the gas holder compound but in their own sheltered area next to the gas compound.

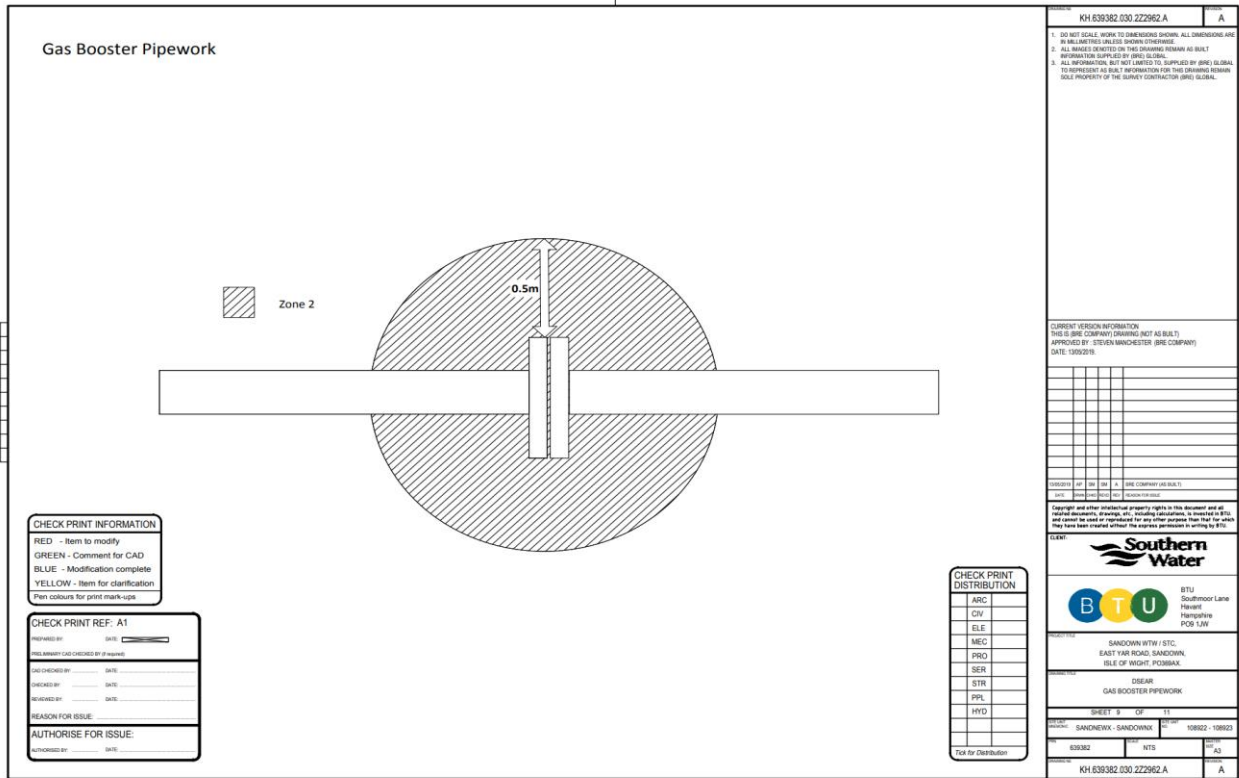
There are four identical boosters, two are for the flare stack and the other two are for the boilers.

A zone 2 was allocated extending 0.5m in all directions around all flanges and fittings on gas pipelines due to their semi-enclosed location.



Figure 15: Gas boosters.

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





5.6.3 CHP

The existing CHP plant is not allocated a zoned area. The CHP plant was not the same make as those at Budds Farm, Millbrook and Ashford. However, the design is the same and the CHP plant at Sandown also has ventilation. Therefore, the air flow through the CHP plant should be sufficient to ensure a flammable atmosphere is highly unlikely to develop.³ This zone is based on continual operation of the ventilation system.

5.6.4 Flare stack area

According to Southern Water's MED 4004 April 2015,^[9] the flare stack area is unclassified.

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

The equipment in the flare stack area was not able to be catalogued since access was not possible. This was due to the flare stack operating during the site visit.



Figure 16: Flare stack compound.

³ The design and ventilation of the CHP plant at Sandown being similar to those at previous sites visited was stated by Southern Water during the site visit on the 14th of August.



5.6.5 Gas condensate traps

There are three condensate traps on site at Sandown STC as well as a condensate receiver next to the CHP plant.



Figure 17: Condensate trap, digesters.

Based on Southern Water's MED 4004 April 2015,¹⁹ all condensate trap pits are allocated a zone 2 internally and if not below ground condensate traps are allocated a zone 2 extending 3m in all directions from the release source point.



Figure 18: Condensate trap, flare stack.

There is one condensate trap next to the post-digestion tanks, one next to the boiler house and a third next to the flare stack.



Figure 19: Condensate trap, boiler house.



Figure 20: Gas condensate receiver.

Any leachate produced by landfill is fed into the condensate trap next to the flare stack, see Figure 18. Without any data on the quantities of leachate produced, a hazardous area classification cannot be determined.



Gas condensate traps

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 condensate receiver

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



5.7 Diesel storage

There are four single-skinned diesel storage tanks on site at Sandown STC, two are in a bund near the primary treatment (01T400) and the other two are in a bund next to the secondary treatment (15T610).

Since the tanks are presumed to be single-skinned, they are allocated a zone 2 within the bund and around any pressure relief valves.



Figure 21: Diesel tanks, primary treatment.

According to guidance given in the "Energy Institute: Model code of safe practice Part 15 – Area classification code for installation handling flammable fluids"^[4] the diesel tanks were allocated a zone 1 internally above the liquid level.



Figure 22: Diesel tanks, secondary treatment.

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

Sandown STC
Incident Management Plan

DIESEL TANK - SINGLE SKINNED (X4)

CHECK PRINT INFORMATION

RED - Item to modify
GREEN - Comment for CAD
BLUE - Modification complete
YELLOW - Item for clarification
Other colours for print make-ups

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					

CHECK PRINT REF: A1

REVISIONS: _____ DATE: _____

REVISIONS: _____ DATE: _____

REVISIONS: _____ DATE: _____

REVISIONS: _____ DATE: _____

REASON FOR ISSUE: _____

AUTHORISE FOR ISSUE: _____

APPROVED BY: _____ DATE: _____

CHECK PRINT DISTRIBUTION

ARC	
CIV	
ELE	
MCC	
PRO	
SER	
STR	
PPL	
HYD	

For Distribution

CURRENT REVISION INFORMATION

THIS IS BRE COMPANY DRAWING (DISAR) AS BUILT
DIESEL SINGLE SKIN TANK
APPROVED BY: STEVEN MANCHESTER (BRE COMPANY)
DATE: 14/05/2019

BTU Southern Life
Havant
Hampshire
PO9 1JW

PROJECT: SANDOWN BTU / STC
EAST YAR ROAD, SANDOWN,
ISLE OF WIGHT, PO39 6AX

DESCRIPTION: DIESEL
DIESEL SINGLE SKIN TANK

SHEET 10 OF 11

DESIGN: SANDOWN - SANDOWNX
DATE: 19/02 - 19/02

NO: 639362
SCALE: NTS
CODE: A3

PROJECT: KH.639362.030.222963.A
REVISION: A





5.8 Leachate gas sample points

Sandown STC has several sample points on site to release any methane produced from leachate.

A report has previously been commissioned by Southern Water to assess the extent of the flammable zoning around each of the sample points.^[9]



Figure 23: Gas sampling point.

Sandown STC
Incident Management Plan

Leachate Gas Release

LEACHATE GAS SAMPLE POINT – HAZARDOUS AREA DIAGRAM PLAN

LEACHATE GAS SAMPLE POINT – HAZARDOUS AREA DIAGRAM ELEVATION

CHECK PRINT REF: A1

REVISION: _____ DATE: _____

APPROVED BY: _____ DATE: _____

REASON FOR ISSUE: _____

AUTHORISE FOR ISSUE: _____ DATE: _____

CHECK PRINT INFORMATION

RED - Item to modify
GREEN - Comment for CAD
BLUE - Modification complete
YELLOW - Item for clarification
Pink colours for print mark-ups

CHECK PRINT DISTRIBUTION

ARC	
CIV	
ELE	
MEC	
PRO	
SEI	
STR	
PPL	
HYD	

Tick for Distribution

ZONE LEGEND	REF	SITE AREA DESCRIPTION	ZONE	T CLASS	EXTENT OF ZONE (V-VERTICAL, H-HORIZONTAL) MEASURED FROM POINT OF POSSIBLE RELEASE
	A	ABOVE LIQUID SURFACE	1		INTERNALLY
	B	ABOVE LIQUID SURFACE IN BUND	2		EXTERNALLY
	C	AROUND BREATHER VALVE	2		EXTERNALLY

Copyright and other intellectual property rights in this document and all related documents, drawings, and technical information, is reserved to BWE and cannot be used or reproduced for any other purpose than that for which they have been created without the express permission in writing by BWE.

Southern Water

BTU
Southmoor Lane
Havant
Hampshire
PO9 1JW

SANDOWN WTM / STC
EAST YAR ROAD, SANDOWN,
ISLE OF WIGHT, PO381AX.

DISEAR
Leachate Gas Release

SHEET 11 OF 11

SANDONEVX - SANDORINX
108622 - 108623

630382 NTS
KH 630382 030 222964 A

