Stanley Downton Sludge Treatment Centre

Odour Management Plan

Revision	Purpose/Description	Originated	Checked	Reviewed	Authorised	Date
1	**First Issue**	**Liz Cherry**				

Contents

1) Introduction and scope

Odour from the majority of sewage treatment works is regulated by the local authority under statutory nuisance provisions of the Environmental Protection Act 1990.

However, sites that have the capacity to accept over 100 tonnes of imported waste per day for the purposes of anaerobic digestion have been issued with Environmental Permits under the Environmental Permitting (England and Wales) Regulations 2016.

The EA's Guidance 'How to comply with your environmental permit' requires for activities which are likely to give raise to odour problems, such as anaerobic digestion, an odour management plan (OMP) should be submitted for approval as part of the permitting process.

Therefore, this document will be submitted as part of the environmental permit application for the Sludge Process at Stanley Downton Sewage Treatment Works which will be operated by Severn Trent Water.

This OMP has been prepared following guidance from the Environment Agency:

- H4 – Odour Management.
- Odour Management Review Checklist.
- Odour Management Plans for Waste Handling Facilities.

The OMP will form part of the ISO 14001 Environmental Management System (EMS). The Bioresources manager will be responsible for implementation of OMP and its regular review. This odour management plan will be reviewed on an annual basis or more often if any of the following occur:

- Validated odour complaints
- Changes to thesewage or sludge treatment process
- Significant development in the local area

2) Site Overview

Stanley Downton Sewage Treatment Works is located near the River Frome south of Stonehouse and southwest of Stroud. A plan of the proposed permitted site boundary can be seen in figure 4 (section 6) of this Odour Management Plan. The approximate site centre is at National Grid Reference (NGR) SO 7920 0450.

Stanley Downton STW served a population equivalent of 75,758 in 2020/21.
The digestion plant has capacity to treat 1,607tds/annum of indigenous sludge.

The current discharge permit levels (on a 95%ile basis) are 15mg/l BOD, 30mg/l SS, 5 mg/l ammonia and 2mg/l phosphorus. The final effluent is discharged to the River Frome.

3) Site surroundings

Stanley Downton STW is located in a rural area south of Stonehouse and southwest of Stroud.

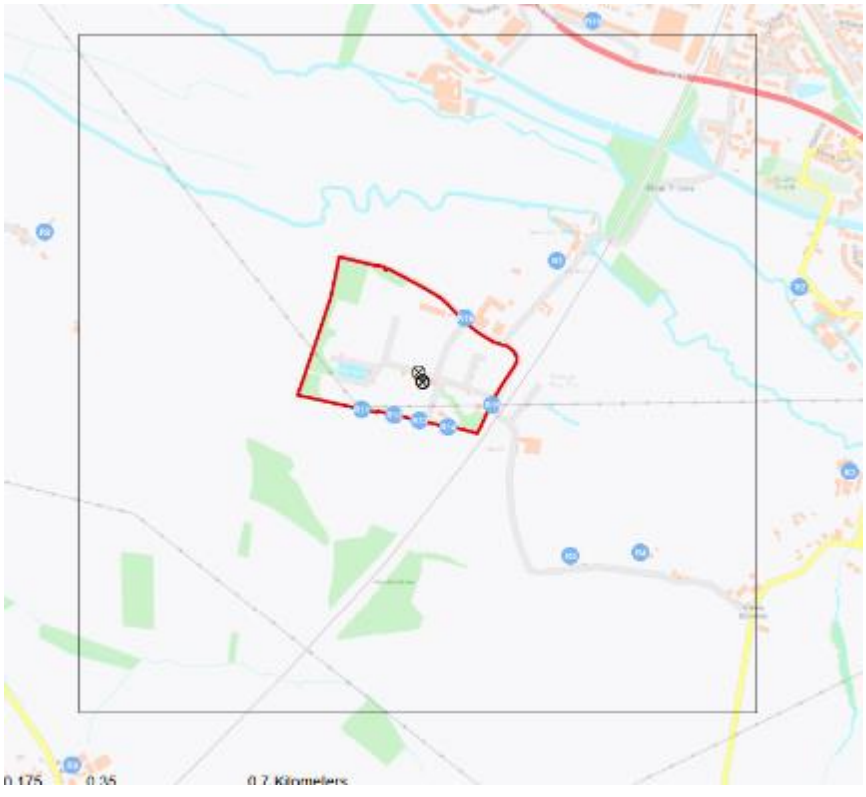
Figure 1: Site location plan

The closest residential properties are approximately 300m northwest of the site at Beard's Mill. Beyond this (approximately 1km from the site) is Stonehouse. As well as housing, there are schools and sports areas in the town. There is an industrial estate 1km north of Stanley Downton STW.

The land to the east, south and west of the site is predominentely rural. There are some properties on the site access road and Stanley Down village is 1km east. To the south, the nearest settlement is Frocester which is approximately 2km south of Stanley Downton. Eastington is 2km west of the site.

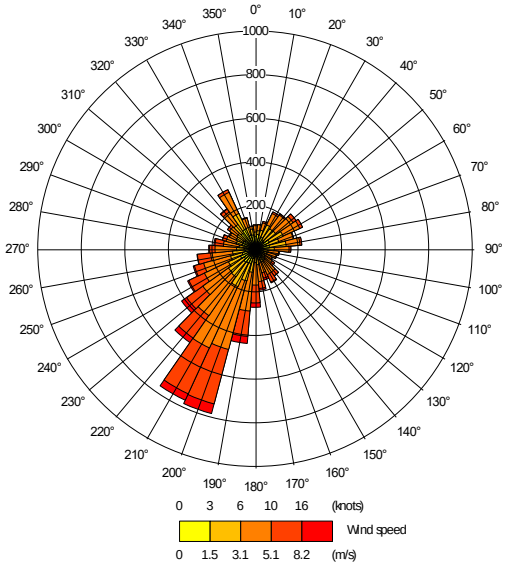
Figure 2 shows the location of the nearest sensitive human receptors. Further details can be found in the Air Quality Impact Assessment

Figure 2: Stanley Downton - Sensitive Human Receptor Locations



Historical prevailing wind data below from the Met Office shows the predominant direction is West/South West. This windrose is for the nearest available site (Pershore Meterological Station) and was used in our dispersion modelling. This data has been collected from January 2016 to December 2020 and is seen to be representative of the wind direction for the location.

Figure 3: Wind rose for Pershore meteorological station 2016 – 2020.



4) Process Overview

A process flow diagram is found in Appendix 1.

Raw sewage and works liquor returns are combined in the inlet works where they are screened and grit is removed. Under the Urban Wastewater Treatment Regulations, sewage that has been screened and degritted is settled and then treated in an activated sludge plant or using trickling filters. Final effluent is discharged into the River Frome. This part of the process does not form part of the odour management plan.

Indigenous primary sludge is thickened in 3 No. batch thickening tanks. These are covered but not connected to any odour control. Thickened primary sludge is then pumped to 2 No. open feed tanks.

SAS is held in an open tank prior to being thickened on 2 No. belt thickeners and pumped to the feed tanks via the SAS buffer tank. The belt thickeners are located in a building. Polymer is added to aid the thickening process.

Blended sludge is treated in 1 No. mesophilic anaerobic digester. The digester has a retention time as stipulated in the current site HACCP plan. Biogas is collected from the digester and used in 1 No. CHP engine.

Digested sludge is held in path kill tanks (2 No.) and export tanks (2 No.). prior to being exported as a liquid to Netheridge STC for dewatering.

Hours of Operation

Waste is processed through the plant 24 hours a day through a computer controlled process. There are no permitted restrictions on the removal of digested liquid sludge from site.

5) Waste material accepted

Trade waste and sludge imports are not accepted into Stanley Downton STW or STC.

Delivery Vehicles

Liquid digested sludge is exported from the site in sealed tankers. Vehicles arriving at site that are in poor condition (leaking seals or dirty) such that they may cause odour issues will be refused re-entry until repairs are made.

6) Permitted Area

The area covered by proposed permit is shown in figure 4.

Figure 4: Permitted Area

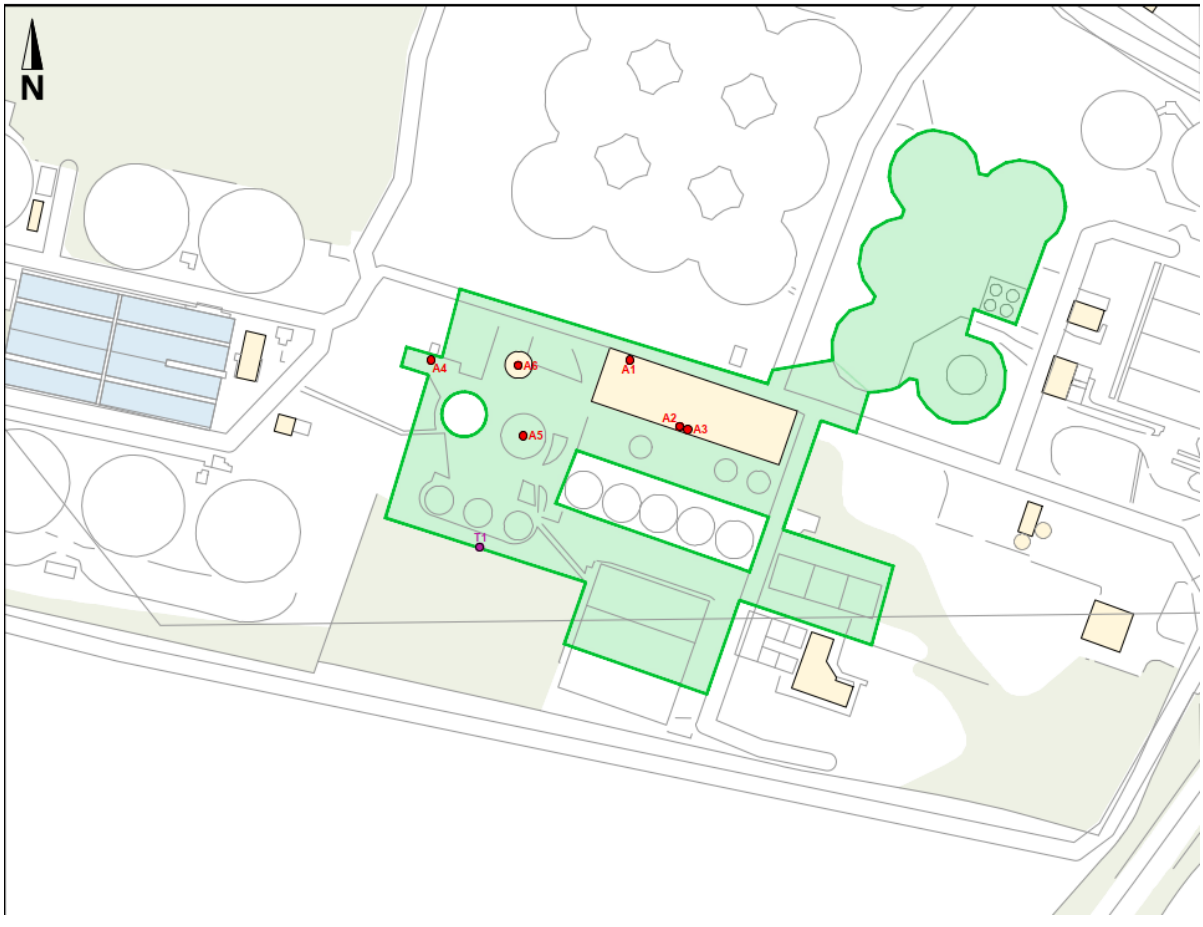


Table 1: Air Emission Points

Emission point	Source	Components	Odour risk
A1	*CHP engine*	*Products from biogas combustion*	*Low - Combustion plant is regularly maintained and appropriately sized to manage volumes of gas*
A2	*Boiler 1*	*Products from oil/ biogas combustion*	*Low - Boiler is regularly serviced.*
A3	*Boiler 2*	*Products from oil/ biogas combustion*	*Low - Boiler is regularly serviced.*
A4	*Emergency Flare*	*Products from biogas combustion*	*Low - the flare is utilised for the safe disposal of surplus gas in the event of plant breakdown, or a surplus of gas above the level that can be safely stored or utilised. Use of emergency flare is recorded.*
A5	*Pressure relief valves on primary digester*	*Biogas (mixture of methane & carbon dioxide)*	*Low - PRVs are only activated in emergency situations to maintain safety within the biogas system and are re-seated/repaired promptly to minimize biogas emissions. PRVs are subject to monitoring via site systems and visual checks by site personnel.*
A6	*Pressure relief valves on gas storage.*	*Biogas (mixture of methane & carbon dioxide)*	*Low - PRVs are only activated in emergency situations to maintain safety within the biogas system and are re-*

			seated/repaired promptly to minimize biogas emissions. PRVs are subject to monitoring via site systems and visual checks by site personnel.

Note there are no OCU's within the permit boundary at Stanley Downton STW.

7) Our Approach to Odour Nuisance

Prevention of nuisance is preferable to mitigation of its effects so we use a phased approach to dealing with the risk of odours.

Sewage and sludge treatment facilities should be designed with nuisance in mind. Where possible the most odorous activities should be located away from sensitive receptors. Long open channels should be avoided and potentially odorous tanks designed so that they can be covered if required.

On existing sites, the following approach is used to minimise the risk of odour nuisance:

1. Where possible operational methods should be used first e.g. improving housekeeping or increased maintenance and servicing of assets. Odorous activities such as moving sludge cake should be avoided on days when the prevailing wind is towards sensitive receptors.
2. The last resort is to contain the nuisance e.g. by covering odour sources. If covers are required, then small odorous areas such as desludging and return liquor wells should be addressed first.
3. Ventilation may be required to prevent the build up a corrosive atmosphere. Odour abatement equipment should be sized to cope with any variations in odour levels.

We assess odour risk using FIDOL (Frequency, Intensity, Duration, Offensiveness, Location) and the source/ pathway receptor model. See Inventory of odorous materials.

Odour risk is assessed if the treatment processes on site are altered, in this case odour control measures are paid for as part of the capital scheme. If the need for odour control is identified under other circumstances, e.g. development close to the site, then the site manager adds the issue to STORM and a capital project is created to install odour control.

Severn Trent Water is also committed to the following principles of H4 guidance:

- The integrity of the site infrastructure (including roads, buildings, ducts, pipes, drainage/sewerage, process equipment and controls) are regularly inspected and maintained.
- A high level of site cleanliness is maintained and is enforced by the site management
- Company will engage with the neighbours to minimise their concerns including responding to their complaints effectively

The Environment Agency will be notified in the event of odorous releases detected outside of the site that are or may be caused by the activities authorised by the environmental

permit. In the event of an olfactory egress, the Environment Agency will be informed using a Schedule 5 Notification Form, located in Schedule 5 of the permit.

Training

The Environmental Policy is communicated to all persons doing work under the organisations control. Policies, Standards and procedures around permit compliance and operational controls are available and accessed through an online system.

Environmental Management Systems (EMS) basic level awareness e-learning is mandatory to all operational staff. EMS e-Learning Nuisance module includes odour pollution and the Site Permit module includes understanding permits. EMS e-learning is recorded as a skill on SAP.

Competency Management Systems (CMS) Technically Competent Persons are trained on requirements of Environmental Permits including nuisances, control measures and Schedule 5 reporting. CMS Technical Competence is recorded as a skill on SAP.

Severn Trent also schedules regular training modules throughout the year. CABWI (Diploma in Water and Wastewater Engineering) can be undertaken by Operators and Managers wishing to upskill across aspects of wastewater and includes reference to odour issues and mitigation within the training.

Training is monitored and managed by line managers in the first instance.

Site visitors are inducted and made aware of relevant issues or reporting requirements.

8) Inventory of Odorous Materials

The following list provides an inventory of wastes which may give rise to increased odour on site and their mitigation measures following assessment using **FIDOL** (Frequency, Intensity, Duration, Offensiveness, Location) assessment and the source/ pathway/ receptor model. The risks in the table are those that occur during normal operation. For clarity, in each case the capacities given below are the total capacity, i.e., the normal volume that a particular tank can hold. In practicethe operational volumes are less due to freeboard and headspace, but the maximum volume is used to represent worst case scenario. For exceptional circumstances see Table 4 - Incident/ emergency control measures.

Table 2: Inventory of Odorous Materials

Location on site	Nature of Odorous Material	Quantities & Retention Time	Odour risk/ mitigation using source/ pathway/ receptor model (Risk assumed during normal operation)
Sewage treatment inlet works	• Raw sewage (not part of this permit) • Liquor returns from onsite thickening processes.	Dry weather flow for the site is 24,300 m^3/d. Minimal retention time - inlet works are designed to process flows not store them.	**Risk before mitigation - Moderate. Risk after Mitigation - Low** **Risks (before mitigation) -** Liquor returns & imports have moderate FIDOL score. Inlet channels are open **Source mitigation** - We do not accept odorous wastes (see acceptance criteria). Return liquors are processed as soon as possible after production. Import pipes are extended to reduce splashing. Raw sewage dilutes the other wastes. **Pathway/receptor mitigation** - Inlet works is located in a sheltered area away from residential properties
SAS belts	• SAS from onsite sewage treatment process. • Polymer is added to aid thickening. • Liquors are produced.	2 x belt thickeners, 1 x SAS buffer tank Total capacity = 80m^3 Minimal retention time - belts process sludge rather than storing it.	**Risk before mitigation - Low. Risk after Mitigation - Low** **Risks (before mitigation) -** raw SAS has a low FIDOL score. polymer is odourless. Belt thickeners are located in a building. SAS buffer tank is covered. **Pathway/receptor mitigation** - n/a odour controlled at source
Raw sludge handling	• Primary and SAS from onsite sewage treatment processes.	3 x batch thickening tanks, 2 x feed tanks Total capacity = 1,360 m^3. Retention time - sludge is held in these tanks to allow sludge to settle and to ensure a homogenous mix to the digester	**Risk before mitigation - High. Risk after Mitigation - Moderate** **Risks (before mitigation)** - raw sludge can have a high FIDOL score **Source mitigation** - Pre-digestion blending tanks are covered. **Pathway/receptor mitigation** - Raw sludge tanks are located in a sheltered area away from residential properties.

Digesters (enclosed tanks with pressure relief valves)	• Primary & SAS from onsite sewage treatment). • Antifoam may be added. • Biogas is produced as part of the digestion process.	1 x primary digester (2,000 m^3 total capacity) Design manual minimum retention time is 12 days. The current HACCP plan requires a minimum of 15 days retention. (Check HACCP plan on Waterpedia for the latest requirements)	**Risk before mitigation - Low. Risk after Mitigation - Low** **Risks (before mitigation) -** digestion takes place in enclosed tanks. Antifoam is not odorous. **Source mitigation -** Digesters are enclosed tanks. Pressure relief valves (PRVs) are a fail-safe mechanism to prevent an unsafe increase in pressure in the digesters and are designed to only activate in an emergency once all other failsafe routes have been utilised. They are inspected weekly by the operational teams and twice yearly by an external contractor. Our upstream processes ensure that sludges are processed in a timely manner and therefore releases from PRVs are unlikely to cause odour nuisance. **Pathway/receptor mitigation** - n/a odour controlled at source
Digested sludge holding tanks	• Digested sludge from onsite digestion process	2 x pathogen kill tanks, 2 x export tanks (3,000 m^3 total capacity) Sludge is held in the tanks as specified in the HACCP plan. The current HACCP requires a minimum of 7 days retention. (check HACCP plan on Waterpedia for the latest requirements).	**Risk before mitigation - Low. Risk after Mitigation - Low** **Risks (before mitigation) -** digested sludge has a low FIDOL score **Source mitigation -** Odour is minimised through process control. We optimise digester operation to ensure that digested sludge has a low FIDOL score. Sludge is only kept in the path kill tanks for the time required by the site HACCP plan. **Pathway/receptor mitigation** - n/a odour controlled at source
Emission stacks on CHP engine	• Combustion of biogas produced onsite	1 x Jenbacher combined heat & power unit (165 kW)	**Risk before mitigation - Low. Risk after Mitigation - Low** **Risks (before mitigation) -** Unburnt gas is released to atmosphere **Source mitigation -** Engines are specifically sized for the sites operation to minimise the amount of excess gas produced. If there are problems with the CHP engines, sludge imports will cease until the CHPs are back online. This minimises gas production on site **Pathway/receptor mitigation** - n/a odour controlled at source
Emergency Flare stack	• Combustion of biogas produced onsite.		**Risk before mitigation - Low. Risk after Mitigation - Low** **Risks (before mitigation) -** Unburnt gas is released to atmosphere **Source mitigation -** At times when the CHP engines are down, the imports have ceased, and the storage within the digester roofs and gas holder is maximised, the excess gas will be flared. **Pathway/receptor mitigation** - n/a odour controlled at source

9) Odour Control Units

There are no odour control units installed at Stanley Downton.

10) Monitoring Plan

Monitoring is essential to our operational control. These are some of the benefits it provides:

- Assessing the nature and extent of a potential risk of odour pollution
- Investigating sources and pathways
- Measuring releases
- Showing patterns that can be used to plan the timing of operations and predict potential risks of odour pollution
- Aiding management and control of the process, including in exceptional circumstance the diversion of waste to a similar facility

Some of the pro-active monitoring methods that we use are as follows:

- All Tanker trade waste is booked into the site to enable the Site Manager and Operatives to understand the daily and weekly expected tonnages and potential gas production.
- Monitoring the process controls of the Anaerobic Digestion and Urban Waste Water process. For example digesters are monitored for %DS, feed rate (both recorded on JRP), temperature, pH, VFA, gas quality and H2S (site manual readings) as part of the “golden measures” programme.
- We have established a time-based media change programme whereby media in our odour control units is replaced every five years in accordance with manufacturers specifications and ME30. We also carry out regular checks to ensure that our odour control equipment continues to be fit for purpose (see Appendix 3 Odour Management Tanks).
- We measure the performance our odour abatement equipment on a regular basis. Tasks are assigned to site operators on the SAP/ Sitemate system (See Appendix 3 Odour Management Tasks).
- We review our OMPs annually. This includes a review of the FIDOL and source/ pathway/ receptor assessment found in Table 2 Inventory of Odorous Materials.
- We have a series of control and reactive measures identified for areas of site that have the potential to be odorous. See Table 4 Incident/ emergency control measures.

If we were to receive odour complaints or suspected that there was a risk of odour nuisance, then reactive monitoring would be implemented:

- Sniff testing (as described in H4) would be carried out by members of staff from the offices/ other areas of the business (who are less sensitised to sewage treatment odours) in order to pinpoint the source of the odour nuisance. This assessment would focus on the works perimeter as well as the sewage and sludge treatment routes. Sniff testing would include the non-permitted area of site in order to ensure that all potential sources of nuisance are accounted for. Forms for recording observations can be found in the Appendix 4 (Forms).
- Results from the sniff testing assessment would be evaluated and if necessary, further investigation would be carried out via gas bag testing, or GCMS if required. A specialist contractor would be hired to undertake this work.

11) Incident/ emergency control measures

Table 3: Incident/ emergency control measures

Cause of elevated odour	Likelihood (pre controls)	Control measures	Reactive Measures/ Actions
Removal of digested sludge from site under normal conditions	Low	• Use competent haulage contractors • Collection in sheeted vehicles. • Minimise agitation of digested sludge during loading.	Consider weather conditions when moving digested sludge.
Damage to tank roof causing release of odorous gases	Medium	• Digesters & gas holders are alarmed to indicate loss of pressure. • Digester roofs are routinely inspected & maintained in line with Gas Holder Regs.	Site manager investigates cause of failure & arranges for maintenance, either by recording the issues on Severn Trent Operational Risk Matrix (STORM) or using the site OPEX budget.
Damage to fabrication of sludge building	Medium	• Regular visual inspections of the sludge building fabrication	Site manager investigates cause of failure & arranges for maintenance, either by recording the issues on Severn Trent Operational Risk Matrix (STORM) or using the site OPEX budget.
Digester or gas storage pressure relief valves (PRVs) activate & biogas is released.	Medium	• Digesters and gas storage are alarmed to indicate pressure • Control digester feeds and volumes to maintain safe biogas level	Site manager investigates the cause of gas release.
Valves, pipes or pumps damaged or malfunctioning	Low	• Regular site checks carried out. • Design includes selection of correct pipework for pressure and flow loads.	Site manager investigates cause of failure & arranges for maintenance, either by recording the issues on Severn Trent Operational Risk Matrix (STORM) or using the site OPEX budget. Site staff ensure that any spills are cleaned promptly.
Sludge processing equipment damaged or malfunctioning	Medium	• Regular checks carried out by site staff	Site manager investigates cause of failure & arranges for maintenance, either by recording the issues on Severn Trent Operational Risk Matrix (STORM) or using the site OPEX budget.
Failure of electricity supply resulting in CHP engine flaring/ failing to ignite	Medium	• Dual electricity supply to site.	
Human error – staff, managers, visitors	Medium	• Staff training and supervision. • Visitor inductions.	Site staff clean any spills promptly. Near misses are reported on Safety Net.

Malfunction or damage caused by unauthorised visitors (Vandalism)	Medium	• Security measures are in place including controlled access gates operated in accordance with our closed gate policy. • Sites have perimeter fences & CCTV.	Report issues on Safety Net
Fire and/or explosion results in sludge spill/ odour release	Medium	• Staff training and supervision. • DSEAR zones identified on map & on site. • Fire extinguishers accessible & checked regularly. • Established contact with local Fire Service who have undertaken a site specific assessment.	Site manager reports issues on Safety Net & investigates causes. Site staff clean any spills promptly and carry out checks on affected equipment.
CHP gas engine emissions	Low	• Scheduled stack emissions testing in accordance with requirements set out in the Environmental Permit. • CHPs serviced by STW trained technicians as per manufactures recommendations & after each 1000hr service the emissions are monitored using calibrated handheld Testo unit. • 3rd party MCerts approved contractor monitors the exhaust emission once per year in line with permit requirements.	If emissions are found to be outside of the expected range then they are investigated and rectified by replacement of parts or bringing forward the service interval.
Poor housekeeping on site	Low	• Regular checks carried out by site staff who complete the Site Standards Records check list (found on Sharepoint) • Spill training is undertaken by Wholesale Ops and spill kits/hoses are readily available	Site staff ensure spills are cleaned up promptly.
Flooding from river/ blocked drains results in sludge spills	Low	• The general site has wider works designed to minimise risk of localised works flooding due to storm surges. • Site wide drainage system linked to main sewage works, which includes additional capacity in storm tanks within the works to manage additional flows	Site staff follow the site incident response plan & inform relevant authorities Clean up any sludge spills as soon as possible to minimise odour nuisance.
Staff absence	Low	• Staff from other sites will cover the work of the absent staff	Ensure site log is up to date so that returning member of staff knows what is going on.

12) Responding to Odour Concerns and Complaints

Severn Trent Water takes any incidents, non-compliances and environmental complaints very seriously and have procedures in place to record and investigate these. Incidents are managed through standard procedures which ensure that all incidents are logged and that necessary preventative and/or corrective actions are taken.

Complaints are managed by Customer Services, where all complaints are logged on the Complaints Records Online Storage System (CROSS). Customer complaints can be received via phone, email, letter or social media. Customer services operatives follow a script to ensure that standard details are recorded. If a complaint is made directly to the site operators, then they contact Customer Services to ensure that the issues are recorded centrally.

Site Managers are responsible for

- investigating complaints using the reactive monitoring measures described in section 10. The results of their investigations can be recorded on the report form in Appendix 2.
- providing a timely response to the complainant detailing the reason behind the issue and the actions taken to resolve the matter.
- liaising with the relevant regulatory bodies (where appropriate)
- ensuring that work is undertaken to resolve the issue. See section 7 Our Response to Odour Nuisance for more details of possible actions.

Information regarding complaints is recorded to allow determination of an appropriate response (corrective action) and to determine what measures need to be taken in the future to prevent its reoccurrence (preventive action). Please see Appendix 3 for a full version of the Complaints Response SOP.

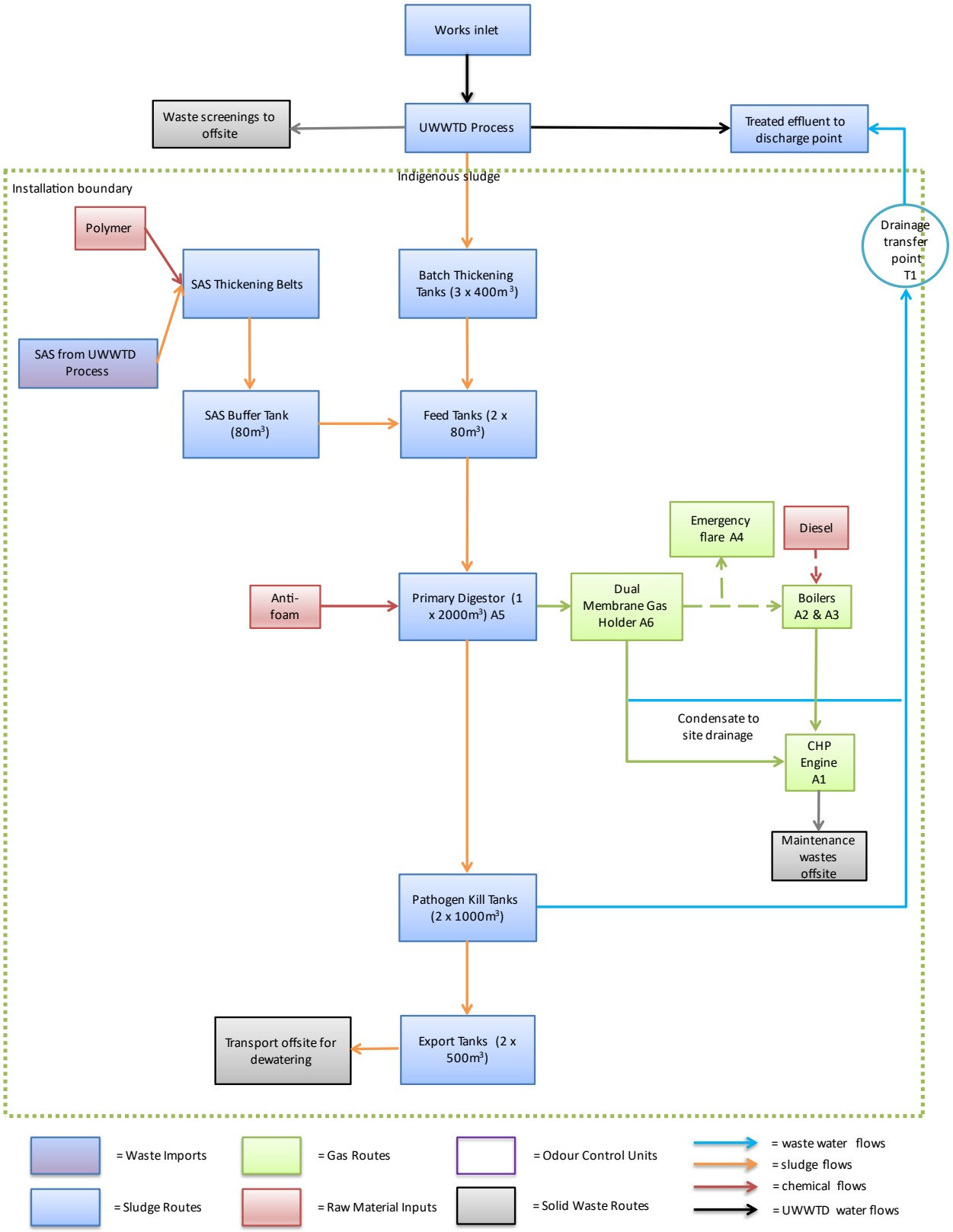
The EMS management review team review the MI (Management Information) data, which will include odour complaints.

Recurring odours may require investigation by our Process Design Engineering teams (PDE). FIDOL assessments (Frequency, Intensity, Duration, Offensiveness and location) are undertaken to assess whether any changes to the process are required.

Where odour issues are prevalent, we would adopt the stance taken at our Wanlip Sewage Treatment Works during 2017/18. Live odour surveys were set up weekly with the local Council. Severn Trent also engaged with local residents and invited customers to site to investigate the locations on site and potential odour olfactory variances.

Engagement with the Environment Agency for process issues, pollutions that could cause odours or validated odour complaints would be through either a Schedule 5/6, or a phone call to the Local Environment Officer.

Appendix 1: Sludge Process Flow Diagram



Appendix 2: Forms

Odour Report Form for Sniff Testing

Odour Report Form for Sniff Testing				Date	
Report completed by					
Time of test					
Location of test (area of site)					
Weather conditions (dry, rain, fog, snow etc.)					
Temperature (warm, mild, cold or degrees if known)					
Wind strength & direction					
Odour Intensity (see below)					
Duration of test					
Constant or intermittent odour in this period?					
Describe the smell					
Is the source evident?					
Other comments					

Odour Intensity:
0 - no odour
1 - very faint odour
2 - faint odour
3 - distinct odour
4 - strong odour
5 - very strong odour
6 - extremely strong odour

Odour Complaint Investigation Report Form

Odour Complaint Investigation Report Form	
Time and date of complaint	
Name & contact details of complainant	

Date of odour	
Time of odour	
Location of odour	
Weather conditions (dry, rain, fog, snow etc.)	
Temperature (warm, mild, cold or degrees if known)	
Wind strength & direction	
Weather conditions (dry, rain, fog, snow etc.)	
Complainant's description of odour: • What does it smell like? • Intensity • Duration (time) • Constant or intermittent? • Other comments?	
Are there any other complaints in relation to the installation/ location (either historically or at the same time)	
Any other relevant information	
Do you accept that the odour is likely to be from your activities?	
What was happening on site at the time the odour occurred?	
Operating conditions at the time the odour occurred	
Actions taken	
Form completed by	

Odour Intensity:
0 - no odour 1 - very faint odour 2 - faint odour
3 - distinct odour 4 - strong odour 5 - very strong odour
6 - extremely strong odour

Appendix 3: Standard Operating Procedure for Complaints Responses

Standard Operating Procedure (SOP)

Title	***Bioresources - Customer Odour Complaints***

Purpose	To ensure that our neighbours do not suffer from odour nuisance from our sludge treatment centres and to ensure compliance with our environmental permits.
Who	The Bioresources Team Manager has responsibility for implementing this procedure. The procedure must be followed by Technical Operators and Senior Technicians responsible for the day-to-day operation of sludge treatment centres.

Must Have (H&S, Quality, Quantity, Environment, Training, Resources)

- Standard PPE when carrying out site odour assessments
- Up to date odour management plan for the site
- Access to CROSS complaints database
- Weather station should be installed at sludge treatment centres

Remember – 'Stop, Think, Take 20'

Summary Must Do

1. Ensure that each sludge treatment centre has an up to date Odour Management Plan.
2. Aim to prevent odour nuisance by ensuring good housekeeping and process control.
3. If complaints are received, ensure that the customer is kept informed of the actions that are taken to address their issue.

SOP - Proactive Measures

1. Ensure that the site has an odour management plan (OMP) in place and that this is available to all site staff. The OMP includes an odour risk assessment in the "Inventory of Odorous Materials" table. The OMP should be reviewed annually or more often if any of the following occur:
    - Validated odour complaints
    - Changes to the sewage or sludge treatment process
    - Significant development in the local area
2. We aim to proactively prevent odour nuisance by ensuring good housekeeping and process control. Ensure that Golden Measures are recorded and any issues acted on. Ensure that good housekeeping practices are used - sludge spills should be cleared up as soon as possible.
3. Where odour control units are installed, ensure that regular checks are carried out and the results of these checks are recorded. Details of the required checks are included in the OMP.

4. The steps in the incident/ emergency control table in the OMP can be used to develop a response to any issues that are picked up as part of the regular monitoring.
5. Be aware of weather conditions such as wind direction when carrying out potentially odorous operations such as moving cake.

SOP - Reactive Measures

Complaint received via COSC or direct customer contact

1. Customer complaints can be received via phone, email, letter or social media.
2. If a complaint is received directly by the site, then COSC should be contacted so that the complaint can be recorded centrally.
3. If a complaint is received via COSC, then site staff should contact the customer directly within 24 hours.
4. Customer details should be recorded on the odour complaint investigation report form (found in the appendix of the OMP).
5. Keep the customer informed at all steps of the odour investigation.

Carry out odour investigation

6. Use the odour complaint investigation report form. Record the following information:
   - Time & date of odour complaint
   - Weather conditions at time of complaint
   - Operating conditions at the time of the complaint.
7. Walk the sewage and sludge treatment route and carry out a sniff testing assessment. If possible, use office based staff to carry out this assessment (they will not be accustomed to the odours on site). Record details of the assessment on the odour report form for sniff testing (in the appendix of the OMP).
8. If necessary, engage a specialist contractor to carry out further testing using olfactometry.
9. If a persistent odour issue is identified, then further engagement with local residents may be required. The process used at Wanlip STW in 2017/18 could form a basis for actions taken. Live odour surveys were set up weekly with the local Council. Severn Trent also engaged with local residents and invited customers to site to investigate the locations on site and potential odour olfactory variances.
10. Inform the EA via a schedule 5 where necessary.
11. Store investigation reports electronically.

Develop a Solution

12. The steps in the incident/ emergency control table in the OMP can be used to develop a response to any issues that are picked up as part of the odour investigation.
13. Where possible operational methods should be used to control odours e.g. improving housekeeping or increased maintenance and servicing of assets.
14. The last resort is to contain the nuisance e.g. covering odour sources. Ventilation may be required to prevent the build up of a corrosive atmosphere under the covers.
15. Update the OMP to reflect the findings of the investigation.
16. Continue to monitor the odours to ensure that the solution is successful.