Odour Management Plan - Pyewipe STC

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Odour Management Plan

1. Odour Management

1.1 Pyewipe WRC

The site is located on Moody Lane, Grimsby, DN31 2SY, its location is shown in Figure 1 of Appendix A.
National Grid Reference: NGR TA 26055 11106

1.2 Guidance for preparation of Odour Management Plans

Table 8 of the IAQM Guidance on Odours and Planning provides recommended content for the preparation of an OMP, it suggests the main areas to be covered are:

- essential site details,
- routine controls under normal conditions,
- abnormal conditions and additional controls,
- triggers for additional controls, and
- management good practice.

The relevant table from the IAQM guidance is reproduced in Appendix B, which also provides details on the expected content for each section. This structure and content have been followed to produce the details of the OMP.

The OMP has been produced in accordance with the Environment Agency's H4 Odour management guidance.

The Appendices to this OMP are as follows:
Appendix A:
Figure 1 Site location plan (Source Google Earth)
Figure 2 Main process areas at Pyewipe STC
Figure 3 Windrose for Pyewipe STC
Figure 4 Maintenance requirements for odour control units including daily/weekly/monthly/annual checks and servicing (links to logbooks and check sheets to be included)
Table 1 provides details of the complete list of individual processes at Pyewipe STC, the location of each process can be seen in Figures 6-9 using the reference numbers in the table.
Appendix B – for information:
Table from IAQM Guidance

Back to top

2. Site

2.1 Essential Site Details

The site is an operational wastewater treatment works which can be split into 9 distinct areas:

- Inlet
- MBBR Treatment
- Primary Settlement
- Secondary settlement
- Final Settlement
- Sludge Treatment Dewatering
- HPH Plant
- Digestion Complex (sludge treatment Centre)
- Cake Storage

These main processes areas are shown in Figure 2 of Appendix A. It is important to recognise that the areas of the site likely to produce the highest amounts of odour are those associated with treating fresh sewage (i.e. the inlet works) or where sludge might be handled. In the most recent odour survey, the proportion of odour emitted from the 9 general areas is shown in Table 1 here:

Table 1 Contribution of main source categories to odour emissions

Plant, equipment or activity	Potential source of odour	Odour controls in place	Potential for odour emissions during normal conditions
Primary Settlement Tanks (PSTs)	Liquid sludge	PST covered, process monitoredand regularly maintained	Low
Sludge thickeners	Sewage sludge	Sludge thickeners are enclosed and air extracted to OCU. Building doors	Low
		are kept closed, except when accessis required. Sludge is mixed and regular throughout is maintained	
Aeration lanes	Wastewater	Not enclosed	Medium
Final Settlement Tanks	Wastewater	Settlement tanks covered, process monitored and regularly maintained – uncontrolled release of bioaerosols unlikely.	Low
Anaerobic digesters pressure release valve	Biogas	Planned preventative maintenance undertaken on equipment	Low
Digested sludge storage tank	Liquid sludge	Storage tank is uncovered; however,it is not downwind of prevailing wind direction	Medium
Centrifuge	Sludge cake	Centrifuges are enclosed and odour controlled and planned preventative maintenance undertaken on equipment	Low
Odour control plant	Untreated air	Planned preventative maintenance undertaken on equipment	Low
Sludge cake reception and blending building	Sludge cake	Sludge cake is offloaded from a tipper lorry onto a conveyor in an enclosed building. Covers only removed when inside building. Process is completed as rapidly as possible. Air is extracted to an OCU	Low
Gas holder	Biogas	This is a sealed system	Very low
Combined Heat and Power (CHP) unit	Biogas	Planned preventative maintenance undertaken on equipment. If CHP unit is down, gas is burnt in flare	Low
Boilers	Biogas	Planned preventative maintenance undertaken on equipment	Low
Flare	Biogas	Planned preventative maintenance undertaken on equipment	Low
Sludge reception	Liquor	Sludge pumped from tanker directly into covered buffer tank which is odour controlled. The reception areais enclosed	Low
Cake export	Sludge cake	Lorries/trailers are covered before leaving or sealed skips are used. Covers only removed when inside building.	Low
Wastewater treatment settlement tanks	Wastewater	Not enclosed	Medium

The frequency of wind direction and the distance to the nearest properties are key factors in determining likely odour impacts.

2.2 Odour Modelling

Odour modelling has been commissioned for this site as part of the IED permit application – refer to this for more information (Pyewipe Odour Modelling Report). Wind rose and information generated for the bio-aerosol risk assessment have been used to determine the direction of any potential odours released from the site (Pyewipe Bioaerosol Risk Assessment).

The model was run using the meteorological 2018 to 2020 years to test the variability of the odour concentration results among the different years.

The 98th percentile of hourly mean odour concentrations has been calculated. Contour lines for odour concentrations of 1.5, 3, 5, and 10 OU_E/m^3 have been included for all the scenarios. The significance of these odour concentrations is explained below:

- 1 OU_E/m^3 is the level of odour detection under laboratory conditions.
- 3 OU_E/m^3 is the level of odour detection in open environment. Complaints are unlikely to occur and exposure below this level are unlikely to constitute significant pollution.
- 5 OU_E/m^3 is when odour becomes detectable & recognisable. Complaints may occur and depending on the sensitivity of the locality and nature of the odour.
- 10 OU_E/m^3 is when odour becomes distinct and intrusive. Complaints are highly likely and odour exposure at these levels represents an **actionable nuisance.**

An odour concentration of 1.5 Odour Units Per Cubic Metre (OU/m_3) has been taken as the benchmark level at which nuisance and potential loss of amenity would be anticipated. This assessment criterion for the protection of public nuisance/amenity is in line the Environment Agency (EA) H4 Planning Guidance, including septic effluent and sludge in amongst a range of substances categorised as most offensive and for which a low detection threshold should be taken into consideration.

Sensitive receptors

Receptors sensitive to odour include users of the adjacent land, which may vary in their sensitivity to odour. The level of sensitivity will be defined using the Institute of Air QualityManagement guidance[2]

- High sensitivity receptors e.g. residential dwellings, hospitals, schools/education andtourist/cultural.
  - users can reasonably expect enjoyment of a high level of amenity; and
  - people would reasonably be expected to be present here continuously, or at leastregularly for extended periods, as part of the normal pattern of use of the land.
- Medium sensitivity receptor e.g. places of work, commercial/retail premises andplaying/recreation fields.
  - users would expect to enjoy a reasonable level of amenity, but wouldn't reasonablyexpect to enjoy the same level of amenity as in their home; or

- people wouldn't reasonably be expected to be present here continuously or regularly forextended periods as part of the normal pattern of use of the land.

- Low sensitivity receptor e.g. industrial use, farms, footpaths and roads.
  - the enjoyment of amenity would not reasonably be expected; or
  - there is transient exposure, where the people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.

The magnitude of risk relates to:

- Frequency: How often an individual is exposed to odour
- Intensity: The individual's perception of the strength of the odour
- Duration: The overall duration that individuals are exposed to an odour over time
- Odour unpleasantness: Odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odourconcentration/ intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard nine-point scale it is termed the hedonic score.
- Location/Receptor sensitivity: The type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor. The 'Location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors.

There are a number of receptors in relative close proximity to the site. The sensitive receptors are identified in the Bioaerosol Risk Assessment (Pyewipe Bioaerosol Risk Assessment)

Receptor	Nearest potential emission source to receptor	Process	Distance (m) from nearest potential emission source [a]	Direction of receptor from closest emission source
Sensitive receptors near the Site (places of work, amenity areas)	PSTs	Water Recycling Centre	113m	SW
	Aeration lanes	Water Recycling Centre	158m	SW
	FSTs	Water Recycling Centre	193m	SW
	Anaerobic digesters	Sludge Treatment Centre	175m	SW
	Pasteurisation Tank	Sludge Treatment Centre	234m	SW
	Centrifuge building	Sludge Treatment Centre	235m	SW
	Hydrolysis Tank	Sludge Treatment Centre	240m	SW
	HPH Heating Tank	Sludge Treatment Centre	225m	SW
	Cake storage	Sludge Treatment Centre	225m	SW
	Boilers	Biogas combustion	230m	SW
	CHPs	Biogas combustion	205m	SW
	Flare	Biogas combustion	262m	SW
Residential properties near the Site (residential)	PSTs	Water Recycling Centre	792m	S

	Aeration lanes	Water Recycling Centre	856m	S
	FSTs	Water Recycling Centre	905m	S
	Anaerobic digesters	Sludge Treatment Centre	769m	S
	Pasteurisation Tank	Sludge Treatment Centre	777m	S
	Centrifuge building	Sludge Treatment Centre	896m	S
	Hydrolysis Tank	Sludge Treatment Centre	812m	S
	HPH Heating Tank	Sludge Treatment Centre	790m	S
	Cake storage	Sludge Treatment Centre	905m	S
	Boilers	Biogas combustion	890m	S
	CHPs	Biogas combustion	885m	S
	Flare	Biogas combustion	936m	S
	PSTs	Water Recycling Centre	650m	S
	Aeration lanes	Water Recycling Centre	683m	S
	FSTs	Water Recycling Centre	703m	S
	Anaerobic digesters	Sludge Treatment Centre	518m	S
	Pasteurisation Tank	Sludge Treatment Centre	522m	S
Amenity area near the Site	Centrifuge building	Sludge Treatment Centre	**686m**	S
	Hydrolysis Tank	Sludge Treatment Centre	530m	S
	HPH Heating Tank	Sludge Treatment Centre	521m	S
	Cake storage	Sludge Treatment Centre	694m	S
	Boilers	Biogas combustion	659m	S
	CHPs	Biogas combustion	665m	S
	Flare	Biogas combustion	**730m**	S

Note:

(a) Distance from source to receptor is rounded to the nearest 5m
(b) Covered sludge storage tank includes SAS and RAS storage tanks, pasteuriser feed tank and digester buffer tanks
(c) Uncovered sludge storage tanks are post digestion buffer tanks which store sludge prior to dewatering.
These are no longer used.
Value in bold represents the nearest potential emission source for each process which is closest to a sensitive receptor

2.3 Routine Controls

Back to top

2.2.1 General Controls

All equipment on-site is serviced regularly to ensure correct operation of the works. There are staff onsite who inspect the site every day and who would identify if any malfunction had occurred. In addition to this a standby shift operates to ensure availability of resource as required.

General housekeeping measures are in place across the whole site to keep surfaces clean and clear of odorous materials to reduce odour risk.

Before any major planned works on the site that may result in unusually elevated odour emissions, our impact plan procedures must be followed.

2.2.2 Inlet Works

Pyewipe does not have any storm tanks but there are two storm overflows at the TPS terminal pump station. Short sea outfall is used in storm conditions if there is torrential rainfall. The long sea outfall is also used when the flow coming into the works exceeds 934 l/s.

Crude sewage is pumped from various pump stations in Grimsby catchment area into 3 main sewers, which then gravitates to Pyewipe Terminal Pump Station. The crude sewage from these sewers meet at manhole D onsite and proceed through 20mm Coarse Screens into the Foul Station Wet Well which is then pumped up to the inlet works. Waste and Septic tankers also discharge into Manhole D at the inlet headwork's there are 3 bell mouth's 1 from Pyewipe Foul Well and 2 from Riby Street Terminal Pump Station which has catchment sewers from another part of Grimsby and is screened through 30mm Coarse screens before it arrives at the headworks. Once at the headwork's all the crude sewage is screened through 6mm Fine Drum screens.

Also at the TPS there are 2 Detritors, these slow the flow of sewage down to settle out the heavy particles like grit and sand which is removed from the tanks into a Grit Skip before disposal to landfill. The crude sewage exits the tanks over a weir plate and gravitates to Pyewipe STC.

2.2.3 Primary Treatment

Preliminary treated sewage is distributed to 2 MBBR (moving bed biological reactors) tanks and 50% of flow is sent down the bypass to the 4 IST tanks, all return liquors go back to MBBR tanks. There are four MBBR tanks onsite but only two are used at any time.
Intermediate settled sludge tank (IST's) there are 4 onsite removal of suspended solids is by gravitation all solids fall to the bottom of the tanks where a hydraulically controlled scraper forces sludge into three hoppers. The tanks are then de-sludged via mono pumps into the import storage tanks this is a potential but intermittent source of odour

2.2.4 Secondary Treatment

The liquors from the IST then flow by gravity to the activated sludge plant. This part of the plant comprises of 2 aeration tanks that biologically oxidises the pollutants remaining in the flow from the intermediate settlement tanks. Adjacent blowers feed air into the pipe work submerged in the tank that is equipped with diffusers. These provide constant pattern of aeration and movement of the activated sludge. The high transfer of oxygen in the aeration tank may potentially give rise to odours due to stripping of any residual septicity.

2.2.5 Final Settlement

Mixed liquor from the aeration tanks is settled by gravity in 6 rectangular clarifiers known as final settlement tanks these separate the sludge from the clarified liquor which forms the final discharge to the River Humber. There is little potential for odours from this source.
Activated sludge settled in the clarifiers is returned to the aeration tanks to treat more sewage . This is known as Returned Activated Sludge (RAS). RAS flows from the base of the final tanks (FST) via Bellmouth's. There are three bell mouth's per FST and the RAS flows out the bellmouth's into a common channel were the RAS is pumped by 6 RAS pumps back into the AST contact tank which is anoxic (zero oxygen) this promotes nitrification this mixes with the flow of crude sewage from the primary tanks.

Surplus Activated Sludge (SAS) is produced due to the excess growth of the micro-organisms in the aeration tanks. It is pumped to the sludge treatment centre from the SAS pumping station for thickening and treatment.

2.2.6 Sludge treatment

Pyewipe STC is also a designated sludge treatment centre and imported sludge from other sewage treatment works is discharged on site in the reception facility. Sludge cake is also imported from various sites to the cake reception

centre. Imported sludge is transported by tanker and is discharged into the imported sludge tank and is pumped through 6mm strain presses (screens) to remove any rag, plastics or grit and into a sludge holding tank before being thickened by the GBT's and then pumps into the blend tanks for mixing. Intermittent odours due to sludge discharges from tankers and also odour from sludge storage can be experienced.
SAS from the FST's is pumped to the SAS tank for storage before it is pumped to the drum thickeners were the SAS is thickened to between 4-6% DS using liquid polymer and then it is pumped to the blend tanks for mixing along with all the other sludge.

Sludge from the IS tanks is pumped into import tank and is put through and thickens in GBT's and is then pumped to the blend tanks.

Cake is imported to cake reception centre and is re-wetted to 8% dry solids and is stored in the cake silo before being pumped to the blend tank. The blend tanks consist of various sludge's from onsite primary, thickened SAS and imported sludge and cake. They are all mixed together in 1 blend tank before the sludge is fed to the HPH plant

2.2.7 HPH Plant

Sludge is pumped from the blend tank to a heating tank where the sludge is heated to 50oc, it is then fed to pasteurisation tanks where is held for 5 hours before being pumped to hydrolysis tank. Gas is collected from HPH process and stored in the gas bell, from here the gas is used in the CHP units

2.2.8 Digesters

There are 3 digesters capacity 8283m3 which have to be fed by batch process and have a minimum 12 day retention time. Each Digester is fed 220m3 approx. a day, 5m3 every 30 minutes. The Digesters have to be heated to 38 deg C + or – 3deg C. As the sludge is fed to the digester from hydrolysis tank an equivalent amount of sludge weirs out the tank and into the degas tank. Each Digester produces Methane Gas which is captured in a Gas Bell and reused in the onsite CHP units and boilers.
The Degas tank capacity 728m3 is filled and is then pumped to a centrifuge where the sludge is turned into a cake of about 25% DS. The centrate produced from the centrifugation of the sludge is a potential source of odours. The centrate goes to the return liquor PS before being pumped back up to the headworks and straight into MBBR.

2.2.9 Cake Storage

Cake produced via centrifuge is stored in a bunded are and is removed daily by cake bulk trailers.

2.4 Reasonably Foreseeable Abnormal Conditions

Back to top

The following have been identified as conditions that could give rise to increased levels of odour and the proposed mitigation is detailed:

Potential abnormal condition	Mitigation
Unable to process sludge through the strain presses or centrifuge due to a breakdown on sludge de-watering equipment.	There are 3 strainpresses that remove the rag from the sludge, sludge is fed from them import tank which is a mixture of are our site sludge from the IST's and imports from rural sites. From the strainpresses sludge is pumped from 2 GBT holding tanks and fed through the GBT thickeners. There is a standby strainpress and a duty standby GBT, there is service contract in place for both strainpresses and GBT's
Cake Silo Failure	Storage area at Newton Marsh can be used raw cake
Treated Storage Cake Pump Failure	Pumps is on routine maintenance plan, duty standby
Unusually septic sewage arriving at WRC	Same Bedford

IST desludge failure	Remove IST from service and drain tank if scrapper fails and raise high priority job for maintenance to repair. 3 IST desludge pumps per tank, if pump fail raise a high priority job for maint to repair.
OCU break down	Unlikely due to regular inspection Duty Standby Fans
Post Digestion tank	High full centrifuges are duty standby and there is a temporary point to install temp centrifuge if fails
Cake Pad Full	Daily phots sent to WROL with percentage cake stock, escalated for WROL to move more cake when full

2.5 Triggers for Additional Controls

Investigation of the need for additional controls will be triggered if any of the following occurs:

- More than three validated complaints from different locations being received over a one week period.
- Routine odor monitoring with the Jerome monitor carried out by staff indicates levels of odour are present at sensitive receptors are likely to result in complaint.
- Period where the average ambient temperature exceeds 27C for more than five days.
- Equipment breakdown on the site that leads to treatment process becoming more odorous.

2.5 Routine Monitoring

To manage the day-to-day fluctuations in odour and operations the site has dedicated work technicians who assess for odours daily. This is carried out as part of their routine activities and any highlighted issues will be escalated and mitigated where possible.

The site has access to, and uses the following methods to assess the odours detected on site:

- Operational staff detecting differences in odours compared with normal operation
- Jerome odour meter
- Routine odour surveillance using Jerome monitor completed by site staff and readings logged for reference (minimum x2 per week).

On site there is a Sky Link Pro weather station (http://www.skylink-pro.com/index.php), which provides live weather data and historic records. This information will be used to help identify likely sources of odours when complaints are received.

The location of any odour detected, and the wind speed and direction recorded at the time can be used to assist in identifying the general area of the WRC which may be the source of the odours (or show that there is another source in the area).

It is acknowledged that at times it is difficult for operational staff to detect odour changes, however where this occurs, or where the routine investigation highlights an issue, or a complaint is received, the site personnel will investigate and if the issue is on-going, the Senior Modeller would be contacted to potentially carry out further odour surveys.

2.6 Odour Complaints

There are three routes through which complaints may be received:

- Customer call into the AWS Operational Management Centre (OMC) on 08457 145145 (24hr emergency contact).
- Customers report odour complaints electronically; via a mailbox (CustomerReports@anglianwater.co.uk), via the Anglian water website or via social media.
- In person on site

Complaints received through any of these routes will be handled in the same manner using the following procedures.

2.6.1. Action taken to resolve complaint

The complaint will be initially logged in the AWS SAP database, this system holds records of all customer jobs/complaints received by the company and allows a history of actions taken. The treatment manager will be contacted and will investigate the issue and report back to customer care team or direct to the customer.
Complaints are regularly monitored by the Treatment Manager and compared to actions being undertaken on the site or in the local network.
Should continuing odour complaints be received then this is a trigger for consideration of further odour controls.
The results will be noted in the site odour logbook, the complainant will be informed of the outcome of the investigation and any steps required to mitigate the odours.

2.7 Management Responsibilities

Back to top

Responsibility for the implementation and updating of this OMP lies with the Treatment Manager.
This OMP will be reviewed annually and whenever there are major changes in the process. Where new information regarding odours becomes available (for instance though new odour surveys and modelling) the OMP will be reviewed and updated to reflect this information.
Any significant changes, including process changes, plan changes or increase in complaints or odours detected will result in this plan being reviewed.
This plan will be stored on SharePoint.

2.7.1 Business management systems

There are various documents and processes within the business management systems for AWS that address odour and the management of complaints. The list below details some of the key processes and how they can be found on Lighthouse:

- POSWASTE – Odour Control holds all the standard documents relating to managing odour.
- Where further investigation is required the Odour Modeller and Process Science team will support with root cause analysis and next steps.
- The current odour model can be obtained from the modelling team, contact Omid Shafibeik.

2.8 Community Engagement

We will communicate planned activities with the potential to cause odours and any other identified issues on-site, to the following:

Organisation	Contact name	Email
Environmental Health		
Environment Agency	General Enquires	enquiries@environment-agency.gov.uk
Anglian Water Customer Service	Customer Issues	CustService@anglianwater.co.uk

2.9 Training of Staff

All staff who have responsibilities under this plan will receive training from the Treatment Manager and an odour eLearning module will be completed by relevant staff when available. This will be updated annually or whenever there are significant changes to the OMP.

2.10 Keeping of Records

A logbook will be maintained which will contain the OMP and the maintenance schedule for the equipment. Records of the cleaning of the extract system will be maintained in the logbook.
The logbook will record:

- Results of the regular Jerome tests.

- Details of any odour complaints received and the outcome of any odour testing.

The site odour logbook will be available for inspection by the local authority environmental health officer.

Appendices

Back to top

Appendix A:

Figure 4 Site location plan:

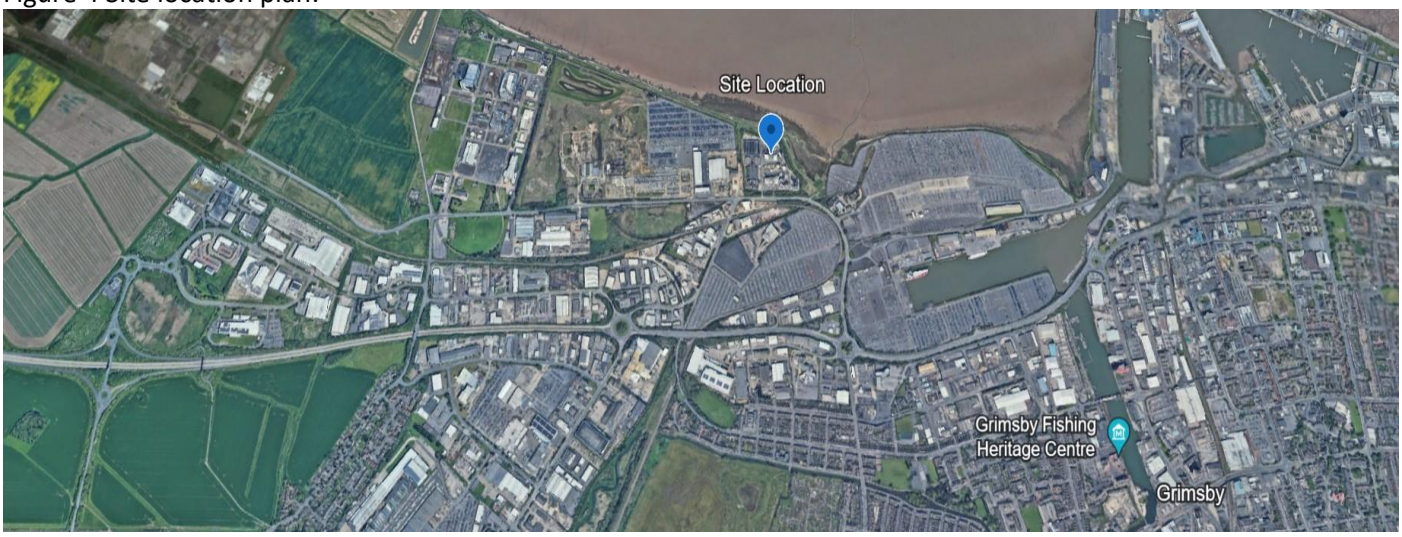

Figure 5 Main process areas at STC:

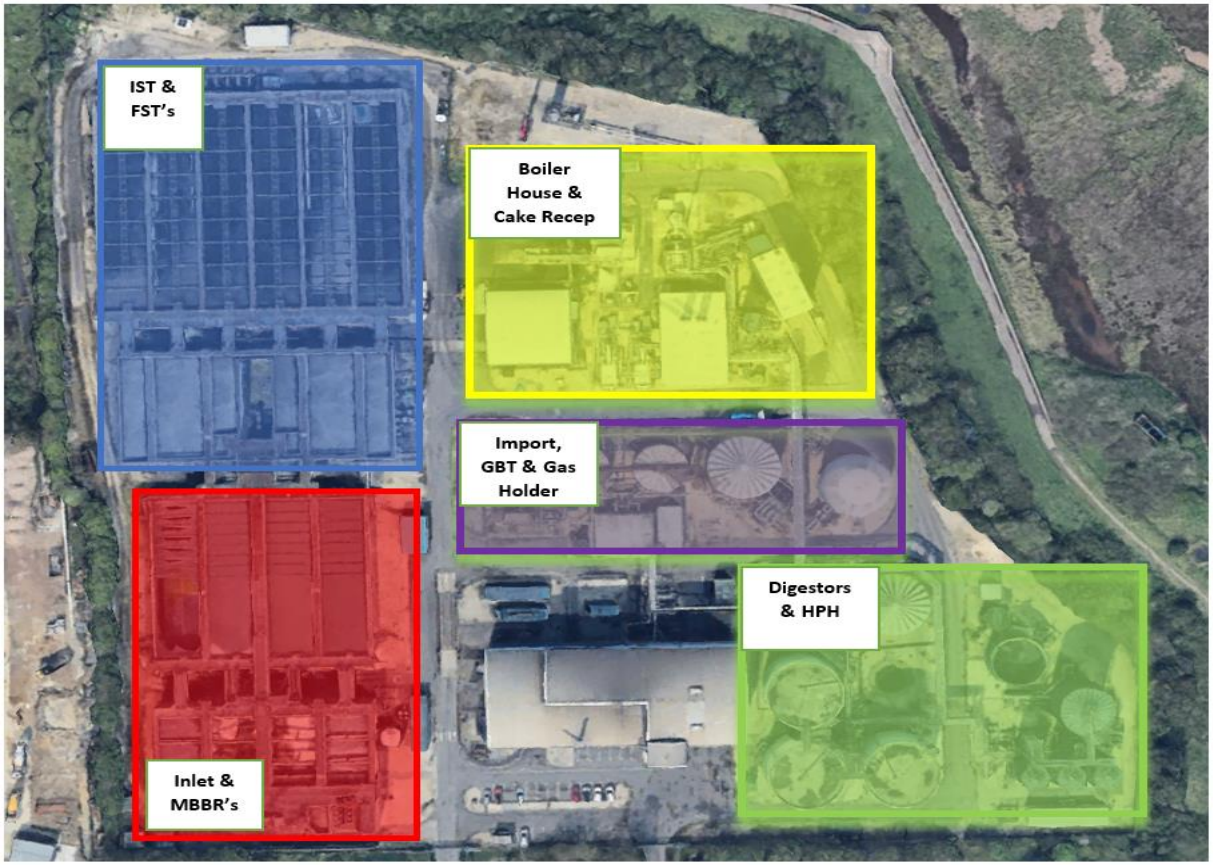

Figure 6 Windrose for Pyewipe STC:

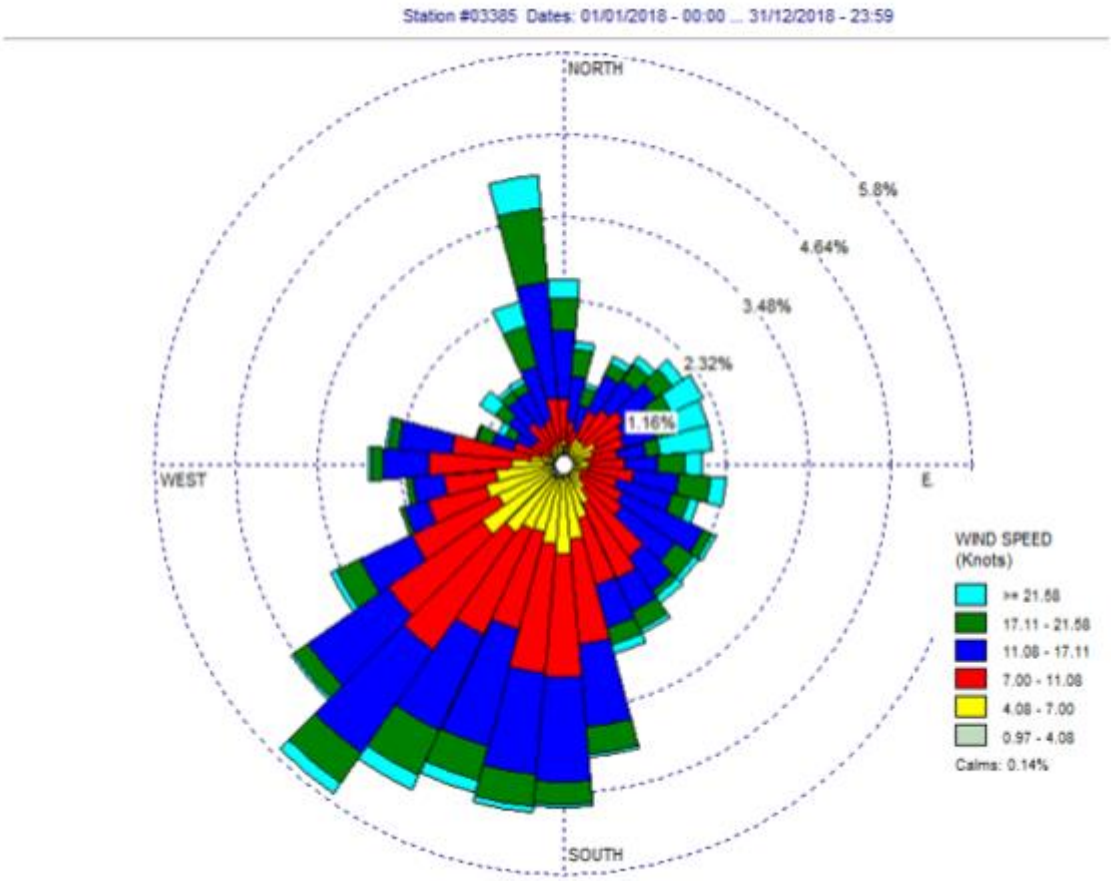

Figure 4 Maintenance requirements for odour control units including daily/weekly/monthly/annual checks and servicing (links to log books and check sheets to be included) **cant input link as not live yet**

Parameters and monitoring requirements in relation to the odour control systemto be undertaken at the site

Emission Point Type	Parameter	Monitoring Frequency	Monitoring standard or method
Channelled emission to air (biofilter and scrubbing system	Ammonia	Once every 6 months or more frequent if stated in the permit.	Emissions of pollutants into the environment through any kind of duct pipe stack etc. As per design and manufacturer's specifications EN ISO 21877
	H_2S		CEN TS 13649 for sampling NIOSH 6013 for analysis
	Odour concentration		BS EN 13725
	Efficiency checks	Annual	Annual report detailing the

			removal efficiency of all abatement systems and planned maintenance including media health air flow distribution and emissions removal efficiency BS EN 13275
	Media moisture and gas flow temperature	Weekly	Recorded using a moisture meter and temp probe
	Gas stream flow	Continuous	As per design and manufacturer's specifications
	Surface condition	Weekly	Visual assessment
	Thatching and compaction	Weekly	Back pressure

Table 1 - Details of individual sources – Pyewipe STC:

Number	Rectangular Odour Sources
R1	Channel to screens
R2	Screen
R3	Screenings skip
R4	Inlet works pumping well
R5	Inlet pumps outlet chamber
R6	Inlet pumps
R7	MBBR tanks
R8	MBBR tanks
R9	MBBR bypass channel
R10	Sludge return liquors discharge point
R11	IST distribution channels
R12	IST inlet channels
R13	IST bypass channels
R14	Intermediate sludge tanks
R15	AST tanks
R16	RAS pumps
R17	SAS pumps
R18	RAS chamber
R19	FST tanks
R20	FST pumps
R21	FE chamber
R22	SAS chambers
C1	Return liquors pumping station
C2	Digestors
C3	HPH tanks
C4	Hydraulic tanks
C5	Post digestion
C6	Blend tanks
C7	Disused blend tank
C8	Import/IST sludge
C9	GBT holding tanks
C10	SAS tanks
C11	Strainpresses
C12	Gas Holder
C13	FE tank
C14	GBT's
C15	SAS centrifuges
C16	Cake reception
C17	Boiler house
C18	AST blower house
C19	Treated cake bay
C20	Cake silo
C21	Treated sludge centrifuges

Figure 6 Inlet, MBBR & IST Area:

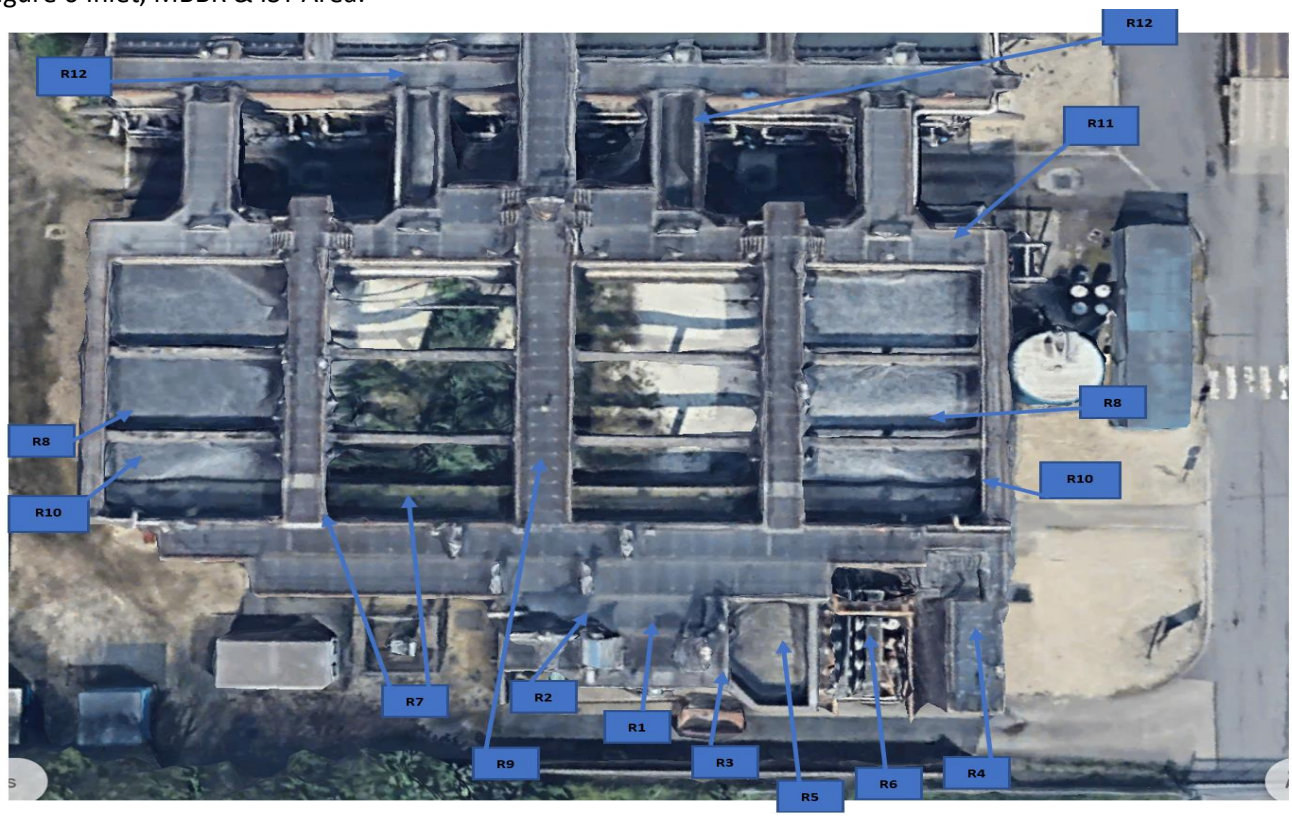

Figure 7 IST & Intermediate area

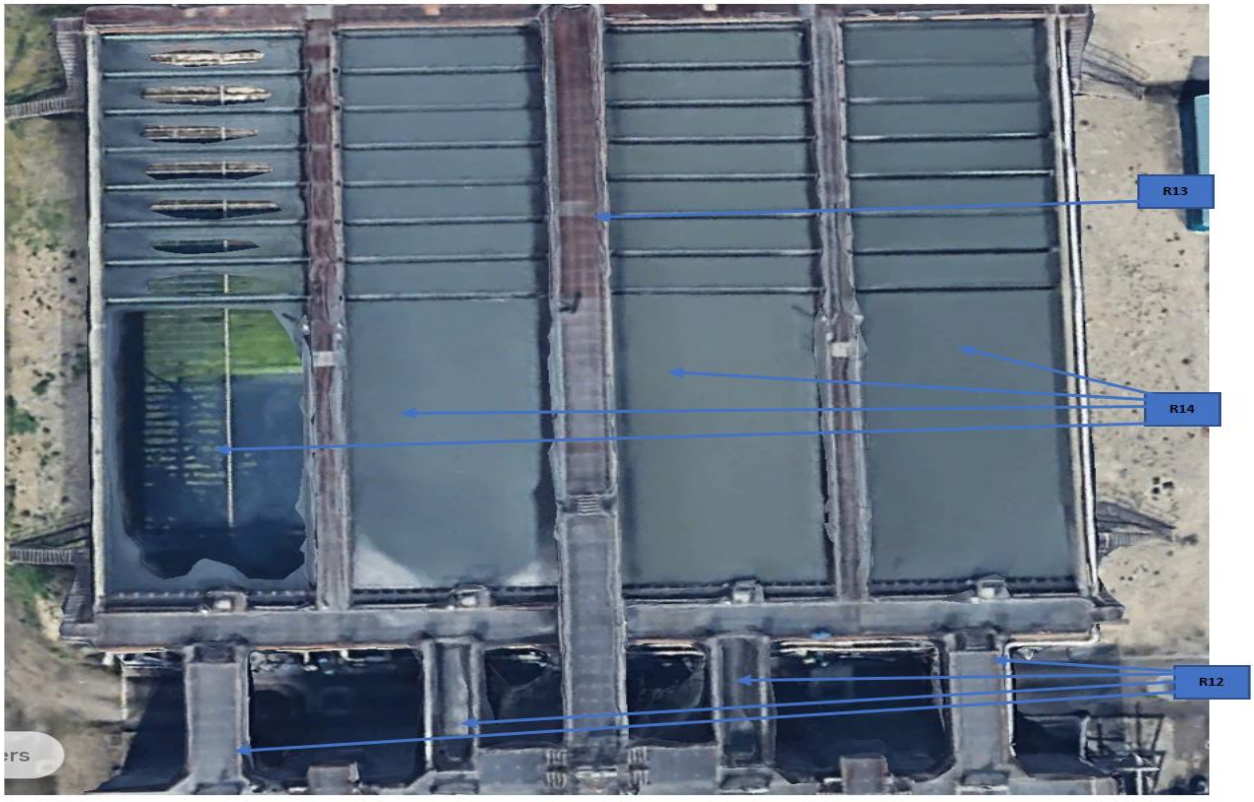

Figure 8 AST & FST's area

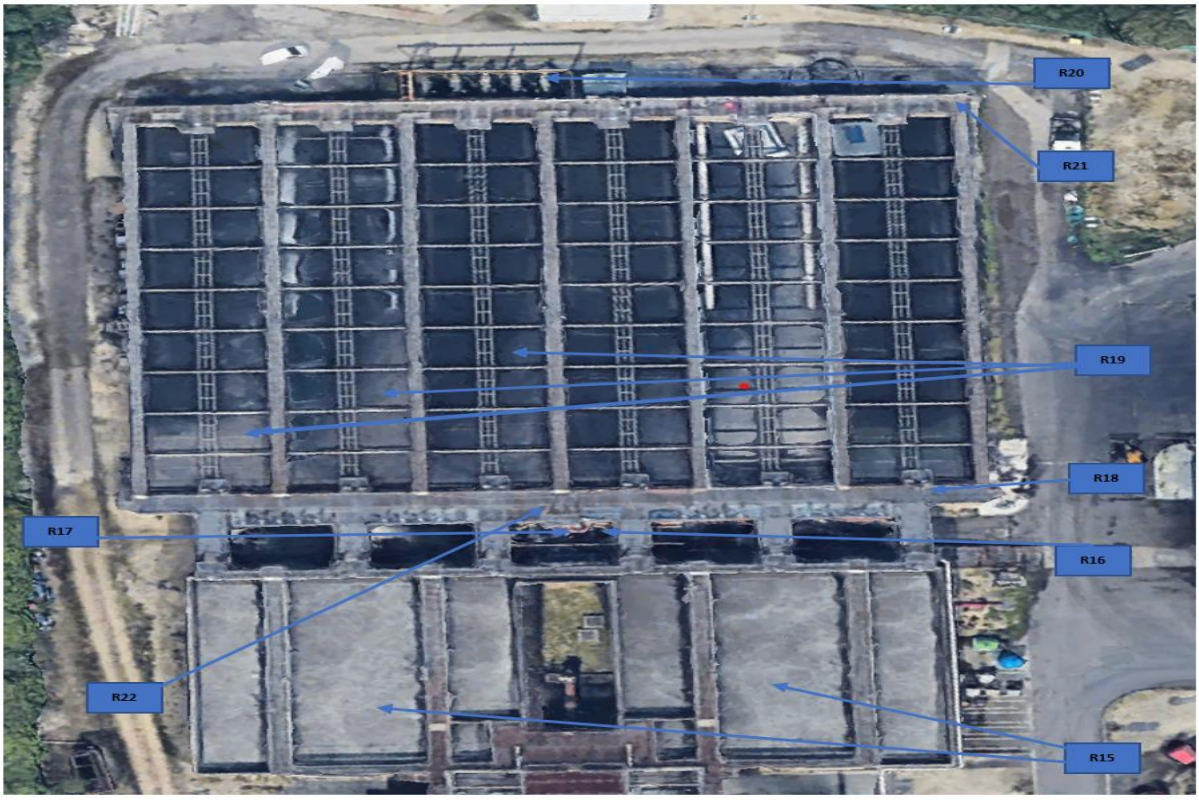

Figure 9 Digestor & HPH Area

Figure 10 Boiler House & Cake Reception Area:

Appendix B: Extract from IAQM Guidance

IAQM ▶ GUIDANCE
Odour

Table 8: Recommended content of an OMP for planning purposes

ESSENTIAL SITE DETAILS
A process description, particularly describing odorous, or potentially odorous, activities or materials used (inventory)
Identification of all the release points for each of the activities (plan/map)
Identification of the sensitive receptors within the area of influence that could be impacted (plan/map)
A description of the meteorological conditions prevailing at the site, especially wind direction. A wind rose (from a nearby representative meteorological station or from site sensors if installed) is an ideal format.
ROUTINE CONTROLS UNDER NORMAL CONDITIONS
A description of the *routine* mitigation/control measures that would be used day-to-day under normal operating conditions in the absence of any unusual risk factors. Examples of routine control measures include receipt, inspection, acceptance/rejection of materials, storage, containment, handling, treatment and timing of activities.
A list of the actions in detail and who is responsible for carrying them out.
REASONABLY FORESEEABLE ABNORMAL CONDITIONS AND ADDITIONAL CONTROLS
Identification of possible risk factors (e.g. adverse weather conditions) and anticipation of resonably foreseeable odour-related incidents and accidents (e.g., abnormal situations, spillages, power failure, breakdown of doors, equipment or abatement) and a listing of the consequences for odours of these risk factors.
A description of the *additional* measures (e.g. additional control measures and modifications to site operations, such as diverting odorous waste loads to facilities with less sensitive surroundings during adverse weather conditions) that will be applied during these periods to deal with these risks and any reasonably foreseeable incidents and accidents. It should be stated that if all the measures are shown not to be sufficient, then they will need to be tightened further or else, possibly ceasing/reducing odourous operations.
A list of the actions in detail and who is responsible for carrying them out
TRIGGERS FOR ADDITIONAL CONTROLS AND CHECKS ON EFFECTIVENESS
A description of what would trigger this further action/additional measures, such as: – the results of planned routine checks/inspections/surveys on site; – the results of on-site measurements of process parameters and surrogate measurements for odour (e.g. pH, temperature, oxygen, etc) exceeding defined trigger levels; – other metrics, such as particular meteorological conditions (e.g. temperature above a certain value, wind blowing in a particular direction, or calms); and – odour monitoring on- and/or off-site, including: • odour complaints monitoring (which should be carried out for all sites); • monitoring carried out on-site, showing non-compliance with any emission limit values (ELVs) set for controlled point source releases; and • monitoring carried out off-site (e.g. by sniff testing, odour diary surveys, etc), showing non-compliance with any action levels for ambient odour levels.
MANANGEMENT GOOD PRACTICE
A description of: - the roles and responsibilities of personnel on site (e.g. organisational chart); and - the training and competence of staff in odour-critical roles
Details of how the following will be carried out, and who has been assigned managerial and operational responsibilities for them: – implementing and maintaining the OMP; – responding to odour-related incidents and any elevated odour levels from the aforementioned checks/inspections/surveys, monitoring, or on receipt of complaints of odour nuisance; including carrying out investigations and taking appropriate remedial action to prevent recurrence; – planned maintenance and repair and the keeping of essential odour-critical spares; – regular review (at least once per year) of the effectiveness of odour controls - including the OMP itself – taking account of complaints, monitoring results, inspections, surveys and other information and feedback received. This interval may be shorter if there have been complaints or relevant changes to your operations or infrastructure; – engaging with your neighbours and communicating with relevant interested parties (e.g. local community and local authority) to provide necessary information and minimise their concerns and complaints, including methods used, content and frequency of communication; and – keeping records of all activities and actions relating to odour and the OMP.

26