IED Permitting Support

Barnhurst STW Substantial Variation Application RESUBMISSION

| 0.2

February 2024

Severn Trent Water Ltd

EPR/AP3537QP/V002

IED Permitting Support

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Contents

1. Introduction

This application relates to a substantial variation application for a bespoke installation bioresources treatment permit for the Barnhurst Sewage Treatment Works, operated by Severn Trent Water Ltd.

The site is currently permitted for the operation of an existing Combined Heat and Power (CHP) Plant under the Environmental Permitting (England and Wales) Regulations 2016 (as amended), specifically one biogas engine. This operation will be varied and become a Directly Associated Activity (DAA) to the main listed activity of the site, namely the biological treatment of sewage sludge for recovery. The site also has a current T21 waste exemption which allows for the recovery of waste at a wastewater treatment works which will be superseded by this variation.

This substantial permit variation application relates to the addition of a listed activity to the site, that of biological treatment of waste under the Industrial Emissions Directive. It relates to the non-urban wastewater treatment directive (UWWTD) treatment of indigenous UWWTD derived sludge and imported UWWTD sludges from other works and cess and septic tank imported material which is of a similar composition. Note that these operations are currently operated at the site, under the UWWTD and The Controlled Waste Regulations 2012 (paragraph 3 exclusion). The anaerobic digestion process will require an extension to the current site boundary.

The listed activity starts from the point of the separation of the sludge from the main UWWTD treatment stream, through to its transfer for storage offsite. The additional aspects of the permit include the biogas handling and treatment system as a directly associated activity, including a biogas fuelled gas engine and dual fuel boilers. The biogas fuelled gas engine is permitted under the Medium Combustion Plant Directive (MCPD), the three boilers are not permitted under the Medium Combustion Plant Directive (MCPD), as these units are existing units, permitted prior to 2018 and as such do not need separate permitting under the MCPD until 2029.

A bespoke installation permit is required for this site due to the standard rules set not including operation of a biogas engine, which would otherwise require multiple permits at the site. Several other activities are undertaken at the site, outside of the scope of this permit, these activities are covered by the UWWTD.

1.1 Non-Technical Summary

This application is for a substantial variation to environmental permit EPR/AP3537QP under the Environmental Permitting (England and Wales) Regulations 2016 (as amended), following a change of interpretation of the Urban Wastewater Treatment Directive by the Environment Agency.

The current permit for the site covers the operation of one CHP engine combusting biogas that is generated by the onsite anaerobic digestion of sewage sludge. Sewage sludge arises from the indigenous treatment of UWWTD derived materials supplied to the site by the sewer network and from tanker imports of waste materials to the works that are similar in composition to UWWTD derived materials. Indigenous sludge is mixed with imports of waste sludges from other wastewater treatment plants and subject to biological treatment via anaerobic digestion within one of three anaerobic digester tanks located on site. Previously, sewage treatment sites operated by sewerage undertakers importing sludges and liquids were only regulated for the import and treatment of these materials to the wider site and indigenous sludges arising from the treatment of sewage was not required to be included in a permit. It has now been determined that the treatment of indigenous sludges do need to be permitted as they fall outside of the Urban Wastewater Treatment Directive (UWWTD).

This variation application is:

- To incorporate the addition of a new listed activity to the permit, that of biological treatment by anaerobic digestion, to make this an installation permit.
- To increase the overall waste throughput of the site to include both imported and indigenous derived sewage and similar wastes.

- To add the operation of dual fuelled auxiliary boilers on the site as a directly associated activity; and
- To amend the site boundary to include the area of the anaerobic digestion plant and directly associated activities.

The installation covers the biological treatment of sewage sludge, both indigenous and imported from other wastewater treatment sites, in a mixture with imported cess and septic tank derived wastes, by anaerobic digestion, with a capacity above the relevant threshold. There are several directly associated activities, including the operation of one biogas fuelled CHP engine for the generation of electricity and heat at the site, which is currently permitted.

The site is approximately 3.9 km northwest of the centre of Wolverhampton between the village of Billbrook and suburb of Oxley. The surrounding land use generally comprises residential properties and open grassland.

The waste activity comprises an offloading coupling for tankers and cess vehicles to discharge through, located at the works inlet. All tanker imports are passed through a logger to record the incoming volume and the company carrying out the import. The import is directly into the works inlet, with no holding or blending tanks before the import. Once the tanker waste has mixed with the incoming UWWTD material, its treatment falls outside the scope of the Environmental Permitting Regulations.

The installation is for the biological treatment of non-hazardous wastes by means of anaerobic digestion. There is also an import point for sludge transfers from other wastewater works, near to the anaerobic digester assets. This material is transferred and blended with the indigenous sludge and site derived SAS (surplus activated sludge) in an above ground steel pre-digestion thickening blending tank.

The pre-digestion thickening blending tank is used to ensure that the incoming materials are properly mixed to give a more homogeneous mixture, prior to transfer to one of three primary digesters. All digesters are above ground tanks manufactured of concrete and operate on a continuous process basis, that is incoming sludge is added to the process as digested sludge is removed from the primary digesters. Removed sludge is transferred to two above ground dewatering tanks prior to being transferred to site dewatering equipment. Then, following the addition of polyelectrolyte-based coagulant, it is dewatered and transferred off site for storage.

Biogas is captured from the primary anaerobic digesters and stored within a telescopic roof biogas storage holder. The above ground biogas transfer pipeline is equipped with condensate pots that capture entrained moisture from the generated biogas and allow it to be drained into the site drainage system for treatment. The biogas storage vessel is fitted with pressure release valves as a safety precaution in the event of over pressurising the system.

The biogas is taken from the storage vessel for combustion in a CHP engine, generating electricity for use both within the site and for export to the grid, and heat to maintain primary digester temperature. The CHP is currently subject to a bespoke permit, schedule 25B, under the MCPD. Biogas can also be used in three dual fuelled auxiliary boilers. In the event there is excess biogas, i.e., more than the CHP can utilise, or if the CHP is unavailable, there is a ground mounted emergency flare. This is utilised under 10% of the year.

2. Technical Description

This application is for the substantial variation of the site's existing permit under the Environmental Permitting (England and Wales) Regulations 2016 (as amended), following a change of interpretation of the Urban Waste Water Treatment Directive (UWWTD) by the Environment Agency. It relates to the permitting of indigenous sewage sludge and imported sewage sludge and other wastes for treatment by anaerobic digestion for the Barnhurst Sewage Treatment Works, operated by Severn Trent Water Ltd (Severn Trent).

The substantial variation to the permit is to include a new listed activity, the biological treatment by anaerobic digestion, of indigenous sewage sludge in a mixture with imported cess and septic tank derived wastes. The existing biogas fuelled CHP engine and boilers will become a DAA to this installation activity. The site operates 24 hours per day with the site being unstaffed overnight. A standby rota picks up alarms overnight.

Site Setting

The site is approximately 3.9 km northwest of the centre of Wolverhampton between the village of Bilbrook and suburb of Oxley. The surrounding land use generally comprises residential properties and open grassland. To the South is the wider sewage works and then leisure, residential and industrial premises, while to the north is open grassland and residential premises. The nearest residential properties are approximately 150m northwest of the site.

The site is classified as flood zone 1 indicating that it has a less than 1:1000 probability of flooding in any year. The site sits inside a designated Zone 3 source protection zone (SPZ) for groundwater. There are no Special Area of Conservation (SACs), Special Protection Areas (SPAs), or RAMSAR sites with 10km of the site and no Sites of Special Scientific Interest (SSSI's) within 2km of the site boundary. There is a single local nature reserve (LNR) and two ancient woodlands within 2km of the site. There are also 21 local wildlife sites (LWS) and protected species within 2km of the site. The site is within Air Quality Management Area for NOx and PM10.

Waste Activities

The waste activity comprises an offloading coupling for tankers to discharge through, located at the works inlet. All imports are passed through a logger to record the incoming volume and the company carrying out the import. The import is directly into the works inlet, with no holding or blending tanks before the import. The waste codes for imported waste accepted at the installation are detailed in Form C3, Table C3-1b. Once the tanker trade waste has mixed with the incoming UWWTD material, its treatment falls outside the scope of the Environmental Permitting Regulations. All wastes imported for treatment have been subject to pre-acceptance checks and approval prior to acceptance, including testing of samples of the waste, when required by Severn Trent's waste pre-acceptance procedures. Wastes imports are booked in to the site on a daily basis and offloading monitored by site operatives. Imported wastes are subject to periodic checking at the site for compliance with the supplied pre-acceptance data, in line with the organisations waste acceptance procedures.

In addition, sewer cleaning wastes / wet well wastes from within the network are delivered to the site for temporary storage, to allow for the gravity draining of excess water from the material, prior to offsite disposal. These wastes do not undergo any waste treatment on site, with only gravity being used to remove excess water. Following draining, these materials are removed from site to a suitably permitted facility.

Installation Activities

Indigenous sludges settle from the primary settlement tanks in the UWWTD process and are then pumped to the primary buffer tank, which is covered and vented to a Peacemaker odour control unit (OCU) (OCU4). Indigenous sludge is then thickened by three belt thickeners. The belt thickeners are enclosed within the primary sludge building and serviced by a Peacemaker OCU (OCU5). Polymer is added to the sludge to aid the thickening process. Thickened sludge is transferred to the pre-digestion thickening blending tank, where it is mixed with thickened SAS and undigested imported sludges. The pre-digestion thickening blending tank is also covered and vented to the same Peacemaker OCU (OCU4).

There is an offloading coupling for tankers to discharge UWWTD derived sludge from other waste treatment sites to the digestion process on site. Sludge is passed through a logger to record the incoming volume of sludge into the discharge tank, then screened and passing through an import well. Both the discharge tank and the screens are serviced by Peacemaker OCUs (OCU1 and OCU2). The imported sludge is then blended with thickened, indigenous SAS and indigenous primary sludges prior to the biological treatment process in the pre-digestion thickening blending tank.

Surplus Activated Sludges (SAS) are collected in the SAS buffer tank, an open topped steel tank, from the final settlement tanks UWWTD process. The SAS is pumped to the SAS tank within the SAS building and thickened on three belt thickeners before being mixed with thickened indigenous sludges and imported undigested sludges in the pre-digestion thickening blending tank. Polymer is added to the belts to aid the thickening process.

Blended sludge passes from the pre-digestion thickening blending tank to one of three primary digesters. The site has three above ground primary anaerobic digesters which are of concrete construction. Each of the primary digesters are fitted with two pressure relief valves, which operate in an emergency only. The digesters operate on a continual basis with incoming sludge added to the process as digested sludge is removed to one of the two centrifuge feed tanks. Sludge is held within each digester for the period specified by the site's HACCP (hazard and critical control point) plan for the Sludge (Use in Agriculture) Regulations 1989. The two centrifuge feed tanks are above ground steel, enclosed tanks, serviced by a Biofilter OCU (OCU3). The digested sludge is then mixed with a polymer coagulant and dewatered using one of three centrifuges. The centrifuges are enclosed and serviced by a Dry Chemical Scrubber UCU (OCU6). The supernatant liquor is returned to the head of the STW through the centrate return well, which is serviced by a Peacemaker OCU (OCU7) for treatment via the UWWTD route.

The sludge cake Is transferred offsite for storage following dewatering. There is no on-site storage of cake. The sludge is analysed to check compliance with Sludge (Use in Agriculture) Regulations 1989 (SUiARs), in accordance with the Biosolids Assurance Scheme (BAS) and once the sludge is confirmed to be compliant it is removed from storage for land spreading.

Biogas

Biogas from the primary digesters is captured and transferred to a telescopic roof gas holder. Biogas can then be combusted within one, currently permitted, CHP engine on site, which runs on biogas only and provides both electricity to the site processes and heat to maintain the primary digester temperature. Electricity can also be exported to the National Grid when there is excess supply above the site needs. The site also has three dual fuelled auxiliary boilers and an auxiliary flare stack that can combust biogas when there is excess biogas that cannot be combusted by the CHP unit or when the CHP is offline for maintenance. Biogas is transferred from the gas holder via a biogas pipeline that is largely above ground and is fitted with condensate pots that capture entrained moisture from the generated biogas and allow it to be drained into the site drainage system for treatment via the UWWTD route.

There is one CHP engine at the site:

1 x Jenbacher 316 model, with a thermal input of 2.1MW, electrical output of 830kW;

The one engine is currently covered by a medium combustion plant permit.

In the event there is excess biogas, i.e., more than the CHP engine can utilise, there are three dual fuelled auxiliary boilers and one ground mounted emergency flare. The flare is utilised under 10% of the year. Hydrogen sulphide (H_2S) and siloxane levels are monitored within the biogas and treated if required by their concentrations.

Process Monitoring

Anaerobic digestor operations are monitored automatically from the control centre at the site and outside of normal operational hours, from the regional control centre. Checks include digester health, temperature, and

operation, including for the presence of foaming, which is treated with anti-foam as appropriate. All tanks are equipped with appropriate high-level alarms and automatic cut off valves to minimise the risk of overtopping. Site operations are covered by Severn Trent's ISO14001 accreditation for all operations, and technical competence is provided by the organisations CMS and training program.

The existing site infrastructure is not currently fully compliant with the requirements of BAT, specifically with regards to containment and surfacing.

Site drainage from operational areas is captured within the site wide drainage system and returned to the head of the works for treatment within the UWWTD treatment route. This is via a chamber at the base of the Primary Settlement Emergency Tanks and then merging with UWWTD flow post storm flow Site drainage plans are included within Annex A.

BAT Assessment

Tank Type	Number	Volume (m^3)	Construction
Pre-Digestion Thickening Blending Tank	1	900	Steel
Primary Digesters	3	2,800	Concrete
Centrifuge Feed Tanks	2	600	Steel
Primary Sludge Buffer Tank	1	300	Steel
SAS Buffer Tank	1	600	Steel
SAS Tank	1	300	Steel
Discharge Tank	1	300	Concrete

A full assessment of the relevant sections of the Waste Treatment BREF are supplied as Annex D.

Where waste liquor returns are returned to the works inlet, they enter the inlet after the storm offtake point.

The site has 7 OCU's within the permit boundary.

There is no cake storage at the site, therefore there is a low risk of bioaerosols from the permitted activities.

The site has an odour management plan which is supplied as Annex F.

There is no requirement for a fire prevention plan at the site, due to the nature of the wastes treated and the processes utilised, in accordance with Environment Agency guidance.

Containment

The site infrastructure is not currently fully compliant with the requirements of BAT, specifically with regards to containment.

A spill risk assessment and proposed containment solution, in accordance with CIRIA 736 is supplied as Appendix H.

The outline containment solution does not utilised flood gates within its design.

Open Topped Tanks

There are no open top tanks within the permit boundary at Barnhurst.

Liquor Returns Monitoring

There are no direct emissions to water from the sludge treatment facility. The only indirect emission is of the sludge liquors and surface waters, which are returned to the wastewater treatment works for aerobic treatment under Urban Wastewater regulations. The liquors returned from the sludge treatment facility have originated from wastewater treatment works that are also under the control of Severn Trent Water.

Severn Trent Water have always undertaken periodical sampling of ammonia on the centrate returns with regard to loading impacting the operation of the treatment works. More recently, they have also undertaken shadow sampling twice monthly for Ammonia, Soluble BOD, Total BOD, Orthophosphates and Suspended Solids in return liquors to the inlet, using the sample points noted in the table. Direct regular sampling of these returns is a fairly recent addition to our processes so our understanding of the variance in these returns is developing. COD, BOD, Total Nitrogen, TOC, Ammoniacal Nitrogen, total Phosphorous, suspended solids and pH are directly available at our UKAS accredited contract laboratory and we will begin sampling for these determinands. Not all processes have flow meters on the return lines, assumptions will be made from the throughput of the asset. Temperature would be a field-based measurement, currently this is not measured. STW will aim to sample for PFOS and PFOA on a six-monthly basis to build up a data set, but due to the two weeks analysis turn around, these are not of use to the live operational process.

The data obtained from the return sampling will be used to optimise the process and STW will carry out root cause investigations with the process support teams to understand what changed on site and ensure that we can reduce the risk to the inlet. If any abnormalities are identified in the sample data following root cause investigations, the Process Team will collaborate with wider site based teams and the Catchment team to ascertain the root cause.

As part of the new IED permit and in line with BAT 3, we commit to carrying out further chemical analysis of the waste water, testing for all pollutants expected to be present in the discharge. We are currently in discussion with UKAS accredited laboratories to see what analysis is possible on our leachate returns, and what 'minimum reporting value' is appropriate. This review will be undertaken in line with EA guidance, for example 'Surface Water Pollution Risk Assessment for your environmental permit', and 'Monitoring Discharges to Water'. The sampling will be undertaken by our suitably trained internal teams that already undertake compliance sampling for EA discharge permits to MCERTS standards. Analysis will be contracted to UKAS accredited laboratories.

The site has an odour management plan which is supplied as Appendix E.

There is no requirement for a fire prevention plan at the site, due to the nature of the wastes treated and the processes utilised, in accordance with Environment Agency guidance.

2.1 Regulatory listing

The installation is permitted as a Schedule 1 listed activity under the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

The relevant listing under Schedule 1 is:

Section 5.4 Disposal, recovery or a mix of disposal and recovery of non-hazardous waste

- *Part A(1) (b); Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic*

digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC

(i) biological treatment;

In addition to the listed activity at the site, there is a directly associated activity of a biogas combustion plant which is also a specified generator, covered by the Medium Combustion Plant Directive under Schedule 25A and B of the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

The site includes the following Directly Associated Activities (DAA):

- Import of sewage sludge, portaloo waste, cess and septic tank wastes to the inlet;
- Blending of imported wastes prior to treatment;
- import of sewage sludge to the digesters;
- Storage of digestate prior to onsite dewatering;
- Dewatering of digested sewage sludge;
- Transfer of waste waters to the inlet of the sewage treatment works;
- Storage of biogas;
- Combustion of biogas in an MCPD and SG compliant biogas CHP unit and auxiliary boilers;
- Emergency flare; and
- Storage of raw materials.

The waste activities at the site is the import of liquids and thin sludges for aerobic biological treatment.

3. Application Form Questions:

3.1 Form C2

1 About the permit

1a Discussions before your application

A pre application variation application was submitted in October 2023.

1b Permit number

What is the permit number that this application relates to?

EPR/AP3537QP

1c Site details

What is the site name, address and postcode of the site?

Severn Trent Water Limited
Barnhurst STW
Oxley Moor Road
Wolverhampton
WV9 5HN
NGR: SJ 89852 02024

2 About your proposed changes

2a Type of variation

What type of variation are you applying for?

Substantial variation

2b Changes or additions to existing activities

This variation application is to add an installation and a waste activity to the existing CHP permit. Note that this is due to a change in regulatory interpretation and the activities on site are currently operational. The variation is required as part of the IED, consisting of one listed activity: anaerobic digestion for recovery and disposal. There is also a waste activity for the import of specified waste materials to the works inlet for treatment via the full flow, or UWWTD stream.

2. About your proposed changes, continued

Installation Name	Installation Schedule 1 references	Description of waste operation	Proposed changes document reference
Barnhurst sewage treatment works	S5.4A1 (b)(i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding100 tonnes per day involving one or more of the following activities and excluding activities covered by council Directive 91/271/EEC – (i) Biological treatment by anaerobic digestion	Deposit of imported tankered waste to the head of the sewage treatment works pending aerobic treatment at the sewage treatment works.	This document

Table 1 – Changes to existing activities

2c1 Do you want to have a modern style permit?

Yes

2c2 Identify all the permits you want to consolidate (combine)

Table C2-2

Table 2 – Permit Numbers
EPR/AP3537QP- Barnhurst STW CHP Plant

2d Treating batteries

2d Are you proposing to treat batteries?

No

2e Ship recycling

2e1 Is your activity covered by the Ship Recycling Regulations 2015?

No, this application is not covered by the Ship Recycling Regulations 2015

2f Low impact installations (installations only)

No. This is not a low impact installation

3 Your ability as an operator

3a Relevant offences

3a1 Have you, or any other relevant person, been convicted of any relevant offence?

Total payout	Type	Date	Location	Offender	Description of offence
£870,000	Prosecution	Jun-20	Shropshire, England	Severn Trent Water Ltd	Causing an unpermitted discharge, contrary to Regulation 38(1)(a) and regulation 12(1)(b) of the Environmental Permitting (England & Wales) Regulations 2010 and failing to comply with permit conditions, contrary to regulation 38(2).
£1,558,536	Prosecution	Dec 21	Worcestershire, England	Severn Trent Water Ltd	Sentenced for four breaches of the Regulations for four cases. Sewage was discharged contrary to Regulation 38 (2) of the Environmental Permitting (England and Wales) Regulations 2016. (Blackminster) Breach of a limit contrary to regulation 38(2) Environmental Permitting

					(England and Wales) Regulations 2016. (Bromsgrove, Stoke Prior, Priest Bridge)

3b Technical ability

Severn Trent Water utilises a competence management system to demonstrate technical competence at the site.

Please see the appended CMS certificate for the organisation, which has a scope including waste storage and treatment. At present Barnhurst is not in scope, however, the organisation is in contract with LQRA to bring those sites outside of the current scope into CMS within the required period.

The EU Skills coordinator has confirmed to STW there is no need to identify a specified person as TCM if the organisation is under the EU Skills scheme. The following is directly from the gov.uk website:

EU Skills scheme: The EU Skills scheme considers the competence of your business as a whole. To join this scheme you need to have a competence management system in place and this must be certified by one of the scheme's approval bodies.

3c Finances

Installations, waste operations and mining waste operations only.

Do you or any relevant person or a company in which you were a relevant person have current or past bankruptcy or insolvency proceedings against you?

There are no current or past bankruptcy or insolvency proceedings against the applicant.

3d Management systems

Confirm that you have read the guidance and that your management system will meet our requirements.

Yes, we can confirm that this is the case.

Does your management system meet the conditions set out in our guidance?

Yes. The Company holds BS EN ISO 14001:2015.

Please see Appendix B for EMS and CMS certificates.

Scope

Severn Trent Water was awarded certification to BS EN ISO14001:2015 for its Environmental Management System in August 2018. The certified EMS scope covers "Management and delivery of wastewater treatment processes. Transfer and storage of highway waste on depots. CHP biogas plant activities. Mothballed landfill monitoring activities, Head office functions at Severn Trent Centre."

Environmental Policy

Implementation of the Severn Trent Water's Environmental Policy is approved by the Severn Trent Executive Committee of the Severn Trent Plc Board and is the responsibility of all employees, with the Chief Executive being accountable for its implementation. The policy covers all Severn Trent activities, including this installation, and applies to all individuals who are employed by, or carry out work on behalf of, any Severn Trent group company including contractors, temporary staff and agency workers. The Management Systems Team (EMS

specialists) is responsible for the implementation of the EMS, the site operations teams will be responsible for maintaining ongoing compliance and managing the sites.

https://www.severntrent.com/about-us/governance/our-policies/

Management and Responsibilities

The Management Systems Team (EMS specialists) has overall responsibility for the management and upkeep of the EMS. Compliance with specific elements of environmental legislation is managed by the relevant Business Areas across the Company. The Management Systems Team (EMS specialists) maintain a Legal Register and, in consultation with Operations Teams, their permit compliance advisors and other specialists, assess environmental risks for in-scope areas using a significance scoring method under normal, abnormal and emergency conditions. Significant environmental aspects and impacts take into account legal and other requirements, cost to the business, scale of impact and interested parties.

Management Systems Team (EMS specialists) are responsible for setting internal environmental standards with Standard owners which are then implemented by the relevant business areas. The Standards and other relevant information are communicated through a number of routes. Incident and corrective action routes exist to promote continual improvement.

Local operating procedures are the responsibility of the operational teams that operate the sewage works.

The defined roles and responsibilities are allocated to relevant personnel, depending on their job description, qualifications, knowledge, experience and training. Training and competency are based on specific roles.

Operational Control

Procedures are in place to identify and control environmental issues arising from Severn Trent Water activities. Each department is required to achieve operational control of its activities and, using a central database, identify and record any departmental environmental issues.

Routine sewage treatment operations and activities are recorded within the corporate management database, SAP. These include routine inspections, monitoring and maintenance tasks.

Non-routine activities, such as major overhauls/refurbishments, which involve the use of sub-contractors are assessed for health, safety and environmental risks and method statements are produced to address these, as part of the Managing Contractors process. Contractors who are required to carry out major services are closely managed by the team to ensure that compliance with Severn Trent Water's H&S and environmental policies is achieved. No contractors may work on site without having undergone a full site induction.

Processes on site operate continuously, 24-hours per day, 7-days per week, apart from maintenance periods. The plant is designed to operate unattended with process parameters being monitored continuously. Operating logs are stored electronically.

Maintenance and Monitoring

Management will have the ultimate responsibility for the effective maintenance of plant throughout the company. The facility has named staff that are responsible for day-to-day maintenance operations and contractors are also used as required. The following basic inspections and maintenance activities are carried out on site:

- Daily operation of plant (24/7) involves visual inspection of operational assets;
- Daily inspection of temporary pipe work installed;
- Weekly visual inspections of the bulk oil storage tanks and the oil pipework (visual check on above ground pipework);

- Monthly inspection of all bunds (oil, transformer, temporary, etc.) and condition of containerised engines;
- Routine maintenance programme for plant; and
- Routine lubrication programme.

Personnel responsible for the inspection, testing and maintenance of pollution prevention infrastructure are trained to an appropriate level to ensure compliance with the Infrastructure Monitoring Programme.

All regular maintenance of all plant and equipment will be completed on the time scale specified by the equipment manufacturer including routine. A full engine overhaul is likely to be scheduled every 20,000 operating hours. This high-level preventative maintenance is designed to avoid unscheduled down time, maximising the plant availability and its ability to control emissions and maintain an efficient level of operation between overhaul services. Record sheets will be completed that would highlight any issues that may require operator intervention outside the routine maintenance programme.

Environmental Improvement

Severn Trent Water is committed to environmental improvements and has established environmental targets and plans relating to materials and waste management, transport, climate change mitigation and adaptation (energy efficiency and renewable energy generation), water resources, biodiversity, river water quality, and drainage asset performance.

The EMS is subject to a Senior Management Review twice a year to consider environmental performance, objectives and targets and continual improvement.

Competence, Training and Training Records

Severn Trent Water aims to ensure that all employees are in possession of the knowledge, skills and experience necessary to perform their role in accordance with the company's operating procedures and in full compliance with the law. Training needs are identified by the employee's immediate supervisor or line manager.

The EMS delivers a structured environmental awareness programme and targeted awareness training, where a need is identified. Managers and the CMS (Competence Management System) Manager review the competence of those working for the company where the tasks have the potential to cause a significant negative environmental impact, or impact on the operation of permitted activities within the EMS scope. The EMS Team, Permit Compliance Technicians and relevant Departments are responsible for rolling out the Basic Environmental Awareness Modules and job specific training.

For each internal training course held a Training Record is issued through the employees' role specific records on SAP.

Induction training is carried out by the responsible line manager and consists of an introduction to the Company's Environmental Health and Safety Policy and description of emergency response and spill prevention procedures.

Staff receive specific training in the plant's operation and the environmental impact of the process as well as health and safety. The operators will have a detailed understanding of the operational procedures for the site for both normal and abnormal operation. As part of the training, operators will receive specific instructions relating to those aspects of plant operation that have the potential for a negative impact on the environment. This training will be provided by the equipment manufacturers or in-house staff as appropriate. All training is overseen by a dedicated in-house Learning and Development team, through "The Academy" process.

Severn Trent Water is able to demonstrate that permitted activities are managed by technically competent staff with its Competence Management System (CMS) that is independently certified to meet the requirements of an Industry Standard. All appointed Technically Competent Persons (TCPs) undergo EMS awareness training and

CMS training. TCPs are required to re-take training every 2 years. A list of technically competent persons is stored within the CMS documentation on SharePoint.

Managing Contractors

There are several procedures to ensure contractors have the required skills and environmental competencies to carry out works at the site.

Initially, contractors are assessed by the procurement department for inclusion on the approved supplier list, which includes health and safety and environmental criteria for example, waste documentation such as waste carrier's licence/training certificates. Even when the contractors are on the approved supplier list, they are still further assessed for each specific contracted activity.

The contactor is required to submit a method statement prior to any commencement of work, identifying how work is to be undertaken and the associated risks. The method statement must be approved by the Site Manager or a TCP who is suitably qualified, who will also identify any site hazards and issue an Authorisation to Work/Enter the site, following a site induction. When on-site, the contractor must carry this Authorisation to Work at all times.

Incidents, Non-Compliances and Complaints

Severn Trent Water has procedures for incidents, non-compliances and environmental complaints.

Incidents are managed through site specific 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). The Regional Managers are responsible for ensuring that action is taken and for liaising with the relevant regulatory bodies (where appropriate). They ensure that any complaint is investigated and, if found to be justified, that work is undertaken to resolve the issue. They also provide an appropriate response to the complainant in a timely manner detailing the reason behind the issue and the actions taken to resolve the matter.

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). These records will be maintained as part of the management system for a minimum of four years.

Communication

There are regular meetings held on site to discuss all aspects of the treatment works and performance against targets. These meetings include the operation and performance of the installation. Other communication methods to promote environmental management issues and continual improvement include: 'Lessons Learnt' bulletins, OSC portal forums and compliance audits.

Auditing

The controls for addressing environmental aspects and impacts are checked through the EMS audit programme which is managed by the EMS Auditor. Findings are reported to Site Managers and their Leadership Team. All permitted sites are internally audited by the permitting team every three years as a minimum. These inspections support the EMS audit programme and are audited by the EMS Team on a sample basis. The EMS also checks that other audit programmes exist for our wider environmental obligations, for example, MCerts and Operator Self-Monitoring compliance assessments.

4 Consultation

Could the waste operation or installation involve releasing any substance into any of the following?

4a A sewer managed by a sewerage undertaker?

No – site drainage is managed within the wider sewage works, which is entirely within the boundary of this permit, operated by the applicant.

4b A harbour managed by a harbour authority?

No

4c Directly into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries committee?

No

4d Is the installation on a site for which:

4d1 - a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No.

4d2 - a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards Regulations 1999, or a safety report is needed under regulation 7 of those regulations?

No.

5 Supporting information

5a Provide a plan or plans for the site

Please see Appendix A for the following plans:

Figure 1 – Site Location Plan

Figure 2 – Permit Boundary and Air Emission Point Plan

Figure 3 – Site Drainage Plan

Figure 4 – Process Flow Diagram

Do any of the variations you plan to make need extra land to be included in the permit.

Yes. See Appendix D for the site report for the extra land.

5c Provide a non- technical summary of your application

Please see Section 1.1 in this document.

5d Risk of fire from sites storing combustible waste

Are you applying for an activity that includes the storage of combustible wastes?

No – the site handles and treats wastes using processes that fall outside the scope of the FPP guidance. Note that the site primarily handles liquids or pumpable sludges which do not pose a fire risk.

5f Adding an installation

If you are applying to add an installation, tick the box to confirm that you have sent in a baseline report and provide a reference.

Severn Trent Water have chosen not to provide a baseline report for the site. The site has operated as a sewage treatment works for a significant period and there are no proposals to close or relocated the site. Due to the site history and difficulties in obtaining representative samples from land below existing infrastructure, in accordance with current Environment Agency guidance, no baseline data is provided. The surrender risk this poses is acknowledged.

6 Environmental risk assessment

An environmental risk assessment of the site changes has been carried out in line with the requirements of the Horizontal Guidance Note H1 and Guidance given on gov.uk. This guidance specifies the following approach to carrying out an environmental risk assessment for a proposed activity:

- Identify potential risks that your activity may present to the environment;
- Screen out those that are insignificant and don't need detailed assessment;
- Assess potentially significant risks in more detail if needed;
- Choose the right control measures, if needed; and
- Report your assessment.

An environmental screening assessment is provided in Table C2-5. To inform the screening assessment, a review of the sensitivity of the site setting has been undertaken.

Data taken from the MAGIC.gov.uk website, accessed 15th November 2023 is presented in Table C2-4 below. For habitat sites, the relevant distances for consideration are: international designations (SAC, MPA, SPA and Ramsar - 10km); national designations (SSSI – 2km) and local nature reserves and ancient woodlands (2km). Local Wildlife Sites (LWS) within 2km have been provided via a habitats screening assessment from the Environment Agency, dated 31st October 2023.

Table C2-4 – Proximity of nature conservation sites

Site name	Distance from plant (km)	Direction from facility	Citation
Smestow Valley	380m	S	LNR
Pendeford Wood	1400m	N	Ancient woodland
Oxley Sidings			LWS
Smestow Valley			LWS
Staffordshire and Worcestershire Canal			LWS
Shropshire Union Canal			LWS
The Holdings at Oxley North			LWS
Aldersley Stadium			LWS
Birmingham Canal, Wolverhampton Level			LWS
Dunstall Park Racecourse			LWS
The Holdings at Oxley South			LWS
Sandy Lane			LWS
Former Valley Park School			LWS
Droveway Former Tip (Pendeford Wood)			LWS
Rakegate Wood			LWS
Barnhurst Lane (land off)			LWS

St Michael and All Angels Churchyard			LWS
Stafford Road Cutting			LWS
Bushbury Sidings			LWS
Land at Pendeford Lane			LWS
Bushbury Junction Reservoir			LWS
Dunstall Hill Wood			LWS
Land at Wolverhampton Science Park			LWS

There are no SSSI within 2km, or SAC; SPA; or RAMSAR sites within 10km of the site.

The site sits in flood zone1 indicating that it less than a 1:1000 probability of flooding in any year. The site sits inside a designated Zone 3 source protection zone (SPZ) for groundwater. There are no SAC's (special area of conservations), Special Protection Areas (SPAs), RAMSAR sites and Sites of Special Scientific Interest (SSS1's) within 10km of the site boundary. The site is within an Air Quality Management Area for NOx and PM10, declared by Wolverhampton Council which covers the whole council area.

There are protected species within 2km of the site, including Water Voles.

Table C2-5 Environmental Screening Assessment

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Amenity issues: Litter, vermin and pests	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, amenity and recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. The nearest commercial and industrial premises are within 340m of the site to the east. The closest residential properties are approximately 100m to the north, south and West, and over 500m to the east. Ecological receptors - international designated habitats sites within 10km, nationally designated sites within 2km, locally designated sites within 2km. There is an LNR to the south of the site, on the opposite side of the rail line bordering the wider works. There are no /SAC/SPA/RAMSAR sites or SSSI within the designated distances.	The wastes handled at the site are primarily liquids and sludges, along with UWWTD derived material delivered by sewer. There is no source of litter within the materials handled at the site. In the unlikely event pests or vermin are observed on site a suitable contractor is called in as soon as practicable.	X
Dust and bio-aerosols	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological	The wastes handled at the site are liquids, sewage sludges and sewage cake, along with UWWTD derived material delivered by sewer. The site will not be handling inherently dusty or powdery wastes. Sewage cake retains a high moisture content and is not dusty.	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
	receptors, see notes for Litter above. The impact of dust on human health will depend on the distance and wind direction. The cake collection point at the site is approx. 130 metres from the nearest offsite receptor	Roads will be maintained to avoid the production of dust. Produce sewage cake has sufficient moisture content to ensure it does not give rise to dust and is located on the eastern side of the site, away from sensitive receptors. Severn Trent has undertaken bioaerosol monitoring at three sites and found that there are no emissions.	
Assessment of point source emissions to air Emissions deposited from air to land	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Amenity issues above. The impact of emissions from air on human health will depend on the distance and wind direction.	The installation has one biogas fuelled CHP engine and 3 dual fuelled boilers, for which ADMS modelling indicates emissions are unlikely to result in unacceptable impacts on air quality. The emergency flare is used only during periods when there is a larger volume of biogas than the CHP engine or boilers can manage or are offline. Fugitive emissions to air are assessed separately.	X
Assessment of point source and fugitive emissions to water	The Shropshire union canal surrounds the site from the north East to the South East, with the wider sewage works being on the south and eastern sides of the facility. The site sits entirely within an area which is classified as flood zone 1 (indicating that it has less than 1:1000 probability of flooding in any year). The site sits inside a designated Zone 3 source protection zone (SPZ) for groundwater. Surface water drainage within the site drains to the inlet of the adjacent sewage treatment works for full treatment prior to discharge.	The main product of the process is a sewage cake, which is not stored on site following dewatering. Other aqueous discharges generated by the process are limited (comprising dewatering liquors, biogas condensate, and surface water run off). These sources are discharged to the on-site drainage system where they are transferred to the main sewage works inlet. Due to the nature and small quantity of these emissions no further assessment of point source emissions is deemed necessary.	X
Assessment of odour	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Amenity issues above. The impact of emissions from odour on	The site has an odour management plan in place. This includes management systems, procedures and monitoring to control fugitive emissions of odour at the plant. Waste inputs to the site are of a similar nature to indigenous waste streams and as such there is no change in odour profile at the site. There is no history of odour	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
	human receptors will depend on the distance and wind direction.	complaints associated with the site.	
Energy	Global atmosphere (direct and indirect emissions)	Biogas generated by the facility is utilised to generate electrical power for the site and exported to the grid; thus increasing renewable energy supplies. Waste heat from the CHP engine is utilised to control primary digester temperature when required and reduce demand on the auxiliary boilers.	X
Land and disposal of waste to other processes	Rivers and streams – see Assessment of point source and fugitive emissions to water above. Drainage systems/sewers. The site sits inside a designated Zone 3 source protection zone (SPZ) for groundwater, the overlying geology is a secondary A aquifer, underlain with bedrock of a principal aquifer, designated as medium-high vulnerability.	All waste streams disposed of off-site will continue to be to appropriately permitted facilities.	X
Noise and vibration	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, amenity and recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. The nearest commercial and industrial premises are within 340m of the site to the east. The closest residential properties are approximately 100m to the north, south and west, and over 500m to the east. Ecological receptors - international designated habitats sites within 10km, nationally designated sites within 2km, locally designated sites within 2km. There is a single LNR located 300m south of the site across the rail line. There are no SAC/SPA/RAMSAR sites or SSSI within the designated distances.	Site design has been chosen to minimise the impact of noise on offsite receptors through building orientation, finishes and location of openings. Noise from plant and equipment will be minimised through purchasing decisions and a robust preventative maintenance programme. There are no sources of vibration within the facility.	X
Other issues (including visual impact)	Not Applicable	There are protected species within close proximity of the site, including water voles and protected species code2, which should not be impacted as there are no direct discharges from the site. There are no other site-specific	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
		environmental risks identified.	
Climate Change	Risks of increased temperature impacts resulting in digesters heating beyond optimal operating temperature and increased odour from sewage process. For human health and ecological receptors, see notes for Amenity issues above.	Digesters may require reduced heat input to digester via heat exchange system and digesters are insulated against worse impacts. Warmer temperatures may require less boiler input/use as a result of less heat demand, or increased heat dumping via air cooled radiator. If less biogas is used, the site may require a new gas engine that is appropriately sized to utilise additional biogas. However, the CHP engines will need to be replaced prior to 2050 when they reach the end of their operational lifespans.	X
	Risks of increased storm events that causes surface water runoff exceeds capacity of site drainage system, or additional dewatering operations due to rainwater ingress, or caused bunds to infill. Increased precipitation may increase flooding on agricultural land, decreasing ability to spread digested sludge cake to land. For water environment receptors, see notes for Assessment of point source and fugitive emissions to water above	The STW design may require expansion or additional storm capacity; however, this would apply to UWWTD operations at the site rather than permitted activities. May need to increase bund or containment volume for sewage treatment works or individual assets. Land spreading activities could be prevented during very wet, winter months. The site has no cake pad however, has access to an offsite pad where sludge cake can be stored prior to application, plans to move digested sludge cake to other sites would remain as at present.	X

3.2 Form C3

1 What activities are you applying to vary?

Table C3-1a

Schedule 1 listed activities						
Installation name	**Schedule 1 references**	**Description of the Activity**	**Activity capacity**	**Annex I (D codes) and Annex II (R codes) and descriptions**	**Hazardous waste treatment capacity (if this applies)**	**Non-hazardous waste treatment capacity (if this applies)**
Barnhurst STW Bioresources	S5.4A1(b)(i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 100 tonnes per day involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC— (i) biological treatment by anaerobic digestion	From receipt of permitted waste through to digestion and recovery of by-products (digestate).	699m^3 per day (input) 4893 m^3 per week (input)	R3 Recycling / reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)	None	699m^3 per day

Name of DAA	Description of the DAA
AR1	Import of sewage sludge to the digesters;
AR2	Storage of digestate prior to onsite dewatering;
AR3	Dewatering of digested sewage sludge;
AR5	Transfer of waste waters back to the inlet of the sewage treatment works;
AR6	Storage of biogas;

Name of DAA	Description of the DAA
AR7	Combustion of biogas in an MCPD and SG compliant biogas CHP unit and auxiliary boilers
AR8	Emergency flare;
AR9	Storage of raw materials.
Total storage capacity (tonnes)	8,385 m^3
Annual throughput (tonnes each year)	255,044 tonnes

Waste Activities

Name of Waste Activity	Annex I (D codes) and Annex II (R codes) and descriptions	Description of Waste Activity
AR10 Direct transfer and blending of waste into head of works.	D13: Blending or mixing prior to submission to any of the operations numbered D1 to D12. D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	Import of tankered waste to the head of the works for direct treatment through the UWWTD route The maximum amount of waste stored must not exceed 800 tonnes.

Types of waste accepted

Table C3-1bi – Wastes for waste activity – Deposit in works inlet ONLY

Waste Code	Description of Waste
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01
16 10 04	aqueous concentrates other than those mentioned in 16 10 03
19 08 05	sludges from treatment of urban wastewater
19 08 12	Sludges from biological treatment of industrial wastewater other than those mentioned in 19 08 11
19 08 14	sludges from other treatment of industrial wastewater other than those mentioned in 19 08 13
20 03 04	septic tank sludge
20 03 06	waste from sewage cleaning
20 03 99	Cesspool waste and other sewage sludge only

Table C3-1bii – Waste accepted for installation AD process ONLY

Waste Code	Description of Waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste (sewage sludge only)
19 08 05	Sludges from treatment of urban wastewater
20 03 04	Septic tank sludge

2 Point source emissions to air, water and land

Table C3-2 Emissions to Air

	Emission point reference and location (NGR/Latitude & Longitude)	Source	Parameter	Concentration	Units
CHP	A1 SJ 89839 02118	CHP engine 1 – Jenbacher 1 [note 1]	NOx	190	mg/m^3
Boilers	A2a SJ 89846 02079	Standby Hot Water Boiler 1 - Broxley	NOx	-	
			TVOC	-	
			CO	-	
	A2b	Standby Hot Water Boiler 2 –	NOx	-	

	SJ 89846 02079	Broxley	TVOC	-	
			CO	-	
	A2c SJ 89846 02079	Standby Hot Water Boiler 3 – Broxley	NOx	-	
			TVOC	-	
			CO	-	
Flare	A3 SJ 89801 02110	Flare stack {note 2]	No parameters set	-	
Pressure Relief Valves (PRV)	A4 SJ 89857 02120	Primary Digester tank pressure relief valves	No parameters set	-	
	A5 SJ 89862 02110	Primary Digester tank pressure relief valves	No parameters set	-	
	A6 SJ 89872 02086	Primary Digester tank pressure relief valves	No parameters set	-	
	A7 SJ 89850 02004	Centrifuge Feed tank pressure relief valves	No parameters set	-	
	A8 SJ 89858 01984	Centrifuge Feed tank pressure relief valves	No parameters set	-	
	A9 SJ 89820 02113	Gas holder pressure relief valve	No parameters set	-	
Odour Control Units (OCU)	A10 SJ 89868 01969	Discharge tank (for imported sludge) OCU (OCU1)	No parameter set	-	-
	A11 SJ 89899 01967	Imported sludge well OCU (OCU2)	No parameter set	-	-
	A12 SJ 89927 01988	Screen room and centrifuge tank OCU (OCU3)	No parameter set	-	-
	A13 SJ 89825 01993	Pre-digestion blending and primary sludge buffer tanks OCU (OCU4)	No parameter set	-	-
	A14 SJ 89852 02024	Primary sludge thickeners OCU (OCU5)	No parameter set	-	-
	A15 SJ 89827 02068	Centrifuge OCU (OCU6)	No parameter set	-	-

	A16 SJ 89778 02084	Centrate return well OCU (OCU7)	No parameter set	-	-

Note 1: These limits are based on normal operating conditions and load – temperature 273.15K; pressure: 101.3 kPa and oxygen: 15 per cent (dry gas).

Note 2: Monitoring to be undertaken in the even the auxiliary flare has been operational for more than 10 per cent of a year (876 hours). Record of operating hours to be submitted annually to the Environment Agency.

Emission point reference and location	Source	Parameter	Concentration	Units
T1 SJ 89924 01989	Returns to centrate return pumping station, includes surface water drainage from permitted area; boiler blowdown; condensate and cleaning residues	No limits set	-	-
T2 SJ 90134 01540	Tanker import point for domestic imports at the works inlet.	No limits set	-	-
T3 SJ 89859 01970	Tanker import point for undigested sludge to be digested in the primary digesters.	No limits set	-	-

Sampling point reference and location	Sources
S1 SJ 89926 01986	Returns to contrate return pumping station, includes surface water drainage from permitted area; boiler blowdown; condensate and cleaning residues

3 Operating techniques

3a Technical standards

Table C3-3 Technical standards

Schedule 1 activity or DAA	Best available techniques	Document reference
Anaerobic Digestion plant S5.4A1(b)(i)	Biological waste treatment: appropriate measures for permitted facilities	Updated 6 July 2023

3a1 Does your permit have references to any of your own documents or parts of documents submitted as part of a previous application for this site?

Yes – remain as per previously permitted CHP operations

3b General requirements

Table C3-4 General requirements

Name of the installation: Barnhurst STW Bioresources	Document references
If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them.	N/A – see Table C2-6 above
If the technical guidance or your risk assessment shows that odours are an important issue, send us your plan for managing them.	See Odour Management Plan Appendix E
If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration plan (or both).	N/A – see Table C2-6 above

3b - General requirements

If the TGN or H1 assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them.

Although screened out of the detailed Risk Assessment (Question C2 Q6), due to the nature of the process the installation has the potential to generate fugitive emissions to air and water, which are subject to a number of process controls. An assessment of fugitive emissions has been undertaken using the following methodology. The risk assessment is presented in Tables C3-3b(i) to (iV).

Risk Matrix and Terminology for Accident for Risk Assessment

Likelihood ↓	Consequence		
	Low	Medium	High
Low	Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	High

Classification	Likelihood	Consequence	Risk
Low	Probability of an event is low and likely only to occur in the long-term (a yearly basis or less frequent).	Impact is low or a minor, short-term nuisance. Minor release to a non-sensitive receptor or pollution of water course. Non-permanent health effects to human health (preventable by appropriate PPE). Minor surface damage to buildings; structures; services; or the environment which can be repaired immediately.	A level of harm is possible although this may not be noticeable to a receptor and would be a short-term event without lasting effects. Level of harm can be reduced using industry best practice and appropriate measures and techniques.
Medium	It is probable that an event will occur periodically in the medium-term (twice yearly basis).	Impact is noticeable in the short to medium-term. Large release impacting on the receiving media killing flora and fauna and requires remediation. Nuisance causing non-permanent health effects to human health. Damage to buildings; structures; services; or the environment preventing short-term use and/or requiring repair.	A level of harm may arise to a receptor which is noticeable although not long-lasting and may require some remedial actions in order to prevent re-occurrences.
High	An event is very likely to occur in the short-term (monthly or weekly basis) and is almost inevitable over the long-term OR there is evidence at the receptor of harm or pollution.	Impact is significant, wide-ranging and long-lasting effect. Has a chronic or acute impact on human health. Very large release that has a major impact on flora and fauna which may be very difficult to remediate. Significant damage to buildings; structures; services; or the environment which prevents use long-term and may require complete replacement. May cause a long-term impact or contribute towards a global issue due to releases of greenhouse gases.	A level of harm is likely to arise to a receptor that is severe causing significant harm to human health or the environment without appropriate remedial and mitigation measures being implemented. Remedial works to infrastructure and processes is required in the long-term.

Although screened out of the detailed Risk Assessment (Question C2 Q6), due to the nature of the processes, the anaerobic digestion operations and digested sludge cake storage, along with biogas utilisation have the potential to generate fugitive emissions to air and water, which are subject to a number of process controls.

Table C3-3b(i) Fugitive emissions risk assessment

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Emissions to air of NOx, SO_2, CO_2 and VOCs	Normal	Emissions to air and dispersion leading to inhalation by local human and animal receptors	High	Low	Medium	Activities are managed and operated in accordance with the site management system and LDAR plan (including inspection and maintenance of equipment, including engine management systems), point source emissions to air (CHP engine, boiler and emergency flare stack) have emission limits for NOx, CO_2, SO_2. Flare stack height approx. 5m, CHP stack approx. 7m and boiler flue approx.10 m.	Low
Gas transfer systems, gas storage tank, gas engines, flares or PRVs failure causing emissions of biogas	Abnormal	Emissions to air and dispersion leading to: inhalation by local human and animal receptors. Odour impact. Global warming potential. Risk of fire and explosion	Low	Medium	Low	The plant is designed to capture and utilise all biogas possible, combusting the biogas in order to maximise recovered value from the biological treatment of sludge. The gas system utilised is subject to regular preventative maintenance in accordance with an LDAR plan, to minimise the potential for leaks occurring. The system is also protected with a comprehensive array of pressure and flow sensors and with isolation valves to minimise the potential for release if a leak is detected.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						Personnel on site wear portable gas detectors in order to alert staff to presence of biogas. A waste gas burner (emergency 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. PRVs are in place on the gas holder to be operated in the event of failure of the emergency flare to prevent over pressurisation and catastrophic failure.	
Catastrophic loss of biogas emissions from gas transfer systems, gas storage tank, gas engines, flares or PRVs	Abnormal	Emissions to air and dispersion leading to: inhalation by local human and animal receptors. Odour impact. Global warming potential. Risk of significant fire and explosion	Low	High	Medium	The plant is designed to capture and utilise all biogas possible, combusting the biogas in order to maximise recovered value from the biological treatment of sludge. The gas system utilised is subject to regular preventative maintenance including an LDAR plan, to minimise the potential for leaks occurring. The system is also protected with a comprehensive array of pressure and flow sensors and with isolation valves to minimise the potential for release if a leak is detected. A waste gas burner (emergency 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.	Medium

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						Use of emergency flare is recorded. PRVs are in place on the gas holder to be operated in the event of failure of the emergency flare to prevent over pressurisation and catastrophic failure.	
Combustion of biogas within CHP engine and emergency flare. Combustion of biogas or natural gas within boilers	Normal	Emissions to air and dispersion leading to: inhalation by local human and animal receptors. Global warming potential	High	Low	Medium	Combustion plant is regularly maintained and appropriately sized to manage volumes of gas. Combustion plant operates within permitted ELVs subject to routine monitoring against permit compliance. CHP engine and emergency flare are located away from the nearest residential properties which are over 145m from the CHP engine north west, the nearest commercial buildings are approx. 280m South East.	Low
Release of bioaerosols and dust from storage or spillage	Normal	Emissions to air and dispersion leading to inhalation by local human and animal receptors. Odour impact of bioaerosols. Nuisance impact of dust.	Medium	Low	Medium	There is a low risk of bioaerosol and dust as the cake production is approximately 327m from commercial buildings, and 157m from residential properties, in addition the cake is not stored on site. Severn Trent carried out a monitoring exercise at 3 sites and Upwind and downwind locations results remained below the industry standard threshold values of 500cfu/m^3 for Aspergillus Fumigatus. Upwind and downwind locations	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						results remained below the industry standard threshold values of 1000cfu/m^3 for Total Bacteria. Roads are made from concrete/asphalt and not prone to the generation of dust. Staff responsible for site housekeeping and cleaning of spillages in a timely manner.	
Spillage of liquids, including chemicals and oils.	Abnormal	Emissions to surface waters close to and downstream of site. Acute effect resulting in loss of flora and fauna. Chronic effect resulting in deterioration of water quality Emissions to ground and ground water.	Low	Medium	Low	The closest surface water body surrounds the site, closets to the northern and eastern boundaries. Chemicals and oils all stored within suitably bunded tanks and IBCs with rainwater removed as required to maintain 110% capacities. Penstock valves available within chemical delivery areas to contain large spillages. Handling and use of chemicals and oils is carried out by trained personnel. COSHH data sheets available. Spill kits available on site. There are no point source emissions to water with drainage system pumping back to works inlet.	Low
Spillage from storage and	Abnormal	Emissions to surface waters close to and downstream of	Medium	Medium	Medium	The site lies in Groundwater Source Protection	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
digestion tanks, overtopping of tanks, leakage from same tanks and from buried pipes		site. Acute effect resulting in loss of flora and fauna. Chronic effect resulting in deterioration of water quality Emissions to ground and ground water.				Zone 3. Provision of suitably structurally integral tanks constructed from pre-conditioned concrete, and steel and glass reinforced plastic/insulation (where needed). All tanks are subject to asset inspection and proactive maintenance programme including regular visual inspection for cracks or weeping. Visual checks during regular day-to-day operations and scheduled preventative maintenance of equipment, such as pumps, pipes, joins etc Biogas condensate discharged back to the works inlet through site drainage system. Spill kits available on site. There are no point source emissions to water with drainage system pumping back to works inlet.	
Generation of solid waste resulting in litter	Normal	Releases of litter to the environment. Visual nuisance and local loss of amenity	Low	Low	Low	Site operations do not give rise to large amounts of solid wastes and litter that would be prone to dispersion by wind. Rags are stored within skips and retain high moisture content. Waste is stored securely for collection by appropriately licensed approved contractors.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						Litter picking activities are completed as required.	

Where the TGN or H1 assessment shows that odours are an important issue, send us your odour management plan.

Due to the nature of the process, the installation has the potential to generate odorous emissions resulting from the permitted activities. Odour management is a key operational objective, as summarised in the risk assessment table below. A copy of the site-specific odour management plan has been appended to this application as Appendix E.

Table C3-3b(ii) Odour risk assessment

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
H_2S/biogas emissions from uncovered tanks	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	High	Low	Medium	Biogas will principally be generated in the three primary digestion tanks which are covered with fixed roofs. The nearest residential properties approx. 200m North West from the digesters and nearest commercial buildings approx. 210m South East. Small amounts of biogas may also be generated within digestate storage tanks which are located closer to the commercial properties but still over 200m away. H_2S production is controlled through the digestion process which can be manually	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						overridden if required.	
Loss of containment from biogas holder and biogas pipework	Abnormal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	Low	Medium	Low	Biogas is principally stored within a telescopic roof gas holder which is suitably sized to manage biogas generation. The gas system utilised is subject to regular preventative maintenance to minimise the potential for leaks occurring. The system is also protected with a comprehensive array of pressure and flow sensors and with isolation valves to minimise the potential for release if a leak is detected. Personnel on site wear portable gas detectors to alert staff to presence of biogas. Physical protection measures in place for biogas holder, including kerbing and pipework is guarded. PRVs available to safely manage pressures within the biogas holder and prevent under or over pressurization.	Low
Activation of biogas pressure relief valve	Abnormal	Emissions to air and dispersion leading to inhalation by local human receptors	Low	Low	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.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
		Loss of amenity from odour nuisance				PRVs subject to monitoring via SCADA and visual checks by site personnel. Biogas is principally stored within the site gas holder which is suitably sized to manage biogas generation and act as buffer storage for biogas. Site has one CHP engine, three boilers and one flare which are used in order of preference to maximise recovery of energy. CHP engine and boilers are subject to regular maintenance to maintain maximum use of outlets, with flare maintained in good working order should it need to be used. The nearest residential properties approx. 200m North West from the digesters and nearest commercial buildings approx. 210 m South East.	
H_2S/biogas emitted when biogas cannot be combusted in engine, boilers or flare	Abnormal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	Low	Low	Low	Biogas is principally stored within the telescopic roof gas holder which is suitably sized to manage biogas generation and act as buffer storage when biogas cannot be combusted. Site has one CHP engine, three boilers and one flare giving multiple outlets for biogas. The nearest residential properties approx. 200m North West from the digesters and nearest commercial buildings approx. 210 m	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						South East. CHP engine and boilers are subject to regular maintenance to maintain maximum use of outlets, with flare maintained in good working order should it need to be used.	
Failure of odour control units	Abnormal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	Low	High	Medium	Odour control units are subject to regular preventative maintenance. Media is replaced in line with the manufacturer's recommendations	Low
Storage of site generated wastes	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	Low	Low	Low	Wastes generated on site are not inherently odorous and is stored securely for collection by appropriately licensed approved contractors.	Low

If the TGN or H1 assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)

The installation has the potential to generate noise as a result of the permitted activities. Potentially noisy activities are subject to a number of process controls and noise management is a key operational objective, as summarised in the risk assessment table below. Note there is no history of substantiated noise complaints relating to the site:

Table C3-3b(iii) Noise risk assessment

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Operation of CHP engine	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors	High	Low	Medium	The one Jenbacher CHP engine is acoustically baffled, self-contained and designed for external applications therefore noise emissions are already low. CHP engine is located away from the nearest residential properties which are 145m North West of the engine with the nearest commercial buildings approx. 280m South East. Good maintenance of plant to ensure that excessive noise levels are not generated. Regular checks of noise mitigation measures fitted to items of plant. Such measures include silencers and baffles fitted to specific areas of plant. Where repair or replacement is required, the plant will, where possible, be taken out of service until repair or replacement of parts has been undertaken.	Low
Operation of fans on air cooled radiators	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors	High	Low	Medium	Air cooled radiators do not give rise to high levels of noise and are only used as required. They are located away from sensitive human receptors. The nearest residential properties which are 145m North West of the engines with the nearest commercial buildings approx. 280m South East. Good maintenance of fans to ensure that excessive noise levels are not generated. Where repair or replacement is required, this	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						will be completed promptly.	
Operation of site vehicles	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors. Generation of vibration with ground transmission, causing loss of amenity to local human receptors.	High	Medium	High	Vehicle movements across the site subject to speed limit and one-way system to reduce generation of noise. Reversing obligations minimised by site layout. Tanker deliveries limited to daytime only.	Low
Operation of emergency flare	Abnormal	Generation of noise with air transportation, causing loss of amenity to local human receptors.	High	Low	Medium	Use of the emergency flare is minimized by prioritizing use of the CHP and boilers with use of the flare recorded. Emergency flare is located a similar distance to the engines from sensitive receptors.	Low

Table B3-3b (iv) - Environmental Risk Assessment and Accident Management Plan

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Major fire and/or explosion causing the release of polluting materials to air, water	Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to	Low	High	Medium	Follow site Incident Response Plan and inform relevant authorities. Management systems requires DSEAR assessment	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
or land.	local population Emissions to ground and ground water of digestate contaminating soil and/or groundwater. Run-off from site polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality. Injury to staff, fire fighters or arsonists/vandals.				which is adhered to by site operations. Designated ATEX zones on site and lightning protection system in place around biogas holder. Fire alarm systems installed and maintained. Biogas contained within a closed system and monitored for safety. Automatic cut off valve to biogas supply to stop gas glows, electric temperature sensor, pressure monitors, flame arrestors, etc. Warning signs clearly displayed, and staff wear gas alarms to alert to the presence of biogas. All visitors subject to site inductions and accompanied. Permit-to-work system in place. Preventative maintenance programme and maintenance plans are in place to maintain equipment effectively. Smoking only permitted in designated areas of site.	
Minor fire causing the release of polluting materials to air, water or land	Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population Emissions to ground and ground water of digestate contaminating soil and/or groundwater. Run-off from site	Low	Medium	Low	Follow site Incident Response Plan and inform relevant authorities. Management systems requires DSEAR assessment which is adhered to by site operations. Designated ATEX zones on site and lightning protection system in place around biogas holder. Fire alarm systems installed and maintained.	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
	polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality. Injury to staff, fire fighters or arsonists/vandals.				Biogas contained within a closed system and monitored for safety. Automatic cut off valve to biogas supply to stop gas glows, electric temperature sensor, pressure monitors, flame arrestors, etc. Warning signs clearly displayed, and staff wear gas alarms to alert to the presence of biogas. All visitors subject to site inductions and accompanied. Permit-to-work system in place. Preventative maintenance programme and maintenance plans are in place to maintain equipment effectively. Smoking only permitted in designated areas of site.	
Failure to contain firefighting water	Emissions to ground and ground water of contaminated firefighting water entering soil and/or groundwater. Run-off from site to surface water courses. Harm to aquatic flora and fauna. Chronic effect on water quality	Low	Medium	Low	Likelihood of firefighting water being generated is low as the risk of fire is low. Follow site Incident Response Plan and inform relevant authorities. Spill kits provided around the site can be used to direct run-off towards site drainage. Site drainage returns to works inlet providing containment and treatment process for fire water. Arrange for off-site tankering of firefighting water, if required.	Low
Accidental explosion	Emissions to air and dispersion	Low	High	Medium	Follow site Incident Response Plan and inform	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
of biogas	leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Pollution of water or land				relevant authorities. Management systems requires DSEAR assessment which is adhered to by site operations. Designated ATEX zones on site and lightning protection system in place around biogas holder. Fire alarm systems installed and maintained. Biogas contained within a closed system and monitored for safety. Automatic cut off valve to biogas supply to stop gas glows, electric temperature sensor, pressure monitors, flame arrestors, etc. Lightning protection system installed. Likelihood reduced by availability of multiple on site uses of biogas (CHP, boilers and emergency flare) and use of pressure release valves as a safety measure.	
Significant leak of biogas to atmosphere	Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population. Global warming potential of greenhouse gases.	Low	High	Medium	Site assets are protected by physical means to prevent vehicle strike and exposed pipework is guarded. Regular proactive and preventative maintenance and regular visual checks. Pressure relief valves are present to avoid over pressurisation of biogas system. Gas detectors are in place between the two layers of biogas membranes which will raise the alarm should a leak of biogas be detected.	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Leaks of emission to air, but principally NOx.	Emissions to air and dispersion leading to harm to protected nature conservation sites – SSSIs, SAC and SPA. Harm to protected site through toxic contamination, nutrient enrichment, disturbance etc.	Low	Low	Low	The nearest designated protected habitat is within 1km site but ADMS modelling does not show an impact. Emissions modelling shows that deposition and impacts on habitats sites are acceptable. Site operations will be subject to emission limits under current Regulations with infrastructure designed to minimise uncontrolled releases. Checks, monitoring and preventative maintenance will further minimise fugitive emissions.	Low
Spillage of raw materials during (e.g. diesel, polymer,) during use, transfer and disposal operations.	Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses. Harm to aquatic flora and fauna. Chronic effect on water quality	Low	Medium	Low	Raw materials are stored on made ground, within bunded containers or on bunds to contain spillages of 110% of the volume. Contents of bunds are regularly checked during environmental audits and after periods of heavy rainfall and emptied as required. In event of a spillage, follow site spillage response plan and inform relevant site personnel. COSHH data sheets available. Deliveries to site are made by approved suppliers. Use of raw materials is carried out by trained personnel or automatically controlled processes. Penstock valves available within chemical delivery areas to contain large spillages. In the event of a minor spillage, spill kits are provided around the site which can be used to contain a spillage and direct it	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
					towards site drainage if suitable. Site drainage returns to works inlet providing treatment process for suitable materials, or arrange off-site tankering of waste, if required.	
Spillage of sludges (e.g. raw sludge, digested sludge) during processing and transfer operations e.g. tank overtopping, pipework leaks	Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses. Harm to aquatic flora and fauna. Chronic effect on water quality	Low	Low	Low	Processing and transfer operations of waste materials is largely an automatic process controlled by the Process Controllers and parameters set within the SCADA system. Storage and digestion tanks are fitted with sensors to monitor levels within a tank and can inhibit additional pumping if high alarms activate. Preventative maintenance programme and maintenance plans are in place to maintain equipment effectively and minimise the risk of spillages. In event of a spillage, follow site spillage response plan and inform relevant site personnel and relevant authorities. Spill kits are provided around the site which can be used to contain a spillage and direct it towards site drainage. Site drainage returns to works inlet providing treatment process for sludge or arrange off-site tankering of waste to another site. Sludge is relatively viscous and not highly mobile.	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Failure of sludge storage tanks / digester tanks	Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses. Harm to aquatic flora and fauna. Chronic effect on water quality.	Low	High	Medium	Follow site Incident Response Plan and inform relevant authorities. Regular infrastructure inspections for tanks and pipework and planned preventive maintenance system in place. Regular visual inspections for tanks and pipework and reactive maintenance. In-line flow monitoring in key locations and tank level monitoring would identify losses and enable a quick response. Tanks are found on unmade ground but are connected to site drainage which returns to works inlet. Sludge is relatively viscous and not highly mobile limiting the distance it can spread in a short time period.	Medium
All on-site hazards: machinery	Direct physical contact with human population and /or livestock after gaining unauthorised access to the installation Bodily injury	Low	High	Medium	Direct physical contact is minimised by activity being carried out within enclosed digesters Site activities are managed and operated in accordance with a management system. Site physical security measures to prevent unauthorised access. Assets are protected by various physical means including fencing, kerbing and bollards to prevent vehicle strikes. Site has a one-way traffic management system to minimise the need to reverse. Use of banksmen as	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
					appropriate. Vehicles equipped with reversing alarms.	
Vandalism causing the release of polluting materials to air (smoke or fumes), water or land.	Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population Emissions to ground and ground water of digestate contaminating soil and/or groundwater. Run-off from site polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality. Injury to staff, fire fighters or arsonists/vandals.	Low	High	Medium	Unauthorised access is unlikely to happen and minimised by physical site security measures and effective management systems. Site has access controlled barrier entry for all vehicular access. Fence runs the perimeter of the site. Additional security fences around some assets and other assets are kept within locked containers or buildings. Warning signs are displayed.	Low
Flooding from rivers, streams and groundwater	Emissions to surface water course and harm to aquatic flora and fauna. Infiltration to ground and groundwater. Harm to aquatic flora and fauna and chronic effect on water quality.	Low	Low	Low	The site sits entirely within an area classified as flood zone 1, indicating that it has a less than a 1:1000 probability of flooding in any year. General wider works designed to minimise risk of localised works flooding due to storm surges. Follow site Incident Response Plan and inform relevant authorities.	Low

Activity/Hazard	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
					Take appropriate corrective and preventative actions to minimise environmental impact	
Flooding due to drain blockages and/or excessive rainfall causing localised on-site surface water flooding	Emissions to surface water course and harm to aquatic flora and fauna. Infiltration to ground and groundwater. Harm to aquatic flora and fauna and chronic effect on water quality.	Low	Low	Low	Site wide drainage system linked to main sewage works, which includes additional capacity in storm tanks within the works to manage additional flows. Follow site Incident Response Plan and inform relevant authorities. Take appropriate corrective and preventative actions to minimise environmental impact	Low
Loss of mains power leading to failure of pumps / control systems and possible leaks and escape of sludge	Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses. Harm to aquatic flora and fauna.	Low	Medium	Low	Site CHP engine is able to supply electricity to the site using biogas supplies on site. Standby generators provide back-up power / contingency plans to provide power to critical operations in the event of an electrical outage. Fail safe systems in place to ensure sludge remains in situ in the event of a loss of power and that systems are promptly returned into operation. Site wide drainage system linked to main sewage works in the event of a spillage.	Low

3c –Types and amounts of raw materials

Table C3-5 Types and amounts of raw materials

Name of the installation					
Schedule 1 activity	**Description of raw material and composition**	**Maximum storage amount (tonnes or as stated)**	**Annual throughput (tonnes per annum or as stated)**	**Description of the use of the raw material including any main hazards (include safety data sheets**	**Alternatives**
Section 5.1A(1)(b)(i)	Anti foam Kemfoam X 2599 Kemfoam X 2155	4,000kg	<15,000kg (one IBC per month)	Added to primary digesters to reduce foaming.	Standard product used for this purpose within the industry
Section 5.1A(1)(b)(i)	Polymer (powder) Flopam 4490 Flopam 4650 Zetag 8160 Zetag 8187	15,000kg	<25,000kg (2 containers per month)	Flocculant added to digested sludge to aid centrifugation and dewatering.	Standard product used for this purpose within the industry
	Fuel oil	35,000 litres (30,000 & 5,000 litre tanks)	As required	Standby fuel for boiler plant	Standard product used for this purpose within the industry
	Lubrication oil	5,000 litres	<5,000 litres	Equipment lubricant	Standard product used for this purpose within the industry
	Glycol	205 litres	500 litres	CHP engine coolant (not stored on site)	Standard product used for this purpose within the industry
	Waste oil	5,000 litres	<5,000 litres	Waste oil from the CHP.	None.

4 Monitoring

4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above.

The existing air emission points A1 retains existing monitoring in accordance with the current permit.

Emission points A2-A6 and the odour control units to be monitored in accordance with current EA guidance.

4b Point source emissions to air only

The site has a number of emission points to air. Points which are subject to gas monitoring in accordance with the requirements of the current environmental permit, MCPD and EA guidance.

Hours of operation of the flare, A6, to be monitored and logged. In the unlikely event that the total annual hours of operation exceed 10% of the hours in a year (836 hours), emissions from the flare would be subject to monitoring in accordance with EA guidance.

There is no routine monitoring proposed for points for A7-A10 (breather tube, PRVs) and OCUs other than recommended by the manufacturer to achieve effective operational conditions.

Air emission point A1 will be subject to periodic monitoring in accordance with the requirements of the Medium Combustion Plant Directive (EU2015/2193).5 Environmental impact assessment.

4b1 Has the sampling location been designed to meet BS EN 15259 clause 6.2 and 6.3?

No

4b2 Are the sample ports large enough for monitoring equipment and positioned in accordance with section 6 and appendix A of BS EN 15259?

No

4b3 Is access adjacent to the ports large enough to provide sufficient working area, support and clearance for a sample team to work safely with their equipment throughout the duration of the test?

Yes

4b4 Are the sample location(s) at least 5 HD from the stack exit

No

4b5 Are the sample location(s) at least 2 HD upstream from any bend or obstruction?.

No

4b6 Are the sample location(s) at least 5 HD downstream from any bend or obstruction?

No

4b7 Does the sample plane have a constant cross sectional area?

Yes

4b8 If horizontal, is the duct square or rectangular (unless it is less than or equal to 0.35 m in diameter)

No

4b9 If you have answered 'No' to any of the questions 4b1 to 4b8 above, provide an assessment to how the standards in BS EN 15259 will be met.

As an existing site with combustion assets, sampling locations and sampling ports may not meet all of the requirements for BS EN 15259, but monitoring has been carried out over a number of years in accordance with the permit requirements with the installed ports. Due to the nature of the ducting access, it is not possible to conduct a full velocity profile, however, no particulate sampling is required for biogas fuelled units, and all gaseous species are considered to be mixed sufficiently for the purposes of monitoring. There is no requirement to undertake a homogeneity test as per BS EN 15259 and as such the location cannot be compared against that or the criteria in M1. The sampling location is as previously approved for use by the Environment Agency.

Due to the size of the CHP and boilers, a permanent sampling platform is not provided, however, a temporary sampling platform is utilised to provide sufficient space, in accordance with standard industry practice.

5 Environmental Impact Assessment

5a Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA)?

No

6 Resource efficiency and climate change

6a Describe the basic measures for improving how energy efficient your activities are

The installation is designed to treat thickened sewage sludge to enable its recycling to land as a fertiliser, and to capture and utilise biogas to generate green electricity.

The plant has been designed from first principles to be energy efficient. Gravity is used as far as practicable for the transfer of sludge and liquids within the installation in order to minimise energy requirements. Biogas is captured and used within the CHP engine in the first instance to generate both electricity for use within the wider site and for export to the electrical grid as appropriate. Waste heat from the CHP engine is utilised to ensure that the primary digesters operate within the optimum temperature range for the anaerobic digestion process to be undertaken. The digester vessels are insulated to retain this additional heating, and boilers which are fuelled by biogas, are utilised in particularly cold periods to supplement the digester heating. Flaring is minimised.

Lighting has been optimised for low energy use and all pumps and other mechanical and electrical plant subject to regular, routine, preventative maintenance to minimise losses.

6b Provide a breakdown of any changes to the energy your activities use up and create

The main site energy sources are electricity from the public supply and biogas generated by the anaerobic digester which is combusted in the CHP engine to generate electricity and heat on site.

6c Have you entered into, or will you enter into, a climate change levy agreement

No, the activities are not eligible to take part in the CCL Scheme.

6d Explain and justify the raw and other materials, other substances and water that you will use

See response to question 3c above.

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

The facility is a waste treatment plant, and the primary wastes produced through the processes on site are maintenance waste. Production of maintenance waste is minimised by ensuring that preventative maintenance is carried out based on a combination of manufacturers best practice and operational experience.

3.3 Form C4

1 What waste operations are you applying to vary?

Types of Waste accepted

See Table C3-1b in Section 3.3 above.

1c Deposit for recovery purposes

Are you applying for a waste recovery activity involving the permanent deposition of waste on land for construction or land reclamation (including landfill restoration)?

No

2 Point source emissions to air, water and land

See Table C3-2 – Emissions

3 Operating techniques

3a Technical standards

Table C4-3a – Technical standards

Description of waste operation	Appropriate measure (TGN reference)	Document reference (if appropriate)
Other biological treatment of waste: deposit of imported non-hazardous waste for treatment through a wastewater treatment works.	Biological waste treatment: appropriate measures for permitted facilities	Updated 6 July 2023

In all cases, describe the type of facility or operation you are applying for and provide site infrastructure plans, location plans and process flow diagrams or block diagrams to help describe the operations and processes undertaken.

3b – General requirements

Table C4-3b General requirements

Name of the waste operation	Document references
If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them.	N/A
If the technical guidance or your risk assessment shows that odours are an important issue, send us your plan for managing them.	Odour Management Plan
If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration plan (or both).	N/A

4 Monitoring

4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above

See response for Form C3 previously

4b Point source emissions to air only

See response for Form C3 previously

3.1 Form C6

The relevant questions within the form are those applicable to effluent and / or surface water run-off arising from the operation of an installation.

1 About the effluent – details and type, continued

1a Give a brief description of the changes you want to make to your permit.

From Point T1 – release via the site drainage system

This effluent is a mixture of waste liquors from the operation of the installation for the anaerobic treatment of separated sewage sludge. It primarily comprises of dewatering liquors returned to the work inlet following the dewatering of treated sewage sludge, along with surface water run off from operational areas; boiler blowdown; biogas condensate and cleaning residues.

1b Give this effluent a unique name

T1 - Liquor returns

1d Have you obtained all the necessary permissions in addition to this environmental permit to be able to carry out the discharge (see B6 guidance notes for more details)?

Yes. The discharge is into the inlet of a sewage works controlled by the applicant.

2 About the effluent – how long will you need to discharge the effluent for?

2c Will the discharge take place all year?

Yes, the discharge will take place all year

3 How much do you want to discharge?

3b What is the maximum volume of effluent you will discharge in a day?

699 cubic metres

3c What is the maximum rate of discharge?

8.09 litres / second

3d What is the maximum volume of non - rainfall dependent effluent you will discharge in a day?

699 cubic metres

3f For each answer in question 3, show how you worked out the figure on a separate sheet

3b – based on the maximum daily site input of 699 tonnes, assuming 1 tonne = 1 cubic metre. The liquor arisings must come from the installation inputs as there is limited additional water inputs. Actual discharge will be slightly lower as no allowance has been made for water entrained in the produced sewage cake, but there will be lower volumes inputs like biogas condensate.

3c – this is based on (699m3 / 86400) x1000. Arisings from sources such as dewatering are constant as the plant runs continuously. This gives a value of 8.09028 litres, rounded up to 8.09 litres per second.

3d – based on the maximum daily site input of 699 tonnes, assuming 1 tonne = 1 cubic metre. The liquor arisings must come from the installation inputs as there is limited additional water inputs. This is primarily the outputs from the dewatering plant, which assumes all materials input to the primary digesters end up in the dewatering plant. Actual discharge will be slightly lower as no allowance has been made for water entrained in the produced sewage cake, but there will be lower volumes inputs like biogas condensate.

4 No questions

5 Should your discharge be made to the foul sewer?

5a How far away is the nearest foul sewer from the boundary of the premises?

Not applicable, the site is located within the curtilage of a sewage treatment works and discharges into the works inlet via the site drainage system.

5b2 Discharges from all other premises including trade effluent

Not applicable, the site is located within the curtilage of a sewage treatment works and discharges into the works inlet via the site drainage system.

6 How will the effluent be treated?

6a Do you treat your effluent?

Waste waters generated within the installation are not subject to pre-treatment.

The combined effluent generated by the process of treating sewage and sewage related arisings within the installation is returned to the inlet of the wider sewage treatment works, where it is subject to aerobic treatment in a mixture with UWWTD related waste waters.

6b Fill in Table 2 for each stage of the treatments carried out on your effluent in the order in which they are carried out

Table B6-6b – (Table 2) Treatments carried out on your effluent

Order of Treatment	Code Number	Description
First	09	Primary settlement within sewage works

Second	31	Activated sludge process
Third	03	Tertiary biological treatment

6c You must provide details on a separate sheet of the final effluent discharge quality that the overall treatment system is designed to achieve

The final effluent discharge from the wider sewage treatment works is specified in Environmental Permit MI/S/06/55227/R/008

7 What will be in the effluent?

7b Are any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' added to or present in the effluent as a result of the activities on the site?

BAT 6&7 sampling returns:

There are no direct emissions to water from the sludge treatment facility. The only indirect emission is of the sludge liquors and surface waters, which are returned to the wastewater treatment works for aerobic treatment under Urban Wastewater regulations. The liquors returned from the sludge treatment facility have originated from wastewater treatment works that are also under the control of Severn Trent Water.

Severn Trent Water have always undertaken periodical sampling of ammonia on the centrate returns with regard to loading impacting the operation of the treatment works. More recently, they have also undertaken shadow sampling twice monthly for Ammonia, Soluble BOD, Total BOD, Orthophosphates and Suspended Solids in return liquors to the inlet, using the sample points noted in the table. Direct regular sampling of these returns is a fairly recent addition to our processes so our understanding of the variance in these returns is developing. COD, BOD, Total Nitrogen, TOC, Ammoniacal Nitrogen, total Phosphorous, suspended solids and pH are directly available at our UKAS accredited contract laboratory and we will begin sampling for these determinands. Not all processes have flow meters on the return lines, assumptions will be made from the throughput of the asset. Temperature would be a field-based measurement, currently this is not measured. STW will aim to sample for PFOS and PFOA on a six-monthly basis to build up a data set, but due to the two weeks analysis turn around, these are not of use to the live operational process.

The data obtained from the return sampling will be used to optimise the process and STW will carry out root cause investigations with the process support teams to understand what changed on site and ensure that we can reduce the risk to the inlet. If any abnormalities are identified in the sample data following root cause investigations, the Process Team will collaborate with wider site based teams and the Catchment team to ascertain the root cause.

As part of the new IED permit and in line with BAT 3, we commit to carrying out further chemical analysis of the waste water, testing for all pollutants expected to be present in the discharge. We are currently in discussion with UKAS accredited laboratories to see what analysis is possible on our leachate returns, and what 'minimum reporting value' is appropriate. This review will be undertaken in line with EA guidance, for example 'Surface Water Pollution Risk Assessment for your environmental permit', and 'Monitoring Discharges to Water'. The sampling will be undertaken by our suitably trained internal teams that already undertake compliance sampling for EA discharge permits to MCERTS standards. Analysis will be contracted to UKAS accredited laboratories.

7c Have any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' been detected in samples of the effluent or in the sewerage catchment upstream of the discharge?

Please see previous answer.

7d Are there any other harmful or specific substances in your effluent not mentioned in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater'?

At present, no sampling or analysis for all substances listed within the referenced risk assessment at the site has been undertaken. A review of the MSDS sheets for chemicals used within the installation does not indicate the presence of any other harmful or specific substances within the effluent.

7e If you have answered 'No' to any of questions 7a to 7d provide details on a separate sheet of how you have established that the effluent is not likely to contain specific substances

A review has been undertaken of the relevant MSDS sheets for chemical used routinely within the installation to look for substances identified within the risk assessments listed. Discussions are being held with the local catchment team, to identify any known sources of these materials within the sewage works catchment area.

7f What is the maximum temperature of your discharge?

20°C back into the sewage works

7g What is the maximum expected temperature change compared to the incoming water supply?

0°C

8 Environmental risk assessments and modelling

8b Discharges to lakes, estuaries, coastal waters or bathing waters

The installation does not discharge to lakes, estuaries, coastal waters or bathing waters

8d Discharges to groundwater

The installation does not discharge to groundwater

8e Discharges to freshwater (non - tidal) rivers from an installation, including discharges via sewer

No modelling has been undertaken on the output from the installation at present, due to a lack of quality data and confirmation of flows. The final effluent discharge from the wider works, which includes the installation arisings has previously been subjected to modelling as part of the environmental permitting discharge application process.

8f Environmental impact assessment

No environmental impact assessment has been carried out on the installation, as it is an existing facility.

9 Monitoring arrangements

9a What is the national grid reference of the inlet sampling point? (for example, SJ 12345 67890)

Not applicable to this installation

9b What is the national grid reference of the effluent sample point?

Current sampling occurs at the final effluent point: SJ 90230 01520

9d What is the national grid reference of the flow monitoring point?

No flow meter installed.

9e Does the flow monitor have an MCERTS certificate?

No. No flow meter installed.

9f Do you have a UV disinfection efficacy monitoring point?

No. Not installed as part of this installation.

9h You should clearly mark on the plan the locations of any of the above that apply to this effluent

Please see site emission point plan.

10 Where will the effluent discharge to?

10a Where the effluent discharges to

Non - tidal river, stream or canal

Appendix 5 – Discharges to non - tidal river, stream or canal

A5.1 Give the discharge point a unique name For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

Final Effluent Outlet

A5.2 Give the national grid reference of the discharge point

SJ 90230 01520

A5.3 Give the name of the watercourse, canal or the main watercourse it is a tributary of if you know it

Shropshire Union Canal Main line

A5.4 Is the discharge into a:

Canal

A5.5 Does the discharge reach the watercourse or canal by flowing through a surface water sewer?

No

A5.6 Does the watercourse dry up for part of the year?

No

A5.61 If the watercourse does dry up for part of the year can you indicate a typical period when the surface water runs dry each year – start and finish (in months)

N / A

A5.6.2 If the watercourse does dry up for part of the year, how many metres downstream of the discharge is it before the discharged effluent soaks in?

N / A

A5.7 Is the discharge made to a roadside drain or ditch?

No

10b Is this effluent discharged through more than one outlet?

No

10c If you answered yes to question 10b above make sure you show clearly on your discharge point appendix or appendices and site plan that this one effluent can discharge to more than one discharge point

N / A

The relevant questions within the form are those applicable to effluent and / or surface water run-off arising from the operation of an installation.

1 About the effluent – details and type, continued

1a Give a brief description of the effluent discharge you want a permit for, for example, treated domestic sewage effluent

From Point T1 – release via the site drainage system

This effluent is a mixture of waste liquors from the operation of the installation for the anaerobic treatment of separated sewage sludge. It primarily comprises of dewatering liquors returned to the work inlet following the dewatering of treated sewage sludge, along with surface water run off from the operational area. It will also contain biogas condensate; boiler blowdown and residues from cleaning operations.

The only wastes treated within the installation are sewage related, either being separated from the UWWTD flow in the wider works, or comprise of waste imports, principally of sludge from smaller satellite treatment works, with lower volumes of cess, septic tank and similar sewage related arisings delivered by third parties imported to the digester.

1b Give this effluent a unique name

T1 - Liquor returns

1d Have you obtained all the necessary permissions in addition to this environmental permit to be able to carry out the discharge (see B6 guidance notes for more details)?

Yes. The discharge is into the inlet of a sewage works controlled by the applicant.

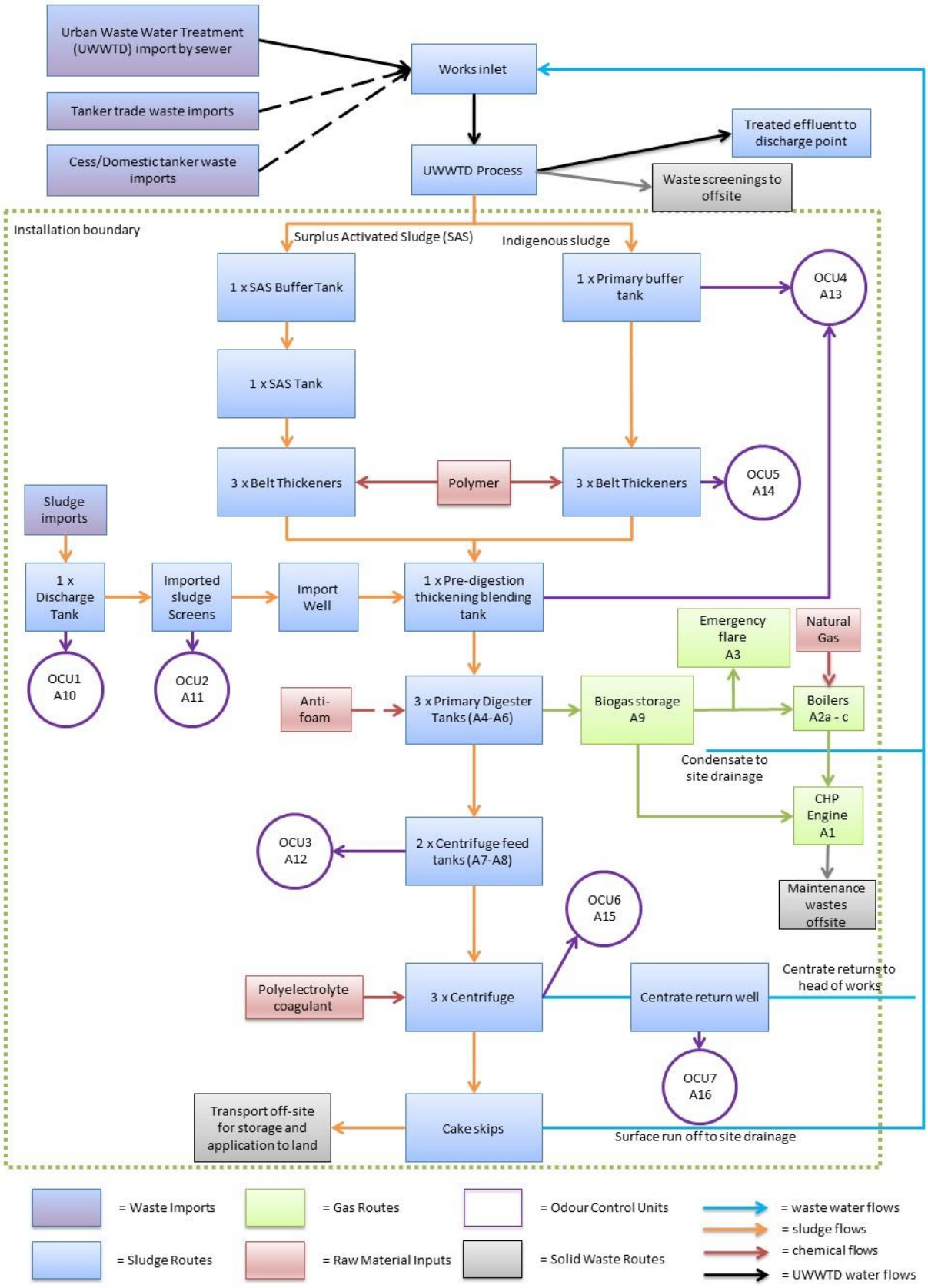
Appendix A. Figures

A.1.1 Site Location Plan

A.1.2 Permit Boundary and Air Emission Point

A.1.3 Site Drainage Plan

A.1.4 Process Flow Map



Appendix B. Certificates

Appendix C. BAT Assessment

Please see appended spreadsheet

Appendix D. H5 Site condition report

SITE CONDITION REPORT TEMPLATE

For full details, see H5 *SCR guide for applicants* v2.0 4 August 2008

COMPLETE SECTIONS 1-3 AND SUBMIT WITH APPLICATION

DURING THE LIFE OF THE PERMIT: MAINTAIN SECTIONS 4-7

AT SURRENDER: ADD NEW DOC REFERENCE IN 1.0; COMPLETE SECTIONS 8-10; & SUBMIT WITH YOUR SURRENDER APPLICATION.

1.0 SITE DETAILS	
Name of the applicant	Severn Trent Water Limited
Activity address	Barnhurst STW Oxley Moor Road Wolverhampton WV9 5HN
National grid reference	Sj 89838 02120

Document reference and dates for Site Condition Report at permit application and surrender	Variation Application for bespoke Permit, December 2021

Document references for site plans (including location and boundaries)	Please see site plan in Appendix A and information within Air Quality Assessment.

Note:
In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:

- Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

If this information is not shown on the site plan required by Part A of the application form then you should submit the additional plan or plans with this site condition report.

2.0 Condition of the land at permit issue	
Environmental setting including: • geology • hydrogeology • surface waters	The site is classified as flood zone 1 indicating that it has a less than 1:1000 probability of flooding in any year. The site sits inside a designated Zone 3 source protection zone (SPZ) for groundwater, the overlying geology is an secondary A aquifer, underlain with bedrock of a principal aquifer, designated as medium-high vulnerability.
Pollution history including: • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures	The site is approximately 3.9 km northwest of the centre of Wolverhampton between the village of Billbrook and suburb of Oxley. The surrounding land use generally comprises residential properties and open grassland. Prior to the 1860 the site was agricultural land becoming a sewage works in 1864. Since this time, the site has been a sewage treatment works. Development and expansion of the site has taken

	place between the 1950's and 1970's at the same time as additional development within the proximity of the site.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	There has been a sewage treatment works at the site since 1864. The layout of the works and treatment methodologies have varied over time.
Baseline soil and groundwater reference data	None collected
Supporting information	At this time, Severn Trent has not provided background data for the site due to the long history of sewage treatment at the location and the lack of any plans to cease sewage treatment activities at the location

3.0 Permitted activities	
Permitted activities	Operation of an anaerobic digestion plant for sewage sludge waste and imported sewage sludge wastes and combustion of biogas within a CHP engine to generate electricity for use on site.
Non-permitted activities undertaken	Storage of raw materials
Document references for: • plan showing activity layout; and • environmental risk assessment.	Please see Technical Summary in Chapter 2 of main application document

Note:

In Part B of the application form you must tell us about the activities that you will undertake at the site. You must also give us an environmental risk assessment. This risk assessment must be based on our guidance (*Environmental Risk Assessment - EPR H1*) or use an equivalent approach.

It is essential that you identify in your environmental risk assessment all the substances used and produced that could pollute the soil or groundwater if there were an accident, or if measures to protect land fail.

These include substances that would be classified as 'dangerous' under the Control of Major Accident Hazards (COMAH) regulations and also raw materials, fuels, intermediates, products, wastes and effluents.

If your submitted environmental risk assessment does not adequately address the risks to soil and groundwater we may need to request further information from you or even refuse your permit application.

4.0 Changes to the activity	
Have there been any changes to the activity boundary?	Yes
Have there been any changes to the permitted activities?	Yes as the site is a now an installation rather than a MCPD permit. The permit area is therefore much larger, as shown itn eh site boundary plan
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	No
Checklist of supporting information	Site permit boundary plan

5.0 Measures taken to protect land	
Use records that you collected during the life of the permit to summarise whether pollution prevention measures worked. If you can't, you need to collect land and/or groundwater data to assess whether the land has deteriorated.	
Checklist of supporting information	• Inspection records and summary of findings of inspections for all pollution prevention measures • Records of maintenance, repair and replacement of pollution prevention measures

6.0 Pollution incidents that may have had an impact on land, and their remediation	
Summarise any pollution incidents that may have damaged the land. Describe how you investigated and remedied each one. If you can't, you need to collect land and /or groundwater reference data to assess whether the land has deteriorated while you've been there.	
Checklist of supporting information	• Records of pollution incidents that may have impacted on land • Records of their investigation and remediation

7.0 Soil gas and water quality monitoring (where undertaken)

Provide details of any soil gas and/or water monitoring you did. Include a summary of the findings. Say whether it shows that the land deteriorated as a result of the permitted activities. If it did, outline how you investigated and remedied this.

Checklist of supporting information	• **Description of soil gas and/or water monitoring undertaken** • **Monitoring results (including graphs)**

8.0 Decommissioning and removal of pollution risk

N/A

Checklist of supporting information	• **Site closure plan** • **List of potential sources of pollution risk** • **Investigation and remediation reports (where relevant)**

9.0 Reference data and remediation (where relevant)

N/A

Checklist of supporting information	• Land and/or groundwater data collected at application (if collected) • Land and/or groundwater data collected at surrender (where needed) • Assessment of satisfactory state • Remediation and verification reports (where undertaken)

10.0 Statement of site condition

Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that:

- the permitted activities have stopped
- decommissioning is complete, and the pollution risk has been removed
- the land is in a satisfactory condition.

Assume the statement is going to be that STL doesn't have pre permit site condition and therefore is assuming the risk and will deal with remediation if and when the permit is surrendered

Appendix E. Odour Management Plan

Appendix F. Air Dispersion Modelling Report

Appendix G. BAT assessment

Appendix H. Site Spill Risk Assessment and Containment Report