Sludge Treatment Centre Permitting

Environmental Permit Variation Application - Chertsey Sludge Treatment Centre Resubmission

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Thames Water

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Contents

1. Introduction

This substantial variation application relates to a biological treatment permit for the Chertsey Sludge Treatment Centre (STC), located at the Chertsey Sewage Treatment Works (STW), operated by Thames Water Utilities Ltd (Thames Water). It is being made due to sludge treatment operations within STW requiring a suitable Environmental Permit under the Environmental Permitting Regulations 2016 (as amended), in order to comply with the requirements of the Industrial Emissions Directive.

Previously, sewage treatment sites operated by sewerage undertakers treating indigenous sewage sludges ('sludges') separated from the main urban wastewater treatment stream at the site along with the importation of similar wastes such as cess wastes and interworks sludge and cake transfers, were regulated under the Urban Waste Water Treatment Directive (UWWTD) only, and Environmental Permitting Regulations as exempt or waste management activities, although some works had parts of the process, specifically biogas utilisation covered by the Environmental Permitting regime.

Now, all aspects of the sludge treatment process at the site, from the thickening of separated sludge from the main aerobic treatment flow; and blending with imported waste of a similar nature to indigenous sludge; sludge pre-treatment, anaerobic digestion; through to the storage of digested sludge cake prior to recovery to land offsite; including biogas storage and utilisation, will fall within the scope of this permit variation application.

The previous permits in place at sites for the importation of tankered trade waste to the works inlet and operation of biogas engines will be merged and remain in place as Directly Associated Activities (DAAs) to this listed process. This application is for the purposes of varying the existing permitted activities to include the anaerobic digestion process as an installation activity.

A number of other sewage treatment related activities are undertaken at the site, outside of the scope of this permit, relating to the treatment of waste waters from the sewer network through aerobic processes. These activities are covered by the UWWTD.

1.1 Non-Technical Summary

This variation application is for a bespoke installation permit for the biological treatment of sludge by anaerobic digestion, with a capacity above the relevant thresholds.

The biological treatment of sludge includes treatment of the indigenous sewage sludges from the onsite aerobic treatment process and treatment of imported sewage sludges from other sites, arriving by road to a sludge import point. The indigenous sewage sludges are generated from the aerobic treatment of both waste waters from the sewer network arriving into site at the works inlet, and, from imported waste materials, arriving by road transport into a dedicated waste import point near the works inlet.

The operation of biogas fuelled Combined Heat and Power (CHP) engines for the generation of electricity and heat at the site, which is classified as an 'existing' combustion source under the Medium Combustion Plant Directive, is already permitted, and will be classified as DAAs to this main listed activity. The dual fuel boiler, currently subject to a LEP, will become permitted as a new mcp, and DAA, under this variation application.

There is a second listed activity, relating to the aerobic treatment of liquors in a Liquor Treatment Plant.

There is an additional waste operation, relating to the import of waste materials from cleaning of TWUL wastewater network, including sewer network cleaning, to a dedicated import point for the purpose of pre-treatment screening and solid separation.

The Chertsey STC is located within the Chertsey STW south of the M3 motorway near to the town of Chertsey, Surrey.

The STC treats both indigenous sludges and imported sludges. Indigenous sludge is generated from the incoming flow to the STW, which passes through the aerobic treatment process under the UWWTD. Indigenous sludge is pumped to the Unthickened Indigenous Sludge Tanks and pumped to the Sludge Buffer Tank, via Sludge Screens, where indigenous and imported sludges combine. Alternatively, indigenous sludge can be pumped to Sludge Thickening Plant, thickened and pumped to the Thickened Indigenous Sludge Tanks. From the Thickened Indigenous Sludge Tanks, sludge is then pumped to the Sludge Buffer Tank. Liquor from the Sludge Thickening Plant returns to the works inlet via the site draining and Liquor Return Pumping Station for treatment.

Imports of sludge from other works are delivered to a sludge offloading point and Sludge Import Tank, via Sludge Screens, from tankers and combine with the indigenous sludge in the Sludge Buffer Tank. All such imports are subject to appropriate waste pre-acceptance and acceptance checks, prior to acceptance. The Sludge Import Tank is odour abated via an Odour Control Unit (OCU).

The STC comprises an offloading point for permitted imported waste at the inlet of the STW. The waste arrives at the STC via tanker and is discharged into a chamber and combines with incoming sewer material at the Works Inlet, and is subject to the UWWTD.

All imports will be assessed using the Thames Water standard waste pre-acceptance checks to ensure that they are appropriate for treatment via the UWWTD. Once pre-approved as suitable for treatment via the UWWTD route, the waste carriers are approved. Wastes will be subject to appropriate waste acceptance checks in accordance with Thames Water procedures. Incoming tanker vehicles are directed to the inlet offloading point, which is an impermeable surfaced area, equipped with sealed drainage.

Indigenous sludge and imported sludge from the Sludge Buffer Tank are pumped to Pre THP Dewatering Feed Tank. Sludge is then subject to dewatering in Pre-THP Dewatering Plant and the thickened sludge is then subject to a Thermal Hydrolysis Process (THP), with the application of temperature and pressure, used to enhance the digestion of the sludge. Liquor from the Pre-THP Dewatering Plant are normally pumped to the Liquor Treatment Buffer Tank and Liquor Treatment Plant for treatment before being returned to the Works Inlet by the Liquor Return Pumping Station. The Pre THP Dewatering Feed Tank and Pre-THP Dewatering Plant are odour abated via an OCU. From the THP Process, pre-treated sludge is transferred to one of two Primary Digester Tanks at the site via a THP Cooler. The Primary Digester Tanks are of steel construction with external clad insulation.

Following treatment over an appropriate number of days within the Primary Digester Tanks, digested sludge is transferred to an enclosed and odour abated Digested Sludge Buffer Tank. From here, sludge is dewatered using Digested Sludge Dewatering Plant before it is transferred by conveyor to the Cake Barn, a partially enclosed building for storage prior to removal from site under the Sludge Use in Agriculture Regulations 1989 (SUiAR) and in accordance with the Biosolids Assurance Scheme (BAS). Liquors from Digested Sludge Dewatering is treated within the Liquor Treatment Plant and returned via the site drainage and the Liquor Return Pumping Station to the works inlet. The Digested Sludge Buffer Tank, Digested Sludge Dewatering Plant, Liquor Treatment Buffer Tank and Liquor Return Pumping Station are odour abated via an OCU.

Biogas from the Primary Digester Tanks is captured and transferred to a double membrane Biogas Storage holder for storage. The 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 holder and Primary Digester Tanks are fitted with pressure release valves (PRVs) as a safety precaution in the event of over pressurising the system.

The biogas is taken from the Biogas Storage holder for combustion in one of two CHP engines, generating electricity for use within the site, and heat to maintain THP temperature. This is classified as an 'existing' combustion plant under the Medium Combustion Plant Directive. In the event that additional heating is required for the THP or Primary Digester Tanks, this is provided by an onsite boiler. In the event there is excess biogas, i.e. more than the CHP engines can utilise, or in the event that the CHP engines are unavailable, there is a ground mounted emergency flare. This is utilised under 10% of the year or less than 876 hours per year. The CHP engines are currently operated under an Environmental Permit which will be merged with this permit.

The second listed activity at the site utilises a Liquor Treatment Plant to aerobically treat the dewatering liquor generated by the dewatering of sludge. The liquor is passed to the Liquor Treatment Feed Buffer Tank and then the Liquor Treatment Plant where oxygen is bubbled through it in a batch process to reduce the chemical oxygen demand (COD) and biochemical oxygen demand (BOD) loading and convert some of the ammonia within the liquor to nitrites and nitrates. At the end of the batch, the treated liquor is returned to head of the works via the Liquor Return Pumping Station for treatment through the UWWTD flow.

This application includes the import of treated sludge cake from other works, for temporary storage within the cake barn, pending offsite recovery. All such imports will be subject to appropriate waste pre-acceptance and acceptance checks, prior to import, including checking whether the incoming cake complies with the requirements of SUiAR and BAS.

Imported treated sludge cake is offloaded into an area within the cake barn, so as to be stored separately to indigenous sludge cake. The waste stream is the same as that arising from the treatment of sludge within the Chertsey STC with the same characteristics, composition and eventual end use – application to land. As such, the infrastructure which is acceptable for use for site cake is appropriate for the imported material. Cake is stored on an impermeable engineered surface within the cake barn, for the shortest time practicable, the duration depending on factors such as prevailing weather and availability of the landbank.

A pre-treatment Network Screening Unit is separately available to screen imports of network cleaning waste from TWUL sewer network and wastewater assets. Wastes are imported via tanker to the Network Screening Unit. Incoming vehicles are directed to the offloading point, on an impermeable surfaced area, equipped with sealed drainage and kerbing to reduce the risk of spillages. Solid wastes are screened, segregated and removed from site with the liquid fraction being pumped to the inlet of the STW discharged via the Liquor Return Pumping Station for treatment via the UWWTD process. This activity is a separate waste operation.

The STC also includes one Emergency Standby Generator that is a DAA. A second Emergency Standby Generator at the STW is already permitted and retained within the permit as an excluded generator.

2. Technical Description

This is a substantial variation for a bespoke installation permit under the Environmental Permitting (England and Wales) Regulations 2016 (as amended), following a change of interpretation of the UWWTD by the Environment Agency. It relates to a biological waste treatment permit for the Chertsey STC, located at the Chertsey STW, operated by Thames Water Utilities Ltd (Thames Water).

Scope

The variation application covers the biological treatment of sewage sludge, both indigenous and imported from other waste water treatment sites, by anaerobic digestion, with a capacity above the relevant thresholds. It also permits the acceptance of portable toilet wastes along with cess, septic tank, and similar sewage derived materials to the works inlet for processing through the UWWTD treatment route, along with the import of treated sewage cake from other sites for temporary storage pending offsite transfer from the Cake Barn. The application also includes an additional waste operation, relating to the import of waste materials from cleaning of the TWUL sewer network and wastewater assets. to a dedicated import point for the purpose of pre-treatment screening and solid separation prior to processing of wastes through the UWWTD treatment route. There are a number of DAAs, including the operation of biogas fuelled CHP engines for the generation of electricity and heat at the site, which is classified as an 'existing' combustion source under the Medium Combustion Plant Directive.

There is a second listed activity for the biological treatment of waste for the purposes of disposal, relating to the treatment of dewatering liquors in a Liquor Treatment Plant prior to transfer to treatment under the UWWTD route.

The current non-hazardous waste operations are covered by an existing standard rules environmental permit under number EPR/DP3090SF/V002 which is also subject to a substantial variation to convert it to an installation permit. The existing CHP Plant is covered by an existing environmental permit under number EPR/HP3132TV/V003. This permit is subject to a substantial variation to convert it to an installation permit and will be merged under this variation, with the CHP engines and boiler (latter currently subject to a LEP) becoming a DAA to the listed activity.

Site Location

The site is located in a largely rural area and is bounded on the north and west by the M3 and M25 motorways and interchange. Immediately to the south of the site is the Lyne community recycling centre, a Surrey County Council household waste and recycling centre. This gives way to a railway line, open green spaces and agricultural land along with isolated domestic properties and commercial properties. To the west of the site is more green space, agricultural land and a motocross site operated by Runnymede Youth Motorcycle Club.

The whole of the wider site including the area of the STC to be permitted sits within a Flood Zone 1, indicating a low probability of flooding (<1:1000 annual probability of flooding).

The site sits outside the boundaries of any Source Protection Zones (SPZ) and is located adjacent to, but outside the boundaries of an AQMA.

There are a number of statutory designated habitat sites within the appropriate distance of the STC with the nearest being the Thorpe Park No.1 Gravel Pit, a Site of Special Scientific Interest (SSSI) located approximately 615 m to the north-east, and the South West London Waterbodies, a joint Ramsar and Special Protection Area (SPA) site, located approximately 615 m to the north-east. There is a Special Area of Conservation (SAC) designation, namely Thursley, Ash, Pirbright and Chobham, located approximately 3.9km to the south-west. Part of the Thames Basin Heaths, a SPA designation, are within 3.9km to the south-west of the site, with further areas of this SPA located between 5.9 km and 9.4 km to the south, south-east and south-west respectively. The Windsor Forest and Great Park SAC is located approximately 4.1 km to the north-west of the site. Additional areas of the South West London Waterbodies, (Ramsar and SPA designated sites) are located between 5.1 km and 9.5 km to the north, north-east and east of the site respectively. There is one Local Nature Reserve (LNR), Riverside Walk Virginia Water, located

approximately 1.3km to the west. There are no National Nature Reserves (NNR) or Marine Protection Areas (MPA) within the specified screening distance.

There are 21 areas of Ancient Woodland habitat within 2 km of the site and there are also nine non-statutory designated Local Wildlife Sites (LWS) within 2 km of the site.

There are no protected habitat or species records within the specified screening distance of the site.

A site plan, showing the permitted area of Chertsey STC and the wider STW can be found in Appendix A.2 while a process flow diagram summarising the sludge treatment process can be found in A.5 Process Flow Diagram. A site tank inventory is included below, followed by the site process description which identifies where tanks are located within the sludge treatment process.

Table 2.1 Site tank inventory

Tank Purpose	Number	Operational Volume (m3)	Total Operational Volume (m3)	Material
Unthickened Indigenous Sludge Tanks	2	86	172	Concrete
Thickened Indigenous Sludge Tanks	1	86	86	Concrete
Sludge Buffer Tank	1	600	600	Concrete
Pre THP-Dewatering Feed Tank	1	30	30	Steel
THP Feed Silo	1	50	50	Steel
THP Process	Consisting of the following:			
THP Process -Tanks Pulper	1	25	25	Steel
THP Process- Tanks Reactor Tanks	1	12	12	Steel
THP Process Tanks- Flash Tank	1	35	35	Steel
Primary Digester Tanks	2	1,562	3,124	Steel
Digested Sludge Buffer Tank	1	156	156	Steel
Digested Sludge Contingency Tank	1	156	156	Concrete
Liquor Treatment Plant	2	2,166	4,332	Steel
	Overall Total		8,778	
Polymer Tank (for dewatering)	1	28 tonnes		Steel
THP Diesel Tank	1	16,000 litres		Steel

Waste Activities

The STC comprises of imports of waste for biological treatment and three additional waste activities (imports of non-hazardous waste to: the head of the works; the Cake Barn; and the Network Screening Unit). Biological treatment processes at the installation are for indigenous sludge separated from the UWWTD areas of the site and for treatment processes for imported sludge that arrives at Chertsey STC by tanker and consists of sludge from other Thames Water sites, which forms a waste activity for this site.

Imports of non-hazardous waste are considered a secondary waste operation to the main listed activity and consist of three aspects. One is of portable toilet waste along with cess, septic tank and similar sewage derived materials to the head of the works for processing through the UWWTD treatment. The second aspect is for import of digested sludge to the cake barn. Import to the cake barn are for temporary storage, pending recovery offsite; and are a contingency option primarily that will not be routinely used. A third aspect is for the import of wastes from the TWUL network for physical treatment and the separation of solid and liquid fractions.

Waste imports to the head of the works consists of an offloading point for permitted imported wastes that is located close to the works inlet of the STW. These wastes are imported by tanker and consist of liquids and associated sludges from domestic and municipal sources that are similar in composition to those materials derived

from the sewer network and managed via the UWWTD route. No wastes are imported packaged in other ways than tankers. These operations are covered by the existing waste management permit at the site. Access to the offloading point is controlled by the issue of keys by Thames Water to approved contractors only, who have undergone appropriate waste pre-acceptance checks on the material they wish to import. These keys enable the delivery tankers to discharge waste into the works, through a data logger which records the volume of waste transferred.

The head of works import area is of engineered concrete, is kerbed to one side and is connected to site drainage that returns to the main inlet of the wider STW. Incoming tankers park in the offloading area, and hook up to the offloading point, using the site supplied flexible hose pipes to prevent misconnection issues, and through a data logger. The data logger records the volume of waste material discharged, which combines with the incoming materials from the sewer and is subject to aerobic treatment, under the UWWTD outside of the scope of this permit. A webcam covers the waste import area. Waste import of non-hazardous wastes to the head of the works is considered a secondary waste operation to the main listed activity.

This application includes a second additional waste operation at the same site for the import of non-hazardous treated, dewatered sludge cake from other works, for temporary storage prior to offsite recovery. All such imports will be subject to appropriate waste pre-acceptance and acceptance checks, prior to import, including checking whether the incoming cake complies with the requirements of SUiAR and BAS. The waste stream is the same as that arising from the treatment of sludge within the Chertsey STC with the same characteristics, composition and eventual end use - application to land. As such, the infrastructure which is acceptable for use for site cake is appropriate for the imported material.

Cake is stored on an impermeable surface in the cake barn for the shortest time practicable, the duration depending on factors such as prevailing weather and availability of the landbank.

A third additional waste operation at the same site is for the import of non-hazardous waste for physical treatment. TWUL sewer network cleaning waste and other similar waste streams with significant levels of inorganic materials, such as rags and grit, that are removed by physical screening prior to the aerobic treatment route of the UWWTD.

The wastes are imported by tanker and consist of liquids, sludge and solid wastes from, for example the sewer network generated as a result of sewer line and wet well cleaning. Due to its origin, this imported waste may contain a high inorganic content such as rags and plastics, which require screening out to prevent blockage and contamination of downstream process.

Access to the offloading point is controlled by the issue of a fob (or swipe card) issued by Thames Water to approved contractors who have undergone appropriate waste pre-acceptance checks on the material produced whilst undertaking Thames Water contracted works. Each delivery tanker drivers must 'unlock' the screening unit using their Thames Water issued fob to enable the discharge of waste into the screener. Each delivery is recorded and a WASP data logger records the volume of liquid waste transferred. Where necessary, for example due to high solids content, tankers are able to discharge directly into a screw hopper that conveys the waste to the coarse screen . Both data logger and hopper require use of the fob to enable use.

The Network Screening Unit is located within Chertsey STW perimeter behind security fencing and security gates that control access enabling entry only to authorised persons. The unit is located on an area of engineered concrete and is connected to site drainage that returns to the main inlet of the wider STW. Incoming tankers park in the offloading area and connect to the offloading point, using the site supplied flexible hose pipes to prevent misconnection issues. Tankers are also able to discharge waste directly into the screening units hopper.

Imported waste is screened using a coarse screen followed by a fine screen. Captured material from the coarse screen is transferred by a screw compactor and deposited into skips. The screw conveyor also separates liquid wastes which are pumped to a hydrocyclone along with the liquid fraction from the coarse screen.

In the hydrocyclone, the liquid is screened to remove finer wastes including sands and grits, which are transferred by a screw compactor and deposited into a skip for offsite disposal. Screened liquid waste is pumped to the Liquor Return Pumping Station via site drainage, where it is returned to the works inlet for treatment.

Sludge Processes

Indigenous sludge is removed from the UWWTD process and gravitates to the Unthickened Indigenous Sludge Tanks. These tanks are of concrete construction, are not covered and are partially subsurface. Sludge is constantly fed into these tanks and is subject to air mixing, with chopper feed pumps removing sludge and automatically transferring sludge to the Sludge Buffer Tank via Sludge Screens. Sludge can also be pumped from the Unthickened Indigenous Sludge Tanks via Sludge Thickening Plant to the Thickened Indigenous Sludge Tanks before being pumped to either the Sludge Screens or direct to the Sludge Buffer Tank. The Sludge Thickening Plant uses a polymer mixed with final effluent/potable water to aid thickening with the liquors returning to the Works Inlet for treatment via the site drainage and Liquor Return Pumping Station.

Sludge from other works is accepted to a sludge import point consisting of a site-supplied transfer hose (to prevent misconnections) and sludge logger. Access to the sludge logger is via a key fob issued to drivers and the logger records the volume of sludge transferred and the originating site. Sludge is discharge into a Sludge Import Tank, via Sludge Screens before being pumped into a Sludge Buffer Tank. The Sludge Buffer Tank is covered, is constructed of glass reinforced steel and is above ground except for a small sump in the base of a conical bottom. Imported sludge can also be discharge directly to the Sludge Import Tank, then screened and then pumped to the Sludge Buffer Tank. The Sludge Import Tank is odour controlled via an OCU.

Indigenous and imported sludge is mixed in the Sludge Buffer Tank and is then subject to dewatering. Sludge is pumped to the Pre-THP Dewatering Feed Tank and is subject to dewatering in the Pre-THP Dewatering Plant with the addition of a powdered polymer, which is added to the sludge to aid coagulation. Polymer from a bulk powder silo is mixed in an automated system using potable water / final effluent water and automatically dosed. Liquors from the Pre-THP Dewatering Plant are normally pumped to the Liquor Treatment Buffer Tanks for treatment via the Liquor Treatment Plant (LTP) prior to being discharged back to the works inlet (see below). Solids are transferred to the THP Feed Silo and then passed through the THP Process.

Thermal Hydrolysis Plant

The THP Process is wholly above ground process within a concreted area with bunding, that returns all surface water runoff to the inlet of the works for further treatment. From the THP Feed Silo, the process is a single stream consisting of one pulper tank, two reactor tanks and one flash tank. The THP Process takes place for approximately 95 minutes per cycle, at 4 bar of pressure and a temperature of 160°C. After being hydrolysed, the sludge is pumped via a THP Cooler to the Primary Digester Tanks and anti-foam is dosed into this sludge line, as required, from a bunded, 1,000L Intermediate Bulk Container (IBC).

Digestion Processes

After passing through the THP, sludge is batch fed to one of two Primary Digester Tanks at the site. The Primary Digester Tanks are of steel construction with insulated cladding and fixed roofs. The Primary Digester Tanks operate on a continuous basis, with the normal retention time being 12 days. Both of the Primary Digester Tanks are equipped with high level alarms and are monitored continuously for digester health, including process monitoring, for example of foaming, either from the STC control centre or remotely outside of staffed hours from the regional control centre. There is no additional heat input into the Primary Digester Tanks under normal conditions, with the heat of the incoming sludge from the THP Process sufficient to maintain an optimal operating temperature. In the event of the THP Process being offline, e.g. for maintenance, additional heat is provided by the site's auxiliary boiler.

Following treatment, digested sludge is transferred to the Digested Sludge Buffer Tank. The Digested Sludge Buffer Tank is located near to the Cake Barn, is of steel construction, is aboveground, covered and connected to an OCU for odour abatement. This tank acts as a buffer for storage of sludge before it is dewatered by Digested Sludge Dewatering Plant. These operate on a duty and assist basis, use a liquid polymer which is automatically made up from a bulk bag powder system with potable water / final effluent water, which is injected in via dedicated pumps. This polymer aids coagulation of the digested sludge, which transfer via a conveyor belt into the Cake Barn for storage prior to removal from site under the Sludge Use in Agriculture Regulations 1989 (SUiAR), and in

accordance with the BAS. A site-specific bioaerosol risk assessment is appended to this application in Appendix F. Liquors from the Digested Sludge Dewatering Plant discharges into the Liquor Treatment Buffer Tank for treatment via the Liquor Treatment Plant prior to being discharged back to the works inlet via the Liquor Return Pumping Station and site drainage.

Digested sludge in the Primary Digester Tanks can also be pumped to the Digested Sludge Contingency Tank before being pumped to the Digested Sludge Buffer Tank for dewatering. Digested sludge in the Digested Sludge Buffer Tank can also be pumped to the Digested Sludge Contingency Tank if required.

Biogas

Biogas from the Primary Digester Tanks is captured and transferred to a double membrane Biogas Storage holder. The 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 holder is fitted with Pressure Release Valves (PRVs) as a safety precaution in the event of over pressurising the system. The Primary Digester Tanks are similarly equipped with PRVs to prevent over pressurisation.

The biogas is taken from the biogas storage vessel for combustion in two Jenbacher CHP engines with a thermal input of 1.9 MWth, generating electricity for use within the site and export to National Grid, and heat to support the temperature requirements of the THP Process. This is classified as 'existing' combustion plant under the Medium Combustion Plant Directive (MCPD). Additional heat to the THP Process is provided by an onsite boiler that is located adjacent to the THP. This boiler uses biogas as the primary fuel and heat from the CHP engines and has a thermal input of 4.5 MWth. This boiler is dual fuelled and can operate on diesel fuel as a back-up to biogas as required and is considered to be a 'new' combustion plant under the MCPD as it was put into operation on 31/08/2021.

In the event there is excess biogas, i.e. more than the CHP engines can utilise, or in the event that the CHP engines are unavailable, there is a ground mounted emergency flare. This is utilised under 10% of the year, less than 876 hours per year.

An air dispersion assessment using ADMS modelling is provided for the site as Appendix L. This assessment concludes that the operation of the assessed combustion plant are acceptable from an air quality perspective.

Liquor Treatment Plant

The Liquor Treatment Plant (LTP) forms the second listed activity at the site due to the LTP process exceeding 50 m3 (or 50 tonnes) per day which is the relevant threshold. The process is considered a waste disposal activity because the LTP is a treatment for disposal activity where the treated liquors are returned to the UWWTD treatment route at the inlet and the final effluent outputs are discharged direct to the environment.

Liquor from the Pre THP Dewatering Plant and Digested Sludge Dewatering Plant is discharged to the Liquor Treatment Buffer Tank for treatment in the Liquor Treatment Plant, prior to discharge to the works inlet for further treatment. The LTP operates to reduce BOD, reduce COD and control pH levels. This is achieved through air injection via fine bubble membrane diffusers and mixing through the base of each LTP tank and the addition of caustic soda from a small above ground bunded plastic tank. The LTP tanks are open topped and of steel construction that are above ground, although all feeding of liquors and abstraction of treated liquors is via subsurface elements. Each tank is fitted with high level alarms that inhibit feed pumps on activation. The treated liquors are pumped to the Liquor Return Pumping Station and returned to the works inlet, which is itself is a permitted activity and the effluent outputs are discharged direct to the environment.

BAT Considerations

A BAT gap analysis has been completed for the Sludge Treatment Centre against the associated BAT conclusions and this gap analysis is attached as Appendix D.

2.1 BAT 3, 6, 7 Return Liquors

As discussed above, the site has a Liquor Treatment Plant which treats some of the liquors generated by the installation. Liquor treatment for other waste waters arising within the permitted area is part of the waste water treatment process of the STW and does not fall within the permit boundary.

There are no direct emissions to water from the STC. The only indirect emissions are of the sludge related liquors, primarily sludge dewatering liquor, and surface (rain) waters, which are returned to the wastewater treatment works for aerobic treatment under Urban Wastewater Treatment Regulations.

Return Liquor Monitoring is included in Appendix M.

2.2 Management of Diffuse Emissions – BAT 14

There are open top tanks at Chertsey STC including the Unthickened Indigenous Sludge Tanks, Thickened Indigenous Sludge Tanks and the Liquor Treatment Plant tanks.

Thames Water is committed to meeting the requirement of BAT. A full BAT risk assessment is required to determine the potential need to cover open topped tanks. Thames is not able to commit to covering tanks by the stated deadline of December 2024 delivery timescales will be subject to the outcome of PR24 and subsequent price review discussions.

2.3 Site Infrastructure

Management of emissions to water – BAT 19

Thames Water is committed to meeting the requirements of BAT. A full BAT risk assessment is required to determine the detailed design for Chertsey secondary containment, the secondary containment options report (see Appendix G) is an outline solution that may be subject to change. Thames is not able to commit to secondary containment requirements by the stated deadline of December 2024 delivery timescales will be subject to the outcome of PR24 and subsequent price review discussions.

A figure showing the current site surfacing within the permit boundary is included within Appendix A, Figure A.3.

Process Controls

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. As described, tanks are equipped with appropriate high-level alarms and automatic cut off valves to minimise releases. The Primary Digester Tanks and Biogas Storage holders are also fitted with dual pressure relief valves which operate in an emergency to minimise releases from over- or under-pressurisation. Site operations are covered by Thames Water's management system, including the preventative maintenance programme for the site.

A range of process parameters are subject to routine monitoring or checking to ensure that the digestion process is operating optimally so that the required sewage cake output quality is achieved.

- pH: At a THP digestion site such as Chertsey the processes is maintained around pH 8 but within the range 7.5-8.6 (this is % dry solids and digester load dependant) for healthy operation.

- alkalinity: Levels dependant on feedstock characteristics (primary sludge: surplus activated sludge (SAS) ratio). Advanced digestion (THP) typically, 5,000 - 10,000mg/litre (target range from 6,000-8,000 mg/litre) but is dependent on % dry solids and digester load.

- temperature: minimum target of 40°C for advanced digestion. This is maintained within the range 36-45°C for THP AD.

- HRT (hydraulic retention time): minimum target is 15-days, there is no upper limit. Retention times shall not be less than 12-days during plant outages to keep the product pathogen kill efficiency control.

- OLR (organic loading rate): see table below - this is dependent on the primary/SAS ratio. Crawley fits into the fourth row of the table.

- Dry solids feed: see table below, Chertsey has a target of 10%DS, but this can vary between 8-14%DS and impacts the HRT.

Type of Digestion	**0%- 35% SAS[x]**	**36%- 45% SAS**	**46%- 50% SAS**	**51%- 55% SAS**	**>55% SAS**	**Max Feed %DS**
MAD* in Conventional Digestion	3	2.5	2	1.75	n/a	6
MAD after Pre-pasteurisation	4.5	4	3.5	3	n/a	7
MAD after Acid Hydrolysis	4.5	4	3.5	3	n/a	7
MAD after Thermal Hydrolysis	7	6.5	6	5.5	5.5	14

* mesophilic anaerobic digestion

[X] surplus activated sludge, arising from the UWWTD treatment route

- VFA (volatile fatty acid) concentration: There is no specific range for VFAs as it depends on the feedstock. It is used as an indicator of digester health rather than a process control. The production of organic acids depends on the volume of solids fed to the Primary Digester Tanks. The typical range for VFAs in a Primary Digester Tank is between 50 and 800 mg/L. When VFA concentrations climb above 1000 mg/L, the digester could be overloaded or experiencing other problems.

- Ammonia - Ammonia concentrations of 50 to 1000 mg/L are beneficial, but ammonia levels of 1500 to 3000 mg/L (pH greater than 7.4) could be inhibitory but not always. An ammonia concentration higher than 3000 mg/L for prolonged period is toxic.

- VFA to Alkalinity ratio: Very important parameter to monitor for digestion process. The VFA to alkalinity ratio of below 0.4 is good and above this threshold value means diminishing alkalinity and low pH i.e. sour digester content. As long as this ratio is maintained higher VFA and alkalinity digester content can be acceptable and the digestion process is deemed healthy. Anaerobic digestion process is always controlled based on holistic parameters but not based on single parameter.

Waste Tracking

Because of the nature of the waste accepted at the site for treatment, and the processes undertaken, the location of any specific load of waste cannot be tracked directly within the installation. Instead, tracking, if required, is based on the normal operational periods for treatment, which can locate the approximate location of the imported material with the process, based on the number of days post acceptance.

Network screening waste is treated on receipt with separated fractions solid fractions being stored in skips until collection the liquid fraction of waste being is discharged directly to the works inlet via the Liquor Return Pumping Stations. Solid waste transferred off-site can be tracked via Waste Transfer Note documentation.

Cake imports are stored separately in the cake barn and their location can be identified on this basis.

Odour

The facility has an Odour Management Plan which is supplied as Appendix E.

Bioaerosols

Digested sludge cake is stored in an open cake barn which is less than 250 m from the nearest sensitive receptor, where people live or work for more than 6 hours at a time. See Appendix F for the site specific bioaerosol risk assessment.

Other Items

A leak detection and repair (LDAR) plan has been prepared for the site and this is presented as Appendix H.

Please see Appendix A, A.6 Site Photographs for photographs of key plant infrastructure.

Other Risk Assessments

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

Emergency Standby Generators

Chertsey STW has two emergency standby generators which provide back-up power to the site in the event of a grid failure.

The 1 x 1.7MWth SBR Diesel standby generator continues to beexcluded from classification as a specified generator as this remains as an emergency generator operated for the sole purpose of providing power at a site during an onsite emergency. The LTP Diesel Generator whilst originally permitted as Tranche A generator by Environmental Permit EPR/HP3132TV/V003 has recently become an excluded generator as this has ceased to operate under Triad from March 2023.

The revised status of the 1 x 2.6 MWth LTP Diesel Generatoris requested to be reflected within the Environmental Permit by this variation application as a DAA, now as an excluded generator, because it will meet the requirements under Guidance "Understanding the meaning of regulated facility" RGN2. This is because the LTP Diesel Generator meets the criteria for inclusion as a DAA and is located within the installation permit boundary:

1. The LTP Diesel Generator is directly associated with the installation and the installation will be the "principal user" of the electricity generated in the event of a site-wide loss of power. The LTP Diesel Generator provides 100% of the power generated to the Cake Barn and Liquor Treatment Plant.
2. There is a technical connection with the listed activities at the installation with output of the activity, electrical power, used with the treatment of waste in the Liquor Treatment Plant at the installation.
3. The LTP Diesel Generator is capable of having an effect on emissions, as emissions to air will occur during periods of operation. However, it is important to note that run hours are significantly reduced from 150hours per annum in V003 when run in triad to under 50hours per annum as an excluded generator.

Being a DAA to sludge treatment, the LTP Generator is located at emission point A5 as indicated by the site plan in Appendix A.

As both standbys are between 1 – 5MWth, the 2029/30 MCP permitting/compliance date will have future relevance.

2.4 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 listings under Schedule 1 are:

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;

And

Part A(1) (a) Disposal of non-hazardous waste with a capacity exceeding 50 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 concerning urban waste-water treatment(a)—

(i) biological treatment;

The site includes the following DAAs:

- Imports of waste, including sludge from other sewage treatment works for treatment;
- Blending of indigenous sludges and imported wastes/waste sludge prior to treatment;
- Pre-treatment of sewage sludge by thermal hydrolysis plant (THP)
- Storage of digestate prior to dewatering;
- Dewatering of digested sewage sludge;
- Transfer of treated dewatering liquors and transfer of untreated thickening liquors back to the head of the sewage treatment works;
- Transfer of surface water runoff back to the head of the sewage treatment works;
- Storage of dewatered digested sludge cake prior to offsite recovery;
- Storage of biogas;
- Transfer of biogas condensate via site drainage back to the head of the sewage treatment works;
- Combustion of biogas in a MCPD and Specified Generator (SG) compliant biogas CHP engines
- Combustion of biogas/diesel in a new MCP, DAA, dual fuel boiler
- Combustion of diesel in a MCPD compliant diesel generator;
- Emergency flare;

- Operation of siloxane filter plant;
- Storage of diesel;
- Storage of wastes, including waste oils; and,
- Storage of raw materials.

The waste activities at the site are:

- Imports of waste to the works inlet for treatment through the UWWTD route;
- Imports of digested sludge cake for temporary storage pending off-site removal;
- Physical treatment of imported waste from the off-site sewer network, including liquid, sludge and solids.

DAAs at the installation which are in bold are currently permitted under permit EPR/HP3132TV/V003.

In addition to the listed activity at the site, there is a DAA 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). This comprises:

- 2x 1.9 MWth CHP biogas engines are considered as Tranche A specified generators;
- 1x 4.5 MWth boiler which is classed as a new medium combustion plant;
- 1x 2.6 MWth diesel generator which since 1/3/2023 operates for emergency purposes only. This asset is already permitted and is a DAA; only run hours are subject to change (currently permitted under MCPD and SG); and,
- (1x 1.7 MWth backup diesel generator used for emergency generation <50 hours, which is an excluded generator (currently outside of MCPD, and SG controls, as emergency use only). It is noted here solely as a point of reference for the applicant).

Total thermal input of STC is 10.9 MWth. Total thermal input of the STC that is routine use is 8.3 MWth.

2.5 New Combustion Plant

Note the new MCP 1 x 4.5MWth dual fuel hire boiler, added as A14 in this variation (V004), fully replaces the previous 1 x 4.7MWth hire boiler identified as A3 in V003.

Chertsey Boiler 1 (permitted under this variation as a new MCP)	
MCP specific identifier*	Chertsey STC Dual Fuel (Hire) Boiler
12-digit grid reference or latitude/longitude	E 501609 N 167370
Rated thermal input (MW) of the MCP	4.5
Type of MCP (diesel engine, gas turbine, other engine or other MCP)	Boiler
Type of fuels used: gas oil (diesel), natural gas, gaseous fuels other than natural gas, landfill gas	Dual fuelled (Biogas and diesel)

Date when the new MCP was first put into operation (DD/MM/YYYY)	31/08/2021
Sector of activity of the MCP or the facility in which it is applied (NACE code**)	E37.00
Expected number of annual operating hours of the MCP and average load in use	8,760, up to 100% load
Where the option of exemption under Article 6(8) is used the operator (as identified on Form A) should sign a declaration here that the MCP will not be operated more than the number of hours referred to in this paragraph	n/a

3. Form C2 Questions

1 About the permit

1a Discussions before your application

The pre-application process is currently not available due to Environment Agency resourcing issues, discussions have been held with the local area Environment Agency staff. Nature and heritage conservation screening was requested and received via email from the pre-application advice service of the Environment Agency.

1b Permit number

What is the permit number that this application relates to?

EPR/DP3090SF/V002 issued 26/04/2010.

1c What is the site name, address, postcode and national grid reference?

Chertsey Sludge Treatment Centre;

Chertsey Sewage Treatment Works,

Lyne Crossing Road

Chertsey

Surrey

KT16 0AR

2 About your proposed changes

2a Type of variation

This is a substantial variation

2b Changes or additions to existing activities

Table C2-1 Proposed changes to current activities.

Name	Installation schedule 1 references	Description of the installation activity	Description of waste operations	Proposed changes document reference
Chertsey STC	*Section 5.4 Part A(1) (b); i*	Biological treatment for recovery by means of Anaerobic digestion		This document
Chertsey STC	*Section 5.4 Part A(1) (a); i*	Biological treatment for disposal by means of aerobic treatment		This document

Name	Installation schedule 1 references	Description of the installation activity	Description of waste operations	Proposed changes document reference
Chertsey MCPD			Operation of CHP engines, generator and boilers, now a DAA to installation	
Chertsey Waste Operation			Operation of a non-hazardous sludge import and treatment site	

2c Consolidating (combining) or updating existing permits

Yes.

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

Yes.

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

See Table C2-2 below:

Table C2-2

Table 2 – Permit Numbers
EPR/DP3090SF Chertsey Sewage Treatment Works
EPR/HP3132TV Chertsey CHP Plant

2d Treating batteries

2d1 Are you proposing to treat batteries?

No, this application is not for the treatment of batteries.

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)

2f1 Are any of the regulated facilities low impact installations?

No, this application is not for a low impact installation.

2g Multi - operator installation

No. This is not a multi-operator installation.

3 Your ability as an operator

3a Relevant offences

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

Yes. The applicant has been convicted of a relevant offence within the last 12 months.

Event Name	Court	Date of hearing	Fine	Summary
EA v Thames Water Utilities Limited	Lewes Crown Court	Hearing Date 03 - 04 July 2023	£3,334,000.00 (fine)Costs £128,961.05 and victim surcharge of £120.00	Thames Water pleaded guilty to four charges under the Environmental Permitting (England and Wales) Regulations 2016. The detail of each summons is included below: Summons 1: Between 9 October 2017 and 14 October 2017 TW caused a water discharge activity, namely A discharge of sewage effluent from Crawley Sewage Treatment Works into the Gatwick Stream and the River Mole, except under and to the extent authorised by an environmental permit contrary to Regulation 38(1)(a) and Regulation 12(1)(b) of the Environmental Permitting (England and Wales) Regulations 2016. Summons 2: On and /or before 14 October 2017 TW did contravene condition 11 of environmental permit CNTM.1402 by failing to have capacity of not less than 11,000 m3 in the storm lagoon at Crawley Sewage Treatment Works contrary to Regulation 38(2) of the Environmental Permitting (England and Wales) Regulations 2016. Summons 3: Between 9 October 2017 and 14 October 2017 TW contravened condition 12 of environmental permit CNTM.1402 by failing to discharge when the rate of flow at the inlet sewer at

				Crawley Sewage Treatment Works is in excess of 840 l/s due to rainfall and /or snowmelt contrary to Regulation 38(2) of the Environmental Permitting (England and Wales) Regulations 2016. Summons 4: On and /or before 14 October 2017 TW did contravene condition 13 of environmental permit CNTM.1402 by failing to empty the storm lagoon at Crawley Sewage Treatment Works and return the contents for full treatment as soon as practicable after cessation of the overflow to the lagoon contrary to Regulation 38(2) of the Environmental Permitting (England and Wales) Regulations 2016.

3b Technical ability

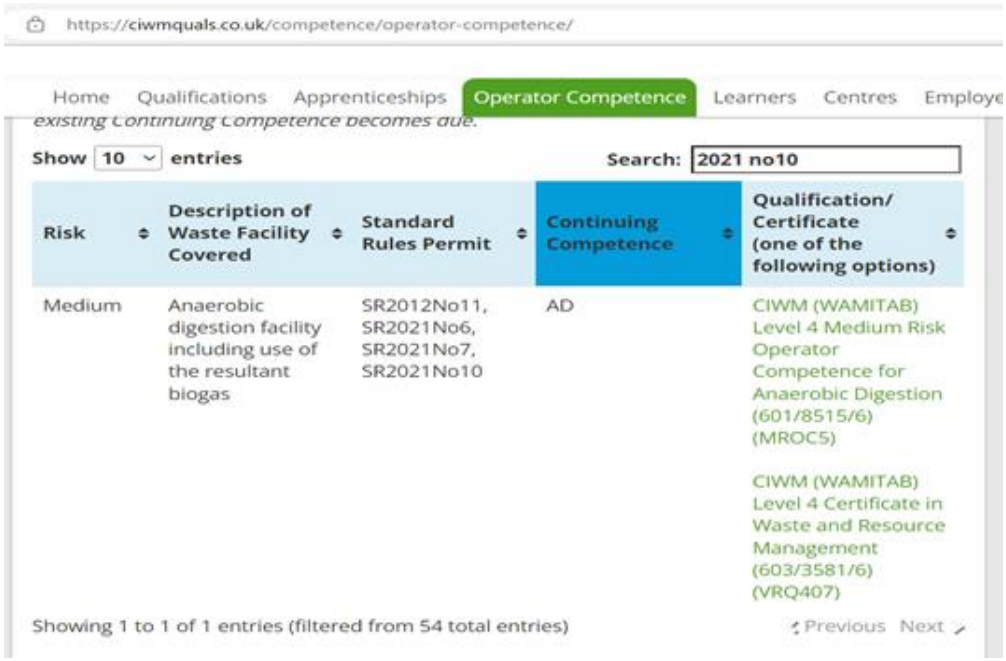
Thames Water uses WAMITAB qualified staff at their waste facilities. The relevant person for the site has been named below and full details have been provided separately on a spreadsheet:

Zak Atte La Crouche

Please see Appendix B for evidence of competency.

Following discussions with CIWM (WAMITAB), Thames Water understands there are two routes to holding an appropriate CoTC for the permit as laid out in the screen shot below:

a) CIWM (WAMITAB) Level 4 medium risk operator competence for anaerobic digestion (MROC5)
b) CIWM (WAMITAB) Level 4 Certificate In waste and Resource Management – VRQ" and optional "VRQ407 – Principles and practices of managing a biological treatment processing facility (Anaerobic Digestion and Composting)"



Thames intend to follow option B at this site.

Thames Water understands from the CIWM website that the proposed option is acceptable.

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?

No

3d Management systems

What management system will you provide for your regulated facility?

Identify the form of the management system from the list:

• Own management system

Thames Water has a SharePoint based Environmental Management System, with site specific elements and procedures linked from across the organisation Thames Water also has an Asset Management System accredited to ISO 55001 and an Energy Management System accredited to ISO 50001.

Scope

Thames Water has an EMS in place for its permitted assets.

Environmental Policy

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

assurance of the EMS, the site operations teams will be responsible for maintaining ongoing compliance with the EMS and managing the site.

Management and Responsibilities

The Management Systems Team (EMS specialists) have 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 Environmental Assurance Team maintain a Legal Register and, in consultation with Operations Teams, the environmental permitting team 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 consider legal and other requirements, cost to the business, scale of impact and interested parties.

Management Systems Team are responsible for setting internal environmental standards which are then implemented by the relevant business areas. The Standards and other relevant information are communicated through several routes. Incident and corrective action routes exist to promote continual improvement. The team run a programme of Management System Audits to determined adherence to the environmental policy and environmental standards.

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 within the EMS to identify and control environmental issues arising from company activities. Each department is required to achieve operational control of its activities using standardised systems.

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 concerns; relevant environmental risks and with accompanying method statements to respond to these. Contractors who are required to carry out major services are closely managed by operational or other staff to ensure that compliance with Thames Water's H&S and environmental policies is achieved. No contractors may work on site without having undergone a full site induction and being issued with a Thames Water Operational Safety Authorisation (TWOSA) for the task(s) they intend to complete.

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. All maintenance is logged on SAP. The following basic inspections and maintenance activities are indicative of those carried out on site:

- Daily operation of plant (24/7) involves visual inspection of operational assets;
- Daily inspection of temporary pipe work installed;
- 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.

All regular maintenance of all plant and equipment will be completed on the time scale specified by the equipment manufacturer including routine inspections.

Environmental Improvement

Thames 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. TWUL's Environmental Governance Board meets on a regular basis to provide strategic direction, and interrogative review, attached to any environmental issue of substantive concern including emerging risks as well as current topics.

Competence, Training and Training Records

Thames 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.

For those sites treating 'waste' as defined by the Waste Regulations 2011, coverage at all permitted sites by staff who hold the appropriate level of WAMITAB 'Certificate of technical Competence' is monitored centrally. This aspect of the staff training is currently being reviewed in light of the change in permitting requirements for sludge treatment centres.

For each internal training course held a Training Record is issued.

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.

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, 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

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

Incidents are managed through corporate and site-specific procedures which ensure that all incidents are logged and that necessary preventative and/or corrective actions are taken.

Customer complaints are made via the Customer Services Centre which will log all complaints electronically. An action is raised to Waste Operations Control Centre (WOCC) who contact the CSM by telephone and email the complaint information to both the CSM and Performance Manager. The CSM and Performance Manager will review the complaint and take action to investigate the complaint. The CSM is responsible for contacting the customer and updating them on the outcome of the investigation and any actions taken. Where complaints relate to odour/noise/amenity, typical follow up action would include physical checks onsite of the operation of plant; offsite checks where needed; with all the actions taken being logged. Where appropriate, site management may contact the customer to discuss the outcome of the complaint, otherwise, there is a customer communication plan that identifies how and when contact will be made with customers and other stakeholders.

Information regarding complaints is recorded to allow determination of an appropriate response (corrective action) and identify what measures need to be taken in the future to prevent its reoccurrence (preventive action).

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: toolbox talks, environmental alerts, OSC portal forums, formalised event learning processes following an operational incident and compliance audits.

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?

Yes. The site discharges into a drainage system of the wider sewage treatment works, controlled and 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 2015, 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:

- A.1 Site Location Plan
- A.2 Installation Boundary and Air Emission Points
- A.3 Site Impermeable and Permeable Surfaces Plan
- A.4 Site Drainage Plan
- A.5 Process Flow Diagram
- A.6 Site Photographs

5b Do any of the variations you plan to make need extra land to be included in the permit?

See Appendix C for the Site Condition Report

5c Provide a non-technical summary of your application

Please see earlier text in Section 1.

5d Risk of fire from sites storing combustible waste

No. The site processes sit outside the scope of the Environment Agency fire prevention plan guidance, as set out in the Environment Agency guidance document.

5f Adding an installation

Please see the response to Q5b for the baseline report which is in the H5 template.

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.

Designated site review

Site Name	Designation	Direction from site	Distance from site
South West London Waterbodies	Ramsar & SPA	North-East	615 m
South West London Waterbodies	Ramsar & SPA	North-East	5100 m
South West London Waterbodies	Ramsar & SPA	North	5300 m
South West London Waterbodies	Ramsar & SPA	East	9500 m
Thames Basin Heaths	SPA	South-West	3900 m
Thames Basin Heaths	SPA	South	5900 m
Thames Basin Heaths	SPA	South-East	9300 m
Thames Basin Heaths	SPA	South-West	9400 m
Thursley, Ash Pirbright and Chobham	SAC	South-West	3900 m
Thursley, Ash Pirbright and Chobham	SAC	South-West	9200 m
Windsor Forest and Great Park	SAC	North-West	4100 m
Thorpe Park No. 1 Gravel Pit	SSSI	North-East	615 m
Riverside Walk Virginia Water	LNR	West	1300 m
n/a	NNR	n/a	n/a
n/a	MPA	n/a	n/a
Unnamed Woodland	Ancient & Semi-Natural Woodland	West	570 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	West	1,280 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	West	1,710 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	North-west	810 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	North-west	1,040 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	North-west	1,150 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	North-west	1,790 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	North-west	1,960 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	North	1,600 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	East	260 m

Site Name	Designation	Direction from site	Distance from site
Unnamed Woodland	Ancient & Semi-Natural Woodland	East	960 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South-east	1,070 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South-east	1,530 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South-east	1,700 m
Unnamed Woodland	Ancient Replanted Woodland	South-east	1,860 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South	950 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South	950 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South	1,330 m
Unnamed Woodland	Ancient Replanted Woodland	South	1,340 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South-west	1,750 m
Unnamed Woodland	Ancient & Semi-Natural Woodland	South-west	1,960 m

List of Local Wildlife Sites	
Riverside Walk, The Bourne Site of Nature Conservation Importance (SNCI) Knowle Grove SNCI The Moat, Woodcock Farm SNCI Trumps Mill SNCI The Dell - Ancient Woodland SNCI Abbey Lake Complex SNCI Chertsey Bourne at Abbey Lake Complex SNCI Hardwick Court Farm Fields SNCI Fan Grove SNCI	All sites <2,000 m

Data taken from MAGIC.gov.uk website, accessed June 2022 and also from the EA Pre-Application Nature and Heritage Conservation Screening Report (June 2022) for the site. For habitat sites, the relevant distance for consideration are: International designations (SAC, MPA, SPA and Ramsar - 10km); National designations (SSSI – 2km); Local and National Nature Reserves, Local Wildlife Sites (LWSs) and Ancient Woodland (2km).

Chertsey STW is located in close proximity to a number of statutory designated habitat sites within the relevant distances of the site. There are Ramsar, SPA and SAC designated sites within 10 km of the site. This includes South West London Waterbodies Ramsar and SPA designations, located approximately 615 m, 5.1 km, 5.3 km, and 9.5 km to the north and east of the STW respectively. Thames Basin Heaths SPA is located approximately 3.9 km, 5.9km, 9.3km and 9.4km to the south-west and south-east of the site respectively. Thursley, Ash Pirbright and Chobham SAC designations are located approximately 3.9km and 9.3 km to the south-west of the site respectively. Windsor Forest and Great Park SAC is located approximately 4.1 km to the north-west of the site.

Thorpe Park No. 1 Gravel pit SSSI is located approximately 615 m to the north-east of the site. Riverside Walk Virginia Water LNR is located approximately 1.3 km to the west of the site. There are no NNRs or MPAs located within 2km and 10 km of the site, respectively.

There are 21 areas of Ancient Woodland habitat within 2 km of the site, with the closest comprising an un-named Ancient and Semi-Natural Woodland located approximately 260 m to the east of the site. There are also nine non-statutory designated LWSs within 2 km of the site.

There are no records of protected species or protected habitat located within the specified screening distance (within 500m) of the site.

The site sits outside the boundaries of any Source Protection Zones (SPZ). The entire site and permitted area of the STC sits within Flood Zone 1, indicating that there is a low probability of river flooding (<1:1000 annual probability of flooding).

The site is located adjacent to, but outside the boundaries of the M25 AQMA. This AQMA is declared for Nitrogen Dioxide (NO_2) – Annual Mean and Particulate Matter (PM_{10}) – Annual and 24-Hour Mean located approximately 100 m to the east of the site and combines two areas. Area 1 extends 70m to the east and west of the centre line of the M25 between Junction 11 and Junction 13 together with an area where the M25 crosses over Vicarage Road / High Street Egham. Area 2 extends 55m to the east and west of the centre line of the M25 between Junction 11 and the southerly boundary of the borough. A second AQMA, declared for Nitrogen Dioxide (NO_2) – Annual Mean AQMA, is located approximately 4.1 km to the south-east of the site and is referred to as the Addlestone AQMA, which encompasses an area in Addlestone town centre including parts of High Street, Station Road, Brighton Road and Church Road.

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 site is located in a rural area although there is a council household waste and recycling centre (HWRC) to the south-east. Motorways bound the north and east, whilst a railway line runs along the southern perimeter. The nearest residential dwellings are isolated properties, including farmsteads, located between 100m and 250m to the south of the site. The nearest commercial and industrial premises are both on the site perimeter including the HWRC and a motocross track to the west. Ecological receptors: There are Ramsar, SPA and SAC designated sites within 10 km of the site. This includes South West London Waterbodies Ramsar and SPA designations, located approximately 615 m, 5.1 km, 5.3 km, and 9.5 km to the north and east of the STW respectively. Thames Basin Heaths SPA is located approximately 3.9 km, 5.9km, 9.3km and 9.4km to the south-west and south-east of the site respectively. Thursley, Ash Pirbright and Chobham SAC designations are located approximately 3.9km and 9.3 km to the south-west of the site respectively. Windsor Forest and Great Park SAC is located approximately 4.1 km to the north-west of the site. Thorpe Park No. 1 Gravel pit SSSI is located approximately 615 m to the north-east of the site. Riverside Walk Virginia Water LNR is located approximately 1.3 km to the west of the site. There are no NNRs or MPAs located within 2km and 10 km of the site, respectively. There are 21 areas of Ancient Woodland habitat within 2 km of the site, with the closest comprising an un-named Ancient and Semi-Natural Woodland located approximately 260 m to the east of the site. There are also nine non-statutory designated LWSs within 2 km of the site.	The wastes handled at the site are primarily liquids and sludges, along with UWWTD derived material delivered by sewer. As such, 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

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Dust and bioaerosols	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 Litter above. The impact of dust on human health will depend on the distance and wind direction. For bioaerosols this distance is 250m.	The wastes handled at the site are liquids, sewage sludges and digested sludge cake, along with UWWTD derived material delivered by sewer. The site will not be handling inherently dusty or powdery wastes. Digested sludge cake retains a high moisture content and is not dusty. Roads will be maintained to avoid the production of dust. Produced sewage cake has sufficient moisture content to ensure it does not give rise to dust and is stored inside of a building which reduces likelihood of any wind-blown dispersion. Anerobic digestion of sludge takes place within a closed system. Digested sludge cake is stored within a semi-enclosed and covered cake barn that is protected from atmospheric conditions which minimises risk of dispersion. The risk of bioaerosols is low and monitoring is not required. Please see Appendix F for the site specific bioaerosol risk assessment.	√
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 site is located adjacent to, but outside the boundaries of the M25 AQMA. ADMS modelling indicates that boiler and the CHP engines for the THP and the generator 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 engines is able to manage. Fugitive emissions to air are assessed in Table C3-3b(i).	X
Assessment of point source and fugitive emissions to water	The nearest watercourse is The Bourne, which is located approximately 320m to the west of the STW site entrance. The entire STW and permitted area of the STC sits within flood zone 1 (<1:1000 annual probability of flooding).	The main product of the process is a digested sludge cake, which is stored on engineered concrete within Flood Zone 1, within a cake barn building. Other aqueous discharges generated by process are limited (comprising biogas condensate, dewatering liquors, THP Process	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
	Surface water drainage within the site drains to the inlet of the adjacent sewage treatment works for full treatment prior to discharge.	waters and surface water run off). These sources are discharged to the on-site drainage system where they are transferred to main sewage works inlet. Due to the nature and small quantity of these emissions no further assessment of point or fugitive source emissions is deemed necessary.	
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 human receptors will depend on the distance and wind direction.	The wider sewage treatment works, which includes the area of the STC to be permitted, has processes in place to minimise odour which includes physical containment, odour abatement, management systems, procedures and monitoring to control fugitive emissions of odour at the plant. The sewage treatment works has an odour management plan, which is appended as Appendix E.	X
Energy	Global atmosphere (direct and indirect emissions).	Use of biogas on site within the CHP engines minimises the need to import non-renewable electricity and gas from the National Grid. Good maintenance procedures will help the plant run efficiently and reduce site energy consumption. Use of LED lighting reduces site consumption.	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 lies outside any Groundwater Source Protection Zones (SPZ). Aquifers are classified as Secondary A (bedrock deposits) and Unproductive (superficial deposits).	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.	Site design minimises the impact of noise on offsite receptors through building orientation, building design, finishes and location of openings.	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
	The site is located in a rural area although there is a council HWRC to the south-east. Motorways bound the north and east, whilst a railway line runs along the southern perimeter. The nearest residential dwellings are isolated properties, including farmsteads, located between 100m and 250m to the south of the site. The nearest commercial and industrial premises are both on the site perimeter including the HWRC and a motocross track to the west. Ecological receptors: There are Ramsar, SPA and SAC designated sites within 10 km of the site. This includes South West London Waterbodies Ramsar and SPA designations, located approximately 615 m, 5.1 km, 5.3 km, and 9.5 km to the north and east of the STW respectively. Thames Basin Heaths SPA is located approximately 3.9 km, 5.9km, 9.3km and 9.4km to the south-west and south-east of the site respectively. Thursley, Ash Pirbright and Chobham SAC designations are located approximately 3.9km and 9.3 km to the south-west of the site respectively. Windsor Forest and Great Park SAC is located approximately 4.1 km to the north-west of the site. Thorpe Park No. 1 Gravel pit SSSI is located approximately 615 m to the north-east of the site. Riverside Walk Virginia Water LNR is located approximately 1.3 km to the west of the site. There are no NNRs or MPAs located within 2km and 10 km of the site, respectively. There are 21 areas of Ancient Woodland habitat within 2 km of the site, with the closest comprising an un-named Ancient and Semi-Natural Woodland located approximately 260 m to the east of the site. There are also nine non-statutory designated LWSs within 2 km of the site.	Noise from plant and equipment will be minimised through purchasing decisions and a robust preventative maintenance programme. Site has a speed limits for vehicles. Operation of shovel loaders and similar vehicles will predominantly take place within the cake barn, minimising noise impacts from these sources. There will be no sources of vibration within the facility. Noise and vibration emissions are assessed in Table C3-3b(iii).	
Other issues (including visual impact)	Protected Species & Habitats	There are no records of protected species or protected habitat located within the specified screening distance of the site (500m). The installation does not discharge directly to nearby watercourses and the final effluent discharge is regulated under a separate environmental permit.	**X**

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Climate Change	Risks of increased temperature impacts resulting in digesters heating beyond optimal operating temperature and increased odour potential from site process. For human health and ecological receptors, see notes for Amenity issues above.	Primary Digester Tanks may require reduced heat input via heat exchange system and Primary Digester Tanks 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 consumptive biogas solution e.g. a CHP Engine or other technology 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. Most of the pre-digestion tanks are already covered and OCU's to be utilised as appropriate. Tanks may require to be covered. OCU's may require oversizing compared to current use.	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 restricted during very wet, winter months. Although the site has a large cake barn which would allow digested sludge cake to be stored prior to application, contingency plans to move digested sludge cake to other sites may be required.	

Appendix 2 – Date of birth information for Relevant offences and/or Technical ability questions only

This information has been supplied separately for the ease of exclusion from the public register.

4. Form C3 Questions

1 – What activities are you applying to vary?

Table C3-1a – Types of activities

Installation name	Schedule 1 references	Description of the Activity	Activity Capacity	Annex I and II codes and descriptions	Non-hazardous waste treatment capacity
Chertsey Sludge Treatment Centre AR1	S5.4 A1 (b) (i) 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 biological treatment Anaerobic digestion of permitted waste in 2 Primary Digester Tanks followed by combustion of biogas produced from the process	From receipt of permitted waste through to digestion and recovery of by-products (digestate and biogas).	260 wet tonnes per day (throughput based on 3,124 m3 / 12 days = 260m3 per day)	R3: Recycling reclamation of organic substances which are not used as solvents R13 Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage, pending collection, on the site where the waste is produced)	Maximum waste throughput 710,000 wet tonnes per annum including indigenous UWWTD derived sludge from within the wider Sewage Treatment Works As per calculation in Note 1 below.
Chertsey Sludge Treatment Centre (Sewage Treatment Works) AR2	S5.4 A1 (a) (i) 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 biological treatment Biological treatment by aeration of process liquors in 2 Liquor Treatment Plant tanks followed by	From receipt of site process liquors to biological treatment and discharge of treated liquids to site drainage.	>50 tonnes per day	D8 Biological treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12 D 15 Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage, pending collection,	Maximum waste throughput 960,000 tonnes per annum

	discharge back to the works inlet of the STW via site drainage			on the site where the waste is produced)	
Directly Associated Activities					
AR3	Imports of waste, including sludge from other sewage treatment works for treatment				
AR4	Blending of indigenous sludges and imported wastes/waste sludge prior to treatment				
AR5	Pre-treatment of sewage sludge by THP				
AR6	Storage of digestate prior to dewatering				
AR7	Dewatering of digested sewage sludge				
AR8	Transfer of treated dewatering liquors and transfer of untreated thickening liquors back to the head of the sewage treatment works				
AR9	Transfer of surface water runoff back to the head of the sewage treatment works				
AR10	Storage of dewatered digested sludge cake prior to offsite recovery				
AR11	Storage of biogas				
AR12	Transfer of biogas condensate via site drainage back to the head of the sewage treatment works;				
AR13	Combustion of MCPD and Specified Generator (SG) compliant biogas CHP engines				
AR14	Combustion of biogas/diesel in a new MCP, DAA, dual fuel boiler				
AR15	Combustion of diesel in a MCPD compliant diesel generator				
AR16	Emergency flare				
AR17	Operation of siloxane filter plant;				
AR18	Storage of diesel;				
AR19	Storage of wastes, including waste oils; and				
AR20	Storage of raw materials.				

Specified Generator Activities					
	National Grid Reference and/or activity reference/emission point	**Activity listed in the EP Regulations**	**Description of specified generator**	**Fuel**	**Operating hours limit per unit per annum**
AR21	TWUWWP00003699 (A1)	Schedule 25B – Specified Generator	2 x 1.9 MWth CHP engines [Note2]	Biogas	Not restricted
	TWUWWP00003702 (A2)				
	TWUWWP00003703 (A5)	Excluded Generator	1 x 2.6 MWth LTP Diesel Generator	Gas oil	<50 hours per year
AR22	TWUWWP00003698	Excluded Generator	1 x 1.7 MWth INLET Diesel Generator	Gas oil	<50 hours Emergency use only

Waste Operations				
	Description of the waste operation	**Annex I (D codes) and Annex II (R codes) and descriptions**	**Hazardous waste treatment capacity**	**Non-hazardous waste treatment capacity**
AR23	Imports of wastes: to the works inlet for treatment through the UWWTD route	D13: D 13 Blending or mixing prior to submission to any of the operations numbered D 1 to D 12	n/a	Maximum waste throughput 70,000 wet tonnes per annum
	Digested sludge cake for temporary storage pending off-site removal	R3: Recycling reclamation of organic substances which are not used as solvents R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on	n/a	Maximum waste throughput 1,000 wet tonnes per annum

		the site where it is produced). R3: Recycling or reclamation of organic substances which are not used as solvents		
AR24	Physical treatment of imported waste from the off-site sewer network, including liquid, sludge and solids	D9: Physico-chemical treatment of waste not specified elsewhere in Annex IIA which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D8 and D10 to D12 D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)	n/a	Maximum waste throughput 70,000 wet tonnes per annum
For all Waste Operations		**Total capacity**	**11,778 Wet tonnes**	**[a] + [b]**
		Total STC treatment capacity (tank volume)	8,778 Wet tonnes	[a]
		Total cake storage capacity	3,000 Wet tonnes	[b]
For waste imports to the head of the works		Annual throughput (tonnes each year)	Imports: 70,000 wet tonnes	

For waste imports of digested sludge cake for temporary storage	Annual throughput (tonnes each year)	Imports: 1,000 wet tonnes	
For mechanical screening of imported waste, including liquid, sludge and solids from off-site sources	Annual throughput (tonnes each year)	Imports: 70,000 wet tonnes	
Notes: Note 1: Import Calculation is based on: Cosettled: 11.89 tds/day; worse case 1.00% dry solids = 1,189 m3/day = 434,067 m3/year Imports - Liquids: 22.09 tds/day; worse case 3.00% dry solids = 736 m3/day = 268,708 m3/year Total Combined Import Calculation: 702,775 m3/year rounded to 710,000 m3/year Note 2 – The two CHP engines are both DAAs and part of the specified generator.			

Table 1b Types of waste accepted

Table C3-1b(i): Waste accepted for Anaerobic Digestion

Waste Code	Description of Waste
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 (sewage sludge only)
19 06 06	digestate from anaerobic treatment of animal and vegetable waste (sewage sludge only)
19 08 05	sludges from treatment of urban wastewater
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 (sewage sludge only)

Table C3-1b(ii): Waste accepted at the head of the works import point

Waste Code	Description of Waste
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01 [note 1]
19 09 02	sludges from water clarification
Note 1 – comprising but not limited to: Thickening and dewatering liquors, centrate and filtrate derived from TWUL processes Waste from a portable toilet"	

Table C3-1b(iii): Waste accepted for temporary storage and transfer off-site

Waste Code	Description of Waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste (sewage sludge only)

Table C3-1b(iv): Waste accepted for mechanical treatment and transfer or temporary storage

Waste Code	Description of Waste
20 03 06	waste from sewage cleaning

1c Recovery of hazardous waste on land

Are you applying for a waste recovery activity involving the permeant deposit of inorganic hazardous waste to land for construction or land reclamation?

No - Where the answer is no, there is no requirement to answer further questions in 1c.

2 – Point source emissions to air, water and land

Table C3-2a – Emissions to Air

Air emission points currently permitted under permit EPR/HP3132TV/V003 are shown below in bold.

Emission point reference and location	Source	Parameter	Quantity [Note 1]	Unit	Reference Period	Monitoring Frequency	Monitoring Standard or Method
A1 (TWUWWP00003699)	**CHP Engine 1** **(1.9 MWth spark ignition engine Unit 1 exhaust stack)**	**Oxides of Nitrogen (NO and NO_2 expressed as NO_2)**	**500**	**mg/m^3**	**Hourly average**	**Annual**	**MCERTS BS EN 14792**
		Carbon Monoxide	**1,400**	**mg/m^3**	**Hourly average**	**Annual**	**BS EN 15058**
		Total VOC's	**No limit set**	**mg/m^3**	**Hourly average**	**Annual**	**BS EN 1219 [note 2]** **BS EN 13526 [note 3]**
A2 (TWUWWP00003702)	**CHP Engine 2** **(1.9 MWth spark ignition engine Unit 2 exhaust stack)**	**Oxides of Nitrogen (NO and NO_2 expressed as NO_2)**	**500**	**mg/m^3**	**Hourly average**	**Annual**	**MCERTS BS EN 14792**
		Carbon Monoxide	**1,400**	**mg/m^3**	**Hourly average**	**Annual**	**BS EN 15058**
		Total VOC's	**No limit set**	**mg/m^3**	**Hourly average**	**Annual**	**BS EN 1219 [note 2]** **BS EN 13526 [note 3]**

Emission point reference and location	**Source**	**Parameter**	**Quantity [Note 1]**	**Unit**	Reference Period	Monitoring Frequency	Monitoring Standard or Method
A4	**Emergency Flare (emissions testing only required when run for over 10% of the time on an annualized basis)**	**No limit set**	**N/A**	**N/A**	-	-	-
A5 (TWUWWP00003703)	**1 x 2.6 MWth diesel generator**	-	-	-	-	-	-
A7	Biogas holder pressure relief valve	No parameter set	None	N/A			
A8	OCU 1 – THP OCU	Hydrogen sulphide	No limit set	-	Average over sample period	Once every 6 months	CEN TS 13649 for sampling NIOSH 6013 for analysis OR US EPA M11
		Ammonia	20	mg/m3		Once every 6 months	EN ISO 21877 OR CEN TS 1369 for sampling NIOSH 6016 for analysis
A9	OCU 2 – Sludge dewatering OCU	Hydrogen sulphide	No limit set	-	Average over sample	Once every 6 months	CEN TS 13649 for

Emission point reference and location	Source	Parameter	Quantity [Note 1]	Unit	Reference Period	Monitoring Frequency	Monitoring Standard or Method
					period		sampling NIOSH 6013 for analysis OR US EPA M11
		Ammonia	20	mg/m3		Once every 6 months	EN ISO 21877 OR CEN TS 1369 for sampling NIOSH 6016 for analysis
A10	THP pressure relief valve	-	-	-	-	-	-
A11	Digester pressure relief valve	-	-	-	-	-	-
A12	Digester pressure relief valve	-	-	-	-	-	-
A13	Siloxane Filter	-	-	-	-	-	-
A14 (Note 4)	Dual Fuel Steam Boiler (new boiler)(when burning biogas)	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	200	mg/m^3	Hourly Average	Annual	MCERTS BS EN 14792
		Carbon Monoxide	No limit set	mg/m^3	Hourly Average	Annual	BS EN 15058

Emission point reference and location	Source	Parameter	Quantity [Note 1]	Unit	Reference Period	Monitoring Frequency	Monitoring Standard or Method
		Sulphur Dioxide	100	mg/m^3	Hourly Average	Annual	BS EN 14791
	Dual Fuel Steam Boiler (new boiler)(when burning fuel oil (diesel)	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	200	mg/m^3	Hourly Average	Annual	MCERTS BS EN 14792
		Carbon Monoxide	No limit set	mg/m^3	Hourly Average	Annual	BS EN 15058

Note 1. Reference conditions for SI engines are dry air, 273K, at a pressure of 101.3 kPA with an oxygen content of 5%

Note 2: At sites with low total VOC concentrations (up to 20 mg/m3)

Note 3: At sites with low to moderate total VOC concentrations (> 20 mg/m3)

Note 4: Need for emissions testing on second fuel to be informed by run hours

Note point A3 has been deleted, this was an older boiler on site

Table C3-2b – Emissions to Sewer

Emission point reference and location	Source	Parameter	Limit	Unit
T1 TQ 01655 67404	LTP Treated Liquors, Post Digestion Dewatering Wash Waters, Sludge Thickening Liquors, Pre THP Dewatering Liquors, Biogas Condensate, Boiler Waste Water, OCU Waste Water, Network Screening Waste Waters	No parameters set	No limit set	-
T2 TQ 01570 67452	T2 - Surface Water Run Off	No parameters set	No limit set	-
T3 TQ 01655 67404	T3 - Head of Works Import	No parameters set	No limit set	-

There are no permitted emissions to water or land from the activities covered by this permit.

3 – Operating techniques

3a - Technical standards

Description of the schedule 1 activity or directly associated activity	Relevant technical guidance note or Best available techniques as described in BAT conclusions under IED	Document Reference
Anaerobic Digestion plant S5.4A1(b)(i); Storage of waste (DAA)	Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070) (Text with EEA relevance.)BAT Conclusions for Waste Treatment	

3a1 Does your permit (in Table 1.2 Operating Techniques or similar table in the permit) have references to any of your own documents or parts of documents submitted as part of a previous application for this site?

Yes, please refer to ADMS modelling from the previous application which remains valid.

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.

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	Probability	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 management 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 (including inspection and maintenance of equipment, including engine management systems), point source emissions to air (CHP engines, boiler and emergency flare stack) have emission limits. Flare stack height approx. 6m, CHP stack approx. 13m and boiler flues approx. 5m. Site has a siloxane filter fitted on the main biogas pipeline connected to the CHP engines to remove impurities within the biogas.	Low
Gas transfer systems, biogas storage tank, biogas 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 biogas system utilised is subject to regular preventative maintenance, including a LDAR plan, to minimise the potential for leaks occurring. The system is also protected with a comprehensive array of pressure and flow	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						sensors and with isolation valves to minimise the potential for release if a leak is detected. Personnel on site wear portable biogas detectors in order to alert staff to presence of biogas. A waste biogas burner (emergency flare) is utilised for the safe disposal of surplus biogas in the event of plant breakdown, or a surplus of biogas above the level that can be safely stored or utilised. Use of emergency flare is recorded. PRVs are in place on the Biogas Storage 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 biogas transfer systems, biogas storage tank, biogas 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 biogas system utilised is subject to regular preventative maintenance, including a 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.	Medium

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						A waste biogas burner (emergency flare) is utilised for the safe disposal of surplus biogas in the event of plant breakdown, or a surplus of biogas above the level that can be safely stored or utilised. Use of emergency flare is recorded. PRVs are in place on the Biogas Storage 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 engines and emergency flare. Combustion of diesel within boiler	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 biogas. Combustion plant operates within permitted ELVs subject to routine monitoring against permit compliance. CHP engines and emergency flare are located away from the nearest residential properties within the central area of the site and are over 300m from the nearest residential and commercial buildings.	Low
Release of steam from THP, vessels and tanks	Abnormal	Emissions to air and dispersion leading to inhalation by local human and animal receptors. Global warming potential	Low	Low	Low	THP is regularly maintained and operated by trained, competent personnel. Regular visual checks made of all equipment to identify potential faults.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						THP tanks and vessels are fitted with PRVs to safely vent steam to atmosphere and prevent a catastrophic failure.	
Release of bioaerosols and dust	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	Low	The risk of bioaerosol and dust is largely minimised by storing the digested sludge cake within a covered cake barn. This barn is not fully enclosed as the solid wall only reaches approx. 50% of the way to the roof but there is an area of freeboard on the wall between the top of the digested sludge cake and the top of the wall. The nearest residential and commercial properties are approx. 130m south-west from sludge treatment assets, and nearest industrial site approx. 50 m east. Roads are made from concrete/asphalt and not prone to the generation of dust.	Low
Release of bioaerosols and dust from spillages	Abnormal	Emissions to air and dispersion leading to inhalation by local human and animal receptors with potential harm to health. Odour impact of bioaerosols. Nuisance impact of dust.	Low	Medium	Low	The risk of bioaerosol and dust is largely minimised by storing the digested sludge cake within a covered cake barn. The nearest residential and commercial properties are located approx. 130m to the south-west of the sludge treatment assets, with nearest industrial site located approx. 50 m to the east.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						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.	
Release of waste from spillages of imported waste for screening and de-ragging	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	Low	Low	The closest surface water body is The Bourne, located in excess of 300m to the west of the site entrance. The site lies outside the boundaries of any groundwater Source Protection Zones (SPZ). Screening / de-ragging machinery is specifically designed to accept wastes with different mechanisms for liquid and solid waste. Imported waste retains a high liquid content and will not be prone to windblown dispersion. Network Screening Unit machinery is situated on made ground and connected to site drainage. In the event of spillages, staff are responsible for use of spill kits and cleaning in a timely manner.	Low
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	Low	Low	Low	The closest surface water body is The Bourne, located in excess of 300m to the west of the site entrance. The site lies outside the boundaries of any groundwater Source Protection Zones (SPZ).	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
		deterioration of water quality Emissions to ground and ground water.				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.	
Spillage of liquids, from waste screenings	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	Low	Low	The closest surface water body is The Bourne, located in excess of 300m to the west of the site entrance. The site lies outside the boundaries of any groundwater Source Protection Zones (SPZ). Network Screening Unit machinery is connected to the site inlet via site drainage and liquor pumping station and situated on made ground which is connected to site drainage. Operation of equipment will be by trained personnel only. Spill kits available on site.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						There are no point source emissions to water with drainage system pumping back to works inlet.	
Spillage from storage and digestion tanks, overtopping of tanks, leakage from same tanks and from buried pipes	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.	Medium	Medium	Medium	The site lies outside the boundaries of any groundwater Source Protection Zones (SPZ). Provision of suitably structurally integral tanks constructed from 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. No visual inspection is possible of subsurface sludge pipes and surfacing around some assets is not impermeable. 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.	Medium

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
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 from screening activities is stored within skips inside of an enclosed building. Waste is stored securely for collection by appropriately licensed approved contractors. Litter picking activities are completed as required.	Low

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 Primary Digester Tanks which are covered with fixed roofs. The nearest residential and commercial properties are located approx. 250m to the south-west of the Primary Digester Tank with the nearest industrial buildings located approx. 60 m to the south. Small amounts may be generated within uncovered tanks. H_2S production is controlled through the digestion process which can be manually overridden if required. Chemical dosing used as required to minimise odour generation	Low
Loss of containment from biogas holder and biogas pipework	Abnormal	Emissions to air and dispersion leading to inhalation by local human receptors	Low	Medium	Low	Biogas is principally stored within the double membrane Biogas Storage holder which is suitably sized to manage biogas generation.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
		Loss of amenity from odour nuisance				The biogas system utilised is subject to regular preventative maintenance, including a 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. Personnel on site wear portable gas detectors in order to alert staff to presence of biogas. Physical protection measures in place for Biogas Storage holder, including fence and pipework is guarded. PRVs available to safely manage pressures within the Biogas Storage holder and prevent under or over pressurization.	
Emissions from waste screenings	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	High	Low	Medium	Emissions will be dependent upon the waste imports. Material will discharge from tankers into a large hopper or flexi hose with Bauer coupling with integrated screw compactor or pump after discharge. Suitability of waste will be considered prior to delivery. Consequence will be dependent on this duration and the prevailing wind at the time. This activity is located centrally, approx. 320m from the nearest residential receptors and	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						approx. 250m from the nearest industrial receptors. Prevailing winds are from the south-west at the site, away from the nearest receptors.	
Activation of biogas pressure relief valve	Abnormal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	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. PRVs subject visual checks by site personnel. Biogas is principally stored within the double membrane Biogas Storage holder which is suitably sized to manage biogas generation and act as buffer storage for biogas. Site has two CHP engines and one flare which are used in order of preference to maximise recovery of energy. The CHP engines 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 and commercial properties are located approx. 280m to the south-west of the biogas holder with the nearest industrial site located approx. 80m to the south.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
H_2S/biogas emitted when biogas cannot be combusted in CHP engines, boiler 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 double membrane Biogas Storage holder which is suitably sized to manage biogas generation and act as buffer storage when biogas cannot be combusted. Site has two CHP engines and one flare giving multiple outlets for biogas. A new boiler is planned to be installed, which will also use biogas and provide a further outlet. The nearest residential and commercial properties are located approx. 280m to the south-west of the biogas holder with the nearest industrial site located approx. 80m to the south. The CHP engines and boiler are subject to regular maintenance to maintain maximum use of outlets, with flare maintained in good working order should it need to be used.	Low
Storage of treated digested sludge cake	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	High	Low	Medium	Digested sludge cake is stored within a covered cake barn and is inherently low odour material. The nearest residential and commercial properties are located approx. 130m to the south-west of the sludge treatment assets, with the nearest industrial site located approx. 50 m to the east. Should any odorous sludge cake be produced, this will be subject to process checks	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						undertaken to identify root cause of production and removed from site expediently.	
Storage of imported network screenings and wet well cleaning wastes	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	High	Low	Medium	Screenings will be stored within skips. Skips will be exchanged on a regular basis for transfer off site. This activity is located centrally, 320m from residential receptors and 250m from industrial receptors.	Low
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.

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 engines	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors	High	Medium	High	CHP engines are located on the southern boundary of the site, which is near to sensitive human receptors. A residential/commercial property is located approx. 120m from the CHP engines with an industrial site located approx. 30m from the CHP engines. The CHP engines are acoustically baffled, self-contained and designed for external applications therefore noise emissions are already low. 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	High	Low	Medium	Air cooled radiators do not give rise to high levels of noise and are only used as required. They are located with the CHP engines, on the	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
		of amenity to local human receptors				southern boundary of the site, which is near to sensitive human receptors. A residential/commercial property is located approx. 120m from the CHP engines with an industrial site located approx. 30m from the CHP engines. Good inspection regimes and maintenance of fans to ensure that excessive noise levels are not generated. Where repair or replacement is required, this 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 to reduce generation of noise. Waste deliveries can be made 24/7 but are likely to predominantly take place during daytime hours. Waste deliveries take place towards the North of the site, away from sensitive receptors. Site is relatively isolated. Shovel loading of digested sludge cake takes place within the covered cake barn which reduces noise impacts. Operations of shovel loaders and similar plant takes place at adjacent HWRC which is uncovered generates significant noise.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
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 flares is minimized by prioritizing use of the CHP engines first, with use of the flare recorded. The emergency flare is located away from sensitive receptors, in excess of 300m from nearby residential and commercial properties and approx. 120m from an industrial site.	Low

Table C3-3b (iv) - Environmental Risk Assessment and Accident Management Plan

A site specific Accident Management Plan (AMP) is located in Appendix J

Table C3-3b (v) - Bioaerosol Risk Assessment

The installation has the potential to generate bioaerosols which may pose a risk to nearby sensitive receptors. Please see the site-specific bioaerosol risk assessment presented in Appendix F.

3c - Types and amounts of raw materials

Type and amounts of raw materials used by the installation are summarised in the site specific Residue Management Plan (RMP) which is located in Appendix I.

4 - Monitoring

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

The air emission points A1 – A5 are monitored in accordance with EA guidance and the requirements of MCPD.

The site has a number of emission points to air. Points A1, A2 and A14 (2x CHP engines; 1x boiler) are subject to gas monitoring in accordance with the requirements of MCPD and EA guidance.

Hours of operation of the flare (A4) are monitored and logged. In the unlikely event that the total annual hours of operation exceed 10% of the hours in a year (876 hours), emissions from the flare would be subject to monitoring in accordance with EA guidance.

Odour Control Units (A8-A9) will be subject to bi-annual testing.

There is no routine monitoring proposed for points A7, A10 – A12 (PRVs) or A13 (the Siloxane filter stack emission point).

Table C3-4a – Emission Monitoring

Monitoring point	NGR	Monitoring frequency	Methodology (standard)	Assessment procedures
A1 (Unit 1 spark engine)	TQ 01591 67344	Oxides of Nitrogen – Annual Carbon Monoxide – Annual VOCs - Annual	MCERTS BS EN 14792 BS EN 15058 BS EN 12619 [note 2] BS EN 13526 [note 3]	
A2 (Unit 2 spark engine)	TQ 01598 67344	Oxides of Nitrogen – Annual Carbon Monoxide – Annual VOCs - Annual	MCERTS BS EN 14792 BS EN 15058 BS EN 12619 [note 3] BS EN 13526 [note 3]	
A4 (Emergency flare)	TQ 01755 67462	Annual monitoring is only required when flare operates in excess of 10% of the time,	In accordance with Environment Agency guidance note M2 "Monitoring of	

		taken on an annual assessment period.	stackemissions to air"-	
A6 (Excluded diesel generator)	TQ 01515 67476	-	-	
A7 (Biogas holder PRV)	TQ 01754 67419	n/a	n/a	
A8 (OCU 1)	TQ 01607 67396	Hydrogen sulphide Once every six months	CEN TS 13649 for sampling NIOSH 6013 for analysis OR US EPA M11	
		Ammonia: Once every six months	EN ISO 21877 OR CEN TS 1369 for sampling	
A9 (OCU 2)	TQ 01508 67403	Hydrogen sulphide Once every six months	CEN TS 13649 for sampling NIOSH 6013 for analysis OR US EPA M11	
		Ammonia: Once every six months	EN ISO 21877 OR CEN TS 1369 for sampling	
A10 (THP PRV)	TQ 01612 67386	n/a	n/a	
A11 (Digester PRV)	TQ 01748 67405	n/a	n/a	
A12 (Digester PRV)	TQ 01722 67412	n/a	n/a	
A13 (Siloxane filter)	TQ 01643 67407	No limit set	-	
A14 (Dual fuel steam boiler)	TQ 01606 67358	Oxides of Nitrogen – Annual Carbon Monoxide – Annual Sulphur Dioxide – Annual Informed by run hrs and fuel type	MCERTS BS EN 14792 BS EN 15058 BS EN 14791	

S1 (Liquor sampling point)	TQ 01531 67423	n/a	MCERTS or ISO/IEC 17025 where available	

4b - Point source emissions to air only

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?

No.

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?

No.

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 operational site sampling locations and sampling ports may not meet all of the requirements for BS EN 15259, but these are being checked onsite. Due to the size of the CHP and boiler, a permanent sampling platform is not provided, however, a temporary sampling platform is utilised to provide sufficient space, in accordance with standard industry practice and BS EN 15259 when sampling is required.

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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]?

No.

6 - Resource efficiency and climate change

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

The Primary Digester Tanks are heated by the incoming sludge from the THP process and do not normally require any additional heat input. The Primary Digester Tanks are all suitably insulated to maintain optimum temperature. The CHP engines are suitably sized to maximise energy utilisation for the parasitic load, while minimising the use of the flare. Heat generated from the exhaust gases of the CHP engines is used to supplement steam raising within the site boiler.

Maintenance activities and low energy lighting installed across the plant contributes towards energy efficiency.

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

The CHP plant at the site combusts indigenous biogas and supplies electrical power to treatment processes at the site. The Chertsey site also exports electricity to the grid when in surplus. When in deficit, electricity used on site is supplemented by National Grid imports.

The site boiler provides additional heat, when required by the THP process using heat recovered from the CHP engines or from combusting diesel, which is stored within a diesel fuel tank adjacent to the boiler. Heat from the boiler is primarily supplied to the THP process but can also be supplied directly to the Primary Digester Tanks in the event of additional input being needed to maintain optimal digestion.

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.

Describe the specific measures you use for improving your energy efficiency

The production and use of biogas to generate electricity and produce heat (which is used in the THP and digestion process) on site minimises the use of fossil fuels onsite, whilst recovering biological wastes. Location of the heat exchange, boiler, CHP engines and THP within close proximity minimises transmission losses on site, improving the efficiency of the process.

Regular and proactive maintenance of pumps and insulation of pipework will improve efficiency and minimise the electrical demands and heat losses on site.

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

See response to question 3c above.

The processes take digested sludge which would otherwise require additional disposal and recovers energy and nutrients which can be put to beneficial use.

Small quantities of chemical raw materials are required to control and maintain the process. These are all proven materials that are extensively used within the water industry.

The other main raw materials are used in the generation of electricity and heat and maintenance of combustion plant which is supplied to the treatment process.

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 wastes. 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.

5. Form C4 Questions

1 About the permit

1a What waste operations are you applying to vary? Waste operations which do not form part of an installation

The original CHP permit and SR Sludge permit were both waste level permits. These have now been incorporated within the installation permit as a DAAs.

The permit application includes two new waste activities for the physical treatment of non-hazardous waste as a secondary activity waste operation to the main listed installation. One activity is the import of non-hazardous waste for temporary storage at the site. A second activity is for the import of non-hazardous waste for mechanical screening at the site.

1b –types of waste accepted and restrictions

The EWC list is included in the responses to form C3.

1c Deposit for recovery purposes

This is not a deposit for recovery application.

2 Point source emissions to air, water and land

Please see responses to form C3.

3 Operating techniques

3a Technical standards

Please see responses to form C3.

3b General requirements

Please see responses to form C3.

4 Monitoring

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

Please see responses to form C3.

4b Point source emissions to air only

Please see responses to form C3.

6. Form B2.5 Questions

1 About the permit

1a Discussions before your application

There have been no specific pre-application meetings with National Permitting about this application. Nature and heritage conservation screening was requested and received via email from the pre-application advice service of the Environment Agency.

1b What is your permit for?

A stationary Medium Combustion Plant (MCP)

2 About your MCP/SG

2a For each stationary MCP what is the address, postcode and national grid reference of where the plant is located?

Chertsey Sludge Treatment Centre;

Chertsey Sewage Treatment Works,

Lyne Crossing Road

Chertsey

Surrey

KT16 0AR

NGR: TQ 01610 67376

2b Is your permit application for a new activity or substantially refurbished activity for MCPs with a total aggregated thermal input of 20MW thermal or more?

No

2c Is your permit application for an MCP?

A unit greater than or equal to 20MW thermal

No

One that burns waste biomass as described in Article 3(18) (b) of MCPD

No

Do an of the MCPs on the site meet the criteria of a Chapter 1, Section 1.1 Part B activity?

No

Do an of the MCPs on the site meet the criteria of a Chapter 5, Section 5.1 Part B activity?

No

3 Your ability as an operator

3a Relevant offences

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

Please see responses to form C3.

3b Finances

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?

No

3c Management systems

You must have an effective, written management system in place that identifies and reduces the risk of pollution. You may show this by using a certified scheme or your own system.

Your permit requires you (as the operator) to ensure that you manage and operate your activities in accordance with a written management system.

Please see responses to form C3.

4 Consultation

4a Is the MCP or SG located within an Air Quality Management Area (AQMA)?

No.

5 Supporting Information

5a Provide a non-technical summary of your application

Please see responses in Section 1.

6.1 Appendix 1 – Medium Combustion Plant checklist

Medium Combustion Plant (MCP) Information				
MCP specific identifier*	Chertsey - CHP 1 (already permitted)	Chertsey - CHP 2 (already permitted)	Standby generator (already permitted)	Chertsey - Boiler
12-digit grid reference or latitude/longitude	E 501590 N 167355 (shared stack)		E 501520 N 167471	E 501609 N 167370

Medium Combustion Plant (MCP) Information				
Rated thermal input (MW) of the MCP	1.9	1.9	2.6	4.5
Type of MCP (diesel engine, gas turbine, other engine or other MCP)	Gas engine	Gas engine	Generator	Boiler
Type of fuels used: gas oil (diesel), natural gas, gaseous fuels other than natural gas	Biogas	Biogas	Diesel	Dual fuelled (biogas / diesel)
Date when the new MCP was first put into operation (DD/MM/YYYY)	Pre 2015	Pre 2015	Pre 2015	31/08/2021
Sector of activity of the MCP or the facility in which it is applied (NACE code**)	E.37.00	E.37.00	E.37.00	E.37.00
Expected number of annual operating hours of the MCP and average load in use	8,760 (based on availability). Modelled at 100% load.	8,760 (based on availability). Modelled at 100% load.	50. Modelled at 100% load.	8,760 (modelled operating all year and at 100% load).
Where the option of exemption under Article 6(8) is used the operator (as identified on Form A) should sign a declaration here that the MCP will not be operated more than the number of hours referred to in this paragraph	N / A	N / A	N / A	N / A

7. Form C6 Questions

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

Q1About 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

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 and thickening processes within the installation. Lower volume constituents will include rainfall; biogas condensate; siloxane filtrate; boiler blowdown water; contaminated run off and washdown water. 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.

1b Give this effluent a unique name

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 C6 guidance notes for more details)?

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

Q2 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.

Q3 How much do you want to discharge?

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

1,495 Cubic metres

3c What is the maximum rate of discharge?

17.31 Litres / second

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

1,495 Cubic metres

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

Q3b – The liquor arisings must come from the installation inputs as there is limited additional water inputs. The maximum volume of effluent discharged per day will consist of primary thickening liquors, post-digestion

dewatering liquors and biogas condensate generated from the inputs and outputs to/from the Primary Digester Tanks.

Q3c – Maximum rate of discharge (L/second) is generated from the maximum volume of effluent per day [1,495.48m^3 x 1000] / 86400 from sources such as thickening and dewatering. This gives a value of 17.3087962962963 litres, rounded up to 17.31 litres per second.

Q3d – The liquor arisings must come from the installation inputs as there is limited additional water inputs. The maximum volume of effluent discharged per day will consist of primary thickening liquors, post-digestion dewatering liquors and biogas condensate generated from the inputs and outputs to/from the Primary Digester Tanks.

Q4 No questions

Q5 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.

Q6 How will the effluent be treated?

6a Do you treat your effluent?

No. The Effluent generated by the process of treating sludge within the installation is returned to the inlet of the wider STW, 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

Order of Treatment	Code Number	Description
First	09	Primary settlement within sewage works
Second	31	Activated sludge process
Third	21	Sand filtration

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 TH/CNTD.0027/008.

Q7 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?

At present, no sampling or analysis for all substances listed within the referenced risk assessment at the site has been undertaken. Only limited chemicals are added to the process within the installation boundary, primarily antifoam (in low doses, as required), polymer to aid dewatering of sludge and caustic soda to alter the pH. A review of the appropriate MSDS data does not indicate the presence of 'specific substances' within those chemicals.

Sampling and analysis of the liquor returns to fully characterise the waste streams in accordance with BAT 3 will be undertaken at the site, in line with what is technically achievable, as per the commitment to undertake a chemical analysis of the installation's effluents as per "Return Liquors BAT 3, 6, 7" within Appendix M.

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?

At present, no routine sampling or analysis for all substances listed within the referenced risk assessment at the site has been undertaken either for effluent from the installation or within the wider sewerage catchment. Thames Water commits to undertaking a chemical analysis of the installation's effluents as per "Return Liquors BAT 3, 6, 7" within Appendix M.

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. Thames Water commits to undertaking a chemical analysis of the installation's effluents as per "Return Liquors BAT 3, 6, 7" within Appendix M.

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

Thames Water commits to undertaking a chemical analysis of the installation's effluents as per "Return Liquors BAT 3, 6, 7" within Appendix M.

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.

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.

Q8 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. 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.

Q9 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?

No sampling point installed at present. Effluents will be sampled from the Sample points identified in Table C3-4a (approximately) within the installation.

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.

Q10 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)

Outlet 1.

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

TQ 01520 68030.

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

The River Bourne (North), via the wider UWWTD sewage treatment works.

A5.4 Is the discharge into a:

Non-tidal river.

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.

Appendix A. Figures

A.1 Site Location Plan

See document: B22849AM-JAC-CHY-DR-0001

A.2 Installation Boundary and Air Emission Points

See document: B22849AM-JAC-CHY-DR-0002

A.3 Site Impermeable and Permeable Surfaces Plan

See document: B22849AM-JAC-CHY-DR-0003

A.4 Site Drainage Plan

See document: CHERS1ZZ_DPL_001

A.5 Process Flow Diagram

See document: B22849AZ-JA-CHERS1ZZ-LSX-DR-P-0003

A.6 Site Photographs

See document: TW_STC_EPR_02a_CHY_APPA.6

Appendix B. CoTC

For the qualifications of the site manager, see document: TW_STC_EPR_02a_CHY_APPB

Appendix C. Site Condition Report – H5

See separate document: TW_STC_EPR_04a_CHY_APPC

Appendix D. BAT Assessment

Please see the appended BAT Assessment Spreadsheet TW_STC_EPR_04a_CHY_APPD

Appendix E. Odour Management Plan

See documents: AM_OMP Chertsey STW, AM-OMP Chertsey STW-RA and AM_OMP_Chertsey-OIP

Appendix F. Bioaerosol Risk Assessment

See document: TW_STC_EPR_04a_CHY_APPF

Appendix G. Containment Assessment

G.1 Containment Options Report (CIRIA 736)

See document: B22849AZ-JA-SGHS1ZZ-100-RP-Z-0001

G.2 Containment Assessment

See document: B22849AZ-JA-SLOUS1ZZ-100-CA-P-0001

Appendix H. Leak Detection and Repair Plan (LDAR)

See document: TW_STC_EPR_04a_CHY_APPH

Appendix I. Residue Management Plan

I.1 Residue Management Plan

See document: TW_STC_EPR_04a_CHY_APPI.1

I.2 MSDS Zip File

See document: TW_STC_EPR_04a_CHY_APPI.2.2.2

Appendix J. Accident Prevention and Management Plan

See document: TW_STC_EPR_04a_CHY_APPJ

Appendix K. Waste Acceptance

K.1 Acceptance of Third-Party Waste Imports

See document: TW_STC_EPR_04a_CHY_APPK.1

K.1.1 Acceptance of TWUL Inter-Site Sludge and Cake

See document: TW_STC_EPR_04a_CHY_APPK1.1

K.1.2 Acceptance of TWUL Network Waste – Chertsey STC

See document TW_STC_EPR_04a_CHY_APPK 1.2

Appendix L. Air Quality Assessment

See document: TW_STC_EPR_04a_CHY_APPL

Appendix M. Liquor Monitoring Proposal

See document: TW_STC_EPR_04a_CHY_APPM