



Peacehaven Sludge Treatment Centre Environmental Permit Application

Main Supporting Document

January 2025

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1 Non-technical summary

1.1 Overview of the site and activities

Peacehaven is a Sludge Treatment Centre (STC) (also known as the “Site”) and an associated Wastewater Treatment Works (WTW). The address of the Site is Hoyle Road, Peacehaven East Sussex BN10 8LW. National Grid Reference TQ 42150 01540.

The WTW is operated under the Urban Wastewater Treatment (England and Wales) Regulations 1994 and has a standalone Water Discharge Activity Environmental Permit, which will remain an independent permitted activity.

The STC operation is a non-hazardous waste activity which is currently carried out under registered T21, S2 and U6 exemptions. The waste activity comprises imports, physio-chemical and anaerobic digestion treatment (AD), and the storage of waste, all for recovery purposes. The STC handles waste derived from the wastewater treatment process, either indigenously produced on-site or imported from other Southern Water owned assets.

The Site currently has one Environmental Permit in operation, which is for the use of a combined heat and power plant (CHP), two standby boilers, emergency flare and the use of a vent air burner (EPR/KB3435RB).

Southern Water wishes to vary permit EPR/KB3435RB into an installation permit for the Site into a single consolidated permit to include:

- Anaerobic digestion of sludge
- Acceptance of cess to the head of the works (as a waste activity)

The CHP will be DAA's to the installation activity, with an additional waste activity for the acceptance of waste to the head of the works.

Anaerobic digestion of sludge

As advised by the Environment Agency through consultation at WaterUK Waste and Recycling Network and a letter sent to all Water and Sewage Companies at director level in July 2019, Southern Water is applying to vary the above mentioned existing bespoke permits into a Bespoke Installation Permit for the STC waste activity. Following a joint decision made by Environment Agency and DEFRA that AD treatment facilities at WTW STCs are covered by the Industrial Emissions Directive and can no longer operate under standard environmental permits or exemptions.

The primary permitted installation activity will be the AD treatment facility. The AD facility will treat indigenously produced and imported sludges. Permitted Directly Associated Activities (DAAs) will be the import of waste from other WTW assets; the physio-chemical treatment of imported and indigenously produced sludges; the storage of indigenously produced sludges, imported sludges and the sludge cake from the AD facility; the storage of biogas derived from the AD treatment of waste and the combustion of biogas in an on-site Combined Heat and Power plant (CHP). In the event the CHP cannot run in an emergency or due to operational issues, biogas will be combusted via an on-site flare stack and/or back-up boiler system.

Acceptance of waste to the head of the works

Southern Water wishes to remain able to accept cess and chemical toilet waste to the head of the works (currently accepted under a T21 exemption). The cess and chemical toilet waste is discharged to the dedicated reception facility, before joining the incoming, indigenously flows,

from the sewer network, into the head of works to be treated through the WtW. The total annual tonnage to be accepted is 20,000 wet tonnes.

1.2 Overview of the STC process

Currently, Peacehaven STC accepts indigenous sludge from the Peacehaven WTW process, imported sludge cake from Newhaven WTW and imported cess waste.

Approximately 9-10 roll-on roll-off (Ro-Ro) containers of sludge cake are imported to the Site from Newhaven per week. Imported raw sludge cake is discharged via Ro-Ro trucks into 1 No. raw cake import bay (70m³). The cake is blended with liquid sludge from the 2 No. co-settled sludge tanks (2060m³ each).

Blended sludge can be passed through the standby sludge screen, if required, but is normally thickened by 3 No. gravity belt thickeners, and then pumped directly to 2 No. digester feed tanks (383m³ each), which are equipped with external chopper mixing pumps.

Sludge is then fed to 3 No. anaerobic digesters (3250m³ each) at 6.5-7% dry solids (DS) operating between 32°C and 38°C. Polyelectrolytes are added to aid the thickening process. The digested sludge gravitates to 2 No. post digestion storage tanks (677m³ each), before being fed, via centrifuge feed pumps, to 2 No centrifuges for dewatering. 1 No. lime tank (30m³) and dosing plant injects lime into the feed pump to the centrifuges.

Digested sludge cake is stored in 1 No. digested cake silo (400m³) before being pumped to 6 No. sealed Ro-Ro containers, where it is taken off-site for recycling in agriculture.

All wastewater treatment and sludge treatment processes are covered or enclosed. All tanks are enclosed or covered, and air is extracted to 3 No. odour control units (OCU), sharing the same stack. The Site is equipped with a comprehensive ventilation and odour control system. Treatment buildings and processes are provided with fresh air supply and foul air extraction systems to prevent escape of odours. The odour control unit undergoes monthly scheduled maintenance by specialised contractors. Extracted odorous air is treated by a two-stage chemical scrubber system which utilises three acid scrubbers followed by three alkaline hypochlorite scrubbers.

Biogas produced by the digestion process is stored in a double skinned gas holder (2150m³). Biogas is fed to the CHP plant where it is used to generate heat (i.e., to control the temperature of the digestion process) and electricity for the Site. The CHP unit has a thermal rated input of 3.154MWth. The Site has two back-up boilers (1.418 – 1.482MWth) that operate in the case of an emergency. The specifications of the combustion plant are presented in Table 1.1.

Table 1.1: Combustion Plant Details

	CHP	Boiler 1	Boiler 2
Make/Model number	G3516A+ spark ignition engine	Rehema P520 23 units EDG50/5G/3M	Rehema P520 23 units EDG50/5G/3M
Date that MCP became operational/was commissioned	2012	2012	2012
Thermal input (MWth)	3.15	1.418	1.482
Stack height (m)	19.6	N/A	N/A
Fuel used (biogas, diesel etc)	Biogas	Biogas/natural gas	Biogas/natural gas
Estimated total hours of operation per year	8,760	Less than 10%	Less than 10%

	CHP	Boiler 1	Boiler 2
MCPD and SG Regs status	Tranche A Existing MCP	Existing MCP	Existing MCP

The IED permit will include:

- 1 No. Raw cake bay (cake import bay) (70m³) (covered)
- 2 No. Sludge import bays (not used)
- 4 No. Strain presses
- 1 No. Digested sludge cake storage silo (400m³) (covered)
- 2 No. Digester feed tanks (383m³ each) (covered)
- 3 No. Gravity belt thickeners (covered)
- 2 No. Post digestion storage tanks (677m³ each) (covered)
- 2 No. Co-settled tanks (2,060m³ each) (covered)
- 3 No. Anaerobic digesters (3,250m³ each) (covered)
- 1 No. Gasholder (2,150m³)
- 2 No. Boilers (dual fuel) (1.418 – 1.382MWth)
- 1 No. CHP unit (3.154MWth)
- 1 No. Biogas flare
- 1 No. Gas drier and carbon filter (sealed system)
- 1 No. Lime tank and dosing plant (30m³) (covered)
- 2 No. Centrifuges (covered)
- 6 No. Cake storage skips (Ro-ro skips) (<6000 m³ total)
- 3 No. Polymer stock tank (25m³ each) (covered)
- 3 No. Polymer mixing tank (15m³ each) (covered)
- 3 No. Odour control units (OCUs) - Stage1: three acid scrubbers followed by stage 2: three alkaline and hypochlorite scrubbers, stage 3: 3 No carbon filters (carbon filters are non-operational).

The following are outputs from the process:

- Screenings and grit – deposited into skips before being removed off-site.
- Biogas – stored in an existing gas holder, then either
 - burnt in the CHP to generate electricity for use on-site,
 - flared in the waste biogas burner.
- Cake – stored in ro-ro skips prior to being transported off site for recycling to agriculture (soil conditioner).

1.3 Summary of key technical standards

Table 1.2 lists the technical guidance notes (TGNs) used to inform the techniques and measures proposed to prevent and reduce waste arising and emissions of substances, including during periods of start-up and shut down, momentary stoppage and malfunction, and leaks.

Table 1.2: Key Technical Standards

Installation name		
Goddard's Green STC		
C3 – Installation		
Description of the schedule 1 activity or directly associated activity	Best available technique (BATC, BREF or TGN reference)	Document reference
Section 5.4 non-hazardous waste installation - anaerobic digestion installation regulated under the Industrial Emissions Directive, utilisation biogas for energy	<ul style="list-style-type: none"> Biological waste treatment: appropriate measures for permitted facilities Non-hazardous and inert waste: appropriate measures for permitted facilities 	<ul style="list-style-type: none"> https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities
Section 5.4 non-hazardous waste installation – liquor treatment.		
B4 – Waste activities		
Description of the waste operation	Appropriate measure (TGN reference)	Document reference
Acceptance of waste to the head of works (Cess)	<ul style="list-style-type: none"> Non-hazardous and inert waste: appropriate measures for permitted facilities Biological waste treatment: appropriate measures for permitted facilities 	<ul style="list-style-type: none"> https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply
General		
All activities	Guidance	Document reference
	<ul style="list-style-type: none"> Monitoring stack emissions: technical guidance for selecting a monitoring approach M1 sampling requirements for stack emission monitoring Environment Agency environmental permitting guidance, including: Risk assessments for your environmental permit Energy efficiency (Energy efficiency for combustion and energy from waste power plants) Noise assessment and control H4 Odour management H5 Site condition report Control and monitor emissions for your environmental permit 	<ul style="list-style-type: none"> https://www.gov.uk/guidance/monitoring-stack-emissions-technical-guidance-for-selecting-a-monitoring-approach https://www.gov.uk/government/publications/m1-sampling-requirements-for-stack-emission-monitoring https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit https://www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

1.4 Revisions since 2022 application submission

The application was first submitted in 2022. This Main Supporting Document includes details that have been updated following feedback received over the past three years in relation to IED permit applications for the anaerobic digestion of sewage sludge. Table 1.3 provides a summary of the stand-alone documents included as part of this application, and the amendments where applicable. Where a document has not been amended due to it being remaining applicable, the original reference number remains unchanged. Where a document has been updated this document will supersede any previous versions.

Table 1.3: Summary of revisions

Document name	Latest document reference	Summary of amendments
Main supporting document	790101_MSD_Main_PEA January 2025	Resubmitted – updated to include wider feedback from the Environment Agency and response to Request for Information December 2024.
Environmental Risk Assessment	790101_ERA_PEA January 2025	Resubmitted – updated to include complaints recorded since 2020 and completion of air quality risk assessment and the addition of 'firewater' management into App B table.
Environmental Constraints Maps	790101_ERA_Maps_PEA March 2024	Resubmitted. Human receptor map screening distance increased to 2km.
Bio-aerosol Risk Assessment	790101_ERA_BioaRA_PEA March 2024	Resubmitted – updated to include bio-aerosol monitoring proposals and new windrose.
Odour Management Plan	790101_ERA_OdourMP_PEA January 2025	Resubmitted – updated to include new windrose, updated complaints recorded since 2020 and feedback from the Environment Agency and response to Request for Information December 2024.
Climate Change Risk Assessment	790101_ERA_CCRA_PEA	No change. To be included as part of the management system for the site.
Site Condition Report	790101_MSD_SCR_PEA December 2024	Site scope defined and screening distances clarified in relation to STC permit boundary. Updated in response to Request for Information December 2024.
BAT analysis	790101_MSD_BAT_PEA January 2025	Resubmitted – updated to include changes by Southern Water and wider feedback from the Environment Agency and response to Request for Information December 2024.
Site Layout and Location Plan	790101_MSD_SiteLayoutPlan_PEA January 2025	Resubmitted – updated to reflect proposed secondary containment, liquor transfer point, liquor sampling point and changes to point source emissions in response to Request for Information December 2024.
Drainage Plan	790101_MSD_DrainagePlan_PEA	No change
Schematics	790101_MSD_Schematic_PEA December 2024	Resubmitted – updated to include separation of AD and waste activities in response to Request for Information December 2024
Environmental Management System Certificate	790101_MSD_EMS December 2023	Resubmitted. Certificate has been renewed.
Relevant Offences	790101_MSD_RelevantOffences_March 2024	Updated.
Details of Directors	790101_MSD_Directors March 2024	Updated to time of resubmission.
Competency assessment certificates	790101_MSD_CompetencyAssessmentCertificates_PEA	Retracted, and replaced with Competency Management System.
Competency Management System	790101_MSD_CMS December 2023	Substitutes CoTC assessment certificates
Material Safety Data Sheets	790101_MSD_MSDS_PEA March 2024	Updated documents

Leak Detection and Repair Plan	790101_MSD_LDAR_PEA March 2024	Additional document
Duty of Care	790101_MSD_DutyofCare_PEA March 2024	Additional document but superseded by the Waste Acceptance document listed below
Waste acceptance	790101_WasteAcceptance_PEA December 2024	Additional document - updated as part of response to Request for Information December 2024
CIRIA assessment and modelling	790101-MMD-IED-PEA-CA-C-001-IED ADBA tool P03	Additional document. updated as part of response to Request for Information December 2024 Supersedes: 790101-MMD-IED-PEA-SIM-M-101 DoNothing(Tank Failure Only) 790101-MMD-IED-PEA-SIM-M-102 DoNothing(With Rainfall) 790101-MMD-IED-MIL-SIM-M-103 Option1 (Tank Failure Only) 790101-MMD-IED-MIL-SIM-M-104 Option1(With Rainfall) 790101-MMD-IED-MIL-SIM-M-105 Option2 (Tank Failure Only) 790101-MMD-IED-MIL-SIM-M-106 Option2(With Rainfall)
Residue Management Plan	790101_MSD_ResidueMP_PEA December 2024	Updated to include wider feedback from the Environment Agency and response to Request for Information December 2024.
Accident Management Plan	790101_MSD_AMP_PEA March 2024	Additional document.
Revised containment plan (ABDA Tool)	790101-MMD-IED-PEA-CA-C-001-IED ADBA tool P03	Additional document. updated as part of response to Request for Information December 2024
Implementation Plan	790101_MSD_ImplementationPlan December 2023	Additional document
Form Part A	790101_App_PartA_PEA	No change
Form Part B4	790101_App_PartB4_PEA December 2024	Additional document, in response to Request for Information December 2024
Form Part C2	790101_App_PartC2_PEA	No change
Form Part C3	790101_App_PartC3_PEA	No change
Form Part C6	790101_App_PartC6_PEA	No change
Form Part F1	790101_App_PartF1_PEA	No change
Envirocheck Report	790101_MSD_SCR_PEA_AppB_Envirocheck	Additional document, updated as part of response to Request for Information December 2024
Waste transfer notes	790101_WasteTransferNotes_PEA December 2024	Additional document, updated as part of response to Request for Information December 2024
Sampling proposal	790101_Sampling proposal_PEA January 2025	Additional document, updated as part of response to Request for Information December 2024
Appropriate Measures Assessment	790101_Appropriate Measures_Pea December 2024	Additional document, updated as part of response to Request for Information December 2024

2 Introduction

2.1 Overview

This document has been prepared to support the application to vary and consolidate the existing bespoke waste activity permit into a bespoke Installation Environmental Permit (hereafter referred to as 'the Permit'), EPR/KB3435RB for Peacehaven Wastewater Treatment Works (WTW) and Sludge Treatment Centre (STC) ('the Site') on behalf of Southern Water Services Limited ('Southern Water' or 'the Operator').

Following the joint Environment Agency and Department for Environment, Food and Rural Affairs (DEFRA) decision that AD treatment facilities at WTWs and STCs are covered by the Industrial Emissions Directive (IED) the intent of the application is to ensure the Site is permitted in line with the IED and the EPR 2016, as amended.

This document contains a description of the Site, the proposed permitted activities and Directly Associated Activities (DAAs), an assessment of the possible effects of these activities and responses to questions in Parts A, B4, C2, C3, C6 and F1 of the application documentation (plus supporting information where required). Completed forms Part A, B4, C2, C3, C6 and F1 are included as separate documents.

2.2 Document content and structure

The following application forms have been complete to support the application and have been submitted as stand-alone documents:

- Part A: About You (Document reference 790101_App_PartA_PEA)
- Part B4: New bespoke waste operation (Document reference 790101_App_PartB4_PEA December 2024)
- Part C2: Varying a bespoke permit (Document reference 790101_App_PartC2_PEA)
- Part C3: Variation to bespoke installation permit (Document reference 790101_App_PartC3_PEA)
- Part C6: vary a water discharge activity, groundwater activity, or point source emission to water from an installation (Document reference 790101_App_PartC6_PEA)
- Part F1: Charges and declarations (Document reference 790101_App_PartF1_PEA)

The main body of the Permit application document ('the Main Supporting Document') includes all the supplementary information required in response to relevant questions within the Part A, Part B4, Part C2, Part C3, Part C6 and Part F1 application forms for which there was insufficient space on the forms to answer the questions in full.

The Environmental Permit variation application document ('the Main Supporting Document') consists of two main parts:

- Chapter 5 provides the general information required to inform Part C2 relating to the variation of bespoke permit; and
- Chapter 6 provides the more detailed information required to inform Part B4, Part C3 relating to the variation of a bespoke installation permit.

Part F1 covers the required financial information required for payment of the application fee.

Additional information included as part of this submission and not as stand-alone documents, are found in the following appendix:

Appendix A – European Waste Catalogue (EWC) Codes

3 Process Description of the WTW and STC

3.1 Wastewater Treatment Works

This subsection has been provided for context only.

Peacehaven catchment serves city of Brighton & Hove, Saltdean and Peacehaven. The sewerage networks are mainly combined gravity sewers with 23 wastewater pumping stations.

The preliminary treatment stage involves mechanical screening of the sewage to remove any coarse solids, rags and detritus, followed by grease and grit removal. All sewage is received at Peacehaven WTW in the inlet works pumping station. Four variable speed centrifugal pumps, operating in a duty/assist/assist/standby configuration, lift the sewage to elevated inlet works. From there, the flow is combined with works return liquors. The combined flow then passes through three inlet screens operating in a duty/assist/standby configuration.

Following the screening process, screened sewage then passes through three aerated grit and grease removal tanks. Grit is pumped to two duty/standby grit classifiers. Fat, oil, grit and grease (FOGG) is pumped to a grease concentrator, from where it is discharged into the digester feed tanks. The effluent from the FOGG tanks combines and is then split to two coagulation tanks operating in parallel.

Ferric chloride is dosed into the incoming flow for coagulation. The coagulated flow is then fed to four Multiflo lamella settlers, each with independent flocculation and clarification streams. Polyelectrolyte is dosed into each flocculation chamber to enhance settlement. The lamella tanks are equipped with scrapers, automatic de-sludge pumps and air scouring systems with duty standby blowers each rated at 1,800m³/h.

Settled sewage gravitates to ten Biostyr™ Biological Aerated Flooded Filter (BAFF) cells to receive secondary treatment. Each cell retains a buoyant media bed of polystyrene beads. The BAFF plant is configured for removal of carbonaceous pollutants (COD/BOD) together with total suspended solids (TSS).

Oxygen is supplied from a centralised air supply system with five blowers, each rated at 6,420m³/h, providing treatment and scouring air to a header network in the bottom of each cell. Treated effluent from the BAFF cells gravitates to effluent sampling chamber and is discharged to the English Channel via a long sea outfall.

BAFF cells are backwashed periodically using treated effluent to remove build-up of biomass and retained solids to maintain continued treatment. The backwashing process is fully automated and is triggered either by timers or head-loss across the cell. Dirty backwash is pumped by two duty/standby fixed speed submersible pumps to a BAFF dirty backwash tank. Two duty/standby variable speed submersible pumps feed the dirty backwash to the inlet works distribution channel, downstream of the inlet screens and upstream of the WtW FOGG removal channels.

3.2 Overview of the STC process

3.2.1 Anaerobic digestion of sludge

The Site also serves as an STC, which accepts indigenous sludge from the Peacehaven WTW process, imported sludge cake from Newhaven WTW and imported cess and chemical toilet waste. Approximately 9-10 roll-on roll-off (Ro-Ro) containers of sludge cake are imported to the Site from Newhaven per week.

Indigenous sludge from the primary lamella tanks is pumped through two indigenous sludge screens and is then discharged to the screened sludge pumping station.

Imported raw sludge cake is discharged via Ro-Ro trucks into 1 No. raw cake import bay (70m³). The cake is blended with liquid sludge from the 2 No. co-settled sludge tanks (2060m³ each) in a hopper.

Blended sludge can be passed through the standby sludge screen, if required, but is normally thickened by 3 No. gravity belt thickeners, and then pumped directly to 2 No. digester feed tanks (383m³ each), which are equipped with external chopper mixing pumps. Sludge thickening is undertaken to increase the solids content of the sludge. This is achieved by means of mechanical equipment that is housed within a building to contain odorous air for treatment. Liquor from the thickening process is returned to the WTW for further treatment.

Sludge is then fed to 3 No. anaerobic digesters (3250m³ each) at 6.5-7% dry solids (DS) operating between 32°C and 38°C. Polyelectrolytes are added to aid the thickening process.

The digested sludge gravitates to 2 No. post digestion storage tanks (677m³ each), before being fed, via centrifuge feed pumps, to 2 No centrifuges for dewatering. 1 No. lime tank (30m³) and dosing plant injects lime into the feed pump to the centrifuges.

Digested sludge cake is stored in 1 No. digested cake silo (400m³) before being pumped to 6 No. sealed Ro-Ro containers, where it is taken off-site for recycling in agriculture.

Most equipment is covered or enclosed. All tanks are enclosed or covered, and air is extracted by the odour control units (OCU), all equipment is connected to the OCU apart from the digesters and post digestion storage tanks.

The Site is equipped with a comprehensive ventilation and odour control system. Treatment buildings and processes are provided with fresh air supply and foul air extraction systems to prevent escape of odours. The OCU undergoes monthly scheduled maintenance by specialised contractors. Extracted odorous air is treated by a two-stage chemical scrubber system which utilises 3 No. acid scrubbers followed by 3 No. alkaline hypochlorite scrubbers. The OCU also has 3 No. carbon filters, but these are currently not operational. Southern Water are in the process of modifying and reinstating the carbon filter stages to operational use to meet BAT requirements. The OCUs were installed in 2012.

Biogas from the digestion process is fed to the 1 No. gasholder (2150m³). The biogas is fed to 1 No. CHP gas engine (3.154MWth), any excess gas is burned at the 1 No. flare stack.

Biogas produced by the digestion process is stored in a double skinned gas holder (2150m³). Biogas is fed to the CHP plant where it is used to generate heat (i.e., to control the temperature of the digestion process) and electricity for the Site. The CHP unit has been in operation since March 2012, it is powered by biogas. It has a thermal rated input of 3.154MWth. The CHP engine uses approximately 16,000m³ of biogas per day. The Site has two back-up dual fuel boilers (1.418 – 1.482MWth), powered by biogas and natural gas, that operate in the case of an emergency.

Therefore, the Site falls within the scope of the Medium Combustion Plant Directive (MCPD) since the thermal rated input is greater than 1MWth. The existing CHP unit is currently permitted as a Tranche B specified generator, it will not be required to meet MCPD requirements as a Medium Combustion Plant until 2030 because it is an existing medium combustion plant (MCP).

3.2.2 Acceptance of waste to the head of the works

The cess and chemical toilet waste is discharged to the dedicated reception facility, before joining the incoming, indigenous flows, from the sewer network, into the head of works to be treated through the WtW. The total annual tonnage to be accepted is 20,000 wet tonnes.

4 Part A – About you

4.1 Question 5c: details of directors

The details of directors at Southern Water Services Limited (Company number: 02366670) are provided in stand-alone document 790101_MSD_Directors March 2024.

4.2 Contact details

Whereby the contact disclosed in 7a (Anita Manns, Mott MacDonald) is not available the Environment Agency should contact one of the secondary contacts:

Name: Claire Cowdrey

Address: Mott Macdonald, Mountbatten House, Grosvenor Square, Southampton, S015 2JU

Phone number: 023 8062 8523

Email: claire.cowdrey@mottmac.com

5 Part C2 – General – Varying a new bespoke permit

5.1 Question 2 – Table 1: Changes to existing activities

The variation application is to vary permit EPR/KB3435RB. The variation application is to:

- modernise the conditions of the CHP permit as authorised under the permit reference EPR/KB3435RB where required,
- add the scheduled activity s5.4for anaerobic digestion
- apply for waste operation activity for acceptance of waste to the head of the works (cess and chemical toilet waste).

5.2 Question 3a: Relevant offences

Details of the relevant convictions are provided in the document reference 790101_MSD_RelevantOffences March 2024 (produced by Southern Water).

5.3 Question 3b: Technical ability

Operational management is provided by qualified individuals and considered to be technically competent. All staff on-site are trained to manage and operate activities without causing pollution.

Future competency, in terms of the requirements of the environmental permit, will be ensured through the appropriate training of all staff, covering:

- Awareness of the regulatory implications of the Permit for the permitted activity and their own work activities
- Awareness of all potential environmental effects from operation under normal and abnormal circumstances
- Awareness of the need to report any deviation from the Permit
- Prevention of accidental emissions, and action to be taken when accidental emissions occur

All staff are aware of the implications of activities undertaken including the operation of the Site. Skills and competencies necessary to work on-site are documented and records of training needs and training received for these posts are maintained.

Southern Water is currently working on an accredited Competency Management System under the Competent Operator Scheme based on the Anglian Water Services-developed technical competency course to demonstrate that personnel have the appropriate technical skills and knowledge to manage the activities undertaken. This will be independently certificated and audited, through a third-party certification body to ensure it meets the requirements of the Competence Management System Standard, developed by Energy & Utility Skills¹. The Competence Management System (CMS) enables Operators to demonstrate technically competent management on the basis of corporate competence and employees' individual competence. Individual competence remains a key component with each employee having the relevant technical competences required to carry out their role.

¹ Energy and Utility Skills (2021) Competence Management System. Available online at: <https://www.euskills.co.uk/about/our-industries/waste-management/competence-management-system/>

An e-learning course is being developed and certification is due to be undertaken by LRQA (document reference 790101_CMS December 2023). The CMS is to be certified within the first 12 months from issue of a permit for the STC.

5.4 Question 3c: Finances

No relevant persons within Southern Water have current or past bankruptcy or insolvency proceedings against them.

5.5 Question 3d: Management System

The Site operates under the company-wide Environmental Management System (EMS 684981), which is certified to ISO 14001:2015 and is applicable to water supply and wastewater treatment assets at operational sites (wastewater treatment works, water supply works and water booster stations). The EMS is effective for three years from July 2023, until July 2026. The EMS is accredited by the British Standards Institution (BSI).

Demonstrable procedures are outlined in the Site Process Activity Manual (SPAM) and Operating Plan. Any monitoring of emissions to air, land and water is undertaken according to Monitoring Certification Scheme (MCERTS) Standards where the permit requires it, where suitable and available.

As a part of the EMS the Operator has an internal audit programme that takes place every 12 months. During this annual programme operational sites are selected as a subsample and audited. Suppliers and business areas area also audited. An annual report is produced as part of the management review, and this is signed off by Senior Management. In addition, the EMS is subject to audit by the inspection and certification company BSI (for accreditation purposes) each year, and a full certification audit is conducted every three years.

The EMS addresses the following to ensure staff understand their roles and responsibilities to comply with environmental legislation and protect the environment and human health:

- Resources, roles, responsibility and authority
- Legal and other requirements in protecting the environment and human health
- Competence, training and awareness requirements
- Explanation of the Non-conformance, Corrective and Preventative Action Procedures
- Details of the significance of Environmental Aspects and Impacts
- EMS Review and auditing procedure and requirements
- Monitoring and measurement requirements
- Record keeping procedures

To accompany the Permit the Site will have its own Management System in line with the Environment Agency guidance. This identifies all the applicable procedures under the accredited EMS but includes additional site-specific information and procedures.

One of the key tasks for Southern Water during the permit determination process is the development of the management system arrangements to cover additional requirements in relation to the permitted operations. This may include the Climate Change Risk Assessment (CCRA) (document reference 790101_ERA_CCRA_PEA) to address measures to adapt to predicted additional pressure from changes in external operational conditions (such as weather and flooding), if required. Climate change and climate resilience will be included in the ongoing future updated to the EMS.

In addition to the environmental elements of the management system, Southern Water also has a health and safety management system which includes relevant procedures to follow with

regards to accidents and the reporting of incidents and near misses. The health and safety manual is designed to comply with the Health and Safety Executive's (HSE) Managing for health and safety guide (HSG65)².

5.5.1 Accident Management Plan

The Site operates under an Incident Management Plan (IMP), which is incorporated into Southern Water's Environmental Management System to prevent and manage environmental related accidents. An Accident Management Plan (AMP) was originally produced for the CHP permit in 2012 and has been updated accordingly to include the additional activities associated with the IED permit.

The AMP includes an inventory of substances stored at the site, details on storage facilities, inventory of pollution prevention equipment (spill kits and fire extinguishers), inventory of waste and storage capacities, contact details of internal contacts (Site manager, Environmental Governance Manager and key HSE staff), national and regional (where appropriate) contact details of emergency services and environmental regulators. The IMP is distributed to key staff, to supervise the implementation of the Plan, and shared with external contacts (emergency services and the Environment Agency). The AMP is accompanied by a site plan that identifies the locations of designated storage areas (and their maximum storage capacity), location of spill kits and fire extinguisher and storage locations and hazards posed by chemical substances.

The AMP references procedures to comply with environmental legislation and protect the environment and human health in regard to potential accidents:

- Spill prevention and management, and operation of safety valves
- Procedure for recovering spilled product
- Procedures for the prevention of overfilling vessels, management of plant and equipment failures
- Fire prevention and responses to fires, including fire water containment procedures
- Security measures to prevent unauthorised access, arson and vandalism
- Competence, training and awareness requirements
- Monitoring and measurement requirements
- Record keeping procedures for the recording of incidents, accidents and near misses
- Emergency procedures to notify relevant authorities, emergency services and neighbours

There are several different document types referenced in the IMP. These have been listed below:

- EMS - Environmental Management System
- FEC - Field Event Co-ordinator's Manual
- IMP - Incident Management Plan
- BCP - Business Continuity Plan
- CCM - Control Centre Manual
- SIB - Safety Instruction Book
- CAT - Catastrophe Plans

Table 5.1 below provides a list along with a brief description of each of the procedures which form part of the IMP.

² Health and Safety Executive (2013), Managing for health and safety (HSG65). Available online at: <https://www.hse.gov.uk/pubns/books/hsg65.htm>.

Table 5.1: Incident Management Plan procedures

SUPPORTING EMERGENCY PROCEDURES –

Procedure Reference	Brief summary
EMS 234 Chemical and Oil Storage	Specifies the standard for storage of chemicals and oils. Outlines the amounts of substances that can be stored on site without consent from the Local Authority, and details how these substances should be safely stored. Also includes Information on the auditing, training requirements and any associated documents.
EMS 260 Pollution Prevention (standard)	Specifies the standard for managing and reducing the risk of land contamination. Outlines the tasks a manager should complete i.e., ensuring spill kits are available, and who to contact in the event of an incident. The document also lists the measures that Southern Water should take to prevent pollution incidents. Also includes Information on the auditing, training requirements and any associated documents.
EMS 265 Discharges (Standard)	Sets the minimum standard of operation in managing effluent and potable water process discharges. Details definitions which relate to the procedure and outlines the standard. Also includes Information on the auditing, training requirements and any associated documents.
EMS 360 Pollution Prevention Procedure	Outlines the responsibilities of staff in relation to the procedure. The Procedure includes details on items such as site drainage, working on or near watercourses and excavations. As well as addressing different spill types; chemical, oil and sludge/sewage. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 361 Chemical Risk Assessment (Procedure)	Defines the procedure for assessing the environmental risk from bulk chemicals. Outlines the procedure for undertaking a risk assessment, and where required which EMS procedures need to be followed. Also addresses risk mitigation and employee awareness as well as the auditing, training requirements, reporting forms and any associated documents.
EMS 362 Environmental Fire Risk Assessment Procedure	Specifies the procedure for minimising the environmental consequence of a fire. Outlines the responsibilities of staff in relation to the procedure and provides a procedure for an Environmental Fire Risk Assessment. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 363 Procedure for Managing oil spills on sites	Outlines the responsibilities of staff in relation to the procedure. The procedure details how to determine the severity of the spill for different scenarios; land, inland waters and coastal waters/beaches, and how to prevent, control and remediate the environmental damage caused by spillages from the site. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 364 Lime Spill Management Procedure	Outlines the procedure for managing lime chemical spills at STCs. Defines the responsibilities of staff, and the procedure for managing the spill including the spill assessment and notification and escalation. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 365 Discharges Procedure	Defines the procedure that must be adopted when managing intermittent discharges. Outlines the responsibilities of staff in relation to the procedure and outlines the procedure where an emergency discharge is foreseeable for both emergency and stormwater and potable water. Information

SUPPORTING EMERGENCY PROCEDURES –

	on the auditing, training requirements, reporting forms and any associated documents.
EMS 381 Operational Waste Procedures	Specifies the procedure for managing wastes. The procedure addresses the definitions of different waste types and outlines a general procedure for managing waste. Identifies where further procedures should also be followed for specific waste types e.g., asbestos, WEEE and waste oils. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 382 Hazardous Waste Procedures	Specifies the procedure for moving hazardous waste between different sites. The procedure addresses identifying hazardous waste, storage of hazardous waste, consignment notes and record keeping. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 461 Chemical Risk Assessment (Form)	A template for a chemical risk assessment including the following: Site details Chemical details Chemical classification Risk activity Risks for health, fire/DSEAR and environment Handling, usage and storage requirements Management of spills Disposal Safety data sheet
EMS 480 Waste Descriptions	Provides written descriptions of different waste types covering the following: Process giving rise to the waste, Waste characteristics, Handling advice, Containment Disposal. Name of waste Waste classification Producer and registered office details EWC Controlled Waste Regulations 2012 description Waste type Form Temperature; and SIC code. Information on the auditing, training requirements, reporting forms and any associated documents.
FEC 307 Reporting of Unauthorised Access, Including Loss, Theft and Vandalism	Outlines the responsibilities of staff in relations to the reporting these incidents, and the procedure to be followed. Also includes Information on the auditing, training requirements and any associated documents.
FEC 320 Process Related Incidents	Specifies the procedures to follow in responding to process-related pollution incidents. Responsibilities of staff are outlined in the procedure, as well as contacting the FEC, FEC actions and reporting procedures. Information on the auditing, training requirements, reporting forms and any associated documents.
FEC 322 – Spillage Procedure	Outlines the responsibilities of staff in relation to the procedure. The procedure outlines the process for handling spillages on site including:

SUPPORTING EMERGENCY PROCEDURES –

	<p>Spillage assessment</p> <p>Notifications and Escalation</p> <p>Containment</p> <p>Awareness and Training</p> <p>Information on the auditing, training requirements, reporting forms and any associated documents.</p>
IMPO_101 – Overview of the Incident Management Plan	This document sets out the overall structure of the Incident Management Plans and provides a short overview of each of the main plans.
IMP 217 and IMP 218 Team Roles – Objectives and Responsibilities	Sets out the Objectives and Responsibilities for roles within the Incident Management Team and provides guidance for the ELT Representative. IMP 217 identifies when Southern Water should contact the Environment Agency, and IMP 218 identifies the process for contacting other authorities.
BCP 415 Guidance on Reporting Potential Media Interest	Sets out the types of incidents to be reported back by Field Operations Staff & Contract staff working on behalf of Southern Water that will potentially attract media interest, including contact numbers.
CCM 302 Procedure Following the Receipt of a Fire Alarm	Provides a consistent regional approach to dealing with any formal notification of a fire alarm within the Company. Outlines the responsibilities of staff, the procedure for when a fire alarm notification is received, inspections/audits, training and any associated documents.
SIB 603 Risk Assessment and Safety Instructions for Fire Awareness	<p>Covers the following:</p> <p>Training needs of staff and fire wardens</p> <p>What Managers must provide (i.e. fire safety meetings, plans)</p> <p>Inspections</p> <p>Safety instructions for occupied sites, unoccupied sites, and company vehicles</p> <p>Firefighting procedure</p> <p>Records to be completed</p>
CAT 303 Actions Following Severe Weather or Flood Warnings	Outlines the plan of actions that should be undertaken following severe weather or floor warnings and the responsibilities of the staff under these circumstances. The procedure details checklists for the following scenarios: impending severe weather, flood watch, flood warning, severe flood warning, and an all-clear checklist. Also includes Information on the auditing, training requirements and any associated documents.
Environmental Emergencies Poster (EMS)	A poster which should be displayed on all sites. The poster lists the type of emergency (fires, spills etc) and both the action which should be undertaken the contact phone number which should be called. The poster also highlights a list of things which should be checked prior to work starting such as the H&S notice boards, environmental notice boards and continuity plans.
Pollution 30 Minute Plan	Outlines a five-step plan for responding to a pollution incident in 30 minutes and outlines what should be done at each of the five stages.
Site Chemical Risk Register	Southern Water electronic database containing an inventory of hazardous substances used and stored by Southern Water and those relevant to individual sites, helping Southern Water to control substance use and comply with the COSHH regulations.
Alternative Response Coordinators Booklet	These documents provide flowcharts and a step-by-step guide for completing the Alternative Response tasks.

SUPPORTING EMERGENCY PROCEDURES –

Section 5: Resilience Guidance identifies criteria on when to contact local authorities and other first responders.

The EMS certification can be found in document reference 790101_MSD_EMS December 2023.

The Accident Management Plan can be found in document reference 790101_MSD_AMP_PEA March 2024.

5.6 Question 5a: Site layout plan and process diagram

Plans provided, to satisfy question 5a, can be found in the following stand-alone documents:

- Site Layout and Location Plan - Document reference 790101_MSD_SiteLayoutPlan_PEA January 2025
- Drainage Plan - Document reference 790101_MSD_DrainagePlan_PEA
- Schematics – Document reference 790101_MSD_Schematic_PEA January 2025

5.7 Question 5b: Site condition report

In accordance with Environment Agency requirements, a Site Condition Report (SCR) has been produced to demonstrate the condition of the land and groundwater at the Site on issue of the proposed permit. The SCR included the following details (section 1 to 4 of the Environment Agency template)³.

- Site details
- Condition of the land at permit issue
- Permitted activities
- Changes to the activity

A copy of the SCR can be found as document reference 790101_MSD_SCR_PEA December 2024.

5.8 Question 6: Environmental risk assessment

As part of the application for an environmental permit, operators must assess the risk to the environment and human health from the activities that they propose to undertake, using the methodology outlined in the Environment Agency's 'Risk assessments for your environmental permit'⁴.

The Environmental Risk Assessment (ERA) sets the requirements for the management of the permitted area, emission control measures etc. It assesses the risks to the environment, amenity and human health. All control measures within the rules must be adhered to in order to obtain the permit.

The ERA assesses the impacts from the following environmental concerns:

- Point source and fugitive emissions to air
- Point source and fugitive emissions to water and land
- Noise and vibration

³ Environment Agency (2013). Environmental permitting: H5 Site condition report. Available online at: <https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report>

⁴ Environment Agency (2023) Risk assessments for your environmental permit. Available online at: <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>

- Odour
- Litter, mud and debris
- Vermin and insects (pests)
- Human health and environment safety (i.e. visual impacts, site security, flood risk)
- Natural habitats and ecology

Where emissions result in insignificant effects these have been screened out and where further detailed assessments of potential environmental impacts are required this is noted.

A copy of the ERA can be found as document reference 790101_ERA_PEA January 2025.

Constraints maps have been updated to demonstrate human receptors to a radius of 2km, as shown in document reference 790101_ERA_Maps_PEA March 2024.

6 Part C3 – Variation to a bespoke installation permit

6.1 Question 1: Table 1a: Activities applied for

Table 6.1: Question 1, Table 1a: Activities applied for

Installation name	Schedule 1 or other references	Description of the Activity	Activity capacity	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity	Non-hazardous waste treatment capacity
Peacehaven STC	S5.4, Part A (1), (b) and (i)	Anaerobic digestion	Annual: 799,223 wet tonnes Daily: 2190 wet tonnes	Recovery or a mix of recovery and disposal of non-hazardous waste with a biological treatment capacity exceeding 100 tonnes per day if the only waste treatment is anaerobic digestions. R3 – Recycling / reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R13 – Storage of waste pending any of the operations numbered R1 to R12.	0	Annual: 799,223 wet tonnes Daily: 2190 wet tonnes
Directly associated activities						
	Physical treatment of waste	Recycling / reclamation of organic substances which are not used as solvents		R3		
	Waste reception	Import of liquid sludge and cake		R3		
	Use of biogas	Use principally as a fuel or other means to generate energy		R1		
	Use of auxiliary standby flares	Incineration on land		D10		
	Use of pressure release valves	Used for emergency only, do not export electricity to the grid.				
	Storage	Storage of waste pending any of		R13		

Installation name	Schedule 1 or other references	Description of the Activity	Activity capacity	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity	Non-hazardous waste treatment capacity
		the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).				
	Raw material storage	Storage of raw materials including chemicals, lubrication oil, antifreeze, diesel, activated carbon		R05		
	Discharge of condensate	Condensate from the CHP exhaust, flare gas pipelines, gas storage bag from collection to the point of discharge at the adjacent WTW.				
	Use of vent air burner	Vent air burner to be used during regeneration of the biogas siloxane filter only				
For installations that take waste	Total storage capacity	22,450m ³				
	Annual throughput	799,223 wet tonnes into site 343,089 wet tonnes for indigenous 5,518 wet tonnes for imports 450,617 wet tonnes additional capacity 16,629 wet tonnes digester capacity				

Table 6.2: B4 Table 1a: Activities applied for (waste operation activity)

Name of waste operation	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
Head of works activity	Import of cess and chemical toilet waste – new activity	D13	N/A	
For all waste operations	Total storage capacity	Taken through the WtW		
	Annual throughput (wet tonnes each year)	20,000		

The variation application is to vary permit EPR/KB3435RB. The variation application is to modernise the conditions of the CHP permit as authorised under the permit reference EPR/KB3435RB where required, and to add the scheduled activity for anaerobic digestion.

6.1.1 Question 1: Table 1b: Types of waste accepted

Southern Water requires the permit for the Peacehaven STC to be authorised to accept sludge waste to undergo anaerobic digestion, to comply with the Industrial Emissions Directive. It is requested that the annual quantity of indigenous and imported sludge cake to be accepted is 799223m³. The types of waste accepted are shown in Appendix A.

Sludge cake derived from sewage sludge will be spread under Sludge (Use in Agriculture) Regulations (SUiAR).

6.2 Question 2: Point of source emissions to air, water and land

6.2.1 Emissions to air

Table 6.3: Part C3, Question 2, Table 2: Point source emissions to air

Installation name	Peacehaven STC			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
Standby Boiler Unit 1 (A01) TQ 42158 01500	Standby boiler exhaust stack – operating on Biogas or Natural As per EPR/KB3435RB	No parameters set	Standby boiler exhaust stack – operating on Biogas or Natural	
Standby Boiler Unit 2 (A01) TQ 42158 01500	Standby boiler exhaust stack – operating on Biogas or Natural As per EPR/KB3435RB	No parameters set	No Limit	
Stack 1 (A02) TQ 42157 01511	CHP engine exhaust stack burning biogas As per EPR/KB3435RB	Oxides of Nitrogen (as NO ₂)	500	mg/m ³
		Carbon Monoxide	1,680	mg/m ³
Stack 2 (A03) TQ 42133 01536	Waste gas burner (flare stack) As per EPR/KB3435RB	No parameters set	No Limit	
Gas drier and carbon filter (A04) TQ 42157 01528	No emissions – sealed system OCU stack			
		Ammonia	20	mg/m ³

Installation name	Peacehaven STC		
Odour Control Unit (A05) TQ 42214 01478	Channelled emissions to air as identifies on Site plan.	H ₂ S	No limit specified
		Odour concentration	1000 Que/Nm ³
Gas holder (A06) TQ 42192 01487	2 No. gasholder pressure relief valves	Biogas release and operational events	No limit set
Digester 1 (A07) TQ 42153 01482	2 No. pressure relief valves Biogas release and operational emergency events	Biogas release and operational events	No limit set
Digester 2 (A08) TQ 42171 01473	2 No. pressure relief valves Biogas release and operational emergency events	Biogas release and operational events	No limit set
Digester 3 (A09) TQ 42189 01464	2 No. pressure relief valves Biogas release and operational emergency events	Biogas release and operational events	No limit set
Post digestion storage tank 1 (A10) TQ 42169 01494	2 No. pressure relief valves Biogas release and operational emergency events	Biogas release and operational events	No limit set
Post digestion storage tank 2 (A11) TQ 42176 01507	2 No. pressure relief valves Biogas release and operational emergency events	Biogas release and operational events	No limit set

The emission points are shown in drawing reference 790101_MSD_SiteLayoutPlan_PEA January 2025.

6.2.2 Emissions to water (other than sewer)

The drainage network sends water to the works return.

There will be no point source emissions from the Site and no direct discharge of wastewater to controlled waters from the STC.

There are no direct potentially contaminated discharges to groundwaters.

Accidental releases of materials to the environment are controlled through adequate containment measures and working procedures in accordance with the EMS. Spill procedures are in place under EMS363 and 364 as well as pollution prevention procedure EMS360. All spillages are recorded in the site diary including actions taken.

6.2.3 Emissions to sewers, effluent treatment plants or other transfers off-site

The release of liquors from the sludge treatment process is considered to be a point source emissions or direct discharges to controlled waters or public sewers, as part of the permit operation. The site layout plan, drawing reference 790101_MSD_SiteLayoutPlan_PEA January 2025, identifies the point at which liquors leave the site to enter the WTW at the inlet. A sampling location has also been identified on the site layout plan, although sampling will be undertaken as part of a wider implementation plan under BAT and IED. An implementation plan is shown in document reference 790101_MSD_ImplementationPlan December 2023. It is therefore, considered that this will be added as Improvement Conditions to the permit.

Any liquid waste will either be reused or discharged to the adjacent Peacehaven WTW and will undergo treatment through the works before being discharged under an existing water discharge permit.

On-site WTW effluent will meet the requirements of the existing discharge consent. The water used at the Site will be contained in a closed circuit; all wastewater streams will either be recycled within the process of captured and rerouted to the adjacent WTW.

Discharges will be minimal, typically arising from periodic maintenance/cleaning operations. As such, there are no direct potentially contaminated discharges to controlled surface waters and no significant impacts. All drainage (surface water or foul water) will be captured by the on-site drainage system and returned to the head of the WTW via a return pumping station. A drainage plan of the Site is presented in document reference 790101_MSD_DrainagePlan_PEA.

The stormwater drainage of potentially contaminated areas from within the site boundary will be routed into the sewage treatment process with no discharge outside of the Site. There will therefore be no risk of polluted runoff affecting off-site features due to the creation of a new hardstanding area.

Due to the anticipated very low levels of contamination of the water and the volumes involved, no monitoring of its composition is proposed prior to discharge to the WTW.

Any areas of the Site, where there is a risk of contamination of surface water, groundwater or discharge of process waters are located on impermeable concrete surface. All surface water from these areas drain to the WTW internal drainage system and are returned to works return for treatment prior to discharge as final effluent.

A list of the point source emissions to sewers, effluent treatment plants and other transfers off-site is included as Table 6.4.

Table 6.4: Part C3, Question 2, Table 2: Point source emissions to sewers, effluent treatment plants or other transfers off-site

Emission point reference, and location	Source	Characteristics	Monitoring / mitigation measures prior to final discharge and emission point discharge.
Return to inlet works of Peacehaven WTW	Condensate from the gas pipelines and gas storage bag	Condensate with slightly elevated levels of H2S dissolved from the biogas, resulting in a low level of acidity	Rerouted to adjacent WTW (W1 – Inlet works TQ 42057 01539)

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Emission point reference, and location	Source	Characteristics	Monitoring / mitigation measures prior to final discharge and emission point discharge.
Imported cess and chemical toilet waste (S2) TQ 42047 01500	Process liquors from drum thickener	Variable, from processes	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 via cess import point (12) – TQ 42047 01500. Monitoring point for sampling as M2 on site layout plan (TQ 42048 01499)
C3- Schedule activity (anaerobic digestion)			
Combined liquors (S1) TQ 42174 01451	Other process liquors	Variable, from processes	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 Monitoring point for sampling as M1 on site layout plan (TQ 42174 01451)
Gravity belt thickeners (S3) TQ 42127 01504	Process liquors from drum thickener	Variable, from processes	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 Monitoring point for sampling as M3 on site layout plan (TQ 42130 01503)
Centrifuges (S7) TQ 42233 01487	Process liquors from centrifuges		Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 Monitoring point for sampling as M7 on site layout plan (TQ 42236 01487)
Rainwater (bund) (S6) TQ 42179 01441	Run off from impervious surfaces.	Clean rainwater from runoff	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 Monitoring point for sampling as M6 on site layout plan (TQ 42181 01442)
Washwater Dependent n equipment washed down – samples taken from various locations as listed	From the washing down of mechanical equipment during maintenance activities	Variable.	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539
Gas condensate 1 (S5) TQ 42156 01510	Condensate from the gas pipelines, gas storage bag, CHP and AD	Condensate with slightly elevated levels of H ₂ S dissolved from the biogas, resulting in a low level of acidity	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 Monitoring point for sampling as M5 on site layout plan (TQ 42158 01510)
Gas condensate 2 (S4) TQ 42155 01526	Condensate from the gas drier	Condensate with slightly elevated levels of H ₂ S dissolved from the biogas, resulting in a low level of acidity	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539 Monitoring point for sampling as M5 on site layout plan (TQ 42157 01526)
Cake strainpress (S10) TQ 42250 01508	Liquors from cake strainpresses	Variable.	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539. Monitoring point for sampling as M10 on site layout plan (TQ 42252 01508))
Cake reception (S9) TQ 42253 01479	Liquors from cake reception	Variable.	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539. Monitoring point for sampling as M9 on site layout plan (TQ 42255 01479)
Cake reception	Liquors from sludge reception	Variable.	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539.

Emission point reference, and location	Source	Characteristics	Monitoring / mitigation measures prior to final discharge and emission point discharge.
(S8) TQ 42241 01460			Monitoring point for sampling as M8 on site layout plan (TQ 42241 01460)
Boiler Maintenance	Boiler blow down to minimise damage from high mineral content water.	High purity water with traces of chemicals (used for boiler dosing).	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539
Drain down of plant (Dependent n equipment drained down – samples taken from various locations as listed	Occurs during maintenance when it is necessary to drain down the feed water, hot well or boiler shell.	High purity water with traces of chemicals (used for boiler dosing).	Discharged to adjacent WTW (W1 – Inlet works TQ 42057 01539

Please refer to the ERA (document reference 790101_ERA_PEA January 2025) on the environmental risk the water emissions pose and how these are mitigated, where relevant.

6.2.3.1 Incidents of storming

Peacehaven WTW does not have storm separation or storage onsite.

Storm separation is controlled at terminal pumping stations, flow to site from Marine Drive Brighton Pumping Station (WPS) and Portobello WPS is restricted to meet the Peacehaven rated capacity.

The STC return liquors are pumped to the start of the WtW process (inlet) and are subjected to the full WtW process. Therefore, it is not possible for return liquors to directly discharge into the environment from the installation, without it receiving full treatment in the WtW.

Southern Water will provide a wastewater and digestate buffer storage plan (listed in regard to BAT 4 in the Implementation Plan, document reference 790101_MSD_Implementation Plan December 2023). The Plan's purpose is to propose and describe site contingency arrangements to provide appropriate storage capacity or other appropriate measures to prevent or minimise emissions of wastewater or digestate being discharged off site during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions. It is understood the Plan will be required to include, but not be limited to:

- Proposals for additional storage capacity with secondary containment within the site boundary for wastewater and/or other digestate during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions.
- Procedures to cease discharges during these conditions.
- Calculation of a reasonable contingency capacity of wastewater and/or other digestate during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions.
- A description and design specification of the buffer storage infrastructure and secondary containment measures. The design shall be completed by an appropriately qualified engineer and secondary containment shall be designed in line with CIRIA C736.
- A program of works with timescales for the implementation and construction of the buffer storage.

- A preventative maintenance and inspection regime.

6.2.4 Emissions to land

There will be no point source emissions to land as part of the activities carried out on site.

Indigenous sewer grit and screenings are collected in separate skips and removed off site by road vehicle and transported to a suitably permitted facility.

Grit and screenings generated from the tankered waste reception points are collected in separate skips, removed off-site by road vehicles and transported to a suitably permitted facility.

Releases of raw materials to land are considered to be negligible due to adequate containment of the materials within suitable storage vessels, the provision of bunding and the presence of a contained drainage system.

Please refer to the ERA (document reference 790101_ERA_PEA January 2025) on the environmental risk the water emissions pose and how these are mitigated, where relevant.

6.3 Questions 3a: Operating techniques

This section provides a technical overview of the components, the proposed techniques and measures to prevent and reduce waste arising and emissions of substances and heat, including during periods of start-up or shut-down, momentary stoppage and malfunction, and leaks. Specifically, consideration is made of:

- The technology to be used
- The process, in terms of how it will be operated and controlled
- In-process controls and Best Available Techniques (BAT) Assessment
- Measures implemented to control emissions to air, water, sewers and land

Table 6.5 lists the technical guidance notes (TGNs) used to inform the techniques and measures proposed to prevent and reduce waste arising and emissions of substances, including during periods of start-up and shut down, momentary stoppage and malfunction, and leaks.

The technical guidance and BAT requirements will also be addressed within Southern Water's Peacehaven Working Plan, as part of the EMS, to be made available to staff to ensure compliance with a permit, which covers the following:

- Management of activities, including security and staffing
- Emissions and monitoring, including:
 - Point sources to air, water and land
 - Fugitive emissions
 - Site drainage
 - Storage of waste
 - Odour, noise and vibration
 - Site record keeping

Table 6.5: Part C3, Question 3a, Table 3a: Technical standards

Installation name	Goddard's Green STC	
C3 – Installation		
Description of the schedule 1 activity or directly associated activity	Best available technique (BATC, BREF or TGN reference)	Document reference

Installation name	Goddard's Green STC	
Section 5.4 non-hazardous waste installation - anaerobic digestion installation regulated under the Industrial Emissions Directive, utilisation biogas for energy	<ul style="list-style-type: none"> ● Biological waste treatment: appropriate measures for permitted facilities ● Non-hazardous and inert waste: appropriate measures for permitted facilities 	<ul style="list-style-type: none"> ● https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply ● https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities

B4 – Waste activities

Description of the waste operation	Appropriate measure (TGN reference)	Document reference
Temporary storage of imported cake (raw or digested)	<ul style="list-style-type: none"> ● Non-hazardous and inert waste: appropriate measures for permitted facilities 	<ul style="list-style-type: none"> ● https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities
Acceptance of liquid sludge waste (digestate) at post digestion, for dewatering	<ul style="list-style-type: none"> ● Biological waste treatment: appropriate measures for permitted facilities 	<ul style="list-style-type: none"> ● https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply

General

All activities	Guidance	Document reference
	<ul style="list-style-type: none"> ● Monitoring stack emissions: technical guidance for selecting a monitoring approach ● M1 sampling requirements for stack emission monitoring ● Environment Agency environmental permitting guidance, including: ● Risk assessments for your environmental permit ● Energy efficiency (Energy efficiency for combustion and energy from waste power plants) ● Noise assessment and control ● H4 Odour management ● H5 Site condition report ● Control and monitor emissions for your environmental permit 	<ul style="list-style-type: none"> ● https://www.gov.uk/guidance/monitoring-stack-emissions-technical-guidance-for-selecting-a-monitoring-approach ● https://www.gov.uk/government/publications/m1-sampling-requirements-for-stack-emission-monitoring ● https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit ● https://www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits ● https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits ● https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management ● https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report ● https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

Source: Mott MacDonald

A copy of the schematics describing the operation and process can be found in document reference 790101_MSD_Schematics_PEA January 2025.

6.3.1 BAT Assessment

An assessment against the BAT Conclusions set out in the 2014/738/EU: Commission Implementing Decision of 9 October 2014 establishing best available techniques (BAT) conclusions, under the Industrial Emissions Directive 2010/75/EU has been undertaken for all the 16 sites, as a whole, and the outcome of these conclusions can be found in document reference 790101_MSD_BAT_PEA January 2025. This document reflects the existing arrangement at site and any commitments Southern Water has already made during the ongoing application process. It is acknowledged that it does not fully meet BAT in some instances. Changes to site will be undertaken and completed to meet BAT, where applicable.

The changes required will be submitted to the Environment Agency, in plans to be submitted as part of Improvement Conditions within the permit, for their agreement and Southern Water's subsequent implementation. An implementation plan has shown in document reference 790101_MSD_ImplementationPlan December 2023.

Included in the Implementation Plan is for the wastewater inventory monitoring to be undertaken as per BAT 2, and further information is addressed in Section 6.2.3. On-going monitoring is proposed to be in line with BAT AELs and monitoring frequencies are applicable to treatment of water-based liquid waste and biological treatment of waste, these are outlined in Table 6.1 and Table 6.2 of the BAT assessment.

The Odour Management Plan (document reference 790101_ERA_OdourMP_PEA January 2025) has also been prepared in accordance with the following BAT conclusions, in addition to the H4 guidance:

Supplementary documents for the BAT assessment are provided:

- BAT 1, 21 and 38: Accident Management Plan (AMP) is provided in 790101_MSD_AMP_PEA March 2024. Catastrophic failures, of tanks for example, will be included in the AMP once final designs are agreed based on the findings in CIRA/ABDA assessment.
- BAT 1, 11, 22 and 35: Residues Management Plan (RMP) is provided in 790101_MSD_ResidueMP_PEA December 2024.
- BAT 1, 8, 10, 12, 13, 14, 33, 34 and 52: Odour Management Plan (OMP) is provided in 790101_ERA_OdourMP_PEA January 2025.
- BAT 1: Environmental Management System is provided in 790101_EMS Certificate December 2023.
- BAT 2 and 52: Description of the waste acceptance and pre-acceptance procedures provided in 790101_WasteAcceptance_PEA December 2024.
- BAT 3, 6, 7 and 20: Sampling commitment and proposal for characterisation is provided in 790101_Sampling proposal_PEA January 2025.
- BAT 14: Leak Detection and Repair Plans (LDAR) are provided in 790101_MSD_LDAR_PEA March 2024.
- BAT 14: Bio-aerosols Risk Assessment (BRA) is provided in 790101_ERA_BioRA_PEA_March 2024.
- BAT 17: Environmental Risk Assessment (ERA) is provided in 790101_ERA_PEA January 2025
- BAT 19 and 38: ABDA Tool and proposed containment solution is provided in 790101-MMD-IED-PEA-CA-C-001 - ADBA P03 and the site layout plan 790101_MSD_SitelayoutPlan_PEA January 2025.
- BAT 19: Covering of tanks is provided in the Implementation Plan, 790101_MSD_Implementation Plan December 2023.
- BAT 19: Drainage is provided in 790101_ERA_Drainage Plan_GOD Nov 2021.
- BAT 23: Energy Efficiency is provided in 790101_MSD_Main_PEA January 2025
- BAT 34: Reducing channelled emissions, addressed in the Odour Management Plan (OMP), provided in 790101_ERA_OdourMP_PEA January 2025.
- BAT 53: Reducing emission of hydrochloric acid (HCl), ammonia (NH₃) and organic compounds to air addressed in the Odour Management Plan (OMP), provided in 790101_ERA_OdourMP_PEA January 2025.

6.3.2 Appropriate measures assessment

In addition to the Bref and associated BATc, the appropriate measures will form part of the technical standards the Site operates:

- Non-hazardous and inert waste: appropriate measures for permitted facilities
- Biological waste treatment: appropriate measures for permitted facilities

As the Site is existing some aspects of the Appropriate Measures do not apply, as the Site was built and operated prior to the issue of the guidance. Southern Water are committed to develop the application of the key principles from the guidance into Site operation and associated management plans as soon as practicable, to ensure the following:

- Reducing or preventing contamination
- Preventing cross contamination by segregation
- Maintaining appropriate primary and secondary containment
- Ensure the Site does not exceed site capacity (design and permitting constraints)
- General management:
 - Operate with a Management System
 - Operate with applicable specific management plans (odour, accident and residue plans)
 - Inspection, maintenance and monitoring regimes
 - Maintaining and reviewing staff competency requirements
 - Maintaining appropriate security measures across the Site
 - Record keeping procedures
 - Contingency plans
- Maintaining appropriate waste storage and suitable segregation, to prevent environmental impacts. Includes tank inspection and maintenance regimes
- Operate and calibrate process monitoring systems
- Record keeping of process outputs, and appropriate handling of residues
- Emissions controls, including prepare an emissions inventory
- Apply process efficiency measures for energy, raw materials, water use and waste minimisation.

As per document reference 790101_Sampling proposal_PEA January 2025, sampling and analysis in relation to permitted waste operations, other than those related to Scheduled Activities, will be undertaken in line with 'Non-hazardous and inert waste: appropriate measures for permitted facilities' guidance text, using an MCERTS accredited, or equivalent, laboratory, where available. This commitment is related to the acceptance of imported wastes to the post digestion at the Site.

Acceptance of waste to the head of the works

A high-level assessment against the appropriate measures for inert and non-hazardous waste has been undertaken and is presented in document reference 790101_Appropriate Measures_PEA December 2024.

6.4 Question 3b: General requirements

6.4.1 Overview

This section provides an overview of the measures in place at the Site for controlling fugitive emissions, noise and odour. An ERA has been completed and is provided with the application

(Document reference 790101_ERA_PEA January 2025). The response to this question relates to Table 4 in the Part 3 form.

6.4.2 Control of fugitive emissions to air

There are no significant fugitive emissions to air of gases, vapours or particulates as part of normal Site operations.

Details of the procedures Southern Water follows with regards to the control of mud and debris and potentially polluting leaks and spillages are addressed in the EMS.

An Air Quality Risk Assessment has been undertaken at the time of the application for permit EPR/KB3435RB to assess the impacts from point sources emissions at the site. As combustion activities are not being changed on site as a result of permitting the AD plant and associated processes, it is not anticipated that an updated Air Dispersion Modelling (ADM) will be required for this permit application.

The existing approaches and relevant procedures presented in the EMS and operational procedures are considered to adequately address the emissions that may present a risk, and, therefore, an Emission Management Plan is not considered be required.

6.4.2.1 CHP and flare

The available data shows flaring for 834 hours in a year which is ~9.5% of time.

The CHP is planned for replacement in AMP8 and will ensure appropriately sized equipment to BAT standards.

The existing flare will be retained at this site. The flare has been tested and the emissions are compliant.

Work is required to ensure all BAT requirements are met (e.g. access platforms for testing, the required testing is fully adopted into BAU and related processes, ensure all required signals for data collation and reporting are provided, all specific requirements are met for MCERTs and M1 & M2 guidance).

The detail of this is under review and any identified scope will be completed in AMP8.

The flare use data forms part of wider data collation and reporting (IT) system improvements planned to meet BAT 2c for inventory, BAT 11 energy and has an influence on BATs 15b, 16b and 21c for incident reporting (re. PVRVs and gas system management).

Further information is being collated in line with discussions with the SSD LIA (KS) on 3/12/24 and will be provided in due course (regarding asset replacement plans and timescales but will be provided for all sites even though no asset replacements are required here).

6.4.2.2 Odour

The Site is located in the north-east of Peacehaven, approximately 1km from the coastline of the English Channel, which is to the south-west. The Site is surrounded by agricultural fields to the north and east and public open space to the south and west, including three recreational playgrounds. Beyond the public open space to the south and west are areas of residential housing.

The sensitive human receptors located within 50m of the Site boundary are three residential areas, a football club and a garage.

During the last five years (2019-2023), the site has not received any odour complaints.

All processes on site are either enclosed or covered, all equipment is connected to the OCU apart from the digesters and post digestion storage tanks.

The Site is equipped with a comprehensive ventilation and odour control system. Treatment buildings and processes are provided with fresh air supply and foul air extraction systems to prevent escape of odours. Process are either discharged to the biogas system or to the OCU

The odour control unit undergoes monthly scheduled maintenance by specialised contractors. Extracted odorous air is treated by a two-stage chemical scrubber system which utilises 3 No. acid scrubbers followed by 3 No. alkaline hypochlorite scrubbers. The OCU also has 3 No. carbon filters, but these are currently not operational. Southern Water are in the process of modifying and reinstating the carbon filter stages to operational use to meet BAT requirements. The OCUs were installed in 2012

The Site has an Odour Management Plan (OMP), produced in March 2024, which identifies potential odour emissions from site operations and procedures to manage, control and minimise odour impacts. It sets out the procedures for engaging with neighbours and how the Operator will manage complaints, and the actions to be taken in the case of pollution events. The OMP also describes the monitoring and maintenance procedures to maintain the control measures. The EMS 341 air quality and odour management also sets out the process for responding to odour complaints arising from customer contact.

The OMP was written in accordance with the Environment Agency's H4 Odour Management guidance (2011).

The Odour Management Plan can be found in document reference 790101_ERA_OdourMP_PEA January 2025.

The level of odour risk from the Site is considered to be low, as shown in Appendix B of the ERA (document reference 790101_ERA_PEA January 2025) and the OMP provides sufficient mitigation.

6.4.2.3 Noise

Initial screening has been carried out for the Site. Since the Site is not undergoing changes to equipment and vehicle movements prior to application submission, a Noise Impact Assessment (NIA) is not considered to be required. Appropriate mitigation for noise and vibration impacts are provided by the ERA.

A Noise and Vibration Management Plan would be required whereby the NIA concludes that noise and vibration requires management, such as monitoring and maintaining abatement measures. Since noise and vibration impacts are considered to be appropriately mitigated in the ERA, a Noise and Vibration Management Plan is also not considered to be required.

The site has received one noise complaint in the last five years (2019-2023). The complaint was received in January 2020. The complainant was advised to maintain a record of incidents, and to contact Southern Water in the case of further issues. No further contact has been made by the complainant to Southern Water regarding this potential issue.

6.4.2.4 Dust and particulates

There are not considered to be any significant dust or particulate sources from the Site as identified in the ERA document reference 790101_ERA_PEA January 2025.

6.4.2.5 Bio-aerosols

A bioaerosols risk assessment has been undertaken for the Site and considers there not to be any significant risks. The Bio-aerosol Risk Assessment can be found in 790101_ERA_BioRA_PEA March 2024.

6.4.3 Control of fugitive emissions to surface water, sewer and groundwater

There are not considered to be any fugitive emissions to surface water, sewers or groundwater. There will be no direct discharge of wastewater to controlled waters from the STC.

All drainage water including surface or foul water is captured by the drainage network which returns all water to the head of the works for treatment.

There are no direct potentially contaminated discharges to groundwaters. Condensate from the flare, CHP and the biogas is captured in condensate pots and is discharged to drainage and directed to the inlet works.

There is appropriate containment for the control of liquid wastes put in place to minimise any potential releases, as identified in the EMS.

Accidental releases of materials to the environment are controlled through adequate containment measures and working procedures.

The existing approaches and relevant procedures presented in the EMS and operational procedures are considered to adequately address the emissions that may present a risk, and therefore, an EMP is not considered to be required.

6.4.4 Control of fugitive emissions to land

Details of waste generated at the Site is demonstrated in document reference 790101_MSD_ResidueMP_PEA December 2024.

6.5 Site security

Activities are managed and operated in accordance with the management system.

There is an electrical barrier located at the far end of the access road with an intercom system, which is connected to the control room. A 2m high manual gate is located at the entrance to the bunded area, which is where the WTW and STC are located. The Site is fully enclosed by two perimeter fences, an outer 1m high wooden stake wire fence and an inner 2m high metal palisade fence. There are 21 CCTV and one ANPR cameras located around the Site. Entry to the buildings is controlled via phones and cards with magnetic locks on doors and manual locks, the buildings are secured by an intruder alarm.

Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to Site. Repairs are undertaken in accordance with the EMS requirements.

Other risks relating to human health and the environment are presented in the ERA in document reference 790101_ERA_PEA January 2025.

6.6 Complaints procedure

All complaints received relating to any aspect of the Site and its activities will be recorded and acted upon. Complaints, and actions taken, will be either recorded in the Site Diary or on a complaints record form. If a Site receives a complaint, this form should be completed and shown to the Environment Agency when they next inspect the Site. The forms will be used as

evidence that any complaints received have been taken seriously and that actions have been taken to rectify any problems identified.

Complaints will be investigated promptly and any appropriate remedial action taken. The complainant and anyone else likely to have been affected, should be informed about what has been found and actions taken in a timely manner. The details of the complaint and the actions taken will be recorded in the Site Diary or log.

The aim will be to undertake measures to prevent complaints from being raised. However, where this is not possible, proactive measures will be taken to prevent further complaints from being made. For example, if a complaint is made with respect to dust, the Site Manager will arrange for dust suppression equipment to be used. The Site Manager will assess whether further control measures will be required to ensure that the risk of recurrence is minimised. The details of the complaint will be recorded in the Site Diary and the complaints register. If a complaint is received Southern Water will be informed as soon as is practicable and the complaints procedure will be followed. Confirmation will be recorded in the Site Diary or inspection log. The Site Manager will inform the Environment Agency of the complaint, if appropriate.

Any drivers who regularly cause a dust or mud and debris nuisance as a result of mismanagement of their vehicles will be discussed and advice will be sought from the Site Manager, if relevant.

If a complaint is made with respect to insects, the Site Manager will investigate whether any of the activities at the Site could be the source of the nuisance.

If a complaint is made with respect to litter, the Site Manager will arrange for litter pickers to clear up as appropriate and will assess whether further control measures will be required to ensure that the risk of recurrence is minimised. The details of the complaint will be recorded in the Site Diary and the complaints register.

Any complaints relating to fugitive emissions and the actions taken will also be recorded in the Site Diary and copies of the incident reports (including those provided to the Environment Agency) retained on-Site.

If a complaint is made with respect to vermin or an infestation is suspected, where normal treatment activities appear to be unsuccessful, the Site Manager will discuss and agree any further measures required with the pest control firm. The complaint reporting procedure will be followed as described below.

If a complaint is made with respect to noise or vibration, the Site Manager will assess the cause of the complaint and will report the findings. If the noise or vibration leading to the complaint has been caused by a continuing operation, additional noise or vibration surveys may be required to confirm the degree of impact upon the receptor. The Site Manager will make any recommendations for further noise or vibration control to the Management Team and shall inform the Environment Agency of the complaint as soon as it is practicable to do so.

If a complaint is made with respect to odour, the Site Manager will investigate the source of the odour and take steps to reduce its impact. If the source appears to come from the Site, then appropriate actions to reduce the odour will be taken.

6.6.1 Complaints investigation procedure

In the event of any complaint, this section deals with the complaint assessment procedures. The primary role of this assessment will be to ascertain whether the complaint is associated with any Site operations and what action should be taken to prevent or minimise the probability of a recurrence.

It is important that any person acting on behalf of Southern Water is appropriately trained and that all steps and decisions are documented.

Step 1 – Complaint received

The Site operator or Environment Agency receives a complaint regarding the STC. Details are logged within the Customer Services Management System (CSMS).

Step 2 – How to respond

Complainant is contacted to inform them the complaint has been received and request further information, where required.

The primary reasons for investigation of complaints are to identify the likely cause and source for the complaint and it is important to gather as much information about the complaint as possible. At the outset of any investigation, the Site Manager is to determine the priority for responding to the complaint.

If possible, someone from the Environment Agency will attend after a complaint has been made so that they can carry out an effective and subjective appraisal of the complaints and note any results into the CSMS.

Step 3 – Determine what to record and how

The complaint details and the investigation outcomes and actions taken are to be recorded in the CSMS. This information must be filled in on Site at the time of notification of the complaint.

Step 4 – Follow-up investigation

In order to resolve any problems successfully, it is essential to understand fully the source, reason and the operational conditions that led to the complaint. The first step in the investigation will be to select the most appropriate methodology for assessment. All the information collected should be filled in on the internal complaints form and a note made referencing this in the CSMS.

Step 5 – Communication with the complainant

The Site Manager or contractor tasked with addressing the complaint is responsible for collecting all the information and providing feedback to the complainant, or the Customer Contact Centre will contact the complainant. Wherever possible an explanation of the actions taken and the reasons for the decision should be made to the complainant.

If it is decided that there was no ground for the complaint this should be clearly explained to the complainant, along with information about what they should do if they are unhappy with the response.

Step 6 – Monthly complaints records

A full report of the complaints logged within the CSMS is produced to present to the relevant Technician to allow a review of potential trends.

6.7 Question 3c: Types and amounts of raw materials

Details of raw materials is demonstrated in document reference 790101_MSD_ResidueMP_PEA December 2024.

6.8 Question 4: Monitoring

This section provides a summary of the proposed monitoring at the Site.

6.8.1 Emissions to air

Stack emissions monitoring will be undertaken for each stack in accordance with M5 monitoring guidance, MCERTs BS EN 14792 and the requirements of the environmental permit issued for the Site, where suitable and available.

Periodic monitoring will be undertaken on an annual basis as part of the routine maintenance programme. No abatement technology is required, and continuous monitoring is not considered necessary. Sample monitoring will be carried out after each maintenance period on the CHP and boilers, in order to ensure compliance with ELVs as required in the Environmental Permit.

Once permitted monitoring will be undertaken in accordance with the relevant standards. It is anticipated the monitoring standards required are as follows:

Table 6.6: Monitoring of air emissions

Emission point type	Parameter	Reference	Emission point type	Parameter
Stacks on engines Burning biogas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	periodic over minimum 1-hour period	Annual	In accordance with TGN M5 – Monitoring of stack emissions to air
	Carbon monoxide			
	Sulphur dioxide			
	Total volatile organic compounds including methane			
Boilers (dual fuel)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	periodic over minimum 1 - hour period	Boilers (dual fuel)	Oxides of Nitrogen
Channelled emissions to air (biofilter and scrubbing system)	Ammonia	periodic over minimum 1- hour period	Once every 6 months, or more frequent if stated in the permit	Emissions of pollutants into the environment through any kind of duct, pipe, stack, etc BS EN 13725
	H ₂ S			
	Odour concentration			
Flare	Operational hours	Recorded duration and frequency.	Continuous	Operational record including date, time and duration of use shall be recorded
Pressure relief valves	Biogas release and operational events	Recorded duration and frequency	Daily inspection	Operational record including date, time duration of pressure relief events and calculated annual mass release

6.8.1.1 Assessment of the sampling locations

Version 13 of the Application Form C3 was made available on 7 December 2021, which includes a new question 4b point source emissions to air, that requires details of the design of the sampling locations. The application to vary the permit has been prepared to meet the deadline set by the Environment Agency, however, the gathering of information to respond to C3 4b was not feasible. Southern Water will respond to the list of queries in C3 4b as soon as practicable following the submission.

Where suitable and available, any monitoring, sampling and analysis of emissions to air or water will be undertaken in accordance with MCERTS, or equivalent agreed standards, by

relevant and appropriately accredited contractors, in accordance with permit requirements. An assessment of sampling locations is not appropriate as this will be the responsibility of the sub-contractors.

6.8.1.2 Sampling locations and BS EN 15259

The requirements of BS EN 15259 have been met; however, Southern Water does not believe the BS EN 15259 applies at the Site due to the diameter of circular ducts. Under Environment Agency's Method Implementation Document for EN 15259:2007⁵, circular ducts with diameters <1.13m are not required to meet BS EN 15259.

6.8.2 Emissions to water (other than sewers)

There are no direct releases to controlled waters of emissions arising from the STC. As such, no monitoring or reporting is required.

6.8.3 Emissions to sewers, effluent treatment plants or other transfers off-site

The release of liquors from the sludge treatment process is considered to be a point source emissions or direct discharges to sewers, as part of the permit operation. The site layout plan, drawing reference 790101_MSD_SiteLayoutPlan_PEA January 2025, identifies the point at which liquors leave the site to enter the WTW at the inlet. A sampling location has also been identified on the site layout plan, although sampling will be undertaken as part of a wider implementation plan under BAT and IED.

Southern Water confirms that they will undertake a chemical analysis of their wastewater, from the STC entering the adjacent WTW, which tests all pollutants they expect to find in the discharge to fully characterise the emissions to water. They propose a minimum of 12 sampling runs over a 12-month period (1 full sampling spec per month) initially to establish a baseline, in accordance with the surface water pollution risk assessment guidance or other applicable guidance such as MCERTS or ISO standards, where appropriate. Southern Water will then take an informed viewpoint of the determinants the samples contain demonstrating those that are not in the sample. An H1 assessment to screen out any that are not applicable or relevant will be completed. Sampling and analysis will be undertaken using a UKAS accredited, or equivalent, laboratory. This commitment falls within the Implementation Plan for meeting BAT and IED compliance. An implementation plan is shown in document reference 790101_MSD_ImplementationPlan December 2023. It is therefore, considered that this will be added as Improvement Conditions to the permit.

Condensate is routed to the works return of the adjacent Peacehaven WTW and will undergo treatment through the works before being discharged under an existing environmental permit for discharge to water. This condensate is clean, uncontaminated water and occurs in small volumes. As such, no monitoring or reporting is required. There are no direct releases to public sewer or other transfers off-site of emissions arising from the STC.

6.8.4 Emissions to land

There are no direct releases to land of emissions arising from the STC. As required by the Southern Water EMS various housekeeping and waste management practices are in place to monitor waste emissions. These include segregation of wastes according to their classification and nature, labelling waste and using designated storage containers.

⁵ Environment Agency (2019). Method Implementation Document for EN 15259:2007: stationary source emissions –Requirements for the measurement sections and sites and for the measurement objective, plan and report. Available at: <http://www.s-t-a.org/Files%20Public%20Area/MCERTS-MIDs/MID%20EN15259.pdf>

In accordance with the Southern Water EMS Policy solid waste is disposed of in accordance with 'Duty of Care' Regulations. The composition of the waste, its hazard characteristics and any relevant precautions are clearly stated on the transfer notes provided to licensed waste contractors removing waste from Site for recycling and/or disposal. Records are maintained on-site and reported to the regulator as required by the Permit.

6.9 Environmental impact assessment

The proposal is not subject to an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA).

6.10 Question 6: Resource efficiency and climate change

6.10.1 Basic energy requirements

Southern Water aims to maximise the efficiency of the energy flows from its processes ensuring that, where possible, heat is recovered, and energy is not wasted.

There are a number of pieces of infrastructure and equipment that use electrical energy supply including:

- Fans, coolers and heating
- Motors and motor drivers and drive systems
- Aeration
- Pumps/boosters/conveyors
- Facilities - heating and lighting
- Sludge handling and management e.g. AD, dewatering and polymer dosing equipment
- Ventilation and odour control/abatement systems

Biogas is used to provide energy, produced by burning in a CHP engine, for the Site's processes.

6.10.2 Question 6a: Basic measures for improving energy efficiency

Biogas is a renewable gas, produced from organic waste and is reused on-site to power its energy requirements. A key objective of the Southern Water EMS is to reduce energy consumption from the grid. Southern Water have a specific Energy and Carbon Manual which contains objectives for the energy consumption. Southern Water recognise that target setting for, and measurement of, energy and carbon reduction is pivotal to reducing energy use and carbon emissions in new and existing installations. Southern Water is currently in the process of better understanding economic levels of energy efficiency, renewable energy generation and carbon reduction (embodied and operational), which will help the company develop and set company and project level reduction targets.

Southern Water is dealing with the measurement and reporting of operational carbon emissions for existing installations through:

- Monitoring of energy use from electricity meters
- Quarterly estimation and reporting of operational carbon emissions for internal reporting purposes
- Annual estimation and reporting of operational carbon emissions for regulatory reporting (Ofwat and CRC)

Energy efficiency measures implemented at the Site include (but not limited to) the following:

- The combustion temperature is maintained relatively constant for reduced NO_x emissions and increased efficiency
- The engines are equipped with turbochargers, further increasing energy efficiency
- Ongoing monitoring of plant operating parameters is carried out to ensure process is operating optimally and to enable constant optimisation to increase the plant's efficiency
- Good housekeeping measures are employed, and regular preventative maintenance will ensure the operations, and therefore energy efficiency is optimised
- Low cost measures in place to avoid inefficiencies of excessive heating or cooling include:
 - Insulation of main hot water pipes
 - Insulation of heating equipment such as hot water heat exchanger, boiler feed water tank and boiler feed water pumps and pipework
- Utilising low energy equipment for lighting such as:
 - High frequency fluorescent lighting, high pressure sodium or LED
 - Allowing for local or modular switching, where appropriate
- Consideration of energy recovery and the deployment of renewable energy systems, including:
 - Micro-hydro applications
 - Advanced sludge digestion
 - CHP
 - Use of solar panels and wind generation

Heat generated from the CHP is used in the AD process. The energy created by burning of biogas in the CHP engine is used to supply the Site to reduce the need to import electricity from the grid.

The development of an energy efficiency plan will be considered once the Site is permitted; this will determine areas of improvement and will be developed under Southern Water's Environmental Policy and EMS.

Southern Water carries out planned maintenance as a means to ensure operations are energy efficient. Overall, the energy use is relatively low, and the purpose of the installation is to produce energy by supplying biogas. No further measures are identified at this stage to improve upon energy efficiency. Nevertheless, Southern Water will regularly review energy use and disclose potential opportunities to reduce energy consumption from the four-yearly (or more frequent) energy reviews as required by a varied permit. In addition, Southern Water implements optimisation measures across all its sites in a proactive approach to ensuring efficiency measures across all its site operations meet optimal and efficient operating requirements.

6.10.3 Question 6b: Changes to the energy the permitted activities use up and create

There will not be any changes to the energy that the permitted activities use or create.

6.10.4 Question 6c: Climate change levy agreement

Southern Water is not a participant to the Climate Change Levy (CCL) agreement.

6.10.5 Question 6d: Raw and other materials, other substances and water use

Details of raw materials is demonstrated in document reference 790101_MSD_ResidueMP_PEA December 2024.

6.10.6 Question 6e: Reducing production of waste

Details of waste generation and reduction measures are demonstrated in document reference 790101_MSD_ResidueMP_PEA December 2024.

7 Part F1 – Charges and declarations

7.1 Question 1: Working out charges

Table 1, Table 2 and Table 3 are completed on the Part F1 form.

7.2 Question 2: Payment

Payment will be made by BACS.

7.3 Question 4: Confidentiality and National Security

Southern Water do not wish to claim confidentiality with this application.

7.4 Question 6: Application checklist

Table 7.1 provides a list of section/document references included in the application.

Table 7.1: Part F, Question 6, Table 4: Application checklist

Question reference	Document title	Documents reference
Part A – Q5c Part A – Appendix 1 Part C2 – Appendix 2	Details of Directors	790101_MSD_Directors March 2024
Part C2 – Q3a Part C2 – Appendix 2	List of Relevant Offences	790101_MSD_RelevantOffences March 2024
Part C2 – Q3b	Competency Management System Agreement	790101_MSD_CMS December 2023
Part C2 – Q3d	Environmental Management System Certificate	790101_MSD_EMS December 2023
Part C2 – Q5a	Site Location Plan	790101_MSD_SiteLayoutPlan_PEA January 2025
	Site Layout Plan	
	Drainage Plan	790101_MSD_DrainagePlan_PEA
Part C2 – Q5b	Site Condition Report	790101_SCR_PEA December 2024
Part C2 – Q6	Environmental Risk Assessment	790101_MSD_ERA_PEA January 2025 790101_MSD_Maps_PEA March 2024
	Climate Change Risk Assessment	790101_ERA_CCRA_PEA
Part B4 – Q1b Part C3 – Q1b Part C4 – Q1b	Waste Codes	Appendix A of 790101_MSD_PEA January 2025
	Annual throughput data	790101_AnnualThroughput_PEA December 2024
	Waste Transfer Notes	790101_MSD_WasteTransferNotes_PEA January 2025
Part C3 – Q3a	Schematics	790101_MSD_Schematic_PEA January 2025
Part C3 – Q3c	BAT Analysis	790101_MSD_BAT_PEA January 2025
Part C4 – Q3a	Implementation Plan	790101_MSD_Implementation Plan December 2023
	Leak detection and repair Plan	790101_MSD_LDAR_PEA March 2024
	Residues Management Plan	790101_MSD_ResidueMP_PEA December 2024
	Accident Management Plan	790101_MSD_AMP_PEA March 2024
	Duty of care (waste acceptance)	790101_MSD_WasteAcceptance_PEA December 2024
Part B4 – Q3b Part C3 – Q3b Part C4 – Q3b	Odour Management Plan	790101_ERA_OdourMP_PEA January 2025
	Bioaerosol Risk Assessment	790101_ERA_BioRA_PEA March 2024

Question reference	Document title	Documents reference
Part B4 – Q4a Part C4 – Q4a	Monitoring	790101_Sampling proposal_PEA December 2024
Part C3 – Q3c, Table 5	Materials Safety Data Sheets	790101_MSD_MSDS_PEA March 2024
Part A – Q7 Part B4 -Q1,2,3 Part C2 – Q2,3,5,6 Part C3 – Q1,2,3,4,6 Part C4 – Q1,2,3,4 Part F1 – Q1,2,6	Main Supporting Document	790101_MSD_Main_PEA January 2025

A. Waste Codes

A.1 Wastes imported for Anaerobic Digestion

It is requested that the annual quantity of indigenous sludge and liquid sludge imports to be accepted is 850,000 wet tonnes.

EWC Code	Description	Where accepted	Indigenous or imported	Justification for use
19 02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)			
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 (sewage sludge only)	AD pre-digestion	Raw cake and sludges – imported	
19 08	wastes from waste water treatment plants not otherwise specified			
19 08 05	sludges from treating urban wastewater	AD pre-digestion	Indigenous/Imported	

A.2 Wastes received under the Controlled Waste Regulations 2012*

EWC Code	Description	Where accepted	Indigenous or imported	Justification for use
20 03	Other municipal wastes			
20 03 04	septic tank sludge	Head of works	Imported	
20 03 06	waste from sewage cleaning	Head of works	Imported	

*Southern Water acknowledge these waste codes will not be included in the permit

A.3 Wastes to import under a waste activity permit

It is requested that the annual quantity of domestic, tankered waste imported to the head of the works – cess, and chemical toilet waste – is 20,000 wet tonnes.

EWC Code	Description	Where accepted	Indigenous or imported	Justification for use
16 10	aqueous liquid wastes defined for off-site treatment			
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01; sewage sludge liquor and chemical toilet waste	AD/Head of works	From adjacent STC processes	The waste for this code will be cess and chemical toilet waste.

