MOTT MACDONALD

IED permit Application

Queensferry

April 2022

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Issue and Revision Record

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Contents

Executive summary

1.1 Introduction

The Non-technical summary has been written to support an application for a new bespoke Environmental Permit for Queensferry Sludge Treatment Centre (STC) (the “Site”) on behalf of Dŵr Cymru Welsh Water (DCWW) (‘the Operator’). In order to satisfy the requirements of the Environmental Permitting Regulations (EPR) 2016, the Operator must apply to Natural Resource Wales (NRW) for the new Environmental Permit.

1.2 Overview of the site and activities

Queensferry Wastewater Treatment Works (WwTW) and Sludge Treatment Centre (STC) is located within the Queensferry Industrial Estate adjacent to the River Dee in Deeside. The address for the site is Queensferry WwTW, Factory Road, Pentre, Flintshire, CH5 2QL (NGR SJ 323 681). The WwTW is operated under the Urban Wastewater Treatment Regulations (UWwTR) and has a standalone Water Discharge Activity Environmental Permit. This will remain an independent permitted activity.

The STC operation is a non-hazardous waste activity which is currently carried out under a (registered) T21 exemption. The STC operation is currently not permitted. The waste activity comprises of imports, physio-chemical and anaerobic digestion (AD) treatment, and the storage of waste, all for recovery purposes. The STC solely handles waste derived from the wastewater treatment process, either indigenously produced on-site or imported from other Welsh Water owned assets. The Site undertakes AD of sewage sludge from the on-site WwTW only. The site will continue this operation under a new bespoke Industrial Emissions Directive (IED) installation permit.

DCWW are applying for a bespoke installation permit for the STC waste activity, as a joint Environment Agency/Natural Resources Wales and Department for Environment, Food and Rural Affairs (DEFRA) decision has been made that AD treatment facilities at WwTWs and STCs are covered by the Industrial Emissions Directive and can no longer operate under T21 exemptions.

The primary permitted installation activity will be the AD treatment Site. The AD Site will treat indigenously produced and imported sludges. Permitted Directly Associated Activities (DAAs) will be:

- Physio-chemical treatment of indigenously produced sludges.
- Storage of indigenously produced sludges and the sludge cake from the AD Site.
- Storage of biogas derived from the AD treatment of waste.
- Combustion of biogas in an on-Site Combined Heat and Power plant (CHP) and biogas and dual fuel boilers.
- Combustion of excess biogas via an on-Site flare stack.

All dewatered sludge cake will be transported to the Five Fords Advanced Anaerobic Digestion (AAD) Site, located off Cefn Road to the South-East of Wrexham. The imported cake will be processed through the AAD plant and the derived biogas will then be exported via the Five Fords gas-to-grid installation. The sludge cake will be exported for use as a fertiliser.

The Queensferry IED permit will include:

- 1 No. Sludge reception tank
- 1 No. Sludge screen
- 2 No. Screened sludge blending tanks
- 1 No. Sludge thickener
- 1 No. Thickened sludge tank
- 2 No. Digesters
- 1 No. Gas bag holder
- 1 No. CHP unit
- 3 No. Boilers
- 1 No. Biogas flare stack
- 3 No. Digested sludge storage tanks
- 1 No. Centrifuge feed tank
- 1 No. Centrifuge
- 3 No. Cake storage bays

1.3 Document content and structure

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

- Part A: About You (ref)
- Part B2: New bespoke permit (ref)
- Part B3: New bespoke installation permit (ref)
- Part F1: Charges and declarations (ref)
- 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 B2, Part B3 and Part F1 application forms for which there was insufficient space on the forms to answer the questions in full.

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

- Chapter 5 provides the general information required to inform Form B2 relating to a new bespoke permit; and
- Chapter 6 provides the more detailed information required to inform Form B3 relating to a new bespoke installation permit.

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

Stand-alone documents included as part of this submission, are detailed below:

- B14411-123532-ZZ-XX-NN-ZA-DI1035 - IED Queensferry - Main Supporting Document
- B14411-123532-ZZ-XX-AS-ZA-RI1036 - IED Queensferry - OPRA Score
- B14411-123532-ZZ-XX-AS-NA-RI1037 - IED Queensferry - Environmental Risk Assessment
- B14411-123532-ZZ-XX-RP-ZA-SE1038 - IED Queensferry - Site Condition Report
- B14411-123532-ZZ-XX-PR-ZA-DH1039 - IED Queensferry - Odour Management Plan
- B14411-123532-ZZ-XX-AS-NA-EI1041 - IED Queensferry - Bioaerosol Assessment
- B14411-123532-ZZ-XX-AS-ZA-DH1042 - IED Queensferry - BAT Analysis

- B14411-123532-XX-XX-DR-AC-PN8201 - IED Queensferry - Site Location Plan
- B14411-123532-XX-XX-DR-AC-PN8202 - IED Queensferry - Site Layout Plan (Emissions)
- B14411-123532-XX-XX-DR-CC-CI8606 - IED Queensferry - Drainage Plan
- B14411-123532-XX-XX-DR-AD-PR8401 - IED Queensferry - Block Flow Diagram
- B14411-123532-ZZ-XX-RP-ZA-DH1043 - IED Queensferry - Relevant Offences
- B14411-123532-ZZ-XX-NN-ZA-DH1044 - IED Queensferry - Details of Directors

2 Introduction

2.1 Overview

This document has been prepared to support the application for a new bespoke installation Environmental Permit (hereafter referred to as 'the Permit') for the Queensferry Sludge Treatment Centre (STC) ('the Site') on behalf of Dŵr Cymru Welsh Water (DCWW) ('the Operator').

The Site does not currently hold an Environmental Permit under the Environmental Permitting Regulations (EPR) 2016 for sludge treatment activities. Following the joint NRW/Environment Agency and DEFRA decision that AD treatment facilities at WwTWs 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 and proposed permitted activities and Directly Associated Activities (DAAs), an assessment of the possible effects of these activities and responses to questions in Parts A, B2, B3 and F1 of the application documentation (plus supporting information where required). Completed forms Part A, B2, B3 and F1 are included as separate documents.

2.2 Document content and structure

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

- Part A: About You (ref)
- Part B2: New bespoke permit (ref)
- Part B3: New bespoke installation permit (ref)
- Part F1: Charges and declarations (ref)
- 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 B2, Part B3 and Part F1 application forms for which there was insufficient space on the forms to answer the questions in full.

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

- Chapter 5 provides the general information required to inform Form B2 relating to a new bespoke installation permit; and
- Chapter 6 provides the more detailed information required to inform Form B3 relating to a new bespoke installation permit.

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

Stand-alone documents included as part of this submission, are detailed below:

- B14411-123532-ZZ-XX-NN-ZA-DI1035 - IED Queensferry - Main Supporting Document
- B14411-123532-ZZ-XX-AS-ZA-RI1036 - IED Queensferry - OPRA Score
- B14411-123532-ZZ-XX-AS-NA-RI1037 - IED Queensferry - Environmental Risk Assessment
- B14411-123532-ZZ-XX-RP-ZA-SE1038 - IED Queensferry - Site Condition Report

- B14411-123532-ZZ-XX-PR-ZA-DH1039 - IED Queensferry - Odour Management Plan
- B14411-123532-ZZ-XX-AS-NA-EI1041 - IED Queensferry - Bioaerosol Assessment
- B14411-123532-ZZ-XX-AS-ZA-DH1042 - IED Queensferry - BAT Analysis
- B14411-123532-XX-XX-DR-AC-PN8201 - IED Queensferry - Site Location Plan
- B14411-123532-XX-XX-DR-AC-PN8202 - IED Queensferry - Site Layout Plan (Emissions)
- B14411-123532-XX-XX-DR-CC-CI8606 - IED Queensferry - Drainage Plan
- B14411-123532-XX-XX-DR-AD-PR8401 - IED Queensferry - Block Flow Diagram
- B14411-123532-ZZ-XX-RP-ZA-DH1043 - IED Queensferry - Relevant Offences
- B14411-123532-ZZ-XX-NN-ZA-DH1044 - IED Queensferry - Details of Directors

3 Process Description

3.1 Incoming Wastewater and Sludge

The Site receives flow from 6 pumping stations with approximately 80% of flows being classed as industrial effluent. It also receives domestic waste imports directly into the inlet works and a DCWW satellite site imports sludge via the sludge centre.

3.2 Wastewater Treatment

Preliminary treatment consists of two Escalator screens and associated de-waterer compactor, grit plant, and ferric dosing to assist with potential odour issues. Pass forward flow is 277.6 l/s. Any flow in excess of this is diverted to the two storm tanks via a fixed weir in the inlet channel. This is automatically returned to the inlet works once high incoming flows subside.

The inlet pumping station transfers crude sewage to two Primary Settlement Tanks (PSTs). Settled effluent weirs over the PSTs and is divided between three high-rate filters and five conventional biological filters (four with stone media and one with plastic media), in an approximate 70:30 split respectively. Biologically treated effluent passes to eight humus tanks for secondary settlement; two radial tanks receive flow from the hi-rate filters and six Dortmund style tanks receive flow from the traditional filters. Before flow reaches the final effluent outfall to the River Dee, it passes through an ultraviolet disinfection system to denature any remaining bacteria and viruses.

3.3 Sludge Treatment

Indigenous primary sludge (approximately 5.5TDS/Day) is transferred to two 206m^3 covered concrete sludge holding tanks before being pumped to a drum thickener, which thickens the sludge to approximately 6% dry solids with the aid of a polymer. The sludge is then stored in the third covered concrete sludge storage tank, which is called the digester feed tank. From here the sludge is transferred to two 1600m^3 concrete digester tanks on a timed basis to undergo mesophilic anaerobic digestion. After a set retention time the digested sludge is then transferred and held in three 950m^3 open topped concrete rectangular secondary digesters for a further set time period. The treated sludge is then pumped to a 142m^3 open glass fused steel centrifuge feed tank and then de-watered via a single centrifuge with the aid of polymer to increase the percentage dry solids to between 20 and 25%. The de-watered sludge is then transferred and stored on open concrete cake pads ready for export to Five Fords for further treatment.

The biogas generated during digestion is stored in a one double membrane gas holder and is then used in a combined heat and power unit for electricity generation, which supplies the digestion plant and for recovering heat, to maintain digester temperature. The site has one biogas, one dual fuel and one oil boiler which provides hot water for the digestion process. Any excess biogas is flared off via the on-site waste bio-gas burner (flare stack).

Refer to B14411-123532-XX-XX-DR-AD-PR8401 - IED Queensferry - Block Flow Diagram for a schematic of the sludge treatment process and B14411-123532-XX-XX-DR-AC-PN8202 - IED Queensferry - Site Layout Plan (Emissions), for location of the sludge treatment assets.

The IED permit includes the following assets:

- Import sludge area
- Screened sludge tanks

- Sludge screen
- Sludge thickener building
- Thickened sludge tank
- Digesters
- CHP unit
- Boilers
- Standby Generator
- Digested sludge tanks
- Gas Holder
- Waste Gas Flare
- Centrifuge feed tank
- Centrifuge building
- Cake bays

The CHP engine at Queensferry has been in operation since August 2004, it is powered by biogas and has a thermal rated input of 0.545 MWth. Therefore, the Site falls outside the scope of the Medium Combustion Plant Directive (MCPD) since the thermal rated input is less. It is also, not subject to the specified generator rules as it is not used for standby/islanded operation. The CHP total annual operating hours is 8,500, allowing for routine maintenance.

There are three dual fuel boilers (gas oil/biogas) all running continuously. Each boiler has a thermal rated input of 0.39MWth. The operating hours are unknown. There is one standby 0.7MWth generator which is only used when there is a mains power outage on the site, that runs off red diesel. Further details of this are unknown.

4 Part A – About you

4.1 Question 7: 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: Shannon Stone

Address: Mott MacDonald, Mountbatten House, Grosvenor Square, Southampton, SO15 2JU.

Phone number: 023 8062 8538

Email: shannon.stone@mottmac.com

5 Part B2 – General – new bespoke permit

5.1 Question 3a and Appendix 2: Relevant offences

Details of the relevant convictions is provided in the document reference (produced by DCWW).

5.2 Question 3b: Technical ability

NRW and EU Skills guidance details grace periods for obtaining appropriate certification and Welsh Water aims to adhere to this guidance which states:

"A period of grace is provided for operators who are unable, at the time of application for a new permit, to demonstrate technical competence. This does not apply to applications for landfill permits or to any permit variation or transfers.

For operators who are using CMS as the method of demonstrating competence, the following process shall be demonstrated;

1. *Operator shall identify the Energy & Utility Skills/ESA scheme as their choice of scheme at the point of application*
2. *Operator shall select and contract with an Accredited Certification Body*
3. *Operator has an agreed schedule for the audit and certification process (within 4 weeks of the permit being issued)*
4. *Operator has had the Stage 1 audit completed by the Accredited Certification Body (within 6 months of the permit being issued).*
5. *Operator achieves formal accredited certification of their Competence Management System (within 12 months of the permit being issued)*

If an applicant relies on a period of grace, this should be recorded in the decision document and will be adequate for the purpose of the operator competence assessment."

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.

DCWW is currently working on an accredited Competency Management System under the Competent Operator Scheme, and hopes to have this completed in the next 6 months. The Scheme will develop technical competency courses and skills 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 (currently identified as SGS in August 2022) to ensure it meets the requirements of the Version 5 Competence Management System Standard, developed by Energy & Utility Skills. The

Competence Management System (CMS) will enable 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.

All DCWW Wastewater Treatment Works Operators are put through rigorous training to ensure competence for the role. Initially all operatives will complete a Level 2 Wastewater Treatment Processes Programme which is 9-days' duration. This consists of units from the Certification and Assessment Board for the Water Industry (CABWI) Diploma in Water Engineering with written assessments and covers all basic aspects of the wastewater process. Six to twelve months later, the Operators will complete the Level 3 Competent Operator Programme.

An "Advanced Digestion – Technical Operator" Knowledge and Skills Framework has been developed to identify all the relevant training required for the role. Through monthly one to ones with line managers and the annual Performance Management Review Process it is ensured that operations staff can demonstrate the knowledge and skills identified or are put forward for further training to develop the competency, if needed.

5.3 Question 3c: Finances

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

5.4 Question 3d: Management System

5.4.1 Integrated Management System summary

DCWW have an Environmental Management System (EMS) Policy. In line with the EMS Policy, the Queensferry STC will be operated in accordance with the DCWW Quality Management System (IMS).

DCWW have established and maintained documentation that defines and describes how the IMS is established, implemented, and maintained in accordance with ISO 9001:2008 and ISO/IEC 17025:2005 and monitoring emissions to air, land and water (MCERTS) Standards.

The system is structured on the organisation's strategic business areas, business processes and customer requirements.

DCWW has not established an ISO 14001:2004 for Queensferry WwTW, although the ISO 14001 guidelines are observed and followed at the Site and DCWW will extend the scope of accreditation to include it, where applicable.

The EMS is not integrated with the IMS at present. However, certain system procedures and operating procedures are shared by both systems.

Demonstrable procedures are outlined in the DCWW Environmental Policy dates April 2020 and the Site Operating Manual and IMS.

Scope of the Environmental Management System

The SP (1) 01 - Master Asset List contains all IMS sites and shows all certified Environmental (ISO 14001) sites.

Environmental Procedures Overview

EN (3) 02 – Waste Management

This procedure defines waste management principles and guidance for the legal disposal of waste. This procedure goes into specific detail of the handling of Hazardous and Non-Hazardous Waste including the use of a Hazardous Internal Waste Transfer Form – ENF005 and the reporting of Fly Tipped Waste.

EN (3) 03 – Delivery Handling and Storage of Oils and Chemicals

This procedure defines in general terms the duties and responsibilities involved with the receipt and handling of chemicals, oils and fuels. This procedure goes into detail about the normal and abnormal operations of the delivery/receipt/handling of chemicals and oils and states the requirements of regulations around the storage of fuel and oil, both for fixed tanks and mobile bowsers.

EN (3) 04 – Environmental Incidents – Near Miss

This procedure defines the requirements necessary to deal with and report environmental incidents and must be used in conjunction with the DCWW Emergency Incident Response Handbook available from Senior Managers. This procedure gives examples of possible causes of incidents and explains the appropriate corrective and preventative actions to be taken.

EN (3) 05 – EMS Sites Only

This procedure applies to sites that hold ISO 14001 certification. However, the procedure itself will be extended to apply to all IED permitted sites, whether or not they are accredited under ISO 14001. It details what is included with a Site Initial Environmental Review and Local Site Environmental Management Plans, along with waste management, role responsibilities and information on the Annual Review – ENF 008.

An overall review of the IMS takes place every 12 months, and on other occasions as required, by Senior Management. There is a regular programme of audits covering all aspects of the IMS and EMS; they are included on the Internal Audit Programme operated by the Business Assurance team and audited by the Environment Agency (EA) on a frequent basis. In addition, the EMS and IMS are subject to audit by the inspection and certification company SGS (for accreditation purposes) every 6 months.

DCWW produces an annual report on environmental performance and where required attend local action group meetings.

One of the key tasks for DCWW during the permit determination process is the development of the management system arrangements for the STC Site to cover all STC operations as well as the quality and environmental aspects.

In 2020 the DCWW updated their Asset Management Policy Statement, Environmental Policy Statement, Heath Safety and Wellbeing Policy Statement, Information Security Policy Statement, and Quality Policy Statement.

5.4.2 Accident Management Plan

The Site operates under a set of site-specific Emergency Procedures which is incorporated into DCWW's Environmental Management System (where applicable) to prevent and manage environmental related accidents. The Emergency Procedures 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, national and regional (where appropriate) contact details of emergency services and environmental regulators. The Emergency Procedures are distributed

to key staff, to supervise the implementation of the Plan, and shared with external contacts (emergency services and the NRW). The Emergency Procedures are 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 Emergency Procedures reference 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

5.4.3 Complaints

All written complaints are covered by the Quality Manual QM(1) 01 and handled according to procedures (DG7 Process Reports). The implementation of the complaints procedure is detailed in CC(3) series procedures. Compliance with these procedures is part of the overall assessment of DCWW's performance by OFWAT and there are penalties for poor performance. Telephone complaints are logged onto the DCWW SAP system and actions recorded by the DCWW operation and control centre (Linea). All complaints are analysed for root cause in order to prevent recurrence of the problem and assist with continuous improvement processes.

Complaints about pollution are dealt with the NO(03) 3 series procedures, and there are different procedures according to who reports the pollution. Pollutions may be reported via a number of routes including: general public, local authority, internally, contractor or formally via the Environment Agency. All pollution incident calls, or emails are input into DCWWs online control system (SAP) by a Pollution Incident Advisor (PIA). This is then sent to the Wastewater Scheduling Team who allocates a Network Crew or contractor to respond to the incident; they have 4 hours to respond. After attending the incident, the operational crew provide feedback via SAP; the pollution incident details along with remedial actions taken or required are also verbally communicated to the Responsible Officer (RO). The SAP incident remains open until all follow-up work has been completed.

Following each incident, the relevant Pollution technician/Environmental Performance Officer reviews the findings and investigates details of the incident. If the root cause of the incident is identified the appropriate remedial action is undertaken and the job is closed on SAP. If the root cause is not obvious, an enhanced investigation is instigated, and the findings reviewed for appropriate remedial action. Every category 1 and 2 pollution incidents are formally reviewed by the Head of Wastewater (Network).

5.5 Question 5a: Site layout plan and process diagram

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

- B14411-123532-XX-XX-DR-AC-PN8201 - IED Queensferry - Site Location Plan
- B14411-123532-XX-XX-DR-AC-PN8202 - IED Queensferry - Site Layout Plan (Emissions)
- B14411-123532-XX-XX-DR-CC-CI8606 - IED Queensferry - Drainage Plan
- B14411-123532-XX-XX-DR-AD-PR8401 - IED Queensferry - Block Flow Diagram

5.6 Question 5b: Site condition report

In accordance with NRW 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 includes the following details (section 1 to 3 of the NRW template[1]):

- Site details;
- Condition of the land at permit issue; and
- Permitted activities.

A copy of the SCR can be found as document reference B14411-123532-ZZ-XX-RP-ZA-SE1038 IED Queensferry Site Condition Report.

5.7 Question 6a: 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 EPR Guidance (H1) [2].

The 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;
- Odour;
- Litter, mud and debris;
- Vermin and insects (pests);
- Human health and environment safety (i.e. visual impacts, Site security, flood risk); and
- 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 B14411-123532-ZZ-XX-AS-NA-RI1037 IED Queensferry ERA.

[1] Natural Resources Wales (2014). Environmental permitting: H5 Site condition report. Available online at: https://cdn.cyfoethnaturiol.cymru/media/1213/site-condition-report-template.pdf?mode=pad&rnd=130989730490000000

[2] Environment Agency (2020) Risk assessments for your environmental permit. Available online at: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

6 Part B3 – New bespoke installation permit

6.1 Question 1a: Activities applied for

Table 6.1: 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
Queensferry STC	S5.4, Part A (1), (b) and (i)	Anaerobic digestion	180t/day	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 activity is anaerobic digestion. 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 R 1 to R 12.	0 m^3	180t/day
Directly associated activities						
	Physical treatment of waste	Recycling/ reclamation of organic substances which are not used as solvents.		R3		

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
	Waste reception	Import of sludge from satellite sites				
	Gas combustion to produce heat and power.	Use principally as a fuel or other means to generate energy		R1		
	Use of biogas	Use principally as a fuel or other means to generate energy.		R1		
	Use of auxiliary standby flares	Incineration on land		D10		
	Standby boilers	Used for emergency only, do not export electricity to the grid		D10		
	Generators	Diesel standby generator of 700kVA located in a dedicated room attached to the centrifuge building and adjacent to bulk storage diesel tank.		D10		
	Use of pressure release valves	Release of pressure from digesters				
	Storage	Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the Site where it is produced).		R13		
	Raw material storage	Storage of raw materials including chemicals, lubrication oil, antifreeze, diesel, activated carbon.				

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
	Discharge of condensate	Condensate from the CHP exhaust, flare gas pipelines, gas storage bag From collection to the point of discharge at the adjacent WwTW.				

Table 6.2: Details of installations

For installations that take waste	Total storage capacity	164m^3 x 1 tank (imported sludge tank) 206m^3 x 3 tanks (consolidation tanks) 1,600m^3 x 2 tanks (digesters) 950m^3 x 3 tanks (digested sludge holding tanks) 159m^3 x 1 tank (centrifuge feed tank) 70m^3 x 3 cake bays. Total volume 7,201m^3 available on site
	Annual throughput	The combined annual throughput for Queensferry is of 3,676 TDS. This is comprised of 1997 TDS (indigenous) and 1679 TDS (imports). From October 2020, Queensferry receives domestic sludge only. Imported sludges are instead transferred directly to Five Fords.

6.2 Question 1b: Types of wastes accepted

The current T21 exemptions allows for the waste types, identified in Table 8, to be accepted.

Table 6.3: Types of wastes accepted

Waste Code	Description of Waste
190801	Screenings
190802	Sewage grit (waste from de-sanding) only
190805	Sludge from treating urban wastewater
190899	Centrate liquor only
190902	Sludge from water clarification
190903	Sludge from decarbonation
190906	Solutions and sludge from regeneration of ion exchangers
200304	Septic tank sludge
200306	Waste from sewage cleaning
200399	Cesspool waste and other sewage sludge only

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

Emissions to air

Table 6.4: Point source emissions

Emission point reference and location	Source	Parameter	Quantity	Unit
Stack 1 (SJ 32340 68288)	CHP engine exhaust stack burning biogas	Oxides of Nitrogen (as NO_2)	500	Mg/m^3
		Carbon Monoxide	1400	Mg/m^3
		Sulphur Dioxide	350	Mg/m^3
		Total VOCs	1000	Mg/m^3
Stack 2 (SJ 32375 68230)	Waste gas burner (flare stack)	Operational hours	No limits set	Mg/m^3
Biogas duty Boiler (SJ 32335 68301)	Boiler exhaust stack – operating on Biogas, oil and diesel.	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	250	Mg/m^3
		Sulphur Dioxide (if burning biogas)	200	Mg/m^3
Oil standby Boiler (SJ 32335 68301)	Boiler exhaust stack – operating on Biogas, oil and diesel.	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	250	Mg/m^3
		Sulphur Dioxide (if burning biogas)	200	Mg/m^3
Dual fuel boilers (SJ 32335 68301)	Boiler exhaust stack – operating on Biogas, and gas oil.	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	250	Mg/m^3
		Sulphur Dioxide (if burning biogas)	200	Mg/m^3
Pressure relief valves – Digester No.1 (SJ 32352 68282)	Biogas release and operational events	Operational hours Recorded duration and frequency.	No limits set	
Pressure relief valves – Digester No.2 (SJ 32371 68269)	Biogas release and operational events	Operational hours Recorded duration and frequency.	No limits set	
Standby Generator (SJ 32256 68224)	Diesel generator exhaust stack	Operational hours Recorded duration and frequency.	No limits set	
Odour control unit (currently not operational}	Channelled emissions to air as identified on Site plan Including tank vents biofilter and/or scrubbing system	Ammonia	20	Mg/m^3
		H_2S	No limit specified	
		Odour concentration	1000	Oue/Nm^3

The emission points are shown in drawing reference B14411-123532-XX-XX-DR-AC-PN8202 - IED Queensferry - Site Layout Plan (Emissions).

Emissions to water (other than sewers)

Not considered applicable as the drainage network sends water to the head of the works for treatment. There are three drainage gullies that discharge surface run-off direct to a final effluent process line prior to UV treatment. There will be no point sources emissions from the Site. There are no direct potentially contaminated discharges to controlled surface waters.

There will be no direct discharge of wastewater to controlled waters.

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.

Emissions to sewers, effluent treatment plants or other transfers off Site

There will be no point source emissions or direct discharges to controlled waters or public sewers, as part of the permit operation. All condensate from the CHP exhausts, flare stacks and biogas along with any other liquid waste will either be reused or discharged to the drainage system of the adjacent Queensferry WwTW and will undergo treatment through the works before being discharged under an existing water discharge permit. On-Site WwTW 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 or captured and rerouted to the adjacent WwTW.

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 WwTW. A drainage plan of the Site is provided with the application, document reference B14411-123532-XX-XX-DR-CC-CI8606 - IED Queensferry - Drainage Plan.

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 WwTW.

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 WwTW internal drainage system and are returned to the head of the works 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 6.5.

Table 6.5: Point source emissions to sewers, effluent treatment plants or other transfers

Emission point reference, and location	Source	Characteristics	Frequency	Monitoring / mitigation measures prior to final discharge and emission point discharge.
Discharged to Queensferry WwTW) (SJ 32256 68151)	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	Negligible	Rerouted to adjacent WwTW.
Discharged to Queensferry WwTW)	Boiler blow down to minimise damage from	High purity water with traces of chemicals (used for boiler dosing).	Infrequent and negligible	Rerouted to adjacent WwTW.

(SJ 32256 68151)	high mineral content water.			
Discharged to Queensferry WwTW) (SJ 32256 68151)	Drain down of plant - 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).	Infrequent	Rerouted to adjacent WwTW.
Discharged to Queensferry WwTW) (SJ 32256 68151)	Rainwater - Uncontaminated roof water from buildings.	Clean rainwater from building roofs only.		Rerouted to adjacent WwTW or to ground.
Discharged to Queensferry WwTW) (SJ 32256 68151)	Rainwater - Run off from impervious surfaces	Clean rainwater from runoff		Rerouted to adjacent WwTW
Discharged to Queensferry WwTW) (SJ 32256 68151)	Sanitary Water - Domestic facilities.	Foul waste.	Negligible	Rerouted to adjacent WwTW.
Discharged to Queensferry WwTW) (SJ 32256 68151)	Washwater from the washing down of mechanical equipment during maintenance activities	Variable.	Negligible	Rerouted to adjacent WwTW.

Please refer to the ERA (doc ref B14411-123532-ZZ-XX-AS-NA-RI1037) on the environmental risk the water emissions pose and how these are mitigated, where relevant.

Emissions to land

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

6.4 Question 3: 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; and
- Measures implemented to control emissions to air, water, sewer and land.

Table 3a 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 DCWW Queensferry Site 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 6.6: Technical standards

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	How to Comply with Your Environmental Permit Additional Guidance for Anaerobic Digestion Best available techniques (BAT) conclusions, for the recovery and disposal of hazardous and non-hazardous waste (SGN S5.06)	https://www.wiseenvironment.co.uk/wp-content/uploads/2020/07/ How-to-Comply-with-Your-Environmental-Permit-Additional-Guidance-for-Anaerobic-Digestion.pdfhttp://eippcb.jrc.ec.europa.eu/reference/BREF/BATC_CWW.pdf https://www.gov.uk/government/publications/sector-guidancenote-s506-recovery-anddisposal-of-hazardous-and-nonhazardous-waste
General	How to comply with your environmental permit Monitoring stack emissions: technical guidance for selecting a monitoring approach M1 sampling requirements for stack emission monitoring Environmental permitting guidance, including: NRW's horizontal environmental permitting guidance, including: H1 - Risk assessments for your environmental permit H2 Energy efficiency (Energy efficiency for combustion and energy from waste power plants) H3 Noise assessment and control H4 Odour management H5 Site condition report Control and monitor emissions for your environmental permit	https://cdn.cyfoethnaturiol.cymru/media/2110/how-to-comply-with-your-environmental-permit.pdf?mode=pad&rnd=131467604540000000 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/government/publications/energy-efficiencyfor-combustion-and-energyfrom-waste-power-plants https://www.gov.uk/government/publications/environmentalpermitting-h3-part-2-noiseassessment-and-control https://www.gov.uk/government/publications/environmentalpermitting-h4-odourmanagement https://cdn.cyfoethnaturiol.cymru/media/1213/site-condition-report-template.pdf?mode=pad&rnd=130989730490000000

Description of the schedule 1 activity or directly associated activity	Best available technique (BATC, BREF or TGN reference)	Document reference
		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 B14411-123532-XX-XX-DR-AD-PR8401 - IED Queensferry - Block Flow Diagram.

6.5 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 the Queensferry site, and the outcome of these conclusions can be found in document reference B14411-123532-ZZ-XX-AS-ZA-DH1042 - IED Queensferry - BAT Analysis.

DCWW can currently comply with the majority of the conclusions assessed against, with the exception of BAT14 and BAT19. A proposal to achieve compliance with BAT14 and 19 for Queensferry STC has been presented to and discussed with the NRW prior to implementation. It is therefore, considered that this will be added as Improvement Conditions to the permit. The proposal considers credible failure modes of assets and incorporates measures for the STC to comply with best practice guidance outlined in CIRIA 736, Containment Systems for the Prevention of Pollution, for existing sites. The source, pathway, receptor risk assessment methodology outlined in CIRIA 736 was used to help understand current risks and develop the proposal which broadly includes:

- Installing localised containment features around above ground sludge storage tanks using kerbs, road humps or shallow concrete walls.
- Replacing permeable features with impermeable surfaces within bunded areas or underneath above ground transfer pipework.
- Verifying the condition of the existing drainage system and upgrading it where necessary to accommodate the additional surface water run-off from impermeable surfaces.
- Enhancing visibility of sludge storage and transfer assets where required by using level and pressure instruments and incorporating early warning alarms on telemetry.

6.6 Question 3b: General requirements

6.6.1 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, in accordance with the H1 ERA Guidance and is provided with the application (Document reference: B14411-123532-ZZ-XX-AS-NA-RI1037). The response to this question relates to Table 4 in the Part 3 form.

6.6.2 Control of fugitive emissions to air

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

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

As combustion activities are not being changed on Site as a result of the proposal, it is not anticipated that Air Quality Dispersion Modelling is required to address the emissions of the CHP units. This is because the units do not yet need permitting under the Medium Combustion Plant Directive since they are existing MCP/s and Tranche A generator/s.

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 Air Dispersion Modelling (ADM) will be required for this permit application. This is because the unit does not yet need permitting under the Medium Combustion Plant Directive (MCPD) since it is an existing Medium Combustion Plant (MCP) and Tranche A generator. DCWW will be required to meet the Tranche A permit date of 2030.

6.6.3 Odour

Queensferry WwTW is situated within the Queensferry Industrial Estate adjacent to the River Dee. The boundaries of the site are comprised of the railway line, Scottish Power Site, a garage and travellers camp and with the rear of site running parallel to the A494 road. There is also an NRW managed asset in proximity to the old entrance which was directly accessible from the A494 but is no longer used.

There are no proposed works to be undertaken on the Site in respect of this permit application. Therefore, the activities on-Site are not anticipated to increase the off-Site impact or result in adverse impact upon nearby sensitive receptors or the amenity of the area surrounding the Site. The OMP contains guidance of good practices for carrying out operational and maintenance activities, identifies specific measures for odour control and sets out procedures to monitor and respond to odour complaints. The OMP was written in accordance with the NRW's H4 Odour Management guidance (2011).

Odour control assets implemented at the WWTP are as follows:

- Catchment odour control – dosing of iron salts (typically ferric sulphate) into the crude sewage flow at the works inlet to precipitate dissolved sulphide compounds as insoluble iron sulphides.
- Main inlet works covers and odour control system – inlet channels covered with OCS structural GRP covers as far downstream as the primary tanks. All wells and channels, including inlet screens, are provided with odour control covers, with the exception of the detritor (a non-turbulent, quiescent point). Covered screenings and grit skips are in use.
- The inlet works odour control system is designed to provide 95% removal of inlet hydrogen sulphide (average concentration 40ppm, maximum concentration 200ppm). Media life and condition is reviewed on a regular basis although it is anticipated that media should last a minimum of two years.
- Leak detection (methane gas analyser) is installed on the biogas holder to ensure any leaks from the inner bag are detected. Any leaks detected on the biogas system would always be fixed immediately by DCWW due to the process safety risk of posed by biogas.

The management of the odour risks at the Site is also addressed in the November 2020 Odour Management Risk Assessment and Odour Management Plan (OMP). The current OMP provides mitigation measures to be followed by all staff to ensure normal operation does not result in odours leaving the STC boundary.

Since the level of odour risk from the Site is considered to be low, as shown in Appendix B of the ERA, and the existing Master OMP provides sufficient mitigation. The OMP will be updated upon completion of the odour risk assessment to incorporate the findings of the assessment and

incorporate the latest details and any further actions, procedures and investment which needs to be implemented.

6.6.3.1 Complaints

Following an odanet survey and dispersion modelling it would be reasonable to state a figure of 5x odour complaints that have been associated with Queensferry over the past 3 years.

Odour dispersion modelling conducted by DCWW indicates that, under current operational conditions, odours from Queensferry WwTW might impact residential areas to the north and east of the site up to a distance of 900m, and commercial premises up to 600m. Based on this modelling, and the H_2S level dispersion rates over this distance, it is considered that the WwTW is unlikely to be the cause of the odour complaints received.

6.6.4 Noise

Initial screening has been carried out for the Site. The Site has not received any noise complaints and 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 in 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.

6.6.5 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 B14411-123532-ZZ-XX-AS-NA-RI1037.

6.6.6 Bio-aerosols

A bio-aerosols 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 B14411-123532-ZZ-XX-AS-NA-EI1041.

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

6.6.8 Control of fugitive emissions to land

Solid waste

Waste generated on the Site includes the following:

Table 6.7: Waste recovery of different waste streams

Activity	Waste stream	Waste recovery/disposal
Sludge screening	Screenings	Organic screenings sent to composting facilities. Grit screenings are taken to a designated landfill site.
Sludge thickening and sludge dewatering	Filtrate / Centrate	Returned to the WwTW for treatment

Activity	Waste stream	Waste recovery/disposal
Anaerobic digestion	Biogas	Transferred to CHP unit for electricity and heat production and boilers for heating process water.
Maturation stage	Biosolids	Compliant biosolids are recycled in agriculture (as soil conditioner)
Waste generated from other Site activities (i.e. offices)	General waste	Recycled where possible at a materials recycling Site. Non-recyclable waste is disposed of to a designated landfill site.
	Scrap metal	Recycled at scrap metal recycling facilities
	WEEE	Recycled at WEEE recycling facilities

To reduce volumes of waste:

- All materials and consumables delivered to Site are inspected to ensure that they are fit-for-purpose. Damaged items are refused and returned to the supplier.
- Sewage sludge is thickened at the works to be treated at the site. Treated sludge is de-watered and then stored in cake bays ready for further processing at Five Fords STC, prior to being recycled to agricultural land as a soil fertiliser.
- The biogas from the AD process is burned either in a CHP engine or boilers, to provide power or heat for the Site processes.
- The biogas is also connected to a flare stack and excess biogas is burnt under normal operating conditions.
- The condensate overflow is contained and returned to treatment via condensate lines and does not spill to land.
- Polymer intermediate bulk containers (IBCs) are sent back to the supplier for re-use.

Queensferry has a labelled WEEE store, a general waste skip and two screenings skips (inlet and sludge imports).

All skips and containers are located on a hardstanding to prevent leaching into the ground. Skips and containers are clearly labelled. All waste from the Site is sorted into this waste area at the main site other than the gas cylinders.

Polymer waste, if below acceptable level, is collected by the supplier, but if for any reason an IBC has excess waste polymer then Safety Kleen will be used for disposal.

If a complaint is made with respect to litter the complaints procedure will be followed. 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 and actions taken to resolve the issue will be recorded in the Site Diary and the complaints register.

As part of the quarterly health and safety checklist the site is screened for general litter, mud, and debris both within and outside site boundaries.

6.6.9 Site security

Activities are managed and operated in accordance with the EMS. Access to the Site is restricted by a combination of fence lines including a 3m palisade fence and 3.9m and 2.4m weldmesh fence. The Site also benefits from CCTV systems, and intruder detection alarms. Security rated doors are present protecting key buildings. Future security measures include installing additional 3 or 4 security doors. 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.

Other risks relating to human health and the environment is presented in Appendix C of the ERA, document reference B14411-123532-ZZ-XX-AS-NA-RI1037 - IED Queensferry - Environmental Risk Assessment.

6.6.10 Complaints procedure

According to the Consumer Council for Water (CCW), a complaint is any inbound contact from a customer not eligible to switch retail provider or customer's representative that expresses or implies dissatisfaction with the charges, service or functions provided by the company. Dissatisfaction should be identified in the body or title of the written correspondence/ contact or the customer's sentiment at the close of a telephone/web chat/visit contact. Subsequent contacts about the same issue from the same customer should be reported as a complaint unless it falls under any of the exemptions.

We must accurately report all complaints for both Household and Non-Household. This information is used for:

- Household complaints reporting for CMEX in England and Wales
- Household and non-household complaints for CCW reporting
- Non - household complaints for Ofwat benchmarking.

We make a commitment to our customers that if they're unhappy with the outcome of their first complaint and write to us again, it will be reviewed by another person / case handler before making recommendations to a Director.

Written Complaint Stages

We make a commitment to our customers that if they're unhappy with the outcome of their first complaint and write to us again, it will be reviewed by another person / case handler before making recommendations to a Director.

Stage 1 complaint received from a customer or their representative

The classification of a Stage 1 Complaint can be one of the following:

- A complaint with no history of previous complaints on the same subject
- A second complaint about the same issue, but where we haven't had chance to answer within 10 working days from the original complaint.
- A follow-on written contact - If the new information relates to the original complaint but is substantial enough to change the outcome, then the company may report it as a stage 1, even if it the company reviews the complaint and decides no further action is necessary
- The new issue (s) are not connected to the original complaint, and, could or would change the outcome of the original complaint (whether it ultimately does or not), or, the original complaint has been resolved to the customer's satisfaction.

Examples of these may include:

- Attitude of company staff.
- The date or timescale to resolve the issue (perhaps due to operational works); and
- Recompense for the original service failure if it isn't mentioned in the customer's first contact or is not part of the resolution of the initial complaint.

NB: In cases where there is nothing further that can be done, a Director may consider the Stage 1 response to be the final stage. In these instances, we will advise customers that we've completed the company complaints procedure (including Directors review) and signpost them to CCW.

Follow on complaints about the same matter or outcome would fall under exclusions as 'continued correspondence' and report as a stage 3. But only after Stage 1 when we've explained there is nothing else, we can do and fully reviewed the complaint.

Stage 2 (escalated complaint)

The classification of a Stage 2 Complaint is one of the following:

- A second written complaint from a customer relating to the same issue, following our response to the initial Stage 1 complaint
- New information (provided by the customer) which is something we should have been aware of, such as our own literature, action, works or contacts to the customer

Note: If the second complaint is received more than 12 months after the initial response, then this will be treated as a new Stage 1.

Stage 2 Repeat

After the Stage 2, if we receive further correspondence about the same issue and we consider an alternative course of action, then these complaints should be categorised as a Stage 2 repeat complaint.

Stage 3 (exhausted complaint)

The classification of a Stage 3 is as follows:

A further written complaint from a customer relating to the same issue; where the customer has already been advised that we have completed the company complaints procedure and they can, if they wish, contact CCW.

If a customer continues to correspond after this stage, unless there are new issues or new information, these will be categorised as a Stage 3.

Telephone, SMS, Web Chat, Visit and Social Media Complaints

This section is new and gives information on how we now need to report when dealing with customer complaints in real time.

First customer contact through telephone, SMS, web chat, social media or visit.

All contacts through the above channels should be reported as a complaints based on the customer sentiment at the conclusion of the first contact or visit. If, at the end of the contact the customer is or appears satisfied or considers the matter resolved without complaint, we do not need to mark this contact as a complaint.

Examples of when we need to classify inbound contacts as complaints include:

- Customer disagreement or challenge even when we've explained our policy or procedure.
- Early termination of the contact by a customer whereby the end sentiment is negative (but not from loss of connection).
- Customer asks for their query to be escalated.
- Customers tone or mood is negative.

If in doubt, we can ask the customer if they are satisfied with our explanation and proposed next steps at the close of the contact but this must be done with no pressure on customers to agree. If we choose not to ask and are in doubt of the customer's sentiment, this will need to be classified as a complaint. It's really important we only consider the customer sentiment at the end of the first contact.

If a customer expresses satisfaction, for example, an agreed action, gratitude or says that we don't need to do anything further then the contact should not be reported as a complaint. Similarly, if we are unable to answer the customer's points then where possible it should offer the customer a handover to another member of staff. In this event the customer sentiment should be based on the conclusion of the contact. If the customer requests a call back, or if we initiates the call back, it should be treated as the continuation of the initial contact. The customer sentiment should be considered at the conclusion of the first call back only and not subsequent contacts.

Call back for web chat and social media

For webchat and social media contacts, in the event we ask customers provide their telephone number for them to contact them over any issue, then our call back should be treated as an inbound contact. If the customer sentiment is negative at the end of the contact then it should be reported as a complaint. Complaints should be reported by the initial method of customer contact.

Complaints via social media

Ofwat's final Methodology for the 2019 Price Review states companies should offer at least five communication channels, including at least three online channels for receiving customer contacts and complaints. In line with this guidance, we may offer a route for customers to complain via social media. We now need to report complaints through all social media channels we offer as contacts to customers.

In line with the inbound principle, we should only report complaints through social media where the customer contacts us directly, either through a visitor post on the company page or site or direct/personal message (and the company can identify the customer).

Customer comments about another customer posting should not be reported as a complaint.

When we are not available to respond immediately but feel a response is warranted, we need to contact the customer and conclude the contact within 24 hours. Any contact that continues beyond 24 hours should be reported as a complaint. To gauge a level of proportion, we need to report to CCW where possible the numbers of contacts via social media which went beyond the 24-hour timescale.

Again, we need to consider the customer sentiment at the end of the contact and where the customer is dissatisfied or there is implied dissatisfaction then the contact should be reported as a complaint.

Engagement with customers via Social Media

Customers who comment of our posts via social media should be responded to at our discretion. Where we feel a response isn't warranted then we do not need to report this as a complaint. Where we choose to respond directly to a customer from a post, such as if the customer is asking for further information or has been affected by the subject of the post then we should report the contact as a complaint if at the close of the contact the customer is dissatisfied or implies dissatisfaction unless an exemption applies.

Vexatious Complaints

A small number of customers make vexatious complaints such as:

- Persistent/obsessive/repetitive complaints without sufficient or reasonable grounds/evidence;
- Repeated complaints about the same matter (and/or with minimal changes to the subject matter) together with a refusal to accept decisions;
- Refusal to co-operate with our complaints procedure;
- Any other complaint or behaviour that has been identified as having the potential to adversely affect the health or wellbeing of our colleagues.

Our Vexatious Customer Register enables us to identify and record customers who have made vexatious complaints. The complaints team manager is responsible for holding, updating and reviewing the Register. For further information please read the Vexatious Customer Policy or contact our Head of Customer Service and/or the Legal Team.

General Correspondence

General Correspondence is any other correspondence that isn't a complaint. Everyone who handles correspondence is responsible for ensuring that it is classified correctly.

The process for logging on/responding/logging off General Correspondence is the same as for written complaints. However the response for General Correspondence does not need to include information on our complaints procedure.

Data Protection Act

To ensure Welsh Water's compliance with the Data Protection Act 2018 we must only disclose a customer's personal data to a third party (including someone calling on behalf of the customer such as their partner or parent and/or an AM/MP), if we have satisfied ourselves that the third party has the customer's consent to receive the information.

6.7 Question 3c: Types and amounts of raw materials

The list of types and amounts of raw materials for the Site is presented in Table 6.8.

Table 6.8: Types and amounts of raw materials used on site

Schedule 1 activity	Description of raw material and composition	Maximum amount (tonnes)	Annual throughput (tonnes each year)	Description of the use of the raw material including any main hazards (include safety data sheets)
5.4, Part A (1), (b) and (i)	Diesel	9,600 litres	10,475 litres	Used in generators and boilers during emergencies, however it is a rare occurrence. Ordered on an ad hoc basis.
	Poly (Cationic Polyacrylamides)	13,500kg 15,750 litres	Powder 14,725kg Liquid 17,180 litres	Used as flocculant to enhance thickening and dewatering processes. Amount ordered depends on centrifuge use.
	Antifoam	15,000 litres	16,360 litres	Used in digesters to prevent foaming

Schedule 1 activity	Description of raw material and composition	Maximum amount (tonnes)	Annual throughput (tonnes each year)	Description of the use of the raw material including any main hazards (include safety data sheets)
	Ferric sulphate	21.7 tonnes	23.7 tonnes	Used as a coagulant to enhance solids removal within the primary settlement stages. Ferric dosing also reduces H_2S potential
	Rock salt/grit	500 kg	500 kg	Used on icy roads to prevent slipping

6.7.1 Question 4: Monitoring

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

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.

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 CHPs 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 6.9: Monitoring of air emissions

Emission point type	Parameter	Reference period	Monitoring frequency	Monitoring standard or method
Stacks on engines Burning biogas	Oxides of Nitrogen (NO and NO2 expressed as NO2)	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 (1 Nr Biogas, 1 Nr Dual Fuel and 1 Nr Oil)	Oxides of Nitrogen (NO and NO2 expressed as NO2)	periodic over minimum 1-hour period	Annual	In accordance with TGN M5 – Monitoring of stack emissions to air
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
	H_2S			
	Odour concentration		Once every 6	BS EN 13725

Emission point type	Parameter	Reference period	Monitoring frequency	Monitoring standard or method
			months, or more frequent if stated in the permit	
Auxiliary 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

DCWW acknowledge that the auxiliary flare is appropriate for emergency use (up to 10% of the operational hours), records from monitoring will be reviewed regularly to reduce the use of the flare.

6.7.2 Assessment of the sampling locations

DCWW will bring in sub-contractors accredited to MCERTS to monitor the emissions points in accordance with the permit requirements. An assessment of sampling locations is therefore not appropriate as this will be the responsibility of the sub-contractors.

6.7.3 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.

6.7.4 Emissions to sewers, effluent treatment plants or other transfers off Site

All condensate discharge directly to the site drainage system which diverts water to the head of the works of the adjacent Queensferry WwTW. 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.

6.7.5 Emissions to land

There are no direct releases to land of emissions arising from the STC. As required by the DCWW 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.

In accordance with the DCWW 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 will be reported to the regulator as required by the EPR permit.

6.8 Question 5: 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).

6.9 Question 6: Resource efficiency and climate change

6.9.1 Basic energy requirements

DCWW 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. Diesel is used for the heating buildings or running the boilers and primary generators, where required.

6.10 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 DCWW EMS is to reduce energy consumption from the grid. Procedure EMP003 specifically contains objectives for the Reduction of Energy Consumption Programme; this includes the commitment to produce monthly usage energy reports that are to be sent to Senior and Operational management and obtaining detailed electricity usage information via metering of specific areas of plant.

DCWW 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.

DCWW is dealing with the measurement and reporting of operational carbon emissions in 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 Nox 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; and
- 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
- CHP

The CHP area is not located in a building but housed in acoustic containers. There are limited opportunities for energy efficiency requirements as the buildings are not heated. Energy efficient lighting will be used throughout the building.

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 DCWW Environmental Policy and EMS.

In addition, DCWW implements optimisation measures across all its Sites in a proactive approach to ensuring efficiency measures across all its Site operations meets optimal and efficient operating requirements.

6.11 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.

6.12 Question 6c: Climate change levy agreement

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

6.13 Specific measures for improving energy efficiency (Question 6c)

When equipment is replaced, energy efficient plant will be utilised in replacement. No other specific measures.

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

The raw materials required to operate the installation are identified in section 6.7. This list will be maintained and updated throughout the lifetime of the permit and updated within the Site Operating Manual.

All materials will be handled and stored in such a way are to ensure containment. Fugitive emissions to the environment are therefore negligible.

Biogas is the primary raw material. Its consumption will be monitored. The use of biogas as the fuel source offers the best environmental option and there is therefore no environmental incentive to reduce biogas consumption and consider an alternative source of fuel.

Biogas is stored within 1 No. double membrane inflatable bag type holders, constructed of PVC coated polyester fabric, which is resistant to UV and microbial degradation. The base of the holders are constructed from reinforced concrete treated to withstand the potentially acidic conditions within the holder. The gas bag is completely enclosed so the gas is not in contact with the concrete.

Secondary raw materials include chemicals used in processes such as water treatment, polymer and natural gas/diesel for the boilers and generators. Their consumption will be monitored, based on purchase records. Natural gas is not stored on Site, but taken direct from the mains supply.

Water treatment chemicals are stored within on impermeable surfaces in a contained area. Polymer is stored in sealed IBC/bags located on bunded areas.

The DCWW purchasing procedures are included in EMS. The procedures ensure purchased items conform to specified requirements, including quality parameters, and review suitability for use, including efficiency and minimisation of use of raw materials.

All substances are assessed for COSHH (Control of Substances Hazardous to Health) compliance, where relevant. Material safety data sheets for all materials used and kept on Site will be maintained on the Site.

All raw materials are handled and stored within the confines of the buildings on Site, or in IBCs in bunded areas, with the exception of biogas which is contained within the gas handling system.

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

Potable water usage on Site include:

- Poly make up - concerns over the impact of using final effluent for this purpose
- Heat exchanger system water - concerns over the impact of using final effluent for this purpose
- Eye baths and safety showers - potable water essential
- Limited wash-down points where it would be uneconomic to extend the final effluent wash-water system
- Office messing facilities - kitchen, washing and welfare facilities etc

To ensure appropriate use of raw materials to prevent releases of substances to the environment and limit environmental impact DCWW will follow quality assurance procedures for the purchasing of materials. The raw materials will be selected from specialist suppliers determined by their to pre-established material specifications; these are to include environmental considerations. Priority choice of purchased raw material will be given to those with the least environmentally harmful chemicals compared to their alternatives, wherever practicable.

Resource efficiency will be achieved through the minimum use of raw materials and water (where possible), and DCWW will undertake the following:

- Maintain records of raw materials and water used;
- Routine resource efficiency audits;
- Review the feasibility of alternative materials that could reduce environmental impact or provide further opportunities to improve resources efficiency at least once every four years; and;
- Implement further appropriate measures identified from a review.

6.15 Question 6e: Reducing production of waste

DCWW manages its waste in accordance with the Council Directive 2008/98/EC on waste (the Waste Framework Directive), legal requirements and its EMS, by maximising materials re-use, prevent waste, minimise waste generation and maximise recycling and recovery of waste generated from the operation of the Site. There will be a Waste Management Plan that includes details of the types of waste produced at site, how wastes are segregated, stored and removed from site. Only minimal volumes of waste shall be generated at the STC, with waste streams segregated and recovered for recycling where possible. All waste streams shall be managed in accordance with existing EMSs, with any final off-site disposal to be carried out by licensed waste contractors in accordance with Duty of Care requirements, and the application of the waste hierarchy is central to any decision-making process.

Implementation of EMS procedures and the current Environmental Policy ensures optimum disposal of the wastes produced. Submission of a detailed assessment is not considered necessary due to the minimal quantity of waste produced.

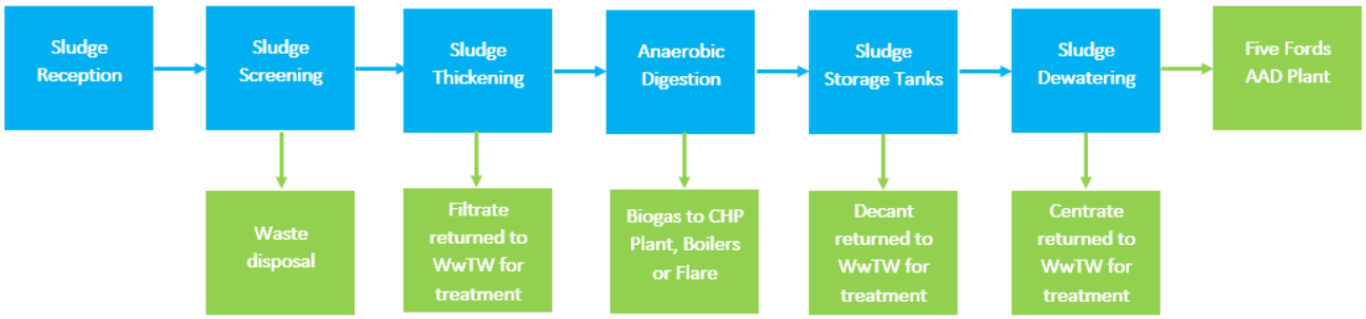
Further consultation with waste contractors will ensure that all waste streams have been considered. The sampling and characterisation of wastes will be covered under the requirements of Duty of Care. The wastes are handled to a minimum and are stored in suitably designed containers prior to being removed from Site, to minimise releases of pollutants to the environment.

The main wastes produced by the installation are waste oils and filters associated with the operation and maintenance of the engines. Other wastes include from Site office (paper, packaging etc), waste collected from general housekeeping across the Site (debris, litter), scrap metals and waste electronic and electrical equipment (WEEE, such as computer equipment, printers etc).

Waste generation from the operation of the plant is minimal and limited only to essential maintenance fluids and materials. Waste streams are segregated and recovered for recycling where possible. General waste is sent for recycling, where possible, scrap metal is sent to metal merchants for recycling and WEEE sent to specialist WEEE recycling facilities. DCWW apply a Duty of Care by ensuring waste is removed by a suitable licenced waster carrier, typically the private contractor Safety Kleen.

The sampling and characterisation of wastes and the final off-Site transport of waste is carried out by licensed waste contractors in accordance with Duty of Care requirements. The implementation of EMS procedures and the current Environmental Policy ensures optimum disposal of the wastes produced. A schematic of the main waste streams from the STC is shown below.

Figure 6.1: Main waste streams from the STC



6.16 Question 7 and Question 8: Combustion plant

The CHP unit on-Site was installed in 01/08/2004 with a thermal rated input of 0.545MWth fuelled by biogas. Therefore, the Site does not fall within the scope of the Medium Combustion Plant Directive (MCPD) since the thermal rated input does not exceed 1MWth, and the details listed under Annex I of the MCPD and Appendix 8 of Part B3 are not relevant at the time of this application. The boilers are GP gas burners, model P5M 50G.

7 Part F1 – OPRA, charges and declarations

7.1 Working out charges (Question 1)

Table 1 of the F1 form has been completed. An up-to-date EP OPRA profile is provided in B14411-123532-ZZ-XX-AS-ZA-RI1036 - IED Queensferry - OPRA Score.

7.2 Payment (Questions 3)

Payment will be made by BACS

7.3 Confidentiality and National Security (Question 5)

DCWW do not wish to claim confidentiality with this application.

7.4 Application Checklist (Question 6)

Table 7.1 provides a list of documents included in the application. Table 7.1 below has been used to only provide the references to standalone documents. References to all other questions are found in the MSD which makes reference to the question. Specific sections to the MSD are identified in the relevant forms.

Table 7.1: Standalone document references

Question reference	Document title	Document reference
Part A – Q5c	Details of Directors	B14411-123532-ZZ-XX-NN-ZA-DH1044 - IED Queensferry - Details of Directors
Part B2 – Q3a	List of Relevant Offences	B14411-123532-ZZ-XX-RP-ZA-DH1043 - IED Queensferry - Relevant Offences
Part B2 – Q5a	Site Location Pan	B14411-123532-XX-XX-DR-AC-PN8201 - IED Queensferry - Site Location Plan
	Site Layout Plan	B14411-123532-XX-XX-DR-AC-PN8202 - IED Queensferry - Site Layout Plan (Emissions)
	Drainage Plan	B14411-123532-XX-XX-DR-CC-CI8606 - IED Queensferry - Drainage Plan
Part B2 – Q5b	Site Condition Report	B14411-123532-ZZ-XX-RP-ZA-SE1038 - IED Queensferry - Site Condition Report
Part B2 – Q6	Environmental Risk Assessment	B14411-123532-ZZ-XX-AS-NA-RI1037 - IED Queensferry - Environmental Risk Assessment
Part B3 – Q1b	Waste Codes	B14411-123532-ZZ-XX-NN-ZA-DH1045 - IED Queensferry - Waste Codes
Part B3 – Q3a	Block Flow Diagram	B14411-123532-XX-XX-DR-AD-PR8401 - IED Queensferry - Block Flow Diagram
Part F1 – Q6	Main Supporting Document	B14411-123532-ZZ-XX-NN-ZA-DI1035 - IED Queensferry - Main Supporting Document

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