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Queenborough STC Effluent Sampling Proposal

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	August 2024	Shannon Stone	Anita Manns	Anita Manns	First Issue

Commitment

Southern Water commits to undertaking (using a United Kingdom Accreditation Service (UKAS) accredited laboratory or equivalent - where suitable and available):

a) chemical analysis of the waste water which tests for ALL likely pollutants which Southern Water expect to find in the discharge (not just Ammonia, BOD, Solids, flow, pH and data on bio-eliminability) and that Southern Water will use an appropriate 'minimum reporting value' (MRV) (usually 10% of the environmental quality standards (EQS) where this is analytically achievable); and

b) the sampling and chemical analysis being undertaken in line with guidance Surface water pollution risk assessment for your environmental permit – GOV.UK (www.gov.uk) for all pollutants expected to be found.

Liquor Monitoring Proposal

Southern Water are committed to providing information about the characteristics of the wastewater streams from the Queenborough STC, entering the adjacent Queenborough WwTW and are undertaking a review of our commitment to (under the BREF guidance Best Available Techniques (BAT) conclusion) BAT 3, 6 and 7 further details of which are set out below.

Our review includes, but is not limited to, requesting companies providing national laboratory services to provide information relating to their capacity to analyse return liquor matrix for the determinants listed in the guidance.

Such information is essential in order for Southern Water to complete the review of our liquor monitoring proposal and delivery of BAT 3, 6, and 7. Southern Water plan to complete this at the earliest opportunity.

Southern Water will provide an updated proposal to the Environment Agency in line with a revised IED programme and in the meantime, we would like to assure the Environment Agency of our

commitment to sample liquor returns at Queenborough, our commitment to BAT 3, 6, and 7 and the following:

a) Summary of the sampling and analysis methodology of the effluent discharged and likely pollutants in the effluent (Guidance Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK and Surface water pollution risk assessment for your environmental permit - GOV.UK*).*

Under BAT 3, Southern Water will establish and maintain an inventory of wastewater. Southern Water will carry out the sampling and analysis methodology of the effluent discharged at defined and recorded locations. All sampling, analysis and reporting will be undertaken by trained personnel, accredited to the Environment Agency's Monitoring Certification Scheme (MCERTS) standards or equivalent, where this is suitable and available. Southern Water will ensure to document sampling procedures with details such as:

- precise location of the discharge sampling point including a grid reference.
- sampling process.
- storage conditions and transport of samples.
- types of bottles or containers and their closures.

A management system will be used to ensure the results are recorded and subject to review to include, but not be limited to, the following procedures:

- sampling programme, including procedures for resampling.
- data review and reporting
- training and audit.

Southern Water 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.

Southern Water will then take an informed viewpoint of the determinands the samples contain demonstrating those that are not in the sample. Southern Water will use an appropriate MRV (usually 10% of the environmental quality standards (EQS) where this is analytically achievable). An H1 assessment to screen out any that are not applicable or relevant will be completed.

b) A written statement with a commitment to undertake the sampling and analysis in line with BAT 3 and 'Non-hazardous and inert waste: appropriate measures for permitted facilities'.

The purpose of BAT 3 in relation to return liquors is to establish and maintain an inventory of wastewater streams, as part of the environmental management system, to facilitate the reduction of emissions to water. In accordance with BAT 3 the following data will be provided:

i. Simplified process flow sheets that show the origin of the emissions. Flow calculations based on an assessment of throughput may be used.

ii. Descriptions of process-integrated techniques and wastewater treatment at source including their performances. Chemicals used for thickening and dewatering should also be stated.

iii. Thickening and dewatering liquors, which comprise the major component of the returns, will be subject to monitoring for: Ammonia; BOD; solids; flow and pH.

iv. Data on bio-eliminability (e.g. BOD)

Southern Water is committed to providing information about the characteristics of the identified liquor return sampling points, namely average values and variability of calculated daily flows. In addition, Southern Water is committed to further undertake the sampling and analysis of ammonia, BOD, solids and pH.

Sampling and analysis in relation to Scheduled Activities will be undertaken in line with BAT 3 using a UKAS accredited, or equivalent, laboratory, where available.

Sampling and analysis in relation to permitted waste operations, other than those related to Schedule Activities, will be undertaken in line with 'Non-hazardous and inert waste: appropriate measures for permitted facilities' guidance text, using a UKAS accredited, or equivalent, laboratory, where available. This commitment is related to the acceptance of imported wastes to the head of the works at Queenborough.

c) A written statement with a commitment that those undertaking the sampling and analysis will be by accredited to MCERTs or provide evidence of equivalent standards.

Southern Water is committed to perform sampling and analysis of emissions to sewer for the Schedule Activity of anaerobic digestion, and the waste operation for imported waste to be accepted at the head of the works, in accordance with MCERTS, ISO/IEC 17025 where suitable and available or equivalent agreed standards.

The chemical analysis of the effluent and liquor return samples will be analysed in a UKAS accredited laboratory, where available.

d) A plan which identifies the effluent sampling point(s) and emission point for the effluent discharge from the installation and the NGR of the effluent sampling point/s

Document reference 790101_MSD_SiteLayoutPlan_QUE August 2024 (Site Layout Plan) indicates the applicable sampling and emissions points.

Emission points include:

- W1 – Inlet works
- S2 – Process liquors from Gravity Belt Thickener emission to sewer
- S3 – Centrifuge liquors emission to sewer
- S4 – Sludge reception waste emission to sewer: cess, septic and other tankered imports
- S5 – Surface water drainage emission to sewer
- S6- Gas condensate emission to sewer
- S7- Surface water emission to sewer
- S8- Surface water (future bund) emission to sewer

Sample Locations

We propose to sample the wastewater streams described above as set out below in Table 1 which lists the locations identified as provisional sampling points and waste waters present.

Table 1: Sample points

Sample Point	Source	National Grid Reference
M2 - Gravity Belt Thickener	Process liquors at Gravity Belt Thickener	TQ 90928 70556
M3- Centrifuge liquors	Process liquors from the STC (dewatering liquors, cess liquors)	590979 170566
M4- Sludge reception	Tankered waste entering from reception point	TQ 590875 170594
M5 - Surface water drainage	Uncontaminated roof water from buildings. Run off from impervious surfaces	TQ 90848 70602

Sample Point	Source	National Grid Reference
	From the washing down of mechanical equipment during maintenance activities	
M6 - Gas condensate	• Condensate from the gas pipelines and gas storage bag	TQ 90935 70587
M7 - Surface water	• Uncontaminated roof water from buildings. • Run off from impervious surfaces • From the washing down of mechanical equipment during maintenance activities	TQ 90963 70505
M8- Surface water (future bund)	• Uncontaminated roof water from buildings. • Run off from impervious surfaces • From the washing down of mechanical equipment during maintenance activities	TQ 90961 70594

Composite Sampling

Southern Water will endeavour to sample the locations shown in Table 1 in accordance with Environment Agency Guidance. Where individual representative samples are taken at each sample point they may be combined to provide a single flow proportional 'bulk' composite sample for analysis. Return flow data will be used to ensure the sample is representative of the total flow returned.