South West Water

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Direct line: 01392 443548
Email: permits@southwestwater.co.uk
Our ref: Hayle WWTW - IED

Date: 5th January 2024

Dear Sir / Madam

Reference: Environmental Permitting (England and Wales) Regulations 2016
Applicant: South West Water Limited
Site: Hayle STW, Station Approach, St Erth, Hayle, Cornwall TR27 6LA

Further to discussions with your Permitting Officers, Sarah Raymond and Clive Humphreys, I am pleased to enclose an application to vary the existing permit for Hayle Sewage Treatment Works (STW), permit reference EPR/NP3696HH. As requested by the Environment Agency, this is a revision of the application originally submitted on 30th September 2022.

We are applying to vary the existing environmental permit to a multi-activity permit to add an Installation Activity for Anaerobic Digestion and Directly Associated Activities (DAA's). As confirmed by the EA, this Multi-Activity Permit will cover the existing waste activities as a distinctly separate activity.

This variation application comprises:

- Application form Parts A, C2, C3, C6 and F1;
- Overarching 'Supporting Information' document; and
- Supporting documents included as Appendices, as referenced in the 'Supporting Information' document

By way of background, the initial application, submitted 30 September 2022, was for a new installation permit which was deemed as incorrect, with the EA instead requiring a variation to the existing environmental permit. Following your letter of 6th November 2023, we appreciate you spending the time to discuss this with us and our concern over the lack of pre-application advice at the point of submission. We are happy to now resubmit our application as a permit variation to the existing environmental permit in order to add to add a section 5.4 installation activity in a separate area, forming a multi-activity permit as advised in your letter. This variation also includes changes to the existing waste activity boundary, which has been extended to encompass a new stormwater reception tank.

The declaration in part F1 has been signed by Alan Burrows, Director of External Liaison – Waste Water Services. The attached email from Andrew Garard authorises Alan to sign these Declarations on behalf of South West Water Limited.

The application fee of £17,250 was paid by BACs transfer on 15/12/2023 and the payment reference is shown on Part F1.

To assist in your determination of this resubmission, we include responses to the points raised in your letter dated 6 November 2023 below.

Please let us know the expected timescale to permit issue once this application has been duly made.

If you have any queries regarding this application, please do not hesitate to contact me.

Yours faithfully,

Jenny Lundh

Jenny Lundh

Environmental Permitting Manager

Responses to letter 'Return of Permit Application' – Additional Information

The following numbered items address the request for missing information from permit application reference EPR/AP3042YZ/A001. Requests are shown in blue italics, with responses provided in black text beneath.

1. *Your application type is incorrect. It is our understanding that part of the anaerobic digestion facility is already permitted as a waste activity under permit EPR/NP3696HH, you will need to vary this permit to add a section 5.4 installation Activity.*

Response:

The application has been resubmitted as a Multi-Activity Permit encompassing the currently permitted waste activity (EPR/NP3696HH) and a new Section 5.4 Installation Activity. We understand that this variation is focused on the installation aspect, as such the contents of the application include information relating to this activity only.

The Section 5.4 A (1)(b)(i) Activity for 'Anaerobic Digestion' and the Directly Associated Activities (DAA's) have been included in the Supporting Information document. DAA's were checked to ensure accuracy, considering other related questions below.

To note, this application also includes changes to the existing waste activity boundary, which has been extended to encompass a new asset. Additionally and for information purposes, SWW is not intending to part-surrender any of the permitted area covered by the waste activity which was previously proposed in a parallel application, ref EPR/NP3696HH/V006. This parallel part-application application has now been withdrawn.

2. *Your application does not include all relevant habitats as you have requested a conservation screening for a bespoke waste operation and not an installation activity.*

Response:

A pre-app request has been submitted (08 December 2023) to the Environment Agency (EA) for a conservation screening report for an installation activity which was subsequently received on 14 December 2023. The report is included as an appendix in the resubmission.

Part F1 reflects a payment for a habitats assessment, which is included as part of the application fee. It would be appreciated if you would inform SWW if this is not required.

3. *Your facility is located within 250m of sensitive receptors, and you have not provided a Bioaerosol Risk assessment or paid the relevant fee. A Bioaerosol Risk assessment should be provided in line with guidance M9 environmental monitoring of bioaerosols at regulated facilities - GOV.UK (www.gov.uk), and the relevant fee paid.*

Response:

A sampling and enumeration of Bioaerosols from the sludge treatment at Hayle WWTW was conducted in October 2022 to examine bioaerosol concentrations at locations around the boundary of the Site. Results of the monitoring showed that bioaerosol emissions were within the EA's threshold limits for mesophilic bacteria and aspergillus fumigatus and the process contribution was low or none.

A Bioaerosol Risk Assessment provides further details. It considers the risk of bioaerosol impact

at sensitive locations using a conceptual model approach and concludes the residual risk from all sources on-Site are very low or low and no additional control measures, other than those included in the assessment, were required.

These assessments were in progress at the point of submission in the original application and included as Improvement Conditions. Bioaerosol Risk Assessment documents are included as Appendix 10 of this application. Part F1 includes the relevant fee for determination of bioaerosol risk.

4. *Your application references 'Sector Guidance Note 5.06'. Please note that this has been updated to 'Biological waste treatment: appropriate measures for permitted facilities. Any updated application should reflect this.*

Response:

The application has been amended to remove references to Sector Guidance Note 5.06 (being applicable at the time of our initial application). SWW has endeavoured to provide information accounting for Appropriate Measures where possible e.g. within updated Pre-Acceptance, Acceptance and Rejection procedures, however Appropriate Measures have not been considered in detail due to the late inclusion to the permit requirements. This is to be investigated and it is planned that the required improvement actions are to be started within AMP8, please see Proposed Improvement Plans in the Supporting Information Document, Appendix 5 BAT Assessment.

5. *We have noted that your continuing competency certificate has expired. This will need to be updated for any future application.*

Response:

Details for Technical Competent Manager's (TCM) are included in from Part C2 and corresponding detailed answer in the Supporting Information document. SWW are in the process of securing relevant certificates for the TCM's. Dave Swiggs is signed up for his Continuing Competence test on 11/01/2024.

6. *You have advised in your B6 form that "It is acknowledged that the Environment Agency require completion of this form, however it is acknowledged that sections of this form will not apply as there will not be a discharge consent for these emissions to water." You have also stated "(final effluent, etc.), covered by separate permits." The WwTW does not form part of your permit boundary. The waste anaerobic digestion process produces effluent that is discharged off site to the Wastewater Treatment Works. Effluent discharged to the head of the works is a point source emission to sewer. BAT conclusion 3 requires operators to have an emissions inventory for the effluent. We acknowledge that applicants may not hold this information in order to inform a quantitative risk assessment for existing discharges. For any application submitted as part of the WaSC project we will require:*

   - *A fully completed C6 form as this will be a variation.*
   - *A summary of the sampling and analysis methodology of the effluent discharged and specify the likely pollutants in the effluent (guidance here Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK (www.gov.uk) and Surface water pollution risk assessment for your environmental permit - GOV.UK (www.gov.uk)).*
   - *A written statement with a commitment to undertake the sampling and analysis in line with BAT3.*

- *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.*

- *A revised drainage plan which identifies the effluent sampling point and emission point for the effluent discharge from the installation.*

- *National grid references for the sampling location.*

Response:

Form Part C6 has been completed and is provided in this application. Detailed answers to supplement those in Part C6 are included in the Supporting Information document.

A sampling suite was proposed in the original application, which has been expanded to include additional determinands relevant to the sludge on site and to ensure full compliance with BAT 7. SWW is currently liaising with third-party laboratories to ensure accreditation levels and available capacity to carry out a programme of monitoring. SWW will provide a sampling and analysis plan which includes in-house and third-party sampling plans in accordance with BAT 3, once third party labs are confirmed. Additional detail can be found in the proposed Improvement Plans in the Supporting Information Document, Appendix 5 BAT Assessment.

Sampling and analysis will be by accredited laboratory to MCERTS or equivalent e.g., UKAS where available. Where determinands are required but no accreditation is available, SWW will commit to the industry recognised standard within the U.K.

The sampling location proposed for liquors is located at the Filtrate Sump, which is shown on Figure 3 Point Source Emissions Plan. The Drainage Plan is due to be amended following improvement works, as per information included in the proposed Improvement Plans in the Supporting Information Document, Appendix 5 BAT Assessment.

7. *You have advised that your 'leak detection and repair plan' is available upon request. This should be provided as part of your application*

Response:

A Leak Detection and Repair Plan (LDAR) (Appendix 21) is available for review and accompanies this resubmission.

8. *It is alluded to in your application that you will accept digestate as a contingency measure from satellite sites that would not undergo AD onsite. This is a separate waste activity and should you require this activity to be included in your application you will need to pay the relevant fee, provide the relevant application form and provide an assessment of how you will meet the requirements of Non-hazardous and inert waste: appropriate measures for permitted facilities.*

Response:

Digestate will not be accepted as a contingency measure from satellite sites that would not be subjected to AD on-site. The requirements to meet appropriate measures for non-hazardous and inert waste is therefore not included or required in this application.

9. *You have advised that your annual throughput will only be 75,000(t)pa. We would just like to highlight that tones should be provided in wet tons of waste accepted.*

Response:

SWW envisage that the Hayle WWTW site will accept a maximum of 328 tonnes per day. The annual throughput has been reviewed and is included as wet tonnes in the Supporting Information document.

10. *You have provided table 4 'List of waste codes' which includes codes that would cause the digester outputs to fall outside of the 'sludge use in agriculture regulations and mean that the site would be undertaking co-digestion. If you require your site to be permitted for co-digestion you must clearly show how you will undertake this, or alternatively EWC codes for co-digestion will need to be removed from your Application.*

Response:

EWC codes for co-digestion that do not comply with the outputs required under the 'Sludge use in Agriculture Regulations' have been removed from the application. EWC codes 19 08 05 and 20 03 06 will be sewage sludge waste only. Please see Supporting Information for the List of Waste codes table, which is for the installation activity only. Other documents have been updated for consistency.

11. *You have mentioned the specified generator regulations within your application. We would highlight that under guidance https://www.gov.uk/guidance/mediumcombustion-plant-and-specified-generators-environmental-permits#ied-chapter-2-permits-affected-by-the-regulations the specified generator regulations do not apply on a chapter 2 IED installation site. However, these regulations will inform site specific BAT. MCP regulations do apply to a MCP on a chapter 2 IED installation. You must meet MCP requirements where it's a directly associated activity – combustion to another chapter 2 activity, for example combustion on a chemical manufacturing site.*

Response:

Digester Boilers, CHP's and back-up diesel generators are present on the site. Of these, it is considered that the Digester Boilers and CHP's are DAA's to the Anaerobic Digestion activity and are therefore included in the relevant activity schedule, as well as the BAT assessment. In this way, BAT has been considered for the Digester Boilers and CHP's. Requirements have been considered relating to both Specified Generator Regulations (despite not being directly applicable) and MCP Regulations. Further information is included in the Supporting Information document.

Back-up diesel generators are not included as a DAA, as they are not a permanent part of the process and are only used in an emergency i.e., for less than 50hrs per year, including time spent under testing.

12. *You have identified two generators within your application; however, it is not clear if these are directly associated activities to the section 5.4 activity being applied for. Guidance 'Understanding the meaning of regulated facility' (RGN2) (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/964487/LIT_6529.pdf) sets out the requirements for activities to be classified as "directly associated" (DAAs). If they are not DAAs you will need to remove these from your application and apply for these separately under the specified generator/medium combustion plant directive if relevant.*

Response:

Please see response to Question 11 above.

13. *Your application includes 'figure 3: Point source emissions' plan which identifies a 'commercial tankered waste discharge point' outside of the permit boundary. It is unclear why this has been included, or if you propose to accept commercial waste into the Anaerobic digestion process. All activities that you intend to carry out on site should be clearly identified and be included within the process flow provided*

Response:

This location of the Commercial Tankered Waste Discharge Point was provided in both the Point Source Emission Plan and Process Flow Diagram for context, to show assets / activities that are considered to be in and out-of-scope of the installation. Figures have been amended to include the waste activity boundary, accounting for this application now being a multi-activity permit. In the same way, the Process Flow Diagram has been amended to show the installation and waste activity boundaries. There is no proposal to accept commercial waste directly into the anaerobic digestion process; this activity is a waste operation and regulated under the existing waste Permit.

14. *You have advised that you will undertake the liming of digested cake. Liming cake is a physical treatment by the addition of chemicals and would be a separate activity. Should you require this activity to be included in your application you will need to pay the relevant fee, provide the relevant application form and provide an assessment of how you will meet the requirements of Non-hazardous and inert waste: appropriate measures for permitted facilities.*

Response:

Liming does not take place at Hayle WWTW as part of any permitted processes on-site and as such isn't included within the application. For information, Countess Wear does have liming as part of its processes on-site.

15. *Your waste acceptance and pre-acceptance procedures do not reflect the activities you are applying for. Guidance on what should be included within these procedures can be located at https://www.gov.uk/guidance/biological-waste-treatmentappropriate-measures-for-permitted-facilities.*

Response:

An IED Waste Pre-Acceptance, Acceptance and Rejection Procedure (Appendix 18) has been produced, which includes waste characterisation and verification procedures in accordance with the above linked guidance.

16. *Your BAT 8 assessment only identifies the 'biological treatment of waste' as being relevant. Your activity includes prior to the anaerobic digestion (AD) process (the biological treatment of waste) the thickening and dewatering process which is a directly associated activity of the AD process. BAT AELs are appropriate for this DAA activity and are defined under the BREF as 'Treatment of water-based liquid waste'. The BREF provides examples of wastes that would be considered as water-based liquid wastes. These include wastes under the category '19 08 wastes from waste water treatment plants not otherwise specified'. As such relevant waste treatment processes include 'Biological treatment of waste' and the 'Treatment of water-based liquid waste'*

Response:

Thickening and dewatering activities are included as a DAA to the Anaerobic Digestion activity. It is considered that these activities are included within the application with respect to BAT compliance i.e., proposed emissions to air monitoring for OCUs (including HCL and TVOC). The updated Process Flow Diagram shows Odour Control Units (OCU's) serving the thickening and dewatering activities.

The dewatering activities are carried out following digestion to separate the sludge into the liquid (liquors), and solid fraction (cake) with the aid of Polymer this separation process. This activity is not considered to be treating water-based liquid waste; there is no treatment of the liquors themselves, which are pumped to the Head of Works / Inlet Works for treatment within the WwTW (off-installation). Please refer to the Process Flow Diagram for an illustration of this.

Additionally, the List of Waste code table does not include any water-based liquid wastes e.g. 19 08 99 as described in your question above. Only sludge waste is proposed for acceptance on to the Installation, as described in response to Question 8.

17. *You have identified in your BAT assessment that you have emissions to ground from condensate traps. Under guidance The Environment Agency's approach to groundwater protection (publishing.service.gov.uk) you must not cause or knowingly permit the discharge of hazardous substances or non-hazardous pollutants that might lead to an input of that substance into groundwater without an environmental permit unless the discharge qualifies for an exemption (in which case the discharge must meet the conditions relating to that exemption) or exclusion. Groundwater position statement G12 – Discharge of clean roof water to ground sets out acceptable discharges to ground. As part of your application, you will need to confirm if the soakaway discharges meet the requirements set out on G12 groundwater position statement, and if not explain how you will comply with guidance Discharges to surface water and groundwater: environmental permits - GOV.UK (www.gov.uk).*

    Response:

    Improvements have been made on site to ensure that there are no emissions to ground from condensate traps. An action plan to further improve condensate traps to achieve full compliance with BAT and the relevant guidance linked above is included in the proposed Improvement Plans in the Supporting Information Document, Appendix 5 BAT Assessment. All condensate traps have buckets under, apart from the flare, this is being investigated and is in the process of being resolved.

18. *You have advised that the flare has been used for more than 10%, and that you will undertake an "Investigation to confirm how the control and utilisation rates can be changed to ensure that the flare is not operated more than 10% in any given year." BAT is to use flaring only for safety reasons or for non-routine operating conditions. As part of your application, you will need to clearly demonstrate how your gas recovery system has sufficient capacity to only operate under BAT requirements, and if improvements are required to meet BAT you will need to provide these as part of your application.*

    Response:

    Progress has been made since the original submission, with the initial investigation now being completed. Findings from the investigation showed a number of issues associated with excess biogas, which require improvements to the CHP's. Progress has been made against these issues, with CHP's being subject to maintenance / renewal including the replacement of all three engine blocks minus ancillaries with NOs replacements. Further improvements are included in an action plan as part of the proposed Improvement Plans in the Supporting Information Document, Appendix 5 BAT Assessment. It is anticipated that these improvements will result in the operation of the flare being below 10% within a given year.

19. *On assessment of your 'Secondary Containment Modelling Assessment' we have noted the following points below. Under guidance Control and monitor emissions for your environmental permit - GOV.UK (www.gov.uk), you must prevent leaks or accidental release of liquids that could cause pollution from tanks, sumps, containers Bunds.*

    a. *Your 'Containment modelling assessment' identifies a containment solution located outside of your permit boundary. Update your secondary containment report to identify a solution within the permit boundary or amend your permit boundary to include the proposed containment solution.*
    b. *Your containment proposal does not identify how you will implement impermeable surfacing in line with BAT 19.*
    c. *It is not clear that the solution would mitigate the risk from the sludge balancing Tank.*
    d. *We cannot see how jetting has been considered within your proposal.*
    e. *It is unclear if this is the solution you will implement.*
    f. *You have not provided the final containment volume that your solution will provide.*

g. *Your proposal does not include relevant tanks i.e., screened sludge tank, thickened sludge tank etc., and contradicts tanks volumes elsewhere in the application.*
h. *You have not submitted a Containment Classification Assessment. i.e., ABDA tool.*
I. *We can see no justification in your report that the design for the chosen secondary containment solutions proposed at the facility will meet CIRIA C736 and be implemented by 'competent personnel'.*
i. *We cannot see how the risk to the WwTW will be mitigated. The WwTW could be a receptor of a catastrophic failure via the pathway of emissions to onsite drainage, however, it is not clear how you will manage the onsite drainage system in the event of a catastrophic failure to prevent discharge back to the WwTW i.e., through the implementation of shutoff valves. Section 6.3.2 of CIRIA 736 states that bunds should not be equipped with means for gravity discharge*

A revised Secondary Containment Assessment, which includes spill modelling of the proposed containment solution, is included as Appendix 16 of this application. A Containment Classification Assessment (ADBA Tool) is included as part of this assessment. Revised spill modelling has been produced to include for the points in your question above. The proposed solution is one that can be practicably implemented on site and is considered to comply with CIRIA 736. The proposed containment solution will be implemented following approval by the EA. An action plan for the spill containment solution is provided in the proposed Improvement Plans in the Supporting Information Document, Appendix 5 BAT Assessment.

The Installation Boundary incorporates the proposed area for the spill containment solution, please see Figure 1.

The jetting distance from each of the tanks modelled as part of the secondary containment assessment has been calculated using the methodology proposed in CIRIA C736, Box 6.1, and the distance to the bund/containment walls adjusted in line with the calculated jetting distance. The proposed configuration of the containment solution will capture the jetting distance for majority of the tanks within the site boundary. Refer to Appendix 16 Secondary Containment Assessment for details.

In the case of the secondary digesters, due to the vicinity to the site boundary of the tanks, it is not possible to provide the calculated jetting distance to the bund wall of 1.5m height. A barrier system solution is to be investigated for the mitigation of any potential jetting effects over the site boundary from Secondary Digester 1, however, the consideration for the potential full relocation of the Secondary Digesters is being evaluated alongside the installation of additional Secondary Digested Sludge capacity on site.

The combined containment system solution proposed involves the installation of a bund localised to the tanks for secondary containment and additional containment outside the localised perimeter as identified in CIRIA C736 Section 3.5, including the use of a sacrificial area (staff and visitor car park) to capture all the spill volume from all the tanks analysed where the local bund cannot contain it. The connection between different containment levels includes the transfer overland using the site own topography and impermeable surfacing, and the use of the existing contained drainage systems - see Appendix 16 Secondary Containment Assessment for details.

To allow for the normal drainage of rainwater during normal operation, the existing connections to the sealed drainage system are to be maintained, which implies directing all flows from rainwater or catastrophic failures towards the liquor return pumping station back to the head of the WwTW. The operation of this pumping station and the management of spills is being reviewed as the containment solutions designs evolve.

From:	Garard, Andrew
To:	"psc-waterquality@environment-agency.gov.uk"; "psc@environment-agency.gov.uk"
Cc:	Lundh, Jenny; Burrows, Alan
Subject:	South West Water Limited (the "Company") Authorisation to Complete Declarations
Date:	04 May 2023 15:08:02
Attachments:	image001.jpg

Dear Permitting and Support Centre Teams

Please take this e-mail as authorisation for Alan Burrows, Director of Environmental Liaison and Culture for South West Water, to complete permit applications on behalf of the Company.

Yours sincerely

Andrew S Garard
Group General Counsel and Company Secretary

D: 01392 443898
M: 07780 124692
Peninsula House, Rydon Lane, Exeter EX2 7HR
www.pennon-group.co.uk