**EPR/PP3437LK/V014**

**C3 Supporting Information Document**

A new C3 form was requested as part of the Request for Further Information received 16/11/2025.

Both installations are included, but for ease of understanding we have separated the tables and questions out into:

Installation 1 = **Installation 1 – Sludge Anaerobic Digestion Treatment**

Installation 2 = **Installation 2 – Food Waste Digestion Treatment**

## Section 1- What activities are you applying to vary?

## Table 1a – types of activities

**Installation 1 – Sludge Anaerobic Digestion Treatment**

Section 5.4 A (1) (b) (i) -

Description = Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment.

Activity Capacity = > 100t/day

Annex I (D Codes) = N/A

Annex II (R Codes) = R3  Recycling/reclamation of organic substances which are not used as solvents

Hazardous Waste treatment capacity = N/A

Non-hazardous waste treatment capacity = >100 tonnes/day

Name of DAAs and provide the annex description =

| Name | Annex I and II Operation | Description |
|---|---|---|
| Waste Acceptance | | Consolidation of Permit ERP/UP3793EA |
| Waste storage pending recovery or disposal | R13 :Storage of waste pending the operations numbered R1 and R3 (excluding temporary storage, pending collection, on the site where it is produced) | Raw material (non-waste) storage.<br>Storage and handling of waste including waste oils.<br><br>Site drainage.<br><br>Storage of untreated raw and thickened sewage sludges pending dewatering via centrifuge using chemicals pending export from site for further treatment. |

| | | |
|---|---|---|
| | | Storage of untreated raw and thickened sewage sludges pending treatment via anaerobic digestion.<br><br>Storage of thickened sludges |
| Physical treatment for the purpose of recycling | R3: Recycling/reclamation of organic substances which are not used as solvents | From the receipt of waste to despatch for anaerobic digestion or despatch off site for recovery.<br><br>Dilution of incoming wastes using final waste waters from the wastewater treatment works to aid pre-treatment, untreated (raw) sludge dewatering and digestion.<br><br>Pre-treatment of waste in enclosed equipment/tanks or an enclosed building fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system, including shredding, sorting, screening, compaction, baling, mixing and maceration.<br><br>Post-treatment of digestate in enclosed equipment/tanks or an enclosed building fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system, including separation, screening to remove contraries, centrifuge or pressing and addition of thickening agents (polymers) or drying for use as a fertiliser or soil conditioner (drying for the purpose of use as a fuel is not permitted).<br><br>Physical treatment of waste using chemicals, in enclosed equipment/tanks or an enclosed building fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system, including shredding, sorting, screening, compaction, baling, mixing and maceration, prior to export for further treatment and recycling. |

| | | |
|---|---|---|
| Digestate Storage | R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) | From the receipt of processed digestate produced from the on-site anaerobic digestion process to despatch for use off-site.<br><br>Storage of processed liquid digestate in secondary storage tanks. |

Total Storage Capacity = 35,611 m3

Annual throughput (tonnes each year) = 2,850,000 wet tonnes. This figure includes imports and indigenous sludge produced by the adjoining WRC. This is a maximum figure of unthickened sludge entering the IED permitted area.

**Installation 2 – Food Waste Digestion Treatment**

Section 5.4 A (1) (b) (i)

Description = Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment.

Activity Capacity = > 100 tonnes per day

Annex I (D Codes) = N/A

Annex II (R Codes) = R3: Recycling/reclamation of organic substances which are not used as solvents

Hazardous Waste treatment capacity = N/A

Non-hazardous waste treatment capacity = 100 tonnes per day

Name of DAAs and provide the annex description =

| Name | Annex I and II Operation | Description |
|---|---|---|
| **Food Waste AD - As per current permit** | | |
| Food Soup:<br>Physical treatment for the purpose of recycling | R3: Recycling/reclamation of organic substances which are not used as solvents | Pre-treatment of waste in enclosed building and on impermeable surface with sealed drainage system including de-packaging blending and dilution. |
| Food Soup transfer<br>Transfer of pre-treated waste off-site | R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) | Export of pre-treated food waste (soup) for off-site recycling during periods of maintenance as contingency.<br>Export of pasteurised food waste soup for off-site recycling during periods of maintenance as contingency. |
| | | |

Total Storage Capacity = 6,465 $m^3$

Annual throughput (tonnes each year) = The permitted annual throughput of food waste is 70,000 tonnes per year; the average throughput is ~ 32,000 wet tonnes per year

## Types of Wastes accepted

**Installation 1 – Sludge Anaerobic Digestion Treatment**

| EWC Code | Waste Description |
|---|---|
| 19 02 06 | sludges from physico/chemical treatment other than those mentioned in 19 02 05 |
| 19 08 05 | sludges from treatment of urban waste water |
| 19 06 06 | digestate from anaerobic treatment of animal and vegetable waste |
| 19 12 12 | wastes from mechanical treatment of wastes other than those mentioned in 19 12 11 (sewage sludge only) |
| 20 03 04 | Septic tank sludge |

**Waste Operation – Untreated (raw) sludge dewatering**

| EWC Code | Waste Description |
|---|---|
| 19 02 06 | sludges from physico/chemical treatment other than those mentioned in 19 02 05 |
| 19 08 05 | sludges from treatment of urban waste water |
| 19 06 06 | digestate from anaerobic treatment of animal and vegetable waste |
| 19 12 12 | wastes from mechanical treatment of wastes other than those mentioned in 19 12 11 (sewage sludge only) |
| 20 03 04 | Septic tank sludge |

**Installation 2 – Food Waste Digestion Treatment & Food Soup Operations**

| Maximum quantity | Annual throughput shall not exceed 70,000 tonnes |
|---|---|
| Waste code | Description |
| 02 | Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing |
| 02 01 | Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing |
| 02 01 01 | Sludges from washing and cleaning – food processing waste, food washing waste |
| 02 01 02 | Animal tissue waste – category 3 animal by-product (ABP) including blood, animal flesh, fish processing waste, fish carcasses, poultry waste |
| 02 01 03 | Plant tissue waste – husks, cereal dust, waste animal feeds |
| 02 01 06 | Animal faeces, urine and manure (including spoiled straw) only |
| 02 01 07 | Wastes from forestry |
| 02 02 | Wastes from the preparation and processing of meat, fish and other foods of animal origin |
| 02 02 01 | Sludges from washing and cleaning – process water – food washing waste |
| 02 02 02 | Animal tissue waste – Category 3 ABP including blood, animal flesh, fish processing waste, fish carcasses, poultry waste |

| | |
|---|---|
| 02 02 03 | Materials unsuitable for consumption or processing – coffee, food processing waste, jam, kitchen waste, fruit, vegetable oil, tobacco, tea, vegetable waste – waste fat from processing of meat or fish |
| 02 02 04 | Sludges from on-site effluent treatment |
| 02 03 | Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation |
| 02 03 01 | Sludges from washing, cleaning, peeling, centrifuging and separation – coffee, mushroom compost, food processing waste, food washing waste, tobacco |
| 02 03 04 | Biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances) |
| 02 03 05 | Effluent from the process referred to in sources of waste |
| 02 04 | Wastes from sugar processing |
| 02 04 03 | Sludges from on-site effluent treatment – biological sludge |
| 02 05 | Wastes from the dairy products industry |
| 02 05 01 | Biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances) - solid and liquid dairy products, mik, food processing wastes, yoghurt, whey |
| 02 05 02 | Sludges from on-site effluent treatment |
| 02 06 | Wastes from the baking and confectionary industry |
| 02 06 01 | Biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances) - food condemned, food processing wastes, biscuits, chocolate, yeast, bread, bakery waste |
| 02 06 03 | Sludges from on-site effluent treatment |
| 02 07 | Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa) |
| 02 07 01 | Wastes from washing, cleaning and mechanical reduction of raw materials – brewing waste, food processing waste, fermentation waste |
| 02 07 02 | Wastes from spirit distillation – spent grains, fruit and potato pulp – sludge from distilleries |
| 02 07 04 | Biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances) - brewing waste, food processing waste, fermentation waste, beer, alcoholic drinks, fruit juice |
| 03 | Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard |
| 03 03 | Wastes from pulp, paper and cardboard production and processing |
| 03 03 10 | Fibre rejects and sludges – paper pulp (de-inked only), paper fibre |
| 03 03 11 | Wastes not otherwise specified - sludges from on-site effluent treatment other than those mentioned in 03 03 10 |
| 04 | Wastes from the leather, fur and textile industries |
| 04 01 | Wastes from the leather and fur industry |
| 04 01 01 | Fleshings and lime split wastes |
| 04 02 | Wastes from the textile industry |
| 04 02 10 | Organic matter from natural products (for example, grease, wax) |
| 15 | Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified |
| 15 01 | Packaging (including separately collected municipal packaging waste) |
| 15 01 01 | Paper and cardboard packaging – must confirm to BS EN 13432 – no manmade substances. Only as packaging containing organic waste |
| 15 01 03 | Wooden packaging – must conform to BS EN 13432. Only as packaging containing organic waste |

| | |
|---|---|
| 15 01 05 | Composite packaging – must conform to BS EN 13432. Only as packaging containing organic waste |
| 19 | Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use |
| 19 02 | Wastes from physico/chemical treatments of waste (including dechromation, decyanidation, neutralisation) |
| 19 02 10 | Combustible wastes |
| 19 05 | Wastes from aerobic treatment of solid wastes |
| 19 05 01 | Non-composted fraction of municipal and similar wastes |
| 19 05 02 | Non-composted fraction of animal and vegetable waste |
| 19 05 03 | Off-specification compost from source segregated biodegradable waste |
| 19 06 | Wastes from anaerobic treatment of waste |
| 19 06 03 | Liquor from anaerobic treatment of municipal waste |
| 19 06 04 | Digestate from anaerobic treatment of source segregated biodegradable waste |
| 19 06 05 | Liquor from anaerobic treatment of animal and vegetable waste |
| 19 06 06 | Digestate from anaerobic treatment of animal and vegetable waste |
| 19 08 | Wastes from waste water treatment plants not otherwise specified |
| 19 08 09 | Grease and oil mixture from oil/water separation containing only edible oil and fats |
| 19 08 12 | Sludges from industrial biological treatment |
| 20 | Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions |
| 20 01 | Separately collected fractions (except 15 01) |
| 20 01 01 | Paper and cardboard – only as packaging containing organic waste |
| 20 01 08 | Biodegradable kitchen and canteen waste |
| 20 01 25 | Edible oil and fat |
| 20 01 38 | Wood other than that mentioned in 20 01 37, and only where no non-biodegradable coating or preserving substance present – must conform to BS EN 13432 |
| 20 02 | Garden and park wastes (including cemetery waste) |
| 20 01 01 | Biodegradable waste – animal faeces, manure, garden waste, green waste, horticultural waste, plant tissue, parks and garden waste, hedge and tree trimmings, grass cuttings and leafy materials |
| 20 03 | Other municipal wastes |
| 20 03 01 | Mixed municipal waste – separately collected biowastes |
| 20 03 02 | Wastes from markets - markets – allowed only if source segregated biodegradable fractions eg. plant material, fruit and vegetables |

## Section 2 - Point Source Emissions to air, water and land

## Table 2 Emissions (releases)

**Installation 1 – Sludge Anaerobic Digestion Treatment**

| **Point Source emissions to air** | | | | |
|---|---|---|---|---|
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| No point source emissions to air | | | | |
| | | | | |
| **Point source emissions to water (other than sewer)** | | | | |
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| No point source emissions directly to water | | | | |
| | | | | |
| **Point source emissions to sewers , effluent treatment plants and other transfers off site** | | | | |
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| S1 / T1<br><br>(to Avonmouth WRC) | Gravity Belt Thickeners liquors (filtrate) (exc. SAS GBT filtrate)<br>Centrifuge and dewatering liquors (centrate)<br>Gas to Grid condensate and process water<br>Wastewater liquors from the Food Waste AD and Food Soup processes | BAT 7 and Table 6.1 in BAT 20 | BAT 7 and Table 6.1 in BAT 20 | mg/l and ug/l |
| S2 / W1<br><br>(to Avonmouth WRC) | SAS Gravity Belt Thickeners liquors (filtrate) | BAT 7 and Table 6.1 in BAT 20 | BAT 7 and Table 6.1 in BAT 20 | mg/l and ug/l |
| | | | | |
| **Point source emissions to land** | | | | |
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| No point source emissions directly to land | | | | |

**Installation 2 – Food Waste Digestion Treatment**

There are no new emissions for the Food Waste AD or Food Soup

| **Point Source emissions to air** | | | | |
|---|---|---|---|---|
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |

| | | | | |
|---|---|---|---|---|
| No point source emissions to air | | | | |
| **Point source emissions to water (other than sewer)** | | | | |
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| No point source emissions directly to sewer | | | | |
| | | | | |
| **Point source emissions to sewers , effluent treatment plants and other transfers off site** | | | | |
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| There are no point source emissions to effluent treatment plant (Avonmouth WRC); see above for wastewater liquors from food waste AD and food soup process | | | | |
| **Emission point reference and location** | **Source** | **Parameter** | **Quantity** | **Unit** |
| No point source emissions to land | | | | |

# Section 3 – Operating Techniques

## Question 3a technical Standards

**Installation 1 – Sludge Anaerobic Digestion Treatment**

| Description of the schedule 1 activity or directly associated activity | Best Available Technique (BATc, BREF, TGN reference) | Document Reference (if appropriate) |
|---|---|---|
| Avonmouth BC<br>Sludge AD and<br>Raw sludge Dewatering | Best available techniques (BAT) conclusions for waste treatment | COMMISSION IMPLEMENTING DECISION (EU) 2018/ 1147 - of 10 August 2018 - establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/ 75/ EU of the European Parliament and of the Council - (notified under document C(2018) 5070) |
| | Best Available Techniques (BAT) Reference Document for Waste Treatment | Best Available Techniques (BAT) Reference Document for Waste Treatment Industrial Emissions Directive 2010/75/EU Integrated Pollution Prevention and Control |
| | Control and monitor emissions<br>for your environmental permit | Control and monitor emissions for your environmental permit |

| | | |
|---|---|---|
| | Biological waste treatment: appropriate measures for permitted facilities - Biowaste Appropriate Measure Guidance | Biological waste treatment: appropriate measures for permitted facilities |
| | Clean-down procedure to swap sludge assets between treated and raw sludge waste types. | TRTWP567 – Dewaterer clean down procedure |
| | Waste pre-acceptance, acceptance and rejection procedure. Used across Wessex Water sites. | TRTWP549 - Waste Pre-acceptance, Acceptance and Rejection Procedure |

**Installation 2 – Food Waste Digestion Treatment**

**Food Waste Soup**

| Description of the schedule 1 activity or directly associated activity | Best Available Technique (BATc, BREF, TGN reference | Document Reference (if appropriate) |
|---|---|---|
| Physical treatment for the purpose of recycling | Best available techniques (BAT) conclusions for waste treatment | See BAT Gap Analysis FW - 2025 |
| Food Soup storage and transfer | Best available techniques (BAT) conclusions for waste treatment | See BAT Gap Analysis FW - 2025 |
| All food soup activities | Biological waste treatment: appropriate measures for permitted facilities - Biowaste Appropriate Measure Guidance | Biological waste treatment: appropriate measures for permitted facilities |

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

This variation form C3 is being used for the permitting of Avonmouth BC under the water company project for IED installations. Avonmouth BC does have an existing installation permit ref EPR/PP3437LK which only part of the treatment processes taking place on site, so we have listed the current recorded Operating techniques documents and expect them all to be revised wholly or in part following this IED permit process.

| Document Reference | Document Title | Date (if applicable) | Superseded or not? |
|---|---|---|---|
| | C2 | 2019 | Y (31/01/2025) |
| | C3 | 2019 | Y (26/11/2025) |
| | Supporting Documents | 2019 | Y superseded by variations in 2022, Dec 2023, Jan 2025 and Nov 2025. |
| | | | |
| | | | |

## Question 3b General requirements

## Table 4 – general requirements

**Installation 1 – Sludge Anaerobic Digestion Treatment**

| | |
|---|---|
| If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them | Document reference or references **n/a** |
| Where the technical guidance or your risk assessment shows that odours are an important issue, send us your odour management plan | Document reference or references: **Avonmouth BC Odour management plan TRTWP157** |
| If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both) | Document reference or references: **n/a** |

**Installation 2 – Food Waste Digestion Treatment**

| | |
|---|---|
| If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them | Document reference or references: **N/A** |
| Where the technical guidance or your risk assessment shows that odours are an important issue, send us your odour management plan | Document reference or references: **Avonmouth Renewable Energy Odour Management Plan Version 4 November 2025 (IMS029)** |
| If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both) | Document reference or references: **N/A** |

## Question 3c Types and amounts of raw materials

## Table 5- Types and amounts of raw materials

**Installation 1 – Sludge Anaerobic Digestion Treatment**

| **Capacity (note 1) =** | | | | |
|---|---|---|---|---|
| **Schedule 1 Activity** | **Description of raw material** | **Annual throughput (tonnes per year)** | **Maximum Amount (tonnes) (note 2)** | **Description of the use of the raw material and provide MSDS** |
| Sludge AD & Raw sludge activity | Polymer -Zetag 8160 | 90,000 kg/a | 7000kg (~7 tonnes) (10 x 700kg bags) | Used in poly make up in 3 x locations-SAS GBTs, Belmer GBTS, APD (Raw) GBTs |
| Sludge AD & Raw sludge activity | Polymer - Zetag 9248FS | 290,000 kg/a | 10,400 (10 x 1040) | Used for the road dewatering centrifuges |
| Sludge AD & Raw sludge activity | Polymer - Solenis 8187 | 128,000 kg/a | 47 tonnes (10 x 700 kg bags & 40t–Silo) | Used in poly make up for dewatering plant (centrifuges 5, 6, 7 & 8) |
| Sludge AD | Antifoam Burst PF 13 | 50,000 kg/a | 4,000 kg | Used for preventing centrate from centrifuges from foaming and infrequently to prevent digester foaming |
| Sludge AD | Small quantities of oil and lubricants and grease | Approx. 2,000 L/a | Very little stored with in permit boundary | Pumps, motors and compressors |

All MSDS sheets, apart from Zetag 9248 FS which is now attached.

*Note 1 By 'capacity', we mean the total storage capacity (tonnes) or total treatment capacity (tonnes each day).*

*Note 2 By 'maximum amount', we mean the maximum amount of raw materials on the site at any one time.*

## Section 4 General information

This section applies to changes to or new emission points.

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

**Installation 1 – Sludge Anaerobic Digestion Treatment**

Discharge to effluent treatment plant (Avonmouth WRC)

Wastewater Liquors = We have committed to characterisation of wastewater liquors and a publication of a Regulatory Position Statement is anticipated before long. From the required the standard Improvement Condition; a sampling programme designed to fully characterise the wastewater discharged to Avonmouth Water Recycling Centre from sampling points S1 and S2 is under development. It will be analogous to the other sampling programmes produced for other Wessex Water sites. Following characterisation, any parameter identified as being relevant in the wastewater inventory will be monitored at the frequency and using monitoring standards stipulated in BAT 7. Any additional parameters identified as being relevant will be subject to an EA permit variation to determine the monitoring frequency.

**Installation 2 – Food Waste Digestion Treatment**

There are no new emissions in the Food Waste AD, CHP or G2G areas and existing wastewater liquors are combined into the Sludge Anaerobic Digestion point source emission to Avonmouth WRC.

## Question 4b Point sources to air only

**Installation 1 – Sludge Anaerobic Digestion Treatment**

**Installation 2 – Food Waste Digestion Treatment**

N/A. There are no new point source emissions to air.

## Section 6 Resource efficiency and climate change

## Questions 6a & 6b questions relate to energy efficiency

Please see documents

WWSL – Avonmouth Energy Efficiency Plan (OPSP367)

WWEL – Energy Efficiency - Avonmouth Renewable Energy Site (GENWMP230)

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

Please see documents

WWSL - Avonmouth BC waste residues plan (TRTWP540) and,

Avonmouth BC waste management plan (OPSP343)

WWEL - Waste Management Plan – BFWRF (GENWMP353) and,

Waste Management Plan – Renewable Energy (GENWMP353A)

## Question 6e - Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

Please see documents

WWSL - Avonmouth BC waste residues plan (TRTWP540)

WWEL - Waste Management Plan – BFWRF (GENWMP353) and,

Waste Management Plan – Renewable Energy (GENWMP353A)