Natural Resources Wales permitting decisions

Variation and Consolidation of a bespoke Permit – Severn Trent Green Power (Bridgend) Limited

We have decided to issue the variation for Parc Stormy Anaerobic Digestion Facility in Stormy Down, Porthcawl, Bridgend, CF33 4RS operated by Severn Trent Green Power (Bridgend) Limited.

The permit number is **EPR/AB3191FR**.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Documents (BREF) for Waste Treatment. The associated BAT conclusions to this document were published on 17 August 2018 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive (IED) following a statutory review of permits in the Waste Treatment sector. These include the amendment of the wording of several permit conditions relating to notifications, changes to emissions limits and monitoring requirements.

We are satisfied that the operator will be compliant with the published BAT conclusions which will apply from 17 August 2022.

Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's Permit;
- why we have decided to vary the Permit as a result of that review; and
- why we have included the specific conditions in the revised Permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

Structure of this document

- Assessment of Parc Stormy Anaerobic Digestion Facility against the published BAT conclusions for Waste Treatment.
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions

Assessment of Parc Stormy Anaerobic Digestion Facility against the published BAT conclusions for Waste Treatment

1. Our decision

We have issued a variation, which will allow Severn Trent Green Power (Bridgend) Limited to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate Best Available Techniques (BAT) and Associated Emission Limit Values (BAT-AELs).

We consider that, in reaching this decision, we have taken into account all relevant considerations and legal requirements and that the permit will continue to ensure that a high level of protection is provided for the environment and human health.

The original permit, issued on the 31 May 2016, ensured that the installation, employed Best Available Techniques (BAT) and ensured a high level of protection for human health and the environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a superior level of protection to that which was previously achieved. Where a site is Compliant in Future with BAT, Improvement Conditions have been included to bring the site up to standard by 17 August 2022.

2. The legal framework

The consolidated variation notice will be issued under Regulation 20 of the Environmental Permitting (England & Wales) Regulations 2016 (EPR). The environmental permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the consolidated variation notice, it will ensure that the operation of the installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

3. How we reached our decision

Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 on 05 April 2019 requiring the operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the relevant BAT Conclusions document. The Operator was asked to:

- Describe the techniques that will be implemented before 17 August 2022, which will then ensure that operations meet the revised standard, or

- Justify why standards will not be met by 17 August 2022, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or

- Justify why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

- Where their permitted activity involves the use, production or release of a hazardous substance, as defined in Article 3(18) of the Industrial Emissions Directive, Severn Trent Green Power (Bridgend) Limited were required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances. Where risk of

such contamination was established Severn Trent Green Power (Bridgend) Limited was required to prepare a baseline report containing information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definite cessation of the activity.

- Where their permitted activity involves the use, production, storage or release of priority hazardous substances and any other relevant substances, as defined by the Water Framework Directive, Severn Trent Green Power (Bridgend) Limited were required to carry out a risk screening assessment considering the presence of priority hazardous substances at the permitted installation. Where a risk of these substances was established the operator was asked to sample the effluent and screen for the priority hazardous substances. If these substances are found to be present in the effluent stream, then assessment using the H1 tool and potential detailed modelling will be required to demonstrate that the effluent discharge will not have a significant impact to the receiving water.

Where the operator proposed that they were not intending to meet a BAT standard, that also included a BAT Associated Emission Level (BAT-AEL) described in the BAT Conclusions Document, the Regulation 61 Notice requested that the operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 61(1) Notice response from the operator was received on the 26 September 2019 and additional information received on the 6 April 2020 and 21 April 2020.

We considered that the response contained sufficient information for us to commence determination of the permit review. The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61 (1) Notice response that appears to be confidential in relation to any part.

4. Key issues/Regulation 61 response

BAT Conclusions for the Waste Treatment were published as a Commission Implementing Decision ((EU 2018/1447) in the Official Journal of the EU on 10 August 2018. There are 53 BAT Conclusions. This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit/variation notice issued.

In response to Sections 1 to 4 of the Regulation 61 (1) Notice, a detailed response was received from Severn Trent Green Power (Bridgend) Limited. Where the operator has concluded that they have achieved BAT, and we are in agreement, no further information/justification has been sought by Natural Resources Wales. Where the operator has not provided sufficient information or where the existing documentation does not achieve BAT, improvement conditions have been set to ensure compliance by 2022.

In response to Section 5 of the Regulation 61 (1) Notice an update Opra profile was provided. The Opra score has been changed to 35.

In response to Section 6 of the Regulation 61 (1) Notice, where activities involve the use, production or release of relevant hazardous substances (as defined in Article 3(18) of the Industrial Emissions Directive), the Operator was asked to carry out a risk assessment considering the possibility of soil and groundwater contamination at the installation with these substances.

The operator submitted as report titled “IED Contaminated Land and Groundwater Risk Assessment Report Submitted” (Dated 27.09.2019). Natural Resources Wales is satisfied that the report provides sufficient baseline information, and no further information/justification has been sought.

In response to Section 7 of the Regulation 61 (1) Notice, the Operator confirmed that the site only discharges clean uncontaminated surface water run-off and that there are no process effluent discharges to either surface water or sewer. As BAT does not apply

to discharges associated with clean uncontaminated surface runoff only no further information/justification has been sought by Natural Resources Wales.

5. Changes we have made

Improvement Conditions

Based on the information provided in the Regulation 61 (1) response, we consider that we need to set improvement conditions. These conditions are set out below. We are using these conditions to require the operator to provide Natural Resources Wales with details that need to be established or confirmed during operations. The improvement conditions ensure compliance by 2022.

Severn Trent Green Power (Bridgend) Limited have confirmed that their existing Management System does not currently incorporate all relevant BAT conclusions. Where the Operator has stated the site is currently compliant but NRW disagree, Improvement Conditions have been included to bring the site up to standard, and as such, their activities will be compliant in the future with the following BAT conclusions:

- BAT 1 (VII) Follow development of cleaner technologies;
- BAT 1 (VIII) Whole life cycle considerations when designing a new plant;
- BAT 1 (IX) application of sectoral benchmarking on a regular basis;
- BAT 1 (XII) Residues Management Plan;
- BAT 3 Establish and maintain an inventory of wastewater and waste gas streams, as part of the environmental management system;
- BAT 8 Monitoring Emissions to Air;
- BAT12 Review of Odour Management Plan;
- BAT 23 Energy efficiency; and
- BAT 38 Monitoring and/or control of key waste and process parameters.

A series of improvement conditions have been added to the Permit to ensure compliance by 2022 for these items.

In addition to NRW's statutory requirement to review and incorporate BAT and BAT-AELs following the publication of the revised BREF for Waste Treatment, NRW are also required to review the permit against any relevant newly published or updated Technical Guidance Notes. An additional two Improvement Conditions have been added to the permit to ensure the Operator assesses site activities against the latest version of 'Technical Guidance Note M9 Environmental monitoring of bioaerosols at regulated facilities dated July 2018 Version 2'. For permitted activities which have not previously been required to assess bioaerosol emissions from potential sources on site (such as open or closed biofilters), a staged approach has been applied. The first improvement condition requires the Operator to undertake a screening assessment to consider all potential sources of bioaerosols against the relevant screening distance to nearby sensitive receptors. If sources are found to be within 250m of a nearby sensitive receptor, the Operator is required to undertake a Site Specific Bioaerosol Risk Assessment (SSBRA).

Reference	Requirement	Date
IC1	The operator shall submit to Natural Resources Wales for approval, a screening assessment considering channelled emissions to air from the biofilter (open and closed biofilters) and confirm if bioaerosol emissions sources are within 250 metres of a sensitive receptor in accordance with 'M9: environmental monitoring of bioaerosols at regulated facilities'.	1 month following date of permit issue
IC2	Upon completion of IC1, if confirmed that there are nearest sensitive receptors within 250 meters of bioaerosol emissions sources, the Operator shall submit to Natural Resources Wales for approval a site specific bioaerosol risk assessment (SSBRA) in accordance with 'M9: environmental monitoring of bioaerosols at regulated facilities'.	6 months following date of permit
IC3	The operator shall submit to Natural Resources Wales for approval information to evidence compliance with the following BAT requirements in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018): BAT 1 - Implement and adhere to an environmental management system (EMS) that incorporates all of the following features: • (VII) Follow development of cleaner technologies,	17 February 2022 or otherwise agreed in writing with Natural Resources Wales

	• (VIII) Whole life cycle considerations when designing a new plant, • (IX) Application of sectoral benchmarking on a regular basis, • (XII) Residues Management Plan.	
IC4	The operator shall submit to Natural Resources Wales for approval information to evidence compliance with the following BAT requirements in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018): BAT 3 In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the following features: • information about the characteristics of the waste to be treated and the waste treatment processes; • information about the characteristics of the wastewater streams; and • information about the characteristics of the waste gas streams.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC5	The operator shall submit to Natural Resources Wales for approval information to evidence compliance with the following BAT requirements in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018): • BAT 8 Monitoring Emissions to Air.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC6	The operator shall submit to Natural Resources Wales for approval information to evidence compliance with the following BAT requirements in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018): • BAT12 Review of Odour Management Plan.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC7	The operator shall submit to Natural Resources Wales for approval information to evidence compliance with the following BAT requirements in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018): • BAT 23 Energy Efficiency.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC8	The Operator shall submit for written approval a methodology for meeting the process parameters listed in table Schedule 3b Table S3.3, as per BAT 38 for the anaerobic treatment of waste. The methodology shall identify each of the process parameters and detail the frequency and techniques in place to record the data. Where a process parameter cannot be monitored justification should be provided and/or a suitable alternative proposed. The methodology should include trigger levels for each of the parameters with associated procedures in place if trigger levels are exceeded.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales

Operational Changes

Condition 3.4.2 within the Original Permit has been removed as this condition is not required where an Odour Management Plan has been incorporated within Table S1.2 of the permit.

Additional process data to report against generation of residues and wastewater has been included as part of the updated reporting parameters and forms detailed within Schedule 4 of the permit, in order to satisfy requirements of BAT Conclusion 11. This reflects the modern permit template as well as ensures the site is compliant with BAT Conclusion 11 from the effective compliance date of 17 August 2022.

Emissions to Water

As part of our delivery of the Water Framework Directive requirements, we need to identify and assess the impact for all discharges to surface waters and/or sewer from the site for priority hazardous substances and any other relevant substances. The emissions monitoring for these substances should be carried out using the methods and standards described in the M18 guidance on “Monitoring of discharges to water and sewer”.

With reference to the risk assessment guidance on the gov.uk website entitled “Surface water pollution risk assessment for your environmental permit“ (accessible via: https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit) the company carried out the following assessments:

- Screening tests for priority hazardous pollutants and any other relevant priority hazardous substances.
- For any substance which is not screened out by the screening tests further modelling, as described in the risk assessment guidance “Surface water pollution risk assessment for your environmental permit”.

There are no emissions to water associated with the permitted activity other than the discharge of clean uncontaminated surface water run-off from the site.

As such the Operator screened out the need for further assessment for priority hazardous substances and other relevant substances as the site does not discharge any of these substances to water.

Emissions to Water – Article 15(4) Derogations

No derogations.

Emissions to Air

There were changes to the ELV's for emissions to air taking into account BAT conclusions from the Waste Treatment BREF.

The tables below outline the parameters and limits set to implement the BAT-AELs set out in BAT 34 of the Waste Treatment BREF:

Effective until 16 August 2022

Release point	Parameter	Limit/ BAT AEL	Effective until
A1	NO_X	500mg/m^3	16 August 2022
	SO_2	350mg/m^3	
	nm VOC's	75mg/m^3	
	VOC	1000mg/m^3	
	CO	1400mg/m^3	
A2	NO_X	500mg/m^3	16 August 2022
	SO_2	350mg/m^3	
	nm VOC's	75mg/m^3	
	VOC	1000mg/m^3	
	CO	1400mg/m^3	
A3	NO_X	No limits set	16 August 2022
	SO_2		
	nm VOC's		
	VOC		
	CO		
A4	NO_X	No limits set	16 August 2022
	SO_2		
	nm VOC's		
	VOC		
	CO		
V1	Hydrogen Sulphide	No limits set	16 August 2022
	Methane		
	CO		
V2	Hydrogen Sulphide	No limits set	16 August 2022
	Methane		
	CO		
V3	Hydrogen Sulphide	No limits set	16 August 2022

	Methane		
	CO		
V4	Hydrogen Sulphide	No limits set	16 August 2022
	Methane		
	CO		
V5	Hydrogen Sulphide	No limits set	16 August 2022
	Methane		
	CO		
A5	Hydrogen Sulphide	No limits set	16 August 2022
	Ammonia	No limits set	16 August 2022

Effective from 17 August 2022

Release point	Parameter	Limit/ BAT AEL	Effective from
A1	NO_X	500mg/m^3	17 August 2022
	SO_2	350mg/m^3	
	nm VOC's	75mg/m^3	
	VOC	1000mg/m^3	
	CO	1400mg/m^3	
A2	NO_X	500mg/m^3	17 August 2022
	SO_2	350mg/m^3	
	nm VOC's	75mg/m^3	
	VOC	1000mg/m^3	
	CO	1400mg/m^3	
A3	NO_X	No limits set	17 August 2022
	SO_2		
	nm VOC's		
	VOC		
	CO		
A4	NO_X	No limits set	17 August 2022
	SO_2		
	nm VOC's		
	VOC		
	CO		
V1	Hydrogen Sulphide	No limits set	17 August 2022
	Methane		
	CO		
V2	Hydrogen Sulphide	No limits set	17 August 2022
	Methane		
	CO		
V3	Hydrogen Sulphide	No limits set	17 August 2022
	Methane		
	CO		
V4	Hydrogen Sulphide	No limits set	17 August 2022
	Methane		
	CO		

V5	Hydrogen Sulphide	No limits set	17 August 2022
	Methane		
	CO		
A5	Hydrogen Sulphide	No limit set	17 August 2022
	Ammonia	20[1] mg/m^3	

Additional bioaerosol monitoring requirements have also been included within Schedule 3 Table S3.4, in accordance with ”M9 – Technical Guidance Note (Monitoring) – Environmental monitoring of bioaerosols at regulated facilities, 2018 Version 2” together with the Environment Agency’s “Guidance on the evaluation of bioaerosol risk assessments for composting facilities. Bioaerosol monitoring will only be required following the completion of Improvement Conditions IC1 and IC2, and only if it is confirmed that there are nearest sensitive receptors within 250 meters of bioaerosol emissions sources and that monitoring is required. Table S3.4 can be removed from the permit if monitoring is subsequently determined as not required.

Table S3.4 Bioaerosol monitoring requirements					
Location or description of point of measurement	**Parameter**	**Bioaerosol threshold limits CFU m-^{3}**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Bioaerosols shall be monitored: - upwind of the operational area and - downwind of the operational area, in accordance with” M9 – Technical Guidance Note (Monitoring) – Environmental monitoring of bioaerosols at regulated facilities, 2018 Version 2”.	Total bacteria	1000	Quarterly or otherwise agreed with NRW	In accordance with ”M9 – Technical Guidance Note (Monitoring) – Environmental monitoring of bioaerosols at regulated facilities, 2018 Version 2”	Monitoring requirements to be agreed with NRW subject to completion of IC1 and IC2
	Aspergillus Fumigatus	500			

Where BAT associated emission levels are identified (BAT-AELs), limits may be prescribed at the top end of the range unless the proximity of sensitive receptors requires a tighter limit or if tighter limits are previously on the permit, this ensures no backsliding of emission limits.

Emissions to Air – Article 15(4) Derogations

No derogations.

Processing Monitoring

There were changes to the process monitoring requirements taking into account BAT conclusions from the Waste Treatment BREF.

The tables below outline the parameters and monitoring frequencies required in order satisfy BAT38 of the Waste Treatment BREF.

Effective until 16 August 2022

Release point	Parameter	Monitoring Frequency	Effective until
Biofilter	Temperature	None Specified	16/08/2022
	Moisture		
	Thatching / compaction		
Biogas from digesters	Flow	Continuous	16/08/2022
Biogas from digesters	Methane	Continuous	16/08/2022
	Hydrogen Sulphide		
	Carbon Dioxide		
Digesters, storage tanks and waste reception building	Odour	Daily	16/08/2022
Amount of biogas used by the CHP unit per day	t/day	Daily	16/08/2022

Effective from 17 August 2022

Release point	Parameter	Monitoring Frequency	Effective from
Biofilter	Temperature	To be agreed with NRW	17/08/2022
	Moisture		17/08/2022
	Thatching / compaction		17/08/2022
Digester feed	pH		17/08/2022
	Alkalinity		17/08/2022
	Hydraulic and organic loading rates		17/08/2022
Digester	Operating temperature		17/08/2022
	Liquid and foam levels		17/08/2022
	Concentration of ammonia		17/08/2022
	Concentration of VFAs		17/08/2022
	Alkalinity		17/08/2022
	FOS/TAC ratio (VFA/TA)		17/08/2022
	pH		17/08/2022
Digestate	Concentration of VFAs		17/08/2022
	Ammonia		
Biogas from digesters	Flow		17/08/2022
	Quantity		17/08/2022
	Pressure		17/08/2022
	Composition		17/08/2022
	Methane		17/08/2022
	Hydrogen Sulphide		17/08/2022
	Carbon Dioxide		17/08/2022
Digesters, storage tanks and waste reception building	Odour	Daily	17/08/2022
Amount of biogas used by the CHP unit per day	t/day	Daily	17/08/2022

Other IED BREFs relevant to the permit review

There are no specific listed activities within Table S1.1 of the permit that are within scope of other published BREFS.

6. Conclusion

We consider that the installation already employed what used to be BAT, and that the operator has achieved significant improvements in performance since the permit was originally granted. The revised BREF and its BAT-AELs provide the opportunity to consider further environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation and we are satisfied that the operator is currently achieving or will be achieving all relevant BAT by 17 August 2022.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

Annex 1: Decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment BREF were published as Commission Implementing Decision EU 2018/1147 in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the consolidated variation notice.

All BAT Conclusions arising are listed by number in order below;

BATc number		**Summary of BAT Conclusion requirement**	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
OVERALL ENVIRONMENTAL PERFORMANCE			
1	**Environment Management System (EMS) – <u>ALL</u> of the following:**		
	I.	Management commitment	**Currently Compliant**. STGP(B) Ltd operates under an Environmental Management Systems (EMS) which has been agreed with NRW. The EMS is also certified to ISO14001:2015; 18001:2007; 9001:2015 standards. Approval number: 2718-QMS-EMS-HAS-001. Re-Issue

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Date: 5 August 2019; Expiry Date: 14 August 2022. The requirements of ISO14001:2015 includes evidence of management commitment. Document Reference: QP01 Management Review
	II.	Environmental policy development including CI of performance	**Currently Compliant. I**mplemented through site Management System Document Reference: Environmental Policy
	III.	Planning and implementing procedures & targets in conjunction with financial planning & investment	**Currently Compliant.** Implemented through site Management System Document Reference: QP24 - Monitoring & Review of Performance
	IV.	***Implementation of procedures***	
		(a) Structure & responsibility	**Currently Compliant.** Implemented through site Management System. Responsibilities are laid out in each QP and job description. Organisational Structure Document Reference: AQD 98
		(b) Recruitment, training, awareness & competence	**Currently Compliant.** Implemented through site Management System Document Reference: QPe 3.1 – Recruitment & Selection Employee Guide, QPe 3.2 – Induction QPe 3.5 – Ensuring Capability & Competence and QP09 - Training Competence Awareness Inductions Appraisals Assessments
		(c) Communication	**Currently Compliant.** Implemented through site Management System Document Reference: QP20 – Internal Communications & Consultation

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		(d) Employee involvement	**Currently Compliant.** Implemented through site Management System Document Reference: QP20 – Internal Communications & Consultation
		(e) Documentation	**Currently Compliant.** Implemented through site Management System Document Reference: QP02 – Control of Documents & Records
		(f) Effective process control	**Currently Compliant.** Implemented through site Management System Document Reference: QP22 – Contract Process Control & WI 82
		(g) Maintenance programmes	**Currently Compliant.** Implemented through site Management System Document Reference: QP31 – Plant & Machinery Safety & QPRHA 43 – Defect Reporting Procedure QP06 Management (Maintenance) of Premises, Plant, Vehicles and Equipment AQD 052 Machinery Maintenance Checklist
		(h) Emergency preparedness & response	**Currently Compliant.** Implemented through site Management System Document Reference: QP07 – First Aid, Fire & Emergency
		(i) Safeguarding compliance with environmental legislation	**Currently Compliant.** Implemented through site Management System Document Reference: QP18 – Assessing Environmental Aspects & Impacts
	V.	***Checking performance and taking corrective action***	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		(a) Monitoring & measurement	**Currently Compliant.** Implemented through site Management System Document Reference: WI 82f South Wales AD Management Maintenance Emissions Control
		(b) Corrective and preventive action	**Currently Compliant.** Implemented through site Management System Document Reference: QP26 Accident & Incident Reporting & Investigation QP08 – Internal Audits
		(c) Maintenance of records	**Currently Compliant.** Implemented through site Management System Document Reference: QP26 Accident & Incident Reporting & Investigation QP08 – Internal Audits
		(d) Independent (where practicable) internal or external EMS auditing	**Currently Compliant.** Implemented through site Management System Document Reference: QP26 Accident & Incident Reporting & Investigation QP08 – Internal Audits
	VI.	Senior management review of EMS	**Currently Compliant.** Implemented through site Management System Document Reference: QP01 - Management Review
	VII.	Following development of cleaner technologies	**Compliant in the Future.** STGP will develop a procedure that ensures management are kept up to date with the development of cleaner technologies and where appropriate, these will be considered for applicability and viability of implementation at the site. An improvement condition has been included within the permit to ensure compliance prior to the compliance deadline (IC3)

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	VIII.	Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life	**Compliant in the Future.** STGP do not currently have a Site Closure Plan for the facility but will develop a standard operating procedure to cover decommissioning of the site in the event of closure which will include: cessation of receipt of waste, reduction of waste volumes, emptying of tanks, isolation of tanks and pipework, cleaning of tanks and pipework, pasteurisation of remaining material, and the disposal of wash water and any residual wastes An improvement condition has been included within the permit to ensure compliance prior to the compliance deadline (IC3)
	IX.	Regular sectoral bench marking	**Compliant in the Future.** STGP will develop a procedure that details how STGP can compare site activities against any sector benchmarks that trade associations may produce or alternatively make comparison against other plants that STGP have knowledge of, though it should be noted direct comparison would be very hard to achieve given the varying nature of feedstocks across the industry. An improvement condition has been included within the permit to ensure compliance prior to the compliance deadline (IC3)
	X.	Waste stream management (BAT 2)	**Currently Compliant.** Implemented through site Management System Document Reference: QP27 – Management of Waste (incoming and outgoing) including Hazardous Waste SOP for AD AQD procedures as stated in our original response to BAT 2

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	XI.	Inventory of wastewater & waste gas streams (BAT 3)	**Currently Compliant.** Implemented through site Management System Document Reference: WI 82f South Wales AD Management
	XII.	Residues Management Plan – S6.5	**Compliant in the Future.** Digestate is the main residue from the AD process and is already managed in line with requirements of PAS 110 [5] and the 'Sampling of Process Material at AD WI 94' document [6]. A formal residues management plan incorporating this information together with information on any other process residues and how to minimise them where necessary will be implemented. An improvement condition has been included within the permit to ensure compliance prior to the compliance deadline (IC3).
	XIII.	Accident Management Plan – S6.5	**Currently Compliant.** Response to BATc21 references several emergency procedures which are implemented on site in place of an AMP.
	XIV.	Odour Management Plan (BAT 12)	**Currently Compliant.** The Operator implements an Odour Management Plan on site. [Reference No.15] Agrivert, South Wales Anaerobic Digestion Facility Odour Management Plan, 2018
	XV.	Noise & Vibration Management Plan (BAT 17)	**Currently Compliant.** The need for Noise & Vibration Management Plan was screened out as not required during original permit

BATc number			Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
				application stage. The Operator does however implement a Noise Mitigation Measures and Monitoring Plan (WI 83(4))
2	**Improving overall environmental performance – <u>ALL</u> of the following:**			
	a.		Set up and implement waste characterisation & pre-acceptance procedures	**Currently Compliant.** The Operator implements several procedures to monitor overall environmental performance, in particular waste characterisation and pre-acceptance procedures. Existing Documentation includes: Management of Waste (Incoming and Outgoing) including Hazardous Waste, Procedure (QP27); SOP for AD (8), AQD 203c
	b.		Set up and implement waste acceptance procedures	**Currently Compliant.** The Operator implements waste acceptance and rejection procedures as part of the EMS. Existing Documentation includes: SOP for AD (8) and AQD 224 (12).
	c.		Set up and implement a waste tracking system & inventory	**Currently Compliant.** The Operator implements an electronic waste tracking system on site linked to the on-site weighbridge and WTNs system. Existing supporting documentation includes: SOP for AD (8) and AQD 203c, EP application Supporting Statement (13) and AQD 224.
	d.		Set up and implement an output quality management system	**Currently Compliant.** Standard Operating Procedures (SOPs) for Anaerobic Digestion Systems operated in accordance with the Biofertiliser Certification Scheme, 2018 And AQD 203c Potential Food / Liquid Waste Supply Pre-Acceptance Questionnaire

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	e.	Ensure waste segregation	**Currently Compliant.** Source segregated food waste accepted onto site - site accepts solid & liquid wastes - which are blended prior to being fed into AD plant. Physical separation undertaken as pre-treatment to remove plastics and materials >12mm. Site has a designated quarantine area for rejected wastes / non-conforming wastes.
	f.	Ensure waste compatibility prior to mixing or blending	**Currently Compliant.** Site uses SCADA system to control mixing / blending of liquid & solid wastes - to ensure adequate mixing / blending ratio and compatibility. Document Reference: STGP, Management of Waste (Incoming and Outgoing) Procedure (QP27). Pre-acceptance procedures require information on chemical composition of feedstocks.
	g.	Sort solid incoming waste – S6.4	**Currently Compliant.** The site uses several techniques to sort incoming solid wastes. These include depackaging units (hammermill), macerators and settlement to remove glass, grit, bone, metals etc.
3	**Establish and maintain a wastewater and waste gas inventory as part of the EMS - <u>ALL</u> of the following:**		
	Information on characteristics of waste and waste treatment processes		
	(i)(a)	simplified process flow sheets showing emission sources	**Currently Compliant.** The Operator records the characteristics of waste and waste treatment process through a number of operational documents including: Process description - Stormy

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Down App.1; Operating Techniques Doc; Odour Management Plan; SCADA data; Drainage Philosophy report.
	(i)(b)	Process-integrated and wastewater/waste gas treatment descriptions including performance	**Compliant in the Future:** The Operator records the characteristics of wastewater and waste gas treatment process through a number of operational documents including: Process description - Stormy Down App.1; Operating Techniques Doc; Odour Management Plan; SCADA data; Drainage Philosophy report. Site documentation will need to be updated prior to compliance deadline to reflect the new reporting monitoring and reporting requirements of the Biofilter and Scrubber Unit, as per BAT 8 and BAT34 and descriptions of techniques described within Section 6.1 of the BAT Conclusions document is in place, along with process monitoring requirements specified within BAT38. An improvement condition has been included to ensure compliance prior to compliance deadline (IC4)
	Information on characteristics of wastewater streams		
	(ii)(a)	*Mean and variability of:*	
		Flow	**Not Applicable.** AD Plant has no wastewater emissions from the process
		pH	
		Temperature	
		Conductivity	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(ii)(b)	*Mean concentration, load and variability of:*	
		Total suspended solids	**Not Applicable.** AD plant has no wastewater emissions from the process
		COD/TOC	
		Nitrogen species	
		Phosphorous	
		Metals	
		Priority substances/micropollutants	
		Any other relevant compounds	
	(ii)(c)	*Bioeliminability data (see BAT 52):*	
		BOD	**Not Applicable.** AD plant has no wastewater emissions from the process
		BOD to COD ratio	
		Zahn-Wellens test	
		Biological inhibition potential	
	Information on characteristics of waste gas streams		
	(iii)(a)	*Mean and variability of:*	
		Flow	**Currently Compliant.** Operator monitors gas flow rates as per existing permit condition requirements
		temperature	
	(iii)(b)	*Mean concentration, load and variability of relevant substances:*	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Organic compounds	**Currently Compliant.** Operator monitors a range of compounds / organic compounds within the waste gas streams. air quality inside the waste reception building is monitored through a hard-wired gas monitoring system (Extox), central control system monitors live air flow and biogas characteristics within the digestion process and Periodic monitoring of the CHP air emissions is undertaken by a 3rd party contractor and kept as part of site records
		POPs e.g. PCBs	**Currently Compliant:** Operator monitors a range of compounds / organic compounds within the waste gas streams. air quality inside the waste reception building is monitored through a hard-wired gas monitoring system (Extox), central control system monitors live air flow and biogas characteristics within the digestion process and Periodic monitoring of the CHP air emissions is undertaken by a 3rd party contractor and kept as part of site records
		Any other relevant compounds	**Compliant in Future:** The Operator existing Operational documentation does not currently detail how the Operator will monitor emissions from the Biofilter, specifically in accordance with BAT conclusion 8 and Section 6.1 of the BAT Conclusions document is in place. Monitoring Requirements stated within Schedule 3 of the permit have been updated to include H2S and Ammonia monitoring, to ensure compliance prior to statutory deadline.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Following the completion of IC1 and IC2 (where applicable) the Operator will be required to consider channelled emissions to air from the biofilter and the potential for bioaerosol releases. If the sites biofilter is within 250 metres of a sensitive receptor the Operator will be required to undertake and submit a site specific bioaerosol risk assessment (SSBRA) and any monitoring must be in line with'M9: environmental monitoring of bioaerosols at regulated facilities.' (IC4)
	(iii)(c)	Flammability	**Currently Compliant.** Operator monitors a range of compounds / organic compounds within the waste gas streams. air quality inside the waste reception building is monitored through a hard-wired gas monitoring system (Extox), central control system monitors live air flow and biogas characteristics within the digestion process and Periodic monitoring of the CHP air emissions is undertaken by a 3rd party contractor and kept as part of site records
		Lower and Higher Explosive Limits	
		Reactivity	
	(iii)(d)	*Presence of other substances that may affect the gas treatment system or plant safety:*	
		O2	**Currently Compliant.** Operator monitors a range of other substances within the waste gas streams including Oxygen (O2)
		N2	
		Water vapour	
		Dust	
4	**Reducing environmental risk associated with waste storage – <u>ALL</u> of the following:**		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Optimised storage location	**Currently Compliant.** Site has optimised liquid and solid waste storage for food wastes received on site, as well as suitable storage for wastes generated on site - i.e. light fraction reject, grit, quarantined wastes. All wastes stored away from sensitive receptors
	b.	Adequate storage capacity	**Currently Compliant.** Designed storage capacity labelled on SCADA system with levels monitored continuously to ensure adequate storage capacity is maintained. Visual inspections undertaken to further ensure adequate storage maintained on site
	c.	Safe storage operation	**Currently Compliant.** Storage tanks are monitored via SCADA system to ensure volumes stored remain within engineered design capacity at all times
	d.	Separate area for storage & handling of packaged hazardous waste	**Not Applicable.** Hazardous Waste is not accepted on site therefore this BATc is not applicable
5	**Set up and implement procedures to reduce the environmental risk associated with handling and transfer of waste - include following elements:**		
	Carried out by competent staff		**Currently Compliant.** Operator has demonstrated that the handling and transfer of waste is carried out by competent staff ('Training, Competence, Awareness, Inductions, Appraisal, Assessments QP09' [18] procedure)

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Duly documented, validated and verified	**Currently Compliant.** Operator implements a number of procedures to document, validate and verify handling and transfer of wastes Document Reference: Waste Transfer Notes / Annual Waste Transfer Notes, Waste Carriers Licence, Hauliers registration, Whole Digestate Sampling Analysis Record, Dispatch Delivery Note, Notification of Non-Conformity with PAS 110
	Spill prevention, detection and mitigation measures	**Currently Compliant.** Operator implements a number of procedures to detect, mitigate and prevent spillages. Document Reference: Spillage Procedure QP25, 2019
	Take precautions when mixing or blending wastes	**Currently Compliant.** Operator has not provided evidence against BATc5e, however this BATc is considered to have been met given the information provided elsewhere within submission (BATc38)
	Procedures are risk-based and consider likelihood of accidents, incidents and their environmental impact	**Currently Compliant.** Operator has not provided evidence against BATc5e, however this BATc is considered to have been met given the information provided elsewhere within submission
MONITORING		
6	**Relevant emissions to water: monitor key process parameters at key locations**	
	Key process parameters	

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Wastewater flow	**Not applicable.** Permitted activities on site do not include any direct emissions to water thus there is no requirement to monitor key process parameters.
	pH	
	Temperature	
	Conductivity	
	BOD	
	Other process parameters	
	Key monitoring locations	
	Pre-treatment inlet and/or outlet	**Not applicable.** Permitted activities on site do not include any direct emissions to water thus there is no requirement to monitor key process parameters.
	Final treatment inlet	
	Discharge point (to the environment)	
	Other location	
7	Monitoring emissions to water (refer to table) Monitoring parameters depend on waste treatment process(es) involved	**Not applicable.** Permitted activities on site do not include any direct emissions to water thus there is no requirement to monitor key process parameters
8	Monitoring emissions to air (refer to table) Monitoring parameters depend on waste treatment process(es) involved	**Compliant in Future.** As monitoring requirements for channelled emissions to air includes emissions from biofilter - Operator will be updating systems and procedures on site to monitor H2S, NH3 from Biofilters in future. An improvement condition has been included within the permit to ensure compliance prior to the compliance deadline (IC5).

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
9	**Monitoring diffuse emissions of organic compounds to air from processes involving solvents. Use one or a combination of the following:**		
	a	Measurement – S6.2 descriptions	**Not applicable.** Operator has confirmed within response there are no activities involving the regeneration of spent solvents, the decontamination of equipment containing POPs with solvents or the physio-chemical treatment of solvents for the recovery of their calorific value undertaken at the AD plant.
	b	Emissions factor calculation	
	c	Mass balance calculation	
10	**Periodically monitor odour emissions where nuisance is expected and/or has been substantiated (monitoring frequency is outlined in BAT 12)**		
	Use EN standards e.g. 13725 or 16841		**Currently Compliant.** Although the applicability of this BATc is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated (which is not the case for this site)
	Use equivalent methods e.g. ISO / national / international monitoring standards		
11	**Annual monitoring for:**		
	- **Water, energy and raw materials**		**Currently Compliant.** The annual consumption of electricity, gas and water is monitored using meters and reported as part of the environmental permit. The annual consumption of raw materials is monitored through invoices as recorded on the purchasing system
	- **Generation of residues and wastewater**		**Currently Compliant.** Operator has stated that wastewater generated is not discharged and instead is recirculated in the AD process, it is not therefore considered relevant to monitoring. The annual generation of residues is monitored through: Consignee

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Returns from the consignee taking the site's hazardous waste; waste returns (waste removed); and waste duty of care documentation e.g. waste transfer notes and consignment notes. Additional reporting requirements have been included within Schedule 4b of the permit to ensure compliance in the future.
EMISSIONS TO AIR		
12	**Set up, implement and review an Odour Management Plan (as part of the site EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:**	
	Protocol containing actions and timelines	**Compliant in Future.** Although the applicability of this BATc is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated (which is not the case for this site) the Operator still implements an Odour Management Plan. Response acknowledges monitoring methods not currently in line with BAT 8 & 10 however will be updated by compliance deadline. An improvement condition has been included within the permit to ensure compliance prior to the compliance deadline (IC6).
	Protocol for conducting odour monitoring (BAT 10)	
	Protocol for response to odour incidents/complaints	
	Odour prevention and reduction programme	
13	**Techniques to prevent, or where not practicable reduce odour emissions. Use one or a combination of the following:**	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Minimising residence times (open systems only)	**Currently Compliant.** Operator has not provided evidence against BATc13a, however this BATc is considered to have been met given the information provided elsewhere within submission (BATc4) minimising residence time of 72hrs applied for wastes stored within reception areas
	b.	Use chemical treatment (N/A if desired output is hampered)	**Currently Compliant.** The Operator uses Ferrous Chloride (added to digesters) to help reduce the formation of H2S
	c.	Optimising aerobic treatment – see examples. Refer to BAT 36 for wastes other than water-based liquid waste.	**Currently Compliant.** The Operator uses Ferrous Chloride (added to digesters) to help reduce the formation of H2S
14	**Techniques to prevent, or where not practicable reduce diffuse emissions to air, in particular of dust, organic compounds and odour. Use one or a combination of the following:**		
	a.	Minimising potential diffuse emission sources – see examples	**Currently Compliant.** Operator implements a combination of techniques to reduce diffuse emissions (a)(d)(f)(g) and (h), including: impermeable concrete surfacing across the site; Sealed Wet AD Process within sealed tanks; pre-treatment takes place inside a building; and whole digestate stored in tanks prior to removal off site to lagoon. The reception building is held under negative pressure to control VOCs and an air extraction system is used to direct emissions through the abatement system which is
	b.	Select and use high-integrity equipment – see examples	
	c.	Corrosion prevention – see examples	
	d.	Containment, collection and treatment of diffuse emissions – see examples	
	e.	Dampening (with water or fog)	
	f.	Maintenance – see examples	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	g.	Cleaning of waste treatment and storage areas – see examples	formed of a wet scrubber and biofilter, prior to release to atmosphere; speed doors are used on the enclosed reception building to minimise emissions; waste reception building and waste delivery vehicles being washed down regularly and when waste spills outside of the reception bunker; leak detection system in place for each tank
	h.	Leak Detection And Repair (LDAR) programme for organics – S6.2	
15	**Use flaring only for safety reasons or non-routine operating conditions (OTNOC). Use <u>both</u> of the following:**		
	a.	Correct plant design – see examples	**Currently Compliant.** Flare appropriately sized / sufficient capacity to accommodate maximum quantity of gas generated on site in event all other gas consumers unavailable. Flare capacity is 1200m3/hour, with a range of 1.56MWth to 7.78MWth (240-1200m3/hour at 65% CH4).
	b.	Plant management including gas system balancing and advanced process control	**Currently Compliant.** The gas system is balanced and controlled via the automated SCADA system - which monitors flow, content, gas pressure, and availability of gas consumers. In the event the CHP engines are unavailable, biogas is automatically diverted to the flare
16	**Reduce emissions to air when flaring is unavoidable. Use <u>both</u> of the following:**		
	a.	Correct design of flaring devices – see examples	**Currently Compliant.** Operator has confirmed high temp flare installed built to EN Standards

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Monitoring and recording as part of flare management – see examples	**Currently Compliant.** SCADA system records operational hours of the flare. UV sensor used for flame monitoring and thermocouple for continuous monitoring of the combustion temperature
NOISE AND VIBRATIONS			
17	**Set up, implement, and regularly review a Noise and Vibration Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:**		
	I.	Protocol with actions and timelines	**Not applicable** Operations on site have not given rise to any substantiated noise or vibration nuisance at sensitive receptors therefore this BAT Conclusion is not applicable.
	II.	Noise and vibration monitoring plan/protocol	
	III.	Noise & vibration complaint response plan/protocol	
	IV.	Noise and vibration reduction programme	
18	**Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:**		
	a.	Appropriate location of equipment and buildings	**Currently Compliant.** Operator applies a number of techniques on site to reduce noise and vibration emissions. These include: Regular inspection and maintenance of equipment and plant; Waste unloading, and pre-treatment undertaken indoors; CHP engines
	b.	Operational measures – see examples	
	c.	Low-noise equipment – see examples	
	d.	Noise & vibration control equipment – see examples	
	e.	Noise attenuation – see examples	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			fitted with exhaust gas silencers and located inside purpose-built container which provides noise attenuation.
EMISSIONS TO WATER			
19	**Optimise water consumption, reduce wastewater generation and prevent or where not practicable reduce emissions to soil and water. Use one or a combination of the following:**		
	a.	Water management – see examples	**Currently Compliant.** Operator has stated general water management techniques are not applied on site. Although this information is not stated here against BATc19, the BATc is considered to have been met given the information provided elsewhere within submission (See BAT4 - site utilises trigger activated high pressure power wash hoses to clean vehicles & disinfect).
	b.	Water recirculation	**Currently Compliant.** Wastewater is recirculated for use in the waste treatment process
	c.	Impermeable surface	**Currently Compliant.** The surface of the whole waste treatment area and site is serviced with impermeable surfacing
	d.	Reduce likelihood and impact of tank/vessel overflows and failures – see examples	**Currently Compliant.** All storage and process tanks are located on impermeable surface within a bunded area designed to CIRIA C736

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			standards. Tanks are concrete and incorporate a leak detection membrane
	e.	Roofing of waste storage and treatment areas	**Currently Compliant.** Waste is stored and treated in a covered waste reception building. Treatment of wastes take place inside sealed tanks
	f.	Segregation of water streams (being mindful of existing plant constraints)	**Currently Compliant.** Each water stream is collected and treated separately with rainwater harvested and stored in sealed tank prior to either use in the plant or clean discharge to soakaway
	g.	Adequate drainage infrastructure	**Currently Compliant.** The site has adequate drainage infrastructure. Clean uncontaminated rainwater is collected separately from leachate which is collected from within the reception building
	h.	Design and maintenance provisions to allow risk-based leak detection and repair. Minimise use of underground components.	**Currently Compliant.** Infrastructure, primary and secondary tanks are all visually inspected to check for leaks. Tanks also have leak detection membrane and visual inspection ports
	i.	Appropriate buffer storage capacity (being mindful of existing plant constraints)	**Currently Compliant.** Operator has stated requirement for buffer storage capacity is not applied on site. Although this information is not stated here against BATc19i, the BATc is considered to have been met given information provided elsewhere within submission. Additional storage tank (Tank 5No.) for buffer storage capacity prior to removal off site

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
20	**Treat wastewater using a combination of:**		
	Preliminary, primary and general treatment		
	a.	Equalisation	**Not Applicable.** Activities on site do not include any treatment of wastewater therefore these forms of treatment are not considered applicable.
	b.	Neutralisation	
	c.	Physical separation	
	Physico-chemical treatment		
	d.	Adsorption	**Not Applicable.** Activities on site do not include physico-chemical treatment of wastewater therefore these forms of wastewater treatment are not considered applicable.
	e.	Distillation/rectification	
	f.	Precipitation	
	g.	Chemical oxidation	
	h.	Chemical reduction	
	i.	Evaporation	
	j.	Ion exchange	
	k.	Stripping	
	Biological treatment		
	l.	Activated sludge process	**Not Applicable.** Activities on site do not include biological treatment of wastewater therefore these forms of treatment are not considered applicable.
	m.	Membrane bioreactor	
	Nitrogen removal		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	n.	Nitrification/denitrification (where biological treatment used)	**Not Applicable.** Activities on site do not include the removal of nitrogen via means of nitrification / denitrification. This form of wastewater treatment is not considered applicable.
	Solids removal		
	o.	Coagulation and flocculation	**Not Applicable.** Activities on site do not include the removal of solids from wastewater, therefore these forms of treatment are not considered applicable.
	p.	Sedimentation	
	q.	Filtration (sand, micro, ultra)	
	r.	Flotation	
	BAT-AELs for DIRECT discharges to a receiving waterbody (mg/l) *Table 6.1 and its supporting notes. Monitoring requirements are outlined in BAT 7*		
	TOC	10.0-60 10-100 for water-based liquid waste	**Not applicable** Permitted activities on site do not include any direct discharges to any receiving waterbody. BAT-EALs are therefore not applicable. Operator has confirmed there are no direct discharges to surface or groundwaters
	COD (TOC is preferred)	30-180 30-300 for water-based liquid waste	
	Suspended solids	5.0-60	
	HOI	0.5-10 applying to specific waste treatments	
	Total N	1-25 for biological treatment and waste oil re-refining 10-60 for water-based liquid waste	
	Total P	0.3-2 for biological treatment	

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		1-3 for water-based liquid waste	
	Phenol	0.05-0.2 for waste oil re-refining and physio-chemical treatment of waste with CV 0.05-0.3 for water-based liquid waste	
	Free CN-	0.02-0.1 for water-based liquid waste	
	AOX	0.2-1 for water-based liquid waste	
	Metals & Metalloids – specific waste treatments as listed in Table 6.1		
	As	0.01-0.05	**Not applicable** Permitted activities on site do not include any direct discharges to any receiving waterbody. BAT-EALs are therefore not applicable. Operator has confirmed there are no direct discharges to surface or groundwaters
	Cd	0.01-0.05	
	Cr	0.01-0.15	
	Cu	0.05-0.5	
	Pb	0.05-0.1	
	Ni	0.05-0.5	
	Hg	0.5-5	
	Zn	0.1-1	
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	**Not applicable** Permitted activities on site do not include any direct discharges to any receiving waterbody. BAT-EALs are therefore not
	Cd	0.01-0.1	
	Cr	0.01-0.3	

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Hexavalent Cr [Cr(VI]	0.01-0.1	applicable. Operator has confirmed there are no direct discharges to surface or groundwaters
	Cu	0.05-0.5	
	Pb	0.05-0.3	
	Ni	0.05-1	
	Hg	1.0-10	
	Zn	0.1-2	
	BAT-AELs for INDIRECT discharges to a receiving waterbody (mg/l) *Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7*		
	HOI	0.5-10 applying to specific waste treatments	**Not applicable** Permitted activities on site do not include any indirect discharges to any receiving waterbody. BAT-EALs are therefore not applicable. Operator has confirmed there are no discharges to sewer from the site
	Free CN-	0.02-0.1 for water-based liquid waste	
	AOX	0.2-1 for water-based liquid waste	
	Metals & Metalloids – specific waste treatments as listed in Table 6.2		
	As	0.01-0.05	**Not applicable** Permitted activities on site do not include any indirect discharges to any receiving waterbody. BAT-EALs are therefore not applicable. Operator has confirmed there are no discharges to sewer from the site
	Cd	0.01-0.05	
	Cr	0.01-0.15	
	Cu	0.05-0.5	
	Pb	0.05-0.1	

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Ni	0.05-0.5	
	Hg	0.5-5	
	Zn	0.1-1	
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	**Not applicable** Permitted activities on site do not include any indirect discharges to any receiving waterbody. BAT-EALs are therefore not applicable. Operator has confirmed there are no discharges to sewer from the site
	Cd	0.01-0.1	
	Cr	0.01-0.3	
	Hexavalent Cr [Cr(VI]	0.01-0.1	
	Cu	0.05-0.5	
	Pb	0.05-0.3	
	Ni	0.05-1	
	Hg	1.0-10	
	Zn	0.1-2	
EMISSIONS FROM ACCIDENTS AND INCIDENTS			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
21	**Techniques to prevent or limit the environmental consequences of accidents and incidents, as part of the Accident Management Plan. Use <u>ALL</u> of the following:**		
	a.	Protection measures – see examples	**Currently Compliant.** Measures are in place to protect the site and its plant from malevolent acts which include perimeter fencing with controlled access gates and regular inspection of the fence. The site also benefits from internal and external CCTV. There is a warning alarm relating to oxygen levels if they reach 3% and at 6% the engines automatically shut down [8]. Biogas is stored in the absence of oxygen to prevent fire and explosion. Smoke alarms and fire extinguishers are present on site. The automated central control system can be accessed remotely as well as on site allowing accessibility and operability of control equipment in emergency situations.
	b.	Management of incidental or accidental emissions	**Currently Compliant.** Operator's EMS includes procedures to manage emissions from accidents and incidents including: 'Accidents Risk Assessment'; site 'AQD 308 Emergency Plan'; 'QP 25 Spillage Procedure'; 'QP07 First Aid, Fire and Emergency Procedures'; 'QP 26 Accident and Incident Reporting and Investigation' and 'AQD 190 Emergency Preparedness Register'.
	c.	Incident/accident registration and assessment system – see examples	**Currently Compliant.** Operator's EMS includes AQD 018 accident / incidents reporting form. All investigations and conclusions of

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			them along with any corrective or preventive actions are recorded on form AQD 018a
MATERIAL EFFICIENCY			
22	**Use materials efficiently by substituting materials with waste e.g. waste acids/alkalis for pH adjustment, fly ashes for binders**		**Currently Compliant.** Operator has stated N/a within response however this BAT Conclusion is applicable. Feedstocks for the plant are primarily food / liquid wastes rather than purpose grown energy crops. The site also re-circulates substrate in place of using potable water. No further evidence required from the Operator as information provided elsewhere within their submission
ENERGY EFFICIENCY			
23	**Use energy efficiently by using <u>both</u> of the following techniques:**		
	a.	Energy efficiency plan	**Compliant in the future.** Operator has stated EEP will be implemented prior to the compliance date. An improvement condition has been included within the permit to ensure compliance prior to deadline (IC7).

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Energy balance record	**Currently Compliant.** The site maintains a Mass Energy Balance which provides information on: (i) both electrical and thermal energy consumption of the plant. (ii) the electrical energy exported from the installation (thermal energy is used on site). A Process Flow Diagram also illustrates where electricity and heat are generated and used.
REUSE OF PACKAGING			
24	**Maximise the reuse of packaging as part of a Residues Management Plan (see BAT 1 XII.)**		**Currently Compliant.** Majority of waste delivered to site in RCVs (Refuse Collection Vehicles). Occasionally some packaging containers/pallets received which are either reused on site or sent off site for recycling / disposal. A formal residues management plan incorporating information on process residues and how to minimise them where necessary will be implemented prior to the compliance date. (See BATc 1XII)
MECHANICAL TREATMENT OF WASTE (GENERAL BAT)			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
25	**Reduce emissions to air of dust, particulate-bound metals, PCDD/F and dioxin-like PCBs by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Cyclone – see S6.1	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of waste undertaken at the AD Plant
	b.	Fabric filter – see S6.1	
	c.	Wet scrubbing – see S6.1	
	d.	Water injection into the shredder	
	BAT-AEL for channelled dust emissions to air from the mechanical treatment of waste (mg/Nm3) *Table 6.3 and its supporting note. Monitoring requirements are outlined in BAT 8*		
	Dust	2.0-5.0	**Not applicable.** As above
MECHANICAL TREATMENT OF METAL WASTE BY SHREDDING			
26	**Improve overall environmental performance and prevent emissions due to accidents and incidents. Use BAT 14g <u>AND ALL</u> of the following techniques:**		
	(a)	Detailed inspection procedure for baled waste before shredding	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of metal waste by shredding undertaken at the AD Plant.
	(b)	Remove dangerous items from waste inputs and dispose of them in a safe manner	
	(c)	Treatment of containers accompanied by a declaration of cleanliness	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
27	**Prevent deflagrations and reduce emissions from deflagrations. Use technique a. AND ONE OR BOTH of techniques b. and c.**		
	a.	Deflagration management plan with reduction programme, incident review and response protocol	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of metal waste by shredding undertaken at the AD Plant
	b.	Pressure relief dampers	
	c.	Pre-shredding (device)	
28	**Use energy efficiently by keeping the shredder feed stable**		**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of metal waste by shredding undertaken at the AD Plant
MECHANICAL TREATMENT OF WEEE CONTAINING VFCS AND/OR VHCS			
29	**Techniques to prevent, or where not practicable reduce emissions of organic compounds to air. Apply BAT 14d AND BAT14h AND technique a. AND ONE OR BOTH of techniques b. and c.**		
	a.	Optimised removal and capture of refrigerants and oils	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of WEE containing VFCS and/or VHCS undertaken at the AD Plant
	b.	Cryogenic condensation	
	c.	Adsorption	
	BAT-AELs for channelled TVOC and CFC emissions to air from treatment of WEEE containing VFCs and/or VHCs (mg/Nm3) *Table 6.4. Monitoring requirements are outlined in BAT 8*		
	TVOC	3.0-15	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	CFCs	0.5-10	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of WEE containing VFCS and/or VHCS undertaken at the AD Plant
30	**Prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs. Use <u>EITHER</u> of the following techniques:**		
	a.	Inert atmosphere e.g. N2	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of WEE containing VFCS and/or VHCS undertaken at the AD Plant
	b.	Forced ventilation	
MECHANICAL TREATMENT OF WASTE WITH CALORIFIC VALUE			
31	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of waste with calorific value undertaken at the AD Plant
	b.	Biofilter – see S6.1	
	c.	Thermal oxidation – see S6.1	
	d.	Wet scrubbing – see S6.1	
	BAT-AEL for channelled TVOC emissions to air from the mechanical treatment of waste with calorific value (mg/Nm3) *Table 6.5 and its supporting note. Monitoring requirements are outlined in BAT 8*		
	TVOC	10.0-30.0	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of waste with calorific value undertaken at the AD Plant

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
MECHANICAL TREATMENT OF WEEE CONTAINING MERCURY		
32	**Reduce mercury emissions to air by collecting them at source, sending them to abatement and carrying out adequate monitoring. This includes ALL of the following:**	
	Equipment is enclosed, under negative pressure and connected to a LEV system	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of WEEE containing mercury undertaken at the AD Plant
	Waste gas treated using dedusting techniques – see examples – followed by adsorption on activated carbon	
	Monitoring of waste gas treatment efficiency	
	Mercury levels measured at least weekly within treatment and storage areas	
	BAT-AEL for channelled mercury (Hg) emissions to air from the mechanical treatment of WEEE containing mercury (µg/Nm3) *Table 6.6. Monitoring requirements are outlined in BAT 8*	
	Hg: 2.0-7.0	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical treatment of WEEE containing mercury undertaken at the AD Plant
BIOLOGICAL TREATMENT OF WASTE (GENERAL BAT)		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
33	**Reduce odour emissions and improve overall environmental performance by selecting the waste input (to ensure its suitability for biological treatment). See also BAT 2**		**Currently Compliant.** Operator has confirmed they apply waste characterisation, pre-acceptance and acceptance procedures on site to ensure the suitability of the waste inputs, both in line with environmental permit conditions and also the treatment process requirements. See BATc2 response for further details
34	**Reduce emissions to air of dust, organic compounds and odorous compounds (including H2S & NH3) by using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**Currently Compliant.** Operator has stated against BATc 3 - page 11 that the site uses netting within the digesters to limit generation of H2S in addition to using activated carbon filtration in gas upstream of engine. Although this information is not stated against BATc34 the BATc is considered to have been met given the information provided elsewhere within their submission
	b.	Biofilter – see S6.1	**Compliant in the Future:** AD plant uses a biofilter to treat malodours are collected from the waste reception building air extraction system with extracted gaseous emissions passing through bark and wood media. The site has a biofilter and scrubber unit for abating odour from the process. Monitoring of Ammonia and Hydrogen Sulphide added to Table S3.1 within Schedule 3 (b). Emissions and monitoring effective from 17 August 2022.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Fabric filter – see S6.1.	**Not Applicable.** Operator has confirmed AD plant does not currently use fabric filters on site as no direct discharges of dust to atmosphere from the process.
	d.	Thermal oxidation – see S6.1	**Currently Compliant.** Response has stated (BATc 3 - page 11) that the site uses high temperature flare to ensure complete destruction of VOCs in gas stream. Gas Engines are also monitored annual to ensure VOC limits are met and engine is operating within permitted operating window. Although this information is not stated against BATc34 the BATc is considered to have been met given the information is provided elsewhere within their submission
	e.	Wet scrubbing – see S6.1	**Currently Compliant.** The Operator uses a water scrubber installed in odour abatement upstream of biofilter to removal odour compounds prior to air being treated through biofilter
	BAT-AEL for channelled NH3, odour, dust and TVOC emissions to air from the biological treatment of waste (mg/Nm3) (ou_E/m3) *Table 6.7 and its supporting notes. Monitoring requirements are outlined in BAT 8*		
	NH3	0.3-20	**Compliant in Future** The site has a biofilter and scrubber unit for abating odour from the process. The site does not currently monitor for any parameters from their biofilter filter emission point. Monitoring of Ammonia and Hydrogen Sulphide added to
	Odour	200-1000	
	Dust	2.0-5.0	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Table S3.1 within Schedule 3 (b). Emissions and monitoring effective from 17 August 2022.
	TVOC	5.0-40	**Not Applicable:** Not required to be monitored under current permit conditions.
35	**Reduce the generation of wastewater and reduce water usage by using <u>ALL</u> of the following:**		
	a.	Segregation of water streams (see also BAT 19f)	**Currently Compliant.** Solid waste reception bunker is situated indoors thus segregating storage area from rainwater.
	b.	Water recirculation	**Currently Compliant.** All wastewater generated on site is recirculated for use in the waste treatment process. Water collected in the rainwater harvesting tank is also used within the process. An overflow from the rainwater harvesting tank is used to discharge to soakaway (following testing) where necessary
	c.	Minimisation of the generation of leachate	**Currently Compliant.** Operator has stated within their response that BATc35c is N/a as there is no leachate produced at the AD Plant however the plant does produce leachate from stored feedstock areas and reception bunker area. All leachate from these storage areas is contained, collected and fed into the AD process and NRW have therefore determined the site as compliant with this BAT conclusion
BIOLOGICAL TREATMENT OF WASTE: AEROBIC METHODS			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
36	**Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:**		
	Waste input characteristics e.g. C to N ratio, particle size		**Not applicable** Operator has confirmed N/a within response as there are no activities involving the Biological treatment of waste via aerobic methods undertaken at the AD Plant
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)		
	Aeration of the windrow		
	Windrow porosity, height and width		
37	**Reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps. Use <u>ONE OR BOTH</u> of the following techniques:**		
	a.	Use of semi-permeable membrane covers	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the Biological treatment of waste via aerobic methods undertaken at the AD Plant
	b.	Adaptation of operations to the meteorological conditions	
BIOLOGICAL TREATMENT OF WASTE: ANAEROBIC METHODS			
38	**Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:**		
	Implement a manual and/or automatic monitoring system to:		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Ensure a stable digester operation	**Currently Compliant.** The AD plant uses a SCADA system, an electronic engine management system (for CHP engines) which monitor (together with manual monitoring) the AD process to ensure a stable digester operation
	Minimise operational difficulties and associated odour emissions	**Currently Compliant.** Operational difficulties (such as foaming) are controlled by effective process control. This is supported by monitoring a number of parameters to prevent foaming/odours: waste inputs for high calorific value feedstuff, feeding rates, ratio of organic acids: total inorganic carbon, organic loading rate, visual checks of each digester through inspection portholes, digester temperature, tank fill levels, stirrer positions and duty times.
	Provide sufficient early warning of system failures	**Currently Compliant.** The AD plant has a SCADA system installed which continually monitors operations on site and utilises an alarm system notifying the site manager and operations manager of any issues.
	Monitoring and/or control of key waste and process parameters – examples below:	
	pH and alkalinity of the digester feed	**Compliant in Future:** The site's Anaerobic Digestion system is run through SCADA which is an automatic and /or manual monitoring system
	Digester operating temperature	
	Hydraulic and organic loading rates of the digester feed	
	Volatile fatty acids and NH3 concentrations within digester & digestate	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Biogas quantity, composition (e.g. H2S) and pressure		This system monitors temperatures, flow, feed rates, tank levels, open/closed status of valves etc, to ensure stable digester operation. The Operator has not provided sufficient information in order to demonstrate full compliance with this BAT conclusion. Thus, an improvement condition has been included within the permit for the sites process monitoring procedures to be amended to ensure compliance with BAT 38 prior to compliance deadline (IC8).
	Liquid and foam levels in the digester		
MECHANICAL BIOLOGICAL TREATMENT (MBT) OF WASTE			
39	**Reduce emissions to air. Generally applicable to new plants, existing plants may have layout constraints. Use <u>BOTH</u> of the following techniques:**		
	a.	Segregation of the waste gas streams (refer to inventory described in BAT 3)	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the mechanical biological treatment (MBT) of waste undertaken at the AD Plant
	b.	Recirculation of waste gas. Waste gas treatment is described in BAT 34 and recirculation in BAT 35.	
PHYSICO-CHEMICAL TREATMENT OF SOLID AND/OR PASTY WASTE			

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
40	**Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.**	
	Monitoring the waste input	
	Content of organics, oxidising agents, metals, salts, odorous compounds	**Not applicable** Operator has confirmed within response there are no activities involving the physical-chemical treatment of solid and/or pasty waste undertaken at the AD plant
	H2 formation potential upon mixing of flue-gas treatment residues/ashes with water	
41	**Reduce emissions to air of dust, organic compounds and NH3 by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**	
	a. Adsorption – see S6.1	**Not applicable** Operator has confirmed within response there are no activities involving the physical-chemical treatment of solid and/or pasty waste undertaken at the AD plant
	b. Biofilter – see S6.1	
	c. Fabric filter – see S6.1.	
	d. Wet scrubbing – see S6.1	
	BAT-AEL for channelled NH3, odour, dust and TVOC emissions to air from the physico-chemical treatment of solid and/or pasty waste (mg/Nm3) *Table 6.8. Monitoring requirements are outlined in BAT 8*	
	Dust 2.0-5.0	**Not applicable.** Operator has confirmed no point source or channelled emissions to atmosphere from the process
RE-REFINING OF WASTE OIL		

BATc number			Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
42	**Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.**			
	Monitoring the waste input			
	Chlorinated compounds e.g. solvents or PCBs			**Not applicable** Operator has confirmed N/a within response as there are no activities involving the re-refining of Waste Oil undertaken at the AD Plant
43	**Reduce quantity of waste sent for disposal by using <u>ONE OR BOTH</u> of the following techniques:**			
	a.		Material recovery e.g. organic residues in asphalt products	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the re-refining of Waste Oil undertaken at the AD Plant
	b.		Energy recovery	
44	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**			
	a.		Adsorption – see S6.1	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the re-refining of Waste Oil undertaken at the AD Plant
	b.		Thermal oxidation – see S6.1	
	c.		Wet scrubbing – see S6.1	
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. *Monitoring requirements are outlined in BAT 8*			
PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CALORIFIC VALUE				
45	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Adsorption – see S6.1	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the physico-chemical treatment of waste with calorific value undertaken at the AD Plant
	b.	Cryogenic condensation – see S6.1	
	c.	Thermal oxidation – see S6.1	
	d.	Wet scrubbing – see S6.1	
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. *Monitoring requirements are outlined in BAT 8*		
REGENERATION OF SPENT SOLVENTS			
46	**Improve overall environmental performance by using <u>ONE OR BOTH</u> of the following techniques:**		
	a.	Material recovery (by evaporation from distillation residues)	**Not applicable** Operator has confirmed within response there are no activities involving the regeneration of spent solvents undertaken at the AD plant
	b.	Energy recovery e.g. using distillation residues	
47	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using <u>a combination of</u> the following techniques:**		
	a.	Recirculation of process off-gases in a steam boiler. Avoid generating PCBs and/or PCDD/Fs	**Not applicable** Operator has confirmed within response there are no activities involving the regeneration of spent solvents undertaken at the AD plant
	b.	Adsorption – see S6.1	
	c.	Thermal oxidation – see S6.1. Avoid generating PCBs and/or PCDD/Fs	
	d.	Condensation or cryogenic condensation	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	e.	Wet scrubbing – see S6.1	
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. *Monitoring requirements are outlined in BAT 8*		
	BAT-AEL FOR EMISSIONS OF ORGANIC COMPOUNDS TO AIR – SECTION 4.5 (RE-REFINING OF WASTE OIL) (PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CV) (REGENERATION OF SPENT SOLVENTS)		
	BAT-AEL for channelled TVOC emissions to air from the re-refining of waste oil, physico-chemical treatment of waste with calorific value and regeneration of spent solvents (mg/Nm3) *Table 6.9 and its supporting note. Monitoring requirements are outlined in BAT 8*		
	TVOC	5.0-30	**Not Applicable** for reasons provided above
	THERMAL TREATMENT OF SPENT ACTIVATED CARBON, WASTE CATALYSTS AND EXCAVATED CONTAMINATED SOIL		
48	**Improve overall environmental performance by using <u>ALL</u> of the following techniques:**		
	a.	Heat recovery from the furnace off-gas e.g. for preheating combustion air or steam generation	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the thermal treatment of spent

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Indirectly fired furnace i.e. avoids contact between the furnace contents and the burner flue-gases. Note applicability constraints.	activated carbon, waste catalysts and excavated contaminated soil undertaken at the AD Plant
	c.	Process-integrated techniques to reduce emissions to air – see examples	
49	**Reduce emissions to air of HCl, HF, dust and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Cyclone – see S6.1	**Not applicable** Operator has confirmed N/a within response as there are no activities involving the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil undertaken at the AD Plant
	b.	Electrostatic precipitator (ESP) – see S6.1	
	c.	Fabric filter – see S6.1	
	d.	Wet scrubbing – see S6.1	
	e.	Adsorption – see S6.1	
	f.	Condensation – see S6.1	
	g.	Thermal oxidation – see S6.1	
	Note supporting text for BAT 49g (thermal oxidation) *Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.*		
WATER WASHING OF EXCAVATED CONTAMINATED SOIL			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
50	**Reduce emissions to air of dust and organic compounds from the storage, handling and washing steps by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**Not applicable** Operator has confirmed within response there are no activities involving the washing of excavated contaminated soils at the AD Plant
	b.	Fabric filter – see S6.1	
	c.	Wet scrubbing – see S6.1	
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
Decontamination of equipment containing PCBs			
51	**Reduce emissions to air of PCBs and organic compounds and improve overall environmental performance by using <u>ALL</u> of the following techniques:**		
	a.	Coating of the storage and treatment areas – see examples	**Not applicable** Operator has confirmed N/a within response, as there are no activities involving the decontamination of equipment containing PCBs undertaken at the AD Plant
	b.	Implementation of staff access rules to prevent dispersion of contamination – see examples	
	c.	Optimised equipment cleaning and drainage – see examples	
	d.	Control and monitoring of emission to air – see examples	
	e.	Disposal of waste treatment residues – see examples	
	f.	Recovery of solvent when solvent washing is used	

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.	
	TREATMENT OF WATER-BASED LIQUID WASTE	
52	**Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.**	
	Monitoring the waste input	
	Bioeliminability e.g. BOD, BOD-COD ratio, Zahn-Wellens test, biological inhibition potential	**Not applicable** Operator has confirmed N/a within response as there are no water-based liquid waste accepted at the AD Plant
	Feasibility of emulsion breaking e.g. lab testing	
53	**Reduce emissions to air of HCl, NH3 and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**	
	a. Adsorption – see S6.1	**Not applicable** Operator has confirmed N/a within response as there are no water-based liquid wastes accepted at the AD Plant
	b. Biofilter – see S6.1	
	c. Thermal oxidation – see S6.1.	
	d. Wet scrubbing – see S6.1	
	BAT-AELs for channelled HCl and TVOC emissions to air from the treatment of water-based liquid waste (mg/Nm3) *Table 6.10 and its supporting notes. Monitoring requirements are outlined in BAT 8*	
	HCl 1.0-5.0	**Not applicable** Operator has confirmed N/a within response as there are no water-based liquid wastes accepted at the AD Plant
	TVOC 3.0-20	

Annex 2: Consultation on the draft decision where an Article 15(4) derogation has been applied

None