Permitting Decisions - Variation

We have decided to grant the variation for Hemswell Cliff Anaerobic Digestion Facility operated by Hemswell Biogas Limited.

The variation numbers are EPR/AP3338AX/V007 and EPR/AP3338AX/V008.

We have also carried out an Environment Agency initiated variation to the permit.

Changes introduced by this variation notice/statutory review – EPR/AP3338AX/V007

The Industrial Emissions Directive (IED) came into force on 7 January 2014 with the requirement to implement all relevant Best Available Techniques (BAT) Conclusions as described in the Commission Implementing Decision. Article 21(3) of the IED requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. The BAT Conclusions for Waste Treatment was published on 17 August 2018 following a European Union wide review of BAT, implementing decision (EU) 2018/1147 of 10 August 2018.

The scope of the permit review also covers the assessment of:

- the bioaerosols monitoring and compliance with M9 bioaerosols monitoring requirements;
- the design and construction of secondary containment and storage lagoons;
- the available storage facilities and measures to reduce ammonia emissions from storage; and
- information on existing medium combustion plant and/or specified generators on site.

Changes introduced by this variation made by the operator - EPR/AP3338AX/V008

The consolidated variation authorises the following changes:

- Increase to the permit boundary to include the third digester tank;
- Addition of a centrifuge oil separation unit;
- Addition of bio-oil storage tank;

This variation has been issued to update some of the conditions following a statutory review of the permits in the industry sector for biowaste treatment. We

have taken the opportunity to update and consolidate the original permit and subsequent variations.

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.

We have issued both variations (EPR/AP3338AX/V007 and EPR/AP3338AX/V008) as one notice.

Purpose of this document

This decision document provides a record of the decision-making process. It**:**

- highlights key issues in the determination
- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account
- explains why we have also made an Environment Agency initiated variation

Unless the decision document specifies otherwise, we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

Improvement conditions

Based on the information in the application and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the Waste Treatment BREF /BAT Conclusions are achieved by the operator. These improvement conditions and justifications for them are provided below.

Improvement condition 1 – primary containment

We have not assessed primary containment as part of the biowaste treatment permit review. This information was not requested in the Regulation 61 Notice issued to the operator. We have therefore set improvement condition 1 in the permit to address this aspect of the permit review.

Improvement condition 2 – existing site secondary containment

We asked the operator via the Regulation 61 Notice to:

- describe any secondary containment and whether it currently meets the relevant standard in the "Containment systems for the prevention of pollution (C736)" report, where there are above-ground storage or primary containment on site; or

- explain why the current site infrastructure design and construction is fit for purpose, where it is concluded that secondary containment is not required or does not need to meet the standards in the C736 report, to enable a baseline standard so as to establish a quantified comparison; and

- describe how the construction of the lagoons meets the relevant standard in CIRIA C736 report, where there are storage lagoons used for the storage of digestate on site.

The Operator's report included a review of the design, method of construction and integrity of the site secondary containment and storage which was carried out by a structural or civil engineer. The review compared the existing site secondary containment against CIRIA C736 or other [relevant industry standard]. The report included a review of the:

- physical condition of the secondary containment
- the suitability for providing containment when subjected to the dynamic and static loads caused by catastrophic tank failure;
- a preventative maintenance and inspection regime;
- future work required to ensure compliance with the standards set out in CIRIA C736 or other relevant industry standard; and
- Recommendations (where relevant)

We assessed the Operator's assessment having regard to following guidance documents:

- CIRIA C736 Containment systems for the prevention of pollution
- ADBA Industry Guide: Secondary Containment at AD Plants (Version 1, 2016);
- ADBA PROjEN AD Containment Classification Tool

We reviewed the Operator's report and its findings. We are not satisfied that the existing site containment meets the standards set out in CIRIA C736.

We have set an improvement condition in the permit to address the deficiencies in the existing site secondary containment (IC2). There are no storage lagoons on site. See Improvement Conditions in Annex 3 of this decision document.

<u>Improvement condition 3 – operational contingency storage capacity</u>

We asked the Operator via the Regulation 61 Notice to confirm whether or not the operational storage capacity provides a minimum of two months storage: The Operator did not provide any information in response to operational digestate storage capacity on site.

We have therefore set an Improvement Condition (IC3) in the permit to address this aspect of the permit review.

Improvement condition 4 – review of effectiveness of abatement plant

The operator provided information to support compliance with BATc 34. There is a biofilter installed at the facility. As part of the Environment Agency approach to reduce emissions in the biowaste treatment sector, we have set improvement condition 4. The improvement condition requires the operator to review abatement plant on site, in order to determine whether existing measures have been effective and adequate to prevent and /or minimise emissions released to air. Where further improvements are identified, the operator is required to implement these measures.

Improvement condition 5 – assessment of methane slip

We have temporarily removed the need to monitor emissions of volatile organic compounds (VOCs) from the combustion of biogas in gas engines. We have included improvement condition 5 in the permit which requires the operator to assess methane slip resulting from the combustion of biogas via the CHP engine. Following an assessment of the data, the Environment Agency shall consider whether or not emission limits for volatile organic compounds are applicable for this installation.

Bioaerosols monitoring requirements

We asked the operator to confirm the following aspects regarding the site operations in the Regulation 61 Notice:

- Whether or not the operational processes of biodegradable waste are in open processes within 250 metres of human receptors.
- Whether or not there is a channelled or point source release within 250 metres that are open sources e.g. biofilters within 250 metres of human receptors; and
- The existing permit contains bioaerosols monitoring requirements, the microbiological markers, associated bioaerosols limits and the monitoring standards.

The operator provided information regarding bioaerosols monitoring in their response to the Regulation 61 Notice. We carried out an assessment of the site location and the distance of site processes from sensitive receptors as part of this determination. In addition, the site operates a biofilter which is located within 250 metres of a sensitive receptor.

We consider it appropriate to insert the bioaerosols monitoring requirements in the permit in accordance with our guidance TGN M9 Environmental monitoring of bioaerosols at regulated facilities (version 2, July 2018). The operator is required to comply with the new monitoring requirements from the date of permit issue.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 ‘Understanding the meaning of regulated facility’ and Appendix 2 of RGN2 ‘Defining the scope of the installation’.

The operator has provided the grid reference for the emission points from the medium combustion plants/specified generator.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

This shows the extent of the site of the facility.

The plan is included in the permit.

Site condition report

The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is not within our screening distances for these designations.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator’s risk assessment is satisfactory.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Odour management

We have reviewed the odour management plan in accordance with our guidance on odour management.

We consider that the odour management plan is satisfactory and we approve this plan.

We have approved the odour management plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The applicant should keep the plans under constant review and revise them annually or if necessary sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance ‘Control and monitor emissions for your environmental permit’.

The plan has been incorporated into the operating techniques S1.2.

Updating permit conditions during consolidation

We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

Changes to the permit conditions due to an Environment Agency initiated variation

We have varied the permit as stated in the variation notice.

We have updated the permit to include the Fire Prevention Plan condition as an Environment Agency initiated variation. This requires the Operator to take all appropriate measures to prevent fires on site and minimise the risk of pollution from them.

Raw materials

We have specified limits and controls on the use of raw materials and fuels.

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility. The wastes are specified in Table S2.2 in the permit.

We are satisfied that the operator can accept these wastes for the following reasons:

- they are suitable for the proposed activities
- the proposed infrastructure is appropriate; and
- the environmental risk assessment is acceptable.

Other wastes (non-standard waste codes)

The following wastes in the current permit are not specified in the revised biowaste treatment permit templates. We have retained these wastes in the current permit provided the Operator undertakes a detailed characterisation of the wastes prior to acceptance for treatment at the site in accordance with BATc 2a.

Waste code	Description
03 03 02	green liquor sludge
03 03 08	paper and cardboard – not allowed if any non-biodegradable coating or preserving substance is present
03 03 10	fibre rejects and sludges i.e. paper pulp (de-inked only), paper fibre
04 01 01	fleshings and lime split wastes
04 01 05	tanning liquor free of chromium
04 01 07	sludges not containing chromium
07 02 13	waste plastic – discarded compostable packaging made of biodegradable material – must be independently certified to BS EN 13432

Waste code	Description
19 05 01	non-composted fraction of municipal or similar wastes – acceptable only if derived solely from input types allowed by the Anaerobic Digestate Quality Protocol and remains segregated from, and uncontaminated by, any other waste type.
19 05 02	non-composted fraction of animal and vegetable waste – acceptable only if derived solely from input types allowed by the Anaerobic Digestate Quality Protocol and remains segregated from, and uncontaminated by, any other waste type.
19 05 03	off-specification compost (from a composting process that accepts waste input types listed in this table only)
20 01 38	untreated wood where no non-biodegradable coating or preserving substance is present

We made this decision with respect to waste types in accordance with the Framework Guidance Note – *Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment* (July 2013).

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

We have included an improvement programme to ensure that. See key issues section.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.

These monitoring requirements have been imposed in order to demonstrate compliance with the conditions of the permit for operations requiring the management of air emissions. We made these decisions in accordance with LFTGN 05: Guidance for monitoring enclosed landfill gas flares which is considered the most appropriate TGN for this activity.

Based on the information in the application, we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have specified reporting in the permit. As the monitoring of point source emissions to air is only required annually, reporting is also required annually.

Reporting forms have been prepared to facilitate reporting of data in a consistent format. These reporting requirements are deemed sufficient and proportional for the Installation. We made these decisions in accordance with the requirements of the Industrial Emissions Directive (IED) and the Waste Treatment BREF /BAT Conclusions 2018.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Annex 1: decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment Sector were published by the European Commission on 18 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 annex should be read in conjunction with the Consolidated Variation Notice.

The overall status of compliance with the BAT conclusion is indicated in the table as:

NA – Not Applicable
CC – Currently Compliant
NC – Not Compliant

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
1	In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features: I. commitment of the management, including senior management; II. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation; III. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment. IV. implementation of procedures paying particular attention to: (a) structure and responsibility, (b) recruitment, training, awareness and competence, (c) communication, (d) employee involvement, (e) documentation, (f) effective process control, (g) maintenance programmes, (h) emergency preparedness and response, (i) safeguarding compliance with environmental legislation; V. checking performance and taking corrective action, paying particular attention to:	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 1. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED installations – ROM), (b) corrective and preventive action, recruitment, training, awareness and competence, (c) maintenance of records, (d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness; VII. following the development of cleaner technologies; VIII. consideration for the environmental impacts from the eventual decommissioning of the plant at the stage of designing a new plant, and throughout its operating life; IX. application of sectoral benchmarking on a regular basis; X. waste stream management (see BAT 2); XI. an inventory of waste water and waste gas streams (see BAT 3); XII. residues management plan (see description in Section 6.5); XIII. accident management plan (see description in Section 6.5); XIV. odour management plan (see BAT 12) XV. noise and vibration management plan (see BAT 17).		

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
2	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques listed below: (a) Set up and implement waste characterisation and pre-acceptance procedures; (b) Set up and implement waste acceptance procedures; (c) Set up and implement a waste tracking system and inventory; (d) Set up and implement an output quality management system; (e) Ensure waste segregation; (f) Ensure waste compatibility prior to mixing or blending of waste; (g) Sort incoming solid waste	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 2. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
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: (i) information about the characteristics of the waste to be treated and the waste treatment processes, including: (a) simplified process flow sheets that show the origin of the emissions; (b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances;	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 3. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(ii) information about the characteristics of the waste water streams, such as: (a) average values and variability of flow, pH, temperature, and conductivity; (b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, priority substances /micropollutants); (c) data on bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)) (see BAT 52); (iii) information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature; (b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs); (c) flammability, lower and higher explosive limits, reactivity; (d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust).		
4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below: (a) Optimised storage location; (b) Adequate storage capacity; (c) Safe storage operation; (d) Separate area for storage and handling of packaged hazardous waste.	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 4. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
5	In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures. Handling and transfer procedures aim to ensure that wastes are safely handled and transferred to the respective storage or treatment. They include the following elements: • handling and transfer of waste are carried out by competent staff; • handling and transfer of waste are duly documented, validated prior to execution and verified after execution; • measures are taken to prevent, detect and mitigate spills; • operation and design precautions are taken when mixing or blending wastes (e.g. vacuuming dusty/powdery wastes). Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 5. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
6	For relevant emissions to water as identified by the inventory of waste water streams (see BAT 3), BAT is to monitor key process parameters (e.g. waste water flow, pH, temperature, conductivity, BOD) at key locations (e.g. at the inlet	**NA**	**Not Applicable** We are satisfied that BATc 6 is not applicable to this Installation as water is recirculated into

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).		the process and in general there is no emission to water. There are no emissions to water from the process
7	BAT is to monitor emissions to water with at least the frequency given in BATc 7, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	**NA**	**Not Applicable** We are satisfied that BATc 7 is not applicable to this Installation as water is recirculated into the process and in general there is no emission to water. There are no emissions to water from the process
8	BAT is to monitor channelled emissions to air with at least the frequency given in BATc 8, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	**NC**	**Not Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 8. We have assessed the information provided. We are not satisfied that the operator has demonstrated compliance with BATc 8 as there is no monitoring for H_2S, NH_3 or odour concentration. This needs to be added to the monitoring schedule We have set out our approach to enforcement in Chapter 2 of this document. We shall

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			undertake BAT compliance at this installation in accordance with our enforcement and sanctions policy.
10	BAT is to periodically monitor odour emissions. Odour emissions can be monitored using: • EN standards (e.g. dynamic olfactometry according to EN 13725 in order to determine the odour concentration or EN 16841-1 or -2 in order to determine the odour exposure); • when applying alternative methods for which no EN standards are available (e.g. estimation of odour impact), ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. The monitoring frequency is determined in the odour management plan (see BAT 12).	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 10. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
11	BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water, with a frequency of at least once per year.	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 11. We have assessed the information provided and we are

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	Monitoring includes direct measurements, calculation or recording, e.g. using suitable meters or invoices. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level) and considers any significant changes in the plant/installation.		satisfied that the operator has demonstrated compliance with this BATc.
12	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements: • a protocol containing actions and timelines; • a protocol for conducting odour monitoring as set out in BAT 10; • a protocol for response to identified odour incidents, e.g. complaints; • an odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures.	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 12. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
13	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given below: (a) Minimising residence times; (b) Using chemical treatment; (c) Optimising aerobic treatment	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 13. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
14	In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below: (a) Minimising the number of potential diffuse emission sources; (b) Selection and use of high-integrity equipment; (c) Corrosion prevention; (d) Containment, collection and treatment of diffuse emissions; (e) Dampening; (f) Maintenance; (g) Cleaning of waste treatment and storage areas; (h) Leak detection and repair (LDAR) programme	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 14. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
15	BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below: (a) Correct plant design; (b) Plant management	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 15. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
16	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below: (a) Correct design of flaring devices; (b) Monitoring and recording as part of flare management	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 16. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
17	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements: I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to measure /estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and /or reduction measures.	**NA**	**Not Applicable** We are satisfied that BATc 39 is not applicable to this Installation as there are no noise issues on site.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
18	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below: (a) Appropriate location of equipment and buildings; (b) Operational measures; (c) Low noise-equipment; (d) Noise and vibration equipment; (e) Noise attenuation	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 18. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
19	In order to optimise water consumption, to reduce the volume of waste water generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below: (a) Water management; (b) Water recirculation; (c) Impermeable surface; (d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels; (e) Roofing of waste storage and treatment areas; (f) Segregation of water streams (g) Adequate drainage infrastructure; (h) Design and maintenance provisions to allow detection and repair of leaks	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 19. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(i) Appropriate buffer storage capacity		
20	In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of the techniques given below: ***Preliminary and primary treatment, e.g.*** (a) Equalisation (b) Neutralisation (c) Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks ***Physico-chemical treatment, e.g.*** (d) Adsorption (e) Distillation /rectification (f) Precipitation (g) Chemical oxidation (h) Chemical reduction (i) Evaporation (j) Ion exchange (k) Stripping ***Biological treatment, e.g.*** (l) Activated sludge process	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 20. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(m) Membrane bioreactor (n) Nitrification / denitrification when the treatment includes a biological treatment ***Solids removal, e.g.*** (o) Coagulation and flocculation (p) Sedimentation (q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) (r) Flotation See also: Table 6.1: BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body See also: Table 6.2: BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body		
21	In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan (see BAT 1): (a) Protection measures; (b) Management of incidental /accidental emissions;	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 21. We have assessed the information provided and we are

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(c) Incident /accident registration and assessment system		satisfied that the operator has demonstrated compliance with this BATc.
22	In order to use materials efficiently, BAT is to substitute materials with waste. Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids are used for pH adjustment, fly ashes are used as binders).	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 22. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
23	In order to use energy efficiently, BAT is to use both of the techniques given below: (a) Energy efficiency plan; (b) Energy balance record	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 23. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
24	In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1). Packaging (drums, containers, IBCs, pallets, etc.) is reused for containing waste, when it is in good condition and sufficiently clean, depending on a compatibility check between the substances contained (in consecutive uses). If necessary, packaging is sent for appropriate treatment prior to reuse (e.g. reconditioning, cleaning).	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 24. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
33	In order to reduce odour emissions and to improve the overall environmental performance, BAT is to select the waste input. The technique consists of carrying out the pre-acceptance, acceptance and sorting of the waste input (see BAT 2) so as to ensure the suitability of the waste input for the waste treatment, e.g. in terms of nutrient balance, moisture or toxic compounds which may reduce the biological activity.	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 33. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
34	In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H_2S and NH_3, BAT is to use one or a combination of the techniques given below: (a) Adsorption;	**CC**	**Environment Agency assessment** The operator provided information to support compliance with BATc 34. A biofilter and is installed at the facility.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(b) Biofilter; (c) Fabric filter; (d) Thermal oxidation; (e) Wet scrubbing See also: Table 6.7: BAT-associated emission levels (BAT-AELs) for channelled NH_3, odour, dust and TVOC emissions to air from the biological treatment of waste.	**BATc 34, Table 6.7** **NC**	We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 34. We have set a BAT-AEL for ammonia as specified in the Waste Treatment BREF and BAT Conclusions. In addition to the BAT-AEL, we have inserted the requirement to monitor odour concentration, hydrogen sulphide and ammonia on a 6-monthly frequency in Table S3.2 (process monitoring). As part of the Environment Agency approach to reduce emissions in the biowaste treatment sector, we have included the following improvement conditions:

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			Improvement condition for the review of effectiveness of abatement plant Improvement condition 4 (IC4) requires the operator to review abatement plant on site, in order to determine whether existing measures have been effective and adequate to prevent and /or minimise emissions released to air. Where further improvements are identified, the operator is required to implement these measures.
35	In order to reduce the generation of waste water and to reduce water usage, BAT is to use all of the techniques given below: (a) Segregation of water streams; (b) Water recirculation; (c) Minimisation of the generation of leachate	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 35. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc.
36	In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters.	**NA**	**Not Applicable**

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	Monitoring and/or control of key waste and process parameters, including: • waste input characteristics (e.g. C to N ratio, particle size); • temperature and moisture content at different points in the windrow; • aeration of the windrow (e.g. via the windrow turning frequency, O_2 and/or CO_2 concentration in the windrow, temperature of air streams in the case of forced aeration); • windrow porosity, height and width.		We are satisfied that BATc 36 is not applicable to this Installation as there is no open windrow composting on the site.
37	In order to reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps, BAT is to use one or both of the techniques given below: (a) Use of semi permeable membrane covers; (b) Adaptation of operations to the meteorological conditions	**NA**	**Not Applicable** We are satisfied that BATc 37 is not applicable to this Installation as this is not an open-air process.
38	In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters. This includes monitoring and/or control of key waste and process parameters: • pH and alkalinity of the digester feed; • digester operating temperature; • hydraulic and organic loading rates of the digester feed;	**CC**	**Currently Compliant** **Environment Agency assessment** The operator has provided information to support compliance with BATc 38. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with this BATc 38.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	• concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate; • biogas quantity, composition (e.g. H_2S) and pressure; • liquid and foam levels in the digester.		
39	In order to reduce emissions to air, BAT is to use both of the techniques given below: (a) Segregation of the waste gas streams; (b) Recirculation of waste gas	**NA**	**<u>Not Applicable</u>** We are satisfied that BATc 39 is not applicable to this Installation as there is no Mechanical Biological Treatment on site.