

Review of an Environmental Permit for an Installation subject to Chapter II of the Industrial Emissions Directive under the Environmental Permitting (England & Wales) Regulations 2016 (as amended)

Decision document recording our decision-making process following review of a permit

The Permit number is: EPR/VP3932EG
The Operator is: Biogen (UK) Limited
The Installation is: Bygrave Anaerobic Digestion Plant
This Variation Notice number is: EPR/VP3932EG/V004

What this document is about

Article 21(3) of the Industrial Emissions Directive (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 by the European Commission of updated decisions on BAT Conclusions.

We have reviewed the permit for this installation against the revised BAT Conclusions for the Waste Treatment industry sector published on 10 August 2018 in the Official Journal of the European Union. In this decision document, we set out the reasoning for the consolidated variation notice that we have issued.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. This review has been undertaken with reference to the decision made by the European Commission establishing Best Available Techniques (BAT) Conclusions (BATc) for Waste Treatment as detailed in document reference C(2018) 5070. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

As well as considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. Where this has not already been done, it also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and with other permits issued to Installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document, we therefore address only our determination of substantive issues relating to the new BAT Conclusions.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

How this document is structured

1. Our decision
2. How we reached our decision
3. The legal framework
4. Annex 1 – Review of operating techniques within the Installation against BAT Conclusions.
5. Annex 2 – Review and assessment of changes that are not part of the BAT Conclusions derived permit review
6. Annex 3 – Improvement Conditions

1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow the Operator to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice that updates the whole permit.

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

The Consolidated Variation Notice contains many conditions taken from our standard Environmental Permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our decision

2.1 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 (a Regulation 61 Notice) on 20/01/2020 requiring the Operator to provide information to demonstrate where the operation of their installation currently meets, or how it will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Notice required that where the revised standards are not currently met, the operator should provide information that:

- describes the techniques that will be implemented before 17 August 2022, which will then ensure that operations meet the revised standards, or
- justifies 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 standards are not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised BAT standards described in the BAT Conclusions.

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 required that the Operator make a formal request for derogation from compliance with that BAT-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 Notice response from the Operator was received on 20/07/2020.

We considered it was in the correct form, however, much of the supporting documentation which could be used as evidence to demonstrate compliance with the BAT conclusions was not submitted. We completed the determination based on the information and supporting information received.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61 Notice response that appears to be confidential in relation to any party.

2.2 Review of our own information in respect to the capability of the Installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous experience in the regulation of the installation we consider that the Operator will be able to comply with the techniques and standards described in the BAT Conclusions other than for those techniques and requirements described in BAT Conclusion 1,2, 3, 4, 5, 8, 10, 14, 15, 18, 19, 21, 23, 24, 33, 34 and 38. In relation to these BAT Conclusions, we do not fully agree with the Operator in respect of their current stated capability as recorded in their response to the Regulation 61 Notice. We have therefore included Improvement Conditions IC1 and IC2 in the consolidated variation notice to ensure that the requirements of the BAT Conclusions are delivered before 17 August 2022.

3 The legal framework

The Consolidated Variation Notice will be issued under Regulations 18 and 20 of the 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.

Annex 1: decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment industrial sector, were published by the European Commission 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 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

FC – Compliant in the future (within 4 years of publication of BAT conclusions)

NC – Not Compliant

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
1	<p>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:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> (a) structure and responsibility, (b) recruitment, training, awareness and competence, (c) communication, 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 1. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 1.</p> <p>The operator's response claims that they are compliant with the BATc. Supporting documentation in the form of third party certification was provided (ISO 9001, ISO 14001, Competency Management Systems and PAS110). However, no supporting environment management system procedures specified in the Regulation 61 response were provided.</p> <p>We consider that the operator will be future compliant with BATc 1 as evidence from a number of third party verification certificates were provided. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(d) employee involvement, (e) documentation, (f) effective process control, (g) maintenance programmes, (h) emergency preparedness and response, (i) safeguarding compliance with environmental legislation;</p> <p>V. checking performance and taking corrective action, paying particular attention to: (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</p>		

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>arrangements and has been properly implemented and maintained</p> <ul style="list-style-type: none"> 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); 		

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>XIV. odour management plan (see BAT 12)</p> <p>XV. noise and vibration management plan (see BAT 17).</p>		
2	<p>In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques listed below:</p> <p>(a) Set up and implement waste characterisation and pre-acceptance procedures;</p> <p>(b) Set up and implement waste acceptance procedures;</p> <p>(c) Set up and implement a waste tracking system and inventory;</p> <p>(d) Set up and implement an output quality management system;</p> <p>(e) Ensure waste segregation;</p> <p>(f) Ensure waste compatibility prior to mixing or blending of waste;</p> <p>(g) Sort incoming solid waste</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 2. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 2.</p> <p>The operator's response states that they are compliant with BATc 2. However, the operator did not submit any supporting evidence or documentation to demonstrate compliance with BATc 2. The operator submission highlights that key areas of the BATc 2, waste pre-acceptance and acceptance criteria are formalised via documented procedures. For each part of the BATc (a – c, e – g), no supporting evidence of procedures were provided. A number of procedures are described as being part of an integrated management system (IMS). Evidence of this was not provided.</p>

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			<p>BATc (d) is likely to be compliant in that a quality management plan certification was submitted as part of the Regulation 61 response. The submission shows that the quality management plan is certified to ISO 9001</p> <p>BATc 2 (a) requires the characterisation of wastes as part of the pre-acceptance procedures. Non-standard waste codes which are in the environmental permit but are not in the current permit template for the sector has not been appropriately characterised. These waste codes are:</p> <ul style="list-style-type: none"> • 02 03 05 • 03 01 01 • 03 01 05 • 03 03 02 • 03 03 08 • 03 03 10 • 03 03 11 • 04 01 01

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			<ul style="list-style-type: none"> • 19 05 01 • 19 05 02 • 19 05 03 • 20 01 38 <p>We consider that the operator will be future compliant with BATc 2. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
3	<p>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:</p> <p>(i) information about the characteristics of the waste to be treated and the waste treatment processes, including:</p> <p>(a) simplified process flow sheets that show the origin of the emissions;</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 3. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 3.</p> <p>A description of the site processes is provided in the response and the operator has submitted a simplified process flow diagram. However, emissions are not mentioned. There is no discussion of the characteristics of the waste in the response and no inventory of the wastes was provided. Wastewater is not discharged from the site but is</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances;</p> <p>(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);</p> <p>(iii) information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature;</p>		<p>reused in the process. This is BAT, however, this BATc requires operators to develop a wastewater inventory regardless of whether the wastewater is discharged. Operators should seek to determine the composition (i.e. pH, temp, COD, TOC, nitrogen, phosphorus etc.) of this potentially polluting source.</p> <p>Supporting information in response to the waste gas aspect of this BATc was submitted and brief details on approximate composition of biogas was provided, along with engine flow rates. In addition emission limit values were specified but no specific outline of average concentrations and any variability. Key parameters in (iii a – d) are not addressed. In addition, the supporting information only covers the biogas. There are no discussions on the composition of gases extracted from the reception hall/any emergency discharges (i.e. pressure relief valves).</p> <p>We have included improvement conditions in the permit to achieve compliance. The operator is required to complete the improvement conditions and demonstrate compliance with the Waste Treatment BREF and BAT Conclusions by the compliance date, 17 August 2022.</p>

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	<p>(b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs);</p> <p>(c) flammability, lower and higher explosive limits, reactivity;</p> <p>(d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust).</p>		
4	<p>In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below:</p> <p>(a) Optimised storage location;</p> <p>(b) Adequate storage capacity;</p> <p>(c) Safe storage operation;</p> <p>(d) Separate area for storage and handling of packaged hazardous waste.</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 4. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 4.</p> <p>The operator is compliant with BAT 4(a). The site is located in a remote area with the nearest sensitive receptor is approximately 500m away. There is no external storage of waste, after pre-treatment and maceration. Waste undergoing digestion is in sealed vessels and there is no double handling of materials. The operator's response to BAT 4 (b – d) does not provide evidence or sufficient information to demonstrate</p>

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			<p>compliance. However, our site compliance report indicates that the operator is likely to be compliant.</p> <p>We therefore consider that the operator will be future compliant with BATc 4. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
5	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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; 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 5. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 5.</p> <p>The operator's Regulation 61 response indicates that staff designated for the transfer and handling of waste are properly trained. The operator has submitted a certificate of competence management, however no further supporting information for this BATc was provided. The response indicates that procedures are in place for the handling and transfer of waste. Reference is also made for integrity checks for pipework and tanks and leak and spill procedures. However, no supporting evidence is</p>

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	<ul style="list-style-type: none"> 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). <p>Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.</p>		<p>provided in relation to these procedures. Mixing and agitating is stated as controlled with the SCADA system.</p> <p>We consider that the operator will be future compliant with BATc 5. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
6	<p>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 and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).</p>	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 6 is not applicable to this Installation. There are no point source emissions to water of process water. Any process water generated is recycled through the process.</p>
7	<p>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</p>	NA	<p><u>Environment Agency assessment</u></p>

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	is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.		We are satisfied that BATc 7 is not applicable to this Installation. There are no point source emissions to water of process water. Any process water generated is recycled through 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.	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 8. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 8.</p> <p>No monitoring takes place of waste gas emissions from the reception hall. No other emission points are evident (excluding the combustion sources). The operator describes fugitive dust emissions in their response to this BATc. Fugitive dust emissions are not relevant for this BATc. An abatement plant (carbon filters) treat waste gases from the reception hall. The operator is therefore currently not compliant as no stack concentration monitoring is in place. However, our compliance report highlights that process monitoring of the carbon filter is undertaken.</p>

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			We consider that the operator will be future compliant with BATc 8. Improvement condition 2 IC2 has been included in the permit to achieve compliance (see Annex 3). In addition, the permit stipulates monitoring frequency and standards in line with BATc 8.
10	<p>BAT is to periodically monitor odour emissions.</p> <p>Odour emissions can be monitored using:</p> <ul style="list-style-type: none"> • 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. 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 10. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 10.</p> <p>The operator highlights that the site's remote location mean that odour pollution is limited. This suggests the applicability relevant to this BATc (ongoing odour issues/substantiated odour pollution) may exempt the operator from performing these checks. However, odour issues have occurred in the past and recent inspections have found strong digestate odours from the site during inspections. Therefore, this BATc is applicable. We will include a requirement to monitor odour emissions via sampling using BS EN 13725.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	The monitoring frequency is determined in the odour management plan (see BAT 12).		We consider that the operator will be future compliant with BATc 10. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).
11	<p>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.</p> <p>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.</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 11. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 11.</p>
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:	CC	<p><u>Environment Agency assessment</u></p> <p>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 BATc 12.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<ul style="list-style-type: none"> • 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. 		The Regulation 61 response site does not outline monitoring of odour in line with BATc 10. Improvement condition 2 covering BATc 10 will be included and not BATc 12.
13	<p>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:</p> <p>(a) Minimising residence times; (b) Using chemical treatment; (c) Optimising aerobic treatment</p>	CC	<p><u>Environment Agency assessment</u></p> <p>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 BATc 13.</p>
14	In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust,	FC	<p><u>Environment Agency assessment</u></p>

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	<p>organic compounds and odour, BAT is to use an appropriate combination of the techniques given below:</p> <p>(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</p>		<p>The operator has provided information to support compliance with BATc 14. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 14.</p> <p>The operator's Regulation 61 response to BATc 14 (a, b, d, e) and the site compliance report indicate that these aspects of the BATc are appropriate:</p> <ul style="list-style-type: none"> • Dust is a minimal risk from this operation (enclosed and high moisture content waste). Drop heights at sources like the separator are minimised. • Pressure Relief Valves (PRVs) are checked monthly with a full-service including calibration conducted every year by a third party. Test kits to be ordered for testing every six months. Daily visual inspections and hearing test conducted. PRVs are also installed on the new pasteuriser and tested. • All activities take place within enclosed buildings and sealed tanks. Waste gases from these enclosures are extracted and treated via carbon filters. • Dampening is not likely to be a risk with the waste types handled at the site. All wastes are enclosed.

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			<p>Information in response to BATc 14 (c, f, g, h) is not sufficient to demonstrate compliance with BAT.</p> <ul style="list-style-type: none"> • Reference is made to 'stainless steel and specially coated pipework is used for in specific equipment'. No further information/detail provided. • The response states that all critical equipment is covered by a maintenance procedure. As with other procedures referenced, the evidence was not provided. Previous BATc responses also refer to preventative maintenance programmes but there is no evidence of this document provided. • Cleaning/housekeeping is also stated as being subject to a procedure (in the IMS). No further details are provided. • Gas leaks from pipework, gaskets, valves, flanges would have leak detection via pressure readings in the system. This is not BAT. BAT refers to sniffing methods and gas imaging methods. <p>We consider that the operator will be future compliant with BATc 14. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
15	<p>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:</p> <p>(a) Correct plant design; (b) Plant management</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 15. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 15.</p> <p>The operator's response does not provide a detailed discussion on how plant design minimises flaring. However it's clear that additional infrastructure is in place for gas storage and usage (gas stored within top of flexible digester tank cover, provision of three CHP engines and pressure relief valves). The operator indicates that gas balancing is via a SCADA system. It's possible the operator is compliant with this BATc, however, a lack of evidence submitted means it's difficult to conclude that they are compliant.</p> <p>We consider that the operator will be future compliant with BATc 15. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
16	<p>In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below:</p> <p>(a) Correct design of flaring devices; (b) Monitoring and recording as part of flare management</p>	CC	<p><u>Environment Agency assessment</u></p> <p>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 BATc 16.</p>
17	<p>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:</p> <ul style="list-style-type: none"> 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; 	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 17 is not applicable to this Installation. This BATc applies where a noise issue is expected and/or has been substantiated. The site is in a remote location and no evidence is available to indicate that there have been past noise issues/complaints/substantiated pollution.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	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.		
18	<p>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:</p> <ul style="list-style-type: none"> (a) Appropriate location of equipment and buildings; (b) Operational measures; (c) Low noise-equipment; (d) Noise and vibration equipment; (e) Noise attenuation 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 18. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc .</p> <p>As stated above, proximity to noise receptors is limited, however the operator does make reference to various noise management techniques. Daily checks (noise monitoring) and preventative maintenance are identified, but no further discussion or evidence of procedures provided. The operator states that vehicles have acoustics and vibrational insulation but it is unclear what vehicles and how they minimise noise. No evidence or detailed description is provided. Similarly, the operator</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			<p>states that the CHP engines are located within acoustic housing but no supporting information provided.</p> <p>We consider that the operator will be future compliant with BATc 18. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
19	<p>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:</p> <p>(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;</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 19. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 19.</p> <p>The operator's Regulation 61 response to BATc 19 (b, c, d, e, i) and the site compliance report indicate that these aspects of the BATc are compliant. However, information in response to BATc 14 (a, f, g, h) is not sufficient to demonstrate compliance with BAT.</p> <ul style="list-style-type: none"> The response states that waste water streams are kept separate. However, no drainage plans or procedures demonstrating this was provided.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(h) Design and maintenance provisions to allow detection and repair of leaks</p> <p>(i) Appropriate buffer storage capacity</p>		<ul style="list-style-type: none"> The Regulation 61 response states that 'Tank and pipework integrity is checked daily and leaks are reported and fixed without delay'. No further details of these checks were provided. The Integrated Management System may include these procedures. <p>This BATc requires an appropriate combination of the techniques specified. The operator currently undertakes several of these techniques, however, the operator has not identified how the combination of techniques sufficiently demonstrate compliance with the BATc.</p> <p>We consider that the operator will be future compliant with BATc 19. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
20	<p>In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of the techniques given below:</p> <p><i>Preliminary and primary treatment, e.g.</i></p> <p>(a) Equalisation</p>	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 20 is not applicable to this Installation. There are no point source emissions to water of process water. Any process water generated is recycled through the process.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(b) Neutralisation (c) Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks</p> <p>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</p> <p>Biological treatment, e.g. (l) Activated sludge process (m) Membrane bioreactor (n) Nitrification / denitrification when the treatment includes a biological treatment</p> <p>Solids removal, e.g.</p>		

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(o) Coagulation and flocculation (p) Sedimentation (q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) (r) Flotation</p> <p>See also: Table 6.1: BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body</p> <p>See also: Table 6.2: BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body</p>		
21	<p>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):</p> <p>(a) Protection measures;</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 21. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 21.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(b) Management of incidental /accidental emissions; (c) Incident /accident registration and assessment system		<p>The operator's response states that accident management measures are in place as part of the integrated management system, covering; transfer of substances, overfilling of vessels, emissions from plant or equipment, failure of containment, failure to contain firewater, wrong connections made in drains or other connections, incompatible substances allowed to come into contact, unexpected reactions, release of an effluent before adequate checking of its composition, failure of main services, operator error and vandalism. However evidence to support these procedures was not provided.</p> <p>We consider that the operator will be future compliant with BATc 21. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
22	<p>In order to use materials efficiently, BAT is to substitute materials with waste.</p> <p>Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids)</p>	CC	<p><u>Environment Agency assessment</u></p> <p>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 BATc 22.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	are used for pH adjustment, fly ashes are used as binders).		
23	<p>In order to use energy efficiently, BAT is to use both of the techniques given below:</p> <p>(a) Energy efficiency plan; (b) Energy balance record</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 23. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 23.</p> <p>The operator identifies that minimal grid electricity is used on site and will utilise energy generated by the AD process (electricity and heat for insulation of tanks). As a result, the operator states that due to this an energy efficiency plan (EEP) is not needed. However, the BAT conclusions does not include an applicability caveat. Therefore, the operator will need to implement one. Energy balance is briefly described with reference to Overall Equipment Effectiveness (OEE) Monitoring which includes references to energy losses. However, no further information is provided to demonstrate that the OEE monitoring includes a full energy balance breakdown.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			We consider that the operator will be future compliant with BATc 23. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).
24	<p>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).</p> <p>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).</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 24. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 24.</p> <p>Brief reference is made to waste acceptance, however no discussion is made on the reuse of waste packaging. Reference is further made to the electronic IMS but no evidence is provided.</p> <p>We consider that the operator will be future compliant with BATc 24. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
33	In order to reduce odour emissions and to improve the overall environmental performance, BAT is to select the waste input.	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 33. We have assessed the information provided and reviewed the site</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>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.</p>		<p>compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 33.</p> <p>As outlined in the assessment of BATc 2, the operator undertakes pre-acceptance, acceptance and characterising waste inputs. However, we have not received evidence of these procedures or further evidence to demonstrate full compliance with BATc 2. Compliance with BATc 2 will enable the operator to demonstrate adherence to BATc 33.</p> <p>We consider that the operator will be future compliant with BATc 33. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).</p>
34	<p>In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H₂S and NH₃, BAT is to use one or a combination of the techniques given below:</p> <p>(a) Adsorption;</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 34. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 34.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(b) Biofilter; (c) Fabric filter; (d) Thermal oxidation; (e) Wet scrubbing</p> <p>See also: Table 6.7: BAT-associated emission levels (BAT-AELs) for channelled NH₃, odour, dust and TVOC emissions to air from the biological treatment of waste.</p>	<p>BATc 34, Table 6.7 FC</p>	<p>The operator's response states that this BATc is not applicable. However, they do briefly indicate that carbon filters are used (adsorption) for waste gases extracted from the reception hall. The operator's response does not outline why the filters are the most appropriate BAT technique for the waste gas. The operator did not provide a discussion of emission limits and no reference is made to the monitoring technique to achieve the BAT AEL.</p> <p>We have set a BAT-AEL for ammonia as specified in the Waste Treatment BREF and BAT Conclusions.</p> <p>Improvement condition (IC1) has been included in the permit to achieve compliance. The operator is required to complete the improvement condition and demonstrate compliance with BAT-AEL by the compliance date, 17 August 2022.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			<p>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 S3.4 (process monitoring).</p> <p>As part of the Environment Agency approach to reduce emissions in the biowaste treatment sector, we have included the following improvement conditions:</p> <p><u>Improvement condition for the review of effectiveness of abatement plant</u> Improvement condition (IC5) 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.</p>
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:	CC	<p><u>Environment Agency assessment</u></p> <p>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 35.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(a) Segregation of water streams; (b) Water recirculation; (c) Minimisation of the generation of leachate		As in the assessment for BATc 19, process water is recirculated back into the process. The drainage in the Reception Bays is directed into a sump chamber, this material is then returned to the process for full treatment. All tanks are contained within secondary containment, i.e. a concrete bund. Clean surface waters are either used in the process or discharged to a water course.
36	<p>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.</p> <p>Monitoring and/or control of key waste and process parameters, including:</p> <ul style="list-style-type: none"> • 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, O₂ and/or CO₂) 	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 36 is not applicable to this Installation.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>concentration in the windrow, temperature of air streams in the case of forced aeration);</p> <ul style="list-style-type: none"> windrow porosity, height and width. 		
37	<p>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:</p> <p>(a) Use of semi permeable membrane covers; (b) Adaptation of operations to the meteorological conditions</p>	NA	<p><u>Environment Agency assessment</u> We are satisfied that BATc 37 is not applicable to this Installation.</p>
38	<p>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.</p> <p>This includes monitoring and/or control of key waste and process parameters:</p> <ul style="list-style-type: none"> pH and alkalinity of the digester feed; digester operating temperature; 	FC	<p><u>Environment Agency assessment</u> The operator has provided information to support compliance with BATc 38. We have assessed the information provided and reviewed the site compliance report. We are not satisfied that the operator has demonstrated compliance with BATc 38.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<ul style="list-style-type: none"> • hydraulic and organic loading rates of the digester feed; • concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate; • biogas quantity, composition (e.g. H₂S) and pressure; • liquid and foam levels in the digester. 		<p>The operator's response references that a SCADA system is in place to monitor key parameters; temperature, pressure, feed rates, flow, tank levels and valve status. Process parameter monitoring undertaken also includes; pH, alkalinity, temperature, organic loading rates, VFA, foam levels. The response indicates that the alarm systems will initiate shut-downs and various level alarms in the case of incidents like foaming or containment failure. While the operator indicates that these key parameters are monitored, the response did not include detailed discussions or evidence of the monitoring procedures. It is noted that the operator provided a brief supporting document for monitoring process parameters. These specify some points but don't explain why the parameters are assessed.</p> <p>We consider that the operator will be future compliant with BATc 38. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3). We have also specified proceed monitoring requirements in Table S3.3 of the permit notice.</p>
39	In order to reduce emissions to air, BAT is to use both of the techniques given below:	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 39 is not applicable to this Installation.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(a) Segregation of the waste gas streams; (b) Recirculation of waste gas		

Annex 2: Review and assessment of changes that are not part of the BAT Conclusions derived permit review

Existing Medium Combustion Plant

We asked the Operator to provide information on all combustion plant on site in the Regulation 61 Notice as follows:

- Number of combustion plant (CHP engines, back-up generators, boilers);
- Size of combustion plant – rated thermal input (MWth)
- Date each combustion plant came into operation
- Confirmation as to whether or not the combustion plant is subject to a capacity market agreement (2014 or 2015 auction) or whether or not a Feed-in Tariff preliminary accreditation application was received prior to 1 December 2016

The Operator provided the information in the tables below:

Combined heat and power (CHP) engines

1. Rated thermal input (MW) of the medium combustion plant.	CHP engine 1 – 3.39 MWth CHP engine 2 – 2.7 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Gas engine – Combined heat and power
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Biogas
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	2014
5. Confirmation of capacity market agreement arising from 2014 or 2015 capacity auctions.	NA
6. Confirmation of Feed-in Tariff preliminary accreditation application received by the Gas and Electric Markets Authority prior to 1 December 2016.	NA

Back-up generator

1. Rated thermal input (MW) of the medium combustion plant.	3.8 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Diesel generator
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Diesel
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	2014
5. Confirmation of capacity market agreement arising from 2014 or 2015 capacity auctions.	NA
6. Confirmation of Feed-in Tariff preliminary accreditation application received by the Gas and Electric Markets Authority prior to 1 December 2016.	NA

We have reviewed the information provided and we consider that the declared combustion plant qualify as “existing” medium combustion plant.

For existing MCP with a rated thermal input of less than or equal to 5 MW, the emission limit values set out in tables 1 and 3 of Part 1 of Annex II MCPD shall apply from 1 January 2030.

We have included the appropriate emission limit values for existing medium combustion plant as part of this permit review. See Table S3.1 in the permit.

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.

There are no external site operational processes and/or channelled /point sources within 250 metres of a sensitive receptor. Monitoring of bioaerosols is not required at the Installation.

Soil & groundwater risk assessment (baseline report)

The IED requires that the operator of any IED installation using, producing or releasing “relevant hazardous substances” (RHS) shall, having regarded the possibility that they might cause pollution of soil and groundwater, submit a “baseline report” with its permit application. The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the regulated facility and at cessation of activities. It must enable a quantified comparison to be made between the baseline and the state of the site at surrender.

At the definitive cessation of activities, the Operator has to satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater, taking into account both the baseline conditions and the site’s current or approved future use. To do this, the Operator has to submit a surrender application to us, which we will not grant unless and until we are satisfied that these requirements have been met.

The Operator did not submit a risk assessment to describe the condition of the site and a consideration of the possibility of soil and groundwater contamination at the installation. No site baseline condition was included in the submission.

No baseline reference data or an assessment of groundwater and soil was provided with the original permit application. In the original application, the operator demonstrated that the risk of soil and groundwater contamination from their operations is low due to their protection measures – bunding, secondary containment and sampling of the lagoon water before discharging to soakaways.

The Operator therefore accepted ‘zero contamination’ beneath the site. This means that when the Operator applies to surrender the Permit, any contamination by substances used at, produced or released from the facility would be considered to have resulted from the operation of the installation. This is in accordance with the Environment Agency Guidance H5 – Site Condition Report.

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 S2.3 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
- the environmental risk assessment is acceptable.

Other wastes (non-standard waste codes)

The following wastes in the current permit are not specified in the our 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
02 03 05	sludges from on-site effluent treatment (including sludge from production of edible fats and oils, seasoning residues, molasses residues, residues from production of potato, corn or rice starch only)
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
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
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04 01 01	fleshings and lime split wastes
19 05 01	non-composted fraction of municipal and 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	wood other than that mentioned in 20 01 37 – excluding wood with non-biodegradable coating or preserving substance present. No chemical additives or preservatives, and no persistent organics present. Untreated wood only.

We consider that the Operator will be future compliant with BATc 2a. Improvement condition 2 (IC2) has been included in the permit to achieve compliance (see Annex 3).

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).

Excluded wastes (99 waste codes)

We have excluded the following waste streams ending with “99” codes because more suitable waste codes are already in the European Waste Catalogue (EWC) that accommodate the waste described:

Waste code	Description
02 02 99	sludges from gelatine production, animal gut contents
02 03 99	sludge from production of edible fats and oils to include seasoning residues, molasses residues, residues from production of potato, corn or rice starch
02 04 99	other wastes

Our technical guidance on waste classification WM3 specifically sets out clear instructions for the use of the European Waste Catalogue (EWC), particularly with regard to “99” codes.

The guidance specifies that the Operator must:

- Identify the source generating the waste in chapters 01 to 12 or 17 to 20 and identify the appropriate six-digit code of the waste (excluding codes ending with 99 of these chapters).
- If no appropriate waste code can be found in chapters 01 to 12 or 17 to 20, the chapters 13, 14 and 15 must be examined to identify the waste.
- If none of these waste codes apply, the waste must be identified according to chapter 16.
- If the waste is not in chapter 16, the 99 code (wastes not otherwise specified) must be used in the section of the list corresponding to the activity identified in step one as a last resort.

We made this decision with respect to “99” codes in accordance with the Technical Guidance WM3: Waste Classification – Guidance on the classification and assessment of waste [1st Edition v1.1, May 2018].

Secondary containment and lagoon storage infrastructure design

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.

Assessment of existing secondary containment & lagoon storage design and construction

The operator submitted a report which reviewed the existing concrete bund walls and impermeable concrete bund surface. The report was completed in June 2014 in response to a previous improvement condition. The 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 164 (the guidance superseded by CIRIA C736). 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;
- Recommendations (with respect to maintenance and inspections)

The assessment found that the bund and concrete was in good condition but found some minor surface cracking between construction joints and 'honeycombing' (coarse and stony areas) at the base of the retaining walls. The report recommends that these minor issues are remediated. However, due to the age of the report, it is not possible to determine the current condition of the bund and retaining walls. No up-to-date assessment of the bund in line with CIRIA C736 was submitted in response to the Regulation 61 notice.

In addition, as the 2014 report was conducted in line with CIRIA 164, it does not review the effectiveness of the preventative maintenance and inspection regime as outlined in CIRIA C736.

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 improvement conditions in the permit to address the deficiencies in the existing site secondary containment (IC4). An updated report will be able to identify future work required to ensure compliance with the standards set out in CIRIA C736 or other relevant industry standard.

Primary containment infrastructure design (tanks /vessels used for storage and/or treatment activities)

We assessed primary containment as part of the permit review. This information was not requested in the Regulation 61 Notice issued to the Operator, however, it was considered prudent to address this aspect as part of the permit review process. In this instance, the required information relating to the review of primary containment infrastructure against CIRIA C736 was not previously submitted to the Environment Agency, nor was it included in the supporting documentation submitted by the Operator in their Regulation 61 response.

We have therefore set an Improvement Condition (IC3) in the permit to address this aspect of the permit review (see Annex 3).

Lagoon cover and digestate storage capacity

We asked the Operator via the Regulation 61 Notice to:

- confirm if storage lagoons are covered to prevent emission loss; and
- confirm whether or not the operational lagoon storage capacity provides a minimum of two months storage

The Operator confirmed in their response that there are no storage lagoons for digestate on site. However, digestate is stored in tanks which use a floating cover of lightweight expanded clay aggregate. We are satisfied that the type of cover is appropriate to minimise emissions of odour, ammonia and methane.

The Operator did not provide the dimensions of the storage tanks but have provided information on the storage capacity. The Operator confirmed that the digestate storage tanks provide approximately four months storage capacity. We are satisfied with the site operational storage capacity.

Annex 3: Improvement Conditions

Based on the information in the Operator's Regulation 61 Notice response 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 BAT Conclusions are achieved by the installation. These improvement conditions are set out below - justifications for them is provided at the relevant section of the decision document (Annex 1 or Annex 2).

If the consolidated permit contains existing improvement conditions that are not yet complete or the opportunity has been taken to delete completed improvement conditions then the numbering in the table below will not be consecutive as these are only the improvement conditions arising from this permit variation.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement condition for progress report to achieve BAT-AELs		
IC1	<p>The operator shall submit, for approval by Environment Agency, a report which demonstrates that the BAT-AEL have been achieved where BAT is currently not achieved but will be achieved before 17 August 2022.</p> <p>The report shall address the BAT Conclusions for Waste Treatment with respect to the following:</p> <ul style="list-style-type: none"> • BAT 34 Table 6.7 (compliance with BAT AELs for channelled NH3 and odour emissions to air from the biological treatment of waste) <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	17/07/2022
Improvement condition for progress report to achieve Narrative BAT		
IC2	<p>The operator shall submit, for approval by Environment Agency, a report which confirms that the "Narrative BAT" have been achieved where BAT is currently not achieved but will be achieved before 17 August 2022.</p> <p>The report shall address the BAT Conclusions for Waste Treatment with respect to BAT 1, 2, 3, 4, 5, 8, 10, 14, 15, 18, 19, 21, 23, 24, 33, 34 and 38.</p> <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	17/07/2022
Improvement condition for primary containment		
IC3	<p>The operator shall submit a written 'primary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of an inspection and program of works undertaken by a qualified engineer and shall assess the extent design specification and condition of primary containment systems where polluting liquids and solids are being stored, treated, and/or handled.</p> <p>The plan shall include:</p> <ul style="list-style-type: none"> • an assessment of the physical condition of all primary containment systems (storage and treatment vessels) using a Written Scheme of Examination and their suitability for providing primary containment 	05/05/2023 or other date as agreed in writing with the Environment Agency

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>when subjected to the dynamic and static loads caused by catastrophic tank failure;</p> <ul style="list-style-type: none"> • a program of works with timescales for the implementation of individual improvement measures necessary to demonstrate that the primary containment is fit for purpose or alternative appropriate measures to ensure all polluting materials will be contained on site; and • a preventative maintenance and inspection regime <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	
Improvement condition for secondary containment design		
IC4	<p>The operator shall submit a written 'secondary and tertiary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of an inspection and program of works undertaken by a competent structural engineer, in accordance with the risk assessment methodology detailed within CIRIA C736 (2014) guidance, of the condition and extent of secondary and tertiary containment systems where all polluting liquids and solids are being stored, treated, and/or handled.</p> <p>The inspection shall consider, but not be limited to, the storage vessels, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas, and liners underlying the site.</p> <p>The plan shall include:</p> <ul style="list-style-type: none"> • an assessment of the physical condition of all secondary and/or tertiary containment systems, using a Written Scheme of Examination and their suitability for providing containment when subjected to the dynamic and static loads caused by catastrophic tank failure; • a program of works with timescales for the implementation of individual improvement measures necessary for the secondary and/or tertiary containment systems to comply with CIRIA C736 (2014) guidance, or equivalent. • a preventative maintenance and inspection regime <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	05/05/2023 or other date as agreed in writing with the Environment Agency
Improvement condition for review of effectiveness of abatement plant		

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC5	<p>The operator shall carry out a review of the abatement plant on site, in order to determine whether the measures have been effective and adequate to prevent and where not possible minimise emissions released to air including but not limited to odour and ammonia.</p> <p>The operator shall submit a written report to the Environment Agency following this review for assessment and approval.</p> <p>The report shall include but not limited to the following aspects:</p> <ul style="list-style-type: none"> • Full investigation and characterisation of the waste gas streams. • Abatement stack monitoring results (not limited to odour and ammonia). • Abatement process monitoring results (not limited to odour and ammonia). • Details of air quality quantitative impact assessment including modelling and a proposal for site-specific “action levels” (not limited to odour concentration, hydrogen sulphide and ammonia). • Odour monitoring results at the site boundary. • Records of odour complaints and odour related incidents. • Recommendations for improvement including the replacement or upgrading the abatement plant. • Timescales for implementation of improvements to the abatement plant. <p>The operator shall implement the improvements in line with the timescales as approved by the Environment Agency.</p>	05/05/2023 or other date as agreed in writing with the Environment Agency
Improvement condition for assessment of methane slip		
IC6	<p>The operator shall establish the methane emissions in the exhaust gas from engines burning biogas and compare these to the manufacturer’s specification and benchmark levels agreed in writing with the Environment Agency. The operator shall, as part of the methane leak detection and repair (LDAR) programme, develop proposals to assess the potential for methane slip and take corrective actions where emissions above the manufacturer’s specification or appropriate benchmark levels are identified.</p>	05/05/2023 or other date as agreed in writing with the Environment Agency