

Permitting decisions

Variation

We have decided to grant the variation for Willand Anaerobic Digester operated by Willand O&M Limited.

The variation numbers are EPR/WP3533AJ/V002 and EPR/WP3533AJ/V003.

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

Changes introduced by this variation made by the operator – EPR/WP3533AJ/V002

The consolidated variation authorises the following changes:

- increase in annual throughput of waste from 55,000 to 75,000 tonnes (total throughput 100,000 tonnes including non-waste feedstock);
- addition of 29 new biodegradable waste streams (Table S2.2);
- addition of site infrastructure with associated emission points – two buffer tanks, four hydrolysis tanks, four continuously stirred tank reactor (CSTR) digester tanks, two liquid digestate storage tanks, one emergency flare and one PURAC biogas upgrading plant;
- addition of an odour abatement system for the crop reception hall;
- addition of digestate separation equipment – centrifuge and screw press; and
- addition of storage and loading area for solid wastes

Changes introduced by this variation notice/statutory review – EPR/WP3533AJ/V003

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.

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/WP3533AJ/V002 and EPR/WP3533AJ/V003) 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 checklist](#) to show how all relevant factors have been taken into account
- shows how we have considered the [consultation responses](#)
- 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. The introductory note summarises what the variation covers.

Key issues of the decision

Pre-operational conditions

Based on the information in the application, we consider that we need to impose pre-operational conditions. The justification for the pre-operational conditions are provided below.

Pre-operational condition 1 – technical competence (Table S1.4A)

The applicant is a legal entity and has appropriate level of control and decision-making with regard to the installation and its operations. The treatment of biodegradable waste by anaerobic digestion requires a Technically Competent Manager (TCM) under an approved scheme. The applicant confirms that the installation will be operated by a suitably qualified manager.

We have included pre-operational condition 1 (see Table S1.4A) in the permit which requires the operator to provide evidence of appropriate technical competence for the treatment of biodegradable waste by AD to ensure that a TCM is in place at the installation prior to the acceptance of wastes on site.

Pre-operational condition for future development 1 and 2 – commissioning of site infrastructure and odour abatement plant (Table S1.4B)

The installation will undergo a period of commissioning before becoming fully operational. The Industrial Emissions Directive (IED) and the conditions set out in the permit cover activities at the installation once operational – accepting wastes for treatment.

At the commissioning stage, operators are required to demonstrate that the site infrastructure (including any odour abatement system) is working effectively and that appropriate measures are in place to protect the environment and human health during this period (prior to the commencement of operations). As parts of the site are undergoing construction, we have included pre-operational conditions for future development 1 and 2 in the permit which requires the operator to submit a commissioning plan to the Environment Agency for agreement and approval.

The commissioning plan will include but not limited to a clear order of events (phase 2 and phase 3), the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities, the measures to be taken to protect the environment and the reporting mechanism in the event that actual emissions exceed expected emissions. Commissioning can only be undertaken in accordance with the agreed and approved commissioning plan. Due to the proximity of the installation to residential receptors, we expect the applicant to pay particular attention to the odour abatement in the commissioning plan (see pre-operational condition for future development 2).

Pre-operational condition 3 for future development – secondary containment for new tanks (Table S1.4B)

We asked the applicant (via an information notice dated 02/01/2020) to state the relevant industry standard (such as CIRIA 736 or a relevant industry standard) which was employed to design and construct the site secondary containment (bund). We also asked the applicant to provide evidence that the secondary containment had been designed and constructed in accordance with the CIRIA 736 guidance or a relevant industry standard and signed off by a qualified engineer. Where the secondary containment did not meet the standards as set out in the CIRIA 736 standard, we asked the applicant to provide a detailed justification (supported) by evidence as to how the secondary containment design and construction is fit for purpose and achieves equivalent protection compared to CIRIA 736.

In response to the information notice, the applicant provided information on how the bund was constructed. The applicant stated that they had carried out a risk assessment and concluded that the risk of spillage is low, as a digestate spill would flow north down into a treatment plant and lagoon with no risk to property or watercourses.

We were not satisfied with the response to the secondary containment question which did not include any supporting information. Appropriate evidence including risk assessments and calculations for the existing secondary containment were not provided in the response.

We asked the applicant (via an information notice dated 26/05/2020) to provide a detailed report including an assessment of the suitability of the existing secondary containment in comparison to the relevant standard in the CIRIA 736. The report should follow the methodology for existing facilities which consists of a risk assessment (Chapter 5, CIRIA 736 guidance) and the relevant calculations. The report should also be completed by a qualified engineer.

The applicant provided a response and confirmed that all tanks are surrounded by a concrete panel containment wall designed to CIRIA C736. In the event of a catastrophic failure, the spill will be fully retained within the containment area where it can be either pumped back to process or taken off site for safe disposal. The applicant confirmed that all secondary containment bunds will have a capacity equal to at least 110% of that of the largest tank within the contained area or 110% of the sum of the capacities of all interconnected tanks, (whichever is greater). The applicant did not provide any evidence from a qualified engineer to support the suitability of the secondary containment in comparison with the C736 standards.

We have therefore set pre-operational condition 3 (see Table S1.4B in the permit) which requires the operator to ensure that a review of the design, method of construction and integrity of the site secondary containment for the new tanks is carried out by a qualified engineer. The review shall compare the secondary containment against the standards set out in CIRIA C736 or other relevant industry standard. The review should assess the suitability of the site bund to provide containment in the event of catastrophic tank failure. No waste shall be accepted at the installation unless the Environment Agency has given prior written permission under this condition. We have set improvement condition 7 to address the wider site containment as part of the biowaste treatment permit review (see below).

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 5 – progress report to achieve Narrative BAT

We have assessed the existing operations at the installation against the Waste Treatment BREF /BAT Conclusions 2018. Our assessment is presented in Annex 1 of this decision document.

Improvement condition 6 – 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 6 in the permit to address this aspect of the permit review.

Improvement condition 7 – 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 did not provide a risk assessment of the existing secondary containment as requested in the Regulation 61 Notice. We have set improvement condition 7 in the permit to which requires the operator to provide a risk assessment for the whole site secondary containment, comparing it with CIRIA C736 and proposing timescales to address any deficiencies identified.

Improvement condition 8 – review of effectiveness of abatement plant

The operator provided information to support compliance with BATc 34. An enclosed biotrickling filter, carbon filter and misting system are installed at the facility. As part of the Environment Agency approach to reduce emissions in the biowaste treatment sector, we have set improvement condition 8. 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 9 – 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 9 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.

Impact of noise

The Application contained a noise impact assessment which identified local noise-sensitive receptors, potential sources of noise at the proposed Installation and noise attenuation measures. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey and an assessment was carried out in accordance with BS 4142:2014 to compare the predicted plant rating noise levels with the established background levels.

The assessment concluded that during daytime and night time periods, the operation of the proposed Installation at the predicted noise levels would be unlikely to cause complaints at any of the assessment locations as the change in noise impact at the sensitive receptors was assessed as being below marginal significance in line with BS4142.

In the event that noise and vibration emissions are giving rise to annoyance as a result of site operations, the operator is required to implement their noise management plan as submitted in the determination.

Based upon the information in the Application, we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise noise and vibration and to prevent pollution from noise and vibration outside the site.

Decision checklist

Aspect considered	Decision
Receipt of application	
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.
Consultation/Engagement	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consulted the following organisations:</p> <ul style="list-style-type: none"> • Public Health England • Health & Safety Executive • Devon County Council (Planning Authority) • Devon County Council (Environmental Health) • National Grid • Food Standards Agency • Fire & Rescue Service <p>The comments and our responses are summarised in the consultation section.</p>
The facility	
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', Appendix 2 of RGN 2 'Defining the scope of the installation'. 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	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. The plan is included in the permit.
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage</p>

Aspect considered	Decision
	<p>and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p>
Environmental risk assessment	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be categorised as environmentally insignificant.</p>
Operating techniques	
General operating techniques	<p>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.</p>
Odour management	<p>We have reviewed the odour management plan in accordance with our guidance on odour management. We consider that the odour management plan is satisfactory.</p>
Permit conditions	
Updating permit conditions during consolidation	<p>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(s).</p>
Changes to the permit conditions due to an Environment Agency initiated variation	<p>We have varied the permit as stated in the variation notice.</p>
Waste types	<p>We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.</p> <p>We are satisfied that the operator can accept these wastes for the following reasons:</p> <ul style="list-style-type: none"> • they are suitable for the proposed activities – biological treatment;

Aspect considered	Decision
	<ul style="list-style-type: none"> • the proposed infrastructure is appropriate; and • the environmental risk assessment is acceptable. <p>We made these decisions with respect to waste types in accordance with We made this decision with respect to waste types in accordance with the Framework Guidance Note – <i>Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment</i> (July 2013).</p>
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational conditions. See key issues section.
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. See key issues section.
Emission limits	<p>We have removed the emission limits for the pollutants (nitrogen oxides, sulphur dioxide, carbon monoxide) that we set for the CHP engine in the previous determination in 2017. The CHP engine is excluded from the Medium Combustion Plant Directive, hence the emission limits no longer apply. We have removed the monitoring requirement for total VOCs (See key issues section).</p> <p>We have applied the existing emission limits for the new emergency flare in accordance with LFTGN 05: <i>Guidance for monitoring enclosed landfill gas flares</i> which is considered the most appropriate TGN for this activity.</p> <p>We consider that the ELVs described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.</p>
Monitoring	<p>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.</p> <p>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: <i>Guidance for monitoring enclosed landfill gas flares</i> which is considered the most appropriate TGN for this activity.</p> <p>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.</p>
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

Aspect considered	Decision
	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.
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.
Technical competence	Technical competence is required for activities permitted. The operator is a member of an agreed scheme. We are satisfied that the operator is technically competent.
Relevant convictions	<p>The Case Management System and National Enforcement Database have been checked to ensure that all relevant convictions have been declared.</p> <p>Relevant convictions were found and declared in the application. We considered relevant convictions as part of the determination process. We are satisfied that there is no reason to believe that the operator is unable to comply with the conditions of the permit despite the previous offences.</p> <p>We will regulate the installation by making sure that the operator complies with the conditions of the permit.</p> <p>We will do this by:</p> <ul style="list-style-type: none"> • requiring monitoring of the main pollutants for which limits are set and process monitoring for the other substances (as mentioned previously); • carrying out audits of the operator's procedures and methods for emissions monitoring; • adding or changing conditions in the permit if required; • requiring the operator to inform us if they exceed any of the emission limits in the permit, or if they fail to comply with any operating conditions; • investigating non-compliance with any condition of the permit; and • taking enforcement action if needed, including issuing notices, prosecuting serious breaches or potentially revoking the permit. <p>We will undertake a combination of announced and unannounced compliance visits as we do for other sites. In the event there are breaches of the permit conditions, we will take appropriate action.</p>

Aspect considered	Decision
	The operator satisfies the criteria in our guidance on operator competence.
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>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.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“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.”</p> <p>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.</p> <p>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.</p>

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Devon County Council (Planning)
Brief summary of issues raised
<ul style="list-style-type: none"> • Comment regarding clarity of annual throughput • Comment regarding storage of silage externally in the odour management plan • Comment regarding site plan and tanker turning area
Summary of actions taken or show how this has been covered
<ul style="list-style-type: none"> • The applicant submitted a variation to increase annual throughput of waste and non-waste feedstock from 75,000 tonnes to 100,000 tonnes. We have specified in Table S2.2 that the total annual waste throughput shall not exceed 100,000 tonnes. the total waste includes both waste and non-waste feedstock. • The storage of silage externally shall continue until the reception building for feedstock is completed as proposed in the odour management plan. • The applicant provided a revised site layout plan during the determination. Vehicles bringing in waste will be received in an enclosed reception building. Liquid digestate will be pumped via pipes to tankers for despatch off site.

Responses from members of the public

Response received from members of the public
Public comments
Brief summary of issues raised
<ul style="list-style-type: none"> • Comment on whether the dewatering activity should be a directly associated activity and should have emission limits for ammonia and odour. • Comment about competence of operator given the operator's other company went into liquidation and the operator has been fined for causing a water discharge without an environmental permit.
Summary of actions taken or show how this has been covered
<ul style="list-style-type: none"> • The dewatering activity is considered a directly associated activity to the stationary technical unit (STU) and meets the Limb 1 and 2 tests. There is a point source emission (air dryer & carbon filter) covering the digestate dewatering activity. We have applied the BAT-AEL as required by the Waste Treatment BREF /BAT Conclusions and we have included improvement condition 8 to address odour. • The applicant submitted a revised Part C2 of the application form and corrected the previous information regarding finances and relevant offences in response to the information notice dated 26/05/2020. We have reviewed the information and we are satisfied that we have appropriate compliance measures in place to ensure that the operator complies with the permit conditions.

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

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, (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	<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 we are satisfied that the operator has demonstrated compliance with BATc 1.</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>(a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED installations – ROM),</p> <p>(b) corrective and preventive action, recruitment, training, awareness and competence,</p> <p>(c) maintenance of records,</p> <p>(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</p> <p>VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;</p> <p>VII. following the development of cleaner technologies;</p> <p>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;</p> <p>IX. application of sectoral benchmarking on a regular basis;</p> <p>X. waste stream management (see BAT 2);</p> <p>XI. an inventory of waste water and waste gas streams (see BAT 3);</p> <p>XII. residues management plan (see description in Section 6.5);</p> <p>XIII. accident management plan (see description in Section 6.5);</p> <p>XIV. odour management plan (see BAT 12)</p> <p>XV. noise and vibration management plan (see BAT 17).</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
2	<p>In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques listed below:</p> <ul style="list-style-type: none"> (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	<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 we are satisfied that the operator has demonstrated compliance with BATc 2.</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> <ul style="list-style-type: none"> (i) information about the characteristics of the waste to be treated and the waste treatment processes, including: <ul style="list-style-type: none"> (a) simplified process flow sheets that show the origin of the emissions; 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 3.</p> <p>The operator has not characterised the waste gas from the operations on site as no waste has been received for treatment and the odour abatement has not been commissioned.</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:</p> <p>(a) average values and variability of flow, pH, temperature, and conductivity;</p> <p>(b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, priority substances /micropollutants);</p> <p>(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:</p> <p>(a) average values and variability of flow and temperature;</p> <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>		<p>We consider that the operator will be future compliant with BATc 3. Improvement condition 5 has been included in the permit to achieve compliance (see Table S1.3 in the permit).</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>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 4. We have</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) Optimised storage location; (b) Adequate storage capacity; (c) Safe storage operation; (d) Separate area for storage and handling of packaged hazardous waste.		assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 4.
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; • 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>	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 5.</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
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 and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 6. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 6.</p>
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.	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 7. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 7.</p>
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.	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 8.</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
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. <p>The monitoring frequency is determined in the odour management plan (see BAT 12).</p>	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 10.</p>
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>

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
12	<p>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:</p> <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. 	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>
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;</p> <p>(b) Using chemical treatment;</p> <p>(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	<p>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:</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 14. We have assessed the information provided and we are</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) 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		satisfied that the operator has demonstrated compliance with BATc 14.
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	<u>Environment Agency assessment</u> 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 BATc 15.

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;</p> <p>(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; 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. 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 17. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 17.</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
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 	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 18.</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> <ul style="list-style-type: none"> (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; 	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 19.</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
	(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 (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	CC	<u>Environment Agency assessment</u> 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 BATc 20.

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>(f) Precipitation</p> <p>(g) Chemical oxidation</p> <p>(h) Chemical reduction</p> <p>(i) Evaporation</p> <p>(j) Ion exchange</p> <p>(k) Stripping</p> <p>Biological treatment, e.g.</p> <p>(l) Activated sludge process</p> <p>(m) Membrane bioreactor</p> <p>(n) Nitrification / denitrification when the treatment includes a biological treatment</p> <p>Solids removal, e.g.</p> <p>(o) Coagulation and flocculation</p> <p>(p) Sedimentation</p> <p>(q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration)</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>(r) Flotation</p> <p>See also:</p> <p>Table 6.1: BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body</p> <p>See also:</p> <p>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> <p>(b) Management of incidental /accidental emissions;</p> <p>(c) Incident /accident registration and assessment system</p>	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 21.</p>
22	<p>In order to use materials efficiently, BAT is to substitute materials with waste.</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 22. We have</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
	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).		assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 22.
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	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 (where available). We are not satisfied that the operator has demonstrated compliance with BATc 23.</p> <p>We consider that the operator will be future compliant with BATc 23. Improvement condition 5 has been included in the permit to achieve compliance (see Table S1.3 in the permit).</p>
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	CC	<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 we are</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
	check between the substances contained (in consecutive uses). If necessary, packaging is sent for appropriate treatment prior to reuse (e.g. reconditioning, cleaning).		satisfied that the operator has demonstrated compliance with BATc 24.
33	<p>In order to reduce odour emissions and to improve the overall environmental performance, BAT is to select the waste input.</p> <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>	CC	<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 we are satisfied that the operator has demonstrated compliance with BATc 33.</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> <p>(b) Biofilter;</p> <p>(c) Fabric filter;</p> <p>(d) Thermal oxidation;</p>	<p>CC</p> <p>(BATc 34, Table 6.7) FC</p>	<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 we are satisfied that the operator has demonstrated compliance with BATc 34.</p> <p>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</p>

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	(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.		odour concentration, hydrogen sulphide and ammonia on a 6-monthly frequency in Table S3.4 (process monitoring) in the permit.
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	<u>Environment Agency assessment</u> 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 BATc 35.
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. Monitoring and/or control of key waste and process parameters, including: <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; 	NA	<u>Environment Agency assessment</u> We are satisfied that BATc 36 is not applicable to this Installation.

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"> aeration of the windrow (e.g. via the windrow turning frequency, O₂ and/or CO₂ concentration in the windrow, temperature of air streams in the case of forced aeration); 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;</p> <p>(b) Adaptation of operations to the meteorological conditions</p>	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 36 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; 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. 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 36. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 36.</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
39	<p>In order to reduce emissions to air, BAT is to use both of the techniques given below:</p> <p>(a) Segregation of the waste gas streams;</p> <p>(b) Recirculation of waste gas</p>	NA	<p><u>Environment Agency assessment</u></p> <p>We are satisfied that BATc 36 is not applicable to this Installation.</p>