

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/RP3792FX
The Operator is: Vital Earth GB Limited
The Installation is: Land at Blenheim Road
This Variation Notice number is: EPR/RP3792FX/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 21/10/2019 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 25/09/2020.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that determination.

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, 2a, 3, 4, 8, 10, 12, 14, 17, 18, 19, 21 and 23. In relation to this/these BAT Conclusion(s), 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 2 and 3 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 Industry 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, (d) employee involvement, (e) documentation, (f) effective process control, (g) maintenance programmes, (h) emergency preparedness and response, (i) safeguarding compliance with environmental legislation; 	FC	<p><u>Environment Agency assessment</u></p> <p>The Operator confirmed that to comply fully with BATc 1, they need to develop a management system that covers a wider range of environmental and operational risks in conjunction with quality processes.</p> <p>The Operator acknowledged that the existing environmental management system document, Fire Prevention Plan (FPP), and Odour Management Plan (OMP) all need a thorough review to incorporate the relevant BAT requirements. Additionally, it is the intention of the operator to integrate relevant information detailed in the working plan into the environmental management system document.</p>

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	<p>V. checking performance and taking corrective action, paying particular attention to:</p> <ul style="list-style-type: none"> (a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED installations – ROM), (b) corrective and preventive action, recruitment, training, awareness and competence, (c) maintenance of records, (d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained <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>Consequently, we have included IC3 to ensure the Installation demonstrates full compliance with BAT point 1.</p> <p>We are satisfied that the Installation will be future compliant with BATc 1.</p>

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	XIII. accident management plan (see description in Section 6.5); XIV. odour management plan (see BAT 12) XV. noise and vibration management plan (see BAT 17).		
2	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques listed below: (a) Set up and implement waste characterisation and pre-acceptance procedures; (b) Set up and implement waste acceptance procedures; (c) Set up and implement a waste tracking system and inventory; (d) Set up and implement an output quality management system; (e) Ensure waste segregation; (f) Ensure waste compatibility prior to mixing or blending of waste; (g) Sort incoming solid waste	FC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance with BATc 2.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with most of the techniques for BATc 2. However, we consider that aspects of BATc 2a have not been adequately addressed with respect to characterisation of the following non-standard waste stream: EWC 03 03 07, 03 03 08, 17 02 01, 17 05 04, 19 12 07, 20 01 38, 20 02 02, 20 02 03 and 20 03 07.</p> <p>We consider that the operator will be future compliant with BATc 2a. Improvement</p>

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			condition 3 has been included in the permit to achieve compliance (see Annex 3).
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> <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>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator confirmed that to comply fully with BATc 3, they need to review their existing management system document, the working plan and OMP to ensure biofilter monitoring checks are consistent across each document.</p> <p>The operator further confirmed that this review will be completed by 17/08/2022.</p> <p>Consequently, we have included IC3 to ensure the Installation demonstrates full compliance with BATc 3.</p> <p>Based on our compliance records, all potentially contaminated waste water streams are captured on site. The only water</p>

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	(iii) information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature; (b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs); (c) flammability, lower and higher explosive limits, reactivity; (d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust).		discharge from the facility is uncontaminated site surface water from roofs and non-operational areas. We are satisfied that the Installation will be future compliant with BATc 3.
4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below: (a) Optimised storage location; (b) Adequate storage capacity; (c) Safe storage operation; (d) Separate area for storage and handling of packaged hazardous waste.	FC	<u>Environment Agency assessment</u> The operator confirmed that to comply with BATc 4, the following documents need to be updated: <ul style="list-style-type: none"> • the existing working plan document needs to be amended to reflect the maximum storage time associated with the PAS100: 2018 standard. • the FPP also needs to be amended to detail individual storage limitations for different areas, to further demonstrate that

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			<p>there is adequate storage capacity in place at the facility. The operator advised that once this action is completed, the site will fully operate in line with this element of current BAT standards.</p> <p>Additionally, local site compliance team have also received a draft storage and contingency plan, which is yet to be finalised and approved.</p> <p>Based on the information provided by the operator and our compliance records, we consider that the operator will be future compliant with BATc4. We have included IC3 to ensure the Installation demonstrates full compliance with BATc 4.</p>
5	In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance with BATc 5.</p>

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	<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>		<p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 5.</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>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we</p>

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			are satisfied that the operator is currently compliant with BATc 6.
7	BAT is to monitor emissions to water with at least the frequency given in BATc 7, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	NA	<p><u>Environment Agency assessment</u></p> <p>The operator states that there is no process water emission from the facility and we agree with this assessment.</p> <p>We are satisfied that BATc 7 does not apply to this installation.</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.	FC	<p><u>Environment Agency assessment</u></p> <p>The operator reports that the only channelled emissions from the site are from biofilters located at the IVC facility.</p> <p>Odour monitoring is carried out following EN 13725 (EN Standard). This currently occurs on-site on a three-yearly basis, with the last monitoring event to date undertaken on</p>

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			<p>11/04/2017 and 12/04/2017. The next assessment was to be undertaken in 2020, but, at the time of writing, this assessment had not yet been scheduled by the operator. The operator further reports that for the installation to become compliant with this BAT point, the frequency of the monitoring will need to be updated to reflect the requirement of the latest BAT Conclusions which is once every six months.</p> <p>We agree with this assessment. We consider that the operator will be future compliant with this BATc 8. We have included IC3 in the permit to ensure that the operator demonstrates full compliance with BATc 8.</p> <p>Additionally, we have updated the permit to include monitoring requirements for relevant emissions of substances from the biofilters.</p> <p>The relevant substances are:</p>

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			<ul style="list-style-type: none"> • Hydrogen sulphide (H₂S) • Ammonia (NH₃) and • Odour concentration. <p>These substances are to be monitored on a 6 monthly basis. The substances and associated monitoring frequencies and standards are detailed in Table S3.1 of the permit.</p>
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 reports that the site will need to undertake odour monitoring of either the odour concentration or NH₃, and H₂S emissions from the biofilters to become compliant with this BATc 10.</p> <p>The site's OMP currently commits to the operator carrying out daily odour monitoring using the sniff test method. This is however not the case at the moment as the site</p>

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	The monitoring frequency is determined in the odour management plan (see BAT 12).		<p>manager now does an odour assessment walk around the site every few days and records this in the site diary.</p> <p>The monitoring of odour emissions from the biofilters via dynamic olfactometry according to EN 13725 to determine the odour concentration is also not carried out at an acceptable frequency as detailed in BATc 8. We have as part of this review, updated the permit to include an odour monitoring regime for channelled emissions to air, on a 6 monthly basis.</p> <p>Based on the information provided and our knowledge of the site's compliance history, we consider that the operator will be future compliant, we have included IC3 to ensure the Installation demonstrates full compliance with BATc 10.</p>

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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 provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we are satisfied that the operator is currently compliant with BATc 11.</p>
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. 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator reports that the site is currently compliant with BATc 12, stating that the daily monitoring process however needs to be merged with the monthly check and then implemented on site.</p> <p>Based on the information provided and the site's compliance history, we do not agree with this assessment. The daily monitoring committed to in the site's OMP has not been</p>

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			<p>implemented. An extract from the operator's response states "The daily odour assessment walkaround is carried out every few days and the results are recorded in the site diary. The operator should do odour assessments daily as per H4 guidance and record the findings on an odour monitoring sheet".</p> <p>Consequently, we consider that the operator has not demonstrated that there is a protocol for conducting odour monitoring as set out in BATc 10.</p> <p>The operator may also need to review and update the current OMP to incorporate the new monitoring requirements introduced by the BAT Conclusions and reflected in the permit.</p> <p>We consider that the operator will be future compliant, we have included IC3 to ensure the</p>

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			Installation demonstrates full compliance with 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> The operator provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we are satisfied that the operator is currently compliant 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> <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;</p>	FC	<p><u>Environment Agency assessment</u> The operator confirmed that to comply fully with BATc 14, they need to review and update their Management System to specify limiting the drop height of materials when handling waste. The Operator further confirmed that a full review of the cleaning references in the management system and where cleaning</p>

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	(e) Dampening; (f) Maintenance; (g) Cleaning of waste treatment and storage areas; (h) Leak detection and repair (LDAR) programme		activities are recorded also needs to occur. Once completed, the site will operate in line with this element of current BAT standards. Based on the information provided by the operator and our compliance records, we consider that the operator will be future compliant. We have included IC3 to ensure the Installation demonstrates full 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	NA	No flaring takes place at the Installation. We are satisfied that BATc 15 does not apply to the installation.
16	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below:	NA	There are no flares on site.

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	(a) Correct design of flaring devices; (b) Monitoring and recording as part of flare management		We are satisfied that BATc 16 does not apply to the installation.
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. 	FC	<p><u>Environment Agency assessment</u></p> <p>The operator confirmed that to comply with BATc 17, they need to develop a Noise and Vibration Management Plan to be presented as a standalone document and commit to an annual review cycle.</p> <p>Based on the information provided by the operator and our compliance records, we consider that the operator will be future compliant, we have included IC3 to ensure the Installation demonstrates full compliance with BATc 17.</p>

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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 confirmed that once a full Noise and Vibration Management Plan has been implemented in line with BATc 17, they will be fully compliant with BATc 18.</p> <p>Based on the information provided by the operator and our compliance records, we consider that the operator will be future compliant. We have included IC3 to ensure the Installation demonstrates full 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; 	FC	<p>The operator reports that they are not currently compliant with this BAT standard. To comply, they need to review their identified fugitive emissions and incorporate relevant elements of the BAT techniques.</p> <p>Additionally, the operator states that they also need to review their fire prevention practises</p>

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	<p>(d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels;</p> <p>(e) Roofing of waste storage and treatment areas;</p> <p>(f) Segregation of water streams</p> <p>(g) Adequate drainage infrastructure;</p> <p>(h) Design and maintenance provisions to allow detection and repair of leaks</p> <p>(i) Appropriate buffer storage capacity</p>		<p>and the required buffer tank storage. Once completed, the operator states that the site will fully operate in line with this element of current BAT standards.</p> <p>With regards to technique D, the operator states that the above-ground leachate tanks are fitted with alarms that will sound upon reaching 80% capacity. All on-site IVC processing water is drained into a sealed drainage system, which then falls to a central collection sump fitted with a submersible pump. The leachate is then pumped to the two above-ground leachate storage tanks. The sump is activated at 50% to ensure it does not become overloaded. In addition, the maturation shed is bunded to prevent any leachate from escaping. The concrete hardstanding is laid to enable draining of leachate to central collection tanks (4,000-litre capacity). Four collection tanks are draining six windrows each. These tanks are pumped</p>

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			<p>upon reaching 50% capacity via underground pipework out to the same central leachate storage tanks utilised for the vessel leachate collection.</p> <p>Leachate stored within the tanks will typically and regularly be re-circulated through the composting process where the addition of moisture is identified through the operating procedures and critical limits of compost monitoring. Consequently, the tanks are kept at capacity. However, if this situation does occur, then the leachate is removed from the site by a qualified contractor and taken for treatment/disposal at a suitably licensed facility. All appropriate paperwork documenting the dispatch of leachate will be maintained and stored with the operational records.</p> <p>We have reviewed the submitted information and agree with the operator that the site will be future compliant. We consider that BAT is to</p>

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			<p>maintain a 300 mm freeboard for storage tanks so keeping tanks at capacity is not BAT. The operator has neither provided information about actions that are taken when the tanks reach 80% capacity, neither have they provided the level of monitoring that the tanks are subjected to at capacity to prevent overtopping.</p> <p>We have included IC3 to ensure the Installation demonstrates full compliance with BATc 19.</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 (b) Neutralisation (c) Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we</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>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. (o) Coagulation and flocculation (p) Sedimentation (q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) (r) Flotation</p>		<p>are satisfied that the operator is currently compliant with BATc 20.</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>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; (b) Management of incidental /accidental emissions; (c) Incident /accident registration and assessment system</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator confirmed that to comply with BATc 21, they need to develop their existing Accident Management Plan to serve as a standalone document within the management system. They also need to commit to an annual review cycle to fully operate in line with current BAT standards.</p> <p>Based on the information provided by the operator and our compliance records, we consider that the operator will be future</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
			compliant. We have included IC3 to ensure the Installation demonstrates full compliance with BATc 21.
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 are used for pH adjustment, fly ashes are used as binders).</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we are satisfied that the operator is currently compliant with BATc 22.</p>
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 confirmed that to comply with BATc 23, they need to develop an Energy Efficiency Management Plan.</p> <p>Based on the information provided by the operator and our compliance records, we consider that the operator will be future</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
			compliant. We have included IC3 to ensure the Installation demonstrates full compliance with BATc 23.
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>	NA	<p><u>Environment Agency assessment</u></p> <p>The Operator stated that they do not consider this BAT point to apply to the IVC activity. Considering the nature of the wastes received and treated at the Installation, we agree with this assessment.</p> <p>We are satisfied that BATc 24 does not apply to this Installation.</p>
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</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance with this BAT point.</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>Improvement condition (IC2) 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> <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 S3.1 (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 condition:</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><u>Improvement condition for the review of effectiveness of abatement plant</u></p> <p>Improvement condition 7 (IC7) requires the operator to review the abatement plant on-site, 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	<p>In order to reduce the generation of waste water and to reduce water usage, BAT is to use all of the techniques given below:</p> <ul style="list-style-type: none"> (a) Segregation of water streams; (b) Water recirculation; (c) Minimisation of the generation of leachate 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we are satisfied that the operator is currently compliant with BATc 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
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 concentration in the windrow, temperature of air streams in the case of forced aeration); • windrow porosity, height and width. 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance.</p> <p>We have assessed the information provided and have checked our compliance records, we are satisfied that the operator is currently compliant with BATc 36.</p>
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>We are satisfied that BATc 37 does not apply to the 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>	NA	<p>We are satisfied that BATc 38 does not apply to the 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>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. 		
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	We are satisfied that BATc 39 does not apply to the installation.

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 before 1 December 2016

The operator confirmed there are no combustion plant or generator associated with the permitted activity.

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 some external site operational processes within 250 metres of a sensitive receptor and in addition, the site operates a biofilter which is located within 250 metres of a sensitive receptor.

Based on the above, we have updated the bioaerosols monitoring requirements in the permit following our guidance TGN M9 Environmental monitoring of bioaerosols at regulated facilities (version 2, July 2018). We have removed the requirement to monitor gram-negative bacteria. The Operator is required to comply with the new monitoring requirements from the date of permit issue.

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 submitted a site condition report for the IED variation application of 2014. The site condition report did not include a report or data on the baseline conditions as required by Article 22. We reviewed that report and considered that it adequately described the condition of the soil and groundwater at that time.

The Operator submitted a summary report which referenced the site condition report of 2014 and has advised that it would be beneficial to undertake baseline sampling considering that significant time has passed since the permit was varied. Consequently, we have included Improvement condition 4, which requires the operator to submit a site risk assessment to consider the possibility of soil and groundwater contamination at the installation. We have also included Improvement condition 5, which requires the operator to provide a site baseline report (soil and groundwater data) depending on the results of the risk assessment. See Improvement conditions in Annex 3 of this decision document.

Waste types

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

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

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

Other wastes (non-standard waste codes)

The following wastes in the current permit are not specified in our revised biowaste treatment permit templates. We have retained this waste in the current permit provided the Operator undertakes a detailed characterisation of the wastes before acceptance for treatment at the site following BATc 2a.

Waste code	Description
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
17 02 01	wood
17 05 04	soil and stones other than those mentioned in 17 05 03
19 12 07	wood other than that mentioned in 19 12 06
20 01 38	wood other than that mentioned in 20 01 37
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
20 03 07	bulky waste (comprising wood and plant matter)

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

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

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. We also 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 or leachate on-site.

The operator confirmed that there are no storage lagoons on site. Based on our knowledge of the facility, we consider this information to be correct.

The operator carried out a review of the primary and secondary containment systems at the facility. The findings and associated recommendations are detailed in the document titled “Containment System Assessment, Regulation 61 (Schedule 1). We have reviewed this assessment and based on the recommendations in the report, we have set an improvement condition in the permit to address the deficiencies in the existing site primary and secondary containment (IC6). See Improvement condition in Annex 3 of this decision document.

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.

Improvement programme requirements		
Reference	Requirement	Date
Improvement condition for progress report to achieve BAT-AELs		
IC2	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Best Available Techniques Conclusion Associated Emission Levels (BAT-AELs) where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Current performance against the BAT-AELs. 2) Methodology for reaching the BAT-AELs. 3) Associated targets /timelines for reaching compliance by 17 August 2022. 4) Any alterations to the initial plan (in progress reports). <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, odour, dust and TVOC emissions to air from the biological treatment of waste) <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	<p>Progress reports at three monthly intervals from date of permit issue:</p> <p>07/01/2022 07/04/2022 07/07/2022</p>
Improvement condition for progress report to achieve Narrative BAT		
IC3	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p>	<p>Progress reports at three monthly intervals from date of permit issue:</p>

Improvement programme requirements		
Reference	Requirement	Date
	1) Methodology for achieving BAT 2) Associated targets /timelines for reaching compliance by 17 August 2022 3) Any alterations to the initial plan (in progress reports). The report shall address the BAT Conclusions for Waste Treatment with respect to BAT 1, 2, 3, 4, 8, 10, 12, 14, 17, 18, 19, 21 and 23.	07/01/2022 07/04/2022 07/07/2022
Improvement condition for site risk assessment to prevent soil & groundwater pollution		
IC4	The operator shall submit to the Environment Agency for approval a risk assessment considering the possibility of soil and groundwater contamination at the installation where the activity involves the use, production or release of a relevant hazardous substance (as defined in Article 3(18) of the Industrial Emissions Directive). The risk assessment shall clearly establish with appropriate evidence whether or not there is a risk of contamination of soil and groundwater and should follow the Defra Guidance – Industrial Emissions Directive EPR Guidance on Part A Installations (Section 5.10-5.15, pages 28-29 - Baseline Reports and Permit Surrender).	07/04/2022 or other date as agreed in writing with the Environment Agency
IC5	Where the risk assessment carried out under IC4 above establishes a risk to soil and groundwater, the operator shall: <ul style="list-style-type: none"> a) prepare and submit a baseline report compliant with Article 22 of the Industrial Emissions Directive (IED) containing information necessary to determine the current state of soil and groundwater contamination; or b) provide a summary report referring to information previously submitted where the operator is satisfied that such information represents the current state of soil and groundwater contamination, so as to enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation of activity.	07/04/2022 or other date as agreed in writing with the Environment Agency
Improvement condition for primary and secondary containment		
IC6	The operator shall submit a written 'primary, secondary and tertiary containment report' and shall	07/04/2022

Improvement programme requirements		
Reference	Requirement	Date
	<p>obtain the Environment Agency's written approval to it.</p> <p>The report must:</p> <ul style="list-style-type: none"> include the results of remedial actions taken in response to the recommendations contained within the submitted secondary containment construction and design document entitled "Vital Earth GB Limited. Containment System Assessment, Regulation 61 (Schedule 1), 16 June 2020". include a maintenance and inspection regime; and demonstrate that the recommended individual improvement measures necessary for the primary, secondary and tertiary containment systems, surface and sub-surface water drainage and, underground pipework and infrastructure, to adhere to the standards detailed/referenced within CIRIA C736 (2014), or equivalent have been adequately implemented. <p>The report must be reviewed and validated by a competent person to ensure that the site's secondary containment is fully compliant with the standards set in CIRIA C736 (2014) - Containment Systems for the Prevention of Pollution - secondary, tertiary and other measures for industrial and commercial premises.</p>	<p>or other date as agreed in writing with the Environment Agency</p>
Improvement condition for review of effectiveness of abatement plant		
IC7	<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. 	<p>07/04/2022</p> <p>or other date as agreed in writing with the Environment Agency</p>

Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> • Abatement stack monitoring results (not limited to odour and ammonia) • Abatement process monitoring results (not limited to odour 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>	