

# **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/XP3839FJ  
The Operator is: Renewi UK Services Limited  
The Installation is: Sowerby Woods Resource Park  
This Variation Notice number is: EPR/XP3839FJ/V005

### **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 best available techniques (BAT) Conclusions (BATc).

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 BAT Conclusions 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 the 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 19 July 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 standard is not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised 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 18 January 2020.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61 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 Conclusions 1, 3, 6, 7, 8, 14, 19, 20, 23, 34, 35 and 39. In relation to these BAT Conclusions, we do not fully agree with the Operator in respect of their current stated capability as recorded in their Regulation 61 Notice response. We have therefore included Improvement Conditions 4 to 9 in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions are delivered before 17 August 2022.

## 2.3 Requests for further information during determination

There were no further requests for information during determination.

### 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 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"> <li>I. commitment of the management, including senior management;</li> <li>II. definition, by the management, of an environmental policy that includes the continuous Improvement of the environmental performance of the Installation;</li> <li>III. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;</li> <li>IV. implementation of procedures paying particular attention to: <ul style="list-style-type: none"> <li>(a) structure and responsibility,</li> <li>(b) recruitment, training, awareness and competence,</li> <li>(c) communication,</li> <li>(d) employee involvement,</li> <li>(e) documentation,</li> <li>(f) effective process control,</li> <li>(g) maintenance programmes,</li> <li>(h) emergency preparedness and response,</li> <li>(i) safeguarding compliance with environmental legislation;</li> </ul> </li> </ul>	FC	<p>The Operator confirmed that the Installation has an integrated Environmental Management System (EMS) which is accredited to ISO 14001:2015.</p> <p>The Operator confirmed that they will incorporate changes resulting from this BAT review into their management systems via a review of the Installation EMS, with each of the BAT 1 elements considered as part of the review. This proposed review, which will be formalised in the permit by means of Improvement Condition 5 will ensure all of the necessary elements of BATc 1 will be included in the EMS within the BAT conclusions review timescales.</p> <p><b><u>Environment Agency assessment</u></b></p> <p><b>We are satisfied that the Installation will be future compliant with BATc 1.</b></p>



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	<ul style="list-style-type: none"> <li>V. checking performance and taking corrective action, paying particular attention to:               <ul style="list-style-type: none"> <li>(a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED Installations – ROM),</li> <li>(b) corrective and preventive action, recruitment, training, awareness and competence,</li> <li>(c) maintenance of records,</li> <li>(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</li> </ul> </li> <li>VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;</li> <li>VII. following the development of cleaner technologies;</li> <li>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;</li> <li>IX. application of sectoral benchmarking on a regular basis;</li> <li>X. waste stream management (see BAT 2);</li> <li>XI. an inventory of waste water and waste gas streams (see BAT 3);</li> </ul>		

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	<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>		
2	<p>In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques listed below:</p> <p>(a) Set up and implement waste characterisation and pre-acceptance procedures;</p> <p>(b) Set up and implement waste acceptance procedures;</p> <p>(c) Set up and implement a waste tracking system and inventory;</p> <p>(d) Set up and implement an output quality management system;</p> <p>(e) Ensure waste segregation;</p> <p>(f) Ensure waste compatibility prior to mixing or blending of waste;</p> <p>(g) Sort incoming solid waste</p>	CC	<p>The Operator confirmed that they currently employ the following techniques:</p> <p><b>(b) Set up and implement waste acceptance procedures</b> – The waste inputs to the Installation are solely municipal solid waste (MSW) accepted, with no commercial wastes accepted.</p> <p>All delivery vehicles arriving at the Installation must report to the site weighbridge, where the weighbridge Operator inspects the relevant documentation for each load. If there is any uncertainty regarding the suitability of the waste received the Site Manager is contacted. Each delivery vehicle is weighed upon arrival and when exiting the Installation to monitor on-site tonnages.</p> <p>From the weighbridge, the delivery vehicle is directed to one of five waste deposit doors (served by fast acting rolling doors fitted with sensors to minimise the duration of time the doors are opened) depending on the current waste levels in each bay and the type of</p>

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			<p>delivery vehicle. The reception pit door is opened as the vehicle arrives and closed as it departs. Each load is visually inspected prior to waste being discharged by means of closed circuit television (CCTV) viewed from the on-site control room, with the exception of refuse collection vehicles (RCVs) or fully enclosed containers, where initial visual inspection prior to discharge to the reception bay is not possible.</p> <p>Wastes are also visually inspected as they are collected from the reception pit for transfer to the shredder via grab crane. The result of waste inspections are recorded. The grab crane is used to move the waste through the mechanical biological treatment (MBT) process from reception pit to shredder, to shredded waste pit, and then through the bio-drying area. All waste movements using the grab crane are recorded in the MBT control system by date order to allow traceability of waste being treated.</p> <p>Any non-confirming waste found during visual inspection is removed to the quarantine area and allocated a unique reference number to identify the load and the date received, and recorded in the non-confirming loads record to note its storage and removal from the site. The Environment Agency are also informed of any non-confirming waste received at the Installation.</p> <p><b>(c) Set up and implement a waste tracking system and inventory –</b> Waste is allocated a unique reference number upon receipt at the weighbridge and each waste movement is tracked through the treatment</p>

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			<p>process by the MBT Control System to inform tracking of different waste loads. The bio-drying treatment area is divided into virtual grids on a computerised control system which records when and where materials have been placed. This layout enables site operatives to visually track and locate specified waste loads.</p> <p>The Operator supplied a waste inventory for the Installation, providing details on the waste type, maximum tonnages stored and the typical retention times for waste for each operational area including the reception pit, shredded pit, bio-drying hall and refinement area. The Operator confirmed there is minimal storage of waste and that the operational aim is to transfer waste as soon as possible upon arrival into the bio-drying hall and to transport it off-site soon after it has been refined.</p> <p><b>(d) Set up and implement an output quality management system -</b> Following the bio-drying process, dried waste is removed from the bio-drying hall by crane into a separate refinement area where it is segregated by size and type into different fractions. The recycling and recovery section of the process separates the dried waste into five fractions using a combination of sieving, weight separation and metal extraction, all of which are automated processes. The main fraction produced is Solid Recovered Fuel (SRF) which goes through a further shredding process. Other fractions produced include:</p> <ul style="list-style-type: none"> <li>• 0-20 mm – fines;</li> <li>• 20-120 mm – glass, stones, ferrous and non-ferrous, plastics;</li> </ul>

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			<ul style="list-style-type: none"> <li>• Greater than 120 mm – oversize fraction.</li> </ul> <p>Although this process is automated, the Operator confirmed that there is a Quality Assurance Plan in place to ensure strict control of plant operations and that the Shift Manager will ensure that operation and maintenance of the plant is carried out in strict accordance with the Quality Assurance Plan. Any monitoring and record equipment is maintained and re-calibrated on a planned schedule and in accordance with the recommendations of the manufacturer, thus, ensuring the sorting process and resultant fractions produced are suitable for their intended use and/or recovery/disposal route.</p> <p><b>(e) Ensure waste segregation</b> – As explained above for element (b) of BATc 2, the waste inputs to the Installation are solely municipal solid waste (MSW), therefore, there is no waste segregation of the waste input, other than non-conforming waste identified during waste acceptance checks, which is subsequently quarantined to avoid this waste being processed.</p> <p>However, the separate waste streams produced, summarised for element (d) of BATc 2 above, are segregated prior to despatch off site as follows:</p> <ul style="list-style-type: none"> <li>• Solid Recovered Fuel – loaded into 110 m<sup>3</sup> walking floor trailer via a hydraulic press;</li> <li>• Refuse Derived Fuel (RDF) - loaded into 110 m<sup>3</sup> walking floor trailer via a conveyer;</li> </ul>

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			<ul style="list-style-type: none"> <li>• Organic fines – loaded into 110 m<sup>3</sup> walking floor trailer via a conveyer;</li> <li>• Metal (ferrous and non-ferrous) – loaded into a 36 m<sup>3</sup> roll-on-roll-off container;</li> <li>• Glass and stone - loaded into a 36 m<sup>3</sup> roll-on-roll-off container.</li> </ul> <p><b>(f) Ensure waste compatibility prior to mixing or blending of waste</b> – Due to the limited waste inputs and streams accepted for treatment at the facility, it is unlikely that waste compatibility issues are likely to arise. However, the Operator did provide details on the risk management measures in place to minimise the risk associated with incompatible substances being stored. Separate to the waste acceptance checks and waste tracking system in place, the following measures are undertaken:</p> <ul style="list-style-type: none"> <li>• No explosive or reactive substances are stored on-site;</li> <li>• Each load of waste deposited in the waste reception hall is visually inspected for non-permitted wastes. Any non-permitted wastes found are removed from the waste pit;</li> <li>• The waste crushing equipment used is fitted with in-built pressure sensors. In the event waste cannot be crushed, crushing operations will cease.</li> </ul> <p><b>(g) Sort incoming solid waste</b> – As explained above, suitable visual inspection measures are in place for incoming wastes, as well as solid waste sorting processes to produce separate waste fractions.</p>

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			<p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 2.</b></p>
3	<p>In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the following features:</p> <p>(i) information about the characteristics of the waste to be treated and the waste treatment processes, including:  (a) simplified process flow sheets that show the origin of the emissions;  (b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances;</p> <p>(ii) information about the characteristics of the waste water streams, such as:  (a) average values and variability of flow, pH, temperature, and conductivity;  (b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen</p>	FC	<p>The Operator confirmed that releases from the Installation are documented in their current Aspects and Impacts register, however, this information is not currently maintained as an inventory, as required by BATc 3.</p> <p>The Operator confirmed that a standalone inventory will be prepared by September 2020 during the annual EMS review. Also, the Operator confirmed that the inventory review will include all the applicable features detailed in BAT 3 elements (i) to (iii).</p> <p>We have included Improvement Condition 5 to ensure the Installation demonstrates full compliance with each of the relevant elements of BATc 3 for waste water and waste gas streams.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation will be future compliant with BATc 3. Improvement Condition 5 has been included in the permit to achieve compliance (see Annex 3).</b></p>

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	<p>species, phosphorus, metals, priority substances /micropollutants); (c) data on bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)) (see BAT 52);</p> <p>(iii) information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature; (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).</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: (a) Optimised storage location; (b) Adequate storage capacity; (c) Safe storage operation; (d) Separate area for storage and handling of packaged hazardous waste.</p>	CC	<p>The Operator confirmed that the facility operates in compliance with the following elements of BATc 4:</p> <p><b>(a) Optimised storage location</b> – The Installation is located on the north-eastern boundary of an industrial estate, with the surrounding land use predominantly light industrial use to the north and west of the site, with open fields and Barrow Golf Club to the east and south of the site. Waste receipt and treatment processes, including mechanical shredding, biological treatment (bio-drying) and waste refinement, are all undertaken within a single enclosed building, thus minimising the</p>



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			<p>fugitive emission risk associated with the treatment process. The waste treatment processing equipment and building are already in place and existing.</p> <p><b>(b) Adequate storage capacity</b> – The Operator provided an inventory of the waste stored in different parts of the site, including the reception pit, shredded pit, bio-drying hall, refinement area and fines storage area. The Operator also provided confirmation that under no circumstances is waste allowed to build up at the Installation, with the following arrangements being in place:</p> <ul style="list-style-type: none"> <li>• In the event of equipment failure preventing the treatment of waste, waste will be diverted to another suitably permitted Installation;</li> <li>• Waste can also be diverted to a nearby waste transfer station and returned at a later date to the Installation (up to 72 hours);</li> <li>• As a last resort, waste can be diverted to landfill.</li> </ul> <p>The tonnage of all waste entering and leaving the site is recorded at the weighbridge, thus providing an up-to-date inventory of the tonnage of waste stored at the Installation. Due to the nature of the waste received and the treatment process, there is minimal storage of waste at the Installation. The Operator provided details on the maximum tonnage of materials stored in each storage area, including the reception pit, shredded pit, bio-drying hall, refinement area and fines area. Furthermore, it was confirmed that the control room staff are trained to</p>

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			<p>identify where on-site capacity may be limited and raise this with the operational management to manage incoming loads.</p> <p><b>(c) Safe storage operation</b> - The Operator confirmed that there is a detailed inspection and maintenance regime in place for fixed plant and equipment, as well as mobile plant, which forms part of the maintenance plan for the facility. Lifecycle schedules are prepared for the planned replacement of longer lasting items. Preventative maintenance for each processing plant/equipment is managed through a computerised maintenance management system, which is used to record preventative maintenance works and to log any breakdowns or faults identified.</p> <p><b>(d) Separate area for storage and handling of packaged hazardous waste</b> - No packaged hazardous wastes are received for treatment at the Installation, therefore, this point is considered not applicable.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 4.</b></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>The Operator confirmed that the following techniques are employed at the Installation:</p> <ul style="list-style-type: none"> <li>• <b>Handling and transfer of waste are carried out by competent staff</b> - The Operator confirmed that all waste handling procedures are risk assessed and conducted by</li> </ul>

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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"> <li>• handling and transfer of waste are carried out by competent staff;</li> <li>• handling and transfer of waste are duly documented, validated prior to execution and verified after execution;</li> <li>• measures are taken to prevent, detect and mitigate spills;</li> <li>• operation and design precautions are taken when mixing or blending wastes (e.g. vacuuming dusty/powdery wastes).</li> </ul> <p>Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.</p>		<p>competent members of staff. All staff on site are trained on different aspects of site operations, including the requirements of the Environmental Permit.</p> <ul style="list-style-type: none"> <li>• <b>Handling and transfer of waste are duly documented, validated prior to execution and verified after execution</b> – The Operator confirmed that all material transfers are documented. As summarised for element (c) of BATc 2, waste handling and transfers are recorded and tracked throughout the treatment process. Please refer to BATc 2 for further details.</li> <li>• <b>Measures are taken to prevent, detect and mitigate spills</b> – It was confirmed when the Installation was first permitted that all storage tanks would be fitted with appropriate devices to prevent them from being overfilled. A routine walkover inspection of the site is undertaken by the Site Manager or appointed Deputy every day when the site is operational. Site walkovers allow spillages which may have occurred to be identified and cleaned up.</li> </ul> <p>The Operator also confirmed that all tanks containing potentially polluting substances are double skinned and provided with bunding equivalent to 110% of the storage tank volume. An inventory of all potentially dangerous substances on-site is maintained by the Site Manager, including management methods for dealing with spills. Spill kits are retained on-site at</p>

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			<p>all times with accompanying procedures for their use in the event of a spillage. In the event of a spillage with potential to cause environmental harm, the site holds an Emergency Spill Plan which will be implemented. The affected area will be isolated, absorbent materials applied and spill kits employed.</p> <ul style="list-style-type: none"> <li>• <b>Operation and design precautions are taken when mixing or blending wastes</b> - All waste processing, storage and transfer activities take place within a fully enclosed building which reduces the associated fugitive emissions. Due to the nature of the wastes accepted and handled within the MBT process, the associated risks when mixing/blending wastes are limited in this instance.</li> </ul> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 5.</b></p>
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).	FC	This BAT point applies to the single point source emission to sewer listed in the permit, SW1. This point source emission was previously listed as W1 in Table S3.2 which was specifically for emissions to water other than sewer. However, since this emission point discharges to surface water sewer, it has been renamed SW1, and included in revised

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			<p>Table S3.2 which is specifically for point source emissions to sewer and other transfers off-site.</p> <p><b>SW1</b> – Site water from hardstanding and roofed areas drain to surface water sewer. Previously, this direct discharge was listed in the permit as an uncontaminated point source emission, however, it has not been demonstrated that the discharge from this source is uncontaminated. We consider this point source as a relevant emission to water due to the possibility of this stream being contaminated. Consequently, we have adopted a precautionary approach and require the Operator to consider SW1 in the inventory of waste water streams (to be addressed in response to BATc 3). The Operator is also required to address the elements of BATc 6 for this point source and demonstrate it is compliant with the relevant BAT-AELs for direct discharges to water (Table 6.1 of the BAT Conclusions).</p> <p>Therefore, for point source emission SW1, we consider the Installation will be future compliant.</p> <p><b><u>Environment Agency assessment</u></b></p> <p><b>We are satisfied that the Installation will be future compliant with BATc 6. Improvement Condition 5 has been included in the permit to achieve compliance (see Annex 3).</b></p>

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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.	FC	<p>This BATc applies to the single point source emission to sewer listed in the permit, SW1.</p> <p><b>SW1</b> – This point source emission was previously permitted with no ELVs. As detailed above (BAT 6) the permit has been updated to add the relevant BAT-AELs for direct discharges (Table 6.1 of the BAT conclusions) and associated monitoring requirements (associated with BATc 20).</p> <p>The monitoring will only apply when the substance concerned is identified as relevant in the waste water inventory in demonstration of compliance with BAT 3.</p> <p>We have included Improvement Condition 4 to ensure the Installation is compliant with the aforementioned ELVs by 17 August 2022, in accordance with BATc 20.</p> <p><b><u>Environment Agency assessment</u></b></p> <p><b>We are satisfied that the Installation will be future compliant with BATc 7. Improvement Condition 4 has been included in the permit to achieve compliance (see Annex 3).</b></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	FC	<p>BATc 8 is applicable to the following channelled emissions to air at the Installation:</p> <ul style="list-style-type: none"> <li>• A1 – Biofilter stack emission;</li> <li>• A2 – Baghouse stack from refining area.</li> </ul>

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	ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.		<p><u>A1 – Biofilter stack emission</u></p> <p>The permit has been updated as part of this review to incorporate the relevant ELVs and associated monitoring requirements for the following parameters, to implement the requirements of BATc 8 (associated with BATc 34) for A1:</p> <ul style="list-style-type: none"> <li>- Ammonia;</li> <li>- Odour concentration;</li> <li>- Hydrogen sulphide;</li> <li>- Total VOCs;</li> <li>- Dust.</li> </ul> <p>The current version of the Odour Management Plan (submitted to the Environment Agency 21/02/2019) also confirms that the following process monitoring regime is in place for the biofilter:</p> <ul style="list-style-type: none"> <li>• Outlet odour (OUe/m<sup>3</sup>): Monitored in triplicate on a weekly basis. Three true duplicate samples of 20 minutes duration at least 1 hour apart.</li> <li>• Inlet Odour (OUe/m<sup>3</sup>): Monitored in triplicate on a weekly basis. One duplicate sample for estimation removal efficiency only.</li> <li>• Ammonia: Monitored weekly in addition to internal spot tests using detector tubes.</li> </ul>

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			<p><u>A2 – Baghouse stack from refining area</u></p> <p>The permit has been updated as part of this review to incorporate the relevant ELV and associated monitoring requirement for the following parameter, to implement the requirements of BATc 8 (associated with BATc 34) for A2:</p> <ul style="list-style-type: none"> <li>- Dust.</li> </ul> <p>Please note, where a more frequent monitoring frequency was in place prior to this permit review, the more frequent monitoring frequency has been retained in the updated permit.</p> <p>We have included Improvement Condition 4 to ensure the Installation is compliant with the aforementioned ELVs by 17 August 2022, in accordance with BATc 34.</p> <p><b><u>Environment Agency assessment</u></b></p> <p><b>We are satisfied that the Installation will be future compliant with BATc 8. Improvement Condition 4 has been included in the permit to achieve compliance (see Annex 3).</b></p>
10	<p>BAT is to periodically monitor odour emissions.</p> <p>Odour emissions can be monitored using:</p>	<b>CC</b>	<p>The existing permit included requirements for monthly odour monitoring of the biofilter stack serving the MBT facility, in accordance with BS EN</p>



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	<ul style="list-style-type: none"> <li>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);</li> <li>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.</li> </ul> <p>The monitoring frequency is determined in the odour management plan (see BAT 12).</p>		<p>13725:2003. This monitoring requirement has been retained in Table S3.1 of the permit updated as part of this permit review.</p> <p>The current version of the OMP (submitted to the Environment Agency 21/02/2019) confirms that daily olfactory monitoring (sniff tests) are undertaken around the Installation perimeter and the findings of each are recorded. Observations including time, date, weather conditions, odour description, location and odour intensity are recorded on a daily basis. In addition, daily off-site inspections are undertaken at specific locations when waste materials are being received, or as determined by the Site Manager. The OMP also includes the contingency for more frequent olfactory monitoring to be undertaken in the event of odours being detected at the Installation boundary.</p> <p>As summarised for BATc 8, odour is also regularly monitored from the biofilter stack in accordance with the monitoring standards and frequency specified in the BAT conclusions document.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 10.</b></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>	CC	<p>The Operator confirmed that the annual consumption of water, energy and raw materials is reported on annually, in accordance with their</p>

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	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.		existing permit. This information is also recorded in the Installation's annual report and annual EMS review.  <b><u>Environment Agency assessment</u></b> <b>We are satisfied that the Installation is currently compliant with BATc 11.</b>
12	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements: <ul style="list-style-type: none"> <li>• a protocol containing actions and timelines;</li> <li>• a protocol for conducting odour monitoring as set out in BAT 10;</li> <li>• a protocol for response to identified odour incidents, e.g. complaints;</li> <li>• 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.</li> </ul>	<b>CC</b>	An approved OMP is in place at the Installation. The current version of the OMP (submitted to the Environment Agency on 21/02/2019) addresses the following elements of BATc 12: <b>A protocol containing actions and timelines</b> – The OMP includes a range of procedures (including specific actions and frequencies) relevant to odour management.  <b>A protocol for conducting odour monitoring as set out in BATc 10</b> - Odour emissions are monitored in accordance with BS EN 13725 in order to determine the odour concentration. This is in line with the requirements of BATc 10. Further detail is provided for BATc 10 above. In addition to detailing monitoring procedures for odour abatement systems, the OMP also provides detail on non-odour abatement equipment monitoring (e.g. daily monitoring of maximum waste quantities).

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			<p><b>A protocol for response to identified odour incidents, e.g. complaints</b> – The OMP includes a section dedicated to complaint handling which includes details on how members of the public can report complaints, the complaints investigation procedure followed, and further investigation procedures followed in the event that the Installation is identified as a likely source of the odour complaint.</p> <p><b>An odour prevention and reduction programme to:</b></p> <ul style="list-style-type: none"> <li>• <b>Identify the sources</b> – The OMP includes an inventory of the main odour sources identified by the Operator.</li> <li>• <b>Characterise contributions of different sources</b> – The waste inputs to the Installation are solely municipal solid waste (MSW), as such, the contribution of the sources received is likely to be consistent. The OMP acknowledges that waste received may be odorous and confirms that if waste received is identified to be excessively odorous during waste acceptance checks, it will be directed to the quarantine area and the Site Manager informed to ensure appropriate follow-up action is taken and the odorous waste is diverted to another suitable facility.</li> <li>• <b>Implement prevention and/or reduction measures</b> –The OMP includes detail on a number of odour control measures related to: <ul style="list-style-type: none"> <li>○ Waste receipt/tipping procedures;</li> <li>○ Feedstock storage times;</li> <li>○ Reception and shredder pit emptying;</li> <li>○ Leachate storage and transfer procedures;</li> </ul> </li> </ul>

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			<ul style="list-style-type: none"> <li>○ Odour abatement systems, including extraction systems, sulphuric acid scrubber and biofilter;</li> <li>○ Monitoring and maintenance of key odour control infrastructure including abatement ventilation systems, abatement systems and emission stack pipework and release point.</li> </ul> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 12.</b></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;  (b) Using chemical treatment;  (c) Optimising aerobic treatment</p>	CC	<p>The Operator stated in their Regulation 61 response that they do not consider element (b) and (c) of BATc 13 to be applicable to the Installation. We agree with this statement:</p> <p><b>(a) Minimising residence times</b> – The Operator confirmed residence times are minimised during waste receipt, processing and storage. It is confirmed in the OMP that under normal operating conditions all feedstock delivered on a given day is removed before the first load of waste is received the following working day.</p> <p><b>(b) Using chemical treatment</b> – This element is not applicable where it may hamper the desired output quality.</p> <p><b>(c) Optimising aerobic treatment</b> – This element is only applicable in the case of aerobic treatment of water-based liquid.</p>

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			<p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 13.</b></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;  (e) Dampening;  (f) Maintenance;  (g) Cleaning of waste treatment and storage areas;  (h) Leak detection and repair (LDAR) programme</p>	FC	<p>The Operator confirmed that they use an appropriate combination of techniques (a), and (c) to (g):</p> <p><b>(a) Minimising the number of potential diffuse emission sources –</b> Waste receipt and treatment processes, including all material handling/transfer steps, are undertaken within a single enclosed process building, thus minimising the potential for diffuse emissions from the Installation.</p> <p><b>(c) Corrosion prevention –</b> Although the Operator listed this element of BATc 14, no explanation was provided to demonstrate that corrosion prevention measures are in place. We have included Improvement Condition 5 to ensure the Installation is future compliant with this element of BATc 14 by 17 August 2022.</p> <p><b>(d) Containment, collection and treatment of diffuse emissions –</b> The recently approved OMP details a number of measures implemented to contain, collect and treat diffuse emissions, including:</p> <ul style="list-style-type: none"> <li>All waste receipt and treatment processes occur within a single enclosed process building;</li> </ul>

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			<ul style="list-style-type: none"> <li>• Fast-acting roller doors are in place and procedures are in place to minimise the time the process building doors are open to minimise fugitive odour emissions from this source, including door sensors which assist in ensuring building doors are only opened when delivery vehicles are within close proximity of the building;</li> <li>• A negative (static) pressure differential is maintained between the air inside the processing building and the atmospheric (static) pressure outside the building;</li> <li>• All process air is extracted from the process building and conveyed to a wet chemical scrubber, and then a biofilter, prior to being released via a raised stack to aid dispersion.</li> </ul> <p>With regards to maintaining negative pressure, the Operator stated in their OMP that following a recent BAT review, a permanent system would be installed to allow for the continuous measurement of negative pressure. Appendix H of the OMP provides further detail on the application of negative pressure at the Installation. It has been identified through regulatory compliance work that negative pressure is not always maintained when the building doors are open (e.g. during waste deliveries). However, this has not been identified as a substantiated odour management issue during regulatory compliance work, therefore, the current extraction arrangements as detailed in the recently approved OMP, were accepted for the Installation. Furthermore, as detailed above, there are a number of measures in place to ensure the duration of time building doors are open are kept to a minimum.</p>

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			<p>Management of the odour abatement system serving the processing building (wet chemical scrubber and biofilter) has been identified as an aspect of ongoing regulatory compliance work. As summarised for BATc 34, the Operator confirmed that the performance of the biofilter is currently being investigated as part of an Operator-led improvement programme.</p> <p><b>(f) Maintenance</b> – The recently approved OMP includes a section on the monitoring and maintenance regime implemented. The procedures in place cover the inspection and maintenance of both odour abatement equipment and ‘non-odour abatement equipment’. The OMP includes details on the maintenance regimes in place for the following:</p> <ul style="list-style-type: none"> <li>• Extraction fans and ductwork;</li> <li>• Dust abatement system and bag filters;</li> <li>• Leachate collection system and tank;</li> <li>• Wet chemical scrubber;</li> <li>• Biofilter;</li> <li>• Stack pipework and outlets;</li> <li>• Fast-acting rolling doors.</li> </ul> <p>The Operator also provided a Site Operating Procedure (SOP) titled Odour abatement system maintenance and monitoring, which provided further detail on the procedures in place to maintain the key equipment used on-site.</p>

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			<p><b>(g) Cleaning of waste treatment and storage areas</b> – The Operator provided Appendix C1 to the OMP (Cleaning Operations) which provided details on litter picking, blowing down, sweeping, door cleaning and maintenance, and general cleaning rules related to the areas of the site to be cleaned and the equipment to be used when undertaking housekeeping measures.</p> <p>However, insufficient information was included on the cleaning regime in place for the waste storage pits to ensure the odour risks posed by the waste stored, odorous residues and the pits themselves, are effectively managed at the Installation. This has been subject to recent compliance discussions and we have included Improvement Condition 5 to ensure the Installation is future compliant with this element of BATc 14 by 17 August 2022.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation will be future compliant with BATc 14. Improvement Condition 5 has been included in the permit to achieve compliance (see Annex 3).</b></p>
15	<p>BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below:</p> <p>(a) Correct plant design;</p>	NA	<p>No flaring takes place at the Installation.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that BATc 15 is not applicable to this Installation.</b></p>



BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the Installation capability and any alternative techniques proposed by the Operator to demonstrate compliance with the BAT Conclusion requirement
	(b) Plant management		
16	<p>In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below:</p> <p>(a) Correct design of flaring devices; (b) Monitoring and recording as part of flare management</p>	NA	<p>No flaring takes place at the Installation.</p> <p><b><u>Environment Agency assessment</u></b> <b>We are satisfied that BATc 16 is not applicable to this Installation.</b></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"> <li>I. a protocol containing appropriate actions and timelines;</li> <li>II. a protocol for conducting noise and vibration monitoring;</li> <li>III. a protocol for response to identified noise and vibration events, e.g. complaints;</li> <li>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</li> </ul>	NA	<p>The Operator confirmed that since the construction of the Installation there have been no noise pollution issues identified by the Operator, and that the Installation does not currently have a Noise Management Plan in place. Regulatory compliance work has not identified any noise or vibration nuisance issues associated with the Installation.</p> <p><b><u>Environment Agency assessment</u></b> The applicability of BATc 17 is restricted to cases where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated (which does not apply to this Installation). We are satisfied this is not applicable to the Installation.</p> <p>The permit condition 3.4 ensures that the Operator submits a noise management plan in the event emissions of noise and vibration causing annoyance beyond the site boundary.</p>

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	the sources and to implement prevention and /or reduction measures.		<p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that BATc 17 is not applicable to the Installation.</b></p>
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> <p>(a) Appropriate location of equipment and buildings;  (b) Operational measures;  (c) Low noise-equipment;  (d) Noise and vibration equipment;  (e) Noise attenuation</p>	CC	<p>The Operator confirmed that they use a combination of measures to manage and mitigate noise and vibration risks on site. All major operations are undertaken within the reception building to minimise the noise emissions from this activity. The engines of any vehicles arriving at the Installation are also turned off whenever idle.</p> <p>Furthermore, the site has inspection and maintenance procedures for equipment, which also helps to minimise the noise risk associated with plant used.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 18.</b></p>
19	<p>In order to optimise water consumption, to reduce the volume of waste water generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below:</p> <p>(a) Water management;  (b) Water recirculation;  (c) Impermeable surface;</p>	FC	<p>The Operator committed to reviewing the applicability of BATc 19 techniques (a) to (i) as part of the review of opportunities to improve the efficiency of water use required by permit condition 1.3.1(c). The Operator confirmed they will implement any applicable further techniques for water management prior to 17 August 2022 subject to Environment Agency agreement.</p>



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	<p>(h) Chemical reduction (i) Evaporation (j) Ion exchange (k) Stripping</p> <p><b>Biological treatment, e.g.</b> (l) Activated sludge process (m) Membrane bioreactor (n) Nitrification / denitrification when the treatment includes a biological treatment</p> <p><b>Solids removal, e.g.</b> (o) Coagulation and flocculation (p) Sedimentation (q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) (r) Flotation</p> <p>See also: Table 6.1: BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body</p> <p>See also: Table 6.2: BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body</p>	<p><b>(BAT-AELs) for direct discharges to a receiving water body.</b></p>	<p>and the associated BAT-AELs as outlined in Table 6.1 of the Waste Treatment BAT Conclusions.</p> <p><b><u>Environment Agency assessment</u></b> We are satisfied that the Installation will be future compliant with BATc 20. Improvement condition 4 is incorporated into the permit which addresses BATc 20 Table 6.1 BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body (see Annex 3).</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the Installation capability and any alternative techniques proposed by the Operator to demonstrate compliance with the BAT Conclusion requirement
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>	CC	<p>The Operator confirmed that BAT elements (a) to (c) are in place and are compliant with the requirements of BATc 21. A detailed summary of the main operational hazards, likelihood of an incident, potential impact, possible consequence, and control measures/safeguards was supplied with the original permit application. This included</p> <p><b>(a) Protection measures</b> for the following hazards:</p> <ul style="list-style-type: none"> <li>• Accidental spillage of fuel;</li> <li>• Accidental spillage of solid waste;</li> <li>• Storage of incompatible substances;</li> <li>• Collision resulting in environmental risk (e.g. spillage);</li> <li>• Leachate containment failure;</li> <li>• Baghouse filter failure;</li> <li>• Biofilter failure;</li> <li>• Equipment failure (crane, grab crane, shredder, feed hopper);</li> <li>• Site flooding;</li> <li>• Contaminated run off;</li> <li>• Fire</li> </ul> <p><b>(b) Management of incidental/accident emissions</b> – The Operator supplied a copy of the Installation’s Emergency, Disaster Recovery and Business Continuity Procedure which documents the procedures in place to manage accidents/incidents which result in environmental release of substances harmful to the environment.</p> <p>With regards to how the environmental risk associated with firewater is controlled, the controls and procedures in place are documented in the</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>Installation's Fire Prevention Plan (FPP). The Installation's FPP was recently reviewed and approved by the Environment Agency.</p> <p><b>(c) Incident /accident registration and assessment system</b> – The Operator confirmed in the recently approved FPP that all accidents, incidents and near-miss reports are logged via the company-wide Safety, Health and Environmental Management (SHE) Assure System.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 21.</b></p>
22	<p>In order to use materials efficiently, BAT is to substitute materials with waste.</p> <p>Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids are used for pH adjustment, fly ashes are used as binders).</p>	NA	<p>The Operator confirmed that the current resource efficiency permit conditions comply with BAT and there are no immediately obvious opportunities to replace materials with waste. We agree that this BAT point is not currently applicable to the Installation.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that BATc 22 is not applicable to this Installation.</b></p>
23	<p>In order to use energy efficiently, BAT is to use both of the techniques given below:  (a) Energy efficiency plan;  (b) Energy balance record</p>	FC	<p><b>(a) Energy efficiency plan</b> – The Operator confirmed that the Installation is currently compliant with the energy efficiency permit condition and that the Installation is also part of an Energy Saving</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>Opportunities Scheme (ESOS), which helps identify opportunities to improve energy use/efficiency at the Installation.</p> <p>However, the Operator confirmed that these energy efficiency plans, including key performance indicators and planned improvements, are not consolidated into a single plan. To address this element of BATc 23, the Operator confirmed that a documented energy efficiency plan will be prepared and targets and objectives set and reviewed.</p> <p><b>(b) Energy efficiency</b> – The Operator did not confirm that the Installation currently complies with this element of BATc 23. However the Operator confirmed that an energy balance for the Installation will be prepared to address this aspect.</p> <p>We have included Improvement Condition 5 to ensure BATc 23 is addressed by 17 August 2022.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation will be future compliant with BATc 23. Improvement Condition 5 has been included in the permit to achieve compliance (see Annex 3).</b></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
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>The Operator stated that they do not consider this BAT point to be applicable to the MBT activity. Considering the nature of the wastes received and treated at the Installation, we agree with this statement.</p> <p><b><u>Environment Agency assessment</u></b> <b>We are satisfied that BATc 24 is not applicable to this Installation.</b></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 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>The Operator confirmed that only municipal solid waste (MSW) is accepted and treated at the Installation. Please refer to the waste acceptance checks and sorting procedures summarised for BATc 2 that are in place to ensure that only suitable wastes are input into both processes.</p> <p>Additionally, as part of this permit review, we have reviewed and updated the permitted waste types for the MBT activity to ensure the waste types permitted are in accordance with the current permit template for MBT activities, thus ensuring the waste types permitted are suitable for treatment in this process.</p> <p><b><u>Environment Agency assessment</u></b> <b>We are satisfied that the Installation is currently compliant with BATc 33.</b></p>



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34	<p>In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H<sub>2</sub>S and NH<sub>3</sub>, BAT is to use one or a combination of the techniques given below:</p> <p>(a) Adsorption;  (b) Biofilter;  (c) Fabric filter;  (d) Thermal oxidation;  (e) Wet scrubbing</p> <p>See also:  Table 6.7: BAT-associated emission levels (BAT-AELs) for channelled NH<sub>3</sub>, odour, dust and TVOC emissions to air from the biological treatment of waste.</p>	CC	<p>The Operator confirmed that the following techniques are employed at the Installation:</p> <p><b>(b) Biofilter</b> – All odorous air contained within the processing building, in which all activities are undertaken within, is extracted to a biofilter (following wet scrubbing). Emission point source – A1.</p> <p><b>(c) Fabric filter</b> – All air within the refinement area of the processing building is extracted to a bag filter to remove particulate matter. Emission point source – A2.</p> <p><b>(e) Wet scrubbing</b> – All odorous air contained within the processing building is extracted to a sulphuric acid scrubber, with the treated air then being conveyed to the biofilter mentioned above. Emission point source – A1.</p> <p><u>Emission point A1</u></p> <p>The wet chemical scrubber was installed at the Installation in 2017 due to the proximity of the Installation to ammonia sensitive ecological receptors.</p> <p>The Operator confirmed that the abatement system (scrubber and biofilter) consistently achieves an NH<sub>3</sub> concentration at or below the lower BAT threshold (0.3 mg/m<sup>3</sup>). Although NH<sub>3</sub> was previously listed in the permit as a pollutant that required monitoring, there was no associated emission limits. As part of this permit review we have included a site-specific BAT-AEL for NH<sub>3</sub> for A1, based on the trigger limit specified within the current OMP for the site.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the Installation capability and any alternative techniques proposed by the Operator to demonstrate compliance with the BAT Conclusion requirement
			<p>However, the Operator stated that they were uncertain whether the scrubber and biofilter can achieve compliance with the BAT-AEL for odour concentration.</p> <p>The Operator confirmed that the performance of the biofilter is currently being investigated as part of an Operator-led improvement programme.</p> <p>Monitoring requirements have been added to the permit for the following substances for A1 in accordance with the requirements of BATc 8:</p> <ul style="list-style-type: none"> <li>• Ammonia – NH<sub>3</sub>;</li> <li>• Odour concentration;</li> <li>• Hydrogen sulphide - H<sub>2</sub>S;</li> <li>• Total volatile organic compounds – TVOCs;</li> <li>• Dust.</li> </ul> <p><u>Emission point A2</u></p> <p>The only relevant pollutant emitted from A2 is particulate matter. As part of this permit review, we have updated the permitted ELV and monitoring requirement (as per Table 6.7 of the BAT Conclusions).</p> <p>In summary, we are satisfied that the Installation employs a suitable combination of abatement techniques in line with the BAT criteria.</p> <p><b><u>Environment Agency assessment</u></b></p> <p><b>We are satisfied that the Installation is currently compliant with BATc 34.</b></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
		FC (BATc 34, Table 6.7)	<p>Improvement condition 4 (IC4) has been included in the permit to achieve compliance with the relevant BAT-AELs, as specified in Table 6.7 of the BAT Conclusions. 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 in Table S3.4 (process monitoring).</p> <p>As part of the Environment Agency approach to reduce emissions in the Biowaste Treatment sector, we have included the following improvement conditions:</p> <p><u>Improvement condition for the review of effectiveness of abatement plant</u></p> <p>Improvement condition 8 (IC8) requires the operator to review abatement plant on site, in order to determine whether existing measures have been effective and adequate to prevent and /or minimise emissions released to air. Where further improvements are identified, the operator is required to implement these measures.</p> <p><u>Improvement condition for the review of abatement plant design</u></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
			Improvement condition 9 (IC9) requires the operator to review the design of the site ventilation system and abatement plant in order to determine whether it is fit for purpose and effective in controlling odorous compounds in the air streams from site processes. Where further improvements are identified, the operator is required to implement these measures.
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> <p>(a) Segregation of water streams;  (b) Water recirculation;  (c) Minimisation of the generation of leachate</p>	<b>FC</b>	<p>The Operator confirmed that the Installation currently reports on its resource use through annual report returns required by their previous permit and that several of the BAT techniques listed in BATc 35 to reduce waste water and optimise water efficiency are in place. However, the Operator did not provide adequate details on which measures are currently employed.</p> <p>The Operator acknowledged that there may be opportunities for improvement and confirmed that they will specifically include the requirements of BATc 35 into the annual resource efficiency review, and will forward the findings of this review to the Environment Agency.</p> <p>The Operator confirmed that the following measures are being considered:</p> <ul style="list-style-type: none"> <li>• Recirculation /reuse of biofilter leachate to reduce potential loss in microbial activity;</li> <li>• Reduction in biofilter irrigation frequency.</li> </ul>

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>Therefore, we have included Improvement Condition 5 to ensure the above points are addressed.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation will be future compliant with BATc 35. Improvement Condition 5 has been included in the permit to achieve compliance (see Annex 3).</b></p>
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"> <li>• waste input characteristics (e.g. C to N ratio, particle size);</li> <li>• temperature and moisture content at different points in the windrow;</li> <li>• aeration of the windrow (e.g. via the windrow turning frequency, O<sub>2</sub> and/or CO<sub>2</sub> concentration in the windrow, temperature of air streams in the case of forced aeration);</li> <li>• windrow porosity, height and width.</li> </ul>	CC	<p>In order to improve the overall performance of the Installation, the following key parameters are controlled:</p> <ul style="list-style-type: none"> <li>• <b>Waste input characteristics</b> – The Operator explained that due to the limited scope of the feedstock (municipal solid waste), waste input characteristics are relatively consistent and are controlled through waste acceptance checks and the elimination of non-confirming waste. Additionally, waste input particle size is controlled by means of a shredder which is used for size reduction and to create a more consistent material to input into the MBT treatment process.</li> <li>• <b>Temperature and moisture content in the windrow</b> – A SCADA (system control and data acquisition) system records internal air humidity and process air temperature. The fans serving the bio-drying process (to provide a flow of air through the waste piles) are automatically adjusted in order to maintain the air temperatures within the bio-drying area within the</li> </ul>

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>operational range of 50-60 °C. The bio-drying stage reduces the mass of the waste input by between 25-35% through removal of moisture.</p> <ul style="list-style-type: none"> <li>• <b>Aeration of the windrow</b> – As summarised above, the bio-drying process is controlled automatically by means of a SCADA system. In order to achieve the optimum processing conditions, the SCADA system automatically adjusts the speed of the fans, and consequently the supply of oxygen to the waste piles.</li> <li>• <b>Windrow porosity, height and width</b> – The recently approved Fire Prevention Plan (FPP) confirmed that the bio-drying hall consists of 29 windrows, each with a height of between 4.2-4.7 m. As summarised above, incoming waste is also subject to shredding prior to bio-drying to maintain consistency in the particle size of the waste being treated.</li> </ul> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation is currently compliant with BATc 36.</b></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
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>The Operator stated in their response that they do not consider this BATc point to be applicable to the Installation activities they undertake.</p> <p><b>(a) Use of semi permeable membrane covers</b> – We agree that this is not applicable since the MBT activity is undertaken within an enclosed building;</p> <p><b>(b) Adaptation of operations to the meteorological conditions</b> – As for (a), since all waste treatment is undertaken within an enclosed building, this element of BATc 37 is not applicable to the Installation.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that BATc 37 is not applicable to this Installation.</b></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"> <li>• pH and alkalinity of the digester feed;</li> <li>• digester operating temperature;</li> <li>• hydraulic and organic loading rates of the digester feed;</li> </ul>	NA	<p>The MBT activity undertaken is an aerobic biological treatment process.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that BATc 38 is not applicable to this Installation.</b></p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA/ CC / FC / NC	Assessment of the Installation capability and any alternative techniques proposed by the Operator to demonstrate compliance with the BAT Conclusion requirement
	<ul style="list-style-type: none"> <li>• concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate;</li> <li>• biogas quantity, composition (e.g. H<sub>2</sub>S) and pressure;</li> <li>• liquid and foam levels in the digester.</li> </ul>		
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;  (b) Recirculation of waste gas</p>	<b>FC</b>	<p>This BATc is specifically for MBT Installations. The Operator stated that they did not consider BATc 39 to apply to the technology employed at the site, however, as the Installation undertakes MBT, we would expect this BATc to be addressed in greater detail. The Operator did not provide sufficient explanation to justify that this BATc does not apply to the Installation, therefore, we have included Improvement Condition 5 to ensure that BATc 39 is fully addressed by the Operator.</p> <p><b><u>Environment Agency assessment</u></b>  <b>We are satisfied that the Installation will be future compliant with BATc 39. Improvement Condition 5 has been included in the permit to achieve compliance (see Annex 3).</b></p>



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

### Existing Medium Combustion Plant

The Operator confirmed there are no combustion plant or generators associated with the permitted activity.

### Bioaerosols monitoring requirements

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.

We assessed bioaerosols monitoring at the facility as part of the permit review. We are satisfied that the existing permit conditions and monitoring requirements for bioaerosols are in line with the current standards. We consider it necessary to retain the existing bioaerosols monitoring requirements.

### 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 (*Barrow Resource Park SCR v2*, submitted to the Environment Agency 21 September 2011) during the original application, Duly Made on 11 July 2011. The site condition report included a report 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 and baseline report. We have reviewed the information and we consider that it adequately describes the condition of the soil and groundwater. Consequently, we are satisfied that the baseline condition has not changed.

### Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.

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.

The following wastes in the current permit are not specified in the our revised biowaste treatment permit templates. The operator confirmed in writing (correspondence dated 09 October 2020) that the following waste codes could be removed from the permit:

- 20 01 25 – Edible oil and fat
- 20 01 28 – Paint, adhesives and resins other than those mentioned in 20 01 27
- 20 01 30 – Detergents other than those mentioned in 20 01 29
- 20 01 32 – Medicines other than those mentioned in 20 01 31
- 20 01 34 – Batteries and accumulators other than those mentioned in 20 01 33
- 20 01 36 - Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35.
- 20 01 41 – Wastes from chimney sweeping
- 20 02 03 – Other non-biodegradable waste
- 20 03 07 – Bulky waste

Therefore, these waste codes have been removed from the permit. We made these decisions with respect to waste types in accordance with Framework Guidance Note – *Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment* (July 2013).

#### Secondary containment and storage infrastructure

##### Risk assessment for secondary containment and storage lagoons

We assessed secondary containment as part of the permit review. In the Regulation 61 Notice, we asked the Operator to:

- a) describe any secondary containment and whether it currently meets the relevant standard in the “Containment systems for the prevention of pollution (C736)” report, where the activity has above-ground storage or primary containment.
- b) describe how the construction of any storage lagoons meet CIRIA 736 report.
- c) explain why the current design and construction of the secondary containment is fit for purpose, and enable a baseline standard so as to establish a quantified comparison where it is concluded that secondary containment is not required or does not need to meet the standards in the C736 report.
- d) confirm if any storage lagoons on site are covered to prevent emission loss.
- e) confirm that the operational storage capacity on site provides a minimum of two months storage.

The Operator confirmed that:

- Details of the site secondary containment arrangements were provided when the Installation was originally permitted, and that they consider the containment arrangements are consistent with the level of risk posed by the Installation activities;
- There are no storage lagoons at the Installation;

- The Operator does not consider there to be any deviations from the applicable CIRIA C736 standards in the current containment arrangement.

Having reviewed the information provided by the Operator in the original bespoke permit application, we did not find any specific reference to the CIRIA C736 standards. The Operator did not provide a detailed risk assessment for the existing secondary containment as part of the Regulation 61 response.

The Operator did not provide any evidence to support the statement that the existing secondary containment meets the CIRIA 736 standards. We have therefore set Improvement Conditions in the permit to address this aspect of the permit review.

We have set an improvement condition in the permit to address the deficiencies in the existing site secondary containment (IC6). See Improvement condition 6 in Annex 3 of this decision document.

### Primary Containment

We assessed primary containment as part of the permit review. This information was not requested in the Regulation 61 Notice issued to the Operator, however, it was considered prudent to address this aspect as part of the permit review process. In this instance, the required information relating to the review of primary containment infrastructure against CIRIA C535 was not previously submitted to the Environment Agency, nor was it included in the supporting documentation submitted by the Operator in their Regulation 61 response.

We have therefore set an Improvement Condition (IC7) in the permit to address this aspect of the permit review. See Improvement condition 7 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 are 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.

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
<b>Improvement Condition for progress report to achieve BAT-AELs</b>		
IC4	<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"> <li>1) Current performance against the BAT-AELs.</li> <li>2) Methodology for reaching the BAT-AELs.</li> <li>3) Associated targets /timelines for reaching compliance by 17 August 2022.</li> <li>4) Any alterations to the initial plan (in progress reports).</li> </ol> <p>The report shall address the BAT Conclusions for Waste Treatment with respect to the following:</p> <ul style="list-style-type: none"> <li>• <b>BAT 20 Table 6.1</b> (compliance with BAT-AELs for direct discharges to a receiving water body)</li> <li>• <b>BAT 34 Table 6.7</b> (compliance with BAT-AELs for channelled NH<sub>3</sub>, odour, dust and TVOC emissions to air from the biological treatment of waste)</li> </ul> <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	<p>Progress reports at six monthly intervals from date of permit issue:</p> <p>10/05/2021 10/11//2021 10/05/2022</p>
<b>Improvement Condition for progress report to achieve Narrative BAT</b>		
IC5	<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</p>	<p>Progress reports at six monthly intervals from</p>

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<p>17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>1) Methodology for achieving BAT</li> <li>2) Associated targets /timelines for reaching compliance by 17 August 2022</li> <li>3) Any alterations to the initial plan (in progress reports).</li> </ol> <p>The report shall address the BAT Conclusions for Waste Treatment with respect to BAT 1, 3, 6, 7, 8, 14, 19, 23, 35 and 39.</p> <p><i>Refer to BAT Conclusions for a full description of the BAT requirement.</i></p>	<p>date of permit issue:</p> <p>10/05/2021</p> <p>10/11//2021</p> <p>10/05/2022</p>
<b>Improvement Condition for secondary containment and storage lagoons</b>		
IC6	<p>The Operator shall submit a written 'secondary and tertiary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review conducted, by a competent person, in accordance with the risk assessment methodology detailed within CIRIA C736 (2014) guidance, of the Condition and extent of secondary and tertiary containment systems where all polluting liquids and solids are being stored, treated, and/or handled.</p> <p>The review shall consider, but not be limited to, the storage vessels, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas, and liners underlying the site. The plan must contain dates for the implementation of individual Improvement measures necessary for the secondary and tertiary containment systems to adhere to the standards detailed/referenced within CIRIA C736 (2014) guidance, or equivalent.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	<p>10/11/2021 or other date as agreed in writing with the Environment Agency</p>
<b>Improvement Condition for primary containment</b>		
IC7	<p>The Operator shall submit a written 'primary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review conducted, by a competent person, and shall compare the design specification of primary containment systems where all polluting liquids and solids are being stored, treated, and/or handled against the design standards within CIRIA C535 guidance or equivalent.</p> <p>The review shall include:</p>	<p>10/11/2021 or other date as agreed in writing with the Environment Agency</p>

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<ul style="list-style-type: none"> <li>• physical condition of all primary containment systems (storage and treatment vessels);</li> <li>• the suitability for providing primary containment when subjected to the dynamic and static loads caused by the vessels' contents;</li> <li>• any work required to ensure compliance with the standards set out in CIRIA C535 or equivalent; and</li> <li>• a preventative maintenance and inspection regime</li> </ul> <p>The plan must contain dates for the implementation of individual Improvement measures necessary for the primary containment to adhere to the standards detailed/referenced within CIRIA C535 guidance, or equivalent.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	
<b>Improvement condition for review of effectiveness of abatement plant</b>		
IC8	<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"> <li>• Full investigation and characterisation of the waste gas streams.</li> <li>• Abatement stack monitoring results (not limited to odour and ammonia)</li> <li>• Abatement process monitoring results (not limited to odour and ammonia)</li> <li>• Details of air quality quantitative impact assessment including modelling and a proposal for site-specific "action levels" (not limited to odour concentration, hydrogen sulphide and ammonia).</li> <li>• Odour monitoring results at the site boundary</li> </ul>	10/11/2021 or other date as agreed in writing with the Environment Agency

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<ul style="list-style-type: none"> <li>• Records of odour complaints and odour related incidents</li> <li>• Recommendations for improvement including the replacement or upgrading the abatement plant</li> <li>• Timescales for implementation of improvements to the abatement plant</li> </ul> <p>The operator shall implement the improvements in line with the timescales as approved by the Environment Agency.</p>	
<b>Improvement condition for review of abatement plant design</b>		
IC9	<p>The operator shall submit to the Environment Agency a written review report of the design details of the site ventilation system and abatement plant and obtain the Environment Agency's written approval to it.</p> <p>The report shall include but not limited to:</p> <ul style="list-style-type: none"> <li>a) Ventilation design performance criteria for effective fugitive odorous emission control</li> <li>b) Design of the abatement systems that will ensure compliance with the odour condition 3.3. The report shall include a demonstration (whether by a detailed review of technical papers or by trial results) that all odorous chemical compounds and their loading rates expected in the relevant air streams have been considered in the design; and supporting evidence that the odorous compounds will be controlled and/or abated either by operating techniques or by the proposed abatement systems.</li> <li>c) Design alarms and triggers for each relevant scenario to alert the operator to the malfunction of both ventilation and abatement systems. The report should further list all relevant contingency mitigation actions to minimise risk of elevated odour pollution from the installation linked to each malfunction scenario and detail the actions to restore systems to normal operating conditions for effective odour control.</li> </ul>	10/11/2021 or other date as agreed in writing with the Environment Agency

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	Ventilation and abatement systems should be designed by suitably qualified named engineers who can supervise and sign-off on construction quality assurance.	

Completed Improvement Conditions

Improvement conditions 2 and 3 have been completed. Table S1.3 of the permit has been updated to reflect this.