

Permitting decisions

Variation

We have decided to grant the variation for Holsworthy Biogas Plant operated by Andigestion Limited.

The variation number is EPR/NP3036TM/V010.

We have also carried out an Environment Agency initiated variation to the permit, referenced as EPR/NP3036TM/V011. We have updated some of the permit conditions following a statutory review of the permits in the industry sector for biowaste.

The opportunity has also been taken to consolidate the original permit and subsequent variations.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account.

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

- (1) highlights [key issues](#) in the determination.
- (2) summarises the decision making process in the [decision checklist](#) to show how all relevant factors have been taken into account.

Points 1 and 2 relate to those aspects of the variation which have been applied for by the Operator (EPR/NP3036TM/V010), and are contained within Part 1 of this decision document

- (3) explains why we have made an Environment Agency initiated variation.

Point 3 relates to our statutory biowaste review of the permit (EPR/NP3036TM/V011) and is described in Part 2 of this decision document

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

Read the permitting decisions in conjunction with the environmental permit and the variation notice. The introductory note summarises what the variation covers.

Part 1

Summary of the variation application made by the Operator

The variation application includes the following:

The replacement of a combined heat and power (CHP) engine 2

The replacement of one of the existing CHP engines (engine 2) with a newer model (engine 8). The replacement engine is the same make, model and size as the engine 2 and will use the same emission point (A3).

Relocation of the wheelie bin tipping area

The installation of a purpose-built wheelie bin tipping area to handle wastes collected as part of the operator's food waste collections. The tipping area is situated in an existing shed which is fully enclosed with sealed drainage and an air extraction system.

Surface and groundwater monitoring

The addition of two boreholes for the monitoring of groundwater and increasing the monitoring frequency from every six months to every three months. In addition, the variation authorises the removal of the 14 leak detection wells from the permit.

Key issues of the decision

The key issues of the determination are the assessment of emissions to air from the new CHP engine, odour from the new reception hall and changes to the surface and groundwater monitoring, as described in more detail below.

Air emissions

The Operator used the Environment Agency's H1 methodology to assess the releases from the replacement CHP engine in addition to the existing engines on local air quality in the context of applicable air quality standards and environmental benchmarks for conservation sites.

The H1 methodology uses a concept of "process contribution (PC)", which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The H1 guidance provides a simple method of calculating PC primarily for screening purposes and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models.

Once short-term and long-term PCs have been calculated, they are compared with Environmental Standards (ES), for example, Ambient Air Directive limit values, or UK Environmental Assessment Levels (EALs), referred to as "benchmarks" in the H1 Guidance. PCs are considered insignificant if:

- the short term PC is less than 10% of the short term environmental quality standard; and

- the long term PC is less than 1% of the long term environmental quality standard.

Where an emission cannot be screened out as insignificant at the first stage, it does not mean it will necessarily be significant. For pollutants that do not screen out as insignificant the exceedances of the relevant ES are assessed by considering the PEC (Predicted Environmental Contribution) which takes account of the background pollutant concentrations. We consider the environmental risk not to be significant where the following criteria are met:

- the short term PC is less than 20% of the short term environmental standard minus twice the long term background concentration; and
- the long term PEC is less than 70% of the long term environmental standard.

When the above conditions cannot be verified through the H1 screening exercise, our guidance requires that a detailed modelling assessment is carried out by using computer software that models the dispersion of a substance as it travels through the atmosphere until it reaches the ground.

The applicant's assessment of the impact to air quality is set out in the submitted report (titled Holsworthy Biogas Plant; Air Emissions Risk Assessment dated September 2019) which was submitted with the application. The objectives of the study were to assess the impact of emissions from the replacement CHP engine on ambient air quality and determine whether the proposed changes will result in significant changes in pollutant concentrations within the study area. The modelling considered the potential impacts associated with the emissions to air from site looking at oxides of nitrogen (expressed as NO₂) and Sulphur dioxide (expressed as SO₂). The assessment comprises the following information that we consider relevant to the risk posed by the installation:

- Dispersion modelling of nitrogen oxides and sulphur dioxide emissions to air from the operation of the installation.
- A study of the impact of nitrogen oxides and sulphur dioxide emissions on nearby human receptors and conservation sites.

The screening assessment shows that the emissions of nitrogen oxides and sulphur dioxide could not be screened out and a detailed assessment with air dispersion modelling was submitted. This section of the decision document covers the dispersion modelling of NO_x and SO₂ emissions to air from the installation and the impact on local air quality. The installation lies within the relevant screening distances of the following statutorily protected ecological site, Clum Grassland Special Area of Conservation (SAC). Refer to the section below for additional information on the impacts on ecological receptors.

The Operator assessed the installation's nitrogen oxides and sulphur dioxide emissions to air using the Lakes AERMOD, which is a commonly used computer model for regulatory dispersion modelling. Due to the locations and local weather conditions at the available meteorological stations (Bude and Okehampton), the applicant's model used meteorological data obtained by numerical weather prediction with a system known as Global Forecast System (GFS). The GFS resolution adequately captures major topographical features and the broad-scale characteristics of the weather over the UK.

The impacts were assessed on a worst-case scenario of the plant constantly emitting the maximum concentration of each pollutant throughout an entire year. As such the predicted pollutant concentrations are likely to be an over estimate of actual emissions.

We have audited the applicant's air dispersion model and reviewed its selection of input data, use of background data and the assumptions made to inform the assessment. We have also

carried out a screening exercise using an air dispersion screening tool developed by the Environment Agency and based on the US EPA AERMOD air dispersion model to confirm the quality of the applicant's model predictions.

Assessment of impacts of air emissions on human receptors

Table 1 below, shows the highest modelled concentration of NO₂ predicted by the Operator at the sensitive receptor location where the highest concentration is predicted (R1).

Table 1: Impacts of NO₂ on sensitive receptor locations				
Pollutant	ES (µg/m³)	PC (µg/m³)	Background (long term) (µg/m³)	PEC (µg/m³) (PC + long-term background)
NO₂ (annual)	40	7.3	7.7	15
NO₂ (99.79th %ile of hourly average)	200	127.9	15.3	143.2
PC – Process Contribution; ES - Environment Standard; PEC – Predicted Environmental Concentration				

Table 1 shows that the long term (annual) process contributions (PC) are greater than 1% of the environmental standard (ES) and the short term PC are greater than 10% of the short term ES. As such both required further assessment to determine the impact of the long and short term emissions on the predicted environmental concentration (PEC). The long term PEC is significantly below the ES, as such we consider that the long term emissions of NO₂ are unlikely to breach the ES. The short PEC is below the long term ES. Although the PC are high, the short term NO₂ emissions are unlikely to breach the short ES. We agree with the applicant's conclusions that the new CHP is unlikely to have a significant impact in obtaining the air quality standards for NO₂ at the discrete receptor locations in the area.

Table 2 below, shows the highest modelled concentration of SO₂ predicted by the Operator at the sensitive receptor location where the highest concentration is predicted (R1).

Table 2: Impacts of SO₂ on sensitive receptor locations				
Pollutant	ES (µg/m³)	PC (µg/m³)	Background (long term) (µg/m³)	PEC (µg/m³) (PC + long-term background)
SO₂ 15-minute mean (99.9th Percentile)	266	126.8	3.2	130
SO₂ 1-hour mean (99.73rd Percentile)	350	84	3.2	87.2
SO₂ 24-hour mean (99.18th Percentile)	125	31.9	1.6	33.5
PC – Process Contribution; ES - Environment Standard; PEC – Predicted Environmental Concentration				

The PC for the short term (1-hour mean) is greater than 10% of the ES. As such further assessment to determine the impact of the short term emissions on the predicted environmental concentration (PEC) is required. The short term PEC is significantly below the

ES. As such we consider that the short term emissions of SO₂ are unlikely to breach the ES. We agree with the applicants conclusions that the new CHP is unlikely to have a significant impact in obtaining the air quality standards for SO₂ at the discrete receptor locations in the area.

Assessment of impacts of air emissions on ecological receptors

The air dispersion modelling report included an assessment of the impacts on Designated Conservation sites within the relevant screening distance of 10 km. The installation lies within the screening distance of an European site protected under the Conservation of Habitats and Species Regulation 2017. The results of the assessment carried out by the Operator for the site is summarised in Table 3 below.

We have audited the air quality risk assessment, its selection of input data and the critical levels and critical loads figures used for the habitats and species within the conservation site. We have referred to the Air Pollution Information System (APIS) website to obtain these figures.

Our review of the applicant's assessment leads us to agree with the conclusions of the air dispersion model and assessment of impacts as follows:

- The long term (annual average) predicted PC of nitrogen oxides are below the significance screening threshold of 1% of the nitrogen oxides long term critical level at all the receptors within the European site requiring assessment;
- The short term (24 hours) predicted PC of nitrogen oxides are below the significance screening threshold of 10% of the nitrogen oxides 24 hours critical level at all the receptors within the European site requiring assessment;
- The long term (annual average) predicted PC of nutrient nitrogen deposition, are below the significance screening threshold of 1% of the critical load at all the receptors within the European site requiring assessment, where these critical loads are specified;
- The long term (annual average) predicted PC of nitrogen oxides acid deposition, are below the significance screening threshold of 1% of the acid function critical load at all the receptors within the European site requiring assessment, where these critical loads are specified.

We have therefore concluded that the addition of the replacement CHP engine is not likely to cause significant impacts to the protected European sites.

The application also included an assessment of impacts of air emissions on local wildlife sites within the relevant screening distance. For all of these ecological receptors, the air dispersion model has concluded that the PC is less than 100% of the nitrogen oxides critical level, nutrient-nitrogen deposition critical loads and acidification critical loads, and therefore the addition of the replacement CHP engine is unlikely to cause significant pollution. We agree with this conclusion.

European site name	Approximate distance	Short term Critical Level	Long term Critical Level	Process Contribution (short Term)	Process Contribution (long Term)	PC as % of short term Critical Level	PC as % of Long term Critical Level	PC as % of Critical Load (Nitrogen Deposition)	PC as % of Critical Level (Acid Deposition)
	km	µg/m ³	µg/m ³	µg/m ³	µg/m ³	%	%	%	%
Culm Grasslands SAC (UK0012679)^.	3.6	75 (24-hrs)	30 (annual)	2.3	0.1	3.1	0.3	0.14% [Note1]	<1% [Note 2]
<p>Notes</p> <p>Note 1: Based on a critical load figure of 10 Kg N/ha/yr, as found on the APIS website for Marsh fritillary which is the feature most sensitive to nutrient enrichment within this European conservation site.</p> <p>Note 2: Based on acid critical load parameters CLminN = 0.856 kg eq/ha/yr ; CLmaxN = 1.214 kg eq/ha/yr ; CLmaxS = 4 kg eq/ha/y) as found on the APIS website for the most sensitive feature to acidification within this European conservation site.</p>									

Conclusion

Based on the results of the air dispersion model presented in the application, we agree with the applicant's conclusion that the proposal will not exceed the ES, critical levels and critical loads for nitrogen dioxide or sulphur dioxide at the discrete human or ecological receptor locations.

Relocation of the wheelie bin tipping area

The site operates a food waste collection service for local businesses, clean wheelie bins are dropped off at local businesses at the same time full bins are collect and brought back to the site. Once returned to the site the wheelie bins are delivered to the dedicated wheelie bin reception hall where they are tipped into a vehicle trailer. The trailer is moved to the main reception hall where the waste is processed through the de-packing units before entering the anaerobic digestion process. Wastes will not be stored in the wheelie bin reception hall for more than 48 hours before being processed. Before leaving the site and being returned to customers the wheelie bins are jet washed. The reception hall is fully enclosed with a sealed drainage system and is served by a dedicated air extraction and abatement system, which is discussed in more detail below. The building operates under negative pressure and the doors will remain closed whilst the tipping of the bins takes places and will only open to allow the entering and exiting of the vehicles.

There is no change to the quantity or types of waste accepted at the site

Odour Assessment

Odour Management Plan

The Operator submitted an updated Odour Management Plan (OMP) dated July 2020 in support of their variation application. We have reviewed the revised OMP for compliance in respect of our guidance H4 Odour Management, How to comply with your environmental permit. The OMP is referenced within Table S1.2 of the permit as it forms part of the Operating Techniques. The OMP details the methods employed at the site, including onsite monitoring and contingencies to prevent, control and minimise odour pollution. A summary of the main points is as follows:

- Waste is delivered to site in clean covered vehicles and offloaded within the main reception hall or the wheelie bin processing building.
- Stringent waste pre-acceptance checks are carried out before waste is accepted on site to ensure that the waste is suitable for anaerobic digestion. If the waste is classified as animal by-product, it is required to be either a category 3 material or exempt category 2 material.
- Waste which does not meet the acceptance criteria or is deemed to be hazardous or malodorous will be, where possible, reloaded and returned to its original location. Where this is not feasible, non-conforming wastes will be stored in sealed containers and quarantined until a suitable alternative disposal route can be identified.
- Wastes are stored either within the main reception hall or the wheelie bin reception hall apart from packaged food wastes which can be stored outside in sealed bins for a maximum of 24 hours.
- The reception hall is fitted with fast-action doors which will remain closed when the pit lid is open and will only open when vehicles are entering or leaving. The doors to the

wheelie bin reception hall will also remain closed unless a vehicle is entering or leaving.

- Wastes will not remain in the wheelie bin reception hall for longer than 48 hours, before being moved and tipped into the main reception hall.
- The site operates good housekeeping which includes the following:
 - All vehicles are cleaned on leaving the reception halls
 - Daily checks of the odour extraction vents, and additional cleaning will be carried out if required
 - All floor areas are cleaned throughout the day as required
 - Floor drains are cleaned and jetted on a regular basis.

We are satisfied that by employing the measures contained in the OMP, the Operator has demonstrated appropriate measures to control odour emissions on site. We therefore believe that odour should not cause a nuisance at the site. However, the standard odour condition has been included in the permit which means a revised odour management plan can be requested if there are compliance issues on site.

New abatement system

The wheelie bin reception hall has a dedicated air extraction and activated carbon abatement system for the purpose of odour management. In support of the variation, the applicant provided a Technical Description (dated 13/05/2020) outlining the justification for using this specific system along with the technical details, maintenance and monitoring procedures. The use of an adsorption system is a recognised means of meeting the best available techniques (BAT) requirements for controlling emissions to air. An assessment against other odour control methods was carried out by the applicant. The use of an activated carbon filter was chosen as the most suitable option due to its robustness and the ability to handle fluctuations in the likely odorant concentrations and air temperature fluctuations.

The odour abatement system has been designed to meet the odour removal requirements based on the size of the building and location of odour sources. The majority of the extraction will be focused on the areas in the building where the most odorous activities are taking place, this is considered to be where the wheelie bins are tipped into the trailer. The overall number of air changes will be 1.02 per hour, however the system is designed to achieve an effective air change rate of 13.68 changes per hour.

The carbon media is expected to have an estimated lifespan of 6-12 months before needing to be replaced. The lifespan will depend on a number of factors including the nature of ambient air conditions. The applicant will monitor the pressure across the carbon bed to ensure the ducting or filter bed are not becoming blocked due to a built up of dust. Monitoring of the relative humidity levels will be undertaken regularly to ensure that the humidity does not exceed 80%. In addition, the abatement system is alarmed to alert site staff to problems with the extraction system in the event the system fails. Limited spares are held on site including fans and inverter in case of failure. The abatement system will be maintained in line with the manufacturers guidelines, replacing the filters will be undertaken when the risk is considered to be low, for example when the reception hall is not receiving deliveries of waste.

We have included an improvement condition IC 9.33 (as listed in Part 2 Annex 3 of this document) within the permit which requires the applicant to carry out a review of the odour abatement system. The IC has been inserted to determine whether the abatement system and the stated air changes are effective in reducing odour emissions from the wheelie bin reception hall. The report will outline the odour monitoring results at the site boundary and at

external locations as listed in the OMP. The report will also require the applicant to undertake the assessment of at least three inlet and outlet monitoring results for the assessment of all odorous compounds and identify if any improvements to the management techniques are required. The report is to be submitted to the Environment Agency within 12 months of permit issue and the applicant shall implement the improvements in line with the timescales agreed with the Environment Agency.

Groundwater monitoring

The site currently has four boreholes for the monitoring of the groundwater quality. These boreholes are tested every six months, parameters include electrical conductivity, ammoniacal nitrogen and nitrate. In addition to the boreholes, the site has 14 leak detection wells, built into each process tank and digestate storage area. The leak detection wells are monitored on a monthly basis for ammonia and electrical conductivity. The current sampling of the leak detection wells have shown the system to be ineffective at detecting the presence of leaks. There have been a number of exceedances in particular in relation to ammoniacal nitrogen within the wells located along the northern edge of the site. This is considered to be as a result of the underlying membrane of the pad not sealing properly. Due to the sloping nature of the site any material that leaks will travel past several tanks on site leading to false results. The site is fully bunded which is capable of containing at least 110% of the volume of the largest tank within the bund or 25% of the total tank volume within the bund, whichever is the greater. In addition the low permeability of the underlying geology is considered to prevent any materials from entering the aquifer. In the event that any of the process tanks or digestate storage areas were compromised, any materials would be contained on site.

The applicant has proposed that two additional boreholes are installed on site and the monitoring frequency is increased to every three months. BH5 will be located adjacent to the discharge pond, to the north of the reception hall and BH6 located midway between BH5 and BH2 to the north of the bund, between the bund and the stream. The additional boreholes will allow for suitable coverage along the entire down-gradient boundary of the site, allowing for the identification of any adverse impact of leakage from the site. The compliance limits for electrical conductivity have been set at 320 $\mu\text{S}/\text{cm}$ and the ammoniacal nitrogen set at 1 mg/l.

Conclusion

Having assessed the hydrogeological assessment, we accept the applicant's proposed changes to the onsite monitoring of the groundwater.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility The plan is included in the permit.
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>The following European site protected under the Habitats Regulations were identified within relevant screening distance:</p> <ul style="list-style-type: none"> • Culm Grasslands SAC (UK0012679)^. <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We considered that the risk to the air quality has not changed as a result of replacing the existing CHP engine with a CHP engine of the same size. We have assessed the applicant's air dispersion modelling as presented in the application and we agree with the conclusion that the replacing of the CHP engine will not result in an unacceptable impact at the ecological receptors.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p>
Environmental risk assessment	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory.</p> <p>The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may</p>

Aspect considered	Decision
	be categorised as environmentally not significant. Further details are discussed in the key issues section.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.
Odour management	We have reviewed the odour management plan in accordance with our guidance on odour management. We consider that the odour management plan is satisfactory.
Permit conditions	
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. We have imposed improvement condition (IC 9.33) to ensure the new odour abatement system is effective in minimising odorous emissions. Refer to Key Issues section above for more details.
Emission limits	For emission point A3 (the replaced CHP engine) we have added the following emission limit values for the following substances: Oxides of nitrogen (NO _x) – 500 mg/m ³ Carbon monoxide (CO) – 1400 mg/m ³ Sulphur dioxide (SO ₂) – 107 mg/m ³ We consider this to be BAT
Monitoring	We have decided that the groundwater monitoring should be amended to increase the number of down gradient boreholes and to increase the frequency of the monitoring program from the current six monthly to a monthly basis. These monitoring requirements have been imposed in order to provide a better coverage of boreholes along the down gradient boundary of the site and to allow for the identification of any adverse impact of leakage from the site.
Reporting	We have amended the reporting in the permit for groundwater monitoring as described above.
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.
Technical competence	Technical competence is required for activities permitted. The operator is a member of an agreed scheme.

Aspect considered	Decision
	We are satisfied that the operator is technically competent.
Growth Duty	
<p>Section 108 Deregulation Act 2015 – Growth duty</p>	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Part 2

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/NP3036TM
The Operator is: Andigestion Limited
The Installation is: Holsworthy Biogas Plant
This Variation Notice number is: EPR/NP3036TM/V011

What this document is about

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication by the European Commission of updated decisions on BAT Conclusions.

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

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

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

The introduction of new template conditions makes the Permit consistent with our current general approach and with other permits issued to Installations in this sector. Although the wording of some conditions has changed, while others have been

deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document, we therefore address only our determination of substantive issues relating to the new BAT Conclusions.

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

How this document is structured

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

1 Our decision

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

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

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

2 How we reached our decision

2.1 Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 (a Regulation 61 Notice) on 19/07/2019 requiring the Operator to provide information to demonstrate where the operation of their installation currently meets, or how it will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

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

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

Where the Operator proposed that they were not intending to meet a BAT standard that also included a BAT Associated Emission Level (BAT-AEL) described in the BAT Conclusions Document, the Regulation 61 Notice required that the Operator make a formal request for derogation from compliance with that BAT-AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 61 Notice response from the Operator was received on 17/01/2020.

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 Conclusion 3, 14, 23, 34 and 38. In relation to these BAT Conclusions we do not fully agree with the Operator in respect of their current stated capability as recorded in their response to the Regulation 61 Notice. We have therefore included Improvement Condition 9.28, in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions are delivered before 17 August 2022.

3 The legal framework

The Consolidated Variation Notice will be issued under Regulations 18 and 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Consolidated Variation Notice, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

Annex 1: decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment were published by the European Commission on 10 August 2018. There are 53 BAT Conclusions. This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the Consolidated Variation Notice.

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

NA – Not Applicable

CC – Currently Compliant

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

NC – Not Compliant

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
1	<p>In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:</p> <ul style="list-style-type: none"> I. commitment of the management, including senior management; II. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation; III. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment; IV. implementation of procedures paying particular attention to: <ul style="list-style-type: none"> (a) structure and responsibility, (b) recruitment, training, awareness and competence, (c) communication, (d) employee involvement, (e) documentation, (f) effective process control, (g) maintenance programmes, (h) emergency preparedness and response, 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 1.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 1.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(i) safeguarding compliance with environmental legislation;</p> <p>V. checking performance and taking corrective action, paying particular attention to:</p> <p>(a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED installations – ROM),</p> <p>(b) corrective and preventive action, recruitment, training, awareness and competence,</p> <p>(c) maintenance of records,</p> <p>(d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained</p> <p>VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;</p> <p>VII. following the development of cleaner technologies;</p> <p>VIII. consideration for the environmental impacts from the eventual decommissioning of the plant at the stage of designing a new plant, and throughout its operating life;</p>		

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
	IX. application of sectoral benchmarking on a regular basis; X. waste stream management (see BAT 2); XI. an inventory of waste water and waste gas streams (see BAT 3); XII. residues management plan (see description in Section 6.5); XIII. accident management plan (see description in Section 6.5); XIV. odour management plan (see BAT 12) XV. noise and vibration management plan (see BAT 17).		
2	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques listed below: (a) Set up and implement waste characterisation and pre-acceptance procedures; (b) Set up and implement waste acceptance procedures; (c) Set up and implement a waste tracking system and inventory; (d) Set up and implement an output quality management system; (e) Ensure waste segregation; (f) Ensure waste compatibility prior to mixing or blending of waste;	CC	<u>Environment Agency assessment</u> The operator has provided information to support compliance with BATc 2. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 2.

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
	(g) Sort incoming solid waste		
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 species, phosphorus, metals, priority substances /micropollutants); (c) data on bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)) (see BAT 52);</p> <p>(iii) information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature;</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 3. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 3. The information does not include characteristics of the waste gas produced from the biologically treatment and fed to the abatement systems.</p> <p>We consider that the operator will be future compliant with BATc 3. Improvement condition 9.28 has been included in the permit to achieve compliance (see Annex 3).</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs); (c) flammability, lower and higher explosive limits, reactivity; (d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust).		
4	<p>In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below:</p> <p>(a) Optimised storage location; (b) Adequate storage capacity; (c) Safe storage operation; (d) Separate area for storage and handling of packaged hazardous waste.</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 4.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 4.</p>
5	<p>In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.</p> <p>Handling and transfer procedures aim to ensure that wastes are safely handled and transferred to the respective storage or treatment. They include the following elements:</p> <ul style="list-style-type: none"> • handling and transfer of waste are carried out by competent staff; • handling and transfer of waste are duly documented, validated prior to 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 5.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 5.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>execution and verified after execution;</p> <ul style="list-style-type: none"> • measures are taken to prevent, detect and mitigate spills; • operation and design precautions are taken when mixing or blending wastes (e.g. vacuuming dusty/powdery wastes). <p>Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.</p>		
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).	NA	We are satisfied that BATc 6 is not applicable to this Installation.
7	BAT is to monitor emissions to water with at least the frequency given in BATc 7, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	NA	We are satisfied that BATc 7 is not applicable to this Installation.
8	BAT is to monitor channelled emissions to air with at least the frequency given in BATc 8, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 8.</p> <p>We have assessed the information provided and we are satisfied that the operator has</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
			demonstrated compliance with BATc 8.
10	<p>BAT is to periodically monitor odour emissions.</p> <p>Odour emissions can be monitored using:</p> <ul style="list-style-type: none"> • EN standards (e.g. dynamic olfactometry according to EN 13725 in order to determine the odour concentration or EN 16841-1 or -2 in order to determine the odour exposure); • when applying alternative methods for which no EN standards are available (e.g. estimation of odour impact), ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. <p>The monitoring frequency is determined in the odour management plan (see BAT 12).</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 10.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 10.</p>
11	<p>BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water, with a frequency of at least once per year.</p> <p>Monitoring includes direct measurements, calculation or recording, e.g. using suitable meters or invoices. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level) and considers any significant changes in the plant/installation.</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 11.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 11.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
12	<p>In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p> <ul style="list-style-type: none"> • a protocol containing actions and timelines; • a protocol for conducting odour monitoring as set out in BAT 10; • a protocol for response to identified odour incidents, e.g. complaints; • an odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures. 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 12.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 12.</p>
13	<p>In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given below:</p> <p>(a) Minimising residence times; (b) Using chemical treatment; (c) Optimising aerobic treatment</p>	NA	<p>We are satisfied that BATc 13 is not applicable to this Installation.</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>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 14. We have</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(a) 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		assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 14. The information does not include details related to BATc 14h – a leak detection and repair programme. We consider that the operator will be future compliant with BATc 14. Improvement condition 9.28 has been included in the permit to achieve compliance (see Annex 3).
15	BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below: (a) Correct plant design; (b) Plant management	CC	<u>Environment Agency assessment</u> The operator has provided information to support compliance with BATc 15. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 15.
16	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below:	CC	<u>Environment Agency assessment</u>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	(a) Correct design of flaring devices; (b) Monitoring and recording as part of flare management		The operator has provided information to support compliance with BATc 16. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 16.
17	<p>In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p> <ul style="list-style-type: none"> I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to measure /estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and /or reduction measures. 	NA	<p>The applicability of BATc 17 is restricted to cases where noise or vibration is expected at sensitive receptors or has been substantiated already.</p> <p><u>Environment Agency assessment</u></p> <p>The operator does not have a Noise and Vibration Management Plan. Noise or vibration has not been an issue at the site, so we accept that a Noise and Vibration Management Plan is not currently required. However, condition 3.4 of the permit means that we can require a plan should it be deemed necessary in the future.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
18	<p>In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below:</p> <ul style="list-style-type: none"> (a) Appropriate location of equipment and buildings; (b) Operational measures; (c) Low noise-equipment; (d) Noise and vibration equipment; (e) Noise attenuation 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 18</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 18.</p>
19	<p>In order to optimise water consumption, to reduce the volume of waste water generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below:</p> <ul style="list-style-type: none"> (a) Water management; (b) Water recirculation; (c) Impermeable surface; (d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels; (e) Roofing of waste storage and treatment areas; (f) Segregation of water streams (g) Adequate drainage infrastructure; (h) Design and maintenance provisions to allow detection and repair of leaks 	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 19.</p> <p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 19.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
20	<p>(i) Appropriate buffer storage capacity</p> <p>In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of the techniques given below:</p> <p>Preliminary and primary treatment, e.g.</p> <ul style="list-style-type: none"> (a) Equalisation (b) Neutralisation (c) Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks <p>Physico-chemical treatment, e.g.</p> <ul style="list-style-type: none"> (d) Adsorption (e) Distillation /rectification (f) Precipitation (g) Chemical oxidation (h) Chemical reduction (i) Evaporation (j) Ion exchange (k) Stripping <p>Biological treatment, e.g.</p> <ul style="list-style-type: none"> (l) Activated sludge process 	NA	We are satisfied that BATc 20 is not applicable to this Installation.

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	<p>(m) Membrane bioreactor (n) Nitrification / denitrification when the treatment includes a biological treatment</p> <p>Solids removal, e.g. (o) Coagulation and flocculation (p) Sedimentation (q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) (r) Flotation</p> <p>See also: Table 6.1: BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body</p> <p>See also: Table 6.2: BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body</p>		
21	<p>In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan (see BAT 1):</p> <p>(a) Protection measures; (b) Management of incidental /accidental emissions;</p>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 21.</p> <p>We have assessed the information provided and we are satisfied that the operator has</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
	(c) Incident /accident registration and assessment system		demonstrated compliance with BATc 21.
22	<p>In order to use materials efficiently, BAT is to substitute materials with waste.</p> <p>Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids are used for pH adjustment, fly ashes are used as binders).</p>	NA	We are satisfied that BATc 22 is not applicable to this Installation.
23	<p>In order to use energy efficiently, BAT is to use both of the techniques given below:</p> <p>(a) Energy efficiency plan; (b) Energy balance record</p>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 23. The operator has submitted some information on monitoring of energy generation. However the information does not include an energy efficiency plan or an energy balance record. We are not satisfied that the operator has demonstrated compliance with BATc 23.</p> <p>We consider that the operator will be future compliant with BATc 23. Improvement condition 9.28 has been included in the permit to achieve compliance (see Annex 3).</p>

BAT Conclusion No	Summary of BAT Conclusion requirement for Waste Treatment	Status NA / CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
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>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 24. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 24.</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><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 33. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 33.</p>
34	<p>In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H₂S and NH₃, BAT is to use one or a combination of the techniques given below:</p> <p>(a) Adsorption; (b) Biofilter;</p>	BATc 34 CC	<p><u>Environment Agency assessment</u></p> <p>The operator provided information to support compliance with BATc 34. Carbon filters are installed at the facility.</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>(c) Fabric filter; (d) Thermal oxidation; (e) Wet scrubbing</p> <p>See also: Table 6.7: BAT-associated emission levels (BAT-AELs) for channelled NH₃, odour, dust and TVOC emissions to air from the biological treatment of waste.</p>	<p>(BATc 34, Table 6.7) FC</p>	<p>We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 34.</p> <p>We have set a BAT-AEL for ammonia as specified in the Waste Treatment BREF and BAT Conclusions.</p> <p>Improvement condition (IC 9.27) has been included in the permit to achieve compliance. The operator is required to complete the improvement condition and demonstrate compliance with BAT-AEL by the compliance date, 17 August 2022.</p> <p>In addition to the BAT-AEL, we have inserted the requirement to monitor odour concentration, hydrogen sulphide and</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>ammonia on a 6-monthly frequency in Table S3.4 (process monitoring) in the permit.</p> <p>As part of the Environment Agency approach to reduce emissions in the biowaste treatment sector, we have included improvement condition (IC 9.34) which requires the operator to review abatement plant on site, in order to determine whether existing measures have been effective and adequate to prevent and /or minimise emissions released to air. Where further improvements are identified, the operator is required to implement these measures.</p>
35	<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>	CC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 35.</p> <p>We have assessed the information provided and we are satisfied that the operator has</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
			demonstrated compliance with BATc 35.
36	<p>In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters.</p> <p>Monitoring and/or control of key waste and process parameters, including:</p> <ul style="list-style-type: none"> • waste input characteristics (e.g. C to N ratio, particle size); • temperature and moisture content at different points in the windrow; • aeration of the windrow (e.g. via the windrow turning frequency, O₂ and/or CO₂ concentration in the windrow, temperature of air streams in the case of forced aeration); • windrow porosity, height and width. 	NA	We are satisfied that BATc 36 is not applicable to this Installation.
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	We are satisfied that BATc 37 is not applicable to this Installation.
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>	FC	<p><u>Environment Agency assessment</u></p> <p>The operator has provided information to support compliance with BATc 38. 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>This includes monitoring and/or control of key waste and process parameters:</p> <ul style="list-style-type: none"> • pH and alkalinity of the digester feed; • digester operating temperature; • hydraulic and organic loading rates of the digester feed; • concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate; • biogas quantity, composition (e.g. H₂S) and pressure; • liquid and foam levels in the digester. 		<p>existing monitoring program does not include all the parameters required for monitoring as specified in BATc 38. We are not satisfied that the operator has demonstrated compliance with BATc 38.</p> <p>We consider that the operator will be future compliant with BATc 38. Improvement condition 9.28 has been included in the permit to achieve compliance (see Annex 3).</p>
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>	NA	<p>We are satisfied that BATc 39 is not applicable to this Installation.</p>

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

Existing Medium Combustion Plant

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

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

The Operator provided the information in the table(s) below:

Combined heat and power (CHP) engines

	CHP Biogas Engine 1	CHP Biogas Engine 2	CHP Biogas Engine 3	CHP Biogas Engine 4	CHP Biogas Engine 5	CHP Biogas Engine 6
1. Rated thermal input (MW) of the medium combustion plant.	2,556 kW	2,556 kW	1,320 kW	3,274 kW	2,556 kW	2,556 kW
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	CHP engine	CHP engine	CHP engine	CHP engine	CHP engine	CHP engine
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Biogas	Biogas	Biogas	Biogas	Biogas	Biogas
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	01/04/2002	25/06/2019	24/11/2014	03/12/2010	03/12/2010	24/01/2013
5. Confirmation of capacity market agreement arising from 2014 or 2015 capacity auctions.	Not subject to a capacity market agreement	Not subject to a capacity market agreement	Not subject to a capacity market agreement	Not subject to a capacity market agreement	Not subject to a capacity market agreement	Not subject to a capacity market agreement
6. Confirmation of Feed-in Tariff preliminary accreditation application received by the Gas and Electric Markets Authority prior to 1 December 2016.	NA	NA	NA	NA	NA	NA

Boilers

	Back-up Biogas boiler
1. Rated thermal input (MW) of the medium combustion plant.	575 kW
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boiler
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Biogas
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	01/04/2002
5. Confirmation of capacity market agreement arising from 2014 or 2015 capacity auctions.	Not subject to a capacity market agreement
6. Confirmation of Feed-in Tariff preliminary accreditation application received by the Gas and Electric Markets Authority prior to 1 December 2016.	NA

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

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

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

Bioaerosols monitoring requirements

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

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

The operator did not provide any information regarding bioaerosols monitoring in their response to the Regulation 61 Notice. We carried out an assessment of the site location and the distance of site processes from sensitive receptors as part of this determination.

There are no external site operational processes within 250 metres of a sensitive receptor. Monitoring of bioaerosols is not required at the Installation.

Soil & groundwater risk assessment (baseline report)

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

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

The Operator submitted a site condition report [Site Condition Report, Holsworthy Biogas Plant] as part of the variation application EPR/NP3036TM/V003 received on 17/12/2011. 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 that it adequately describes the condition of the soil and groundwater. Consequently, we are satisfied that the baseline condition has not changed.

The Operator states that no site baseline data was submitted with the initial Environmental Permit application and as such it was assumed that the pre-existing contamination was zero. This means that when the Operator applies to surrender the Permit, any contamination by substances used at, produced or released from the facility would be considered to have resulted from the operation of the installation. This is in accordance with the Environment Agency Guidance H5 – Site Condition Report.

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility. The wastes are specified in Tables S2.2 and S2.3 in the permit.

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

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

Other wastes (non-standard waste codes)

The following wastes in the current permit are not specified in the our revised biowaste treatment permit templates.

Waste code	Description
03 01 01	waste bark and wood – virgin timber only
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03 02	green liquor sludge
03 03 06	wastes from sorting of paper and cardboard destined for recycling – cardboard, newspaper, tissues, paper
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04 01 01	fleshings and lime split wastes
04 01 05	tanning liquor free of chromium
04 01 07	sludges not containing chromium
19 02 10	combustible wastes other than mentioned in 19 02 08, 19 02 09
19 05 01	non composted fraction of municipal and similar wastes
19 05 02	non composted fraction of animal and vegetable wastes
19 05 03	off-specification compost from source segregated biodegradable waste
20 01 38	untreated wood where no non-biodegradable coating or preserving substance is present

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

Excluded wastes (99 waste codes)

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

Waste code	Description
02 01 99	wastes not otherwise specified (requires prior written approval from the Agency)
02 02 99	sludges from gelatine production, animal gut contents
02 03 99	sludge from production of edible fats and oils to include seasoning residues, molasses residues, residues from production of potato, corn or rice starch

Waste code	Description
02 01 99	wastes not otherwise specified (requires prior written approval from the Agency)
02 04 99	other biodegradable waste
02 05 99	waste not otherwise specified
02 07 99	wastes not otherwise specified (malt husks, malt sprouts, yeast and yeast-like residues only)

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

The guidance specifies that the Operator must:

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

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

Secondary containment and lagoon storage infrastructure design

We asked the Operator via the Regulation 61 Notice to:

- describe any secondary containment and whether it currently meets the relevant standard in the “Containment systems for the prevention of pollution (C736)” report, where there are above-ground storage or primary containment on site; or
- explain why the current site infrastructure design and construction is fit for purpose, where it is concluded that secondary containment is not required or does not need to meet the standards in the C736 report, to enable a baseline standard so as to establish a quantified comparison; and
- describe how the construction of the lagoons meets the relevant standard in CIRIA C736 report, where there are storage lagoons used for the storage of digestate on site.

The Operator reports that a bund is present on site, which acts as secondary containment to the main above-ground AD tanks area, to contain effluent in the event of a tank failure. The total capacity of the bund is both greater than 110% of the largest tank and 25% of the total storage capacity on site.

In addition, the Operator states that the site is clay banded, and has been upgraded and increased following a number of permit variations to increase storage on site or

the area of permitted land. All works to the clay bund have been accompanied by a construction quality assurance (CQA) for the earthworks carried out. Individual clay bunds were created for each of the five digestate storage bags located on site. A CQA assessment was carried out on each bund. The site has been progressively upgraded to include small bunds around individual process areas that have a risk of spills/leaks for additional protection.

We reviewed the Operator's response to the Regulation 61 Notice. We are not satisfied that the Operator has demonstrated that the existing site containment and storage lagoons meets the standards set out in CIRIA C736. The Operator has relied on the CQA reports 2001, 2009 and 2012 and has not followed the steps specified in Chapter 5 of CIRIA C736 for existing site secondary containment.

We have set improvement conditions in the permit to address the deficiencies in the existing site secondary containment (IC 9.31) and lagoon storage infrastructure (IC 9.32). See Improvement conditions in Annex 3 of this decision document.

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

We assessed primary containment as part of the permit review. This information was not requested in the Regulation 61 Notice issued to the Operator, however, it was considered prudent to address this aspect as part of the permit review process. In this instance, the required information relating to the review of primary containment infrastructure against CIRIA 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 (IC 9.30) in the permit to address this aspect of the permit review (see Annex 3).

Lagoon cover and digestate storage capacity

We asked the Operator via the Regulation 61 Notice to:

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

The Operator did not provide any information in response to lagoon cover arrangements and operational digestate storage capacity on site.

We have therefore set an Improvement Condition (IC 9.29) in the permit to address this aspect of the permit review (see Annex 3).

Annex 3: Improvement Conditions

Based on the information in the Operator's Regulation 61 Notice response and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation. These improvement conditions are set out below - justifications for them is provided at the relevant section of the decision document (Annex 1 or Annex 2).

We also consider that we need to set improvement conditions relating to changes in the permit not arising from the review of compliance with BAT conclusions. The justifications for these are provided in Annex 5 of this decision document.

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

Improvement programme requirements		
Reference	Requirement	Date
Improvement condition for progress report to achieve BAT-AELs		
9.27	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Best Available Techniques Conclusion Associated Emission Levels (BAT-AELs) where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Current performance against the BAT-AELs. 2) Methodology for reaching the BAT-AELs. 3) Associated targets /timelines for reaching compliance by 17 August 2022. 4) Any alterations to the initial plan (in progress reports). <p>The report shall address the BAT Conclusions for Waste Treatment with respect to the following:</p> <ul style="list-style-type: none"> • BAT 34 Table 6.7 (compliance with BAT-AELs for channelled NH₃, odour, dust and TVOC emissions to air from the biological treatment of waste) <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	<p>Progress reports at six monthly intervals from date of permit issue:</p> <p>14/04/2021 14/10/2021 14/04/2022</p>
Improvement condition for progress report to achieve Narrative BAT		
9.28	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be</p>	<p>Progress reports at six monthly intervals from date of permit</p>

Improvement programme requirements		
Reference	Requirement	Date
	<p>limited to, the following:</p> <ol style="list-style-type: none"> 1) Methodology for achieving BAT 2) Associated targets /timelines for reaching compliance by 17 August 2022 3) Any alterations to the initial plan (in progress reports). <p>The report shall address the BAT Conclusions for Waste Treatment with respect to BATc 3, 14, 23 and 38.</p> <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	<p>issue:</p> <p>14/04/2021</p> <p>14/10/2021</p> <p>14/04/2022</p>
Improvement condition for lagoon cover and operational storage capacity		
9.29	<p>The operator shall provide a written “digestate storage plan” and shall obtain the Environment Agency’s written approval to it. The plan shall contain the results of a review of the current storage of digestate produced from site operations. The review shall examine site contingency arrangements in the event of closed landspreading periods, extreme weather conditions, site closure, disease outbreak etc.</p> <p>The storage plan shall include:</p> <ul style="list-style-type: none"> • Existing cover arrangements on storage lagoons used to store digestate to minimise odour, ammonia and methane emissions; • Additional storage capacity on-site (at least 2 months storage) and storage capacity off-site; • Identification of alternative outlets for digestate – identify companies /permitted waste facilities that would be able to manage the digestate and/or liquor output(s), taking into account their permits and capacity constraints. <p>The plan shall be implemented in accordance with the Environment Agency’s written approval.</p>	14/10/2021
Improvement condition for primary containment		
9.30	<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</p>	14/10/2021

Improvement programme requirements		
Reference	Requirement	Date
	<p>standards within CIRIA C535 guidance or equivalent.</p> <p>The review shall include:</p> <ul style="list-style-type: none"> • physical condition of all primary containment systems (storage and treatment vessels); • the suitability for providing primary containment when subjected to the dynamic and static loads caused by the vessels' contents; • any work required to ensure compliance with the standards set out in CIRIA C535 or equivalent; and • a preventative maintenance and inspection regime <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>	
Improvement condition for secondary containment design		
9.31	<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 limited to, the storage vessels, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas, and liners underlying the site.</p> <p>The plan 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>	14/10/2021
Improvement condition for storage lagoon design		

Improvement programme requirements		
Reference	Requirement	Date
9.32	<p>The operator shall submit a written 'storage lagoon 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 the site lagoon(s) where digestate or compost leachate are being stored, treated, and/or handled.</p> <p>The review shall consider, but not limited to, the lagoon cover, transfer pipework/pumps, and liners underlying the storage lagoon. The plan must contain dates for the implementation of individual improvement measures necessary for the storage lagoon to adhere to the standards detailed/referenced CIRIA C736 (2014) guidance, or equivalent.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	14/10/2021
Improvement condition for review of the effectiveness of the wheelie bin reception hall odour abatement system		
9.33	<p>The operator shall carry out a review of the wheelie bin reception hall odour abatement system in order to determine whether the system has been effective in minimising odorous emissions.</p> <p>The operator shall submit a written report to the Environment Agency following this review for written approval.</p> <p>This report shall be undertaken in accordance with the odour management plan and outline the following.</p> <ul style="list-style-type: none"> • Odour monitoring results at the site boundary • Odour monitoring at the external locations, as previously agreed by the Environment Agency. • At least three inlet and outlet monitoring results for all odorous compounds taken during full operation • Demonstrate that all monitoring results are not benefitted by the abatement media being recently changed • Process operation monitoring results 	14/10/2021

Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> • Recommendations for improvement <p>The report shall assess and conclude whether or not the odour abatement system and the stated air changes per hour are effective in reducing odour emissions from the site and identify any improvements to the management technique.</p> <p>Where odour is detected at the boundary of the site or other improvements can be made, the report shall include timescales for implementation of improvements to the abatement system for agreement with the Environment Agency.</p> <p>The operator shall implement the improvements in line with the timescales agreed with the Environment Agency.</p>	
Improvement condition for review of effectiveness of abatement plant		
9.34	<p>The operator shall carry out a review of the abatement plant on site, in order to determine whether the measures have been effective and adequate to prevent and where not possible minimise emissions released to air including but not limited to odour and ammonia.</p> <p>The operator shall submit a written report to the Environment Agency following this review for assessment and approval.</p> <p>The report shall include but not limited to the following aspects:</p> <ul style="list-style-type: none"> • Full investigation and characterisation of the waste gas streams. • Abatement stack monitoring results (not limited to odour and ammonia) • Abatement process monitoring results (not limited to odour and ammonia) • Odour monitoring results at the site boundary • Records of odour complaints and odour related incidents • Recommendations for improvement including the replacement or upgrading the abatement plant • Timescales for implementation of improvements to the abatement plant 	14/10/2021

Improvement programme requirements		
Reference	Requirement	Date
	The operator shall implement the improvements in line with the timescales as approved by the Environment Agency.	