Natural Resources Wales permitting decisions

Variation and consolidation of a bespoke permit – Western Bio-Energy Limited

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Western Wood Energy Plant - Margam operated by Western Bio-Energy Limited (WBE).

The variation application number is: EPR/ZP3939GL/V006.

The permit number is EPR/ZP3939GL.

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.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Document (BREF) for Waste Incineration (WI). The associated BAT conclusions to this document were published on 3 December 2019 in the Official Journal of the European Union. The plant is a co-incinerator installation burning waste and non-waste wood. It is a Schedule 1 Part 2 section 5.1 Part A(1) b co-incineration plant under the Environmental Permitting (England and Wales) Regulations 2016 (EPR). It does not fall directly within the scope of the WI BAT conclusions because it only burns “exempt” (or “excluded”) biomass, which is lower risk than other waste fuels. Neither does the plant fall directly within the scope of any other published BAT conclusions. Natural Resources Wales considers the WI BAT conclusions and the Large Combustion Plant (LCP) BAT conclusions the most relevant in defining updated BAT. So have reviewed the permit as a result of the WI BAT publication, noting that the permit has not been comprehensively reviewed for BAT since its issue in 2009 and publication of the LCP BAT conclusions in the intervening period.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Waste Incineration sector. and other sectors. These include the amendment of the wording of several permit conditions including changes to emissions limits and monitoring requirements.

We are satisfied that the operator will be compliant with the updated BAT as determined by NRW which will apply from one year after the revised permit is issued.

The opportunity has been taken to consolidate the original permit and subsequent variations. The rest of the installation is unchanged and continues to be operated as stated in the permit.

Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's permit;
- why we have decided to vary the permit as a result of that review; and
- why we have included the specific conditions in the revised permit through the variation and consolidation we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

Structure of this document

- Our decision
- Scope of permit review and determination of BAT for the installation
- Permit review procedure and administration
- Assessment of the installation against BAT as informed by the BAT conclusions for Waste Incineration, Large Combustion plant, and other relevant BAT conclusions and sector/process-specific guidance
- Summary of changes we have made to the permit
- Annex 1 – Decision Checklist regarding relevant BAT.
- Annex 2 – Decision Checklist regarding additional information requested in Regulation 61(1) Notice

Our decision

We have issued a variation, which will allow the Operator to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through this and any earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate updated BAT for the facility.

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

The original Part A permit, issued on 18/08/2009 and any subsequent variations, ensured that the installation, employed BAT and ensured a high level of protection for human health and the environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a superior level of protection to that which was previously achieved. Where the site is not or may not currently be compliant with the revised BAT, Improvement Conditions have been included where necessary to ensure compliance with updated BAT standards by the

implementation date set in the permit. This date is one year after permit issue for most matters.

Scope of permit review and determination of BAT for the installation

1. The legal framework

The variation and consolidation notice (which includes the consolidated permit as Schedule 2) is issued under Regulation 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 Industrial Emissions Directive (IED);
- a medium combustion plant subject to Schedule 25A of EPR, implementing requirements of the Medium Combustion Plant Directive (MCPD);
- subject to aspects of other legislation including the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We consider that, in issuing the variation and consolidated permit, 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.

2. BAT process for the installation

Schedule 7 of EPR requires that we implement relevant parts of the IED for facilities which we regulate. The co-incineration plant is an installation activity listed in Annex I, and therefore subject to Chapter II of IED. Article 11 (b) requires that Best Available Techniques (BAT) are applied to the installation, Article 14(6), sets out the process by which BAT is determined for this facility, and Article 21(1, 4 and 5) sets requirements for the permit conditions to be periodically reviewed.

Regulation 34 of EPR requires us to periodically review environmental permits, and our core guidance (11.37, 11.41, 11.42) provides information on when we must do so.

For many installation activities, BAT is directly set by the publication of sector-specific BAT conclusions (previously EU-BAT, in future UK-BAT process). In summary, where a primary activity falls directly in the scope of the BAT conclusions, the permit must be reviewed and updated, with changes implemented within 4 years of the publication (IED article 21(1-3). If any other BAT conclusions are relevant to this activity or other activities on the same installation, these also must be implemented at the review.

Unusually for this installation, because of its size and the type of waste fuels it uses, it does not fall directly into the scope of any specific set of BAT conclusions. Nevertheless, as a sizeable installation, it has potentially significant environmental impacts unless appropriate controls are implemented. The regulations therefore require the regulator (Natural Resources Wales) to determine BAT for the activity, after consultation with the operator. They also require us to periodically review and update the permit, but the timing of such reviews is less prescriptive than for plant in scope of a set of BAT conclusions. However, Article 21(4) of IED states that "*Where an installation is not covered by any of the BAT conclusions, the permit conditions shall be reconsidered and, if necessary, updated where developments in the best available techniques allow for the significant reduction of emissions*".

We note that the permit has not been fully reviewed for BAT since 2009, and also that numerous sector BAT conclusion documents have been published in the intervening time (including, but not limited to those for Waste Incineration and Large Combustion Plant). These BAT conclusions contain increasingly stringent BAT-Associated Emission Limits (BAT-AEL) for plant in scope, following the general trend in emissions reduction across multiple sectors. We consider that a review of the Western Bioenergy permit at this time is clearly justified. Published revised BAT conclusions and reduced BAT-AELs for most relevant BAT, (*WI and LCP – see below*), give evidence of the possibility of significant reduction in emissions from the facility given its dated permit. It is only by completing the permit review that we have been able to determine current site-specific BAT and assess what level of emissions reduction may be achieved.

It is also noted that owing to the specification of the installation, neither Chapter III, nor Chapter IV of IED apply to the activity (for large combustion plant and waste incineration/co-incineration respectively). In simple terms, Chapter III does not apply because the plant is under 50 MWth (Article 28), and Chapter IV does not apply because only "excluded" fuels (i.e. biomass in this case) are burned (Article 42(2)).

3. Defining BAT for the installation with reference to relevant BAT conclusions and sector guidance

Where a process does not fall within the scope of any BAT conclusions, we would normally look to other potentially relevant published BAT conclusions, or other process-specific guidance when determining BAT. For this review, we have considered a wide range of potentially relevant guidance / BAT documentation / other information, which we consider informative in establishing BAT for the process. These are discussed below, and are listed approximately in order of expected general relevance and importance to the plant.

The BAT conclusions for waste incineration

We consider these to be of primary potential relevance for an EPR Section 5.1 co-incineration activity. We note that the plant is not directly in scope however, as the BAT Conclusions scope specifically exclude plants covered by Article 42(2) of IED (non-Chapter IV plant), including co-incinerators >3 tonnes per hour where only

exempt wastes are burned, or co-combusted with other fuels. However, we consider that BAT as defined for other co-incineration plant will be highly informative to the plant in question in so far as it is a plant which handles and burns waste.

The BAT conclusions for Large Combustion Plant (LCP)

We consider these to be of equal primary potential relevance for this co-incineration activity for IED Chapter IV exempt waste biomass and virgin biomass only. We note that the plant is not directly in scope as it is under the 50MW_{th} threshold for LCP, but also that it is a similarly-sized plant at 47.5 MW_{th}, i.e. just below the direct applicability threshold. While the plant is outside of scope on the basis of its capacity, the conclusions specifically consider large combustion plants burning biomass, including waste biomass defined by Article 3(31)b of IED as is the case for Western Bio-Energy. We consider that BAT as defined for other similarly sized biomass combustion plant will be highly informative to the plant in question, specifically both the general BAT conclusions in section 1, and those for biomass in section 2.2 (combustion of solid biomass and/or peat).

This position is supported by the Natural Resources Wales guidance "*BAT for combustion plant outside of the scope of the LCP BREF – interim Position*" (2019), which defines indicative BAT for existing individual combustion units ≥ 15MWth at installations subject to IED [Chapter II] as being the LCP BREF BAT-AELS for existing plant, and also identifies the Environmental Permitting Technical Note 1/1(18) for combustion plant of 20 to 50 MWth as being relevant in determining BAT(see below). This NRW interim position further defines that the minimum standard for such plant would be the Medium Combustion Plant Directive (MCPD) existing plant provisions and potentially the Specified Generator limits. As this plant is a co-incinerator, by inference this guidance would suggest that both combustion and co-incineration BREFs and guidance would be informative to determining BAT.

It is also noted that while the LCP BAT conclusions were published by the European Union in 2017, they were in effect republished in 2021, as explained in numbered items (3) to (10) in the 2021 document referenced above. Briefly, this was an outcome of a legal challenge to the original publication. As the effect of the 2021 is to uphold unchanged the content of the 2017 LCP BATc, irrespective of the challenge, these events are not material to the use of the BAT conclusions (2017 or 2021 publication) in our decision.

Environmental Permitting Technical Note 1/1(18): Reference document for combustion plant of 20 to 50 MW thermal capacity (final draft)

This is draft statutory BAT guidance for combustion plant applicable to the whole of the UK as detailed in the document. It is published on the NRW website as per above link, and has been consulted upon again by the Environment Agency in 2021, with only very minor technical changes insofar as it is relevant to the reviewed installation. As discussed above, we consider this potentially relevant to establishing BAT, although as per the NRW interim guidance above, the BAT conclusions would be the primary reference. Furthermore, as the document is final draft, where necessary we may make reference to the previous, fully published statutory version Process Guidance Note 1/03(12) – Statutory guidance for Boilers and Furnaces 20-50MW thermal input,

although it is noted that this is in part dated, and the draft guidance may be more informative of modern BAT.

Environmental Permitting Technical Note 5/1(18); Reference document for the incineration / combustion of waste wood (Final draft)

This is draft statutory BAT guidance for waste wood combustion/incineration applicable to the whole of the UK as detailed in the document. It is published on the NRW website as per above link, and has been consulted upon again by the Environment Agency in 2021, with only very minor technical changes insofar as it is relevant to the reviewed installation. Similarly to the position for the general combustion guidance described above, this comparable guidance for wood combustion/incineration is of potential relevance. As it is for Part B processes of smaller scale than Western Bio-Energy (under 3 tonnes per hour compared to 18-20 tonnes per hour), we have taken the view that this guidance would specify the minimum BAT standard for the plant in question. Furthermore, as it is a final draft, where necessary we may make reference to the previous, fully published version Process Guidance Note 1/12(13) – Statutory guidance for combustion of waste wood although it is noted that this is in part dated, and the draft guidance may be more informative of modern BAT.

Other published BAT conclusions

Finally, we note that there are a significant number of other BAT conclusions published since the WBE permit was reviewed (as examples but not specifically, the Food and Drink BAT conclusions, Common Waste Gas Management chemicals BAT conclusions, wood based panels production). While these may not have substantial sector-specific relevance, they do help to indicate the general status of BAT for an installation. Particularly where requirements are common to almost all current BAT conclusions, in matters such as environmental management system design, monitoring arrangements for air and water, et-cetera. They may be referred to as necessary for specific issues.

The Medium Combustion Plant Directive

As the WBE facility is a combustion plant ≥1MW_{th} but <50 MW_{th}, and is not exempted, it is subject to the requirements and emissions limits of the MCPD. However, the UK regulators position is that the directive sets the minimum standard for combustion plant of this size. They do not in themselves define BAT where it is required for Chapter II installations. This is confirmed in the NRW interim guidance (2019) identified above.

Conclusion

On the above basis, NRW considers that it has a robust platform of informative BAT guidance to determine process-specific BAT for the WBE co-incineration plant. In our early communication with the operator, we focussed on the WI BAT conclusions, but have extended the scope of our considerations based on our acceptance of their responses to us. There are no other (secondary) processes on site requiring separate BAT review.

Permit review procedure and administration

Requesting information to demonstrate compliance with Waste Incineration BAT Conclusions

In a process common to all waste incinerators and co-incinerators in Wales, we issued a notice under Regulation 61(1) of EPR on 15/06/21 requiring the operator of Western Wood Energy Plant to provide information to demonstrate how the operation of their installation currently meets, or would meet by the compliance date of 3 December 2023, the revised standards described in the WI BAT Conclusions document.

The Regulation 61(1) Notice required the operator to undertake the following actions, where relevant:

1. Confirm whether or not they currently comply with the requirements of the WI BAT Conclusion, including any associated emission levels, providing a description of the techniques in place and how they meet the standard
2. If they do not comply with the BAT conclusion, describe how and by when they intend to meet the standard, before the compliance date
3. Confirm if they intend to continue operating in a manner which would not comply with the relevant new BAT Conclusion after the compliance date, if so, provide a justification for being allowed to do so and by what date they intend to come into full compliance, or a description of alternative measures to be adopted that will provide equivalent environmental protection
4. Where the BAT conclusion has a BAT-AEL specified, with which they will not comply with by the compliance date, requirement that the operator should consider requesting a derogation. The notice also explained the strict criteria under which a derogation application may be considered and made clear that any application is the responsibility of the operator [*but see further note below*].

The following additional information was also required:

A. Where compliance with the BAT conclusions leads to the substantial refurbishment or installation of a new industrial installation with an aggregate thermal input of greater than 20 MWth, which generated more than 100 KWth of waste heat, the Operator must provide sufficient technical and commercial evidence to demonstrate compliance with Article 14, paragraph 5 of directive 2012/27/EU on Energy Efficiency.
B. For all discharges to surface water and/or sewers from the site, the Operator must provide information for priority hazardous substances and any other relevant substances.
C. Where their permitted activity involves the use, production or release of a relevant hazardous substance (as defined in Article 3(18) of the IED) the Operator was required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances.
D. Provide us with details of fixed combustion plant from 1 MWth up to but not including 50 MWth.
E. Provide an updated completed OPRA spreadsheet for the facility.

The Regulation 61(1) Notice response from the operator was received on 09/12/21. The operator did not attempt to engage with Natural Resources Wales ahead of the submission deadline, and in December 2021 provided a limited BAT assessment,

which chiefly identified the point that the plant was not directly in the scope of the WI BAT conclusions, which we acknowledge. It provided assessment against narrative BAT, but did not detail emissions performance, against indicative BAT-AELs or otherwise, or identify where BAT may have developed since original permit issue.

Following assessment of the Regulation 61(1) response, we wrote to the Operator on 25/08/22 and 16/02/23, and held calls with them on 29/06/22 and 23/08/22. Via these we requested further information from the Operator, and sought to further explain the site-specific scope of the BAT permit review, and the guidance which we considered relevant. This was summarised in our letters, and is broadly as outlined above, although we have continually reviewed our position and approach as a result of dialogue with the operator. All of these documents are available on the public register.

We have received only limited further information from the operator during the significant intervening period (a formal response by letter 08/12/22, and a further letter 10/05/23), and have had to proceed with the BAT review on the basis of what information was available. Nevertheless, where the operator has concluded that they have achieved BAT, and we are in agreement, no further information or justification has been sought by Natural Resources Wales. Where it is evident from compliance records and monitoring that the operator has achieved BAT, we have documented this. Where there is insufficient evidence, or the evidence does not demonstrate BAT, we have had to use other measures, such as improvement conditions to ensure BAT, or set new requirements in the revised permit, with the onus being on the operator to achieve compliance by the required date. The operator was given opportunity to review and comment on the draft permit ahead of its issue.

The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part.

We refer above to the process of derogation from BAT conclusions, and in our Regulation 61(1) Notice. This is described in IED Article 15(4). However, it only applies when an activity is directly in scope of the BAT conclusions, and is not applicable to this installation. We explained this in our letter to the operator dated 25/08/22. If we decide to set an Emission Limit Value (ELV) based on site specific BAT, above a BAT-AEL in an informative but not directly relevant BAT conclusion, then no further action / process is necessary.

Assessment of the installation against BAT as informed by published BAT conclusions and other relevant guidance

BAT Conclusions for Waste Incineration were published as Commission Implementing Decision EU 2019/2010/EU in the Official Journal of the EU on 3 December 2019. There are 37 BAT Conclusions.

As explained already, process-specific BAT for this facility is informed by a number of sources (BAT conclusions and guidance). Often, when using more than one guidance, we would document our assessment individually against requirements of each guidance. Given the number of sources involved in this review to ensure it is comprehensive and proportionate, in this case we have used the form and order of the WI BAT conclusions to document our review. Where other BAT information is relevant, it is introduced at the point where the topic is considered for waste incineration, or if not elsewhere, then at the end. On this basis, Annex 1 provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit/variation notice issued. Annex 2 provides a record of decisions made in relation to each of the five additional requested items (A – E as above).

The main changes introduced by the WI and LCP BAT conclusions and other guidance developed (as identified above) since the permit was issued in 2009 include:

- Introduction of new, more stringent sector-based BAT-Associated Emission Limits (AELS) for certain substances and processes, as detailed below (noting that these would only be indirectly applicable and informative when determining appropriate Emission Limit Values, ELVs, for the WBE facility);
- Enhanced and updated monitoring requirements for certain emissions
- Further enhancements to required management systems and processes, for example the explicit requirement for an OTNOC (other than normal operating conditions) management plan in several sectors.

We have considered all of these factors when determining BAT (including emission limit values) for the installation, noting that these changes are largely common to any BAT conclusions which have been updated in recent years.

Where BAT associated emission levels (BAT-AELs), are identified in potentially relevant BAT conclusions, site-specific BAT limits for WBE will be prescribed at or around the top end of the range unless the proximity of sensitive receptors requires a tighter limit, or if tighter limits are previously on the permit, in which case these are retained to ensure no backsliding of emission limits.

Changes we have made to the permit

Improvement Conditions

Based on the information provided in the Regulation 61(1) response, we consider that we need to set improvement conditions. These conditions are set out in the permit (Table S1.3) and their reason for inclusion is explained in Annex I. We are using these conditions to require the operator to provide Natural Resources Wales with details that need to be established or confirmed during operations. The improvement conditions ensure compliance with site-specific BAT within 1 year from issue of the varied permit.

This permit review with consolidation, updates and replaces the previous permitting documentation. Therefore previous improvement conditions IC1-IC10, which have already been completed, are removed from the permit. Accordingly, newly inserted improvement conditions begin from IC11.

Other changes

The operating techniques (tables S1.2a and S1.2b) have been updated to take account of the regulation 61(1) response from the operator, and the requirements for medium combustion plant, noting that the main wood co-incineration activity is a medium combustion plant.

Changes to permit conditions

The permit has been consolidated which means it has taken account of all previous variations and been issued in line with our modern permit template and to take account of medium combustion plant requirements. Therefore, there will have been changes to the permit conditions due to the consolidation. Where we have added specific conditions these are discussed below. We have not detailed any existing conditions that have been amended due to the review of our permit template.

Emissions to Air

There were changes to the ELVs and monitoring requirements for emissions to air taking into account site-specific BAT.

The tables below outline the changes per pollutant. For all continuously monitored pollutants, monitoring was updated to require full EN 14181 and EN 17255 quality assurance. Our guidance indicates that monitoring methods should, where possible be to CEN (or if not then ISO) standards, and the standards above are applicable to monitoring (and calibration) with continuous emission monitors (CEMs). The previously permitted arrangements were to a lesser site-specific standard, reflecting the level of development of CEMs and EN 14181 CEM calibration when the permit was issued.

Where periodic monitoring was required, the monitoring arrangement was updated to typically require triplicate sampling, which is common to all modern BAT conclusions. Where previously ELVs were set for WBE based both on CEMs and periodic sampling, the periodic sampling limits have been removed, as these are rendered redundant by the improved quality assurance/calibration of the CEMs outlined above.

Where short term (hourly) limits previously required 95% compliance, this has been tightened to require 100% compliance of hourly averages as we do not consider the 5% flexibility justified. We note that the 95% compliance approach and other ELVs set in the original permit clearly arise from the “minimum standards” for LCP in Chapter III and Annex V of IED. However, such flexibility is not given to half-hourly averages set (“column B”) in Chapter II and Annex VI of IED for incineration, the approach used in the UK for EPR 5.1 activities. Further information on these matters, and on individual pollutants, is provided below and in Annex I.

Note that different BAT guidance references ELVs at different standard reference conditions for oxygen (O_2). The LCP and combustion guidance are normalised to 6%

O_2, as is the WBE permit, whereas incineration limits are referenced to 11% O_2. For convenience, all figures quoted in this document are quoted at 6% O_2. Conversion is achieved by multiplying limits at 11% O_2 by 1.5 to give limit at 6% O_2, e.g. 50mg/Nm^3 at 11% O_2 is identical to 75 mg/Nm^3 at 6% O_2.

Parameter	Original ELV (effective until new limits take effect 1 year after variation issue)	New ELV (these new limits take effect 1 year after variation issue)	Brief Justification (see Annex 1 for further detail)
Particulate matter (1-h average)	20 mg/Nm^3 95% of valid hourly averages	20 mg/Nm^3 100% of valid hourly averages	No change to numeric limit, no backsliding. ELV broadly in range indicated by ”minimum standards” informed BAT (30 mg/Nm^3 as half-hourly average for WI, 95% of hourly average of 20 mg/Nm^3 for LCP), given difference between 1 hour and ½ hour short term averages employed. Changed from 95% compliance to 100% as exceptions during normal operation should not be occurring and reported data indicates it is not normally required.
Particulate matter (daily average)	10 mg/Nm^3	10 mg/Nm^3	No change, no backsliding, ELV in range indicated by BAT guidance (7.5 mg/Nm^3 for WI, 22 mg/Nm^3 for LCP, 30 mg/Nm^3 for existing MCP and 20 mg/Nm^3 for new). As CEM calibration expectations are increasing, no need to continue with separate periodic monitoring with ELV (though periodic monitoring will occur for CEM calibration)
HCl (average from periodic sampling)	None, monitor only	150 mg/Nm^3	No hydrogen chloride, (HCl), ELV was originally set on the expectation that “*the sulphur and chlorine content of the incoming biomass is expected to be low*” (original Decision Document). Review of monitoring data for BAT review has revealed many low results, but some significantly higher ones. An Improvement condition (IC 11) has been set for the operator to investigate this. ELV established at the level indicated by PG1/12 (13) for waste wood combustion. BAT for WI or LCP is much tighter (15-35, depending on averaging period). Depending on outcome of IC11, ELV may be modified by NRW by further permit variation, if emissions are not shown to be under adequate control to a low level. The plant has no acid gas abatement so only options for increased control may be fuel selection, or investment in additional abatement.
HF (average from periodic sampling)	N/A	None, monitor only	BAT typically 1.5mg/Nm^3 for LCP/WI for plant with acid gas abatement. For WBE, hydrogen fluoride (HF), is not expected to be present as F should not be present in significant concentration in the fuels. However given some high HCl results, continued confirmation of absence of HF is required and is also subject to IC11. If detected at significant concentration (>3mg/Nm^3) then further permit conditions will be considered.
SO_2 (periodic sampling)	None, monitor only	None, monitor only.	No sulphur dioxide, (SO_2), ELV was originally set on the expectation that “the sulphur and chlorine content of the incoming biomass is expected to be low” (original Decision Document). Review of monitoring data for BAT review has confirmed that this is the case.

Parameter	Original ELV (effective until new limits take effect 1 year after variation issue)	New ELV (these new limits take effect 1 year after variation issue)	Brief Justification (see Annex 1 for further detail)
			There is no acid gas abatement, so the only control of SO_2 formation is by fuel characteristics. Provided these are adequate, an ELV is not necessary. Typical performance is around 20-30 mg/Nm^3, which is better than BAT indicated by the most rigorous sources, 60 mg/Nm^3 for WI and 215 mg/Nm^3 for LCP, based on continuous measurement. There is little potential for S in any biomass fuels used, so a precautionary limit is not required.
NOX (1-h average)	500 mg/Nm^3 95% of valid hourly averages	500 mg/Nm^3 100% of valid hourly averages	No change to numeric limit, no backsliding. ELV broadly in range indicated by BAT guidance (600 mg/Nm^3 for WI), this is considered somewhat more generous given difference between 1 hour (LCP, 500mg/Nm^3, 95% compliance) and ½ hour (WI, 600 mg/Nm^3, half-hour, 100% compliance) short term averages employed. Changed from 95% compliance to 100% as exceptions during normal operation should not be occurring.
NOX (daily average)	250 mg/Nm^3	250 mg/Nm^3	No change, ELV slightly below range indicated by WI and LCP -BAT guidance (270-275 mg/Nm^3 or higher), but in line with guidance for combustion plant 20-50 MW (250 mg/Nm^3). No backsliding. As CEM calibration expectations are increasing, no need to continue with separate periodic monitoring with ELV (though periodic monitoring will occur for CEM calibration). IC12 set for operator to investigate if further site-specific BAT improvement possible below the formal ELV.
Carbon monoxide (1-h average)	500 mg/Nm^3	500 mg/Nm^3	No change. Only the WI Bref/ChIV IED and not LCP set short-term carbon monoxide (CO) limit, understood primarily to be as a marker for wider combustion control, ensuring complete combustion and prevention of "product of incomplete combustion" (PIC – see below) formation, which other data shows not to be a major issue for this plant (see below). Direct impact of CO (say compared to Environmental Standards) is small. Nevertheless, current performance clearly has some variability, so IC12 has been set to require the operator to examine if site specific BAT performance can be achieved at below ELV level while also optimising NO_X emissions.
Carbon monoxide (daily average)	250 mg/Nm^3	225 mg/Nm^3	PG5/1(18) for waste wood combustion, recognising that WI BAT 75 is unduly onerous, but that observed performance (low average but some higher daily average results, still below ELV) warrants closer operator attention to performance optimisation for this pollutant. Regard PG 5/1 (18) ELV of 225 mg/m^3 as "minimum BAT" for this similar but larger scale process, noting that published 1/12(13) for waste wood sets the same ELV of 225 mg/Nm^3. IC12 as noted above to consider variability and improve process control to minimise CO emission while also optimising NO_X emissions.

Parameter	Original ELV (effective until new limits take effect 1 year after variation issue)	New ELV (these new limits take effect 1 year after variation issue)	Brief Justification (see Annex 1 for further detail)
Total organic carbon (TOC)	No requirement (*but some monitoring reported*)	30 mg/Nm^3	PG 5/1(18) for waste wood combustion is regarded as the "minimum BAT standard" for the similar but larger scale WBE process, recognising that WI limit of 15 mg/Nm^3 is unduly onerous and there is not an LCP requirement for TOC for biomass combustion. The published guidance 1/12(13) gives the same TOC BAT limit. Given comments above on CO and need for good PICs control, further evidence indicative of combustion control and completeness of combustion is warranted, especially as higher HCl results have been reported (which may at least in theory facilitate chlorinated PICs formation).
Ammonia	10 mg/Nm^3	10 mg/Nm^3	No change and no backsliding. Site specific BAT is below level set as general BAT for WI or LCP (15 mg/Nm^3), not specified in other guidance (selective non-catalytic reduction (SNCR) not widespread in other guidance).
Nitrous oxide (N_2O)	Monitor only	Monitor only	Current requirement consistent with BAT as detailed in WI BATc, LCP BATc identifies as an emissions issue but does not set limit.
Cadmium (Cd) + Thallium (Tl)	Monitor only	0.03 mg/Nm^3	Current WBE performance shown to be order of magnitude below WI BAT-AEL of 0.03 mg/Nm^3. LCP requires monitor only, as does guidance for combustion of potentially contaminated wood in wood panels BATc. Metals are a good marker of performance (fuel selection / suitability). Precautionary standard limit set so that any high results, which could be indicative of fuel contamination, would be identified and investigated for corrective action by the operator and regulator. While the bag filter provides abatement for solid-phase metals, it is considered that fuel selection is the primary parameter in emission control.
Metals: antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganes (Mn), nickel (Ni) & vanadium (V) and their compounds	Monitor only	0.45 mg/Nm^3	Current performance shown to be order of magnitude below WI BAT-AEL of 0.45 mg/Nm^3. LCP requires monitor only, as does guidance for combustion of potentially contaminated wood in wood panels BATc. Metals are a good marker of performance (fuel selection / suitability). Note LCP BATc also require selenium (Se) and zinc (Zn) to be monitored. Consider no reason to add – highly unlikely that one of these would be present, without others showing. Precautionary standard limit set so that any high results, which could be indicative of fuel contamination, would be identified and investigated for corrective action by the operator and regulator. While the bag filter provides abatement for solid-phase metals, it is considered that fuel selection is the primary parameter in emission control.
Mercury (Hg)	Monitor only	0.03 mg/Nm^3	Current performance shown to be order of magnitude below WI BAT-AEL of 0.03 mg/Nm^3. LCP for biomass sets limit of 0.005 mg/Nm^3, even more stringent. Guidance for combustion of potentially contaminated wood in wood

Parameter	Original ELV (effective until new limits take effect 1 year after variation issue)	New ELV (these new limits take effect 1 year after variation issue)	Brief Justification (see Annex 1 for further detail)
			panels BATc requires monitor only. Hg could be an effective marker of performance (fuel selection / suitability). Precautionary standard limit set so that any high results, which could be indicative of fuel contamination, would be identified and investigated for corrective action by the operator and regulator. There is no active abatement for metals other than the bag filter, (such as activated carbon), so fuel selection is the main parameter which directly determines emissions of this volatile metal. Continuous monitoring referred to in WI BREF not relevant given context above.
Products of incomplete combustion (PIC): Dioxins / furans (I-TEQ)	Monitor only	0.09 ng/Nm^3	Current performance shown to be order of magnitude below WI BAT-AEL of 0.09 ng/Nm^3. LCP requires monitor only, as does guidance for combustion of potentially contaminated wood in wood panels BATc. Dioxin formation is a marker of combustion performance (product of incomplete combustion in certain thermal processes). Precautionary standard limit set so that any high results, which could be indicative of combustion or fuel issues, would be identified and investigated for corrective action by the operator and regulator. There is no active abatement for products of incomplete combustion other than the bag filter, (such as activated carbon), so good combustion and fuel selection are the main parameters which control emissions to a very low level. Incinerators are usually required also to measure (without limits) dioxin-like PCBs, polycyclic aromatic hydrocarbons (PAH), and potentially brominated dioxins/furans. We consider Dioxins/furans a suitable marker of PICs, and provided this remains low, monitoring of the others is unnecessary.

Emissions to water

There are no direct or indirect emissions to a receiving water body from the following processes:

- Flue-gas cleaning (FGC)
- Bottom ash treatment

The WI BAT-AELs for discharge to water are only potentially relevant if either of these two processes are being carried out. Therefore, these BAT-AELs are not relevant to our review and there are no changes to the current ELVs.

6. Conclusion

We consider that the installation already employed what used to be BAT, and that the operator will achieve significant improvements in performance by the compliance date since the permit was originally granted. The revised BREFs, their BAT-AELs and other regulatory guidance identified provided the opportunity to identify updated site-specific BAT and implement further environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation and we are satisfied that the operator is currently achieving or will be achieving all relevant BAT by one year after variation V006 issue, or sooner.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

Annex 1: Decision Checklist regarding relevant BAT

BAT Conclusions for Waste Incineration were published as Commission Implementing Decision EU 2019/2010/EU in the Official Journal of the EU on 3 December 2019. There are 37 BAT Conclusions. This checklist provides a record of installation-specific decisions made in relation to each potentially relevant and applicable BAT Conclusion. Noting that these are *indirectly* relevant as the plant is not in the scope of the conclusions, as described above. Where other BAT conclusions or guidance are relevant, reference to these are incorporated in the order / format of the BAT conclusions for WI below. This annex should be read in conjunction with the permit. For definitions and acronyms see the BAT Conclusions Document: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN

All WI BAT Conclusions arising are listed by number in order below;

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
1	**Environmental management systems (EMS) –** In order to improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features:		
	(i)	Commitment, leadership and accountability of the management, including senior management, for the implementation of an effective EMS;	**Currently Compliant.** The Operator has confirmed that there is an EMS in place that complies with all the points listed in BAT 1. The Operator has stated a certified integrated management system is in place that meets the requirements of ISO 14001:2015. We consider this sufficient for demonstrating compliance with the WI BATc. While the wording used may differ, we consider that the broad requirements of the WI BATc are the same as those of
	(ii)	An analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment;	
	(iii)	Development of an environmental policy that includes the continuous improvement of the environmental performance of the installation;	
	(iv)	establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements;	
	(v)	Planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;	
	(vi)	Determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;	

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	(vii)	Ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);	the LCP BATc, and conformance represents BAT for this facility. Where the EMS requirements detail specific points for WI plant (XXI to XXVIII), these are comparable to those for LCP where relevant, and are addressed specifically below in the applicable BAT conclusion. The only EMS BATc not further detailed below under a specific topic BATc is residues management (XXIII). We are satisfied that appropriate arrangements are in place, as required by permit condition 1.4.1, which is an updated version of 1.5.1 in the original permit, indicating that the general requirements are unchanged and established.
	(viii)	Internal and external communication;	
	(ix)	Fostering employee involvement in good environmental management practices;	
	(x)	Establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;	
	(xi)	Effective operational planning and process control;	
	(xii)	Implementation of appropriate maintenance programmes;	
	(xiii)	Emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;	
	(xiv)	When (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;	
	(xv)	Implementation of a monitoring and measurement programme, if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;	
	(xvi)	Application of sectoral benchmarking on a regular basis;	
	(xvii)	Periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;	
	(xviii)	Evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;	
	(xix)	Periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;	
	(xx)	Following and taking into account the development of cleaner techniques.	

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	Specifically for incineration plants and where relevant, bottom ash treatment plants, BAT is to also incorporate the following features in the EMS:		
	(xxi)	For incineration plants, waste stream management (see BAT 9);	**Currently compliant** -see BAT 9.
	(xxii)	For bottom ash treatment plants, output quality management (see BAT 10);	N/A no ash treatment
	(xxiii)	A residues management plan including measures aimed to: (a) Minimise the generation of residues (b) Optimise the reuse, regeneration, recycling of and/or energy recovery from the residues (c) Ensure the proper disposal of residues	**Currently compliant** - We are satisfied that appropriate arrangements are in place, as required by permit condition 1.4.1, which is an updated version of 1.5.1 in the original permit, indicating that the general requirements are unchanged and established. BAT 35 confirms separate management of bottom ash and air pollution control residues.
	(xxiv)	For incineration plants, an OTNOC management plan (see BAT 18);	**Compliant in the future** – see BAT 18.
	(xxv)	For incineration plants, an accident management plant;	**Currently compliant**. As detailed in original permit application, response to IC6, and as periodically updated.
	(xxvi)	For bottom ash treatment plants, diffuse dust emissions management (see BAT 23);	N/A no ash treatment
	(xxvii)	An odour management plan where an odour nuisance at sensitive receptors is expected and/or has been substantiated;	N/A – odour not a key issue for the site. See BAT 21. As stated by applicant in R61(1) response, "*The biomass feedstock accepted at the site is not odorous. As such the requirement for additional odour management above what is already undertaken at the site [and part of general EMS] is not necessary*."

BATc number	Summary of BAT Conclusion requirement			Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	(xviii)	A noise management plan (see BAT 37) where a noise nuisance at sensitive receptors is expected and/or has been substantiated;		**Not applicable.** Applicant's R61(1) response indicates no noise complaints since 2016. See BAT37 for demonstration that BAT measures for noise minimisation and mitigation are in place
MONITORING				
2	**BAT is to determine either the gross electrical efficiency, the gross energy efficiency, or the boiler efficiency of the incineration plant as a whole or of all the relevant parts of the incineration plant.**			**Currently Compliant.** The R61(1) response indicates a boiler efficiency of >91% has been measured. See BAT 19/20 – the original application / decision document indicates a gross electrical efficiency of 32% and net of 29%. The LCP BAT energy efficiency monitoring requirement for biomass combustion is comparable.
3	**BAT is to monitor key process parameters relevant for emissions to air and water including those given below:**			
	Stream/location	**Parameter(s)**	**Monitoring**	
	Flue-gas from the incineration of waste	Flow, oxygen content, temperature, pressure, water vapour content	Continuous	**Compliant in the future.** The R61(1) response indicates that oxygen and water vapour are continuously monitored. It states that monitoring of flow, temperature and pressure are not applicable to the site. We disagree, and note that flow and temperature (as well as oxygen and water content) are already required as process monitoring requirements in the existing permit. Pressure measurement is implicit to

BATc number	Summary of BAT Conclusion requirement			**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
				normalisation of other continuous monitoring results, so is required. In common with other modern permits, we have moved these ancillary measurements from “process monitoring” to ”emissions monitoring” in the new permit V006 and updated monitoring requirements to modern (EN etc) standards. The operator will have to identify any current performance issues and update monitoring to ensure compliance by the date on which Schedule 3 (b) of the new permit is effective.
	Combustion chamber	Temperature		**Currently compliant**, as indicated in R61(1) response and required in “process monitoring” of existing and updated permit.
	Waste water from wet FGC	Flow, pH, temperature		**Not applicable.** There is no wet flue gas cleaning (dry bag filter system).
	Waste water from bottom ash treatment plants	Flow, pH, conductivity		**Not applicable.** There is no bottom ash treatment plant. The quenching of ash on site does not apply, and in any case is closed loop for water with no discharge.
4	**BAT is to monitor channelled emissions to air with at least the frequency given 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 quantity.**			

BATc number	Summary of BAT Conclusion requirement					Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	Refer to monitoring emissions to air table in BAT Conclusion 4: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN, *reproduced in part below, only where considered of potential relevance to Western Bioenergy.*					
	Substance/ Parameter	Process	Standard(s) (1)	Minimum monitoring frequency (2)	Monitoring associated with	
	NO_X	Incineration of waste	Generic EN	Continuous	BAT 29	**Compliant in the future.** NOX is already measured continuously for ELV assessment purposes but not to EN 14181, with periodic NO_X samples also taken bi-annually. As detailed below, monitoring will be updated in the new permit to full EN calibration, with the separate periodic "compliance sample" therefore becoming unnecessary. Continuous monitoring is considered BAT under both the LCP and WI BAT conclusions. We consider continuous monitoring to be site-specific BAT.
	NH_3	Incineration when SNCR and/or SCR used	Generic EN	Continuous	BAT 29	**Currently compliant.** WBE measure ammonia periodically, biannually, with very low concentrations reported (≤1 mg/Nm^3 compared to ELV of 10 mg/Nm^3) The WI BAT conclusions require continuous monitoring of ammonia, and the LCP BAT conclusions indicate continuous monitoring when SNCR/SCR is used (as at WBE where SNCR is

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						employed), but with exemption for SCR if emissions are "proven to be sufficiently stable". We consider that given the performance demonstrated for NH_3, the plant capacity, and the expected stability of the feedstock compared to more diverse waste streams, bi-annual periodic monitoring remains appropriate BAT.
	N_2O	Incineration of waste when SNCR is operated with urea	EN 21258 (3)	Once every year	BAT 29	**Currently compliant** – relevant as SNCR used with urea (WI BAT conclusions). Both WI and LCP BAT conclusions indicate that periodic sampling is appropriate, where required. Bi-annual periodic sampling is undertaken and considered BAT, with low results (<1 mg/Nm^3) reported.
	CO	Incineration of waste	Generic EN	Continuous	BAT 29	**Compliant in the future.** CO is already measured continuously for ELV assessment purposes but not to EN 14181, with periodic samples also taken bi-annually. As detailed below, monitoring will be updated in the new permit to full EN calibration, with the separate periodic "compliance sample" therefore becoming unnecessary. Continuous monitoring is considered BAT under both the LCP and WI BAT

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						conclusions. We consider continuous monitoring to be site-specific BAT. Existing plant monitoring data indicates relatively high short-term variability in CO emissions, further supporting the need for CEM monitoring to ensure adequate process combustion control.
	SO_2	Incineration of waste	Generic EN	Continuous	BAT 27	**Currently compliant.** WBE measure SO_2 periodically, bi-annually, with low concentrations reported (20-30 mg/Nm^3 compared to tightest BAT-AEL (for WI) of 60 mg/Nm^3). The WI and LCP BAT conclusions require continuous monitoring of SO_2, but with LCP exemption for oil where the sulphur content is known and allows calculation of emission. We consider that given the performance demonstrated for SO_2 (low content in fuel, therefore low emissions), bi-annual periodic monitoring remains appropriate BAT and is similar to the LCP exemption for fuel of known sulphur content.
	HCl	Incineration of waste	Generic EN	Continuous	BAT 27	**Currently compliant.** WBE measure HCl periodically, bi-annually. The WI and LCP BAT conclusions require continuous monitoring of HCl, but with LCP exemptions when emissions are stable:

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						"*If the emission levels are proven to be sufficiently stable, periodic measurements may be carried out each time that a change of the fuel and/or waste characteristics may have an impact on the emissions, but in any case at least once every six months*" We consider that bi-annual periodic monitoring should remain appropriate process specific BAT but have noted some emissions performance concerns – see BAT 27 below and associated improvement condition IC11. Monitoring requirements will be reviewed as a result of this IC with a further permit variation if necessary. Under this IC, it is expected that HCl emissions will be demonstrated to be low and under adequate control by fuel selection, and further action required only if this is not the case.
	HF	Incineration of waste	Generic EN	Continuous	BAT 27	**Compliant in the future.** HF is not currently monitored, it would not normally be expected from clean biomass combustion. However, as noted above, some variability has been observed in HCl emissions, which in turn means that HF

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						emissions should be verified. The WI BAT conclusions indicate continuous HF monitoring is BAT (with exemption to periodic if HCl emissions are stable). The LCP BAT conclusions for biomass combustion require annual periodic monitoring. We have therefore decided that annual periodic monitoring of HF is appropriate, but requirements may be reviewed if significant HF emissions are subsequently detected.
	Dust [particulate matter]	Incineration of waste	Generic EN and EN 13284-02	Continuous	BAT 25	**Compliant in the future.** Dust is already measured continuously for ELV assessment purposes but not to EN 14181, with periodic samples also taken bi-annually. As detailed below, monitoring will be updated in the new permit to full EN calibration, with the separate periodic "compliance sample" therefore becoming unnecessary. Continuous monitoring is considered BAT under both the LCP and WI BAT conclusions. We consider continuous monitoring to be site-specific BAT.
	Metals and metalloids except mercury (As,	Incineration of waste	EN 14385	Once every six months	BAT 25	**Currently compliant.** WBE measure metals periodically, bi-annually. The WI and LCP BAT conclusions require

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Tl, V)					periodic monitoring, though for LCP it is annual and Se and Zn must also be measured. We consider that bi-annual periodic monitoring of the same metals remains appropriate process specific BAT. We consider it unlikely that Se or Zn emissions would be high whilst other metals are well controlled and note very good previous emissions performance for metals monitored.
	Hg	Incineration of waste	Generic EN and EN 14884	Continuous	BAT 31	**Currently compliant.** WBE measure mercury periodically, bi-annually. The WI BAT conclusions require continuous monitoring, though periodic (bi-annually) is allowed for plant with a low and stable mercury content. The LCP BAT conclusions require periodic monitoring, normally annually for biomass, or upon a change of fuel that may affect emissions. We consider that bi-annual periodic monitoring of Hg remains appropriate process specific BAT. We consider it unlikely that Hg emissions would be high and note very good previous emissions performance. Neither continuous

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						monitoring or long-term sampling are required for this low level and low risk emission.
	Total Volatile Organic Compounds (TVOC)	Incineration of waste	Generic EN	Continuous	BAT 30	**Compliant in the future.** WBE are not currently required by the permit to measure TVOC, although they have reported results (<2 mg/Nm^3, May 2022). Whilst continuous monitoring is required in the WI BAT conclusions, it is not required for biomass combustion in the LCP BAT conclusions. Guidance for waste wood combustion (PG5/1(18) and 1/12(13) indicate TVOC manual extractive monitoring annually. We consider that TVOC is a useful marker of combustion efficacy and demonstrates likely control of other products of incomplete combustion (PICs, such as PAH). We consider site-specific BAT to be periodic monitoring of TVOC while results are low and well controlled. Monitoring requirements may be reviewed if significant TVOC emissions are subsequently detected via regular periodic sampling.
	PBDD/F ("brominated dioxins and furans")	Incineration of waste	No EN standard available	Once every 6 months	BAT 30	WI requirement **not applicable** – bromine not expected in feedstock.

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	PCDD/F (“dioxins and furans”)	Incineration of waste	EN 1948 (1-3)	Once every 6 months for short term sampling	BAT 30	**Currently compliant.** WBE measure dioxins and furans periodically, bi-annually. The WI BAT conclusions require long term or periodic monitoring. Dioxin/furan measurement is not required for biomass in the LCP BRef, but is considered relevant for combustion of contaminated recovered wood in the wood panels BATc. We consider that bi-annual periodic monitoring of dioxins and furans remains appropriate process specific BAT. Noting very good previous emissions performance. While the UK “dioxin protocol” for incinerators is not formally applied, there is no case for long term sampling based on previous periodic results. Nevertheless, continued periodic monitoring provides assurance of performance, and confirmation that unpermitted contaminated wood is not present or leading to emissions. Higher HCl emissions noted above provide further indication that ongoing dioxin monitoring is appropriate, as HCl is associated with potential dioxin emissions.

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	Dioxin like-PCBs	Incineration of waste	EN 1948 (1,2,4)	Once every 6 months for short term sampling	BAT 30	**Not applicable.** Given the required monitoring of other PICs (including TVOC, dioxins) and the biomass feedstock, monitoring of PCBs as well is unnecessary provided that emissions of other monitored substances remain low.
	Benzo[a]pyrene	Incineration of waste	No EN standard available	Once every year	BAT 30	**Not applicable.** Given the required monitoring of other PICs) and the biomass feedstock, monitoring of PAH as well is unnecessary provided that emissions of other monitored substances remain low.
	General comment 1	**WBE co-incineration**	**Continuous monitoring**	-	-	**Compliant in the future** for all continuously monitored emissions detailed above. The existing permit required continuous monitoring arrangements as specifically detailed in the permit (monitoring standards, calibrations etc). This reflected BAT at the time the permit was issued, but standards and expectations have developed, and we now require all continuous monitoring quality assurance to be conducted to the generic EN 14181 and EN 17255, which is an increase in expectations which may require some upgrading of plant monitoring equipment. Relevant EN standards for monitoring are considered BAT in all modern BAT

BATc number	Summary of BAT Conclusion requirement					Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						conclusions, and continuous monitoring of the substances specified is considered BAT for this for Part A installation, as supported by LCP and WI BAT conclusions. Smaller plant (e.g. draft PG 5/1(18) for wood combustion <3 tonnes per hour (TPH) indicate that continuous monitoring may or may not be required, at the regulator's discretion. Although periodic sampling normally would suffice for smaller plant, on the principle of "no backsliding" and recognising the plant capacity considerably above 3TPH, continuous monitoring is most appropriate for the substances where it has been required.
	General comment 2	**WBE co-incineration**	**Periodic monitoring**	-	-	**Compliant in the future** for all emissions monitored periodically detailed above. Again, monitoring standards and expectations have developed since the permit was issued. It is a general requirement of all sector-specific BAT conclusions (WI, LCP, Food & Drink, chemicals…) that periodic measurements normally be the average of 3 individual samples, rather than a single spot sample. This increased requirement is reflected in the permit.

BATc number	Summary of BAT Conclusion requirement					Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	General comment 3	**WBE co-incineration**	**Periodic monitoring - redundant**	-	-	**Compliant in the future.** In the original permit, where continuous monitoring was required for a determinand, periodic sampling was also required (e.g. for NO_X), and limits set for both monitoring types (i.e. hourly average and daily average for CEMS, average over periodic monitoring period for extractive sample, for the same pollutant). This approach is redundant with fully EN 14181 calibrated CEMS as described in general comment 1 above. Therefore, the periodic monitoring and limit for CEMs monitored pollutants is removed from the permit when the new CEMS /Calibration is implemented. However, this is not "backsliding" and reflects the increased confidence in the CEMs data through improved instrumentation and calibration. It is noted that periodic monitoring will still occur, for calibration of the CEM, but the associated periodic ELV is redundant.
5	**BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC.**					**Currently compliant.** The operator has stated in their R61(1) response that "*the site monitors emissions to air from the incinerator during periods of OTNOC*". While no further detail is provided by the operator, we expect that the CEMs will be available during start-up and shut-

BATc number	Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
		down so long as is technically possible, as indicated in the WI BATc. We are not aware of any measurement campaigns during start-up or shut-down, as referred to in the WI BAT conclusions, and as implicit in BAT 10 and stated in BAT 11 of the LCP BAT conclusions. However, for this plant, we consider that the CEMS measurements (CO, NO_X, O_2 etc) are sufficient, and that start-up / shut-down periodic measurement campaigns are unnecessary given the generally low and well controlled emissions observed for substances measured periodically, including PICs.
6	**BAT is to monitor emissions to water from FGC and/or bottom ash treatment with at least the frequency given 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 quantity.**	
	Refer to monitoring emissions to water table in BAT Conclusion 6: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN	Not applicable. No bottom ash treatment or wet flue gas cleaning
7	**BAT is to monitor the content of unburnt substance in slags and bottom ashes at the incineration plant with at least the frequency given and in accordance with EN standards.**	
	Refer to monitoring table in BAT Conclusion 7: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN	**Currently compliant**, confirmed by operator in R61(1) response. In line with WI BAT requirements. Measurement of carbon content of residues is not specified in LCP BATc or guidance for waste wood

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			combustion <3TPH. It is however considered site-specific BAT for WBE. See BAT 14.
8	**For the incineration of hazardous wastes containing persistent organic pollutants (POPs), BAT is to determine the POP content in the output streams (e.g. slags and bottom ashes, flue-gas, waste water) after the commissioning of the incineration plant and after each change that may significantly affect the POP content in the output stream.**		**Not applicable – no hazardous waste (or even Chapter IV of IED waste)**
GENERAL ENVIRONMENTAL AND COMBUSTION PERFORMANCE			
9	**In order to improve the overall environmental performance of the incineration plant by waste stream management (see BAT 1), BAT is to use all of the techniques (a), (b) and (c) given below, and, where relevant, also techniques (d), (e) and (f).**		
	(a)	Determination of the types of waste that can be incinerated	**Currently compliant** – see operator R61(1) response. Waste types restricted in Table S2.2 of permit and limited to Chapter IV exempt waste only. Table S2.1 details that non-waste biomass is also permitted and is also subject to the management requirements here. Pre-acceptance, acceptance and tracking procedures in place and referenced. Noted waste segregation is un-necessary given relatively homogeneous feedstock biomass/waste and is primarily for fire risk control. Considered site-specific BAT, noting similar LCP requirements, e.g. BAT 9, as relevant to wastes/fuels permitted. Noting that for this plant, emissions monitoring (e.g. VOC, dioxins) is more than minimum LCP BAT standard, compensating for
	(b)	Set-up and implementation of waste characterisation and pre-acceptance procedures	
	(c)	Set-up and implementation of waste acceptance procedures	
	(d)	Set-up and implementation of a waste tracking system and inventory	
	(e)	Waste segregation	

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			less fuel characterisation than some LCP plant would be expected to undertake.
	(f)	Verification of waste compatibility prior to the mixing or blending of hazardous wastes	**Not applicable** – only for hazardous waste facilities.
10	**In order to improve the overall environmental performance of the bottom ash treatment plant, BAT is to include output quality management features in the EMS (see BAT 1)**		**Not applicable** – no bottom ash treatment plant
11	**In order to improve the overall environmental performance of the incineration plant, BAT is to monitor the waste deliveries as part of the waste acceptance procedures (see BAT 9(c)) including, depending on the risk posed by the incoming waste, the element given.**		
	Refer to monitoring table in BAT Conclusion 11: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN		**Not directly applicable** – but see BAT 9 above. WBE does not use any of the waste types listed in BAT 11. BAT 9 and 11 response indicates that appropriate parameters (e.g. weight and moisture content) are monitored in delivered fuels (waste and non-waste). Comparable expectations from LCP BATc.
12	**In order to reduce the environmental risks associated with the reception, handling and storage of waste, BAT is to use both of the techniques given below:**		
	(a)	Impermeable surfaces with an adequate drainage infrastructure	**Currently compliant** as detailed in operator R61(1) response – impermeable surface with drainage, adequate capacity as compared to operating techniques / maxima. No explicit comparable LCP requirement, but WI considered to set site-specific BAT and LCP plant would be expected to achieve a similar appropriate standard for fuel storage e.g. via horizontal storage BAT.
	(b)	Adequate waste storage capacity	

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			Unlike most Energy from Waste plant, the drainage from the storage areas is understood to drain to an intermediate tank (and interceptor) that is periodically released to surface water, provided it is visually free from contamination. This is regarded as site-specific BAT, given the low risk of contamination presented by the "excluded" biomass fuel. Bunding arrangements are in place to contain firewater, in the event of feedstock fire.
13	**In order to reduce the environmental risk associated with the storage and handling of clinical waste, BAT is to use a combination of the techniques given below:**		
	(a)	Automated or semi-automated waste handling	**Not applicable** – not a clinical waste facility, no LCP equivalent standard or site-specific requirements.
	(b)	Incineration of non-reusable sealed containers, if used	
	(c)	Cleaning and disinfection of reusable containers, if used	
14	**In order to improve the overall environmental performance of the incineration of waste, to reduce the content of unburnt substances in slags and bottom ashes, and to reduce emissions to air from the incineration of waste, BAT is to use an appropriate combination of the techniques given below:**		
	(a)	Waste blending and mixing	**Currently compliant** – see operator R61(1) response for narrative description.
	(b)	Advanced control system	
	(c)	Optimisation of the incineration process	
	Table 1 including footnotes: BAT-associated environmental performance levels (BAT-AEPL) for unburnt substances in slags and bottom ashes from the incineration of waste **Associated monitoring given in BAT 7** *Footnote 1: Either the BAT-AEPL for TOC content or the BAT-AEPL for the loss on ignition applies* *Footnote 2: The lower end of the BAT-AEPL range can be achieved when using fluidised bed furnaces or rotary kilns operating in slagging mode*		
	TOC content in slags and bottom ashes (1)	1 – 3 Dry wt-% (2)	**Currently compliant**. The operator did not detail in their response whether the BAT-AEPL for unburned substances in
	Loss on ignition of slags and bottom ashes (1)	1 – 5 Dry wt% (2)	

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			bottom ashes is achieved, although TOC has been measured as a permit condition for many years. We have examined monitoring returns and are satisfied that the AEPL is achieved (TOC 0.5-1.9% in 2022, with 1 high result of 5.3% which in future would warrant investigation). We have set TOC of 3% as a limit for bottom ash in the permit. This is not expected to drive significant process change, but will serve to highlight and ensure investigation / corrective action should higher results be seen. This is considered site-specific BAT. LCP BAT conclusions and PG 5/1 (18) do not detail a carbon in ash requirement, but it is discussed in the BREF document, noting that it is linked to the combustion process type. For grate combustion, low carbon in ash is expected.
15	**In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement procedures for the adjustment of the plant's settings, e.g. through the advanced control system, as and when needed and practicable, based on the characterisation and control of the waste (see BAT 11)**		**Currently Compliant**. See R61(1) operator response, advanced control system is in place. LCP BAT 9 indicates that such control systems are desirable and are considered site-specific BAT.
16	**In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement operational procedures (e.g. organisation of the supply chain, continuous rather than batch operation) to limit as far as practicable shutdown and start-up operations.**		**Currently compliant.** See Operator R61(1) response. Plant currently operates continuously with minimal down time. Processes in place to ensure

BATc number	Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
		sufficient fuel supply to continue. Considered site-specific BAT to ensure sufficient fuel supply that it does not limit operation. Actual operation mode (continuous, on-demand) is an operator decision, noting LCP BAT conclusions do not preclude demand-led operation if required operationally.
17	**In order to reduce emissions to air and, where relevant, to water from the incineration plant, BAT is to ensure that the FGC system and the waste water treatment plant are appropriately designed (e.g. considering the maximum flow rate and pollutant concentrations), operated within their design range, and maintained so as to ensure optimal availability.**	**Currently compliant.** Plant is fitted with bag filtration and SNCR appropriate to combustion / co-incineration type and capacity. There is no waste water from flue gas abatement therefore this sub-requirement is not applicable.s
18	**In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions to air and, where relevant, to water from the incineration plant during OTNOC, BAT is to set up and implement a risk-based OTNOC management plan as part of the environmental management system (see BAT 1) that includes all of the following elements:**	**Compliant in the future.** OTNOC management is implicit to the EMS, but the specific WI requirements are not met in a formal OTNOC management plan. IC13 has been set to require formal completion of an OTNOC management plan which is considered site-specific BAT on the basis of the similar requirements in the WI and LCP BAT conclusions. The IC requires consideration of the specific OTNOC requirements of both LCP and WI BAT conclusions.
	Identification of potential OTNOC (e.g. failure of equipment critical to the protection of the environment ('critical equipment')), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below;	
	Appropriate design of critical equipment (e.g. compartmentalisation of the bag filter, techniques to heat up the flue-gas and obviate the need to bypass the bag filter during start-up and shutdown etc.)	
	Set-up and implementation of a preventative maintenance plan for critical equipment (see BAT 1 (xii))	
	Monitoring and recording of emissions during OTNOC and associated circumstances (see BAT 5)	
	Periodic assessment of the emissions occurring during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.	
ENERGY EFFICIENCY		

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
19	**In order to increase the resource efficiency of the incineration plant, BAT is to use a heat recovery boiler.**		**Currently compliant.** A heat recovery boiler is used. There is no equivalent LCP BAT conclusion as energy generation/utilisation is implicit to the sector. LCP would regard a boiler as appropriate for solid fuel of this type (e.g. in BAT 25).
20	**In order to increase the energy efficiency of the incineration plant, BAT is to use an appropriate combination of the techniques given below:**		
	(a)	Drying of sewage sludge	**Not applicable** – not sewage sludge incinerator
	(b)	Reduction of the flue-gas flow	**Currently compliant** – Flue gas recirculation employed (see R61(1) response)
	(c)	Minimisation of heat losses	**Currently compliant** (see R61(1) response)
	(d)	Optimisation of the boiler design	
	(e)	Low-temperature flue-gas heat exchangers	
	(f)	High steam conditions	
	(g)	Cogeneration	**Not currently applicable** but condition 1.2.1 – 1.2.3 of permit require that this is kept under periodic review and will be implemented if conditions change.
	(h)	Flue-gas condenser	**Not applicable**
	(i)	Dry bottom ash handling	**Not applicable to current plant design**
	Table 2 including footnotes: BAT-associated energy efficiency levels (BAT_AEELs) for incineration of waste **Associated monitoring given in BAT 2** *Footnote 1: The BAT-AEEL only applies where a heat recovery boiler is applicable* *Footnote 2: The BAT-AEELs for gross electrical efficiency only apply to plants or parts of plants producing electricity using a condensing turbine* *Footnote 3: The higher end of the BAT-AEEL range can be achieved when using BAT 20 (f)*		

<table>
<tr><th>BATc number</th><th>Summary of BAT Conclusion requirement</th><th>Status/comment
One of the following:
Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant</th></tr>
<tr><td></td><td colspan="4">Footnote 4: The BAT-AEELs for gross energy efficiency only apply to plants or parts of plants producing only heat or producing electricity using a back-pressure turbine and heat with the steam leaving the turbine
Footnote 5: A gross energy efficiency exceeding the higher end of the BAT-AEEL range (even above 100 %) can be achieved where a flue-gas condenser is used
Footnote 6: For the incineration of sewage sludge, the boiler efficiency is highly dependent on the water content of the sewage sludge as fed into the furnace</td><td rowspan="5">Currently compliant. See also BAT 2. The R61(1) response indicates a boiler efficiency of >91% has been measured. This is not the most relevant performance parameter, which is gross or net electrical efficiency. The original application / decision document indicates a gross electrical efficiency of 32% and net of 29%. The LCP BAT requirement for biomass is comparable to the WI, requiring net efficiency in range 28-38%. Given the feedstock of the plant and its thermal capacity, we consider the achieved efficiency to be site-specific BAT and do not require re-measurement or further review of energy efficiency as part of the permit review, but note the ongoing requirements of permit conditions 1.2.1 – 1.2.3 to continuously review, and where possible to improve energy recovery.</td></tr>
<tr><td rowspan="4"></td><td rowspan="2">Plant</td><td colspan="2">Municipal solid waste, other non-hazardous waste and hazardous wood waste</td><td>Hazardous waste other than hazardous wood waste (1)</td><td>Sewage sludge</td></tr>
<tr><td>Gross electrical efficiency (2)(3)</td><td>Gross energy efficiency (4)</td><td colspan="2">Boiler efficiency</td></tr>
<tr><td>New plant</td><td></td><td rowspan="2">72 – 91 % (5)</td><td rowspan="2">60 – 80 %</td><td rowspan="2">60 – 70 % (6)</td></tr>
<tr><td>Existing plant</td><td>20 – 35 %</td></tr>
<tr><td colspan="5">EMISSIONS TO AIR</td></tr>
<tr><td colspan="5">DIFFUSE EMISSIONS</td></tr>
<tr><td>21</td><td colspan="4">In order to prevent or reduce diffuse emissions from the incineration plant, including odour emissions, BAT is to:</td></tr>
</table>

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	store solid and bulk pasty wastes that are odorous and/or prone to releasing volatile substances in enclosed building under controlled sub-atmospheric pressure and use the extracted air as combustion air for incineration or send it to another suitable abatement system in the case of a risk of explosion.		**Not applicable –** no pasty wastes (odorous or otherwise)
	Store liquid wastes in tanks under appropriate controlled pressure and duct the tank vents to the combustion air feed or to another suitable abatement system		**Not applicable –** no liquid wastes
	Control the risk of odour during complete shutdown periods when no incineration capacity is available, examples given.		**Not applicable** – the biomass feedstocks (waste and non-wastes) are not odorous, as stated in the R61(1) response. Furthermore, diffuse emissions of dust from the feedstock are not a specific concern although it is considered BAT to control fugitive dust. This was briefly reviewed when variation V005 was determined and is mentioned in operator response to BAT 24 – considered acceptable.
22	**In order to prevent diffuse emissions of volatile compounds from the handling of gaseous and liquid wastes that are odorous and/or prone to releasing volatile substances at incineration plants, BAT is to introduce them into the furnace by direct feeding.**		**Not applicable –** no gaseous or liquid wastes utilised. VOC release from auxiliary diesel is not considered a key issue
23	**In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to include in the environmental management system (see BAT 1) the following diffuse dust emissions management features:**		
	Identification of the most relevant diffuse dust emission sources (e.g. using EN 15445)		**Not applicable** – no treatment of slags or bottom ashes on site.
	Definition and implementation of appropriate actions and techniques to prevent or reduce dust emissions over a given time frame		
24	**In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below:**		
	(a)	Enclose and cover equipment	**Not applicable** – no treatment of slags or bottom ashes on site.
	(b)	Limit height of discharge	

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	(c)	Protect stockpiles against prevailing winds	
	(d)	Use water sprays	
	(e)	Optimise moisture content	
	(f)	Operate under sub-atmospheric pressure	
CHANNELLED EMISSIONS			
EMISSIONS OF DUST, METALS AND METALLOIDS			
	In order to reduce channelled emissions to air of dust, metals and metalloids from the incineration of waste, BAT is to use one or a combination of the techniques given below		
	(a)	Bag filter	**Currently compliant.** A bag filter is employed for effective particulate control to around 1-2 mg/Nm^3. Owing to the waste/fuel employed, additional controls for volatile metals/metalloids such as activated carbon is unnecessary. LCP BAT 26 (e) confirms that control by appropriate fuel choice is also BAT for emissions control.
	(b)	Electrostatic precipitator	
	(c)	Dry sorbent injection	
	(d)	Wet scrubber	
	(e)	Fixed- or moving-bed adsorption	
25	**Table 3 including footnote: BAT-AELs for channelled emissions to air of dust, metals and metalloids from the incineration of waste Associated monitoring given in BAT 4** *Footnote 1: For existing plants dedicated to the incineration of hazardous waste and for which a bag filter is not applicable, the higher end of the BAT-AEL range is 7 mg/Nm^3*		
	Parameter	**WI indicative BAT-AEL (mg/Nm^3)**	**Averaging period**
	Dust	<3 – 7.5 (1)	Daily average	**Currently compliant** with the WI performance standard, operating around 2 mg/Nm^3 daily average for dust. The LCP BAT 26 dust daily average BAT AEL is 22 mg/Nm^3. Other guidance such as PG 5/1(18) and MCPD are less onerous,

BATc number	Summary of BAT Conclusion requirement			**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
				with recommended performance of 30 mg/Nm^3 or even higher. In order to strike a balance between environmental performance and consistency with other operators, we have decided to retain a site-specific BAT ELV (emission limit value) of 10mg/Nm^3 for WBE, but expect that performance will continue in the <5mg/Nm^3 range. We have also reviewed the short term (hourly) average particulate limit, which is 20mg/Nm^3 and consider this to remain appropriate. However, previously the requirement was for 95% of hourly averages to be compliant. We consider this 5% exemption un-necessary, and now require 100% of hourly samples to meet the 20mg/Nm^3 limit. Note we disagree with the WBE R61(1) response: Dust emission limits were not reviewed in permit variation V005 (addition of SNCR) and this was clear at the time of that determination.
	Cd+Tl	0.005 – 0.02	Average over sampling period	**Compliant in the future.** The operator response indicates that the BAT-AELs are not applicable owing to the nature of the
	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V	0.01 – 0.3	Average over sampling period	

BATc number	Summary of BAT Conclusion requirement			**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
				feedstock. Presently the metals are monitored, but no ELV is applied. LCP BAT 4 indicates these substances should be monitored for biomass combustion, but does not set an ELV. We have examined WBE emissions data and observe that performance is considerably better than the WI BAT-AEL, reflecting good emissions control through fuel selection (LCP BAT 26 (e)). We have decided to set an ELV for WBE at the upper end of the range of the WI BAT-AEL indicated to the left for Cd+Tl, and for the group of 9 metals/metalloids, on a precautionary basis. We consider this site-specific BAT. We do not expect any investment in plant or equipment to be needed, and that if fuel selection remains appropriate, the ELV will be easily achieved. However, formally setting it as an ELV means that any major deviation in reported results from expected performance will be identified, investigated and corrected in a timely manner. It primarily serves to act as a marker/warning of any fuel or other contamination issues.

BATc number	Summary of BAT Conclusion requirement			Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
26	**In order to reduce channelled dust emissions to air from the enclosed treatment of slags and bottom ashes with extraction of air (see BAT 24(f)), BAT is to treat the extracted air with a bag filter.**			
	Table 4: BAT-AELs for channelled emissions to air of dust from the enclosed treatment of slags and bottom ashes with extraction of air Associated monitoring given in BAT 4			
	Parameter	**Indicative WI BAT-AEL (mg/Nm^3)**	**Averaging period**	**Not applicable**. No ash/slag treatment
	Dust	2 – 5	Average over the sampling period	
EMISSIONS OF HCl, HF AND SO_2				
27	**In order to reduce channelled emissions of HCl, HF and SO_2 to air from the incineration of waste, BAT is to use one or a combination of the techniques given below:**			**Not Applicable.** The operator stated in their regulation 61(1) response that "*BAT 27 is not applicable as the biomass feedstock accepted at the site does not result in the formation of acid gases*". No active acid gas abatement is fitted. In general terms, we would agree with this position, and note that LCP BAT 25 (h) lists fuel choice as being an appropriate technique for acid gas control in biomass combustion. At original permit determination it was stated that "*the sulphur and chlorine content of the incoming biomass is expected to be low*" and IC4 was set to examine fuel characteristics and emissions, with proposal of control of fuel inputs if necessary. The IC has been completed.
	(a)	Wet scrubber		
	(b)	Semi-wet absorber		
	(c)	Dry sorbent injection		
	(d)	Direct desulphurisation		
	(e)	Boiler sorbent injection		

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			We note from our permit review of emissions data from WBE that SO_2 emissions are low compared with potentially applicable BAT-AELs, at around 20-30 mg/Nm^3. HCl emissions are however more variable. The operator reported them as being 53 mg/Nm^3, and we have seen reported periodic emissions results between 0.1 mg/Nm^3 and 9 mg/Nm^3 (May 2022, March 2019), up to 55 mg/Nm^3 and 103 mg/Nm^3 (Dec 2021 and May 2021 respectively). We are concerned by some of the high reported results, and by the apparent variability in performance. It contradicts the R61(1) response that "*the biomass feedstock accepted at the site does not result in the formation of acid gases*" and original decision document basis as significant emissions to air of Cl (as HCl) have been reported. We still consider that fuel choice is an appropriate primary technique for HCl control. We have imposed an improvement condition (IC 11) for the operator to retrospectively investigate the possible causes of high historic results,

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			and to conduct additional monitoring to establish current performance. See below, we have set an HCl ELV based on BAT to ensure that future emissions of HCl are suitably controlled. Further action (e.g. feedstock control or upgraded abatement) would be required if this limit cannot be met. We do not expect HF to be generated from biomass combustion, but given the similar chemistries of the halogens, that high HCl results are reported, and that HF has not previously been monitored from this plant, we have decided to set a new annual monitoring requirement for HF, and to consider its emission in IC 11. We expect that performance will be in line with the BAT-AEL in both the LCP and WI BAT conclusions of 1.5 mg/Nm^3 as a result of fuel/feedstock selection. At this stage we do not intend to set an ELV, but will do so if emissions are not shown to be low by the monitoring implemented.
28	**In order to reduce channelled peak emissions of HCl, HF and SO_2 to air from the incineration of waste while limiting the consumption of reagents and the amount of residues generated from dry sorbent injection and semi-wet absorbers, BAT is to use technique (a) or both of the techniques given below:**		
	(a)	Optimised and automated reagent dosage	**Not applicable –** no sorbent injection has been fitted, nor is considered necessary at this stage. However we
	(b)	Recirculation of reagents	

<table>
<tr><th>BATc number</th><th colspan="3">Summary of BAT Conclusion requirement</th><th>Status/comment
One of the following:
Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant</th></tr>
<tr><td></td><td colspan="2"></td><td></td><td>disagree with the operator in their R61(1) response that the BAT-AELS are therefore entirely non-applicable and refer to the original decision document and LCP BAT conclusions that control can be via feedstock selection. Site specific BAT performance must be established as detailed below.</td></tr>
<tr><td></td><td colspan="4">Table 5 including footnote: BAT-AELs for channelled emissions to air HCl, HF and SO_2 from the incineration of waste
Associated monitoring given in BAT 4
Footnote 1: The lower end of the BAT-AEL range can be achieved when using a wet scrubber, the higher end of the range may be associated with the use of dry sorbent injection</td></tr>
<tr><td></td><td>Parameter</td><td colspan="2">Indicative WI BAT-AEL (mg/Nm^3)
New plant | Existing plant</td><td>Averaging period</td><td></td></tr>
<tr><td></td><td>HCl</td><td></td><td><3 – 12 (1)</td><td>Daily average</td><td>Compliant in the future. Historically, WBE HCl emissions were considered to be low, but some monitoring data suggests otherwise. IC11 has been set, requiring the operator to investigate. A precautionary limit, based on the published PG1/12(13) for waste wood combustion and periodic monitoring has been set in the new permit. Actual emissions are expected to be much lower. WI BAT is 12 mg/Nm^3, LCP BAT is 35 mg/Nm^3 for biomass combustion and we expect plant performance to at least meet the LCP performance level as a “target level” as referred to in the IC 11.</td></tr>
</table>

BATc number	Summary of BAT Conclusion requirement				**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
					Provided that IC11 is discharged and control of HCl is re-established to a low level (<35 mg/Nm^3), then the PG1/12 (13) limit of 150 mg/Nm^3 will remain as a formal periodic compliance point. This is normally applied when painted or coated fuels are combusted, otherwise not considered necessary. Until the cause of higher HCl results is understood, it provides a measure of current and ongoing performance. BAT 27 and BAT 28 engineering controls are not considered relevant to WBE, and therefore primary control of acid gases to meet the BAT 28 BAT-AEL performance level is via feedstock control. LCP BAT 25 (h) lists fuel choice as being an appropriate technique for acid gas control in biomass combustion. It is site-specific BAT here to meet BAT-aligned emission standard If HCl performance continues to be variable and with high reported results then additional controls (fuel selection or plant acid gas controls) may be needed. NRW may in this situation further review the permit and implement a lower HCl

BATc number	Summary of BAT Conclusion requirement				Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
					limit (aligned with the LCP performance), after appropriate investigation.
	HF		<1.5	Daily average of average over the sampling period	**Compliant in the future.** Both LCP and WI set this BAT-AEL for waste/biomass combustion respectively. Historically, WBE has not monitored HF, it is a new requirement at permit review. We expect the BAT-AEL to be achieved by plant performance and have not set an ELV, the requirement being "monitor only". However, if actual performance is not at the expected level then an ELV at this level will be set by further variation.
	SO_2		7.5 - 60	Daily average	**Currently compliant**. Measured periodically, emissions are well below 60 mg/Nm³ (around 20-30 mg/Nm³). BAT for LCP defined as 215 mg/Nm³ for biomass combustion. Current performance shows no issues, and it remains the case that Sulphur is not expected in the fuel therefore not seen at high levels in emissions. Current WBE approach of monitor periodically without an ELV is considered BAT.
EMISSIONS OF NO_X, N_2O, CO AND NH_3					
29	**In order to reduce channelled NO_x emissions to air while limiting the emissions of CO and N_2O from the incineration of waste and the emissions of NH_3 from the use of SNCR and/or SCR, BAT is to use an appropriate combination of the techniques given below:**				
	(a)	Optimisation of the incineration process			**Currently compliant** (R61(1) response)
	(b)	Flue-gas recirculation			**Currently compliant** (R61(1) response)
	(c)	Selective non-catalytic reduction (SNCR)			**Currently compliant** (R61(1) response)

<table>
<tr><th>BATc number</th><th colspan="3">Summary of BAT Conclusion requirement</th><th>Status/comment
One of the following:
Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant</th></tr>
<tr><td></td><td>(d)</td><td colspan="2">Selective catalytic reduction (SCR)</td><td>Not applicable</td></tr>
<tr><td></td><td>(e)</td><td colspan="2">Catalytic filter bags</td><td>Not applicable</td></tr>
<tr><td></td><td>(f)</td><td colspan="2">Optimisation of the SNCR/SCR design and operation</td><td>Currently compliant (R61(1) response)</td></tr>
<tr><td></td><td>(g)</td><td colspan="2">Wet scrubber</td><td>Not applicable</td></tr>
<tr><td></td><td colspan="4">Table 6 including footnotes: BAT-AELs for channelled NO_x and CO emissions to air from the incineration of waste and for channelled NH_3 emissions to air from the use of SNCR and/or SCR
Associated monitoring given in BAT 4
Footnote 1: The lower end of the BAT-AEL range can be achieved when using SCR. The lower end of the BAT-AEL range may not be achievable when incinerating waste with a high nitrogen content (e.g. residues from the production of organic nitrogen compounds)
Footnote 2: The higher end of the BAT-AEL range is 180 mg/Nm^3 where SCR is not applicable
Footnote 3: For existing plants fitted with SNCR without wet abatement techniques, the higher end of the BAT-AEL range is 15 mg/Nm^3</td></tr>
<tr><td></td><td rowspan="2">Parameter</td><td colspan="2">Indicative WI BAT-AEL (mg/Nm^3)</td><td rowspan="2">Averaging period</td><td rowspan="2">In their R61(1) response, the operator stated that BAT-AELS [for WI] were not considered applicable “due to the non-hazardous nature of the feedstock… and being exempt from chapter III and IV of IED”. While we agree, as outlined above, that the BAT-AEL are not directly applicable, we disagree that BAT based ELVs for these substances are not required, and have determined ELVs for the site as follows with reference to WI and LCP BAT, as well as other performance standards, as discussed above.</td></tr>
<tr><td>New Plant</td><td>Existing plant</td></tr>
<tr><td></td><td>NO_x</td><td></td><td>75 – 225 (1) (2)</td><td>Daily average</td><td>Currently compliant. The current plant ELV is 250 mg/Nm^3 as a daily average, with plant performance just below this level. The LCP BAT is 275 mg/Nm^3 for biomass plant >50MW, with draft PG 5/1</td></tr>
</table>

BATc number	Summary of BAT Conclusion requirement				**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
					(18) for waste wood combustion <3TPH specifying 250 mg/Nm^3. We are satisfied that the current ELV of 250 mg/Nm^3 remains appropriate site-specific BAT. However, given wider concerns about NOX emissions from industry, we have set IC 11 for the operator to investigate whether further emissions reduction can be achieved through plant optimisation. This is consistent with our approach to other EPR Schedule 5.1 activity permits. We have also reviewed the short term (hourly) average NOx limit, which is 500 mg/Nm^3 and consider this to remain appropriate. However, previously the requirement was for 95% of hourly averages to be compliant. We consider this 5% exemption un-necessary, and now require 100% of hourly samples to meet the 250 mg/Nm^3 limit.
	CO		15 – 75		**Currently compliant.** The plant does not achieve the WI BAT-AEL of 75 mg/Nm^3, and currently has a limit of 250 mg/Nm^3. There is no LCP CO BAT-AEL, but narrative indicates that performance of 250 mg/Nm^3 is achievable for biomass <50MW. Draft PG 5/1 (18) specifies 225 mg/Nm^3, with the same limit being set in

BATc number	Summary of BAT Conclusion requirement				**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
					the published wood combustion guidance 1/12(12). The guidance for combustion plant 20-50MW has an indicative performance of 150 mg/Nm^3. Given the need to balance CO control with NO_X emissions, and the current plant NO_X performance, we have decided to reduce the CO ELV to the 225 mg/Nm^3 "minimum BAT standard" for this plant based on guidance for waste wood combustion <3 tonnes per hour, noting that the wider environmental pressures on CO are not so high as to justify further reduction. We have included IC 12 requiring the operator to report whether improved CO control can be achieved while also optimising NO_X performance. We note that other waste wood plants in Wales have been set an ELV of 150 mg/Nm$_3$, based on the combustion plant guidance for plant 20-50MW, but do not consider this necessary for this facility. We have also reviewed the short term hourly average limit, which is 500mg/Nm^3 and consider this to remain appropriate. However, previously the requirement was for 95% of hourly averages to be compliant. We consider this 5% exemption un-necessary, and now

BATc number	Summary of BAT Conclusion requirement				Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
					require 100% of hourly samples to meet the limit.
	NH_3		3 – 15 (1) (3)		**Currently compliant.** The site-specific ELV is 10 mg/Nm^3, determined recently at variation V005 when SNCR was added. This is below the WI and LCP BAT-AEL (both 15 mg/Nm^3) and we are satisfied that this represents site-specific BAT.
EMISSIONS OF ORGANIC COMPOUNDS					
30	**In order to reduce channelled emissions to air of organic compounds including PCDD/F and PCBs from the incineration of waste, BAT is to use techniques (a), (b), (c), (d) and one or a combination of techniques (e) to (i) given below:**				
	(a)	Optimisation of the incineration process			**Currently compliant.** The operator response stated that "*BAT 30 and associated BAT AEL's are not applicable as the non hazardous biomass feedstock accepted at the site does not result in the formation of PCDD/F; PCDD/ with dioxin like PCBs and TVOCs*". We agree that dioxins are not formed at significant concentrations in the WBE combustion process, and review of monitoring data has confirmed this. However, combustion control remains important to the control of organic compounds (VOCs, PAH etc). Limited data for VOC indicates that these are well controlled. We agree that active
	(b)	Control of the waste feed			
	(c)	On-line and off-line boiler cleaning			
	(d)	Rapid flue-gas cooling			
	(e)	Dry sorbent injection			
	(f)	Fixed- or moving- bed adsorption			
	(g)	SCR			
	(h)	Catalytic filter bags			
	(i)	Carbon sorbent in a wet scrubber			

<table>
<tr><th>BATc number</th><th colspan="5">Summary of BAT Conclusion requirement</th><th>Status/comment
One of the following:
Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant</th></tr>
<tr><td></td><td colspan="5"></td><td>abatement processes (a-i) listed are not directly relevant to dioxin control as formation is minimal, but do consider that ongoing combustion control / optimisation using an appropriate selection of these techniques remains BAT. Furthermore we consider that monitoring / limits for TVOC and dioxin (PCDD/F, excluding PCB in common with standard UK regulatory approach) are needed to assure continued compliant operation. Combustion optimisation is implicit also in the LCP BAT conclusions.</td></tr>
<tr><td></td><td colspan="6">Table 7 including footnotes: BAT-AELs for channelled emissions to air of TVOC, PCDD/F and dioxin-like PCBs from the incineration of waste
Associated monitoring given in BAT 4
Footnote 1: Either the BAT-AEL for PCDD/F or the BAT-AEL for PCDD/F + dioxin-like PCBs applies
Footnote 2: The BAT-AEL does not apply if the emission levels are proven to be sufficiently stable</td></tr>
<tr><td></td><td>Parameter</td><td>Unit</td><td colspan="2">Indicative WI BAT-AEL</td><td>Averaging period</td><td></td></tr>
<tr><td></td><td></td><td></td><td>New plant</td><td>Existing plant</td><td></td><td></td></tr>
<tr><td></td><td>TVOC</td><td>mg/Nm^3</td><td></td><td><4.5 – 15</td><td>Daily average</td><td>Compliant in the future. Currently TVOC monitoring is not required but some results have been reported and are low (<2 mg/Nm^3). We have decided to implement periodic (bi-annual) sampling via the permit, and set site-specific BAT at 30 mg/Nm^3. LCP does not set BAT for VOC, and we consider the WI limit may be unduly onerous given that the plant is not in the scope of the BATc, other BAT</td></tr>
</table>

BATc number	Summary of BAT Conclusion requirement					**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
						sources indicate a less rigorous limit, and TOC is of lesser importance than in general WI as a marker of other organic pollutant control (e.g. dioxins, PAH). 30 mg/Nm^3 is the BAT ELV specified in published and draft guidance PG 12/12(13) & PG 5/1(18) for waste wood combustion <3 tonnes per hour. We would at least expect WBE to match this "minimum BAT performance", as a plant of considerably larger capacity.
	PCDD/F (1)	ng I-TEQ/Nm^3		<0.015 – 0.09	Average over the sampling period	**Currently compliant.** Review of emissions monitoring data indicates performance well below the WI BAT-AEL. We have decided to set the upper end of the WI BAT-AEL range as site-specific BAT for WBE. While we continue to expect that dioxins will not be formed in the process, higher HCl emissions noted above could (at least in theory) lead to an increased risk of dioxin formation, and imposition of an ELV ensures scrutiny of any high results, and corrective action if necessary. However, long-term sampling as mentioned in the WI BAT conclusions is not considered relevant to this lower risk process.
				<0.01 – 0.08	Long-term sampling period (2)	**Not applicable**

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	~~PCDD/F + dioxin-like PCBs (1)~~	~~ng WHO-TEQ/Nm^3~~		~~<0.01 – 0.08~~	~~Average over the sampling period~~	**Not applicable**
				~~<0.01 – 0.1~~	~~Long-term sampling period (2)~~	
EMISSIONS OF MERCURY						
31	**In order to reduce channelled mercury emissions to air (including mercury emission peaks) from the incineration of waste, BAT is to use one or a combination of the techniques given below:**					
	(a)	Wet scrubber (low pH)				**Currently compliant**. Very low mercury levels are seen from WBE. This is as a result of feedstock control. Therefore techniques (a-e) are not relevant, as further control is unnecessary. LCP BAT 27 makes it clear that fuel choice is applicable BAT for Hg control and we accept it as BAT in this case.
	(b)	Dry sorbent injection				
	(c)	Injection of special, highly reactive activated carbon				
	(d)	Boiler bromine addition				
	(e)	Fixed- or moving-bed adsorption				
	Table 8 including footnotes: BAT-AELs for channelled mercury emissions to air from the incineration of waste **Associated monitoring given in BAT 4** *Footnote 1: Either the BAT-AEL for daily average or average over the sampling period or the BAT-AEL for long-term sampling period applies. The BAT-AEL for long-term sampling may apply in the case of plants incinerating waste with a proven low and stable mercury content (e.g. mono-streams of waste of a controlled composition)* *Footnote 2: The lower end of the BAT-AEL ranges may be achieved when:* *- incinerating wastes with a proven low and stable mercury content (e.g. mono-streams of waste of a controlled composition); or* *- using specific techniques to prevent or reduce the occurrence of mercury peak emissions while incinerating non-hazardous waste. The higher end of the BAT-AEL ranges may be associated with the use of dry sorbent injection.* *As an indication the half-hourly average mercury emissions level will generally be:* *- <15 – 40 µg/Nm^{3}for existing plants;* *- <15 – 35 µg/Nm^{3}for new plants*					
	Parameter	**Indicative WI BAT-AEL (µg/Nm^3) (1)**	**Averaging period**			

BATc number	Summary of BAT Conclusion requirement				Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
		New plant	**Existing plant**		
	Hg		<7.5 – 30 (2)	Daily average or average over the sampling period	**Currently compliant.** Mercury emissions from WBE are order-of-magnitude lower than the WI BAT-AEL. LCP BAT for biomass is, however, lower, at 5µg/m^3. WBE also achieves this performance. We have decided to change current "monitor only" for Hg to application of the WI ELV, (0.03 mg/Nm^3) as a precaution, to ensure that any increases in emission are identified, investigated, and corrected. It remains the case that emissions of mercury are not expected from clean biomass (waste or non-waste) combustion. We consider the lower LCP BAT-AEL to be disproportionate and unnecessary. We do not consider WI long term or continuous monitoring relevant to the risk either.
				Long-term sampling period	**Not applicable** for lower risk co-incineration plant.
EMISSIONS TO WATER					
32	**In order to prevent the contamination of uncontaminated water, to reduce emissions to water, and to increase resource efficiency, BAT is to segregate waste water streams and to treat them separately, depending on their characteristics.**				**Currently compliant.** The limited volumes of waste water (not from flue gas cleaning or bottom ash treatment) which are discharged are segregated, with operational discharges going to

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
			sewer, and uncontaminated rainwater to surface water.
33	**In order to reduce water usage and to prevent or reduce the generation of waste water from the incineration plant, BAT is to use one or a combination of the techniques given below:**		
	(a)	Waste water free FGC techniques	**Currently compliant** (a) – waste water free flue gas cleaning and water reuse/recycling (c) is employed.
	(b)	Injection of waste water from FGC	
	(c)	Water reuse/recycling	
	(d)	Dry bottom ash handling	
34	**In order to reduce emissions to water from FGC and/or from the storage and treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below, and to use secondary techniques as close as possible to the source in order to avoid dilution:**		
	See BATc for a full list of primary and secondary techniques.		**Not applicable -** no water emitted from flue gas cleaning or ash/slag treatment (neither process undertaken on site)
	MATERIAL EFFICIENCY		
35	**In order to increase resource efficiency, BAT is to handle and treat bottom ashes separately from FGC residues.**		**Currently compliant.** The site handles (and monitors) bottom ash and FGC residues separately.
36	**In order to increase resource efficiency for the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below based on a risk assessment depending on the hazardous properties of the slags and bottom ashes:**		
	(a)	Screening and sieving	**Not applicable** – no bottom ash or slag treatment.
	(b)	Crushing	
	(c)	Aeraulic separation	
	(d)	Recovery of ferrous and non-ferrous metals	
	(e)	Ageing	
	(f)	Washing	
	NOISE		
37	In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below:		

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 1 year of updated permit issue), Not Compliant
	(a)	Appropriate location of equipment and buildings	**Currently compliant.** Appropriate attenuation/enclosure in place, managed via EMS, no noise complaints or issues identified (last complaint 2016).
	(b)	Operational measures	
	(c)	Low-noise equipment	
	(d)	Noise attenuation	
	(e)	Noise-control equipment/infrastructure	

Annex 2: Decision Checklist regarding additional requested items

Item as listed in Regulation 61(1) Notice and Section 3 above	**Comment on Operator's response to request**
A – Energy Efficiency Directive	As per the notice, this request is not applicable as there is no requirement for substantial refurbishment or installation of a new industrial installation with an aggregate thermal input of greater than 20 MWth, which generates more than 100 kWth of waste heat.
B – Discharges to surface waters and/or sewers	There is an emission to surface water from the regulated facility of uncontaminated surface water only, therefore the screening tests are not required to be completed. There is an emission to foul sewer from the regulated facility of boiler blow down, boiler emptying and from demineralisation plant waste water. However, no hazardous substances have been identified in the discharge.
C – Soil and groundwater contamination – baseline report	The Operator has not provided any further baseline report on the current state of soil and groundwater contamination. Any information provided at permit issue (2009) will be used to inform site condition at permit surrender.

D – Medium Combustion Plant	The Operator has not identified any Medium Combustion Plant on site other than the wood co-incinerator itself. We have amended the permit to account for the fact that the wood combustion is an existing medium combustion plant, and the permit is ready for 2024/25 permitting. There are no changes to ELV or other conditions at this time, as the plant performance already exceeds the MCP minimum standards for emissions and monitoring. Other MCP conditions are included in the permit. The operator addressed this question in their letter dated 08/12/22 following our R61(1) notice and follow-up letter 28/08/22. No MCP were identified, other than the biomass combustion process itself. The diesel fire pump has been added to the permit as a DAA. Although we enquired about any backup generators and if the chipper may be MCP, no information was provided. If any additional plant is identified in future, this would need to be added to the permit by an application by the operator, at their expense.
E – OPRA profile	The Operator has provided an updated OPRA profile which we have reviewed. The OPRA score is 116 and this will continue to form the basis for ongoing subsistence fees. There has been no change to the OPRA score.