

Natural Resources Wales permitting decisions

Variation and consolidation of a bespoke permit – Viridor Trident Park Limited

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Cardiff Energy Recovery Facility in Cardiff operated by Viridor Trident Park Limited.

The permit number is EPR/LP3030XA. The variation number is EPR/LP3030XA/V008.

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. The associated BAT conclusions to this document were published on 3 December 2019 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Waste Incineration sector. 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 published BAT conclusions which will apply from 3 December 2023.

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 notice 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

- Assessment of the installation against the published BAT conclusions for Waste Incineration
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions for Waste Incineration.
- Annex 2 – Decision Checklist regarding additional information requested in Regulation 61(1) Notice

Assessment of the installation against the published BAT conclusions for Waste Incineration

1. 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 BAT and BAT-Associated Emission Levels (BAT-AELs).

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 permit, issued on 04 November 2010 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 a site has not yet demonstrated compliance with BAT, Improvement Conditions have been included to ensure compliance with the latest BAT standards by 3 December 2023.

2. The legal framework

The variation and consolidation notice (which includes the consolidated permit as Schedule 2) will be issued under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 (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);
- an operation covered by the Waste Framework Directive;
- 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.

3. How we reached our decision

Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a notice under Regulation 61(1) of EPR on 15 June 2021 requiring the operator to provide information to demonstrate how the operation of their installation currently meets, or will meet by the compliance date of 3 Dec 2023, the revised standards described in the relevant 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 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.

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 substances (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 15 December 2021 and additional information received on 23 September 2022. A detailed response was received from the Operator. Following assessment of the Regulation 61(1) response, further information was requested from the Operator. 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.

We considered that the response contained sufficient information for us to commence determination of the permit review. The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part.

4. Key issues/Regulation 61 response

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. 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 latest BAT conclusions include:

- Introduction of new, more stringent BAT-AELs for certain substances, as detailed below
- Enhanced monitoring requirements for certain emissions
- Further enhancements to required management systems and processes, for example the requirement for every site for an other than normal operating conditions (OTNOC) management plan.

Other IED BREFs relevant to the permit review

There are no other EPR Schedule 1 listed activities within Table S1.1 of the permit, therefore no other IED BREFs are relevant to the permit review.

5. Changes we have made

Improvement Conditions

Based on the information provided in the Regulation 61(1) response, we consider that we do need to set improvement conditions. These conditions are set out below. The improvement conditions ensure compliance by 3 December 2023. See Annex 1 for further detail.

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC6	<p>The operator shall submit an Other than normal operating conditions (OTNOC) management plan to Natural Resources Wales for approval.</p> <p>The OTNOC management plan shall be produced in line with all relevant current guidance provided by Natural Resources Wales to the operator and shall consider the requirements of the following BAT conclusions of the Waste Incineration BREF Document (EU 2019):</p> <ul style="list-style-type: none"> • BAT 1 (xxiv) – BAT is also to incorporate the following features in the EMS: <ul style="list-style-type: none"> ○ (xxiv) for incineration plants, an OTNOC management plan (see BAT 18) 	03 June 2023 or as agreed in writing with Natural Resources Wales

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- BAT 5 – BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC
 - BAT 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 (BAT 1) that includes all of the following elements:
 - 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 shut down, etc.);
 - Set-up and implementation of 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 during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.

The OTNOC management plan shall be submitted to Natural Resources Wales for approval by the date specified.

IC7	<p>The operator shall perform a study to determine the extent to which the operation of the current systems in place at the plant to minimise NOx emissions can be further optimised such that emissions are reduced as far as possible below 180 mg/Nm³ as a daily average, without significantly increasing emissions of other pollutants or having a significant negative effect on plant operation, reliability or bottom ash quality. The study shall be based on the results of trials carried out at the installation. A written report of the study shall be submitted to Natural Resources Wales which shall include but not necessarily be limited to the following:</p> <ul style="list-style-type: none"> • A brief description of the currently installed measures at the installation to minimise NOx emissions, including details of how the reagent dosing system responds to emissions monitoring data and historic data which illustrates the current achievable level of daily NOx emissions. • The results of trials conducted to further reduce daily average NOx emissions using currently installed measures, including: <ul style="list-style-type: none"> ○ a description of the parameters that were varied during the trial e.g. ammonia or urea feed rates, physical form of urea injected, air flows, and the range over which they were varied 	<p>30 September 2023 or as agreed in writing with Natural Resources Wales</p>
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- the levels of NOx achieved and associated levels of ammonia and nitrous oxide emissions and reagent consumption
- observed effects and predicted long-term impacts on plant operation, reliability and maintenance regime
- any changes to the composition of the bottom ash and boiler ash and the implications of those changes for the ability to process and use the ash, as well as for the pollution potential of the ash both during processing and its subsequent use as a secondary aggregate
- any other relevant cross-media effects

The report shall also include a description of the extent to which current systems in place at the plant to minimise NOx emissions can be optimised on a permanent basis, including justification and an implementation plan where relevant.

IC8	The operator shall carry out a programme of mercury monitoring over a period and frequency agreed with Natural Resources Wales. The operator shall submit a report to Natural Resources Wales with an analysis of whether the waste feed to the plant can be proven to have a low and stable mercury content.	30 September 2023 or as agreed in writing with Natural Resources Wales
IC9	The operator shall submit to Natural Resources Wales for approval a report which demonstrates the viability of implementing CHP by connection to a local district heating network (DHN). If this report concludes that the connection to a local DHN is not viable the report shall be supported by a comprehensive cost benefit analysis.	30 June 2023 or as otherwise agreed in writing with Natural Resources Wales
	<p>The cost benefit analysis shall be completed in line with all relevant guidance and legislation including but not limited to:</p> <ul style="list-style-type: none"> • Schedule 24 of EPR (Energy Efficiency Directive) • Annex IX of the Energy Efficiency Directive • CHP Ready Guidance for Combustion and Energy from Waste Power Plants (published September 2014) 	
	H1 Annex K	
IC10	<p>If following completion of IC9 the operator determines the implementation of CHP to be a viable opportunity:</p> <p>The operator shall submit to Natural Resources Wales for approval a plan for exporting heat as identified in the report as approved by NRW in response to IC9.</p> <p>The plan shall include as a minimum:</p> <ul style="list-style-type: none"> • A timescale for implementation • A description of any changes that will need to be made to the plant • Whether there will be any operational changes which could affect the environmental impact of the installation • Consideration of whether a permit variation will be required 	Within 6 months of the completion if IC9 or as otherwise agreed in writing with Natural Resources Wales
	<p>The operator shall implement the plan in accordance with the written approval of Natural Resources Wales.</p>	

IC6 has been included in the permit for the operator to demonstrate compliance with all relevant BATc relating to the OTNOC management plan.

IC7 has been included in the permit in line with the UK BATC Interpretation Document which states an Improvement Condition will be added to existing permits which require operators to optimise their de-NOx systems including through the use of trials. NRW has adopted the UK BATC Interpretation Document.

IC8 has been included in the permit as the Operator is currently unable to satisfy the monitoring requirements of the UK mercury sampling protocol to determine whether continuous monitoring is or is not required.

IC9 and IC10 have been included in the permit for reasons explained below.

Energy Efficiency

Combined Heat and Power (CHP) is currently not implemented at the site and the Operator uses a condensing turbine to generate electricity. As detailed in Annex 1 we consider the current operating scenario compliant with all the relevant BAT conclusions including the relevant BAT-AEEL. Notwithstanding this we have highlighted potential future opportunities to improve energy efficiency at the site as detailed below.

At the time of this permit review, NRW is aware that there is a District Heating Network (DHN) currently being constructed within the local vicinity of the incineration plant. In line with the UK BATC Interpretation Document we consider it BAT for existing plants to become Combined Heat and Power (CHP) by connecting to a heat network or supplying a heat user direct where viable opportunities exist. It is important, given the recent developments, for the Operator to determine if a viable opportunity exists, therefore we have included an IC for the Operator to determine whether connection to the local DHN is a viable opportunity. We have included a further IC which requires implementation of connection *if* the Operator determines that the connection is a viable opportunity.

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. 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.

Table S3.1(a) – Point source emissions to air during abnormal operation of incineration plant

We have changed the limit and reference period for carbon monoxide in Table S3.1(a) from 100 mg/Nm³ (½-hour average) to 150 mg/Nm³ (95% of all 10-minute averages in any 24-hour period). This changes ensures the reference period and limit are consistent between Table S3.1 and Table S3.1(a). We consider the limit and reference period in Table S3.1(a) should have been changed during the V003 variation when the limit and reference period was intentionally changed in Table S3.1 at the operator's request.

Medium Combustion Plant (MCP)

The Operator confirmed they have an existing MCP at the site, therefore we have added all relevant conditions to the permit as required by Schedule 25A of EPR. We have conducted early permitting of the existing MCP, this means we have post-dated any MCP conditions in

the permit to prevent the need for a future variation to the permit when the relevant MCP compliance date is reached. We have added the MCP into Table S1.1 of the permit and amended the site plan in the permit to include the emission point from the MCP.

Circular economy conditions

We have added the following conditions to the permit. These conditions have been added to ensure compliance with the Waste (England and Wales) Regulations 2011:

- 2.3.4 Waste paper, metal, plastic or glass that has been separately collected for the purpose of preparing for re-use or recycling shall not be accepted. Waste from the treatment of these separately collected wastes shall only be accepted if incineration delivers the best environmental outcome in accordance with regulation 12 of the Waste (England and Wales) Regulations 2011.
- 2.3.5 Separately collected fractions other than those listed in condition 2.3.4 shall not be accepted unless they are unsuitable for recovery by recycling.

Monitoring of N₂O, flow and CO₂

We have added the monitoring of N₂O, volumetric flow and CO₂ into Table S3.1 from the BREF compliance date (3 December 2023). We have implemented this in line with the BREF and to improve the quality of the data supply for UK Pollutant Release and Transfer Register (PRTR) reporting. This monitoring is already being completed on a voluntary basis or under table S3.4 process monitoring at sites and now becomes part of the emission monitoring requirements.

Emissions to Air

There are two emissions to air of incineration waste gases (emission points A1 and A2). There are also emergency pressure relief valves and vents from tanks and storage silos permitted as point source emissions to air.

There are changes to the emission limit values (ELVs) for emissions to air taking into account BATc 25 to 31. There are also changes to the monitoring of emissions to air taking into account BATc 4 as detailed in Annex 1.

The table below outlines the changes to the ELVs, parameters where there is no change are not shown below:

Release points	Parameter	Reference period	Limit (effective until 2 December 2023)	Limit / BAT-AEL (effective from 3 December 2023)
A1 & A2	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	daily average	200 mg/Nm ³	180 mg/Nm ³
	Particulate matter	daily average	10 mg/Nm ³	5 mg/Nm ³
	Hydrogen chloride	daily average	10 mg/Nm ³	8 mg/Nm ³
	Sulphur dioxide	daily average	50 mg/Nm ³	40 mg/Nm ³
	Hydrogen fluoride	periodic	2 mg/Nm ³	1 mg/Nm ³
	Cadmium and thallium and their compounds (total)	periodic	0.05 mg/Nm ³	0.02 mg/Nm ³
	Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds	periodic	0.5 mg/Nm ³	0.3 mg/Nm ³
	Mercury and its compounds	periodic	0.05 mg/Nm ³	0.02 mg/Nm ³
daily average		No limit currently set	0.02 mg/Nm ³	

	Dioxins/furans (I-TEQ)	periodic	0.1 ng/Nm ³	0.06 ng/Nm ³
		long-term sampling	No limit currently set	0.08 ng/Nm ³
	Ammonia	daily average	No limit currently set	15 mg/Nm ³

Where BAT-AELs are identified, limits may be prescribed at 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.

Emissions to Air – Article 15(4) Derogations

No derogations.

Emissions to water

The installation has the following discharges to surface water:

- Direct emission of uncontaminated surface water via attenuation pond, holding pond and oil interceptor to water body
- Indirect emission of boiler blow down to foul sewer in accordance with Trade Effluent Consent issued by the sewerage undertaker

A direct emission is an emission to a receiving water body without further downstream waste water treatment. An indirect emission is one that is not a direct emission.

As detailed above, there are no direct or indirect emissions to a receiving water body from the following processes:

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

As per BATc 33, BAT-AELs apply to direct and indirect emissions from FGC and/or bottom ash treatment. Therefore BATc 33 and the BAT-AELs do not apply, therefore there are no changes to any current ELVs.

Emissions to Water – Article 15(4) Derogations

No derogations.

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 BREF and its BAT-AELs provide the opportunity to 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 3 December 2023.

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 Conclusions for Waste Incineration

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 decisions made in relation to each relevant BAT Conclusion applicable to the installation. 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 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 4 years of publication of BAT conclusions), 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:	Currently Compliant The Operator has confirmed the EMS in place is compliant with each subsection of this BATc. The EMS is accredited to ISO14001:2015 standard. We consider this sufficient of demonstrating compliance with the BATc.
	(i) Commitment, leadership and accountability of the management, including senior management, for the implementation of an effective EMS;	
	(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;	
	(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);	
	(viii) Internal and external communication;	
	(ix) Fostering employee involvement in good environmental management practices;	

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(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.	
	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);	See BAT 9
	(xxii)	For bottom ash treatment plants, output quality management (see BAT 10);	Not Applicable No bottom ash treatment plant on site.
	(xxiii)	A residues management plan including measures aimed to: (a) Minimise the generation of residues	Compliant in the future

BATc number	Summary of BAT Conclusion requirement			Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		(b) Optimise the reuse, regeneration, recycling of and/or energy recovery from the residues (c) Ensure the proper disposal of residues	The Operator has confirmed that a separate residues management plan will be produced by the compliance date, however, the requirements are already in place within the management system they are not consolidated into one document.	
	(xxiv)	For incineration plants, an OTNOC management plan (see BAT 18);	See BAT 18	
	(xxv)	For incineration plants, an accident management plan;	Currently Compliant The Operator has confirmed an accident management plan is in place at the site.	
	(xxvi)	For bottom ash treatment plants, diffuse dust emissions management (see BAT 23);	Not Applicable No bottom ash treatment taking place on site.	
	(xxvii)	An odour management plan where an odour nuisance at sensitive receptors is expected and/or has been substantiated;	Not Applicable Do not consider odour expected nor has it been substantiated.	
	(xxviii)	A noise management plan (see BAT 37) where a noise nuisance at sensitive receptors is expected and/or has been substantiated;	See BAT 37	
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 Operator has determined the Gross Electrical Efficiency for 2020 was 23.3 %. The ongoing requirement to determine the efficiency (after any modification that significantly affects energy efficiency) will be implemented in the permit from the compliance date.
3	BAT is to monitor key process parameters relevant for emissions to air and water including those given below:			Currently Compliant The Operator has confirmed that all parameters are already monitored as part
	Stream/location	Parameter(s)	Monitoring	

BATc number	Summary of BAT Conclusion requirement			Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Flue-gas from the incineration of waste	Flow, oxygen content, temperature, pressure, water vapour content	Continuous	of existing requirements. The monitoring for waste water from wet FGC is not applicable as there is no wet FGC in place at the site. The monitoring of waste water from bottom ash treatment plants is not applicable as there is no bottom ash treatment plant on site. All relevant monitoring requirements will be implemented in the permit.
	Combustion chamber	Temperature		
	Waste water from wet FGC	Flow, pH, temperature		
	Waste water from bottom ash treatment plants	Flow, pH, conductivity		
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.			
	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			Compliant in the future Monitoring requirements of the BATc will be implemented in the permit from the compliance date and are largely already implemented in the existing permit, other than where detailed below. HF Footnote 4 states 'the continuous measurement of HF may be replaced by periodic measurements with a minimum frequency of once every six months if the HCl emission levels are proven to be sufficiently stable' We consider the Operator has suitably justified that the HCl emissions are sufficiently stable therefore periodic monitoring will continue and we will not implement continuous monitoring.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		<p>Brominated dioxins/furans</p> <p>The UK WI BREF Interpretation Document states PBDD/F monitoring will be required if a plant is taking waste streams that are known to contain materials treated with brominated flame retardants.</p> <p>The Operator has confirmed the site does accept soft furnishings, a waste stream known to contain brominated flame retardants. Therefore monitoring of PBDD/F (brominated dioxins/furans) will be implemented in the permit from the compliance date.</p> <p>Mercury</p> <p>Footnote 5 states 'for plants incinerating wastes with a proven low and stable mercury content, the continuous monitoring of emissions may be replaced by long-term sampling or periodic measurements with a minimum frequency of once every six months.'</p> <p>The UK Mercury Monitoring Protocol is the UK approach to determining a 'low and stable mercury content' via analysis of the resultant flue gases. If the Operator satisfies the protocol they can remain on periodic monitoring, if they cannot, continuous monitoring is required.</p>

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		<p>The Operator has indicated they wish to satisfy the UK Mercury Monitoring Protocol and remain on periodic monitoring. Triplicate periodic sampling is required to satisfy the protocol and therefore they are currently gathering data to satisfy the protocol as the current permit requires a single bi-annual mercury sample. Therefore compliance with the protocol will be assessed via an improvement condition and as a minimum triplicate sampling will be required bi-annually as required by the BATc and stated in the revised permit.</p> <p>Dioxins/furans (PCDD/F) & Dioxin-like PCBs</p> <p>Footnote 7 states for long-term sampling 'the monitoring does not apply if the emission levels and proven to be sufficiently stable'. The UK Dioxin Monitoring Protocol is the UK approach to determining whether 'emission levels are sufficiently stable'. If the Operator satisfies the protocol they can remain on periodic monitoring, if they cannot, long-term sampling is required.</p> <p>The Operator submitted sampling reports for dioxin monitoring and analysis, which we have reviewed and agree the last 6 results satisfy the protocol and so demonstrate sufficiently stable emissions. Therefore we have confirmed that they</p>

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		remain on periodic monitoring of both Dioxins/furans and Dioxin-like PCBs at the time of our determination. However, the requirement to demonstrate sufficiently stable emissions is an ongoing requirement therefore both long-term sampling and periodic monitoring will be set in the permit. The UK monitoring dioxin protocol details the ongoing action to be taken when dioxin monitoring results are obtained, specifically in the event of breach of the ELV.
5	BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC.	Compliant in the future We will review compliance with this BATc via an improvement condition in the permit.
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 emissions to water from FGC and/or bottom ash treatment from the site.
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 The requirement to measure Total organic carbon (TOC) quarterly is currently part of the existing permit requirements. The requirement will continue to be implemented in the permit.
8	For the incineration of hazardous wastes containing POPs, BAT is to determine the POP content in the output streams (e.g. slags and bottom ashes, flue-gas, waste water) after the	Not Applicable

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	commissioning of the incineration plant and after each change that may significantly affect the POP content in the output stream.		The plant does not incinerate hazardous waste containing POPs.
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).		Currently Compliant The Operator has confirmed as part of existing waste acceptance procedures all of techniques a, b and c are carried out. Techniques d, e and f are deemed not applicable given no hazardous waste is incinerated.
	(a)	Determination of the types of waste that can be incinerated	
	(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	
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 on site.
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.		Currently Compliant The Operator has confirmed the following monitoring is completed on the waste deliveries in their waste acceptance procedures: <ul style="list-style-type: none"> • Weighing • Visual inspection
	Refer to monitoring table in BAT Conclusion 11: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN		
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:		Currently Compliant The Operator has confirmed the reception facility has an impermeable surface. There are two separate drainage systems in use:
	(a)	Impermeable surfaces with an adequate drainage infrastructure	

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			(a) Drainage from process systems, wash-down waters from process areas and potentially contaminated water from roads and external areas are routed to the reuse water tank, this water is then reused in the process. The tank is concrete lined. (b) Uncontaminated site surface water drainage travels through a series of attenuation ponds, an oil separator and there is also an isolation valve to provide further containment.
	(b)	Adequate waste storage capacity	Currently Compliant The Operator has confirmed the site has large refuse bunkers which are carefully managed by visual inspection to ensure appropriate stock levels for continuous operation (Bat 16) whilst avoiding waste remaining in the bunkers for extensive periods of time. This is considered appropriate as per the UK WI BREF Interpretation Document.
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:		Not Applicable No storage and handling of clinical waste on site.
	(a)	Automated or semi-automated waste handling	
	(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:		

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(a)	Waste blending and mixing	Currently Compliant
	(b)	Advanced control system	The Operator has confirmed that both (a) and (b) techniques are currently carried out. The maximum measured TOC content in the slags and bottom ashes over both lines is 1.5 % demonstrating the good quality of combustion and current techniques in place remain appropriate to reduce emissions to air. Given the TOC content measured we also consider technique (c) has been demonstrated.
	(c)	Optimisation of the incineration process	
	Table 1 including footnotes: BAT-associated environmental performance levels for unburnt substances in slags and bottom ashes from the incineration of waste Associated monitoring given in BAT 7 <i>Footnote 1: Either the BAT-AEPL for TOC content or the BAT-AEPL for the loss on ignition applies</i> <i>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</i>		
	TOC content in slags and bottom ashes (1)	1 – 3 Dry wt-% (2)	Currently Compliant
Loss on ignition of slags and bottom ashes (1)	1 – 5 Dry wt% (2)	The Operator has confirmed from previous monitoring as per current permit requirements the TOC content maximum is 1.5 % over both lines, therefore compliant with the BAT-AEPL. As per the footnote either the BAT-AEPL for TOC content of LOI applies. The BAT-AEPL for TOC content will continue to be implemented in the permit.	
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 The Operator has confirmed the use of a 'MICC – Martin Infrared Combustion Control System' which is a recognised advanced control system.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
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 The Operator has a contingency plan in place which includes arrangements to prevent running out of waste and other raw materials to limit shutdown and start-up operations and ensure continuous operation where practicable.
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.	Compliant in the future The Operator considers this requirement was addressed within the initial permit application. Given they are intending to make improvements to dosing and abatement systems to meet the NOx and HCl BAT-AELs (see below) we consider there are improvements required and they will be compliant by the compliance date once re-optimisation is complete. There is no waste water treatment plant in place at the site.
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: 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)	Compliant in the future The Operator has confirmed there is no OTNOC management plan in place, therefore we will review compliance with this BATc via an improvement condition 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 4 years of publication of BAT conclusions), Not Compliant	
	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			
19	In order to increase the resource efficiency of the incineration plant, BAT is to use a heat recovery boiler.	Currently Compliant The Operator has confirmed a heat recovery boiler is in place.	
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	Currently Compliant The Operator has confirmed the following techniques are employed: c, d and f. The current permitted configuration is that the plant generates electricity only. The Operator has utilised appropriate energy efficiency measures and is compliant with the BAT-AEEL for electrical generation only (see below) therefore we consider the current scenario BAT. As per the UK WI BREF Interpretation Document we consider that BAT for this plant is to implement Combined Heat and Power by connecting to a heat network or supplying a heat user direct where viable opportunities exist (considered as g - cogeneration) in this list. There is a district heating network currently being constructed in the vicinity of the plant which may be considered a viable opportunity, see above for more detail. We have included specific improvement condition in
	(b)	Reduction of the flue-gas flow	
	(c)	Minimisation of heat losses	
	(d)	Optimisation of the boiler design	
	(e)	Low-temperature flue-gas heat exchangers	
	(f)	High steam conditions	
	(g)	Cogeneration	
	(h)	Flue-gas condenser	
(i)	Dry bottom ash handling		

BATc number	Summary of BAT Conclusion requirement				Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
					addition to permit condition 1.2.3 , to report to NRW on current opportunities... We will consider it BAT to connect to the DHN if it is considered a viable opportunity. IC10 requires implementation of a plan to enable exporting of heat if IC9 identifies a viable opportunity	
Table 2 including footnotes: BAT-associated energy efficiency levels for incineration of waste Associated monitoring given in BAT 2 <i>Footnote 1: The BAT-AEEL only applies where a heat recovery boiler is applicable</i> <i>Footnote 2: The BAT-AEELs for gross electrical efficiency only apply to plants or parts of plants producing electricity using a condensing turbine</i> <i>Footnote 3: The higher end of the BAT-AEEL range can be achieved when using BAT 20 (f)</i> <i>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</i> <i>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</i> <i>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</i>						
Plant	Municipal solid waste, other non-hazardous waste and hazardous wood waste	Gross electrical efficiency (2)(3)	Gross energy efficiency (4)	Hazardous waste other than hazardous wood waste (1)	Sewage sludge	Currently Compliant The plant is a municipal solid waste plant and the Operator has confirmed the Gross Electrical Efficiency for 2020 was 23.3 %, the site confirmed there is a condensing turbine in place. However as per above we consider BAT for this plant to become CHP if a viable opportunity exists so further improvements potentially can be made to energy efficiency. In the case it becomes CHP, the Gross Energy Efficiency will apply. Both BAT-AEELs will be set in the permit to allow for both scenarios with a
				Boiler efficiency		
	New plant	25 – 35 %				
Existing plant	20 – 35 %		72 – 91 %	60 – 80 %	60 – 70 % (6)	

BATc number	Summary of BAT Conclusion requirement					Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
						corresponding improvement condition as stated above.	
EMISSIONS TO AIR							
DIFFUSE EMISSIONS							
21	In order to prevent or reduce diffuse emissions from the incineration plant, including odour emissions, BAT is to:						
	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 sent it to another suitable abatement system in the case of a risk of explosion	Currently Compliant The Operator has confirmed that all waste delivered to site (which is likely odorous and may to a lesser extent release volatile substances) is stored within enclosed buildings (enclosed bunkers) under controlled sub-atmospheric pressure and they use the extracted air as combustion air for incineration.					
	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 The plant does not handle liquid wastes.					
Control the risk of odour during complete shutdown periods when no incineration capacity is available, examples given.	Currently Compliant The Operator has confirmed during shutdown periods waste deliveries are managed to minimise the amount of waste in storage.						
22	In order to prevent diffuse emissions of volatile compounds from the handling of gaseous and liquid wastes that are odour and/or prone to releasing volatile substances at incineration plants, BAT is to introduce them into the furnace by direct feeding.					Not Applicable The plant does not handle gaseous and liquid wastes.	
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					
Definition and implementation of appropriate actions and techniques to prevent or reduce dust emissions over a given time frame	There is no treatment of slags and bottom ashes on site.						
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

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(b)	Limit height of discharge	There is no treatment of slags and bottom ashes on site.
	(c)	Protect stockpiles against prevailing winds	
	(d)	Use water sprays	
	(e)	Optimise moisture content	
	(f)	Operate under sub-atmospheric pressure	
CHANNELLED EMISSIONS			
<i>EMISSIONS OF DUST, METALS AND METALLOIDS</i>			
	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 The Operator has confirmed that a bag filter and dry sorbent injection techniques are in place for both lines.
	(b)	Electrostatic precipitator	
	(c)	Dry sorbent injection	
	(d)	Wet scrubber	
	(e)	Fixed- or moving-bed adsorption	
	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 <i>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/Nm³</i>		
25	Parameter	BAT-AEL (mg/Nm³)	Averaging period
	Dust	<2 – 5 (1)	Daily average
	Cd+Tl	0.005 – 0.02	Average over sampling period
			Currently Compliant Previous average 2021 monitoring data indicates both lines are compliant with the BAT-AEL for dust and well below the upper end of the BAT-AEL range: Line 1 – 0.53 mg/m ³ Line 2 – 0.39 mg/m ³ The BAT-AEL will be implemented in the permit from the compliance date.
			Currently Compliant

BATc number	Summary of BAT Conclusion requirement			Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
				Previous average monitoring data (6 results) indicates both lines are compliant with the BAT-AEL for Cd+Tl and well below the upper end of the BAT-AEL range: Line 1 – 0.00066 mg/m ³ Line 2 – 0.0006 mg/m ³ The BAT-AEL will be implemented in the permit from the compliance date.
	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V	0.01 – 0.3	Average over sampling period	Currently Compliant Previous average monitoring data (6 results) indicates both lines are compliant with the BAT-AEL for these metals and within the BAT-AEL range: Line 1 – 0.05764 mg/m ³ Line 2 – 0.05372 mg/m ³ The BAT-AEL will be implemented in the permit from the compliance date.
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.			Not Applicable There is no treatment of slags and bottom ashes on site.
	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	BAT-AEL (mg/Nm³)	Averaging period	Not Applicable There is no treatment of slags and bottom ashes on site.
	Dust	2 – 5	Average over the sampling period	
<i>EMISSIONS OF HCl, HF AND SO₂</i>				
27	In order to reduce channelled emissions of HCl, HF and SO₂ to air from the incineration of waste, BAT is to use one or a combination of the techniques given below:			
	(a)	Wet scrubber		Currently Compliant The Operator has confirmed that dry sorbent injection techniques are in place for both lines.
	(b)	Semi-wet absorber		
	(c)	Dry sorbent injection		
	(d)	Direct desulphurisation		

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant		
	(e)	Boiler sorbent injection			
28	In order to reduce channelled peak emissions of HCl, HF and SO₂ 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	Compliant in the future The Operator has confirmed that both techniques are in place and use of continuous monitoring to optimise the dosage. The Operator has confirmed further optimisations of the dosing systems will be required in order to achieve compliance with the HCl BAT-AEL by the compliance date (see below).		
	(b)	Recirculation of reagents			
	Table 5 including footnote: BAT-AELs for channelled emissions to air HCl, HF and SO₂ from the incineration of waste Associated monitoring given in BAT 4 <i>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</i>				
Parameter		BAT-AEL (mg/Nm³)		Averaging period	
		New plant	Existing plant		
HCl	<2 – 6 (1)	<2 – 8 (1)	Daily average	Compliant in the future Previous average 2021 monitoring data indicates both lines are currently above the BAT-AEL range for HCl: Line 1 – 8.36 mg/m ³ Line 2 – 8.2 mg/m ³ The Operator has indicated future improvements by optimisation of the dosing system are required to meet the BAT-AEL by the compliance date. The Operator has indicated they will comply with the BAT-AEL from the compliance	

BATc number	Summary of BAT Conclusion requirement				Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
					date and has not requested a derogation, therefore the BAT-AEL will be implemented in the permit from the compliance date. Based on the operator's reply we are satisfied that further optimisation will achieve BAT performance and is within the capability of the installed/existing abatement equipment.
	HF	<1	<1	Daily average of average over the sampling period	Currently Compliant Previous average monitoring data (6 results) indicates both lines are compliant with the BAT-AEL for HF and below the BAT-AEL: Line 1 – 0.022 mg/m ³ Line 2 – 0.024 mg/m ³ The BAT-AEL will be implemented in the permit from the compliance date. As per the UK WI BREF Interpretation Document <1 mg/Nm ³ is considered implemented via an ELV of 1 mg/Nm ³ .
	SO ₂	5 - 30	5 - 40	Daily average	Currently Compliant Previous average 2021 monitoring data indicates both lines are compliant with the BAT-AEL for SO ₂ and within the BAT-AEL range: Line 1 – 20.15 mg/m ³ Line 2 – 19.99 mg/m ³ The BAT-AEL will be implemented in the permit from the compliance date.
<i>EMISSIONS OF NO_x, N₂O, CO AND NH₃</i>					
29	In order to reduce channelled NO_x emissions to air while limiting the emissions of CO and N₂O from the incineration of waste and the emissions of NH₃ from the use of SNCR and/or SCR, BAT is to use an appropriate 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 4 years of publication of BAT conclusions), Not Compliant
	(a)	Optimisation of the incineration process	Compliant in the future The Operator has confirmed the following techniques are in place: (a), (c), and (f). SCR is not in place nor wet abatement techniques therefore Footnote 2 and 3 are applied below. As per the UK WI BREF Interpretation Document, retrofitting of SCR to existing plants is not considered BAT. With further optimisations planned to the SNCR design and operation to meet the required BAT-AEL we consider this an appropriate combination of the techniques.	
	(b)	Flue-gas recirculation		
	(c)	Selective non-catalytic reduction (SNCR)		
	(d)	Selective catalytic reduction (SCR)		
	(e)	Catalytic filter bags		
	(f)	Optimisation of the SNCR/SCR design and operation		
	(g)	Wet scrubber		
Table 6 including footnotes: BAT-AELs for channelled NO_x and CO emissions to air from the incineration of waste and for channelled NH₃ emissions to air from the use of SNCR and/or SCR Associated monitoring given in BAT 4 <i>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)</i> <i>Footnote 2: The higher end of the BAT-AEL range is 180 mg/Nm³ where SCR is not applicable</i> <i>Footnote 3: For existing plants fitted with SNCR without wet abatement techniques, the higher end of the BAT-AEL range is 15 mg/Nm³</i>				
	BAT-AEL (mg/Nm³)		Averaging period	
Parameter	New Plant	Existing plant		
NO _x	50 – 120 (1)	50 – 150 (1) (2)	Daily average	Compliant in the future Previous average 2021 monitoring data indicates that line 1 is currently below and line 2 is currently slightly above the upper end of the BAT-AEL range for NO _x as per footnote 2: Line 1 – 175.11 mg/m ³ Line 2 – 182.75 mg/m ³

BATc number	Summary of BAT Conclusion requirement			Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
				<p>The Operator has indicated future improvements by optimisation of the SNCR system are required to meet the daily average BAT-AEL by the compliance date. The Operator has indicated they will comply with the BAT-AEL from the compliance date and has not requested a derogation, therefore the BAT-AEL will be implemented in the permit from the compliance date. As per the UK WI BREF Interpretation Document an Improvement Condition is added to the permit which requires the Operator to optimise their de-NOx systems and assess opportunities for further NOx reductions. Based on the operator's reply we are satisfied that further optimisation will achieve BAT performance and is within the capability of the installed/existing abatement equipment.</p>
	CO	10 – 50	10 – 50	<p>Currently compliant There is no change in the current ELV in the permit for CO. Previous monitoring returns have been interrogated and show compliance with the BAT-AEL and current ELV.</p>
	NH ₃	2 – 10 (1)	2 – 10 (1) (3)	<p>Currently compliant The Operator has confirmed that all previous monitored NH₃ levels have been below 15 mg/Nm³ which as per footnote 3 is the upper end of the BAT-AEL range for both lines. Based on the operator's reply we are satisfied that further optimisation of</p>

BATc number	Summary of BAT Conclusion requirement				Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
					the SNCR system will achieve BAT performance not only for NO _x but also for ammonia slip and is within the capability of the installed/existing abatement equipment. The BAT-AEL will be implemented in the permit from the compliance date.
<i>EMISSIONS OF ORGANIC COMPOUNDS</i>					
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 has confirmed the following techniques are in place: (a), (c), (d) and (e). We consider the combination appropriate given the site is comfortably compliant with the relevant BAT-AELs. Technique b is not relevant to municipal solid waste incinerators as per the BATc.
	(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 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					
<i>Footnote 1: Either the BAT-AEL for PCDD/F or the BAT-AEL for PCDD/F + dioxin-like PCBs applies</i>					
<i>Footnote 2: The BAT-AEL does not apply if the emission levels are proven to be sufficiently stable</i>					
Parameter	Unit	BAT-AEL		Averaging period	
		New plant	Existing plant		
TVOC	mg/Nm ³	<3 – 10	<3 – 10	Daily average	Currently Compliant

BATc number	Summary of BAT Conclusion requirement					Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
						<p>The Operator has confirmed using previous monitoring data that the highest monitored TVOC level over both lines has been 0.86 mg/m³, therefore below the lower-end of the BAT-AEL range.</p> <p>The BAT-AEL will be implemented in the permit from the compliance date.</p>
	PCDD/F (1)	ng I-TEQ/Nm ³	<0.01 – 0.04	<0.01 – 0.06	Average over the sampling period	<p>Currently Compliant</p> <p>Previous periodic average monitoring data (6 results) indicates both lines are compliant with both the periodic BAT-AEL for PCDD/F and within the BAT-AEL range: Line 1 – 0.02532 ng/m³ Line 2 – 0.01666 ng/m³</p>
	PCDD/F dioxin-like PCBs (1) +	ng WHO-TEQ/Nm ³	<0.01 – 0.06	<0.01 – 0.08	Average over the sampling period	<p>Not Applicable</p> <p>The Operator has chosen the BAT-AEL for PCDD/F as per Footnote 1, however as per BAT4 monitoring of PCDD/F + dioxin-like PCBs still applies. See BAT4 for further information on satisfaction of the protocol. Nevertheless previous average monitoring data (6 results) indicates both lines are</p>
			<0.01 – 0.08	<0.01 – 0.1	Long-term sampling period (2)	
			<0.01 – 0.06	<0.01 – 0.08	Average over the sampling period	
			<0.01 – 0.08	<0.01 – 0.1	Long-term sampling period (2)	

BATc number	Summary of BAT Conclusion requirement				Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
					compliant with both the periodic and long-term sampling BAT-AEL for PCDD/F + dioxin like PCBs and within the BAT-AEL range: Line 1 – 0.001253 ng/m ³ Line 2 – 0.000768 ng/m ³
<i>EMISSIONS OF MERCURY</i>					
31	In order to reduce channelled mercury emissions to air (including mercury emission peaks) from the incineration of waste, BAT is to use one of a combination of the techniques given below:				
	(a)	Wet scrubber (low pH)			Currently compliant The Operator has confirmed that dry sorbent injection techniques are in place for both lines.
	(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 <i>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)</i> <i>Footnote 2: The lower end of the BAT-AEL ranges may be achieved when:</i> - 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. <i>As an indication the half-hourly average mercury emissions level will generally be:</i> - <15 – 40 µg/Nm ³ for existing plants; - <15 – 35 µg/Nm ³ for new plants					
Parameter		BAT-AEL (µg/Nm³) (1)		Averaging period	Compliant in the future The Operator has confirmed using previous monitoring data that the existing mercury levels are:
		New plant	Existing plant		
Hg		<5 – 20 (2)	<5 – 20 (2)	Daily average or average over the sampling period	

BATc number	Summary of BAT Conclusion requirement				Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		1 - 10	1 - 10	Long-term sampling period	Line 1 – 2.733 µg/m ³ Line 2 – 2.017 µg/m ³ Based on monitoring data which satisfies the current permit, the plant is currently well below the periodic BAT-AEL As per the BATc either the BAT-AEL for periodic or continuous or long-term sampling applies. The Operator has indicated they wish to use the UK Mercury Monitoring Protocol and remain on periodic as opposed to long-term sampling. They are currently gathering data to satisfy the protocol as explained above. The protocol response will determine if they can remain on periodic monitoring or are required to carry on continuous monitoring. Both BAT-AELs will be set in the permit from the compliance date, caveats will apply to reflect the footnotes in the BATc and ongoing requirement to satisfy the UK Mercury Monitoring Protocol. As the Operator has not yet satisfied the protocol, assessment of this will be achieved through an Improvement Condition included in the permit.
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 There is only one process related wastewater stream from the installation

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
		which is boiler blow down. This is segregated from uncontaminated surface water and discharged to foul sewer. The Operator has confirmed the boiler blow down water is reused in the process where possible to reduce the effluent discharge volume.	
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:	Currently Compliant The Operator has confirmed the following techniques are in place: (a) waste water free FGC technique by dry flue gas cleaning (c) water reuse through use of water within the ash discharger system	
	(a)		Waste water free FGC techniques
	(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:	Currently Compliant The Operator has confirmed technique (a) is in place due to the use of waste water free FGC techniques by dry flue gas cleaning, including use of SNCR and optimisation of the incineration process. The operator is currently compliant with both BAT14 and BAT29(f). The rest of the BATc is not applicable as there are no emissions to water from FGC and/or storage and treatment of slags and	
	Primary techniques		
	(a)		Optimisation of the incineration process (see BAT 14) and/or of the FGC system (e.g. SNCR/SCR, see BAT 29(f))
	Secondary techniques – preliminary and primary treatment		
	(b)		Equalisation
	(c)		Neutralisation
	(d)		Physical separation, e.g. screens, sieves, grit separators, primary settlement tanks
	Secondary techniques – physico-chemical treatment		
	(e)		Adsorption on activated carbon
(f)	Precipitation		
(g)	Oxidation		

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(h)	Ion exchange	bottom ashes. The only emissions to water from the site are of uncontaminated surface water or boiler blow down (to foul sewer).
	(i)	Stripping	
	(j)	Reverse osmosis	
	Secondary techniques – final solids removal		
	(k)	Coagulation and flocculation	
	(l)	Sedimentation	
	(m)	Filtration	
	(n)	Flotation	
MATERIAL EFFICIENCY			
35	In order to increase resource efficiency, BAT is to handle and treat bottom ashes separately from FGC residues.		Currently Compliant The Operator has confirmed that incinerator bottom ash remains separated from all other residues within the existing design of the facility.
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:		Not Applicable No treatment of slags and bottom ashes takes place on site.
	(a)	Screening and sieving	
	(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:		Currently Compliant The Operator has confirmed the use of techniques a and b. As per the UK WI BREF Interpretation Document no additional noise assessment will be required unless there are existing noise issues. We do not consider there are
	(a)	Appropriate location of equipment and buildings	
	(b)	Operational measures	
	(c)	Low-noise equipment	
	(d)	Noise attenuation	
	(e)	Noise-control equipment/infrastructure	

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant , Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		existing ongoing noise issues so no additional measures deemed necessary.

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	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	<p>There are two emissions to surface water from the installation, one of uncontaminated surface water direct to surface water and one of boiler blow down to surface water via foul sewer. We do not expect uncontaminated surface water to be assessed as it should not contain any hazardous pollutants.</p> <p>The Operator has provided Phase 1 screening tests for the process discharge carried out in December 2021. We have reviewed the assessment in line with Surface water pollution risk assessment for your environmental permit - GOV.UK (www.gov.uk). All identified hazardous pollutants screened out in the Phase 1 screening tests therefore no need to carry out Phase 2 modelling.</p>
C – Soil and groundwater contamination – baseline report	The Operator has provided an updated baseline report which contains the information necessary to determine the current state of soil and groundwater contamination. The report states the results of recent intrusive investigations (2021) are generally comparable with the findings of the initial permit application investigations therefore thus far we are satisfied the site has not deteriorated during the lifetime of the permit and the measures in place to protect soil and groundwater remain appropriate.
D – Medium Combustion Plant	The Operator has provided detail of Medium Combustion Plant (MCP) on site.

	<p>The Operator has confirmed there is one 2.6 MW_{th} input diesel (gas oil) fuelled standby generator on site. The MCP is considered a limited operating hours existing MCP as first put into operation before 20 December 2018 and operates for less than 500 hours per year. We have updated the permit, including site plan for this unit.</p> <p>We have conducted early permitting of the existing MCP, this means we have post-dated any MCP conditions in the permit to prevent the need for a future variation to the permit when the relevant MCP compliance date is reached.</p>
E – OPRA profile	<p>The Operator has provided an updated OPRA profile which we have reviewed. The OPRA score is 327 and this will continue to form the basis for ongoing subsistence fees. There has been a change to the OPRA score, an increase from 288.</p>