

Determination of an Application for an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2016

Consultation on our decision document recording our decision-making process

The Permit Number is: EPR/QP3720LP/A001
The Applicant / Operator is: Fornax (North East) Limited
The Installation is located at: High Temperature Thermal Treatment Facility. Station Place, Aycliffe Business Park, Newton Aycliffe. DL5 6AA

What this document is about

This is a draft decision document, which accompanies a draft permit.

It explains how we have considered the Applicant's Application, and why we have included the specific conditions in the draft permit we are proposing to issue to the Applicant. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position. Unless the document explains otherwise, we have accepted the Applicant's proposals.

The document is in draft at this stage because we have yet to make a final decision. Before we make this decision, we want to explain our thinking to the public and other interested parties, to give them a chance to understand that thinking and, if they wish, to make relevant representations to us. We will make our final decision only after carefully taking into account any relevant matter raised in the responses we receive. Our mind remains open at this stage. Although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by any further information that may be provided that is relevant to the issues we have to consider. However, unless we receive information that leads us to alter the conditions in the draft Permit, or to reject the Application altogether, we will issue the Permit in its current form.

In this document we frequently say "we have decided". That gives the impression that our mind is already made up; but as we have explained above, we have not yet done so. The language we use enables this document to

become the final decision document in due course with no more re-drafting than is absolutely necessary.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future. A lot of technical terms and acronyms are inevitable in a document of this nature: we provide a glossary of acronyms near the front of the document, for ease of reference.

Preliminary information and use of terms

We gave the application the reference number EPR/QP3720LP/A001. We refer to the application as “the **Application**” in this document in order to be consistent.

The number we propose to give to the permit is EPR/QP3720LP. We refer to the proposed permit as “the **Permit**” in this document.

The Application was duly made on 29/01/2025.

The applicant is Fornax (North East) Limited. We refer to Fornax (North East) Limited as “the **Applicant**” in this document. Where we are talking about what would happen after the Permit is granted (if that is our final decision), we call Fornax (North East) Limited “the **Operator**”.

Fornax (North East) Limited proposed facility is located at Heighington Lane, Merchant Park, Off Station Road, Heighington Village, Newton Aycliffe. We refer to this as “the **Installation**” in this document.

How this document is structured

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Glossary of acronyms used in this document

(Please note that this glossary is standard for our decision documents and therefore not all these acronyms are necessarily used in this document.)

AAD	Ambient Air Directive (2008/50/EC)
APC	Air Pollution Control
AQS	Air Quality Strategy
BAT	Best Available Technique(s)
BAT-AEL	BAT Associated Emission Level
BREF	Best Available Techniques (BAT) Reference Documents for Waste Incineration
BAT C	BAT conclusions
CEM	Continuous emissions monitor
CFD	Computerised fluid dynamics
CHP	Combined heat and power
COMEAP	Committee on the Medical Effects of Air Pollutants
CROW	Countryside and rights of way Act 2000
CV	Calorific value
CW	Clinical waste
CWI	Clinical waste incinerator
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EAL	Environmental assessment level
EfW	Energy from Waste
EIAD	Environmental Impact Assessment Directive (85/337/EEC)
ELV	Emission limit value
EMAS	EU Eco Management and Audit Scheme
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No. 1154) as amended
ES	Environmental Standard
EQS	Environmental Quality Standard
ES	Environmental standard
EWC	European waste catalogue
FGC	Flue gas cleaning
FPP	Fire prevention plan

FSA	Food Standards Agency
GWP	Global Warming Potential
HHRAP	Human Health Risk Assessment Protocol
HPA	Health Protection Agency (now UKHSA – UK Health Security Agency)
HRA	Human Rights Act 1998
HW	Hazardous waste
HWI	Hazardous waste incinerator
IBA	Incinerator Bottom Ash
IED	Industrial Emissions Directive (2010/75/EU)
IPPCD	Integrated Pollution Prevention and Control Directive (2008/1/EC) – now superseded by IED
I-TEF	Toxic Equivalent Factors set out in Annex VI Part 2 of IED
I-TEQ	Toxic Equivalent Quotient calculated using I-TEF
LCPD	Large Combustion Plant Directive (2001/80/EC) – now superseded by IED
LCV	Lower calorific value – also termed net calorific value
LfD	Landfill Directive (1999/31/EC)
LADPH	Local Authority Director(s) of Public Health
LOI	Loss on Ignition
MBT	Mechanical biological treatment
MSW	Municipal Solid Waste
MWI	Municipal waste incinerator
NO _x	Oxides of nitrogen (NO plus NO ₂ expressed as NO ₂)
OTNOC	Other than normal operating conditions
PAH	Polycyclic aromatic hydrocarbons
PC	Process Contribution
PCB	Polychlorinated biphenyls
PEC	Predicted Environmental Concentration
PHE	Public Health England (now UKHSA – UK Health Security Agency)
POP(s)	Persistent organic pollutant(s)
PPS	Public participation statement
PR	Public register
PXDD	Poly-halogenated di-benzo-p-dioxins

PXB	Poly-halogenated biphenyls
PXDF	Poly-halogenated di-benzo furans
RDF	Refuse derived fuel
RGN	Regulatory Guidance Note
SAC	Special Area of Conservation
SED	Solvent Emissions Directive (1999/13/EC) – now superseded by IED
SCR	Selective catalytic reduction
SHPI(s)	Site(s) of High Public Interest
SNCR	Selective non-catalytic reduction
SPA(s)	Special Protection Area(s)
SS	Sewage sludge
SSSI(s)	Site(s) of Special Scientific Interest
SWMA	Specified waste management activity
TDI	Tolerable daily intake
TEF	Toxic Equivalent Factors
TGN	Technical guidance note
TOC	Total Organic Carbon
UN_ECE	United Nations Environmental Commission for Europe
US EPA	United States Environmental Protection Agency
WFD	Waste Framework Directive (2008/98/EC)
WHO	World Health Organisation
WID	Waste Incineration Directive (2000/76/EC) – now superseded by IED

Links to guidance documents

The table below provides links to the key guidance documents referred to in this document. The links were correct at the time of producing this document.

Name of guidance document	Link
Environmental permits: when and how we consult	Environmental permits: when and how we consult - GOV.UK
CHP Ready Guidance for Combustion and Energy from Waste Power Plants	CHP ready
Risk assessments for your environmental permit	Risk assessments
Guidance to Applicants on Impact Assessment for Group 3 Metals Stack Releases – version 4”.	Metals guide
The Incineration of Waste (EPR 5.01)	EPR 5.01
Waste incineration BREF and BAT conclusions	BREF and BAT C
UKHSA: Municipal waste incinerators emissions: impact on health	UKHSA reports

1 Our proposed decision

We are minded to grant the Permit to the Applicant. This will allow it to operate the Installation, subject to the conditions in the Permit.

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

This Application is to operate an installation which is subject principally to the Industrial Emissions Directive (IED).

The draft Permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations (EPR) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted that the details provided are sufficient and satisfactory to make use of the standard condition acceptable and appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options, an explanation of the reason(s) for choosing the option that has been specified.

2 How we reached our draft decision

2.1 Receipt of Application

The Application was duly made on 29/01/2025. This means we considered it was in the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we would need to complete that determination. Note that it is normal to require further information for complex permit applications. See section 2.3 below for further details.

The Applicant claimed that certain information was commercially confidential and should be withheld from the public register. A summary of the request, our assessment of the request and decision are available to view on public register.

2.2 Consultation on the Application

We carried out consultation on the Application in accordance with the EPR, our statutory Public Participation Statement (PPS) and our own internal guidance RGN 6 for Determinations involving Sites of High Public Interest. RGN 6 was

withdrawn as external guidance, but it is still relevant as Environment Agency internal guidance.

We consider that this process satisfies, and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development and Construction Act 2009 (particularly Section 23). This requires us, where we consider it appropriate, to take such steps as we consider appropriate to secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way. In this case, we consider that our consultation already satisfies the requirements of the 2009 Act.

We advertised the Application by a notice placed on our Citizen Space page and website on 16th May 2025, which contained all the information required by the IED, including informing people where and when they could see a copy of the Application. We also placed an advertisement in the Northern Echo that contained the same information.

We made a copy of the Application and all other documents relevant to our determination available to view on our Public Register. Anyone wishing to see these documents could do so and arrange for copies to be made.

We sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”:

- Local Authority – Environmental Protection Department - County Durham Council and Darlington Borough Council
- Local Authority – Planning
- Fire & Rescue
- Director of Public Health
- UK Health Security Agency
- Health and Safety Executive
- Food Standards Agency
- Northumbrian Water Limited

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly. Note under our Working Together Agreement with Natural England, we only inform Natural England of the results of our assessment of the impact of the installation on designated Habitats sites.

A summary of consultation comments and our response to the representations we received can be found in Annex 4. We have taken all relevant representations into consideration in reaching our draft determination.

2.3 Requests for Further Information

Although we were able to consider the Application duly made, we did in fact need more information in order to determine it, and issued an information notice (Schedule 5 Notice) on 12/11/2025. The response to Schedule 5 notice was received on 04/02/2026. A copy of the information notice and response is on our public register.

In addition to the response to our Schedule 5 Notice for information notice, we received additional information during the determination as follows:

Information	Date received
Response via to additional information request sent to Applicant on 19/02/2026. Response includes: Response to questions 1 – 9 which included: • Assessment against Waste Treatment BAT Conclusions & Healthcare Waste Appropriate Measures • Cost Benefit Analysis for NOx abatement. • Updated Odour Management Plan • Updated Fire Prevention Plan • Updated Site Plan drawing • Risk Assessment for Bin Wash effluent • Copy of sewer discharge consent • Updated list of wastes to remove codes 19 02 99 & 19 11 99.	23/03/2025
Response via email to additional information request sent to Applicant on 23/03/2026. Response confirms sound level data and other assumptions used in the assessment remain consistent with the current plant design.	07/04/2026
Response to additional information request sent to applicant on 26/03/2026. Response includes H1 Risk Assessment for discharge to foul sewer.	29/04/2026
Response via email to additional information request sent to Applicant on 30/03/2026. Response includes: • Updated list of wastes • Further information to support response to question 8 – Cost Benefit Analysis for NOx abatement	07/04/2026
Response via email to additional information request sent to Applicant on 26/03/2026. Response includes H1 Risk assessment for discharge to foul sewer.	13/04/2026

Response to additional information request sent to applicant on 08/04/2026. Response includes updated Cost Benefit Analysis for NOx abatement. Response also includes updated risk assessment for discharge to foul sewer in response to additional information request sent to applicant on 13/04/2026.	29/04/2026
Response to additional information request sent to Applicant on 29/04/2026. Response includes: Updated Cost Benefit Analysis (CBA) for NOx abatement – This is the final version of the CBA.	09/06/2026
Updated Site Condition Report	09/06/2026
Updated site plan showing new location of carbon filter abatement unit	24/06/2026
Response via email to additional information request sent to Applicant on 01/07/2026. Confirmation that the sample location for emissions to air monitoring confirms with BS EN 15259 Standard & associated drawings.	01/07/2026 & 02/07/2026
Response via email to additional information request sent to applicant via email on 02/07/2026. Response included updated Site Condition Report	19/08/2026
Updated Fire Prevention Plan – 2 versions submitted based on storage capacity of 1031 tonnes and another version based on 2082 tonnes. Odour Management Plan (OMP) V3 - This is the final version of the OMP.	10/09/2026
Response via email to additional information request sent to applicant via email on 01/09/2026. Response contained an updated Site Condition Report (SCR) – This is the final version of the SCR.	11/09/2026
Fire Prevention Plan V4. Plan based on storage capacity of 1031 tonnes.	17/09/2026
Fire Prevention Plan V5. Plan based on storage capacity of 1031 tonnes. This is the final version of the FPP.	24/09/2026

We have made a copy of this additional information available to the public in the same way as the response to our Schedule 5 Notice.

Having carefully considered the Application and all other relevant information, we are now putting our draft decision before the public and other interested parties in the form of a draft Permit, together with this explanatory document. As a result of this stage in the process, the public has been provided with all the information that is relevant to our determination, including the original Application and relevant additional information obtained subsequently, and we have given the public two separate opportunities (including this one) to comment on the Application and its determination. Once again, we will consider all relevant representations we receive in response to this final consultation and

will amend this explanatory document as appropriate to explain how we have done this, when we publish our final decision.

3 The legal framework

The Permit will be granted, if appropriate, under Regulation 13 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* and a *waste incineration plant* as described by the IED;
- an *operation* covered by the WFD, and
- subject to aspects of other relevant legislation which also have to be addressed.

We address some of the major legal requirements directly where relevant in the body of this document. Other requirements are covered in section 7 towards the end of this document.

We consider that, if we grant the 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.

4 The Installation

4.1 Description of the Installation and related issues

4.1.1 The permitted activities

The Installation is subject to the EPR because it carries out an activity listed in Part 1 of Schedule 1 to the EPR:

- Section 5.1 Part A(1)(a) – The incineration of hazardous waste in a waste incineration plant with a capacity of 10 tonnes per day or more.

The IED definition of “waste incineration plants” and “waste co-incineration plants” says that it includes:

“all incineration lines or co-incineration lines, waste reception, storage, on-site pre-treatment facilities, waste, fuel and air supply systems, boilers, facilities for the treatment of waste gases, on-site facilities for treatment or storage of residues and

waste water, stacks, devices for controlling incineration or co-incineration operations, recording and monitoring incineration or co-incineration conditions.”

Many activities which would normally be categorised as “directly associated activities” (DAA) for EPR purposes, such as air pollution control plant and the ash storage bunker, are therefore included in the listed activity description.

An installation may also comprise “directly associated activities”, which at this Installation includes the export of waste heat and a back-up electricity generator for emergencies which are associated to the incineration activity. These activities comprise one installation.

The installation also includes the following activities listed in Part 1 of Schedule 1 to the EPR:

- Section 5.6 Part A(1)(a) - Temporary Storage of Hazardous waste with a total capacity exceeding 50 tonnes.
- Section 5.3 A(1)(a)(iv) - Disposal or recovery of hazardous waste (other than by incineration or landfill) in a facility with a capacity exceeding 10 tonnes per day (Repackaging).

The bin washing activity, export of heat; operation of a back-up generator; and treatment of process effluents prior to sewer are directly associated activities to these Schedule 1 activities.

Together, these listed activities and directly associated activities comprise the Installation.

As well as the activities listed in Part 1 of Schedule 1 to the EPR described above the permit also includes the following waste operations:

- Repackaging of non-hazardous waste.
- Storage of non-hazardous waste.

4.1.2 The Site

The installation is located to the south-east of the Aycliffe Industrial Estate, adjacent to the existing Hitachi Rail Facility.

The Applicant submitted a plan which we consider is satisfactory, showing the site of the Installation and its extent. A plan is included in Schedule 7 to the Permit, and the Operator is required to carry on the permitted activities within the site boundary.

Further information on the site is addressed below at 4.3.

4.1.3 What the Installation does

The Applicant has described the facility as a High Temperature Thermal Treatment Facility. Our view is that for the purposes of IED (in particular Chapter IV) and EPR, the installation is a waste incineration plant because:

Notwithstanding the fact that energy will be recovered from the process; the process is nevertheless 'incineration' because it is considered that its main purpose is the thermal treatment of waste.

The main purpose of the facility is the incineration of clinical and commercial and industrial hazardous waste. Some non-hazardous waste will also be incinerated. The installation includes a repackaging activity and a storage and transfer activity where wastes are stored and repackaged prior to transfer to other facilities. Other activities carried out on site include washing of empty bins and containers that have previously contained clinical waste; treatment of effluent where necessary via pH adjustment and flocculation prior to discharge to sewer; operation of a standby generator and export of waste heat to a district heating system.

A maximum of 10,500 tonnes of waste shall be accepted per year, with a maximum of 1031 tonnes stored on site at any one time. Once received on-site, waste is weighed and then stored until transferred or used as feedstock for the Incinerator.

Incineration waste will be placed into the loading chamber via an automatic bin tipper which is regulated by the programmable control system; waste will not be loaded into the until the system identifies the conditions are ideal in the furnace. The primary burning chamber, configured as a rotary kiln system, will be designed to reduce the waste mass to a fine ash. A secondary after-burning chamber provides a turbulent and high-temperature environment for thorough treatment and oxidation of the partially burnt flue gases that are produced during the incineration process. The chamber will be built for the high-temperature operation that is required and has sufficient volume to ensure that all treated products are resident for at least two seconds during normal operations.

Bottom ashes will be discharged to a quench pit, transferred to a skip and will be subsequently sent to an appropriately licensed waste management facility. Gases will be then subjected to abatement by lime and activated carbon injection to treat pollutants entrained within, followed by bag filtration before discharge through a 30m high stack. The exhaust system will be fitted with an MCERTS (EA Monitoring Certification Scheme) accredited and IED compliant continuous emission monitoring system (CEMS), to monitor emissions and which is linked to programme control system which will be linked to the programme control system so as to provide operation control. Air pollution control residues (APCr) will be collected in an enclosed bagging station in which the residues are transferred to sealed bags. The filled bags will then be

removed from site and sent to an appropriately licensed waste management facility.

The heat recovered from the combustion of the waste is captured in a 4 drawer water tube boiler at approximately 130°C and then cooled before passing through the heat plate exchanger. The hot water will then be exported into a district heating main and is also used in the bin washing activity.

There will be a discharge of process effluent (consisting of boiler blowdown; waste wash water from bin wash/jet wash; and drainage from waste bins compound) to sewer under a consent to discharge from Northumbria Water. Other process effluents and contaminated runoff will be collected in an above ground storage tank and either transferred offsite for disposal at an appropriately licensed waste management facility; or injected into the incinerator for destruction. Uncontaminated rainwater from buildings roofs and surface water run-off from roadways, vehicle movement areas and areas of hardstanding will be collected and discharged into the site surface drainage system having passed through oil/water separators and emitted to Demon Beck. All of the drainage systems have penstock valves that can be closed off to prevent discharge where required.

There will be an environmental management system accredited to ISO 14001.

The key features of the incineration plant can be summarised in the table below.

Waste throughput, Tonnes/line	Up to 10,500 te /annum based on a throughput of up to 1.33 tonnes/hour and 90% plant availability.	
Waste processed	Clinical, commercial and industrial hazardous waste and non-hazardous waste	
Number of lines	1	
Furnace technology	Rotary Kiln	
Auxiliary Fuel	Natural Gas	
Acid gas abatement	Semi-dry	Hydrated lime
NOx abatement	SNCR	Ammonia
Reagent consumption	Ammonia : 170 t/annum Lime : 300 t/annum Activated carbon: 50 t/annum Process water: 1m ³ /hr	
Flue gas recirculation	No	
Dioxin abatement	Activated carbon	
Stack	Grid Reference: 426640(X), 522436(Y)	
	Height: 30 m	Diameter: 0.7 m
Flue gas	Flow: 6.94 Nm ³ /s	Velocity: 18.03 m/s
	Temperature °C	200
Electricity generated	None	None
Electricity exported	None	None

Waste heat use	The heat recovered from the combustion of the waste streams incinerated is captured in a 4 drawer water tube boiler at approximately 130°C and then cooled before passing through the heat plate exchanger (HPE), and then exported into the district heating main. The bin wash machine, the cabinet washer and manual washer will all take 95°C hot water directly from the pipework between the water boiler and the HPE and the balance of the energy recovered and generated will be sent directly into the district heat main via the HPE.
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4.1.4 Key Issues in the Determination

The key issues arising during determination of the Application were assessment of the impact of emissions to air and assessment of BAT and we therefore describe how we determined these issues in greater detail in the body of this document.

4.2 **The site and its protection**

4.2.1 Site setting, layout and history

The site lies immediately to the south of Heighington Lane. There are industrial/commercial units, agricultural land and golf course to the north of the site. To the east of the site is a railway line and more industrial/commercial units. To the south is the Hitachi Rail Plant and to the west are agricultural land and fields. Residential properties within 1km of the site include East Field Farm, Brakkes Farm and properties in School Aycliffe.

4.2.2 Proposed site design: potentially polluting substances and prevention measures

We are satisfied appropriate measures will be in place to prevent pollution of the ground and groundwater. The key features are:

- vehicles will be loaded and unloaded within the building in designated areas provided with impermeable hard standing. These areas will have appropriate falls to the process water drainage system.
- use of an isolation valve (penstock) will prevent the release of any contaminated runoff off-site.
- containment system: any facilities for the storage of oils, fuels or chemicals will be sited above ground on impervious bases and surrounded by impervious bund walls. The volume of the bunded compound will be at least the equivalent to the capacity of the tank plus 10%. All filling points, vents and gauges will be located within the bund.
- surfacing / containment has been designed in accordance with CIRIA (Construction Industry Research and Information Association) Guidance
- storage tanks will be constructed to the appropriate British Standard;
- tanks will be inspected visually on a daily basis by site staff to ensure the continued integrity of the tanks, and identify the requirement for any remedial action;
- materials suitable for absorbing and containing minor spillages will be maintained on site;
- the Operator will undertake daily monitoring for evidence of spillage and leakage.

Under Article 22(2) of the IED the Applicant is required to provide a baseline report containing at least the information set out in paragraphs (a) and (b) of the Article before starting operation.

The Applicant has submitted a site condition report (SCR) which includes a report on the baseline conditions as required by Article 22. We reviewed the report and the Applicant subsequently updated the SCR several times during the determination following information requests from us. We have reviewed the final version of the report and consider that it adequately describes the condition of the soil and groundwater prior to the start of operations.

The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the installation and at cessation of activities at the installation.

4.2.3 Closure and decommissioning

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the Installation, as referred to in the Operating techniques document in the Application. Pre-operational condition PO1 requires the Operator to have an Environmental Management System in place before the Installation is operational, and this will include a site closure plan.

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

4.3 Operation of the Installation – general issues

4.3.1 Administrative issues

The Applicant is the sole Operator of the Installation.

We are satisfied that the Applicant is the person who will have control over the operation of the Installation after the granting of the Permit; and that the Applicant will be able to operate the Installation so as to comply with the conditions included in the Permit.

4.3.2 Management

The Applicant has stated in the Application that they will implement an Environmental Management System (EMS) that will be certified under ISO14001. A pre-operational condition (PO1) is included requiring the Operator to provide a summary of the EMS prior to commissioning of the plant and to

make available for inspection all EMS documentation. The Environment Agency recognises that certification of the EMS cannot take place until the Installation is operational. An improvement condition (IC1) is included requiring the Operator to report progress towards gaining accreditation of its EMS.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

Condition 1.1.5 of the permit requires that the operator shall comply with the requirements of an approved competence scheme. This is a specific requirement for the permitted waste management activities. The Applicant provided appropriate evidence of persons providing technically competent management.

4.3.3 Site security

Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure.

4.3.4 Accident management

The Applicant provided an Accident Risk Assessment, Emergency Plan and Emergency Preparedness Procedure in the Application. We are satisfied that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised.

The Applicant submitted a Fire Prevention Plan (FPP). The plan was updated during the determination. We have reviewed the final version (V5) of the plan and we are satisfied that appropriate measures will be in place to prevent fires and to minimise the impact from a fire if it was to occur. We have approved the plan and incorporated this within operating techniques table S1.2 meaning that the site has to follow such requirements. Note we consulted with County Durham and Darlington Fire and Rescue Service and they raised no concerns.

4.3.5 Off-site conditions

We do not consider that any off-site conditions are necessary.

4.3.6 Operating techniques

We have specified that the Applicant must operate the Installation in accordance with the following documents contained in the Application:

Description	Parts Included
Application EPR/QP3720LP/A001	Response to questions in Part B3 of the Application Form & Operating-Techniques & BAT Document

Response to Schedule 5 Notice dated 12/11/25	Response to questions 1, 4, 5, 6, 7, 9, 10, 12, 16, 17, 18, 19, 20, 21, 23, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 41, 43, 45, 46, 47, 48, 50, 52, 60 and 61. Fire Prevention Plan V3 January 2026
Additional information requested 19/02/26	Response to questions 1 & 2
Additional Information	Odour Management Plan V3 dated September 2026
Additional information	Fire Prevention Plan V5 dated 24/09/2026
Healthcare waste: appropriate measures for permitted facilities Version published 13 July 2020	For activity AR1, all of the following parts of the appropriate measures guidance shall apply: • Waste pre-acceptance, acceptance and waste tracking appropriate measures • Waste storage, segregation and handling appropriate measures – measure
Healthcare waste: appropriate measures for permitted facilities Version published 13 July 2020	For activities AR2, AR3 AR8, AR9 all parts of the appropriate measures guidance shall apply.
Chemical waste: appropriate measures for permitted facilities Version published 18 November 2020	For activity AR1, all of the following parts of the appropriate measures guidance shall apply: • Waste pre-acceptance, acceptance, and tracking appropriate measures • Waste storage, segregation, and handling appropriate measures
Chemical waste: appropriate measures for permitted facilities Version published 18 November 2020	For activity AR1, all of the following parts of the appropriate measures guidance shall apply: • Waste pre-acceptance, acceptance, and tracking • Waste storage, segregation, and handling
Non-hazardous and inert waste: appropriate measures for permitted facilities Version published 12 July 2021	For activities AR2, AR3 AR8, AR9 all parts of the appropriate measures guidance shall apply..

The details set out above describe the techniques that will be used for the operation of the Installation that have been assessed by us as BAT; they form

part of the Permit through Permit condition 2.3.1 and Table S1.2 in the Permit Schedules.

We have also specified the following limits and controls on the use of raw materials and fuels:

Raw Material or Fuel	Specifications	Justification
Diesel	< 0.1% sulphur content	As required by Sulphur Content of Liquid Fuels Regulations.

Article 45(1) of the IED requires that the Permit must include a list of all types of waste which may be treated using at least the types of waste set out in the European Waste List established by Decision 2005/532/EC, EC, if possible, and containing information on the quantity of each type of waste, where appropriate. The Application contains a list of those wastes coded by the European Waste Catalogue (EWC) number, which the Applicant will accept in the waste streams entering the plant and which the plant is capable of burning in an environmentally acceptable way. The Applicant has also provide a separate waste list for waste that will accepted for temporary storage and transfer. We have specified in the permit the permitted waste types, descriptions and where appropriate quantities which can be accepted at the installation for incineration in Table S2.2; and those waste that can be accepted for temporary storage and transfer in table S2.3. Note that during the determination the Applicant provided an updated list of waste. The main change was the removal of all the 99 codes with exception of 20 01 99; and the following waste codes have also been removed from the waste list for incineration:

- All codes under subchapters 10 01, 10 02, 10 03, 10 05, 11 02, 11 03, 16 06, 19 01 (with the exception of 19 01 07*), 19 07.

The facility will be permitted to accept a broad range of waste types, reflecting its role as a specialist treatment option for materials that cannot be managed through landfill or conventional treatment routes.

Per- and polyfluoroalkyl substances (PFAS) contamination is a growing global concern due to their persistence and potential long-term impacts on ecosystems and human health.

The only source of waste which is currently known to contain PFAS in high concentrations is waste firefighting foams.

The Environment Agency has recently completed a systematic scoping review of PFAS Remediation. The report concludes that optimal operational conditions for the effective destruction of PFAS through incineration involve several critical parameters, including maintaining temperatures exceeding 1,100°C with residence times of at least 2 seconds. These conditions will be met by the facility, as required by condition 2.3.12(b) in the permit

We are satisfied that, with robust waste pre-acceptance and acceptance procedures in place, and given the technology to be employed at the facility, all wastes permitted can be safely and effectively processed in accordance with regulatory requirements.

We are satisfied that the Applicant can accept the wastes contained in Table S2.2 of the Permit because –

- (i) these wastes are likely to be within the design calorific value (CV) range for the plant;
- (ii) these wastes are unlikely to contain components that cannot be safely processed at the Installation.

The incineration plant will take clinical and commercial/industrial hazardous wastes and some non-hazardous waste which has not been source-segregated or separately collected or otherwise recovered, recycled or composted. The amount of recyclable material in the waste feed is largely outside the remit of this permit determination with recycling initiatives being a matter for the local authority. However, Permit conditions 2.3.5 and 2.3.6 limit the burning of separately collected fractions in line with regulation 12 of the Waste (England and Wales) Regulations 2011.

We have limited the capacity of the Installation to 10,500 tonnes per annum. This is based on the Applicant's proposals and is the tonnage and capacity on which the risk assessments provided in the Application have been based. We have also limited the maximum amount of waste that can be stored at any one time to 1031 tonnes. This is based on the Applicant's proposals and is described in the approved Fire Prevention Plan (FPP) that is referenced in Table S1.2 of the permit. Note that during the determination the Applicant requested an increased storage capacity of 2082 tonnes. However, they did not provide sufficient information to demonstrate they had sufficient storage capacity on site to store this amount of waste.

The Installation will be designed, constructed and operated using BAT for the incineration of the permitted wastes. We are satisfied that the operating and abatement techniques are BAT for incinerating these types of waste. Our assessment of BAT is set out later in this document.

4.3.7 Energy efficiency

(i) Consideration of energy efficiency

We have considered the issue of energy efficiency in the following ways:

1. The use of energy within, and generated by, the Installation which are normal aspects of all EPR permit determinations. This issue is dealt with in this section.

2. The extent to which the Installation meets the requirements of Article 50(5) of the IED, which requires *“the heat generated during the incineration and co-incineration process is recovered as far as practicable through the generation of heat, steam or power”*. This issue is covered in this section.
3. The combustion efficiency and energy utilisation of different design options for the Installation are relevant considerations in the determination of BAT for the Installation, including the Global Warming Potential of the different options. This aspect is covered in the BAT assessment in section 6 of this Decision Document.

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(ii) Use of energy within the Installation

Having considered the information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that energy is used efficiently within the Installation.

The Application details a number of measures that will be implemented at the Installation in order to increase its energy efficiency, these include:

- High efficiency motors
- High standards of cladding and insulation.
- The boilers will be equipped with economisers and superheaters to optimise thermal cycle efficiency without prejudicing boiler tube life, having regard for the nature of the fuel that is being burnt.
- Unnecessary releases of steam and hot water will be avoided, to avoid the loss of boiler water treatment chemical and the heat contained within the steam and water.
- Steady operation will be maintained where necessary by using auxiliary fuel firing.
- Boiler heat exchange surfaces will be cleaned on a regular basis to ensure efficient heat recovery.

(iii) Generation of energy within the Installation - Compliance with Article 50(5) of the IED

Article 50(5) of the IED requires that *“the heat generated during the incineration and co-incineration process is recovered as far as practicable”*.

The installation will generate a nominal 6.2 Megawatt hours thermal of energy in the form of hot water which will be distributed via a district heat main to local based consumers. The heat recovered from the combustion of waste incinerated will be captured in a 4-drawer water tube boiler at approximately 130°C before passing through the heat plate exchanger, and then exported into a district heating main.

The Applicant provided a calculation of the boiler efficiency. The boiler efficiency was calculated as 83%. The BAT-AEEL range for boiler efficiency (Hazardous waste other than hazardous wood waste) is 60 – 80%. The value calculated by the Applicant is therefore above this range.

In accordance with BAT 2 table S3.4 of the Permit requires the boiler efficiency to be measured by carrying out a performance test at full load. The test is carried out within 6 months of first operation and then within 6 months of any modification that significantly affects energy efficiency.

Guidance note EPR 5.01 and Chapter IV of the IED both require that waste heat should be recovered as far as practicable.

The location of the Installation largely determines the extent to which waste heat can be utilised, and this is a matter for the planning authority. The Applicant has stated that they will recovery energy from the incineration process which will be distributed via a district heating system in the form of hot water. They anticipate they will be supplying hot water to 3 off takers within 1 year of the plant being fully operational, with the first off taker being within the first 3 months and the second within 6 months.

The Applicant has provided an assessment of the viability of generating electricity from the process. They considered available technologies including Organic Rankine Cycle, Kalina Cycle, steam turbine technologies and CHP. Their assessment concluded that none of the options were viable for a plant of this size.

We consider that the Installation will recover heat as far as practicable, and therefore that the requirements of Article 50(5) are met.

(vi) Choice of Cooling System

The Applicant has stated that the installation will have hot water from the boiler that may require cooling in the unlikely event that the external uptake supply demand dropped. The Applicant has considered three cooling technologies:

- air cooled condenser (ACC);
- once through cooling (Water Cooling);
- evaporative condenser.

The Applicant will use air cooled condensers. They have justified the use of ACC based on water cooled systems requiring significant volumes of water and a receiving watercourse for the off- site discharge of the cooling water. The Applicant has stated that there is not an adequate watercourse that would be suitable and due to this reason the use of water-cooling is not considered to be an available option.

We are satisfied that the use of ACC is BAT for this site.

(vii) Compliance with Article 14(5) of the Energy Efficiency Directive

Compliance with Article 14(5) of the Energy Efficiency Directive is not a relevant consideration because the installation's total net thermal input is below the 20MW threshold specified in the directive.

(viii) Permit conditions concerning energy efficiency

Pre-operational condition PO2 requires the Operator to submit a plan to implement the heat supply scheme described in the Application, in order to ensure that waste heat from the plant is recovered as far as possible.

Condition 1.2.1 and 1.2.2 have also been included in the Permit, which require the Operator to review the opportunities available for energy efficiency on an ongoing basis, and to provide and maintain the proposed steam/hot water pass-outs.

The Operator is required to report energy usage and energy generated under condition 4.2 and Schedule 5 of the Permit. The following parameters are required to be reported: total energy usage and energy exported as heat. Together with the total waste burned per year, this will enable us to monitor energy recovery efficiency at the Installation and take action if at any stage the energy recovery efficiency is less than proposed.

There are no site-specific considerations that require the imposition of standards beyond indicative BAT, and so we accept that the Applicant's proposals represent BAT for this Installation.

4.3.8 Efficient use of raw materials

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place to ensure that the Operator will make efficient use of raw materials and water.

The Operator is required to report with respect to raw material usage under condition 4.2. and Schedule 4, including consumption of lime, activated carbon and ammonia used per tonne of waste burned. This will enable the Environment Agency to assess whether there have been any changes in the efficiency of the air pollution control plant, and the operation of the SNCR to abate NO_x. These are the most significant raw materials that will be used at the Installation, other than the waste feed itself (addressed elsewhere). The efficiency of the use of auxiliary fuel will be monitored separately as part of the energy reporting requirement under condition 4.2.1. Optimising reagent dosage for air abatement systems and minimising the use of auxiliary fuels is further considered in the section on BAT.

4.3.9 Avoidance, recovery or disposal with minimal environmental impact of wastes produced by the permitted activities

This requirement addresses wastes produced at the Installation and does not apply to the waste being treated there. The principal waste streams the Installation will produce are incinerator bottom ash (IBA) and air pollution control (APC) residues.

The first objective is to avoid producing waste at all. Waste production will be avoided by achieving a high degree of burnout of the IBA in the furnace, which results in a material that is both reduced in volume and in chemical and biological reactivity. Condition 3.1.3 and associated Table S3.5 specify limits for total organic carbon (TOC) of <3% in IBA. Compliance with this limit will

demonstrate that good combustion control and waste burnout is being achieved in the furnaces and waste generation is being avoided where practicable.

IBA is classified on the European List of Wastes as a “mirror entry”, which means IBA is a hazardous waste if it possesses a hazardous property relating to the content of dangerous substances. Monitoring of IBA at the Installation will be carried out in accordance with the requirements of Article 53(3) of IED. Classification of IBA for its subsequent use or disposal is controlled by other legislation and so is not duplicated within the Permit.

APC residues from flue gas treatment are hazardous waste and therefore must be sent for disposal to a landfill site permitted to accept hazardous waste, or to an appropriately permitted facility for hazardous waste treatment. The amount of APC residues is minimised through optimising the performance of the air emissions abatement plant.

In order to ensure that the IBA residues are adequately characterised, pre-operational condition PO3 requires the Operator to provide a written plan for approval detailing the IBA sampling protocols. Table S3.5 requires the Operator to carry out an ongoing programme of monitoring.

The Application states that bottom ash will be transferred off-site to a suitably licensed waste management facility for recovery or disposal.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the Waste Framework Directive (WFD) will be applied to the generation of waste and that any waste generated will be treated in accordance with that Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of using a method that minimises any impact on the environment. Standard condition 1.4.1 will ensure that this position is maintained.

5 Minimising the Installation’s environmental impact

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, discharges to ground or groundwater, global warming potential (GWP) and generation of waste and other environmental impacts. Consideration may also have to be given to the effect of emissions being subsequently deposited onto land (where there are ecological receptors). All these factors are discussed in this and other sections of this document.

For an installation of this kind, the principal emissions are those to air, although we also consider those to land and water.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of the emissions to air from the Installation on human health and the environment and what measures we are requiring to ensure a high level of protection.

5.1 Assessment Methodology

5.1.1 Application of Environment Agency guidance 'risk assessments for your environmental permit'

A methodology for risk assessment of point source emissions to air, which we use to assess the risk of applications we receive for permits, is set out in our guidance 'Air emissions risk assessment for your environmental permit' and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Screen out insignificant emissions that do not warrant further investigation
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions

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

5.1.2 Use of Air Dispersion Modelling

For incineration applications, we normally require the Applicant to submit a full air dispersion model as part of their application. Air dispersion modelling enables the process contribution to be predicted at any environmental receptor that might be impacted by the plant.

Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES) for air emissions. ES are described in our web guide 'Air emissions risk assessment for your environmental permit'.

Our web guide sets out the relevant ES as:

- Air Quality Standards Regulations 2010 Limit Values
- Air Quality Standards Regulations 2010 Target Values
- UK Air Quality Strategy Objectives
- Environmental Assessment Levels

Where a Limit Value exists, the relevant standard is the Limit Value. Where a Limit Value does not exist, target values, UK Air Quality Strategy (AQS) Objectives or Environmental Assessment Levels (EALs) are used. Our web guide sets out EALs which have been derived to provide a similar level of protection to human health and the environment as the limit values, target values and AQS objectives. In a very small number of cases, e.g. for emissions of lead, the AQS objective is more stringent than the Limit Value. In such cases, we use the AQS objective for our assessment.

Target values, AQS objectives and EALs do not have the same legal status as Limit Values, and there is no explicit requirement to impose stricter conditions than BAT in order to comply with them. However, they are a standard for harm and any significant contribution to a breach is likely to be unacceptable.

PCs are screened out as **Insignificant** if:

- the **long-term** PC is less than **1%** of the relevant ES; and
- the **short-term** PC is less than **10%** of the relevant ES.

The **long term** 1% PC insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect human health and the environment.

The **short term** 10% PC insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;
- the threshold provides a substantial safety margin to protect human health and the environment.

Where an emission is screened out in this way, we would normally consider the Applicant's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking

background concentrations and modelling uncertainties into account. Where an exceedance of an AAD limit value is identified, we may require the applicant to go beyond what would normally be considered BAT for the Installation or we may refuse the application if the applicant is unable to provide suitable proposals. Whether or not exceedances are considered likely, the application is subject to the requirement to operate in accordance with BAT.

This is not the end of the risk assessment, because we also take into account local factors (for example, particularly sensitive receptors nearby such as a SSSIs, SACs or SPAs). These additional factors may also lead us to include more stringent conditions than BAT.

If, as a result of reviewing the risk assessment and taking account of any additional techniques that could be applied to limit emissions, we consider that emissions **would cause significant pollution**, we would refuse the Application.

5.2 Assessment of Impact on Air Quality

The Applicant's assessment of the impact of air quality is set out in 'Air Dispersion Modelling' document provided with the Application. The assessment comprises:

- Dispersion modelling of emissions to air from the operation of the incinerator.
- A study of the impact of emissions on nearby protected conservation areas

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the incinerator chimney and its impact on local air quality. The impact on conservation sites is considered in section 5.4.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon local conservation sites and human health. These assessments predict the potential effects on local air quality from the Installation's stack emissions using the air dispersion model software ADMS 6.0 or AERMOD dispersion model, which is a commonly used computer model for regulatory dispersion modelling. The model used 5 years of meteorological data collected from the weather station at Durham Recording Station and Leeming Recording station between 2017 and 2021. The effect of the terrain surrounding the site upon plume dispersion was considered in the dispersion modelling.

The air impact assessments, and the dispersion modelling upon which they were based, employed the following assumptions.

- First, they assumed that the ELVs in the Permit would be the maximum permitted by Article 15(3), Article 46(2) and Annex VI of the IED. These substances are:
 - Oxides of nitrogen (NO_x), expressed as NO₂
 - Total dust

- Carbon monoxide (CO)
- Sulphur dioxide (SO₂)
- Hydrogen chloride (HCl)
- Hydrogen fluoride (HF)
- Metals (cadmium, thallium, mercury, antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium)
- Polychlorinated dibenzo-para-dioxins and polychlorinated dibenzo furans (referred to as dioxins and furans)
- Gaseous and vaporous organic substances, expressed as Total Organic Carbon (TOC)
- Ammonia (NH₃)
- Second, they assumed that the Installation operates continuously at the relevant long-term or short-term ELVs, i.e. the maximum permitted emission rate (metals are considered further in section 5.2.3 of this decision document).
- Third, the model also considered emissions of pollutants not covered by Annex VI of IED, specifically, polycyclic aromatic hydrocarbons (PAH) and polychlorinated biphenyls (PCBs). Emission rates used in the modelling have been drawn from data in the Waste Incineration BREF and are considered further in section 5.2.2.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are a reasonable worst-case.

The Applicant established the background (or existing) air quality against which to measure the potential impact of the incinerator. The background data is derived from a variety of sources including air quality networks spread across the UK and Defra background maps for pollutants. We are satisfied that the background data used is appropriate.

As well as predicting the maximum ground level concentration of the pollutants within the modelling domain, the Applicant has modelled several discrete receptor locations to represent human and ecological exposure.

The Applicant's use of the dispersion models, selection of input data, use of background data and the assumptions made, have been reviewed by our modelling specialists to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of human health impacts and impact on protected conservation areas. Our audit takes account of modelling uncertainties. We make reasonable worst-case assumptions and use the uncertainties (minimum 140%) in analysing the likelihood of exceeding any particular standard.

Our review of the Applicant's assessment leads us to agree with the Applicant's conclusions. We have also audited the air quality and human health impact assessment and similarly agree that the conclusions drawn in the reports were acceptable.

The Applicant's modelling predictions are summarised in the following sections.

5.2.1 Assessment of Air Dispersion Modelling Outputs

The Applicant's modelling predictions are summarised in the tables below.

The Applicant's modelling predicted peak ground level exposure to pollutants in ambient air. We have conservatively assumed that the maximum concentrations occur at the location of receptors.

As part of our checks, we carry out sensitivity analysis of the data provided and conduct our own check modelling to ensure that the applicant's modelling predictions are reliable.

Whilst we have used the Applicant's modelling predictions in the table below, we have made our own simple verification calculation of the percentage PC and predicted environmental concentration (PEC). These are the numbers shown in the tables below and so may be very slightly different to those shown in the Application. Any such minor discrepancies do not materially impact on our conclusions.

Non-metals

Pollutant	Environmental Standard		Back-ground	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
	µg/m ³	Reference period	µg/m ³	µg/m ³	% of EAL	µg/m ³	% of EAL
NO ₂	40	Annual mean	9.23	0.908	2.27 ^{Note 3}	10.1	25.3
	200	99.79th %ile of 1 hour means		4.38	<10		
PM ₁₀	40	Annual mean		0.054	<1		
	50	90.41st %ile of 24 hour means		0.179	<10		
PM _{2.5}	20	Annual mean		0.054	<1		
SO ₂	266	99.9th %ile of 15-min means		4.41	<10		
	350	99.73rd %ile of 1 hour means		2.77	<10		
	125	99.18th %ile of 24 hour means		1.92	<10		

HCl	750	1-hour mean		1.36	<1		
HF	16	Monthly mean		0.011	<1		
	160	1 hour mean		0.227	<10		
CO ^{Note 1}	10000	Maximum daily running 8 hour mean		4.0	<10		
VOC (as benzene) ^{Note 2}	5	Annual mean	0.273	0.108	2.16	0.38	7.62
	30	Daily mean		0.694	<10		
PAH	0.00025	Annual mean		9.73E-08	<1		
NH ₃	180	Annual mean		0.108	<1		
	2500	1 hour mean		2.27	<10		
PCBs	0.2	Annual mean		3.89E-11	<1		
	6	1 hour mean		8.16E-10	<10		

Note 1: The Applicant did not model emissions against the 1-hour mean for CO (30,000ug/m³). Our audit of the AQ modelling included a check of the impact against this standard and we are satisfied impacts will not lead to an exceedance of the ES.

Note 2: The Applicant did not model against the more stringent ES of 1,3 Butadiene 24 hour mean (2.25ug/m³). Our audit of the AQ modelling included a check of the impact against this standard and we are satisfied impacts will not lead to an exceedance of the ES.

Metals

Pollutant	Environmental Standard ^{Note 1}		Back-ground	Process Contribution		Predicted Environmental Concentration	
	ng/m ³	Reference period		ng/m ³	% of EAL	mg/m ³	% of EAL
Cd	5	Annual mean	0.637	0.216	4.32	0.85	17.1

Hg	250	Annual mean		0.108	<1		
	600	1 hour mean		4.53	<10		
Sb	5000	Annual mean		3.24	<1		
	150000	1 hour mean		68	<10		
Pb	250	Annual mean	22.2	3.24	1.30	25.4	10.2
Cu	10000	Annual mean		3.24	<1		
	200000	1 hour mean		68	<10		
Mn	1000	Annual mean		3.24	<1		
	1500000	1 hour mean		68	<10		
V		24 hr average (short term)					
	1000			20.8	<10		
	5000	Annual mean		3.24	<1		
As	3	Annual mean	0.897	3.24	108	4.14	137.9
Cr (II) (III)	5000	Annual mean		3.24	<1		
	150000	1 hour mean		68	<10		
Co	200	Annual mean	0.257	3.24	1.62	3.50	1.749
	6000	1 hour mean		68	<10		
Cr (VI)	0.25	Annual mean	0.88	3.24	1296	4.12	1647
Ni	20	Annual mean	1.36	3.24	16.2	4.60	23.0
Tl	1000	Annual mean		2.0000	<1		
	30000	1 hour mean		4.53	<10		

Note 1: The Applicant's Air Dispersion Modelling Assessment did not model emissions against a number of environmental standards (ES) for the metals listed in this table. These ES are detailed in EA guidance [Air emissions risk assessment for your environmental permit - GOV.UK](#). The ES are:

- 24-hour mean for Cd (30 ng/m³)
- 24-hour mean for Hg (60 ng/m³)
- 24-hour mean for Cu (50 ng/m³)
- 24-hour mean for Cr (II)(III) (2000 ng/m³)
- 1-hour mean for Ni (700 ng/m³)

As part of our audit of the AQ modelling we checked impacts against these ES and we are satisfied impacts will not lead to an exceedance of the ES.

(i) Screening out emissions which are insignificant

From the tables above the following emissions can be screened out as insignificant in that the PC is < 1% of the long term ES and <10% of the short term ES. These are:

- *PM₁₀, PM_{2.5}, SO₂, HCl, HF, CO, PAH, NH₃, PCBs, Tl, Sb, Mn, V, Cr (II)(III), Hg, Cu*

Therefore, we consider the Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation subject to the detailed audit referred to below.

(ii) Emissions unlikely to give rise to significant pollution

Also from the tables above the following emissions (which were not screened out as insignificant) have been assessed as being unlikely to give rise to significant pollution in that the PEC is less than 100% (taking expected modelling uncertainties into account) of both the long term and short term ES.

- *Ni, Co, Pb, Cd, NO₂, TOC.*

For these emissions, we have carefully scrutinised the Applicant's proposals to ensure that they are applying BAT to prevent and minimise emissions of these substances. This is reported in section 6 of this document.

(iii) Emissions requiring further assessment

Except for As and Cr(VI) which are considered further below, all emissions either screen out as insignificant or where they do not screen out as insignificant are considered unlikely to give rise to significant pollution.

5.2.2 Consideration of key pollutants

(i) Nitrogen dioxide (NO₂)

The impact on air quality from NO₂ emissions has been assessed against the ES of 40 µg/m³ as a long term annual average and 200 µg/m³ as a short term hourly average.

The model assumes a 70% NO_x to NO₂ conversion for the long term and 35% for the short term assessment in line with Environment Agency guidance on the use of air dispersion modelling.

The above tables show that the maximum long term PC is greater than 1% of the ES and therefore cannot be screened out as insignificant. However, from the table above, the emission is not expected to result in the ES being exceeded. The maximum short term PC is less than 10% of the ES and therefore can be screened out as insignificant. However, it is not expected to result in the ES being exceeded.

(ii) Particulate matter PM₁₀ and PM_{2.5}

The impact on air quality from particulate emissions has been assessed against the ES for PM₁₀ (particles of 10 microns and smaller) and PM_{2.5} (particles of 2.5 microns and smaller). For PM₁₀, the ES are a long term annual average of 40 µg/m³ and a short term daily average of 50 µg/m³. For PM_{2.5} the ES of 20 µg/m³ as a long-term annual average was used, having changed from 25 µg/m³ in 2020.

The Applicant's predicted impact of the Installation against these ES is shown in the tables above. The assessment assumes that **all** particulate emissions are present as PM₁₀ for the PM₁₀ assessment and that **all** particulate emissions are present as PM_{2.5} for the PM_{2.5} assessment.

The above assessment is considered to represent a worst case assessment in that:

- It assumes that the plant emits particulates continuously at the IED Annex VI limit for total dust, whereas actual emissions from similar plant are normally lower.
- It assumes all particulates emitted are below either 10 microns (PM₁₀) or 2.5 microns (PM_{2.5}), when some are expected to be larger.

We have reviewed the Applicant's particulate matter impact assessment and are satisfied in the robustness of the Applicant's conclusions.

The above table shows that the predicted PC for emissions of PM₁₀ is below 1% of the long term ES and below 10% of the short term ES and so can be screened out as insignificant. Therefore, we consider the Applicant's proposals for preventing and minimising the emissions of particulates to be BAT for the Installation.

The above table also shows that the predicted PC for emissions of PM_{2.5} is also below 1% of the ES. Therefore, the Environment Agency concludes that particulate emissions from the installation, including emissions of PM₁₀ or PM_{2.5}, will not give rise to significant pollution.

There is currently no emission limit prescribed nor any continuous emissions monitor for particulate matter specifically in the PM₁₀ or PM_{2.5} fraction. Whilst we are confident that current monitoring techniques will capture the fine particle fraction (PM_{2.5}) for inclusion in the measurement of total particulate matter, an improvement condition (IC2) has been included that will require a full analysis of particle size distribution in the flue gas (within 6 months of the completion of commissioning) and hence determine the ratio of fine to coarse particles. In the light of current knowledge and available data however we are satisfied that the health of the public would not be put at risk by such emissions, as explained in section 5.3.3.

(iii) Acid gases, sulphur dioxide (SO₂), hydrogen chloride (HCl) and hydrogen fluoride (HF)

From the tables above, emissions of HCl and HF can be screened out as insignificant in that the process contribution is <10% of the short term ES. The ES for HCl is 750 µg/m³, this is an hourly short term average, there is no long term ES for HCl. HF has 2 assessment criteria – a 1-hr ES of 160 µg/m³ and a monthly ES of 16 µg/m³ – the process contribution is <1% of the monthly ES and so the emission screens out as insignificant if the monthly ES is interpreted as representing a long term ES.

There is no long term EAL for SO₂ for the protection of human health. Protection of ecological receptors from SO₂ for which there is a long term ES is considered in section 5.4. There are three short term ES, hourly of 350 µg/m³, 15 – minute of 266 µg/m³ and daily of 125 µg/m³.

From the above table, emissions of SO₂ can be screened out as insignificant in that the short term process contribution is <10% of each of the three short term ES values. Therefore, we consider the Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation.

(iv) Emissions to air of carbon monoxide (CO), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), Dioxins and ammonia (NH₃)

The above tables show that for CO emissions, the maximum long term PC is less than 1% of the ES and the maximum short term PC is less than 10% of the ES and so can be screened out as insignificant. Therefore, we consider the

Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation.

The Applicant has based their assessment of VOC impacts on the Environmental Standard (ES) for benzene. The table above shows that for VOC as benzene the maximum long-term PC is greater than 1% of the ES and therefore cannot be screened out as insignificant. However, from the table above, the emission is not expected to result in the ES being exceeded. Note that we have audited the Applicant's modelling outputs against the relevant short-term and long-term ES for 1,3-butadiene. This approach was taken because 1,3-butadiene has the lowest ES among the organic compounds that could be present in VOC emissions (excluding PAHs, PCBs, dioxins, and furans). Our audit found that emissions of VOCs as 1,3-butadiene will not lead to an exceedance of the ES.

The above tables show that for PAH and PCB emissions, the maximum long term PC is less than 1% of the ES and the maximum short term PC is less than 10% of the ES for PCBs and so can be screened out as insignificant. Therefore, we consider the Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation.

The Applicant has also used the ES for benzo[a]pyrene (BaP) for their assessment of the impact of PAH. We agree that the use of the BaP ES is sufficiently precautionary.

There is no ES for dioxins and furans as the principal exposure route for these substances is by ingestion and the risk to human health is through the accumulation of these substances in the body over an extended period of time. This issue is considered in more detail in section 5.3

From the tables above all the other emissions can be screened out as insignificant in that the PC is < 1% of the long term ES and <10% of the short term ES.

The ammonia emission is based on a release concentration of 10 mg/m³. We are satisfied that this level of emission is consistent with the operation of a well controlled SNCR NO_x abatement system.

Whilst all emissions cannot be screened out as insignificant, the Applicant's modelling shows that the installation is unlikely to result in a breach of the ES. The Applicant is required to prevent, minimise and control PAH and VOC emissions using BAT, this is considered further in Section 6. We are satisfied that PAH and VOC emissions will not result in significant pollution.

(V) Summary

For the above emissions to air, for those emissions that have not screened out as insignificant, we have carefully scrutinised the Applicant's proposals to ensure that they are applying the BAT to prevent and minimise emissions of these substances. This is reported in section 6 of this document. Therefore,

we consider the Applicant's proposals for preventing and minimising emissions to be BAT for the Installation. Dioxins and furans are considered further in section 5.3.2.

5.2.3 Assessment of Emission of Metals

The Applicant has assessed the impact of metal emissions to air, as previously described.

There are three sets of BAT AELs for metal emissions:

- An emission limit value of 0.02 mg/m³ for mercury and its compounds (formerly WID group 1 metals).
- An aggregate emission limit value of 0.02 mg/m³ for cadmium and thallium and their compounds (formerly WID group 2 metals).
- An aggregate emission limit of 0.3 mg/m³ for antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium and their compounds (formerly WID group 3 metals).

In addition, the UK is a Party to the Heavy Metals Protocol within the framework of the UN-ECE Convention on long-range trans-boundary air pollution. Compliance with the IED Annex VI emission limits for metals along with the Application of BAT also ensures that these requirements are met.

In section 5.2.1 above, the following emissions of metals were screened out as insignificant:

- *Tl, Sb, Mn, V, Cr (II)(III), Hg, Cu*

Also in section 5.2.1, the following emissions of metals whilst not screened out as insignificant were assessed as being unlikely to give rise to significant pollution:

- *Ni, Co, Pb, Cd.*

This left emissions of As and Cr(VI) requiring further assessment. For all other metals, the Applicant has concluded that exceedances of the ES for all metals are not likely to occur.

For metals As and Cr (VI) the Applicant Used representative emissions data from other waste incinerators using our guidance note "Guidance to Applicants on Impact Assessment for Group 3 Metals Stack Releases – version 4". The data in the guidance note is from Municipal waste incinerators. As this incinerator will burn hazardous waste we have reviewed emissions monitoring data from hazardous waste incinerator plants that we regulate. We are satisfied that metal emissions set out in 'Guidance to Applicants on Impact Assessment for Group 3 Metals Stack Releases – version 4' will be representative of emissions from hazardous waste incinerator plants.

Measurement of Chromium (VI) at the levels anticipated at the stack emission points is expected to be difficult, with the likely levels being below the level of detection by the most advanced methods.

Data for Cr (VI) was based on total Cr emissions measurements and the proportion of total Cr to Cr (VI) in APC residues.

Based on the above, the following emissions of metals were screened out as insignificant:

- Cr(VI)

The following emissions of metals whilst not screened out as insignificant were assessed as being unlikely to give rise to significant pollution:

- As

In the permit we have added Improvement Condition IC6 which requires the operator to carry out an assessment (within 15 months of the completion of commissioning) of the impact of emissions to air of As and Cr based on actual emissions once the facility is operational. This condition ensures that we can, if required, vary the permit in the unlikely event that any environmental standards have the potential to be exceeded.

The installation has been assessed as meeting BAT for control of metal emissions to air. See section 6 of this document.

5.2.4 Consideration of Local Factors

(i) Impact on Air Quality Management Areas (AQMAs)

No AQMAs have been declared within an area likely to be affected by emissions from the Installation.

5.3 **Human health risk assessment**

5.3.1 Our role in preventing harm to human health

The Environment Agency has a statutory role to protect the environment and human health from all processes and activities it regulates. We assessed the effects on human health for this application in the following ways:

i) **Applying Statutory Controls**

The plant will be regulated under EPR. The EPR include the requirements of relevant EU Directives, notably, the IED, the WFD, and ADD.

The main conditions in an EfW permit are based on the requirements of the IED. Specific conditions have been introduced to specifically ensure compliance with the requirements of Chapter IV of the IED. The aim of the IED is to prevent or, where that is not practicable, to reduce emissions to air, water and land and prevent the generation of waste, in order to achieve a high level of protection of the environment taken as a whole. IED achieves this aim by setting operational conditions, technical requirements and emission limit values to meet the requirements set out in Articles 11 and 18 of the IED. These requirements may in some circumstances dictate tighter emission limits and controls than those set out in the BAT conclusions (BAT-C) or Chapter IV of IED on waste incineration and co-incineration plants. The assessment of BAT for this installation is detailed in section 6 of this document.

ii) Environmental Impact Assessment

Industrial activities can give rise to odour, noise and vibration, accidents, fugitive emissions to air and water, releases to air (including the impact on Photochemical Ozone Creation Potential (POCP)), discharges to ground or groundwater, GWP and the generation of waste. For an installation of this kind, the principal environmental effects are through emissions to air, although we also consider all of the other impacts listed. Section 5.1 and 5.2 above explain how we have approached the critical issue of assessing the likely impact of the emissions to air from the Installation on human health and the environment and any measures we are requiring to ensure a high level of protection.

iii) Expert Scientific Opinion

There is a significant amount of literature on whether there are links between operation of incineration plants and effects on health. We have not referenced them here, but we have included information on one of the most recent studies that was commissioned by the UK Health Security Agency (UKHSA), previously Public Health England (PHE). The overall weight of the evidence is that there is not a significant impact on human health.

UKHSA review research undertaken to examine suggested links between emissions from municipal waste incinerators and effects on health. UKHSA's risk assessment is that modern, well run and regulated municipal waste incinerators are not a significant risk to public health. While it is not possible to rule out adverse health effects from these incinerators completely, any potential effect for people living close by is likely to be very small.

UKHSA keep literature on health effects under review and would inform us if there were any changes to the above position. Similarly, we would consult UKHSA if new evidence was provided to us.

In 2012 the UK Small Area Health Statistics Unit (SAHSU) at Imperial College was commissioned by PHE to carry out a study to extend the evidence base and to provide further information to the public about any potential reproductive and infant health risks from municipal waste incineration (MWIs).

A number of papers have been published by SAHSU since 2012 which show no effect on birth outcomes. One paper in the study looked at exposure to emissions from MWIs in the UK and concluded that exposure was low. Subsequent papers found no increased risk of a range of birth outcomes (including stillbirth and infant mortality) in relation to exposure to PM₁₀ emissions and proximity to MWIs, and no association with MWIs opening on changes in risks of infant mortality or sex ratio.

The final part of the study, published on 21/06/19, found no evidence of increased risk of congenital anomalies from exposure to MWI chimney emissions, but a small potential increase in risk of congenital anomalies for children born within ten kilometres of MWIs. The paper does not demonstrate a causal effect, and it acknowledges that the observed results may well be

down to not fully adjusting the study for factors such as other sources of pollution around MWIs or deprivation.

UKHSA have stated that ‘While the conclusions of the study state that a causal effect cannot be excluded, the study does not demonstrate a causal association and makes clear that the results may well reflect incomplete control for confounding i.e. insufficiently accounting for other factors that can cause congenital anomalies, including other sources of local pollution. This possible explanation is supported by the fact no increased risk of congenital anomalies was observed as a result of exposure to emissions from an incinerator.’

Following this study, UKHSA have further stated that their position remains that modern, well run and regulated municipal waste incinerators are not a significant risk to public health.

The UKHSA’s current opinion on incineration refers specifically to municipal waste incinerators (MWIs). The evidence which underpins its opinion is also from studies on the health effects from MWIs.

The EA’s position is that the UKHSA’s advice is also relevant for hazardous waste incinerators (HWIs) since these have to meet the same strict emission limits and other permit requirements as MWIs. These include the same requirement to use best available techniques, along with some more stringent conditions such as higher combustion temperatures.

The EA is not aware of any evidence which shows that emissions from HWIs could have a different impact on human health to those from MWIs and the UKHSA has not flagged any concerns about the health impacts from the proposed HWI in their consultation response on the permit application.

We agree with the view stated by the UKHSA. We ensure that permits contain conditions which require the installation to be well-run and regulate the installation to ensure compliance with such permit conditions.

iv) Health Risk Models

Comparing the results of air dispersion modelling as part of the Environmental Impact assessment against European and national air quality standards effectively makes a health risk assessment for those pollutants for which a standard has been derived. These air quality standards have been developed primarily to protect human health via known intake mechanisms, such as inhalation and ingestion. Some pollutants, such as dioxins, furans and dioxin like PCBs, have human health impacts at lower ingestion levels and lend themselves to setting an air quality standard to control against. For these pollutants, a different human health risk model is required which better reflects the level of dioxin intake.

Models are available to predict the dioxin, furan and dioxin like PCBs intake for comparison with the Tolerable Daily Intake (TDI) recommended by the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment, known as COT. These include the HHRAP model.

HHRAP has been developed by the US EPA to calculate the human body intake of a range of carcinogenic pollutants and to determine the mathematical quantitative risk in probabilistic terms. In the UK, in common with other European countries, we consider a threshold dose below which the likelihood of an adverse effect is regarded as being very low or effectively zero.

The TDI is the amount of a substance that can be ingested daily over a lifetime without appreciable health risk. It is expressed in relation to bodyweight to allow for different body size, such as for adults and children of different ages. In the UK, the COT has set a TDI for dioxins, furans and dioxin like PCBs of 2 picograms WHO-TEQ/kg-body weight/day (a picogram is a millionth of a millionth (10^{-12}) of a gram).

In addition to an assessment of risk from dioxins, furans and dioxin like PCBs, the HHRAP model enables a risk assessment from human intake of a range of heavy metals. In principle, the respective ES for these metals are protective of human health. It is not therefore necessary to model the human body intake.

The Committee on the Medical Effects of Air Pollution (COMEAP) developed a methodology based on the results of time series epidemiological studies which allows calculation of the public health impact of exposure to the classical air pollutants (NO₂, SO₂ and particulates) in terms of the numbers of “deaths brought forward” and the “number of hospital admissions for respiratory disease brought forward or additional”. Defra reviewed this methodology and concluded that the use of the COMEAP methodology is not generally recommended for modelling the human health impacts of individual installations.

Our recommended approach is therefore the use of the methodology set out in our guidance for comparison for most pollutants (including metals) and dioxin intake modelling using the HHRAP model as described above for dioxins, furans and dioxin like PCBs. Where an alternative approach is adopted for dioxins, we check the predictions ourselves.

v) Consultations

As part of our normal procedures for the determination of a permit application, we consult with Local Authorities, Local Authority Directors of Public Health, FSA and UKHSA. We also consult the local communities who may raise health related issues. All issues raised by these consultations are considered in determining the Application as described in Annex 4 of this document.

5.3.2 Assessment of Intake of Dioxins, Furans and Dioxin like PCBs

For dioxins, furans and dioxin like PCBs, the principal exposure route is through ingestion, usually through the food chain, and the main risk to health is through accumulation in the body over the lifetime of the receptor.

The human health risk assessment calculates the dose of dioxins and furans that would be received by local receptors if their food and water were sourced from the locality where the deposition of dioxins, furans and dioxin like PCBs is predicted to be the highest. This is then assessed against the Tolerable Daily Intake (TDI) levels established by the COT of 2 picograms WHO-TEQ / kg body weight/ day.

The results of the Applicant's assessment of dioxin intake are detailed in the table below (worst case results for each category are shown). The results showed that the predicted daily intake of dioxins, furans and dioxin like PCBs at all receptors, resulting from emissions from the proposed facility, were significantly below the recommended TDI levels. The table below presents the modelled intake as a % of the 2 pg-TEQ/kg/d TDI.

Receptor	adult	child
Farmer	3.85%	5.54%
Residential	0.1%	0.33%

Our checks confirm that the dioxin, furan and dioxin-like PCB intakes are below 10% of the COT TDI and are not considered a significant risk to health. This also applies to any increased emissions of dioxins, furans and dioxin-like PCBs during worst-case abnormal operations. This is based on the UKHSA advice that:

- A total exposure including the PC from dioxins, furans and dioxin-like PCBs is without appreciable health risk if the total exposure is below the TDI.
- If total exposure results in an exceedance of the COT TDI, if the PC from the facility is less than 10% it would be unlikely to result in a significant risk.

In 2010, the FSA studied the levels of chlorinated, brominated and mixed (chlorinated-brominated) dioxins and dioxin-like PCBs in fish, shellfish, meat and eggs consumed in the UK. It asked COT to consider the results and to advise on whether the measured levels of these PXDDs, PXDFs and PXBs indicated a health concern ('X' means a halogen). COT issued a statement in December 2010 and concluded that "The major contribution to the total dioxin toxic activity in the foods measured came from chlorinated compounds. Brominated compounds made a much smaller contribution, and mixed halogenated compounds contributed even less (1% or less of TDI). Measured levels of PXDDs, PXDFs and dioxin-like PXBs do not indicate a health concern". COT recognised the lack of quantified TEFs for these compounds

but said that “even if the TEFs for PXDDs, PXDFs and dioxin-like PXBs were up to four fold higher than assumed, their contribution to the total TEQ in the diet would still be small. Thus, further research on PXDDs, PXDFs and dioxin-like PXBs is not considered a priority.”

In the light of this statement, we assess the impact of chlorinated compounds as representing the impact of all chlorinated, brominated and mixed dioxins / furans and dioxin like PCBs.

5.3.3 Particulates smaller than 2.5 microns

The Operator will be required to monitor particulate emissions using the method set out in Table S3.1 of Schedule 3 of the Permit. This method requires that the filter efficiency must be at least 99.5 % on a test aerosol with a mean particle diameter of 0.3 μm , at the maximum flow rate anticipated. The filter efficiency for larger particles will be at least as high as this. This means that particulate monitoring data effectively captures everything above 0.3 μm and much of what is smaller. It is not expected that particles smaller than 0.3 μm will contribute significantly to the mass release rate / concentration of particulates because of their very small mass, even if present. This means that emissions monitoring data can be relied upon to measure the true mass emission rate of particulates.

Nano-particles are considered to refer to those particulates less than 0.1 μm in diameter ($\text{PM}_{0.1}$). Questions are often raised about the effect of nano-particles on human health, in particular on children’s health, because of their high surface to volume ratio, making them more reactive, and their very small size, giving them the potential to penetrate cell walls of living organisms. The small size also means there will be a larger number of small particles for a given mass concentration. However, the UKHSA statement (referenced below) says that due to the small effects of incinerators on local concentration of particles, it is highly unlikely that there will be detectable effects of any particular incinerator on local infant mortality.

The UKHSA addresses the issue of the health effects of particulates in their September 2009 statement ‘The Impact on Health of Emissions to Air from Municipal Incinerators’. It refers to the coefficients linking PM_{10} and $\text{PM}_{2.5}$ with effects on health derived by COMEAP and goes on to say that if these coefficients are applied to small increases in concentrations produced, locally, by incinerators; the estimated effects on health are likely to be small. UKHSA note that the coefficients that allow the use of number concentrations in impact calculations have not yet been defined because the national experts have not judged that the evidence is sufficient to do so. This is an area being kept under review by COMEAP.

In December 2010, COMEAP published a report on The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. It says that “a policy which aims to reduce the annual average concentration of $\text{PM}_{2.5}$ by 1 $\mu\text{g}/\text{m}^3$ would result in an increase in life expectancy of 20 days for people born in 2008.” However, “The Committee stresses the need for careful interpretation of these metrics to avoid incorrect inferences being drawn – they

are valid representations of population aggregate or average effects, but they can be misleading when interpreted as reflecting the experience of individuals.”

UKHSA also point out that in 2007 incinerators contributed 0.02% to ambient ground level PM₁₀ levels compared with 18% for road traffic and 22% for industry in general. UKHSA noted that in a sample collected in a day at a typical urban area the proportion of PM_{0.1} is around 5-10% of PM₁₀. It goes on to say that PM₁₀ includes and exceeds PM_{2.5} which in turn includes and exceeds PM_{0.1}. The National Atmospheric Emissions Inventory (NAEI) figures show that in 2016 municipal waste incineration contributed 0.03% to ambient ground level PM₁₀ levels and 0.05% to ambient ground level PM_{2.5} levels. The 2016 data also shows that road traffic contributed to 5.35% of PM₁₀ and 4.96% of PM_{2.5} and that domestic wood burning contributed 22.4% to PM₁₀ and 34.3% of PM_{2.5} levels.

This is consistent with the assessment of this Application which shows emissions of PM₁₀ to air to be insignificant.

A 2016 paper by Jones and Harrison concluded that ‘ultrafine particles (<100nm) in flue gases from incinerators are broadly similar to those in urban air and that after dispersion with ambient air ultrafine particle concentrations are typically indistinguishable from those that would occur in the absence of the incinerator.

We take the view, based on the foregoing evidence, that techniques which control the release of particulates to levels which will not cause harm to human health will also control the release of fine particulate matter to a level which will not cause harm to human health.

5.3.4 Assessment of Health Effects from the Installation

Our assessment of health impacts is summarised below

- i. We have applied the relevant requirements of the Environmental legislation in imposing the permit conditions. We are satisfied that compliance with these conditions will ensure protection of the environment and human health.
- ii. In carrying out air dispersion modelling as part of the environmental impact assessment and comparing the PC and PEC with the ES, the Applicant has effectively made a health risk assessment for many pollutants. The Applicant’s assessment and our check modelling assessment indicated that the Installation emissions screen out as insignificant or where the impact of emissions were not screened out as insignificant, the assessment still shows that the PEC are well within the ES.
- iii. We have assessed the health effects from the operation of this installation in relation to the above (sections 5.3.1 to 5.3.3).

- iv. We have reviewed the methodology employed by the Applicant to carry out the health impact assessment.

Our review confirms that emissions from the facility, including during abnormal operations, are not expected to pose a significant risk to public health. Predicted pollutant levels remain within environmental safety standards. The intake of dioxins, furans, and dioxin-like PCBs is well below health-based thresholds, even under worst-case conditions.

We carried out our own modelling and sensitivity checks. While there were some differences in numerical values, we found the applicant's conclusions to be robust and suitable for permit determination.

Overall, taking into account the conservative nature of the impact assessment (i.e. that it is based upon an individual exposed for a life-time to the effects of the highest predicted relevant airborne concentrations and consuming mostly locally grown food), it was concluded that the operation of the proposed facility will not pose a significant risk to human health.

- v. We agree with the conclusion reached by UKHSA that modern, well run and regulated municipal waste incinerators are not a significant risk to public health. While it is not possible to rule out adverse health effects from these incinerators completely, any potential risk for people living close by is likely to be very small.
- vi. UKHSA were consulted on the Application. They concluded that they had no significant concerns regarding the risk to the health of humans from the installation. The Food Standards Agency was also consulted during the permit determination process and did not provide a response to our consultation. Details of the responses provided by UKHSA to the consultation on this Application can be found in Annex 4.

We are therefore satisfied that the Applicant's conclusions presented above are reliable and we conclude that the potential emissions of pollutants including dioxins, furans and metals from the proposed facility are unlikely to have a significant impact on human health.

5.4 Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

5.4.1 Sites Considered

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites within 10 km of the proposed Installation.

There are no Sites of Special Scientific Interest (SSSI) within 2 km of the proposed Installation.

The following local nature sites (ancient woodlands, local wildlife sites (LWS) and national and local nature reserves) are located within 2 km of the Installation:

- Crumby Pond LWS
- The Snipe LWS
- Aycliffe Quarry LWS
- School Aycliffe Wetland

5.4.2 Assessment of local nature sites

Conservation sites are protected in law by legislation which provides the highest level of protection for SACs and SPAs, and also for protection of protection for SSSIs. Finally, the Environment Act 1995 provides more generalised protection for flora and fauna rather than for specifically named conservation designations. It is under the Environment Act 1995 that we assess other sites (such as ancient woodlands, local wildlife sites and national and local nature reserves) which prevents us from permitting something that will result in significant pollution; and which offers levels of protection proportionate with other European and national legislation. However, it should not be assumed that because levels of protection are less stringent for these other sites, that they are not of considerable importance. Local sites link and support EU and national nature conservation sites together and hence help to maintain the UK's biodiversity resilience.

For SACs SPAs, Ramsars and SSSIs we consider the PC and the background levels in making an assessment of impact. In assessing the local nature sites under the Environment Act 1995 we look at the impact from the Installation alone to determine whether it would cause significant pollution. This is a proportionate approach, in line with the levels of protection offered by the conservation legislation to protect these other sites (which are generally more numerous than Natura 2000 or SSSIs) whilst ensuring that we do not restrict development.

Critical levels and loads are set to protect the most vulnerable habitat types. Thresholds change in accordance with the levels of protection afforded by the legislation. Therefore, the thresholds for SAC SPA and SSSI features are more stringent than those for local nature sites.

Therefore, we would generally conclude that the Installation is not causing significant pollution at these other sites if the PC is less than the relevant critical level or critical load, provided that the Applicant is using BAT to control emissions.

The Applicants dispersion modelling report assessed impacts at Cumby Pond LWS, Aycliffe Quarry LWS, School Aycliffe LWS and Aycliffe Nature Park LWS. Their assessment

Pollutant	ES / EAL ($\mu\text{g}/\text{m}^3$)	Most affected LWS	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of ES
Direct Impacts ¹				
NO _x Annual	30	Cumby Pond LWS	0.397	1.32%
NO _x Daily Mean	75		4.20	5.59%
SO ₂	10		0.0993	0.99%
Ammonia	1		0.033	3.31%
HF Weekly Mean	0.5		0.0164	3.27%
HF Daily Mean	5		0.0350	0.7%
Deposition Impacts ¹				
N Deposition (kg N/ha/yr)	15-30	Cumby Pond LWS		29.61% of lower Critical load
Acidification (Keq/ha/yr)	30	Aycliffe Quarry		1.88%

The tables above show that the PCs at the most affected LWS are below the critical levels or loads. We are therefore satisfied that the Installation will not cause significant pollution at any of the conservation sites assessed.

Note that the Applicant did not include assessment of the impact at The Snipe LWS. Our audit of the dispersion modelling included assessment of the impact at this LWS. Our assessment concluded that PCs at The Snipe LWS will not lead to the exceedance of a critical load or critical level.

The Applicant is required to prevent, minimise and control emissions using BAT, this is considered further in Section 6.

5.4.3 Assessment of other habitats and species.

As part of our assessment, we check on protected sites, habitats and species which have the potential to be impacted by the activity being proposed. This is done using our own internal screening tools to generate a list of sites and species. We also had a large number of consultation responses expressing concern over impacts on nearby sites and species.

The list of species we identified did not match those listed in the public consultation; our list is of those species and habitats that could be directly impacted by emissions from the Installation. However, where these species

have been encountered by members of the public, we believe that the nearby local wildlife sites and wider protected habitats are likely to be the main areas frequented by such species even though the species are not recorded as being integral to them. These sites and habitats are protected during our determination (see section 5.4.3 above) as part of our general duties to protect the wider environment and to not allow any significant pollution, and as such we believe that protecting these supporting habitats will inherently protect the associated species noted within the public consultation.

5.5 Impact of abnormal operations

Article 50(4)(c) of the IED requires that waste incineration and co-incineration plants shall operate an automatic system to prevent waste feed whenever any of the continuous emission monitors show that an ELV is exceeded due to disturbances or failures of the purification devices. Notwithstanding this, Article 46(6) allows for the continued incineration and co-incineration of waste under such conditions provided that this period does not (in any circumstances) exceed 4 hours uninterrupted continuous operation or the cumulative period of operation does not exceed 60 hours in a calendar year. This is a recognition that the emissions during transient states (e.g. start-up and shut-down) are higher than during steady-state operation, and the overall environmental impact of continued operation with a limited exceedance of an ELV may be less than that of a partial shut-down and re-start.

For incineration plant, IED sets backstop limits for particulates, CO and TOC which must continue to be met during abnormal operation. The CO and TOC limits are the same as for normal operation, and are intended to ensure that good combustion conditions are maintained. The backstop limit for particulates is 150 mg/m³ (as a half hourly average) which is five times the limit in normal operation.

Article 45(1)(f) requires that the permit shall specify the maximum permissible period of any technically unavoidable stoppages, disturbances, or failures of the purification devices or the measurement devices, during which the concentrations in the discharges into the air may exceed the prescribed emission limit values. In this case we have decided to set the time limit at 4 hours, which is the maximum period prescribed by Article 46(6) of the IED.

These abnormal operations are limited to no more than a period of 4 hours continuous operation and no more than 60 hours aggregated operation in any calendar year. This is less than 1% of total operating hours and so abnormal operating conditions are not expected to have any significant long term environmental impact unless the background conditions were already close to, or exceeding, an ES. For the most part therefore consideration of abnormal operations is limited to consideration of its impact on short term ESs.

Assessment of emissions during abnormal operation was provided by the applicant. The Applicant's assessment of Short Term (ST) air quality impacts resulting from abnormal operation assumed that the plant operates for fours

continuously at the maximum emission concentration (i.e. half-hourly limit or abnormal emission limit). The assessment considered ST emissions of PM₁₀, HCl, HF, SO₂, NO₂ and CO. The assessment concluded that ST abnormal emissions would not lead to the exceedance of the ES for any of the parameters assessed.

Our audit of the Applicant's abnormal emissions assessment identified that the assessment did not assess ST emissions of heavy metals, dioxins, PCBs or VOCs. Our check modelling assessment included an abnormal emissions assessment that included these parameters in addition to those assessed by the Applicant. Our assessment agreed with the Applicant's conclusion that ST abnormal emissions would not lead to the exceedance of the ES.

With specific reference to dioxins, furan and dioxin-like PCBs process contribution intakes are below 10% of the COT TDI and are not considered a significant risk to health. This also applies to any increased emissions of dioxins, furans and dioxin like PCBs during worst-case abnormal operations. This is based on the UKHSA advice that:

- A total exposure including the PC from dioxins, furans and dioxin like PCBs is without appreciable health risk if the total exposure is below the TDI.
- If total exposure including the PC results in an exceedance of the COT TDI, if the PC from the facility is less than 10% it would be unlikely to result in a significant risk.

We are therefore satisfied that it is not necessary to further constrain the conditions and duration of the periods of abnormal operation beyond those permitted under Chapter IV of the IED.

We have not assessed the impact of abnormal operations against long term ESs for the reasons set out above. Except that if dioxin emissions were at 10 ng/m³ for the maximum period of abnormal operation, this would result in an increase of approximately 70% in the intake reported in section 5.3.2. In these circumstances the daily intake would be 6.5% of the COT TDI. At this level emissions of dioxins will still not pose a risk to human health.

6 Application of Best Available Techniques

6.1 Scope of Consideration

In this section, we explain how we have determined whether the Applicant's proposals are BAT for this Installation.

- The first issue we address is the fundamental choice of incineration technology. There are a number of alternatives, and the Applicant has explained why it has chosen one particular kind for this Installation.
- We then consider in particular control measures for the emissions which were not screened out as insignificant in the previous section on minimising the installation's environmental impact.
- We also have to consider the combustion efficiency and energy utilisation of different design options for the Installation, which are relevant considerations in the determination of BAT for the Installation, including the GWP of the different options.
- Finally, the prevention and minimisation of Persistent Organic Pollutants (POPs) must be considered, as we explain below.

Chapter IV of the IED specifies a set of maximum ELV. Although these limits are designed to be stringent, and to provide a high level of environmental protection, they do not necessarily reflect what can be achieved by new plant. Article 14(3) of the IED says that BAT-C shall be the reference for setting the permit conditions. The BAT-C were published on 03/12/2019 and set BAT AELs for various substances mainly as daily average values which are in many cases lower than the chapter IV limits.

Operational controls complement the ELV and should generally result in emissions below the maximum allowed; whilst the limits themselves provide headroom to allow for unavoidable process fluctuations. Actual emissions are therefore almost certain to be below emission limits in practice, because any Operator that sought to operate its installation continually at the maximum permitted limits would almost inevitably breach those limits regularly, simply by virtue of normal fluctuations in plant performance, resulting in enforcement action (including potentially prosecution, suspension or revocation) being taken. Assessments based on BAT AELs or Chapter IV limits are therefore "worst-case" scenarios.

We are satisfied that emissions at the permitted limits would ensure a high level of protection for human health and the environment in any event.

6.1.1 Consideration of Furnace Type

The prime function of the furnace is to achieve maximum combustion of the waste. Chapter IV of the IED requires that the plant (furnace in this context) should be designed to deliver its requirements. The main requirements of Chapter IV in relation to the choice of a furnace are compliance with air emission limits for CO and TOC and achieving a low TOC/LOI level in the bottom ash.

The BREF states that hazardous and clinical waste is usually incinerated in rotary kilns but grate incinerators (including co-firing with other wastes) are

sometimes applied to solid wastes, and fluidised bed incinerators to some pretreated materials. Static furnaces are also widely applied at on-site facilities in chemical plants.

The BREF describes other process such as gasification and pyrolysis. The BREF notes that some of the processes have encountered technical and economic problems when scaled up to commercial, industrial sizes. Some are used on a commercial basis in Japan and are being tested in demonstration plants in Europe but still only have a small share of overall capacity.

Section 4.3 of the BREF provides a comparison of combustion and thermal treatment technologies, used in Europe and factors affecting their applicability and operational suitability for various waste types. There is also some information on the comparative costs. The table below has been extracted from the BREF tables. This table is also in line with the Guidance Note “The Incineration of Waste (EPR 5.01)”. However, it should not be taken as an exhaustive list nor that all technologies listed have found equal application across Europe.

Overall, any of the furnace technologies identified in the BREF would be considered as BAT provided the Applicant has justified it in terms of:

- nature/physical state of the waste and its variability
- proposed plant throughput which may affect the number of incineration lines
- preference and experience of chosen technology including plant availability
- nature and quantity/quality of residues produced.
- emissions to air – usually NO_x as the furnace choice could have an effect on the amount of unabated NO_x produced
- energy consumption – whole plant, waste preparation, effect on GWP
- Need, if any, for further processing of residues to comply with TOC
- Costs

Summary comparison of thermal treatment technologies (reproduced from the Waste Incineration BREF)

Technique	Key waste characteristics and suitability	Throughput per line	Advantages	Disadvantages / Limitations of use	Bottom Ash Quality	Cost
Moving grate (air-cooled)	• Low to medium heat values (LCV 5 – 16.5 GJ/t) • Municipal and other heterogeneous solid wastes • Can accept a proportion of sewage sludge and/or medical waste with municipal waste • Applied at most modern • MSW installations	• 1 to 50 t/h with most projects 5 to 30 t/h. • Most industrial applications not below 2.5 or 3 t/h.	• Widely proven at large scales. • Robust • Low maintenance cost • Long operational history • Can take heterogeneous wastes without special preparation	• Generally not suited to powders, liquids or materials that melt through the grate	TOC 0.5% to 3%	High capacity reduces specific cost per tonne of waste
Moving grate (liquid Cooled)	Same as air-cooled grates except: LCV 10 – 20 GJ/t	Same as air-cooled grates	As air-cooled grates but: • higher heat value waste is treatable • Better combustion control possible.	As air-cooled grates but: • risk of grate damage/ leaks • higher complexity	TOC 0.5% to 3%	Slightly higher capital cost than air-cooled

Technique	Key waste characteristics and suitability	Throughput per line	Advantages	Disadvantages / Limitations of use	Bottom Ash Quality	Cost
Rotary Kiln	Can accept liquids and pastes as well as gases Solid feeds more limited than grate (due to refractory damage) often applied to hazardous Wastes	<16 t/h	• Very well proven • Broad range of wastes • Good burn out even of HW	Throughputs lower than grates	TOC <3 %	Higher specific cost due to reduced capacity
Fluid bed - bubbling	• Wide range of CV (5-25 MJ/kg) • Only finely divided consistent wastes. • Limited use for raw MSW • Often applied to sludges co fired with RDF, shredded MSW, sludges, poultry manure	Up to 25 t/h	• Good mixing • Fly ashes of good leaching quality	• Careful operation required to avoid clogging bed. • Higher fly ash quantities.	TOC <1%	FGT cost may be lower. Costs of waste preparation
Fluid bed - circulating	• Wide range of CV (6-25 MJ/kg) • Only finely divided consistent wastes. • Limited use for raw MSW • Often applied to sludges co-fired with RDF, coal, wood waste	Up to 70 t/h	• Good mixing • High steam parameters up to 500°C • Greater fuel flexibility than BFB • Fly ashes of good leaching quality	• Cyclone required to conserve bed material • Higher fly ash quantities	TOC <1%	• FGT cost may be lower. • Costs of waste preparation

Technique	Key waste characteristics and suitability	Throughput per line	Advantages	Disadvantages / Limitations of use	Bottom Ash Quality	Cost
Spreader - stoker combustor	• RDF and other particle feeds • Poultry manure • Wood wastes	No information	• Simple grate construction • Less sensitive to particle size than FB	Only for well defined mono-streams	No information	No information
Gasification - fixed bed	• Mixed plastic wastes • Other similar consistent streams • Gasification less widely used/proven than incineration	Up to 20 t/h	• Low leaching residue • Good burnout if oxygen blown • Syngas available • Reduced oxidation of recyclable metals	• Limited waste feed • Not full combustion • High skill level • Tar in raw gas • Less widely proven	• Low leaching bottom ash • Good burnout with oxygen	High operating/ maintenance costs
Gasification - entrained flow	• Mixed plastic wastes • Other similar consistent streams • Not suited to untreated MSW • Gasification less widely used/proven than incineration	Up to 10 t/h	• Low leaching slag • Reduced oxidation of recyclable metals	• Limited waste feed • Not full combustion • High skill level • Less widely proven	low leaching slag	• High operation/ maintenance costs • High pre-treatment costs
Gasification - fluidised bed	• Mixed plastic wastes • Shredded MSW • Shredder residues • Sludges • Metal rich wastes • Other similar consistent streams • Gasification less widely used/proven than incineration	5 – 20 t/h	• Can use low reactor temperatures e.g. for Al recovery • Separation of main non combustibles • Can be combined with ash melting • Reduced oxidation of recyclable metals	• Limited waste size (<30cm) • Tar in raw gas • Higher UHV raw gas • Less widely proven	If combined with ash melting chamber ash is vitrified	Lower than other gasifiers

Technique	Key waste characteristics and suitability	Throughput per line	Advantages	Disadvantages / Limitations of use	Bottom Ash Quality	Cost
Pyrolysis	• Pre-treated MSW • High metal inert streams • Shredder residues/plastics • Pyrolysis is less widely used/proven than incineration	~ 5 t/h (short drum) 5 – 10 t/h (medium drum)	• No oxidation of metals • No combustion energy for metals/inert • In reactor acid neutralisation possible • Syngas available	• Limited wastes • Process control and engineering critical • High skill level • Not widely proven • Need market for syngas	• Dependent on process temperature • Residue produced requires further processing and sometimes combustion	High pre-treatment, operation and capital costs

The Applicant has carried out a review of the following candidate furnace types:

- Moving Grate Furnace
- Fixed Hearth
- Pulsed Hearth
- Rotary Kiln
- Fluidised Bed
- Pyrolysis / Gasification

Moving grate technology has been discounted by the Applicant because they are designed to handle large volumes of waste and the likelihood of temperature fluctuations across the bed making it unsuitable for high temperature incineration of hazardous/clinical waste.

Fixed hearth has been discounted by the Applicant because they are best suited to low volumes of consistent waste, which will not be the case for this proposal. Also, the sector guidance suggests that fixed hearth designs can have difficulty in meeting the Chapter IV IED standards.

Pulsed hearth technology has been discounted by the Applicant because the pulsed hearth installations have had difficulties achieving reliable and effective burnout of fuel.

Pyrolysis/Gasification has been discounted by the Applicant because the energy losses associated with making syngas and the additional electricity consumption of the site would mean that the overall efficiency is no higher for a traditional combustion plant and for the waste proposed for this site would generally be lower.

Fluidised bed has been discounted by the Applicant because it is designed to incinerate homogenous, prepared fuels such as sludges and RDF. The waste streams to be received at this installation facility include clinical waste streams contain sharps, metal instruments, glass, plastics, textiles, body parts, sealed containers, etc, whilst hazardous wastes can arrive on site in a variety of different containers for testing and subsequent appropriate treatment. Whilst in theory, they could be subject to pre-processing this would require significant pre-treatment including shredding, which could expose workers to health risks when maintaining the plant and potential release of undesired materials. For that reason many healthcare-waste regulations and operator practices prefer minimal mechanical handling before secure thermal destruction.

The Applicant has proposed to use a furnace technology comprising Rotary Kiln. The Applicant has stated that Rotary Kilns have been proven to achieve good fuel agitation and associated burn out rates; and is a proven technology for clinical wastes. They also state that Rotary kilns operate at high temperatures and are considered BAT for hazardous waste and lower throughput mixed feeds.

Rotary Kilns technology is identified in the tables above as being considered BAT in the BREF for this type of waste feed.

The Applicant proposes to use natural gas as support fuel for start-up, shut down and for the auxiliary burners. We considered this to be BAT.

Boiler Design

In accordance with BAT 30 of the BAT-C and our guidance, EPR 5.01, the Applicant has confirmed that the boiler design will include the following features to minimise the potential for reformation of dioxins within the de-novo synthesis range:

- Slow rates of combustion gas cooling will be avoided via boiler design to ensure the residence time is minimised in the critical cooling section and avoid slow rates of combustion gas cooling to minimise the potential for de-novo formation of dioxins and furans.
- The gas residence time in the critical temperature range will be minimised by ensuring high gas velocities exist in these sections. residence time and temperature profile (between 450°C and 200°C) of flue gas will be considered during the detailed design phase to ensure that dioxin formation is minimised throughout the process.
- Transfer surfaces will be above a minimum temperature of 170°C subject to other reaction considerations.
- Computational Fluidised Dynamics (CFD) will be applied to the design, where considered appropriate, to ensure gas velocities are in a range that negates the formation of stagnant pockets / low velocities. A copy of the CFD model will be supplied to the Environment Agency following detailed design and prior to commencement of commissioning.
- Minimising the volume access in the critical cooling sections will ensure high gas velocities.
- Boundary layers of slow-moving gas along boiler surfaces will be prevented via design and a regular maintenance schedule to remove build-up of any deposits that may have occurred.

Any of the options listed in the BREF and summarised in the table above can be BAT. The Applicant has chosen a furnace technique that is listed in the BREF and we are satisfied that the Applicant has provided sufficient justification to show that their technique is BAT. This is not to say that the other techniques could not also be BAT, but that the Applicant has shown that their chosen technique is at least comparable with the other BAT options. We believe that, based on the information gathered by the BREF process, the chosen technology will achieve the requirements of Chapter IV of the IED for the air emission of TOC/CO and the TOC/LOI on bottom ash. We are also satisfied that the proposed boiler design will be BAT.

6.2 BAT and emissions control

The prime function of flue gas treatment is to reduce the concentration of pollutants in the exhaust gas as far as practicable. The techniques which are described as BAT individually are targeted to remove specific pollutants, but the BREF notes that there is benefit from considering the Flue Gas Cleaning System (FGC) system as a whole unit. Individual units often interact, providing a primary abatement for some pollutants and an additional effect on others.

The BREF lists the general factors requiring consideration when selecting FGC systems as:

- type of waste, its composition and variation
- type of combustion process, and its size
- flue-gas flow and temperature
- flue-gas content, including magnitude and rate of composition fluctuations
- target emission limit values
- restrictions on discharge of aqueous effluents
- plume visibility requirements
- land and space availability
- availability and cost of outlets for residues accumulated/recovered
- compatibility with any existing process components (existing plants)
- availability and cost of water and other reagents
- energy supply possibilities (e.g. supply of heat from condensing scrubbers)
- reduction of emissions by primary methods
- noise
- arrangement of different flue-gas cleaning devices if possible with decreasing flue-gas temperatures from boiler to stack

Taking these factors into account the BREF points to a range of technologies being BAT subject to circumstances of the Installation.

6.2.1 Particulate Matter

Particulate matter				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Bag / Fabric filters (BF)	Reliable abatement of particulate matter to below 5mg/m ³	Max temp 250°C Higher energy use than ESP Sensitive to condensation and corrosion	Multiple compartments Bag burst detectors	Most plants

Wet scrubbing	May reduce acid gases simultaneously.	Not normally BAT. Liquid effluent produced	Require reheat to prevent visible plume and dew point problems.	Where scrubbing required for other pollutants
Ceramic filters	High temperature applications Smaller plant.	May “blind” more than fabric filters		Small plant. High temperature gas cleaning required.
Electrostatic precipitators (ESP)	Low pressure gradient. Use with BF may reduce the energy consumption of the induced draft fan.	Not normally BAT by itself Risk of dioxin formation if used in 200-400°C range		When used with other particulate abatement plant

The Applicant proposes to use fabric filters for the abatement of particulate matter. Fabric filters provide reliable abatement of particulate matter to below 5 mg/m³ and are BAT for most installations. The Applicant proposes to use multiple compartment filters with burst bag detection to minimise the risk of increased particulate emissions in the event of bag rupture.

Emissions of particulate matter have been previously screened out as insignificant, and so we agree that the Applicant’s proposed technique is BAT for the installation.

6.2.2 Oxides of Nitrogen

Oxides of Nitrogen : Primary Measures				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Low NOx burners	Reduces NOx at source		Start-up, supplementary firing.	Where auxiliary burners required.
Starved air systems	Reduce CO simultaneously.			Pyrolysis, Gasification systems.
Optimise primary and secondary air injection				All plant.
Flue Gas Recirculation (FGR)	Reduces the consumption of reagents used for secondary NOx control. May increase overall energy recovery	Some applications experience corrosion problems. Can result in elevated CO and other products of incomplete combustion		Justify if not used

Oxides of Nitrogen : Secondary Measures (BAT is to apply Primary Measures first)				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Selective catalytic reduction (SCR)	NOx emissions 40-150mg/ m ³ Reduces CO, VOC, dioxins	Expensive. Re-heat required – reduces plant efficiency		All plant
SCR by catalytic filter bags	50-120 mg/m ³			Applicable to new and existing plants with or without existing SNCR. Can be used with NH ₃ as slip catalyst with SNCR

Selective non-catalytic reduction (SNCR)	NO _x emissions 80 -180 mg/m ³ Lower energy consumption than SCR Lower costs than SCR	Relies on an optimum temperature around 900 °C, and sufficient retention time for reduction May lead to Ammonia slip	Port injection locations	All plant unless lower NO _x release required for local environmental protection.
Reagent Type: Ammonia	Likely to be BAT	More difficult to handle Lower nitrous oxide formation Narrower temperature window		All plant
Reagent Type: Urea	Likely to be BAT	Higher N ₂ O emissions than ammonia, optimisation particularly important		All plant

The Applicant proposes to implement the following primary measures:

- Low NO_x burners – this technique reduces NO_x at source and is defined as BAT where auxiliary burners are required.
- Optimise primary and secondary air injection – this technique is BAT for all plant.

The Applicant has stated that they will not be using FGR. They have stated that for hazardous waste incinerators FGR can lead to increased corrosion and fouling; reduce heat transfer efficiency and energy recovery; and increase process instability impacting complete burnout of organics and compromising destruction efficiency for hazardous pollutants. We agree with this assessment and that FGR can result in corrosion issues and reduce energy efficiency.

With regard to secondary measures the Applicant has proposed the use of SNCR using ammonia reagent. They have considered the use of SCR and SCR by catalytic filter bags.

They have rejected the use of SCR by catalytic filter bags stating that its use would provide only a small gain in performance against NO_x so it is not a commercially feasible solution, and a specific optimal temperature range is required to improve the reactivity envelope for the catalytic bags and would potentially decrease the boiler efficiency of the plant. We agree with this assessment.

They have also rejected the use of SCR based on costs, citing the management and disposal of catalysts. We required the Applicant provide a cost-benefit

assessment to justify this assessment. Our assessment of this is discussed below.

The permit includes a daily average NO_x ELV 120mg/m³ this reflects the higher end of the NO_x BAT-AEL for new plant. Our current position is that we expect new incineration plant to meet a daily average NO_x ELV of 100mg/m³ where practicable, and we would normally expect this to be achievable by SNCR. However, we acknowledge that whilst the 100mg/m³ limit should be achievable by large municipal waste incineration plant, our experience of regulating small hazardous waste incinerators with variable waste feedstock may not be able to consistently achieve NO_x emissions below 100mg/m³ using SNCR. For this reason, we allow operators the option to propose a higher limit if they can demonstrate that this is appropriate on the basis of a BAT assessment with associated cost-benefit assessment.

For this incineration plant the Applicant considers the design emission level of 120 mg/m³ daily average NO_x to be appropriate. They have stated that, due to the varied nature of the waste that will be incinerated at the facility (as opposed to the standard non-variable waste with a stable CV), they need the NO_x ELV of 120 mg/m³ to allow some flexibility whilst remaining under the BAT-AEL limit.

The Applicant carried out a cost-benefit assessment of the use of SNCR as compared to SCR, as SCR would potentially provide the most significant reduction in NO_x emissions and would potentially enable them to achieve a daily average NO_x ELV of 100 mg/m³ or below. The Applicant's assessment is as follows:

Parameter	Units	SNCR	SCR
NO _x released after abatement	t/annum	12.0	8.0
NO _x removed	t/annum	28.0	32.0
Global warming potential	t CO _{2e} /annum	0	30.4
Ammonia consumed	t/annum	42	32
Total annualised cost	£/annum	28,000	96,000
Average cost per tonne NO _x abated	£/t NO _x	1,000	3,000

For the above assessment emissions of NO_x from SNCR and SCR were based on a raw NO_x concentration of 400 mg/m³, an SNCR removal efficiency of 70% and an SCR removal of 80%. We believe this is a reasonable basis for comparing the techniques.

Based on the figures above the Applicant considers that the significant additional financial cost of SCR over SNCR is not justified by the potential reduction in AQ impact for this installation. Furthermore, the Applicant's air quality modelling assessment showed that when using their proposed SNCR

system, the maximum annual mean NO_x PC at a sensitive human receptor (Receptor HR1 as detailed on page 66 of the 'Air Quality Modelling Report' provided with the Application) is predicted to be <1% of the ES. Therefore, the reduction in annual mean NO_x at sensitive human receptors that could be achieved by using SCR would therefore be small.

Having taken the outcome of the Applicant's cost benefit analysis into account and that the impact of NO_x at receptors when using SNCR is <1% of the ES and therefore insignificant we consider that the Applicant's proposal to use SNCR NO_x abatement and a daily average NO_x ELV of 120 mg/m³ is BAT for this installation.

We also consider it appropriate to require the Operator to perform a study on how the performance of the NO_x abatement system can be optimised once the plant is operational. This requirement is set out in improvement condition IC14 in the permit.

IC14	The operator shall perform a study to determine the extent to which the operation of the systems in place at the plant to minimise NO_x emissions (including the NO_x abatement installed to meet the emission limit value for NO_x of 120 mg/m³ as a daily average) can be optimised. A written report of the study shall be submitted to the Environment Agency for approval which shall include but not necessarily be limited to the following: • A brief description of the measures installed at the installation to minimise NO_x emissions, including details of how the reagent dosing system responds to emissions monitoring. • The results of the optimisation study including: ○ a description of the parameters that were varied during the optimisation e.g. ammonia feed rates, physical form of ammonia injected, air flows, and the range over which they were varied ○ the levels of NO_x 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 (if relevant) ○ any other relevant cross-media effects ○ a description of how the plant will be operated on an ongoing basis to minimise NO_x emissions, including target emission limit values for NO_x and NH₃	6 months following completion of commissioning
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With regard to the reagent for the SNCR abatement, the Applicant proposes to use ammonia. Ammonia or urea can be used as the reagent. Urea is somewhat easier to handle than ammonia and has a wider operating temperature window, but tends to result in higher emissions of N₂O. Both reagents are considered BAT, and the use of one over the other is not significant in environmental terms for this facility. We are also satisfied that the Operator will have appropriate techniques in place to minimise the risk of storing and handling ammonia. The BAT AEL for ammonia has been set in the Permit and the Operator is also required to monitor and report on N₂O emissions every quarter.

6.2.3 Acid Gases, SO_x, HCl and HF

Acid gases and halogens : Primary Measures				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Low sulphur fuel, (< 0.1%S gasoil or natural gas)	Reduces SO _x at source		Start-up, supplementary firing.	Where auxiliary fuel required.
Management of waste streams	Disperses sources of acid gases (e.g. PVC) through feed.	Requires closer control of waste management		All plant with heterogeneous waste feed

Acid gases and halogens: Secondary Measures (BAT is to apply Primary Measures first)				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Wet	High reaction rates Low solid residues production Reagent delivery may be optimised by concentration and flow rate	Large effluent disposal and water consumption if not fully treated for re-cycle Effluent treatment plant required May result in wet plume Energy required for effluent treatment and plume reheat		Used for wide range of waste types Can be used as polishing step after other techniques where emissions are high or variable
Dry	Low water use Higher reagent consumption to achieve emissions of other FGC	Higher solid residue production Reagent consumption controlled only by input rate		All plant

	techniques but may be reduced by recycling in plant Lower energy use Higher reliability Lowest visible plume potential			
Semi-dry (also described as semi-wet in the BRef)	Medium reaction rates Reagent delivery may be varied by concentration and input rate	Higher solid waste residues than wet but lower than dry system		All plant
Direct injection into boiler	Reduced acid loading to subsequent cleaning stages. Reduced peak emissions and reduced reagent usage			Generally applicable to grate and rotary kiln plants.
Direction desulphurisation	Reduced boiler corrosion	Does not improve overall performance. Can affect bottom ash quality. Corrosion problems in flue gas cleaning system.		Partial abatement upstream of other techniques in fluidised beds
Reagent Type: Sodium Hydroxide	Highest removal rates Low solid waste production	Corrosive material ETP sludge for disposal		HWIs

Reagent Type: Lime	Very good removal rates Low leaching solid residue Temperature of reaction well suited to use with bag filters	Corrosive material May give greater residue volume if no in-plant recycle	Wide range of uses	MWIs, CWIs
Reagent Type: Sodium Bicarbonate	Good removal rates Easiest to handle Dry recycle systems proven	Efficient temperature range may be at upper end for use with bag filters Leachable solid residues Bicarbonate more expensive	Not proven at large plant	CWIs

The Applicant proposes to implement the following primary measures:

- Use of low sulphur fuels for start up and auxiliary burners – gas should be used if available, where fuel oil is used, this will be low sulphur (i.e. <0.1%), this will reduce SO_x at source. The Applicant will use natural gas.
- Management of heterogeneous wastes – this will disperse problem wastes such as PVC by ensuring a homogeneous waste feed.

There are five recognised techniques for secondary measures to reduce acid gases, all of which can be BAT. These are wet, dry, semi-dry, boiler sorbent injection and direct desulphurisation. Wet scrubbing produces an effluent for treatment and disposal in compliance with Article 46(3) of IED. It will also require reheat of the exhaust to avoid a visible plume. Wet scrubbing is unlikely to be BAT except where there are high acid gas and metal components in the exhaust gas as may be the case for some hazardous waste incinerators. In this case, the Applicant does not propose using wet scrubbing, and we agree that wet scrubbing is not appropriate in this case. Direct desulphurisation is only applicable for fluidised bed furnaces.

The Applicant has considered dry and semi-dry methods of secondary measures for acid gas abatement. Any of these methods can be BAT for this type of facility.

Both dry and semi-dry methods rely on the dosing of powdered materials into the exhaust gas stream. Semi-dry systems (i.e. hydrated reagent) offer reduced material consumption through faster reaction rates, but reagent recycling in dry systems can offset this.

In both dry and semi-dry systems, the injected powdered reagent reacts with the acid gases and is removed from the gas stream by the bag filter system. The powdered materials are either lime or sodium bicarbonate. Both are effective at reducing acid gases, and dosing rates can be controlled from continuously monitoring acid gas emissions. The decision on which reagent to use is normally economic. Lime produces a lower leaching solid residue in the APC residues than sodium bicarbonate and the reaction temperature is well suited to bag filters, it tends to be lower cost, but it is a corrosive material and can generate a greater volume of solid waste residues than sodium bicarbonate. Both reagents are BAT, and the use of one over the other is not significant in environmental terms in this case.

Direct boiler injection is not proposed by the Applicant. We are satisfied that this is appropriate as the AQ assessment shows that the impact from emissions of SO₂, HCl and HF will be insignificant.

In this case, the Applicant proposes to use a semi dry system using hydrated lime. We are satisfied that this is BAT. The Applicant has stated that lime usage will be minimised by trimming reagent dosing to accurately match the acid load using fast response upstream acid gas monitoring. Variable lime dosing rates will be rapidly and precisely varied to match the acid load. The plant preventative maintenance regime will include regular checks and calibration of the lime dosing system to ensure optimum operation. Back-up feed systems will be provided to ensure no interruption in lime dosing.

6.2.4 Carbon monoxide and volatile organic compounds (VOCs)

The prevention and minimisation of emissions of carbon monoxide and volatile organic compounds is through the optimisation of combustion controls, where all measures will increase the oxidation of these species.

Carbon monoxide and volatile organic compounds (VOCs)				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Optimise combustion control	All measures will increase oxidation of these species.		Covered in section on furnace selection	All plants

6.2.5 Dioxins and furans (and other POPs)

Dioxins and furans				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Optimise combustion control	All measures will increase oxidation of these species.		Covered in section on furnace selection	All plants
Avoid de novo synthesis			Covered in boiler design	All plant
Effective Particulate matter removal			Covered in section on particulate matter	All plant
Activated Carbon injection	Can be combined with acid gas absorber or fed separately. Metallic mercury is also absorbed.	Combined feed rate usually controlled by acid gas content.		All plant. Separate feed normally BAT unless feed is constant and acid gas control also controls dioxin release.
Catalytic filter bags	High destruction efficiency	Does not remove mercury. Higher cost than non-catalytic filter bags		

The prevention and minimisation of emissions of dioxins and furans is achieved through:

- optimisation of combustion control including the maintenance of permit conditions on combustion temperature and residence time, which has been considered in 6.1.1 above;
- avoidance of de novo synthesis, which has been covered in the consideration of boiler design;
- the effective removal of particulate matter, which has been considered in 6.2.1 above;
- injection of activated carbon. This can be combined with the acid gas reagent or dosed separately. Where the feed is combined, the combined feed rate will be controlled by the acid gas concentration in the exhaust. Therefore, separate feed of activated carbon would normally be considered BAT unless the feed was relatively constant. Effective

control of acid gas emissions also assists in the control of dioxin releases.

In this case the Applicant has stated that activated carbon dosing will be based on flue gas volume measurement. The activated carbon dosing screw speed frequency control responds automatically to the increase and decrease of flue gas volume. Maintaining a steady concentration of activated carbon in the flue gas and consequently on the filter bags will maintain the adsorption rate for gaseous metals and dioxins. Activated carbon and lime are stored separately and then mixed before being injected into the flue. We are satisfied their proposal is BAT.

6.2.6 Metals

Metals				
Technique	Advantages	Disadvantages	Optimisation	Defined as BAT in BREF or TGN for:
Effective Particulate matter removal			Covered in section on particulate matter	All plant
Activated Carbon injection for mercury recovery	Can be combined with acid gas absorber or fed separately. Can be impregnated with bromine or sulphur to enhance reactivity, for use during peak emissions.	Combined feed rate usually controlled by acid gas content.		All plant. Separate feed normally BAT unless feed is constant and acid gas control also controls dioxin release.
Fixed or moving bed adsorption	Mainly for mercury and other metals, as well as organic compounds			Limited applicability due to pressure drop
Boiler bromine injection	Injection during mercury peaks. Oxidation of mercury leading to improved removal in downstream	Consumption of aqueous bromine. Can lead to formation of polybrominated dioxins. Can damage bag filter. Effects can be limited		Not suitable for pyrolysis or gasification. Can deal with mercury peaks.

	removal method.	use is restricted to dealing with peak emissions		
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The prevention and minimisation of metal emissions is achieved through the effective removal of particulate matter, and this has been considered in 6.2.1 above.

Unlike other metals however, mercury if present will be in the vapour phase. BAT for mercury removal is one or a combination of the techniques listed above. The Applicant has proposed dosing of activated carbon into the exhaust gas stream. This can be combined with the acid gas reagent or dosed separately. Where the feed is combined, the combined feed rate will be controlled by the acid gas concentration in the exhaust. Therefore, separate feed of activated carbon would normally be considered BAT unless the feed was relatively constant.

In this case the Applicant has stated that activated carbon dosing will be based on flue gas volume measurement. The activated carbon dosing screw speed frequency control responds automatically to the increase and decrease of flue gas volume. Maintaining a steady concentration of activated carbon in the flue gas and consequently on the filter bags will maintain the adsorption rate for gaseous metals and dioxins. Activated carbon and lime are stored separately and then mixed before being injected into the flue. We are satisfied their proposal is BAT.

6.3 BAT and global warming potential

This section summarises the assessment of greenhouse gas impacts which has been made in the determination of this Application. Emissions of carbon dioxide (CO₂) and other greenhouse gases differ from those of other pollutants in that, except at gross levels, they have no localised environmental impact. Their impact is at a global level and in terms of climate change. Nonetheless, CO₂ is clearly a pollutant for IED purposes.

The principal greenhouse gas emitted is CO₂, but the plant also emits small amounts of N₂O arising from the operation of secondary NO_x abatement. N₂O has a global warming potential 310 times that of CO₂. The Applicant will therefore be required to optimise the performance of the secondary NO_x abatement system to ensure its GWP impact is minimised.

The major source of greenhouse gas emissions from the installation is however CO₂ from the combustion of waste. There will also be CO₂ emissions from the burning of support fuels at start up, shut down and should it be necessary to maintain combustion temperatures. BAT for greenhouse gas emissions is to maximise energy recovery and efficiency.

The heat that is generated by the Installation will displace emissions of CO₂ elsewhere in the UK, as virgin fossil fuels will not be burnt to create the same heat.

The Installation is not subject to the Greenhouse Gas Emissions Trading Scheme Regulations 2012 therefore it is a requirement of the IED to investigate how emissions of greenhouse gases emitted from the installation might be prevented or minimised.

Factors influencing GWP and CO₂ emissions from the Installation are:

On the debit side

- CO₂ emissions from the burning of the waste;
- CO₂ emissions from burning auxiliary or supplementary fuels;
- CO₂ emissions associated with electrical energy used;
- N₂O from the de-NO_x process.

On the credit side

- CO₂ saved from the export of heat to the public supply by displacement of burning of virgin fuels;

The GWP of the plant will be dominated by the emissions of carbon dioxide that will be released as a result of waste combustion. This will be constant for all options considered in the BAT assessment. Any differences in the GWP of the options in the BAT appraisal will therefore arise from small differences in energy recovery and in the amount of N₂O emitted.

The Applicant considered GWP and BAT for the de-NO_x process in its BAT assessment. This is set out in section 6.2.2 of this document.

Note: avoidance of methane which would be formed if the waste was landfilled has not been included in this assessment. If it were included due to its avoidance it would be included on the credit side.

Taking all these factors into account, the Operator's assessment shows their preferred option is best in terms of GWP.

We agree with this assessment and that the chosen option is BAT for the installation.

6.4 BAT and POPs

International action on Persistent Organic pollutants (POPs) is required under the UN's Stockholm Convention, which entered into force in 2004. The EU implemented the Convention through the POPs Regulation (2019/1021), which is directly applicable in UK law. We are required by national POPs Regulations (SI 2007 No 3106) to give effect to Article 6(3) of the EC POPs Regulation when determining applications for environmental permits.

However, it needs to be borne in mind that this application is for a particular type of installation, namely a waste incinerator. The Stockholm Convention distinguishes between intentionally-produced and unintentionally-produced POPs. Intentionally-produced POPs are those used deliberately (mainly in the past) in agriculture (primarily as pesticides) and industry. Those intentionally-produced POPs are not relevant where waste incineration is concerned, as in fact high-temperature incineration is one of the prescribed methods for destroying POPs.

The unintentionally-produced POPs addressed by the Convention are:

- dioxins and furans;
- HCB (hexachlorobenzene)
- PCBs (polychlorobiphenyls) and
- PeCB (pentachlorobenzene)

The UK's national implementation plan for the Stockholm Convention, published in 2007, makes explicit that the relevant controls for unintentionally-produced POPs, such as might be produced by waste incineration, are delivered through the requirements of the IED. That would include an examination of BAT, including potential alternative techniques, with a view to preventing or minimising harmful emissions. These have been applied as explained in this document, which explicitly addresses alternative techniques and BAT for the minimisation of emissions of dioxins.

Our legal obligation, under regulation 4(b) of the POPs Regulations, is, when considering an application for an environmental permit, to comply with article 6(3) of the POPs Regulation:

“Member States shall, when considering proposals to construct new facilities or to significantly modify existing facilities using processes that release chemicals listed in Annex III, give priority consideration to alternative processes, techniques or practices that have similar usefulness but which avoid the formation and release of substances listed in Annex III, without prejudice to Directive 2010/75/EU of the European Parliament and of the Council”

The 1998 Protocol to the Convention recommended that unintentionally produced POPs should be controlled by imposing emission limits (e.g 0.1 ng/m³ for MWIs) and using BAT for incineration. UN Economic Commission for Europe (Executive Body for the Convention) (ECE-EB) produced BAT guidance for the parties to the Convention in 2009. This document considers various control techniques and concludes that primary measures involving management of feed material by reducing halogenated substances are not technically effective. This is not surprising because halogenated wastes still need to be disposed of and because POPs can be generated from relatively low concentrations of halogens. In summary, the successful control techniques for waste incinerators listed in the ECE-EB BAT are:

- maintaining furnace temperature of 850°C and a combustion gas residence time of at least 2 seconds

- rapid cooling of flue gases to avoid the *de novo* reformation temperature range of 250-450°C
- use of bag filters and the injection of activated carbon or coke to adsorb residual POPs components.

Using the methods listed above, the UN-ECE BAT document concludes that incinerators can achieve an emission concentration of 0.1 ng TEQ/m³.

We believe that the Permit ensures that the formation and release of POPs will be prevented or minimised. As we explain above, high-temperature incineration is one of the prescribed methods for destroying POPs. Permit conditions are based on the use of BAT and Chapter IV of the IED and incorporate all the above requirements of the UN-ECE BAT guidance and deliver the requirements of the Stockholm Convention in relation to unintentionally produced POPs.

The release of **dioxins and furans** to air is required by the IED to be assessed against the International Toxic Equivalence (I-TEQ) limit of 0.1 ng/m³. Further development of the understanding of the harm caused by dioxins has resulted in the World Health Organisation (WHO) producing updated factors to calculate the WHO-TEQ value. Certain **PCBs** have structures which make them behave like dioxins (dioxin-like PCBs), and these also have toxic equivalence factors defined by the WHO to make them capable of being considered together with dioxins. The UK's independent health advisory committee, the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) has adopted WHO-TEQ values for both dioxins and dioxin-like PCBs in their review of Tolerable Daily Intake (TDI) criteria. The Permit requires that, in addition to the requirements of the IED, the WHO-TEQ values for both dioxins and dioxin-like PCBs should be monitored for reporting purposes, to enable evaluation of exposure to dioxins and dioxin-like PCBs to be made using the revised TDI recommended by the COT. The release of dioxin-like PCBs and PAHs is expected to be low where measures have been taken to control dioxin releases. The Permit also requires monitoring of a range of PAHs and dioxin-like PCBs at the same frequency as dioxins are monitored. We have included a requirement to monitor and report against these WHO-TEQ values for dioxins and dioxin-like PCBs and the range of PAHs as listed in the Permit. We are confident that the measures taken to control the release of dioxins will also control the releases of dioxin-like PCBs and PAHs. Section 5.2.1 of this document details the assessment of emissions to air, which includes dioxins and concludes that there will be no adverse effect on human health from either normal or abnormal operation.

Hexachlorobenzene (HCB) is released into the atmosphere as an accidental product from the combustion of coal, waste incineration and certain metal processes. It has also been used as a fungicide, especially for seed treatment although this use has been banned in the UK since 1975. Natural fires and volcanoes may serve as natural sources. Releases of (HCB) are addressed by the European Environment Agency (EEA), which advises that:

"due to comparatively low levels in emissions from most (combustion) processes special measures for HCB control are usually not proposed. HCB emissions can be controlled generally like other chlorinated organic compounds in emissions, for instance dioxins/furans and PCBs: regulation of time of combustion, combustion temperature, temperature in cleaning devices, sorbents application for waste gases cleaning etc." [reference
http://www.eea.europa.eu/publications/EMEPCORINAIR4/sources_of_HCB.pdf]

Pentachlorobenzene (PeCB) is another of the POPs list to be considered under incineration. PeCB has been used as a fungicide or flame retardant, there is no data available however on production, recent or past, outside the UN-ECE region. PeCBs can be emitted from the same sources as for PCDD/F: waste incineration, thermal metallurgic processes and combustion plants providing energy. As discussed above, the control techniques described in the UN-ECE BAT guidance and included in the permit, are effective in controlling the emissions of all relevant POPs including PeCB.

We have assessed the control techniques proposed for dioxins by the Applicant and have concluded that they are appropriate for dioxin control. We are confident that these controls are in line with the UN-ECE BAT guidance and will minimise the release of HCB, PCB and PeCB.

We are therefore satisfied that the substantive requirements of the Convention and the POPs Regulation have been addressed and complied with.

6.5 Waste BAT and appropriate measures

The applicant has presented how the hazardous and non-hazardous waste repackaging and storage activities (referenced in table S1.1 of the draft permit as AR2, AR3, AR8 and AR9) will implement relevant requirements of the waste treatment BAT conclusions and the clinical waste and chemical waste appropriate measures.

It is also the case that the main incineration activity (AR1) will operate in line with the relevant requirements of the clinical waste and chemical waste appropriate measures.

We have therefore included the requirements of the relevant clinical waste and chemical waste appropriate measures guidance in the Operating techniques of the permit. We have also required the Operator to operate in accordance with the non-hazardous and inert waste appropriate measures. The Operator will be required to comply with these requirements. Section 4.3.6 of this document details the appropriate measures guidance documents that will form part of the operating techniques for the facility.

6.6 Other Emissions to the Environment

6.6.1 Emissions to water

There will be a discharge of uncontaminated surface water runoff from building roofs, roadways, vehicle movement areas and hardstanding. Surface water with the exception of the car park passes through a penstock valve (which will be closed in the event of an emergency minimising the risk of contaminated run off polluting receiving waters) and oil/water separator before discharging offsite. Surface water from the carpark passes through a Class 1 Bypass Petrol Separator before discharging offsite. The discharge will be released from site at point W1 situated at the south of the installation which leads to Demon Beck.

Based upon the information in the Application we are satisfied that appropriate measures will be in place to prevent and /or minimise emissions to water.

6.6.2 Emissions to sewer

There will be a discharge to foul sewer from the installation. This will be discharged under a consent to discharge issued by Northumbrian Water Limited. The discharge will predominantly consist of wastewater from clinical waste bin wash/jet wash however there will be an occasional discharge of boiler blowdown (approx. 57m³ twice per year) and drainage from site waste bins compound (volume dependent on rainfall). The Applicant has confirmed that the discharge will not contain hazardous substances. However, the discharge will contain EDTA which has an Environmental Quality Standard for inland freshwaters. EDTA is used as a cleaning agent in the clinical waste bin washing. Note that the Applicant has stated that only reusable bins that have previously contained bagged clinical waste will be washed on site. The Applicant completed a risk assessment using the Environment Agency's H1 tool to assess the risk of this discharge, the assessment concludes that there is no significant risk to receiving waters. We have checked their assessment and agree with its conclusion.

Process effluents that may contain hazardous substances will be separately collected within the hazardous drainage system and stored in an above ground tank prior to being transferred off-site for treatment at a suitably licensed waste management facility for disposal or directly injected into the incinerator via a lance.

Based upon the information in the Application we are satisfied that appropriate measures will be in place to prevent and /or minimise emissions to sewer.

6.6.3 Fugitive emissions

The IED specifies that plants must be able to demonstrate that the plant is designed in such a way as to prevent the unauthorised and accidental release of polluting substances into soil, surface water and groundwater. In addition storage requirements for waste and for contaminated water under Article 46(5) of the IED must be arranged.

- Waste handling and storage are carried out in a building to prevent the release of litter and dust.
- Incoming waste will be delivered in covered vehicles.
- Waste is stored in enclosed containers.
- Building doors and windows will be shut to provide containment, other than when access is required.
- Negative pressure is maintained in waste storage areas, with air extracted and treated through the combustion furnace or carbon filter.
- Regular cleaning and good housekeeping practices are implemented to further reduce emissions.
- Fugitive emissions to air from refilling of ammonia and fuel oil will be minimised by venting displaced air to the tanker during refilling.
- Bulk liquid storage tanks will be fitted with high level controls and alarms.
- Activated carbon is stored in sealed lined bags and will be dosed through a sealed dosing system in the carbon dosing room, which is a sealed ATEX rated room with a roller shutter door which is closed during normal operations.
- Lime is stored in a storage silo located indoors. The lime is transferred to the silo via a fixed delivery from a tanker. Level indicators prevent overfilling of the silo.
- Air Pollution Control residues (APCr) will be deposited within the bottom of the bag filter housing where it will be collected via an enclosed bagging station. The bags will be immediately sealed after filling. The bag specifications are such that they are designed to receive APCr. The bags will be stored in a designated area of the racking in the warehouse from where they will then be sent for off-site recovery or disposal. The bagging and storage activity is conducted indoors.
- Bottom ash will be moistened to minimise particulate emissions and removed via an enclosed conveyor system to a skip. The end of the conveyor is fitted with an enclosed chute which reaches down to skip level to prevent carry over by wind. The skip receiving the IBA is covered and the area surrounding the skip is drained to the hazardous waste drainage system described in section 6.6. The area is cleaned down daily to ensure there is no IBA on the concrete where the vehicle stops to lift the skip therefore preventing IBC being tracked across the site.
- Facilities for the storage of oils, fuels or chemicals will be sited above ground and bunded.
- Surfacing/containment has been designed in accordance with CIRIA guidance.

Based upon the information in the Application we are satisfied that appropriate measures will be in place to prevent and /or minimise fugitive emissions.

6.6.4 Odour

Based upon the information in the Application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise odour and to prevent pollution from odour.

The following is a summary of the key odour control measures:

- Waste accepted on site will be contained within enclosed bins, barrels, carts or containers which will minimise the risk of odour.
- Waste will be offloaded and stored within the facility building.
- Repacking/bulking of waste will also be carried out within the facility building.
- Combustion air will be drawn from the waste storage areas this will minimise the risk of any odours and airborne particulates leaving the facility building.
- During shut-down of the incinerator, air within the facility building will be vented through a carbon filter odour abatement system prior to release to atmosphere.
- The Operator will carry out daily odour monitoring (olfactory) around the site boundary.

We consider the risk of odour to be low, however Applicant has provided an Odour Management Plan. We have approved the odour management plan as we consider the odour control measures proposed within it to be appropriate based on information available to us at the current time. The Applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The Applicant will be required to keep the plan under constant review and revise it annually or if necessary sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance 'Control and monitor emissions for your environmental permit'. The plan has been incorporated into the operating techniques in table S1.2 of the draft Permit.

6.6.5 Noise and vibration

The Applicant has carried out a noise impact assessment in accordance with BS 4142:2014 which concludes that there is a low risk of noise pollution at nearby sensitive receptors.

Our noise technical specialists have reviewed the Applicant's proposals, and we have concluded that the risk of noise impacts at nearby sensitive receptors is low.

Based upon the information in the Application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise noise and vibration and to prevent pollution from noise and vibration outside the site.

6.7 Setting ELVs and other Permit conditions

6.7.1 Translating BAT into Permit conditions

Article 14(3) of the IED states that BAT-C shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions; emissions do not exceed the emission levels associated with the BAT as laid down in the decisions on BAT-C.

BAT-C for waste incineration or co-incineration were published on 03/12/2019.

The use of BAT AELs and IED Chapter IV emission limits for air dispersion modelling sets the worst case scenario. If this shows emissions are insignificant then we have accepted that the Applicant's proposals are BAT, and that there is no justification to reduce ELVs below the BAT AELs and Chapter IV limits.

Below we consider whether, for those emissions not screened out as insignificant, different conditions are required as a result of consideration of local or other factors, so that no significant pollution is caused (Article 11(c)) or to comply with environmental quality standards (EQS) (Article 18).

(i) Local factors

We have considered the impact on local receptors and habitats conservation sites for those emissions not screened out as insignificant and do not consider it necessary to impose further conditions, or set more stringent emission limits than those specified by the BAT AELs

(ii) National and European ESs

There are no additional National or Europeans EQSs that indicate that the BAT AELs are insufficient to protect the local environment.

(iii) Global Warming

CO₂ is an inevitable product of the combustion of waste. The amount of CO₂ emitted will be essentially determined by the quantity and characteristics of waste being incinerated, which are already subject to conditions in the Permit. It is therefore inappropriate to set an ELV for CO₂, which could do no more than recognise what is going to be emitted. The gas is not therefore targeted as a key pollutant under Annex II of the IED, which lists the main polluting substances that are to be considered when setting ELVs in permits.

We have therefore considered setting equivalent parameters or technical measures for CO₂. However, provided energy is recovered efficiently (see section 4.3.7 above), there are no additional equivalent technical measures (beyond those relating to the quantity and characteristics of the waste) that can be imposed that do not run counter to the primary purpose of the plant, which is the destruction of waste. Controls in the form of restrictions on the volume and type of waste that can be accepted at the Installation and Permit conditions relating to energy efficiency effectively apply equivalent technical measures to limit CO₂ emissions.

(iv) Commissioning

Pre-operational condition (PO4) requires the Operator prior to the commencement of commissioning, to submit to the Environment Agency, and obtain the Environment Agency's written approval to it, a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.

6.8 Monitoring

6.8.1 Monitoring during normal operations

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with ELVs and to enable correction of measured concentration of substances to the appropriate reference conditions; to gather information about the performance of the SNCR system; to establish data on the release of dioxin-like PCBs and PAHs from the incineration process and to deliver the requirements of Chapter IV of the IED for monitoring of residues and temperature in the combustion chamber.

For emissions to air, the methods for continuous and periodic monitoring are in accordance with our guidance for monitoring of stack emissions to air.

Based on the information in the Application and the requirements set in the conditions of the Permit we are satisfied that the Operator's techniques, personnel and equipment will have either MCERTS certification or MCERTS accreditation as appropriate.

6.8.2 Monitoring under abnormal operations arising from the failure of the installed CEMs

The applicant is not proposing to provide back-up CEMS or surrogate measures. In the event that the installed CEMS for any of TOC, CO or particulates fail this will necessitate that waste feed is stopped, rather than abnormal operation in accordance with condition 2.3.12.

6.8.3 Continuous emissions monitoring for dioxins and heavy metals

The BAT-C specify either manual extractive monitoring or long term monitoring for dioxins. For mercury either continuous or long term monitoring is specified, manual extractive monitoring is specified for other metals.

For dioxins long term monitoring does not apply if emissions are stable, and for mercury long term monitoring can be used instead of continuous if the mercury content of the waste is low and stable.

Based on the waste types to be taken at the facility we require continuous monitoring of mercury.

Based on the waste types and control measures proposed in the Application we expect that emissions of dioxins will be low and stable. We have therefore set manual extractive monitoring in the Permit. However, the Permit requires the stable and low criteria to be demonstrated through Improvement condition IC9 and we can require long term monitoring for dioxins if required.

6.9 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit either to meet the reporting requirements set out in the IED, or to ensure data is reported to enable timely review by us to ensure compliance with the Permit conditions and to monitor the efficiency of material use and energy recovery at the installation.

7 Other legal requirements

In this section we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

7.1 The EPR 2016 and related Directives

The EPR delivers the requirements of a number of assimilated and national laws.

7.1.1 Schedules 1 and 7 to the EPR 2016 – IED Directive

We address the requirements of the IED in the body of this document above and the specific requirements of Chapter IV in Annex 1 of this document.

There is one requirement not addressed above, which is that contained in Article 5(3) IED. Article 5(3) requires that “In the case of a new installation or a substantial change where Article 4 of Directive 85/337/EC (now Directive 2011/92/EU) (the EIA Directive) applies, any relevant information obtained or conclusion arrived at pursuant to articles 5, 6 and 7 of that Directive shall be examined and used for the purposes of granting the permit.”

- Article 5 of EIA Directive relates to the obligation on developers to supply the information set out in Annex IV of the Directive when making an application for development consent.
- Article 6(1) requires Member States to ensure that the authorities likely to be concerned by a development by reason of their specific environmental responsibilities are consulted on the Environmental Statement and the request for development consent.
- Article 6(2)-6(6) makes provision for public consultation on applications for development consent.
- Article 7 relates to projects with transboundary effects and consequential obligations to consult with affected Member States.

The grant or refusal of development consent is a matter for the relevant local planning authority. The Environment Agency’s obligation is therefore to examine and use any relevant information obtained or conclusion arrived at by the local planning authorities pursuant to those EIA Directive articles.

In determining the Application we have considered the following documents: -

- The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application).
- The decision of the Planning Inspectorate to grant planning permission on 05/12/2022.
- The report and decision notice of the Planning Inspectorate accompanying the grant of planning permission.

- The response of the Environment Agency to the local planning authority in its role as consultee to the planning process.

From consideration of all the documents above, the Environment Agency considers that no additional or different conditions are necessary.

The Environment Agency has also carried out its own consultation on the Environmental Permitting Application which included the Environmental Statement submitted to the local planning authority. The results of our consultation are described elsewhere in this decision document.

7.1.2 Schedule 9 to the EPR 2016 – Waste Framework Directive

As the Installation involves the treatment of waste, it is carrying out a *waste operation* for the purposes of the EPR 2016, and the requirements of Schedule 9 therefore apply. This means that we must exercise our functions so as to ensure implementation of certain articles of the WFD.

We must exercise our relevant functions for the purposes of ensuring that the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste and that any waste generated is treated in accordance with Article 4 of the Waste Framework Directive. (See also section 4.3.9)

The conditions of the permit ensure that waste generation from the facility is minimised. Where the production of waste cannot be prevented it will be recovered wherever possible or otherwise disposed of in a manner that minimises its impact on the environment. This is in accordance with Article 4.

We must also exercise our relevant functions for the purposes of implementing Article 13 of the Waste Framework Directive; ensuring that the requirements in the second paragraph of Article 23(1) of the Waste Framework Directive are met; and ensuring compliance with Articles 18(2)(b), 18(2)(c), 23(3), 23(4) and 35(1) of the Waste Framework Directive.

Article 13 relates to the protection of human health and the environment. These objectives are addressed elsewhere in this document.

Article 23(1) requires the permit to specify:

- (a) the types and quantities of waste that may be treated;
- (b) for each type of operation permitted, the technical and any other requirements relevant to the site concerned;
- (c) the safety and precautionary measures to be taken;
- (d) the method to be used for each type of operation;
- (e) such monitoring and control operations as may be necessary;
- (f) such closure and after-care provisions as may be necessary.

These are all covered by permit conditions.

The permit allows the mixing of hazardous waste in the furnace. We are satisfied that the provisions of Article 13 are still complied with and the adverse impact of the waste management on human health and the environment is not increased; and the mixing operation conforms to best available techniques.

We consider that the intended method of waste treatment is acceptable from the point of view of environmental protection so Article 23(3) does not apply.

Energy efficiency is dealt with elsewhere in this document but we consider the conditions of the permit ensure that the recovery of energy take place with a high level of energy efficiency in accordance with Article 23(4).

Article 35(1) relates to record keeping and its requirements are delivered through permit conditions.

7.1.3 Schedule 22 to the EPR 2016 – Water Framework and Groundwater Directives

To the extent that it might lead to a discharge of pollutants to groundwater (a “groundwater activity” under the EPR 2016), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit will require the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non-hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution, and satisfies the requirements of Schedule 22.

No releases to groundwater from the Installation are permitted. The Permit also requires material storage areas to be designed and maintained to a high standard to prevent accidental releases.

7.1.4 Directive 2003/35/EC – The Public Participation Directive

Regulation 60 of the EPR 2016 requires the Environment Agency to prepare and publish a statement of its policies for complying with its public participation duties. We have published our public participation statement.

This Application is being consulted upon in line with this statement, as well as with our guidance RGS6 on Sites of High Public Interest, which addresses specifically extended consultation arrangements for determinations where public interest is particularly high. This satisfies the requirements of the Public Participation Directive.

Our draft decision in this case has been reached following a programme of extended public consultation on the original application. The way in which this has been done is set out in Section 2. A summary of the responses received to our consultations and our consideration of them is set out in Annex 4.

7.2 National primary legislation

7.2.1 Environment Act 1995

(i) Section 4 (Pursuit of Sustainable Development)

We are required to contribute towards achieving sustainable development, as considered appropriate by Ministers and set out in guidance issued to us. The Secretary of State for Environment, Food and Rural Affairs has issued *The Environment Agency's Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002)*. This document:

"provides guidance to the Agency on such matters as the formulation of approaches that the Agency should take to its work, decisions about priorities for the Agency and the allocation of resources. It is not directly applicable to individual regulatory decisions of the Agency".

In respect of regulation of industrial pollution through the EPR, the Guidance refers in particular to the objective of setting permit conditions *"in a consistent and proportionate fashion based on Best Available Techniques and taking into account all relevant matters..."*. The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

For waste the guidance refers to ensuring waste is recovered or disposed of in ways which protect the environment and human health. The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

(ii) Section 5 (Preventing or Minimising Effects of Pollution of the Environment)

We are satisfied that our pollution control powers have been exercised for the purpose of preventing or minimising, remedying or mitigating the effects of pollution.

(iii) Section 6(1) (Conservation Duties with Regard to Water)

We have a duty to the extent we consider it desirable generally to promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and the land associated with such waters, and the conservation of flora and fauna which are dependent on an aquatic environment.

We consider that no additional or different conditions are appropriate for this Permit.

(iv) Section 6(6) (Fisheries)

We have a duty to maintain, improve and develop fisheries of salmon, trout, eels, lampreys, smelt and freshwater fish.

We consider that no additional or different conditions are appropriate for this Permit.

(v) Section 7 (General Environmental Duties)

This places a duty on us, when considering any proposal relating to our functions, to have regard amongst other things to any effect which the proposals would have on sites of archaeological, architectural, or historic interest; the economic and social well-being of local communities in rural areas; and to take into account any effect which the proposals would have on the beauty or amenity of any rural or urban area or on any such flora, fauna, features, buildings, sites or objects.

We considered whether we should impose any additional or different requirements in terms of our duty to have regard to the various conservation objectives set out in Section 7, but concluded that we should not.

(vi) Section 39 (Costs and Benefits)

We have a duty to take into account the likely costs and benefits of our decisions on the applications ('costs' being defined as including costs to the environment as well as any person). This duty, however, does not affect our obligation to discharge any duties imposed upon us in other legislative provisions.

In so far as relevant we consider that the costs that the permit may impose on the applicant are reasonable and proportionate in terms of the benefits it provides.

(viii) Section 81 (National Air Quality Strategy)

We have had regard to the National Air Quality Strategy and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

We have also had regard to the clean air strategy 2019 and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

We have had regard to the National Air Pollution Control Programme (set under the National Emissions Ceiling Regulations 2018) and consider that our

decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

7.2.2 Section 108 Deregulation Act 2015 – Growth duty

We considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the statutory guidance issued by the Department of Business, Energy and Industrial Strategy in March 2017 says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards. It also ensures that any pollution that may arise from the regulated facility does not adversely affect local businesses.

7.2.3 Legislative and Regulatory Reform Act 2006

In accordance with section 21 of this Act, when making this decision we have had regard to the need to be transparent, accountable, proportionate and consistent, and the need to target action where it is needed.

In accordance with section 22 of the Act we have had regard to the Regulators’ Code; in particular the need to base our decision on environmental risk, and to support the applicant to comply and grow, so that burdens have only been imposed where they are necessary and proportionate

7.2.4 Human Rights Act 1998

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act

1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

7.2.5 Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 of this Act imposes a duty on Environment Agency to seek to further the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB). There is no AONB which could be affected by the Installation.

7.2.6 Wildlife and Countryside Act 1981

Under section 28G of the Wildlife and Countryside Act 1981 the Environment Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest. Under section 28I the Environment Agency has a duty to consult Natural England in relation to any permit that is likely to damage SSSIs.

There are no Sites of Special Scientific Interest (SSSI) within 2 km of the proposed Installation.

7.2.7 Natural Environment and Rural Communities Act 2006

Section 40 of the Natural Environment and Rural Communities Act 2006 has been amended with effect from 1 January 2023 to require consideration as to what action we can properly take, consistently with the proper exercise of our functions, to further the general biodiversity objective, which is to further the conservation and enhancement of biodiversity and having considered, determined such policies and specific objectives as we consider appropriate for taking action to further the general biodiversity objective, and take such action as we consider appropriate, in the light of those policies and objectives, to further that objective.

Section 40(2A) states that in complying with the duty in section 40(1) and (1A) we must have particular regard to any relevant local nature recovery strategy and species protection strategy or protected sites strategy

We have, also, considered the general biodiversity objective when carrying out our permit application determination and, consider that no different or additional conditions are required in the permit.

7.2.9 Countryside Act 1968

Section 11 imposes a duty on the Environment Agency to exercise its functions relating to any land, having regard to the desirability of conserving the natural beauty and amenity of the countryside including wildlife. We have done so and consider that no different or additional conditions in the Permit are required.

7.2.10 National Parks and Access to the Countryside Act 1949

Section 11A and section 5(1) imposes a duty on the Environment Agency when exercising its functions in relation to land in a National Park, to further the purposes of conserving and enhancing the natural beauty, wildlife and cultural heritage of the areas, and of promoting opportunities for the understanding and enjoyment of National Parks by the public.

There is no National Park which could be affected by the Installation.

7.2.12 Environment Act 2021

Section 110(10) requires that we must have regard to a protected site's strategy, which Natural England has prepared and published in relation to improving the conservation and management of a protected site, and managing the impact of plans, projects or other activities (wherever undertaken) on the conservation and management of the protected site, where relevant to exercise of our duties under Conservation of Habitats and Species Regulations 2017, sections 28G to 28I Wildlife and Countryside Act 1981 or Marine and Coastal Access Act 2009.

We have had regard to this in our assessments.

7.3 National secondary legislation

7.3.1 Conservation of Habitats and Species Regulations 2017

We have assessed the Application in accordance with our guidance and concluded that there will be no likely significant effects on any European Site.

7.3.2 Water Environment (Water Framework Directive) Regulations 2017

Consideration has been given to whether any additional requirements should be imposed in terms of the Environment Agency's duty under regulation 3 to secure compliance with the requirements of the Water Framework Directive, Groundwater Directive and the EQS Directive through, amongst other things, environmental permits, and its obligation in regulation 33 to have regard to the river basin management plan (RBMP) approved under regulation 31 and any supplementary plans prepared under regulation 32. However, it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

We are satisfied that granting this application with the conditions proposed would not cause the current status of the water body to deteriorate.

7.3.3 The Persistent Organic Pollutants Regulations 2007

We have explained our approach to these Regulations, which give effect to the Stockholm Convention on POPs and the EU's POPs Regulation, above.

7.4 Other relevant legal requirements

7.4.1 Duty to Involve

Section 23 of the Local Democracy, Economic Development and Construction Act 2009 require us where we consider it appropriate to take such steps as we consider appropriate to secure the involvement of interested persons in the exercise of our functions by providing them with information, consulting them or involving them in any other way. Section 24 requires us to have regard to any Secretary of State guidance as to how we should do that.

The way in which the Environment Agency has consulted with the public and other interested parties is set out in section 2 of this document. The way in which we have taken account of the representations we have received is set out in Annex 4. Our public consultation duties are also set out in the EP Regulations, and our statutory Public Participation Statement, which implement the requirements of the Public Participation Directive. In addition to meeting our consultation responsibilities, we have also taken account of our guidance in Environment Agency Guidance Note RGS6.

Annexes

Annex 1A: Application of chapter IV of the Industrial Emissions Directive

IED Article	Requirement	Delivered by
45(1)(a)	The permit shall include a list of all types of waste which may be treated using at least the types of waste set out in the European Waste List established by Decision 2000/532/EC, if possible, and containing information on the quantity of each type of waste, where appropriate.	Condition 2.3.4(a) and Table S2.2 in Schedule 2 of the Permit.
45(1)(b)	The permit shall include the total waste incinerating or co-incinerating capacity of the plant.	Condition 2.3.4(a) and Table S2.2 in Schedule 2 of the Permit.
45(1)(c)	The permit shall include the limit values for emissions into air and water.	Conditions 3.1.1, 3.1.2, 3.2.1 and Tables S3.1, S3.1(a) in Schedule 3 of the Permit.
45(1)(e)	The permit shall include the sampling and measurement procedures and frequencies to be used to comply with the conditions set for emissions monitoring.	Conditions 3.6.1 to 3.6.4, 3.2.2 and Tables S3.1, S3.1(a), S3.3 and S3.4 in Schedule 3 of the Permit.
45(1)(f)	The permit shall include the maximum permissible period of unavoidable stoppages, disturbances or failures of the purification devices or the measurement devices, during which the emissions into the air and the discharges of waste water may exceed the prescribed emission limit values.	Conditions 2.3.15 and 2.3.16.
45(2)(a)	The permit shall include a list of the quantities of the different categories of hazardous waste which may be treated.	Condition 2.3.4 and table S2.2
45(2)(b)	The permit shall include the minimum and maximum mass flows of those hazardous waste, their lowest and maximum calorific values and the maximum contents	Condition 2.3.4, table S2.2 and information provided in the Application on waste acceptance.

IED Article	Requirement	Delivered by
	of polychlorinated biphenyls, pentachlorophenol, chlorine, fluorine, sulphur, heavy metals and other polluting substances.	
46(1)	Waste gases shall be discharged in a controlled way by means of a stack the height of which is calculated in such a way as to safeguard human health and the environment.	Condition 2.3.1(a) and Table S1.2 of Schedule 1 of the Permit.
46(2)	Emission into air shall not exceed the emission limit values set out in part 3 of Annex VI.	Conditions 3.1.1, 3.1.2 and 3.2.1 and Tables S3.1, S3.1(a).
46(3)	Relates to conditions for water discharges from the cleaning of exhaust gases.	There are no such discharges as condition 3.1.1 prohibits this.
46(4)	Relates to conditions for water discharges from the cleaning of exhaust gases.	There are no such discharges as condition 3.1.1 prohibits this.
46(5)	Prevention of unauthorised and accidental release of any polluting substances into soil, surface water or groundwater. Adequate storage capacity for contaminated rainwater run-off from the site or for contaminated water from spillage or fire-fighting.	The application explains the measures to be in place for achieving the directive requirements. The permit requires that these measures are used. Various permit conditions address this and when taken as a whole they ensure compliance with this requirement.
46(6)	Limits the maximum period of operation when an ELV is exceeded to 4 hours uninterrupted duration in any one instance, and with a maximum cumulative limit of 60 hours per year. Limits on dust (150 mg/m ³), CO and TOC not to be exceeded during this period.	Conditions 2.3.15 and 2.3.16
47	In the event of breakdown, reduce or close down operations as soon as practicable.	Condition 2.3.14

IED Article	Requirement	Delivered by
	Limits on dust (150 mg/m ³), CO and TOC not to be exceeded during this period.	
48(1)	Monitoring of emissions is carried out in accordance with Parts 6 and 7 of Annex VI.	Conditions 3.6.1 to 3.6.4, 3.2.1, 3.2.2, tables S3.1, S3.1(a). Reference conditions are defined in Schedule 6 of the Permit.
48(2)	Installation and functioning of the automated measurement systems shall be subject to control and to annual surveillance tests as set out in point 1 of Part 6 of Annex VI.	Conditions 3.6.1, 3.6.3, table S3.1 and S3.1(a).
48(3)	The competent authority shall determine the location of sampling or measurement points to be used for monitoring of emissions.	Conditions 3.6.1. Pre-operational condition PO8
48(4)	All monitoring results shall be recorded, processed and presented in such a way as to enable the competent authority to verify compliance with the operating conditions and emission limit values which are included in the permit.	Conditions 4.1.1 and 4.1.2, and Tables S4.1 and S4.4
49	The emission limit values for air and water shall be regarded as being complied with if the conditions described in Part 8 of Annex VI are fulfilled.	conditions 3.1.1, 3.1.2, 3.2.1, 3.2.2 and tables S3.1, S3.1(a)
50(1)	Slag and bottom ash to have Total Organic Carbon (TOC) < 3% or loss on ignition (LOI) < 5%.	Condition 3.6.1 and Table S3.5
50(2)	Flue gas to be raised to a temperature of 1,100°C for two seconds, as measured at representative point of the combustion chamber.	Condition 2.3.12, Pre-operational condition PO6 and Improvement condition IC4 and Table S3.4.
50(3)	At least one auxiliary burner which must not be fed with fuels which can cause higher emissions than those resulting from the burning of gas oil liquefied gas or natural gas.	Condition 2.3.17
50(4)(a)	Automatic shut-down to prevent waste feed if at start up until the	Condition 2.3.12

IED Article	Requirement	Delivered by
	specified temperature has been reached.	
50(4)(b)	Automatic shut-down to prevent waste feed if the combustion temperature is not maintained.	Condition 2.3.12
50(4)(c)	Automatic shut-down to prevent waste feed if the CEMs show that ELVs are exceeded due to disturbances or failure of waste cleaning devices.	Condition 2.3.12 and 2.3.15
50(5)	Any heat generated from the process shall be recovered as far as practicable.	The Operator is proposing to distribute waste heat from the process to a district heating network (Pre-operational condition PO2). The Operator will also be required to review the available heat recovery options every 2 years (Conditions 1.2.1 to 1.2.3)
50(6)	Relates to the feeding of infectious clinical waste into the furnace.	Condition 2.3.1 and Table S1.2
50(7)	Management of the Installation to be in the hands of a natural person who is competent to manage it.	Conditions 1.1.1 to 1.1.3 and 2.3.1 of the Permit.
51(1)	Different conditions than those laid down in Article 50(1), (2) and (3) and as regards the temperature Article 50(4) may be authorised, provided the other requirements of this chapter are met.	No such conditions Have been allowed
51(2)	Changes in operating conditions do not cause more residues or residues with a higher content of organic polluting substances compared to those residues which could be expected under the conditions laid down in Articles 50(1), (2) and (3).	No such conditions Have been allowed
51(3)	Changes in operating conditions shall include emission limit values for CO and TOC set out in Part 3 of Annex VI.	Not applicable -this only relates to waste co-incineration plant

IED Article	Requirement	Delivered by
52(1)	Take all necessary precautions concerning delivery and reception of Wastes, to prevent or minimise pollution.	Conditions 2.3.1, 2.3.3, 3.3, 3.4, 3.5 and 3.7
52(2)	Determine the mass of each category of wastes, if possible according to the EWC, prior to accepting the waste.	Condition 2.3.4(a) and Table S2.2 in Schedule 3 of the Permit.
52(3)	Prior to accepting hazardous waste, the operator shall collect available information about the waste for the purpose of compliance with the permit requirements specified in Article 45(2).	Conditions 2.3.9 and 2.3.10
52(4)	Prior to accepting hazardous waste, the operator shall carry out the procedures set out in Article 52(4).	Information in the Application and Pre-operational condition PO5
52(5)	Granting of exemptions from Article 52(2), (3) and (4).	Not Applicable. Only applies to plants which are part of an installation covered by Chapter II and only incinerate or co-incinerate waste generated within that installation
53(1)	Residues to be minimised in their amount and harmfulness, and recycled where appropriate.	Conditions 1.4.1, 1.4.2 and 3.6.1 with Table S3.5
53(2)	Prevent dispersal of dry residues and dust during transport and storage.	conditions 1.4.1 2.3.1, 2.3.2 and 3.3.1.
53(3)	Test residues for their physical and chemical characteristics and polluting potential including heavy metal content (soluble fraction).	Condition 3.6.1 and Table S3.5 and pre-operational condition PO3.
55(1)	Application, decision and permit to be publicly available.	All documents are accessible from the Environment Agency Public Register.
55(2)	An annual report on plant operation and monitoring for all plants burning more than 2 tonne/hour waste.	Condition 4.2.2 and 4.2.3.

Annex 1B: Compliance with Bat Conclusions

BAT conclusions for Incineration

BAT conclusion	Criteria	Delivered by
1	Implement environmental management system	Condition 1.1 and Pre-operational condition PO1
2	Determine boiler efficiency	Section 4.3.7 of this decision document. Permit table S3.4
3	Monitor key process parameters	Condition 3.6.1 and table S3.4
4	Monitoring emissions to air	Condition 3.6.1 and table S3.1
5	Monitoring emissions to air during OTNOC	Condition 1.1.1 and pre-operational condition PO1
6	Monitoring emissions to water from flue gas treatment and/or bottom ash treatment	There are no such emissions from the installation
7	Monitor unburnt substances in slags and bottom ashes	Conditions 3.1.5 and 3.6.1, and table S3.5
8	Analysis of POP content of output streams for hazardous waste incineration	BAT 8 is not applicable because the plant does not fit the applicability criteria set out in BAT 8.
9	Waste stream management techniques	The Application explains the measures that will be used. Permit condition 2.3.1, table S1.2 and pre-operational condition PO5
10	Quality management system for bottom ash treatment plant	N/A No treatment carried out on site
11	Monitor waste deliveries as part of waste acceptance procedures	The Application explains the measures that will be used. Permit condition 2.3.1, table S1.2 and pre-operational condition PO5
12	Reception, handling and storage of waste	Measures are described in the Application and FPP. Permit conditions 2.3.1, table S1.2 and 3.8
13	Storage and handling of clinical waste	Measures are described in the Application. Permit conditions 2.3.1, table S1.2

BAT conclusion	Criteria	Delivered by
14	Improve overall performance of plant including BAT-AELs for TOC or LOI	Techniques described in the Application. Permit condition 2.3.1, table S1.2, conditions 3.1.3, 3.6.1 and table S3.5
15	Procedures to adjust plant settings to control performance	Measures described in the Application condition 2.3.1 and table S1.2
16	Procedures to minimise start-up and shut down	Measures described in the Application, condition 2.3.1 and table S1.2
17	Appropriate design, operation and maintenance of FGC system	FGC measures described in Application. Operation and maintenance procedures will form part of the EMS
18	OTNOC management plan	Pre-operational condition PO1
19	Use of heat recovery boiler	Described in the Application. Permit condition 2.3.1, table S1.2
20	Measures to increase energy efficiency and BAT AEEL	Measures described in the Application. Permit condition 2.3.1, table S1.2 Section 4.3.7 of this decision document.
21	Measures to prevent or reduce diffuse emissions including odour	Measures described in the Application. Permit conditions 2.3.1, table S1.2, conditions 3.4.1, 3.3.1, 3.3.2. Sections 4.2.2, 6.6.3 and 6.6.4 of this decision document.
22	Handling of gaseous and liquid wastes	Measures described in the Application
23	Management system to prevent or reduce dust emissions from treatment of slags and ashes	Not applicable. No treatment of slags and ashes permitted.
24	Techniques to prevent or reduce diffuse emissions to air from treatment of slags and ashes	Not applicable. No treatment of slags and ashes permitted.
25	Minimisation of dust and metal emissions and compliance with BAT AEL	Section 5.2 of this decision document. Permit conditions 2.3.1, table S1.2, condition 3.2.1 and table S3.1

BAT conclusion	Criteria	Delivered by
26	Techniques and BAT AEL for dust emissions from enclosed slags and ashes treatment	Not applicable. No treatment of slags and ashes permitted.
27	Techniques to reduce emissions of HCl, HF and SO ₂	Measures described in the Application. Permit condition 2.3.1 and table S1.2 Section 5.2 of this decision document.
28	Techniques to reduce peak emissions of HCl, HF and SO ₂ , optimise reagent use and BAT AELs	Measures described in the Application. Permit conditions 2.3.1, table S1.2, conditions 3.2.1 and table S3.1
29	Techniques to reduce emissions of NO ₂ , N ₂ O, CO and NH ₃ and BAT AELs	Measures described in the Application. Section 5.2 of this decision document. Permit conditions 2.3.1, table S1.2, 3.1.1 and 3.1.2 and table S3.1
30	Reduce emissions or organic compounds including dioxins/furans and PCBs. BAT AELs	Measures described in the Application. Section 5.2 of this decision document. Permit conditions 2.3.1, table S1.2, conditions 3.2.1 and table S3.1
31	Reduce emissions of mercury. BAT AEL	Measures described in the Application. Section 5.2 of this decision document. Permit conditions 2.3.1, table S1.2, conditions 3.2.1 and table S3.1
32	Segregate waste water streams to prevent contamination	Measures described in the Application Sections 4.2.2, 6.6.1 and 6.6.2 of this decision document. Permit conditions 2.3.1, table S1.2, conditions 3.1.1, 3.1.2 and table S3.2 and S3.3
33	Techniques to reduce water usage and prevent or reduce waste water	Measures described in the Application. Sections 4.2.2 and 4.3.8 of this decision document Permit conditions 1.3.1, 2.3.1, table S1.2

BAT conclusion	Criteria	Delivered by
34	Reduce emissions to water from FGC and/or from treatment or storage of bottom ashes. BAT AELs	Not applicable
35	Handle and treat bottom ashes separately from FGC residues	Permit condition 2.3.19
36	Techniques for treatment of slags and bottom ashes	No treatment carried out on site
37	Techniques to prevent or reduce noise emissions.	Measures are described in the Application. Section 6.6.5 of this decision document. Permit conditions 2.3.1, table S1.2, conditions 3.5.1, 3.5.2.

Also, refer to section 6.5 of this decision document for how other relevant BAT conclusions and appropriate measures have been considered for the various activities on site.

Annex 2: Pre-Operational Conditions

Based on the information on the Application, we consider that we do need to impose pre-operational conditions. These conditions are set out in the Permit and referred to, where applicable, in the text of the decision document. We are using these conditions to require the Operator to confirm that the details and measures proposed in the Application have been adopted or implemented prior to the operation of the Installation.

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Annex 3: Improvement Conditions

Based in the information in the Application we consider that we need to set improvement conditions. These conditions are set out in the permit and–justifications, where applicable, for these are provided at the relevant section of the decision document. We are using these conditions to require the Operator to provide the Environment Agency with details that need to be established or confirmed during and/or after commissioning.

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Annex 4: Consultation Responses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex. Copies of consultation responses have been placed on the Environment Agency public register.

The Application was advertised on the Environment Agency website from 16/05/2025 to 18/07/2025 and in The Northern Echo on 16/05/2025.

The following statutory and non-statutory bodies were consulted: -

- Local Authority – Environmental Protection Department - County Durham Council and Darlington Borough Council
- Local Authority – Planning
- Fire & Rescue
- UKHSA
- Director of public health
- Health and Safety Executive
- Food Standards Agency
- Northumbrian Water Limited

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Durham County Council.	
Brief summary of issues raised:	Summary of action taken / how this has been covered
No issues raised.	No action required.

Response Received from UK Health Security Agency	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Based on the information contained in the application supplied to us, UKHSA has no significant concerns regarding the risk to the health of the local population from the installation.	No action required.

Response Received from County Durham and Darlington Fire and Rescue Service	
Brief summary of issues raised:	Summary of action taken / how this has been covered
No issues raised	No action required

2) **Consultation Responses from Members of Parliament, Councillors, Members of the Public and Community Organisations**

The consultation responses received were wide ranging and a number of the issues raised were outside the Environment Agency's remit in reaching its permitting decisions. Specifically questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission.

Guidance on the interaction between planning and pollution control is given in the National Planning Policy Framework. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues, which fall within the scope of the Environmental Permitting Regulations.

Representations were received from:

- Members of Parliament
- North East Mayor
- Councillors
- Parish Councils
- Political groups
- Community Groups
- Local Businesses
- Environmental groups
- Individual members of the public

The following are the issues raised from the consultation

Brief summary of issues raised:	Summary of action taken / how this has been covered
Comments about air emissions and air risk assessment	
Concern over how the air dispersion modelling was carried out including: • Modelling parameters such as terrain (topography), surface roughness • The weather data that was used is not local and is not recent.	We audited the Applicant's dispersion modelling. As part of the audit, we checked that the modelling parameters, weather data and background pollution levels used by the Applicant were appropriate and we are satisfied that they were. We also considered potential effects from downwash in our checks. Based on the Applicant's modelling, and our review of it, we are satisfied that there will not be a significant impact in air quality.

• Background pollution levels are not representative • Downwash not accounted for	Further information in in section 5.2 of this decision document for further details.
Concern over the impacts from: • Oxides of nitrogen • Acid gases • Particulate matter • Metals • Volatile organic compounds • PCBs • PAHs • Carbon monoxide • Ammonia	We have assessed the impacts from these pollutants and we are satisfied that there will not be any significant impacts. See section 5.2 including section 5.2.2 (consideration of key pollutants) of this decision document for further details.
Concern that the stack height is too small and no stack height assessment has been carried out.	Having assessed the Application as a whole we are satisfied that the measures proposed, of which stack height is one aspect, are BAT. The stack height for this site is consistent with other incinerators of a similar type and scale.
Concern that impacts at all receptors were not considered, including: • Schools • College • Nurseries • Sports facilities • Local businesses • Other residential areas • Receptors in upper floors of buildings. • Footpaths • Allotments • Places of worship • Hospitals • GP surgeries • Care homes • Houses • Children's play areas • Shops • Restaurants • Cafes • Scouts	We are satisfied that there will not be a significant impact from emissions to air when based on the maximum concentrations that represent the worst case predictions. Impacts at individual receptors will be lower than the maximum and we are satisfied there will not be an unacceptable impact at any receptor. Section 5.2 of this decision document has further details.
Concern about human receptors located above ground floor level and elevated locations.	The Applicants modelling assessment identified relevant elevated receptors. Our audit also checked for relevant elevated receptors. We are satisfied there will not be an unacceptable impact at any human receptor.

Concern that impacts will occur over a larger area than was modelled.	The Applicant modelled over a 4km x 4km grid area for human receptors. We are satisfied that this identified the maximum concentration and impacts at receptors further away will be lower.
Concern no sensitivity analysis (for terrain, met data, buildings) has been carried out in modelling assessment.	We audited the Applicant's dispersion modelling. As part of the audit we checked the Applicant's Sensitivity Analysis and carried out our own sensitivity analysis. Based on the Applicant's modelling, and our review it, we are satisfied that there will not be a significant impact on air quality.
Meteorological data used in dispersion modelling should have considered climate change	The Applicant used 5 years of met data that is less than 10 years old. Climate change is assumed to be less than the inter year variation in the data and so is not expected to affect the predictions significantly.
Concern that in-combination effects from other facilities have not been considered. Including INEOS, Emerald Biogas, Gestamp, the A1(M), S&A Gonvarri, Ashcourt Quarry	The air quality assessment considered existing pollution levels which includes emissions from the existing sources listed. Several background data sources were considered, and the most representative background data was chosen for the assessment. See section 5.3 for further details.
Concern that the Applicant has not considered the combined/cumulative effects of emissions to air from the proposed Cleveland Bridge/Endolys Facility in Darlington and the Fornax HTI facility.	We have considered the impacts of both facilities in our audit of the AQ assessment. We found that the PECs at receptors, calculated using maximum PC on the grid, were not predicted to exceed the relevant environmental standards at any receptors. We also note that the sources are approximately 10 km apart, and the maximum impact locations from Fornax HTI and the Cleveland Bridge Facility do not overlap. We are therefore satisfied that any combined impacts will not be significant. We are also satisfied that an updated modelling assessment is not required.
Concern that the air quality assessment shows Arsenic and Chromium are predicted to be above air quality standards.	We are satisfied that impacts from Arsenic and Chromium will not be significant and will not lead to an exceedance of the ES. See section 5.2 for details of our assessment.
Concern over impact from cyanide emissions.	Cyanide is not referenced within the BAT reference document for waste incineration as a relevant pollutant requiring assessment. Our internal records and US Environmental Protection Agency (EPA) indicate incinerators are not a significant source of hydrogen cyanide (HCN). We are therefore satisfied that Cyanide emissions will not be significant.
Concern that the impact from ammonia slip not modelled	We have assessed the impacts from ammonia and we are satisfied that it is unlikely there will be any significant impacts. See section 5.2 including section 5.2.2 (consideration of key pollutants) of this decision document for further details and section 5.4
Concern that smoke will be emitted.	There will not be emissions of smoke from the Installation. Smoke is made up of high concentrations of particulates. Particulate emissions will be controlled to low levels by the bag filter system.

Concern over the impact from very fine particulate matter such as PM2.5, PM1 and smaller.	These issues are covered in section 5.3 of this decision document. We are satisfied that there will not be a significant impact from very fine particles.
Concern over emissions from traffic.	The air quality assessment considered existing background pollution levels which includes emissions from traffic. Movement of traffic to and from the Installation is outside of our remit but will normally be an issue for the planning authority to consider. Our consideration is whether the emissions from traffic could affect the prevailing pollutant background levels which could be a consideration where there are established high background concentrations contributing to poor air quality. In this case the small increase in pollutants from traffic would not affect the background levels to the point where it would affect the conclusions of the air quality assessment. Vehicle movements within the Installation boundary are considered within the remit of the Environmental Permit. However, the emissions from this limited area are highly unlikely to be significant and will not affect the conclusions of the air quality impact assessment.
Concern that it is unclear whether there will be stand-by generators, and if there are emissions from stand-by generators have not been considered.	The diesel generator is small at 1.1MW thermal input and will only operate in the event of a disruption in electrical power to enable the operation of abatement equipment. This would be in the event that electricity from the grid was lost. We have limited operating times of the generator in the permit. For context, if the generator was to be permitted alone it would meet the requirements for a standard rules permit (SR2018 No 7). We are satisfied that there will not be any significant impacts.
Concern as to whether modelling was based on the correct waste capacity.	The Operator has confirmed that the maximum throughput for incineration is 10,500 tonnes per annum based on a throughput of up to 1.33 tonnes/hour based 90% plant availability. They also confirmed that the AQ modelling has been based on this throughput. Should the Operator wish to accept more waste they would have to apply to vary the permit and review the AQ modelling assessment based on the increased waste input.
Concern about whether temperature inversions could limit dispersion.	The Applicant carried out modelling using five years of meteorological data. This period is likely to include typical worst-case weather conditions that could affect the results, such as near-surface and capping inversions. More complex airflow patterns, such as katabatic inversions and drainage flows, are not modelled. However, we have previously assessed similar situations using more advanced flow models. Based on that experience, we do not expect these complex flows to change the findings in this case. The risk of the proposed facility causing an exceedance of an air quality standard is low.
Comments about health impacts and the HHRA	

Concern about health impacts	We are satisfied that there will not be a significant impact on health due to the Installation. Section 5.3 of this decision document has further details.
Concern that HHRA modelling data used to calculate emissions is for Municipal Waste Incinerators only and not Hazardous or Clinical waste.	Based on our previous experience, we have considered emissions from other clinical/hazardous waste incinerators. Our checks demonstrate that our conclusions for HHRA will still be applicable. We are therefore satisfied that the Applicant's assessment is appropriate.
Concern that health risks from hazardous waste incineration will be different to those from municipal plants.	The UKHSA's current opinion on incineration refers specifically to municipal waste incinerators (MWIs). The evidence which underpins its opinion is also from studies on the health effects from MWIs. The EA's position is that the UKHSA advice is also relevant for hazardous waste incinerators (HWIs), since these have to meet the same strict emission limits and other permit requirements as MWIs. These include the same requirement to use best available techniques, along with some more stringent conditions such as higher combustion temperatures. The EA is not aware of any evidence which shows that emissions from HWIs could have a different impact on human health to those from MWIs, and the UKHSA has not flagged any concerns about the health impacts from the proposed HWI in their consultation response on the permit application.
Concern that the pollutant data used in the planning HHRA are different to those used in the Environmental Permit HHRA.	The planning application is assessed under the planning process. We are required to assess the proposals in the Environmental Permit Application we have done so and we are satisfied with the proposals.
Concern that receptors have been missed in the HHRA including farms, food supply centres, cattle market, allotments, locally grown food.	The HHRA considers the maximum impacted receptor and so we consider the conclusions to be protective of other potential receptors. We are satisfied that there will not be a significant impact on health or on soils.
Concern that all receptors should be considered 'Farmer' in the HHRA.	All relevant exposure pathways were considered in our checks of the HHRA. We are satisfied that there is no significant risk to health.
Concern that an impact of 5.54% of the TDI in HHRA is considered by the Applicant as negligible without explanation.	UKHSA has advised, if total exposure including the contribution from the facility remains below the TDI then the total exposure would be without appreciable risk to health, or if total exposure including the facility results in an exceedance of the TDI, as long as the additional contribution from the facility is less than 10% it would be unlikely to result in a significant risk.
Concern that the model fails to assess cumulative long-term exposure for local children.	Human health risk assessment considers lifetime exposure of PCDD/Fs and dioxin like PCBs for the receptors considered.
Concern over abatement failure and impacts during abnormal operation/OTNOC; and there is no OTNOC plan proposed.	The EMS will include a preventative maintenance scheme so that equipment is serviced and replaced where necessary. The permit treats OTNOC as abnormal operation, it sets limits on how long the plant can operate during abatement failure (abnormal operation). Section 5.5 of this decision document has more details including details of the risk assessment that shows there will not be a significant impact during abnormal operation. If an emission limit is exceeded at other times then the plant must stop feeding waste immediately.

	Condition 1.1.1 in the permit requires the Operator to manage and operate activities in accordance with a written OTNOC management plan. This will be in place prior to operation in accordance with pre-operational condition PO1 in table S1.4 of the permit.
Concern about elevated dioxin emissions at start-up and shut-down.	For dioxins and furans, the principal exposure route is through ingestion, usually through the food chain, and the main risk to health is through accumulation in the body over a period of time. Elevated levels of dioxins at start-up and shut-down will therefore not significantly impact on exposure. A report by AEA for the Environment Agency at a municipal waste incinerator showed that the mass of dioxins emitted during shutdown and start-up for a four day planned outage was similar to the emission which would have occurred during normal operation in the same period. The plant will not have any methods of bypassing the abatement plant during start-up and shut-down so particulate abatement will be effective at all times.
Comments about emission limits not applying during start-up and shut-down.	The emissions limits set by IED chapter IV do not apply at start-up and shut-down. The combustion units will be fired on a support fuel (natural gas), to ensure that the temperature meets the required levels before waste is permitted to be fed for incineration. This support fuel is automatically fed if the temperature of the furnace falls below a permitted level. The impact at start-up and shut down, when emission limits do not apply, is not likely to be significant.
Concern was expressed that there will be an impact on health due to the Installation including: • those with existing health conditions • young people • elderly • Workers in nearby businesses • Local residents • Pregnant women • Breast fed infants	We are satisfied that there will not be a significant impact on health due to the Installation. Section 5.3 of this decision document has further details. The standards that we have used to assess against are set to protect all members of the public.
Concern over impacts from dioxins/furans including accumulation of dioxins/furans in the food chain. Including food grown and bred on nearby farmland, allotments and gardens.	The Applicant's health risk assessment included consideration of accumulation in the food chain. The impact from dioxins/furans is described in more detail in section 5.3 of this decision document. We are satisfied that impacts will not be significant.
Concern about health impacts from emissions of Persistent Organic Pollutants from the incinerator.	We are satisfied that the plant can safely burn wastes that could contain POPs. The furnace temperature will be at least 850°C (1,100°C for hazardous waste with <1% halogenated organics) and a combustion gas residence time of at least 2 seconds which will

	ensure POPs are destroyed. Reformation will be minimised by design of the plant, including rapid flue gas cooling, as detailed in section 6.1.1. Destructions of POPs and minimising reformation will ensure no significant impact from air emissions. This is evidenced in a report from April 2024: Persistent Organic Pollutants Destruction Efficiency in UK Energy from Waste. Report Reference: UC17375.3. See section 6.4 of this document.
Concern over deposition of emissions to soil and water	Deposition of pollutants like PCDD/Fs and dioxin like PCBs to soil and water from air emissions is assessed within the HHRA. Deposition assessment (nitrogen and acid deposition) is included in habitats assessment. For other pollutants, such as metals the ES are protective.
Concern that World Health Organization or UK guideline limits will be exceeded.	We have assessed against the environmental standards in our published guidance. FSA and UKHSA are satisfied that our assessment is robust and conservative.
Concern that Darlington has naturally high arsenic levels in its soil some areas exceeding safe thresholds for human health	The impact of arsenic were compared to the ES which is considered to be protective for human health impacts. As per the published guidance, the Applicant included emissions of arsenic to air from the facility. Our checks indicate that at the location of maximum impact, the predicted environmental concentration (PEC) do not exceed the relevant ES.
Concern over emissions from emergency bypass vent.	The incineration plant does not have an emergency bypass vent.
Ambient Air Quality Directive (AAQD) will come into force by 2030 with PM1 limits. Permit should not be granted before in place	We have assessed the impact against current standards as set out in our guidance. If UK standards change in the future we can review the Permit if required and vary if necessary.
Concern over emission of microplastics	We are satisfied that there will not be a significant issue with emissions from the Installation. Bag filters will be fitted to provide particulate abatement. The membranes have very small pores which in combination with the filter cake which accumulates on the bag filters provide effective abatement of particulates.
The applicant has used US-EPA HHRAP protocol instead of a UK-specific approach	For HHRA, either - USEPA Human Health Risk Assessment Protocol or the HMIP 1996 report can be used. We are therefore satisfied that the Applicant's assessment is appropriate.
The HHRA does not consider fugitive emissions from ash handling, building vents and lorries unloading	The Operators techniques for minimising fugitive emissions as discussed in section 6.6.3 of this document will ensure emissions are not significant and therefore human health is protected.
Concern that according to DEFRA and the Environment Agency's CLEA (Contaminated Land Exposure Assessment) models, persistent organic pollutants such as dioxins, furans, and PCBs have been shown to bioaccumulate	The Applicant's health risk assessment included consideration of accumulation in the food chain. The impact from dioxins/furans is described in more detail in section 5.3 of this decision document. We are satisfied that impacts will not be significant.

in home-grown vegetables, soil, and eggs from backyard hens foraging in contaminated land.	
Concern model of school hours used in HHRA is not accurate.	HHRA is assessed over the lifetime of the receptors.
Concern about impact from mercury through consuming fish from nearby fish farms.	The impacts of mercury were compared to the ES which is considered to be protective for human health impacts. We verified that local fish consumption is not a likely exposure pathway for the HHRA.
Concern about impact on mental health.	EPR is concerned with the impact of emissions from the Installation and based on our assessment we are satisfied that those emissions will have no significant impact on human health or give rise to any objective cause for concern.
Concern that a UKHSA study showed birth defects/increased infant mortality near to incinerators.	Please refer to section 5.3 where the findings of this study are discussed. In summary the UKHSA confirmed that the study did not change their position of the health risks.
Other pollutants should be included in the HHRA.	Section 5.3 of this decision document has further details on how health impacts from dioxins/furans and other pollutants have been considered.
Concern expressed over the Parsons et al (2025) study on dioxins in breast milk.	We contacted the UKHSA who confirmed the following: UK was part of the Imperial College London and UKHSA “Chemical and Radiation Threats and Hazards” Health Protection Research Unit (HPRU) work plan. This study showed that emissions from incinerators may make a small contribution to the body burden of dioxins, furans and PCBs, but further work would be needed to show a causal link. While the study shows a small increase in the compounds in human milk, this cannot be translated into any increased health risk. The concentrations identified in the study are similar to those in other recent human biomonitoring studies in Europe. The findings of the breast milk study are consistent with the UKHSA position that ‘modern, well run and regulated municipal waste incinerators are not a significant risk to public health’, as they indicate a small increase in the amount of dioxins and furans in the milk, and any potential health impact of a small increase is likely to be very small. Therefore, UKHSA does not consider there is a need to change its position statement on the basis of this study. We are therefore satisfied that dioxin emissions will not have a significant impact on human health.
Several reports by ToxicoWatch and Zero Waste Europe were cited along with concern that the reports showed elevated levels of persistent organic pollutants in the environment around incineration plants in Europe.	We are not aware of any similar reports for UK energy from waste plants, nor can we comment on the validity of the cited reports (which do not appear to have been peer reviewed or published in any scientific journals). The Applicant carried out a human health impact assessment (HHRA) on dioxin emissions from the Installation which includes impact on the food chain via deposition to soil. We audited the HHRA and we have concluded that dioxin

	emissions will not have a significant impact on human health.
Concern over impact on health of staff at nearby businesses.	In any event we are satisfied that the installation will not have a significant impact on health. The air quality standards are not applicable to places of work. The health and safety measures taken by businesses would be applicable for these receptors
Concern about lower dioxin TDI from European Food Safety Authority was raised.	This refers to whether a tolerable weekly intake should be used. The UKHSA and FSA are satisfied that our procedures for assessing HHRAs are robust and conservative. The advice from UKHSA based on recommendation from the COT, is to use the tolerable daily intake for the assessments.
HHRA should consider cumulative impacts	Human health risk assessment considers lifetime exposure of PCDD/Fs and dioxin like PCBs for the receptors considered.
Concerns that the application groups together most organics under 'Total Organic Carbon' which obscures specific carcinogens	Our assessment of TOCs is detailed in section 5.2 of this document. IED chapter IV and the BAT conclusions set limits for the most significant substances that will be emitted, this is discussed in more detail in section 5 of this decision document. Section 5.3.2 explains our approach to assessing impacts which covers reasonably foreseeable emissions.
Concern outdated health benchmarks have been used. The dispersion modelling relies on WHO 2000 criteria and EU limits, ignoring WHO 2021 guidance (PM _{2.5} = 5 µg m ⁻³ annual; NO ₂ = 10 µg m ⁻³)	For HHRA and PM, we have assessed against the environmental standards in our published guidance. FSA UK and UKHSA are satisfied that our assessment is robust and conservative.
Several reports, papers and articles were cited that the incinerator would cause health impacts due to air emissions.	We considered the reports, papers and articles that were cited. Our view is that the Installation will not have a significant impact on health. This view is supported by the UKHSA. Further details on in section 5.3 of this decision document.
Comments about noise impacts	
Concern over noise impacts from the installation.	Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise noise and vibration and to prevent pollution from noise and vibration outside the site. See section 6.6.5 for details of our assessment.
Concern over noise from HGVs delivering waste to and from the site, particularly at night.	We are satisfied that noise impacts from HGV movements on site will not lead to significant pollution. As stated in the Applicant's Noise Impact assessment no HGV movements are expected during night time hours (23-00hrs – 07-00hrs).
Concern over increased noise from HGVs using nearby road networks.	Only vehicle movements within the Installation can be considered through environmental permitting. Vehicle movements outside of Installations are not within our remit.
Concern over noise during steam venting	The Applicant has confirmed that steam venting will not occur under normal operating conditions. We therefore do not expect noise pollution from steam venting to be significant.
Comments about odour impacts	

Concern over the impact from odour.	We are satisfied that there will not be a significant impact from odour, further details are in section 6.5.4 of this decision document.
Concern over odour impacts during shut-down.	The Applicant described measures in the Application and odour management plan including the use of a carbon filter odour abatement during shut-down of the incinerator. We are satisfied that the measures are appropriate. See section 6.5.4 for further details.
Concern over odour impacts when reception doors are open.	We expect reception doors to only be opened briefly for deliveries. Air from the reception hall will be used for combustion air in the furnace to generate negative pressure in the reception hall. This technique is used in many incineration plants and works well to control odour including for plants where doors open for delivery vehicles. We are satisfied that the measures proposed by the Applicant, and implemented through the Permit conditions, will ensure that there will not be a significant impact from odour.
Odour modelling and monitoring should be carried out	Whilst odour modelling and monitoring has its role, our approach is to impose operational controls which should prevent odour occurring in the first place. Our view is that odour monitoring is not required in this case, as the risk of odour is low as discussed in section 6.6.4. We will use Permit condition 3.4.1 to control and regulate odour. We are satisfied that odour modelling is not required to allow us to assess the application and that our standard odour condition will allow effective regulation of the site and prevent odour pollution.
Concern about odour from clinical and anatomical waste and length of storage times.	All clinical waste will be contained with a sealed container and will be stored in a building under negative pressure. Table S1.1 of the permit restricts storage times for various waste types including categories of clinical waste which reflect our Appropriate Measures guidance. We are satisfied that that there will not be a significant impact from odour.
Concern that air in the reception hall will not be managed or treated effectively.	We are satisfied that air in reception hall will be managed and treated effectively and the risk of pollution due to odour is low. The Applicant's operating techniques include maintaining negative pressure in the waste reception hall which will minimise fugitive emissions. Air from the reception area will be used for combustion air in the furnace to generate negative pressure. When the incinerator is not operating air will be vented to atmosphere via a carbon filter abatement system. Note we have included condition IC8 in table S1.3 of the permit which requires the Operator to demonstrate negative pressure can be maintained in the waste storage area. We are satisfied these proposed techniques are appropriate.
Concern that the OMP does not consider all possible odour scenarios.	We are satisfied that the OMP has considered the relevant scenarios to ensure that odour will be controlled.
Concern that odour suppression and masking techniques proposed will not be adequate.	We consider the risk of odour pollution from the proposed activities to be low. The key odour control measures include: • storage of waste in sealed containers

	• storage and treatment within a building • treatment of air within the building through the incinerator or carbon filter; Whilst odour suppression/masking is generally not considered to be effective if used in isolation, we are satisfied that odour control measures proposed overall will be effective and will minimise odour impacts. See section 6.6.4 for further details.
Concern about odour issues at other incineration plants.	The sector is generally a good sector in terms of compliance, this includes odour. We are satisfied that there will not be a significant impact from odour.
Concern that no back up odour abatement is specified.	We consider that the risk of odour is low, as waste will be stored in enclosed containers and within a building. A back-up system is proposed, the operator will vent air from the waste storage areas through an activated carbon odour abatement system when the incinerator is shut-down.
Concern that quarantined odorous waste can be held on site for up to 48 hours.	We are satisfied that the odour management measures proposed are appropriate and odour from quarantined waste is unlikely to cause significant pollution.
Comments about impacts at ecological sites and wildlife	
Concern over the impact at habitat sites and other ecological sites.	Our assessment at ecological sites is described in section 5.4 of this decision document. We are satisfied that there will not be a significant impact.
Concern only 2 km buffer for Sites of Special Scientific Interest.	The 2km screening distance has been agreed with Natural England and we are satisfied that there will not be a significant impact at SSSIs beyond the 2km screening distance.
Concern about impacts at Cumby Pond LWS and The Snipe LWS.	We are satisfied that there will not be a significant impact at either LWS. See section 5.4 above for details of our assessment.
Concern over noise and light impact on wildlife and at ecological sites.	Light is primarily a planning issue and a concern for visual impacts. In any event light we are satisfied light is not likely to have a significant adverse impact on wildlife or ecological sites. Our view is that the expected noise levels are not likely to have a significant effect on wildlife. The main type of noise impact to consider for species like birds is sudden loud noises which are unlikely from this Installation.
Concern over the impact on protected species plants and other wildlife in the local area including great crested newts; swans; bats, bees, orchids, snipe, water violet, water voles, otters, wetlands, grasslands, badgers, red squirrels, butterflies, toads, red list birds, trout, orchids, swans.	We are satisfied that there will not be a significant impact on species. See section 5.4 for details of our assessment.
Concern about absence of Habitats Regulations Assessment (HRA) and Natural England Consultation.	A HRA is not required as there are no SAC, SPA, Ramsar or SSSIs sites within the relevant screening distance of the site. We have not consulted with Natural England for this reason. This is in accordance with our approach to assessing habitats agreed with Natural England.
Concern over impact on nearby AONB.	We are satisfied that impacts at any AONB will not be significant.

Concern over significance criteria for local wildlife sites being a process contribution of <100%.	See section 5.4.2 of this document for details of our assessment of local wildlife sites and explanation for the screening criteria applied.
Concern that the ecological survey from 2020 is out of date.	We have undertaken our own assessment of impacts on ecological sites, habitats and species. This is described in section 5.4 of this decision document. We are satisfied that there will not be a significant impact.
Concern that that impacts at nearby deciduous woodland (Classified as Priority Habitat) have not been assessed.	Our audit of the air quality assessment included a check on impacts at the nearby deciduous woodland. We are satisfied that impacts will not be significant.
Concern about impact of fugitive emissions	
Concern about fugitive emissions including: - Dust emission to air - Emissions to water/sewer of bottom ash or other residues	We are satisfied that the proposed techniques for storage of waste, incinerator bottom ash and APC residues are appropriate and fugitive emissions are unlikely to be significant.
Concerns over how Air Pollution Control (APC) residues and ash will be handled	We are satisfied that appropriate controls will be in place to minimise the risk of fugitive emissions of ash and APC residues. See section 6.6.3 of this document for further details of our assessment.
Concern about emissions of asbestos fibres from incineration. No asbestos monitoring is proposed.	The Applicant has confirmed that asbestos will not be incinerated. We have included conditions in table S1.1 of the permit which excludes the Applicant from accepting asbestos waste.
Concern over litter.	Waste will be delivered in enclosed delivery vehicles and within containers. We are satisfied that impacts from litter are unlikely to occur.
Deposit of emissions damaging nearby cars and properties.	We assess impacts of emissions on human health and the environment, our assessment is discussed in this decision document. The only pathway for damage would be via acid rain from acid gas emissions, which can affect stonework and car body work. We have considered the impacts of acid gases and the impacts are insignificant. We therefore do not consider that emissions from the Installation will impact buildings or vehicles. See section 6.6.3 of this document for further details of our assessment.
Concern about contaminated dust emissions from vehicles carrying waste and bottom ash.	All waste streams will be delivered to and from site in covered/enclosed waste delivery vehicles. We are therefore satisfied that fugitive emissions of dust from vehicles carrying waste and bottom ash will be minimised.
Concern about bunding, containment and site surfacing.	We are satisfied that the bunding, containment and surfacing on site will be appropriate. See section 6.6.3 for further details.
Concern over fugitive emissions from waste transported to the site	The Operator has confirmed that all waste streams will be delivered to site in covered/enclosed waste delivery vehicles. We are satisfied this appropriate and will minimise fugitive emissions during transport.
Concern about bioaerosols.	We are satisfied the risk of emissions of bioaerosols is low. Waste will be stored in containers within a building for short periods and the building will be maintained under negative pressure, with air used as combustion air in the furnace.
Comment about global warming and climate change impacts	
Concern over the emissions of carbon dioxide and the impact on global warming.	Our assessment of global warming is covered in sections 6.3 and 6.6 of this decision document.

Concern that waste incineration releases more CO ₂ per megawatt-hour than coal.	We have not compared emissions to coal or gas combustion in our assessment of this Application. This is because the Applicant has not applied to operate a power station, the Application is for an incineration plant with the primary purpose of waste disposal whereas a power station's primary purpose is to generate energy. Therefore the comparison is not a consideration for this determination.
Comments about impact on water, sewer and groundwater	
Concern that it is unclear what aqueous emission there will be.	The Applicant has described the emissions to sewer and surface water. We are satisfied that emissions will not lead to significant pollution. Further details are in sections 6.6.1 and 6.6.2 of this decision document.
Concern that the foul water tank will not be adequately sized.	The Applicant has provided justification for the size of the foul water tank. We are satisfied it is appropriate.
Concern that drainage from the drum washing going to foul sewer has not been assessed.	The Applicant has assessed the impact of emissions of waste-water from drum washing to sewer. We are satisfied that emissions will not lead to significant pollution. Further details are in section 6.6.2 of this decision document.
Concern over emissions to water (including Demon Beck, River Skerne (chalk stream) and nearby ponds.	The only direct emission to controlled waters allowed under the Permit will be uncontaminated surface water run off that will be emitted to Demon Beck. We are satisfied that this will not cause significant pollution.
Concern about pollution of drinking water.	We are satisfied that the installation will not cause pollution of drinking water because there is no pathway for this to occur.
Concern over emissions to sewer.	We are satisfied that emission to sewer will not lead to significant pollution. It can only be discharged with the consent of the sewerage undertaker. See section 6.6.2 for further details.
Concern over impacts on groundwater.	We are satisfied that the pollution control measures proposed will ensure that the risk of pollution of groundwater is minimised. See section 4.2.2 for details of our assessment.
Concern over where water will be sourced from.	The Applicant proposes to source process waters from the mains water supply.
Comments about BAT, emission limits and control measures	
Concern that BAT is not being used including: - Furnace type - Abatement techniques	Our view is that the furnace type and abatement systems proposed by the Applicant are BAT. This is explained in detail in section 6 of this decision document.
Concern that the Environmental Management System will not be adequate and comply with the requirements BAT1 in the Incineration BATC. Concern that a full EMS was not provided.	We are satisfied that there will be an appropriate EMS in place in line with the BAT C. The Operator has confirmed that the EMS will conform with ISO 14001. Note that although we do not require the Operator to provide a full Environmental Management at determination we do require it to be in place prior to commencement of operation. A pre-operational condition (PO1) is included in the permit requiring this
Concern that the stack velocity and temperature are not specified.	The air quality assessment details the emission parameters including stack velocity and temperature.
Concern over whether there will be adequate maintenance of the plant.	The EMS will include a preventative maintenance programme. This will ensure that equipment is kept in

	working order. We will routinely audit the EMS and check it is being complied with.
Concern about inconsistent combustion temperature claims (850°C and 1100°C)	The Operator will incinerate waste at both 850°C and 1100°C, this will be determined by the waste type and is controlled by the permit under condition 2.3.12.
Concern that there is no specification of abatement systems for key pollutants.	The Operator has described the abatement systems that will be used at the site. We are satisfied that they are BAT for incineration of hazardous waste and therefore will be effective at treating and minimising emissions of pollutants in the incineration exhaust gases. The Operator is required to comply with the emission limits in the permit.
Concern about how combustion temperature will be monitored.	The Applicant has stated that temperature will be measured in the kiln and in the secondary combustion chamber to ensure sufficient temperature is maintained during combustion. We are satisfied that this is appropriate. We have also included a pre-operational condition (PO6) in the permit requiring the Operator to submit a report detailing the CFD modelling. The report will explain how the furnace has been designed to comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED whilst operating under normal load and the most unfavourable operating conditions (including minimum turn down and overload conditions), and that the design includes sufficient monitoring ports to support subsequent validation of these requirements during commissioning. The Operator will not be allowed to commence operations until we have approved this report.
Concern that bag filters will not capture ultrafine particles.	Our view is that bag filters are BAT. Filter bags provide particulate abatement from the fabric itself. In addition, particulate removal also occurs via a three-dimensional dust cake which is maintained on the surface of the filter membrane by controlling the bag cleaning process and the pressure drop through the fabric filter. The membranes have very small pores which in combination with the filter cake which accumulates on the bag filters provide effective abatement of particulates. Research has shown the removal efficiency is very high even for smaller particles. See section 5.3.3 of this decision document for further details
Carbon capture should be used or plant should be carbon capture ready.	Decarbonisation readiness is now included in the EPR. Incineration plants that apply for a permit on or after 28 th February 2026 need to demonstrate that it is decarbonisation ready. This Application was duly made on 29 th January 2025 and so decarbonisation readiness does not apply.
Concern over whether combustion temperature can be maintained and concern that the plant will not stop if natural gas supply is not available.	Permit condition 2.3.17 requires the operator to have at least one auxiliary burner in each line to ensure the operating temperatures specified in the permit are maintained. The Permit requires that waste feed must stop if the required temperature is not maintained.
Concern that the operator will not have appropriate automatic waste feed cutoff systems during exceedance events	Permit condition 2.3.12 requires waste not to be charged in the event of specified operational conditions. The Applicant has stated the control system will prevent the ram from feeding waste from

	the hopper into the kiln in the event these conditions occur.
Concern that the proposed flue gas abatement lacks detail on how it will reduce NOx, SOx, dioxins, and particulate matter to below the BAT-AEL.	We are satisfied that the proposed flue gas abatement techniques are BAT and will minimise emissions so the emission limits in the permit are unlikely to be exceeded. There are further details in section 6 of this decision document.
Alternative technologies to incineration should be used. Including chemical stabilisation, anaerobic digestion and material recovery using non-thermal technologies.	Incineration of waste at this scale is considered BAT for the waste types proposed provided it meets the requirements (as set out in the BREF and BAT conclusions). See section 6 of this decision document for more details of the BAT appraisal.
Alternative combustion technologies such as pyrolysis or gasification should be used.	We are satisfied that the proposed combustion technology is BAT. See section 6 of this decision document for more details of the BAT appraisal.
Concern that the Applicant will not comply with Waste Treatment BAT	The Applicant has submitted an assessment of their compliance with the relevant sections of the Waste Treatment BATC and we are satisfied that they will operate in line with the BAT requirements.
ELVs below top end of the BAT AELs should be set in the permit.	In accordance with the DEFRA Industrial Emission Directive EPR Guidance on Part A Installations, ELVs have been set on the basis of the top of the relevant BAT-AEL range. We are satisfied that emissions at the permitted limits would ensure a high level of protection for human health and the environment. Where we have accepted that the Applicant's proposals are BAT there is no justification to reduce ELVs below the BAT AELs and IED Chapter IV limits. Section 6.6 has further details.
Concern that emissions limits will be slackened during the night.	The Operator is required to adhere to the permitted limits 24 hours a day.
Comments about other impacts	
Concern about acid rain.	For this installation, acid gases will be abated by injection of hydrated lime into the exhaust gases. Wet deposition is a long-range effect, and we consider that the amount of acid gases emitted from the installation will not be significant enough to contribute towards acid rain
Concern Offsite Consequence Modelling hasn't been completed.	This modelling is not required. We are satisfied that the measures proposed in the application to minimise accidents on site are appropriate.
Concern that although rotary kiln incineration is a well-known method, it is also known to produce persistent organic pollutants (POPs).	The Permit ensures that the formation and release of POPs will be prevented or minimised. As we explain in section 6.4 of this document, high-temperature incineration is one of the prescribed methods for destroying POPs. Permit conditions are based on the use of BAT and Chapter IV of the IED and incorporate all the above requirements of the UN-ECE BAT guidance and deliver the requirements of the Stockholm Convention in relation to unintentionally produced POPs.
Concern over AQ impacts at new houses in the area.	The Air quality assessment predicted peak ground level exposure to pollutants in ambient air. We have conservatively assumed that the maximum concentrations occur at the location of receptors. As discussed in section 5 we are satisfied impacts will not result in significant harm to human health or the environment. Therefore, this will apply to any new

	housing developments in the local area where impacts will be lower than the maximums.
Concern that bottom ash and fly ash will be mixed.	Fly ash, otherwise known as APC residues, will not be mixed with bottom ash. They will be disposed of separately. Condition 2.3.19 states 'Bottom ash and APC residues shall not be mixed'.
Concern over impacts on pets.	We have assessed the impact on nearby protected animal species and wildlife, see section 5.4. We therefore are satisfied that similarly impacts on pets will also not be significant.
Concern over impacts on heritage sites such as Darlington Railway Heritage Action Zone	We do not consider that emissions will have a significant adverse impact on heritage sites including Darlington Railway Heritage Action Zone.
Comments about monitoring	
Concern that the Operator will carry out the monitoring. The Environment Agency or third party should carry out the monitoring.	The Environment Agency used to carry out check-monitoring when there were relatively few standards for monitoring. Check monitoring is no longer routinely undertaken because of increased standards that provide assurance that the results are reliable. There is now a wide variety of standards for monitoring, covering CEMs, periodic monitoring, and quality assurance. • We have MCERTS for CEMs and test labs. • We have EN 14181 for quality assurance of CEMs. • We require CEMs and test labs to be accredited to MCERTS and all the applicable standards. • We carry out audits of operators' provisions for monitoring. However, we still do check monitoring where it is considered appropriate. Furthermore, as well as auditing operators' provisions for monitoring, and how they apply the monitoring requirements of the permit, we also regularly audit test laboratories.
Concern about the standard of emission monitoring proposed and is not BAT.	We are satisfied that the Operator's monitoring will be BAT. The Operator's monitoring will have either MCERTS certification or MCERTS accreditation as appropriate. This still applies when carried out by external assessors. MCERTS is the Environment Agency's Monitoring Certification Scheme.
Concern that the Applicant is not proposing ambient air quality and soil monitoring around the facility.	The Permit does not require the Operator to carry out ambient air quality or soil monitoring. Ambient air monitoring or soil monitoring around operating incinerators is not a reliable method of establishing the impact. Our preferred approach is to use air dispersion modelling to predict the impact based on the highest allowed emissions (emission limit values) and then require monitoring to ensure those limits are not exceeded. We have audited the modelling and we are satisfied that it is suitable for assessing the impact from the Installation. The local authority carry out air quality monitoring in the local area.

Concern that there will not be real time emissions reporting. A requirement for a live feed of continuous emission monitoring to the EA should be included.	Real time emissions data will be monitored by the operator. It is not a requirement of the Industrial Emissions Directive to provide real-time monitoring data to the public. We consider the requirements of IED to be appropriate and robust and these have been used to set the frequencies for monitoring and reporting the results. Monitoring results will be available on the Public Register, and this will enable the public to see how well the plant is operating and whether it is meeting the Emission Limit Values as set in the permit.
Continuous mercury monitoring should be used as set in BAT conclusions.	Continuous mercury monitoring has been set in the permit. See Table S3.1 of the permit.
Continuous dioxin monitoring should be used as set in BAT conclusions	The permit enables us to require long term dioxin monitoring if dioxin emissions are not stable. See section 6.8.3 for details of dioxin monitoring.
Concern that temperature, pressure, oxygen content monitoring details are absent from the application.	The permit includes a requirement to monitor exhaust gas temperature, oxygen content and pressure. See tables S3.1 and S3.4 of the permit.
Concern over whether monitoring will be checked by a third party.	The Operator's monitoring will have either MCERTS certification or MCERTS accreditation as appropriate. This still applies when carried out by external assessors. MCERTS is the Environment Agency's Monitoring Certification Scheme. If monitoring complies with MCERTS we can have confidence in the monitoring of emissions. In addition we will carry out audits of the Operator's monitoring. If we found problems with the monitoring, we would take action to put this right.
Concern that monitoring result from the site will not be made available to the public.	Monitoring results and reports submitted in relation to the Permit will be made available on our public register.
Comments about accident prevention	
Comments submitted expressing concern over fire risk.	The Applicant submitted a Fire Prevention Plan (FPP). We have approved this plan and incorporated this within operating techniques table S1.2 meaning that the site has to follow such requirements. We are satisfied that appropriate measures will be in place to prevent fires and to minimise the impact from a fire if it was to occur.
Concern about hazardous fire water runoff during a fire.	The Operator has described their techniques for minimising the risk of pollution from contaminated fire water in the Fire Prevention Plan (FPP). We are satisfied the techniques described are appropriate.
Concern over the impact in the event of a major spillage and how this would be managed.	Measures to prevent spillages are summarised in section 4.2.2 of this decision document. We consider that the risk of a major spillage is low. We are satisfied that the risk of accidents and their consequences will be minimised through the EMS and condition 1.1. See section 4.3.4 of this decision document.
Concern as to how the public and businesses will be informed (as described in the FPP) in the event of a major incident.	In the unlikely event of a fire the FPP states that residents and business will be informed. There are several ways that this could be done and the Operator will have procedures in place to achieve this. We are therefore satisfied the public and businesses will be informed in the event of a major incident.

Concern over the risk of explosion.	Our view is that there is not a significant risk of explosion from incineration plants. These are not events that we would expect to see included in an accident management plan due to very low risk of them occurring.
An accident plan and emergency plan should be in place.	The Applicant provided an Accident Risk Assessment, Fire Prevention Plan, Emergency Plan and Emergency Preparedness Procedure in the Application. We are satisfied that the Operator will have appropriate measures in place to minimise the risk of accidents and have appropriate plans in place to manage an emergency should one occur.
Concern that COMAH has not be addressed in the Application.	COMAH legislation covers sites that pose the highest accident risks and these sites would have major accident plans. The Operator has confirmed that the Installation will not be subject to COMAH regulations due to not meeting any of the COMAH thresholds.
Concern about safety of workers at the site.	The Health and Safety of workers at the incinerator is the responsibility of the Operator and regulated by the Health and Safety Executive.
Comment about the Fire Prevention Plan (FPP)	
Concern about adequacy of waste type descriptions	We are satisfied that the waste types proposed have been adequately described in the FPP.
Concern about adequacy of storage areas and segregation of wastes	We are satisfied that the proposal for the storage and segregation of waste proposed in the FPP and the wider application are appropriate. The Applicant is required to operate in accordance with the relevant clinical waste and chemical waste appropriate measures guidance which includes standards for appropriate waste segregation. See table S1.2 of the permit.
Concern about proposed storage times for different categories of waste.	Table S1.1 of the permit limits waste storage time. The storage times are risk based and are in accordance with our relevant appropriate measures guidance.
Concern about adequacy of suppression/detection measures	We are satisfied that the suppression and detection measures are appropriate. The Operator has confirmed that they will have a fire suppression system (sprinklers) and a detection system that meets an appropriate British Standard.
Concern COMAH thresholds will be exceeded	We are satisfied that the Operator will have appropriate measures in the place to monitor quantities of waste, chemicals, raw materials and fuels stored on site. The Operator has confirmed that they will carefully manage all storage to keep below COMAH thresholds.
Concern about fire detection in the incinerator waste storage pit	The Applicant has confirmed that waste will not be stored waste in a pit prior to incineration. The FPP describes the fire detection techniques covering waste storage areas. We are satisfied the proposed techniques are appropriate.
Concern about fuel tank containment	The Applicant has confirmed that all gas oil/diesel will be stored in accordance with 'The Control of Pollution (Oil Storage) (England) Regulations 2001'. We are satisfied that the containment is appropriate.
Concern quarantine area is not large enough.	We are satisfied that the size of the quarantine area is appropriate for this site.

Concern about adequacy of fire water supply	We are satisfied that the fire water supply is appropriate. The Applicant has provided a calculation of water supply to demonstrate they will have sufficient water supply to tackle a fire on site.
Concern about whether the diesel fire pump falls under MCPD requirements	The size of the diesel fire pump is <1MWth and therefore does not fall under the MCPD. However, the pump is part of the installation and is therefore controlled by the permit.
Comments about waste types	
Some waste types could be recycled or recovered.	This is primarily outside the scope of this determination. The Permit through conditions 2.3.5 and 2.3.6 restrict wastes that have been separately collected for recycling from being accepted.
Concern over the types of waste and where they come from.	The Operator will have waste pre-acceptance and waste acceptance procedures to ensure that only waste authorised by the Permit is received and burned. The Permit does not control where the waste comes from because that falls outside the scope of this permit determination. Waste types are specified in tables S2.2 and S2.3 of the Permit. We are satisfied that wastes in Table S2.2 are suitable for burning at the Installation and waste types in table S2.3 are suitable for temporary storage and transfer. Further details are in section 4.3.6 of this decision document. We are satisfied that the operating techniques will ensure that emission limits can be met, the emission limits apply at all times whatever wastes are being burned.
Concern about risk from burning PFAS.	Per- and polyfluoroalkyl substances (PFAS) contamination is a growing global concern due to their persistence and potential long-term impacts on ecosystems and human health. The only source of waste which is currently known to contain PFAS in high concentrations is waste firefighting foams. The Environment Agency has recently completed a systematic scoping review of PFAS Remediation. The report concludes that optimal operational conditions for the effective destruction of PFAS through incineration involve several critical parameters, including maintaining temperatures exceeding 1,100°C with residence times of at least 2 seconds. These conditions will be met by the facility, as required by condition by condition 2.3.12(b) in the permit
Concern about the incineration of the following waste types were raised: Radioactive waste Batteries Asbestos Elemental Mercury	The Permit does not allow these waste types to be incinerated.

Concern about the incineration of the following waste types were raised: Infectious waste Dental amalgam Oily Rags Cytotoxic wastes Plastics Acids Waste containing POPs	The permit does not exclude these wastes types for incineration. We are satisfied that the operating techniques described in the application will mean that only wastes suitable for high temperature incineration will be incinerated.
Concern about incineration of industrial and automotive batteries.	The list of wastes permitted for incineration does not include industrial or automotive batteries.
Concern about segregation of waste types	We are satisfied that the waste segregation techniques proposed in the application are appropriate.
Concern over the types of waste and where they come from.	The Operator will have waste pre-acceptance and waste acceptance procedures to ensure that only waste authorised by the Permit is received and burned. The Permit does not control where the waste comes from because that falls outside the scope of this permit determination. Waste types are specified in table S2.2 of the Permit. We are satisfied that these wastes are suitable for burning at the Installation, further details are in section 4.3.6 of this decision document. We are satisfied that the operating techniques will ensure that emission limits can be met, the emission limits apply at all times whatever wastes are being burned.
Concern about Persistent Organic Pollutants (POPs) in wastes and other hazardous wastes how they will be identified so they are incinerated at the correct temperature (1100°C).	The applicant has described their techniques for identifying wastes containing POPs (including waste pre-acceptance and acceptance procedures) and how these wastes types will be segregated to ensure they are incinerated at the appropriate temperature. We are satisfied these techniques are appropriate.
Concern over the burning of plastics.	We are satisfied that the plastics proposed in the Application can be burned whilst complying with the Permit emission limits.
Concern about incorrectly handling of infectious waste and risk from releases of pathogens.	Infectious waste will be stored and handled in line with the BAT conclusions and our appropriate measures guidance. We are satisfied infectious waste be handled and incinerated appropriately.
Concern about waste pre-acceptance and acceptance procedures	Waste pre-acceptance and acceptance procedures are in accordance with the relevant appropriate measures and sector guidance. Pre-operational condition PO5 requires this to be confirmed prior to operation.
Concern that the storage of batteries and acids pose thermal runaway risks.	We are satisfied that the proposed techniques for storage of batteries and acids are appropriate.
Comments about energy efficiency/recovery	
Concern that the amount of energy recovered is less efficient than coal combustion.	We have not compared the energy efficiency to coal combustion in our assessment of this Application. The Applicant has not applied to operate a power station, the Application is for an incineration plant with the primary purpose of waste disposal whereas a power station's primary purpose is to generate energy. Our

	assessment of BAT is set out in section 6 of this decision document.
Concern about lack of information on district heating scheme.	We are satisfied that information provide so far on the districting heating system is appropriate. We have included a pre-operational condition (PO2 in table S1.4) requiring the Operator to submit their full plan for the implementation of the scheme prior to commencement of commissioning. As it stands the Applicant has confirmed that the district heating scheme will have a phased implementation. They anticipate that they will be supplying hot water to 3 off takers within 1 year of the plant being fully operational, with the first off taker being within the first 3 months and the second within 6 months.
Concern that the R1 efficiency of around 0.59 does not meet the 0.65 threshold, so the activity will be disposal undermining waste reduction goals.	The R1 calculation does not form part of the matters relevant to our determination. The Operator did submit a R1 assessment however this was not considered. The way we have considered energy efficiency is set out in section 4.3.7 of this decision document.
Concern that there is no proposal to generate electricity for the grid from this facility.	The Applicant has assessed the viability of generating electricity from the process and has concluded that it is not viable for an incineration plant of the size proposed. The Applicant will recovery energy from the process in the form of hot water and will distribute this via a district heating scheme. We are satisfied that this is appropriate.
Concern about efficient use of energy with the installation.	We are satisfied appropriate measures will be in place to ensure that energy is used efficiently within the installation. See section 4.3.7 for further details.
Comments about the Applicant's competency	
Concern as to whether the Applicant is competent to operate this type of facility.	We are satisfied that the Applicant will be a competent operator because: • An EMS (which the Operator has stated will be certified to ISO 14001) will be in place • A suitably qualified facility manager will be appointed who will have responsibility of Permit compliance • An environmental policy will require that the Installation operates in full compliance with legislative requirements Additional information is in section 4.3 of this decision document.
Concern over whether the applicant has adequate finances to operate the site.	We have no reason to believe the Operator will not have adequate finances to operate the site.
Concern as to whether employees will have sufficient experience/training.	Qualifications, experience and training requirements will all be part of the EMS.
Concern that the COTC certificate provided in the application is not up to date.	We are satisfied that the COTC certificates are appropriate, and the Applicant has confirmed that the technical competent staff have completed the relevant continuing competence requirement.
Concern that the Application does not recognise ammonia is harmful to watercourses or that lime is potentially hazardous to human health and the environment.	We are satisfied that the Applicant has the technical competency to recognise the hazards associated with storing and handling of ammonia solution and lime.

Comments about regulation	
There should be a robust independent regulator to inspect the site.	We are independent from those we regulate and will regulate the site in an appropriate manner in line with our guidance on gov.uk.
Concern over how the Environment Agency will regulate the site.	We will regulate the site carrying out a continual assessment of plant operations and its environmental performance. The operator must monitor emissions and report the results to us. We will regularly inspect the Installation, review monitoring techniques and assess monitoring results to measure the performance of the plant, review operating techniques and review management systems and plans. We will carry out on-site audits of operator monitoring. The operator must inform us within 24 hours of any breach of the emissions limits, followed by a fuller report of the size of the release, its impact and how they propose to avoid this happening in the future. The operator's monitoring results will be placed on the public registers. If there is a breach, then we may take appropriate enforcement action where relevant in accordance with our guidance. - . https://www.gov.uk/government/publications/assessing-and-scoring-environmental-permit-and-licence-compliance/assessing-and-scoring-environmental-permit-compliance#explaining-the-outcomes-of-a-compliance-assessment
Concern over whether the Environment Agency will investigate complaints.	If we receive any complaints, we will assess the complaint and investigate it as appropriate.
A claim was made that the compliance history is poor at other incinerators and there is significant evidence that waste incineration plants continue to breach set limits on pollutants	We do not agree with this claim. The sector is generally a good sector in terms of compliance.
Concern about how the community can raise concerns.	Concern about how the site operates can be sent to the Environment Agency who will assess the complaint and take action where appropriate. Details on how to do this can be found on the gov.uk website.
Concern that the Environment Agency will not have resources or ability to regulate the site adequately.	We will regulate the site to ensure that Permit conditions are complied with and take action if they are not.
Concern as to whether capacity limit will be exceeded.	The Operator is limited by the Permit to the amount of waste they can store on site at any one time and to an overall annual tonnage limit. If the Operator wishes to increase the waste limit they must apply for a variation to the permit.
Comments about other issues	
The permit should not be issued because of the precautionary principal.	The United Kingdom Interdepartmental Liaison Group on Risk Assessment (UK-ILGRA) state in their paper "The Precautionary Principle: Policy and Application" that the precautionary principle should be invoked

	when there is good reason to believe that harmful effects may occur and the level of scientific uncertainty about the consequences or likelihood of the risk is such that the best available scientific advice cannot assess the risk with sufficient confidence to inform decision making. The Health Protection Agency (as it was called then) stated in its response to the British Society for Ecological Medicine Report, “The Health Effects of Waste Incinerators” that “as there is a body of scientific evidence strongly indicating that contemporary waste management practices, including incineration, have at most a minor effect on human health and the environment, there are no grounds for adopting the ‘precautionary principle’ to restrict the introduction of new incinerators”. As explained in section 5.3 the UKHSA maintain their view on impacts from incineration.
Concern that granting a permit would not fit with the Environment Agency’s aims of: • protect and improve the environment and • create better places for people and wildlife • Sustainable development	Our role in EPR permitting is to ensure that any Installation does not cause significant pollution or harm to human health. We are satisfied that this Installation will not cause significant pollution or harm and that it will provide a high level of protection for the environment as a whole as such it fits with these aims.
The planning application is not consistent with the permit Application.	Our view is that the planning and the Permit are not likely to conflict but in any event the Applicant will have to comply with both their planning permission and the Permit and in the event of any difference comply with the most stringent.
Concern that the permit consultation was not adequate.	We are satisfied that we took appropriate steps to inform people about the Application and how they could comment on it. How we did this is described in section 2 of this decision document.
Concern over how residues will be handled and disposed of.	Measures for handling of IBA and APC residues are summarised in section 4.2.2 of this decision document. We are satisfied that the measures are appropriate.
Concern that method of assessing POP content of residues is not specified (as required by BAT 8).	There is no requirement to test bottom ash for POPs because the plant is not within the applicability criteria set out in BAT.
Comments about the government position on incineration planning applications.	The Government’s announcement of 30th December 2024 (which can be found here Government to crack down on waste incinerators with stricter standards for new builds - GOV.UK) on the new requirements which energy from waste (EfW) plants will need to meet to get planning permission. This is only for the planning process and does not affect our determination of Environmental Permits.
Concern about the visual impact of the site.	Visual impact is covered by the planning process.
Concern about impact on the local economy and house prices.	This is not within the remit of this permit determination. However, given we do not consider that the emissions from the installation will cause significant pollution or harm to human health there should be no adverse impact on the local area.

Concern that there is an over capacity of incinerators in England and therefore the development is not needed.	This is a matter for waste planning and government strategy but does not form part of the Environmental Permit decision making process.
Concern the proposal conflicts with national and international waste management principles that prioritize reduction, reuse, and recycling over incineration.	This is primarily outside the scope of this determination which is to assess the impact of emissions from the proposed activity. Recycling initiatives are a matter for the local authority. The Permit through conditions 2.3.5 and 2.3.6 restrict wastes that have been separately collected for recycling from being accepted.
Concern about negative impact on the local economy.	This is not within the remit of this permit determination.
Concern incineration is inconsistent with UK achieving Net Zero targets	We are responsible only for the determination of the Environmental Permit. The Government's current waste strategy does not exclude waste incineration with energy recovery as an acceptable waste management option for unavoidable, unrecyclable waste.
Concern proposals do not follow the National Planning Policy Framework (NPPF) – which promotes sustainable development and protection of communities from pollution.	This is outside the scope of this determination and is a matter for the planning process.
Concern that waste will be imported from long distances and therefore isn't sustainable	This source of waste arriving at the plant is outside of the control / scope of the environmental permit. Our remit is to ensure that the proposed wastes are suitable for incineration in the proposed furnace technology.
Concern about how the Applicant will ensure emission limits are met.	We are satisfied based on the information in the application that the operating techniques proposed will ensure that emission limits in the permit are met.
Concern about reputational risk to nearby companies.	Some of these issues may be a relevant consideration for the granting of planning permission. Our remit relates to whether the incinerator can operate in an environmentally acceptable manner or not. Given that we consider it can we don't think these impacts should occur.
Concern about risk to recruitment and retention for nearby businesses.	
Concern about business continuity in the event of pollution incidents in the area caused by the incinerator.	Consideration of businesses continuity impacts is not with the remit of the permit determination.
Concern it contravenes the Aarhus convention.	As explained in Section 2.2 of this Decision Document: We carried out consultation on the Application in accordance with the EPR, our statutory PPS and our own internal guidance RGS Note 6 for Determinations involving Sites of High Public Interest. We consider that this process satisfies, and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application
Concern that the proposals are not in line with County Durham's Waste Management Strategy.	This is outside the scope of this determination and is a matter for the planning process.
Concern that there are no proposals to report incidents or emission limit breaches to local community.	The Applicant's proposals include a commitment that the occupants of neighbouring properties will be contacted and advised in the event of a significant

	incident on site. Also, the Permit requires that the Environment Agency are notified in the event of any Permit breach. We will then notify other people or bodies as required.
Concern that the Waste (England and Wales) Regulations 2011, waste management should follow the “waste hierarchy,” prioritising prevention, reuse, and recycling over disposal methods such as incineration.	This is primarily outside the scope of this determination. The Permit through conditions 2.3.5 and 2.3.6 restrict wastes that have been separately collected for recycling from being accepted.
Concern impacts will contravene the human rights on local residents.	We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.
Concern about resource efficiency requirements for raw materials and water.	We are satisfied appropriate measures will be in place to ensure that raw materials and water are used efficiently within the installation. See section 4.3.8 for further details.
Concern over lack of commissioning plan.	The Operator will be required to submit a commissioning plan, as required by preoperational condition PO4. This will include measures to control emissions during commissioning.
Concerns about flies and pests (including seagulls)	We are satisfied that nuisance from flies and pests is unlikely. Flies and pests are not usually an issue at hazardous waste incineration plants because of the waste types (i.e. not containing high volumes of food waste). Also, the waste reception and storage areas, and all incoming waste handling activities will be undertaken within a fully enclosed building therefore minimising the risk of seagulls accessing the waste. Also, waste stored in the building will be in sealed containers minimising the accessibility to pests and flies. Conditions 3.7.1 and 3.7.2 in the permit will also provide controls.
Concern that there are numerous contradictions in the application	During determination we have required the Operator to correct errors and seek clarification where contradictions have been identified. We are satisfied that the information in the Application (including the additional information we requested and received) was sufficient for us to determine the application.
Concern about the proposed drainage.	We are satisfied that drainage of surface water and emissions to sewer from the proposed incinerator is appropriate and will not cause significant pollution or harm to human health. Further details are in sections 6.6.1 and 6.6.2 of this document.
Concern about the long-term safety of incinerators and effectiveness of abatement.	We are satisfied that incineration plants can be operated safely and the abatement techniques proposed for this incinerator are robust.
Claim that Scotland has banned incineration and so should England	Whether Incineration should be banned in England or not is not in the remit of the Environment Agency. Our

	remit relates to whether the incinerator can operate in an environmentally acceptable manner or not.
Concern about risk of burst fabric filters.	The Applicant has described their techniques for minimising and detecting filter bag ruptures. We are satisfied they are appropriate.
Concern flue gas recirculation is not being used.	The Operator has justified their decision not to use flue gas recirculation, citing increased of corrosion and fouling, and increased operational stability and potential losses in combustion and pollutant destruction performance associated with its use in high temperature incinerators. We agree with their justification.
Concern that combustion gas temperatures are not suitable for SNCR	We are satisfied that the use of SNCR for NOx abatement is appropriate.
Concern Computational Fluid Dynamics (CFD) modelling has not been used at the design stage for the proposed plant.	Pre-operational condition PO6 in able S1.4 of the permit requires the Operator to submit a report detailing the CFD modelling.
Concern that incinerators are more common in poor neighbourhoods leading to environmental injustice	The standards that we have used to assess against are set to protect all members of the public. Decisions over land use, including the location of the incinerator, are matters for the planning system. The location of the installation is a relevant consideration for Environmental Permitting, but only in so far as its potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact is assessed as part of the determination process and has been reported upon in the main body of this document.
Concern about adverse impact on nearby PPE manufacturing process.	Our role in EPR permitting is to ensure that any Installation does not cause significant pollution or harm to human health. We are satisfied that this Installation will not cause significant pollution or harm and that it will provide a high level of protection for the environment.
Automatic shutdown should happen if limits breached.	Permit condition 2.3.12 requires that the waste feed to the incinerator is if emission limits are breached. The Permit allows some emission limits to be exceeded for a short period of time under certain circumstances. This is explained further in section 5.5 of this decision document.
Concern that the incinerator will be a deterrent to local investment and community growth	Some of these issues may be a relevant consideration for the granting of planning permission. Our remit relates to whether the incinerator can operate in an environmentally acceptable manner or not. Given that we consider it can there is no reason why these potential impacts should occur.
Concern that the application fails to assess whether the site affects a Mineral Safeguarding Area (MSA) or valuable sub-surface resources.	Our role in EPR permitting is to ensure that any Installation does not cause significant pollution or harm to human health. We are satisfied that this Installation will not cause significant pollution or harm and that it will provide a high level of protection for the environment.
Concern about reliability of power supply to the site.	We are satisfied the Operator will have a reliable power supply. An emergency diesel generator (1.1MWth) will provide sufficient power to run or safely shutdown the Facility in the event of the loss of a grid connection.
Concern that the incinerator threatens children's right to health and safety	We are satisfied that the incinerator will not cause significant harm to human health or the environment.

enshrined under the UN Convention on the Rights of the Child.	This includes children and therefore does not threaten children's right to health and safety.
The project should have carried out a PESTLE analysis	The completion of a PESTLE analysis is not required for the Environmental Permit determination.
Concern about flooding risk at the site.	Flooding is primarily an issue for the planning process. When making permitting decisions, flood risk is still a relevant consideration, but generally only in so far as it is taken into account in the accident management plan and that appropriate measures are in place to prevent pollution in the event of a credible flooding incident. We are satisfied that the measures proposed in the Application are appropriate.

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