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/LP3327SK/A001
The Applicant / Operator is:	R&P Clean Power Limited
The Installation is located at:	Swadlincote Energy Recovery Facility, Keith Willshee Way, Swadlincote, DE11 9EN
Consultation commences on:	10/09/2025
Consultation ends on:	08/10/2025

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/LP3327SK/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/LP3327SK. We refer to the proposed permit as "the **Permit**" in this document.

The Application was duly made on 19/06/2024.

The applicant is R&P Clean Power Limited. We refer to R&P Clean Power 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 R&P Clean Power Limited "the **Operator**".

R&P Clean Power Limited's proposed facility is located at Swadlincote Energy Recovery Facility, Keith Willshee Way, Swadlincote, DE11 9EN. We refer to this as "the **Installation**" in this document.

How this document is structured

Contents

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 BAT C	Best Available Techniques (BAT) Reference Documents for Waste Incineration 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
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
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
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
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
NOx	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
UHV	Upper heating value –also termed gross calorific value
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
RGN 6: Determinations involving sites of high public interest	RGN 6
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 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 19/06/2024. 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: see section 2.3 below.

The Applicant made no claim for commercial confidentiality. We have not received any information in relation to the Application that appears to be confidential in relation to any party.

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 website, which contained all the information required by the IED, including telling people where and when they could see a copy of the Application. We also placed an advertisement in the Burton Mail on 28/06/2024 and 01/11/2024 that contained the same information. We issued a press release to interested parties and emailed local MPs and the East Midland Mayor to make them aware of the consultation.

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.

The Application documents were made available to view on our 'citizen space' webpage. People could also submit comments via this webpage.

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

- Local Authority - Environmental Health/Environmental Protection department
- Local Authority – Planning
- Fire and Rescue
- Director of Public Health / UKHSA
- Health and Safety Executive
- Food Standards Agency
- National Grid

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.

In addition to our advertising the Application, we undertook a programme of extended public consultation. Further details along with 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 information notices on 14/04/2025 and 23/04/2025. A copy of the information notice was placed on our public register.

In addition to our information notices, we received additional information during the determination from the applicant in relation to questions asked in relation to air quality and site ownership. This information was received on 14/02/2025. We made a copy of this information available to the public in the same way as the response to our information notices.

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 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)(b) – incineration of non-hazardous waste in a waste incineration plant with a capacity of 3 tonnes or more per hour.

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 generation of electricity using a steam turbine and a backup electricity generator for emergencies. These activities comprise one installation, because the incineration plant and the steam turbine are successive steps in an integrated activity.

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

4.1.2 The Site

The installation is to be located at Swadlincote Energy Recovery Centre, Keith Wilshee Way, Swadlincote, DE11 9EN.

The proposed Facility is located in South Derbyshire at Cadley Hill. Approximately 2 km west of Swadlincote, Derbyshire. The Facility is centred at National Grid Reference SK 26850 18957. The surrounding area is characterised by a mix of rural land, residential properties and industrial estates. Immediately adjacent land uses include Willshees Materials Recycling Facility (MRF), Stanton Sewage Works, the A444 (Burton Road), residential properties to the north and south, arable farmland to the west and south and the Appleby Glade and Cadley Hill Industrial Estate to the east.

The nearest residential receptor is approximately 180m to the north east of the Facility..

Within 2 km of the Site, there is the Hall Wood Ancient Woodland (AW) and Badgers Hollow/Coton Park Local Nature Reserve (LNR) and a number of Local Wildlife Sites (LWS), including the Cadley Hill Railway Area (LWS) within which the boundary of the proposed facility is contained. Within 10 km of the Site, there is the River Mease, a European designated Special Area of Conservation (SAC).

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 an Energy Recovery 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 installation is for the incineration of refuse derived fuel, municipal solid waste and commercial waste on a single line.

The facility is designed to process up to 230,000 tonnes per year of non-hazardous waste. The types of waste accepted include Refuse Derived Fuel (RDF), mixed municipal waste, and other non-hazardous materials, as defined by specific European Waste Catalogue codes. These materials are delivered in bulk and stored in a bunker (located in the reception building) with a capacity equivalent to approximately four days of operation.

The waste undergoes mechanical pre-treatment before arriving at the facility. Once on-site, it is further the waste is homogenised in the storage bunker using an automated crane system before being transferred to the combustion system.

The facility uses a conventional moving grate incineration process. Waste is combusted on an inclined, air-cooled grate within a chamber designed to maintain a minimum temperature of 850°C for at least two seconds, ensuring complete combustion. Auxiliary diesel burners are used during start-up and shutdown to maintain the required temperature.

Air emissions are managed through a combination of abatement technologies, including Selective Non-Catalytic Reduction (SNCR) for nitrogen oxides,

hydrated lime injection for acid gases, activated carbon for heavy metals and dioxins, and a baghouse filter for particulates. These systems are supported by automated combustion controls and a distributed control system (DCS). Emissions are discharged to atmosphere via a 60 m high stack.

The facility consists of a single incineration line with a gross electricity generation capacity of 20.5 megawatts (MW), of which approximately 18.5 MW is expected to be exported to the National Grid . The facility is designed to be Combined Heat and Power (CHP) ready, meaning it could supply heat to nearby users if suitable opportunities arise. However, current infrastructure constraints limit the feasibility of heat export, though this will be reviewed periodically.

Monitoring of emissions is carried out using a Continuous Emissions Monitoring System (CEMS) installed on the stack, measuring key pollutants such as oxygen, carbon monoxide, nitrogen oxides, sulphur dioxide, hydrogen chloride, ammonia, volatile organic compounds, and particulates. Additional pollutants are monitored through periodic sampling, and all data are reported to the Environment Agency.

Odour at the SERF is managed through a combination of enclosed infrastructure, negative pressure systems, and operational controls. The waste reception hall is kept under negative pressure to prevent odour escape, with roller doors only opening for vehicle access. During shutdowns, an emergency extraction system with carbon filtration maintains odour control. Waste is stored in a bunker and managed to minimise residence time. Routine inspections and olfactory monitoring help ensure that is any odour issues were to occur they would be promptly identified and addressed.

There are no routine discharges of process effluent to surface water or to sewer; process effluent is reused or tankered off-site. Clean, uncontaminated surface water is managed through sustainable drainage systems prior to discharge to Darklands Brook.

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

Waste throughput, Tonnes/line	230,000 /annum	23.2 /hour
Waste processed	Refuse Derived Fuel, Municipal Solid Waste, Commercial Waste	
Number of lines	1	
Furnace technology	Moving Grate	
Auxiliary Fuel	Gas Oil	
Acid gas abatement	Dry	Hydrated lime
NOx abatement	SNCR	Urea
Reagent consumption	Auxiliary Fuel : Urea : Lime : Activated carbon:	590 te/annum 967 te/annum 3850 te/annum 61 te/annum
Flue gas recirculation	To be confirmed through Pre-operational condition	
Dioxin abatement	Activated carbon	
Stack	Grid Reference: SK 26850 18957	
	Height, 60m	Diameter, 2.2 m
Flue gas	Flow, 48.1 Nm^3/s	Velocity, 16.8 m/s
	Temperature 145 °C	
Electricity generated	20.5 MWe	
Electricity exported	18.5 MWe	
Steam conditions	Temperature, >400 °C	Pressure, 50-60 bar/MPa

4.1.4 Key Issues in the Determination

The key issues arising during determination of the Application related to Air Quality 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 is underlain by two high-sensitivity Principal aquifers: the Helsby Sandstone Formation to the west and the Chester Formation of interbedded sandstone and conglomerate to the east. These aquifers exhibit high inter-granular and/or fracture permeability, providing strategic water storage that can support both water supply and river base flow. Groundwater levels are likely to be shallow across the site, and areas lacking superficial deposits present increased vulnerability of the underlying bedrock. While the Hydrock Desk Study Report which was submitted as part of the application identifies receptors, it does not explicitly include these Principal aquifers in its list. Additionally, the Alluvium and Head deposits on site are considered Secondary A aquifers and serve as important receptors.

The site does not fall within a Source Protection Zone (SPZ), and the nearest groundwater abstraction licence is located more than 1 km away. The closest surface watercourse is Darklands Brook, situated immediately northeast of the site, with an active surface water abstraction point located approximately 234m to the southwest at Breach Farm. According to the Hydrock Desk Study Report, the site is at high risk of flooding.

Historically, the site has remained undeveloped since at least 1883 and was previously identified as a field and later woodland. However, historical mapping indicates the presence of a sewage works approximately 20 m north of the site between 1955 and 2001, along with nearby railway infrastructure. No recorded pollution incidents exist within 250m of the site, and the Site Condition Report confirms the site is currently undeveloped.

During site investigation, no visual or olfactory signs of contamination were observed. A limited amount of Made Ground was noted along the northern boundary. Soil samples were collected and analysed as part of an intrusive investigation conducted by Groundtech between 27–29 August 2020, although groundwater was not sampled. Groundtech's qualitative risk assessment concluded that the risk of contaminant linkage to groundwater is low. No significant contamination sources were identified, and mobile contaminants are not anticipated. Consequently, a plausible pollution linkage does not currently exist.

4.2.2 Proposed site design: potentially polluting substances and prevention measures

Fuel Bunker Engineering and Liquid Containment

The fuel bunker is designed to prevent groundwater ingress and contain any leachate from waste. Construction will follow the EN 1992-3 standard for liquid-retaining concrete structures, specifically meeting Tightness Class 2 for the base slab, walls, and piers up to reception hall floor level. A dryness test will be conducted after groundwater levels stabilise to confirm integrity; damp patches must reduce over time, and any seepage must be resolved prior to waste acceptance. The stored fuel is expected to have low bulk density, leaving sufficient space for the potential retention of firewater.

Flood Risk and Pollution Prevention

Flood risk assessment draws on Environment Agency flood mapping and hydraulic modelling. Most of the site is classified within Flood Zone 1, indicating a fluvial flood probability of ≤0.1% annually, with parts of the eastern boundary falling into Flood Zones 2 and 3 (0.1–1% and ≥1% respectively). To mitigate risk, the design includes elevated development areas through cut-and-fill works. Sustainable Drainage Systems (SuDS) — including swales, a basin, and a wetland pond — will be implemented to accommodate a 1-in-100-year event with an additional 40% climate change margin.

Supplementary Protection Measures in Flood Scenarios

Additional design and operational measures aim to reduce environmental risk in flood conditions:

- Hazardous materials will be stored in bunded areas; flood-sensitive equipment will be placed above predicted flood levels.
- The bunker construction is intended to retain liquids and prevent leakage or ingress during flood events.
- Drainage systems will incorporate control features such as penstock valves to prevent discharge of potentially contaminated water.
- An Accident Management Plan, which will be included in the facility's EMS, outlines responses to flood-related incidents. It provides for use of on-site pumps and potential temporary shutdowns as necessary.
- Routine inspection and maintenance schedules will apply to all drainage infrastructure (e.g., interceptors, culverts, traps).
- The Operator will monitor flood risks and subscribe to Environment Agency alerts for timely decision-making.

Containment of Hazardous Liquids

All tanks and vessels storing environmentally hazardous liquids will be fitted with impermeable secondary containment bunds designed in accordance with CIRIA C736 guidance. Concrete bunds will also meet EN 1992-3 standards for liquid-retaining structures. A 7-day water test will be carried out on each bund to confirm watertight integrity prior to operation.

Surface Water Management and Pollution Control

The drainage system is configured to minimise the risk of releasing contaminated water during both routine and emergency conditions:

- Oil separators designed to EN 858-1 standards will be included within the surface water drainage system, equipped with alarms to notify operators of high-level conditions.
- Areas used for the delivery of reagents or fuels, or transfer of residues, will be bunded or curbed and fitted with drainage isolation or diversion mechanisms to prevent contaminated runoff entering the clean water system. Drainage from these areas will be directed to separate containment or treatment systems.
- The drainage network will include provisions for firewater retention, designed according to NFPA 850 (National Fire Protection Association Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current (HVDC) Converter Stations,).

Sustainable Drainage Systems (SuDS)

A SuDS system—including swales, ponds, and attenuation features—will manage site runoff at greenfield rates before discharge to Darklands Brook. In the event of a severe fire coinciding with extreme rainfall, SuDS discharge will be temporarily suspended until either:

- Water sampling confirms the retained water is uncontaminated, or
- The retained water is transported off-site to a licensed treatment facility.

Summary

Given the engineered features of the facility to be put in place, we determine that, given the removal or mitigation of potential pathways, the likelihood of pollution of surface and groundwater coming about during the operation of the facility is low.

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 which includes a report on the baseline conditions as required by Article 22. We have reviewed that report and consider that it adequately describes the condition of the soil prior to the start of operations. The operator has not provided baseline groundwater conditions we have therefore set a pre-operational condition (PO7) requiring the Applicant to provide this information prior to the commencement 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 Best Available Techniques document contained 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). 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.

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 has submitted an Accident Management Plan. This plan is brief in its details, however, having considered the Plan and other information submitted 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. An Accident Management Plan will form part of the Environmental Management System and must be in place prior to commissioning as required by a pre-operational condition (PO1).

A portion of the site falls within flood risk zone 3, with the remainder of the site falling with flood risk zone 2 and 1. We are satisfied that suitable infrastructure will be in place prior to commissioning of the site (see section 4.2.2 above). The Applicant has provided information on what appropriate measures will be in place to prevent surface and groundwater pollution in the event of a credible flooding incident. This information will be added to the accident management plan as part of the EMS.

The Applicant submitted a Fire Prevention Plan. Within the reception hall and above the feed hopper area there will be a combination of video, infrared and thermal imaging used for the detection of fire and hotspots. The Installation will have an automated fire suppression system covering all appropriate areas of the site. Within the fuel bunker itself a combination of roof level sprinklers and oscillating monitors / cannons designed to provide adequate coverage of the bunker area.

We are satisfied in principle with the FPP, although we recognise that some details required for the FPP are unlikely to be available until final design. Therefore, a pre-operational condition (PO13) has been added to the permit to ensure that these final designs meet all objectives of our FPP guidance, with attention given to

- The fire water availability and calculations as to how this will be enough to meet the objectives of the FPP guidance
- Calculations demonstrating that the waste bunker and engineered features of the facility will have sufficient capacity to contain all firewater in the event of a fire, ensuring that in all circumstances no firewater would be discharge to surface or groundwater.

We are satisfied that appropriate measures will be in place to minimise the likelihood of a fire and limit the impact of a fire in an event.

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/LP3327SK/A001	Appendices for document 'Swadlincote Energy Recovery Facility (SERF) Application Environmental Permit' Dated May 2024: • 3. Best Available Techniques • 4. Operating Techniques
Response to Schedule 5 Notice dated 14/05/2025	• Updated odour mitigation measures • Updated groundwater and surface water protection measures • Emergency diesel generator standards

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
Gas Oil	< 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. We have specified the permitted waste types, descriptions and where appropriate quantities which can be accepted at the installation in Table S2.2.

In our Schedule 5 information request dated 23/04/2025 we asked the operator to provide further information on the types of waste that would be taken under waste codes 19 08 99 and 20 03 99. The operator subsequently withdrew these codes from the application.

We also asked them to provide further information on the types of wastes that would be taken under waste code 19 12 12, for which the applicant clarified the following:

This code broadly covers wastes from mechanical treatment of waste that are not otherwise specified. Examples of acceptable waste streams include mixed residues from the mechanical sorting of municipal solid waste (MSW), such as non-recyclable plastics, composite or contaminated packaging, foils, films, and small pieces of soiled paper or card. The facility will also accept rejects from materials recovery facilities (MRFs), which are the non-recyclable fractions remaining after the sorting of dry mixed recyclables. Additionally, residuals from the mechanical pre-treatment of commercial and industrial (C&I) waste—such as shredded textiles, rubber, and contaminated organic materials like food-stained paper—are considered suitable.

We asked the Applicant to provide details on how the sludge wastes included in the permit will be handled at the facility. The operator subsequently confirmed that they do not wish these sludge codes to be included in the permit.

In the Applicant's response to our information request they requested a number of additional waste codes to be added to the permit, in addition to the codes included in the original application. We asked for further clarification on the actual waste types that will be taken under some of the additional waste codes

and the operator subsequently withdrew these codes from the application; 18 01 07, 18 01 09, 19 03 05, 19 03 07, 20 01 30, 21 01 32.

The final list of wastes that will be allowed under the permit are included in Table S2.2 of the permit.

Within the permit there is pre-operational condition PO5, which requires the operator to provide details on the facilities waste pre-acceptant and acceptance criteria.

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

(i) these wastes are categorised as municipal waste in the European Waste Catalogue or are non-hazardous wastes similar in character to municipal waste;
(ii) the wastes are all categorised as non-hazardous in the European Waste Catalogue and are capable of being safely burnt at the Installation;
(iii) these wastes are likely to be within the design calorific value (CV) range for the plant;
(iv) these wastes are unlikely to contain harmful components that cannot be safely processed at the Installation.

The incineration plant will take municipal and commercial wastes, which have 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 230,000 tonnes per annum. This is based on the installation operating 8760 hours per year at a nominal capacity of 23.2 tonnes per hour. This would give an annual throughput of just over 203,000 tonnes per annum. The higher tonnage limit in the permit is due to the likely varied calorific value of the waste to be received at the facility.

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.

4. The extent to which the Installation meets the requirement of Article 14(5) of the Energy Efficiency Directive which requires new thermal electricity generation installations with a total thermal input exceeding 20 MW to carry out a cost-benefit assessment to "*assess the cost and benefits of providing for the operation of the installation as a high-efficiency cogeneration installation*".
   Cogeneration means the simultaneous generation in one process of thermal energy and electrical or mechanical energy and is also known as combined heat and power (CHP)
   High-efficiency co-generation is cogeneration which achieves at least 10% savings in primary energy usage compared to the separate generation of heat and power – see Annex II of the Energy Efficiency Directive for detail on how to calculate this.

(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:

- The boiler will be equipped with economisers and super-heaters to optimise thermal cycle efficiency
- An economiser will recover heat downstream of the main boiler to heat up the feedwater and increase the thermodynamic efficiency of the whole cycle.

- Unnecessary releases of steam and hot water will be avoided
- Heat recovery systems also include the reuse of low grade heat extracted from the turbine and used to preheat combustion air and strip oxygen from boiler feedwater in order to improve the efficiency of the thermal cycle;
- Steady operation will be maintained where necessary by using auxiliary fuel firing (diesel oil)
- Boiler heat exchange surfaces will be cleaned on a regular basis to ensure efficient heat recovery
- An energy efficiency plan will be implemented
- Operation and maintenance procedures will include an energy efficiency plan

The Application states that the specific energy consumption, a measure of total energy consumed per unit of waste processed, will be 76.2 kWh/tonne. The installation capacity is *230,000* t/a.

The BREF says that electricity consumption is typically between 60 KWh/t and 190 KWh/t depending on the LCV of the waste.

The LCV in this case is expected to be 10.5 MJ/kg. The specific energy consumption in the Application is in line with that set out above.

(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*".

Our combined heat and power (CHP) Ready Guidance - February 2013 considers that BAT for energy efficiency for Energy from Waste (EfW) plant is the use of CHP in circumstances where there are technically and economically viable opportunities for the supply of heat from the outset.

The term CHP in this context represents a plant which also provides a supply of heat from the electrical power generation process to either a district heating network or to an industrial / commercial building or process. However, it is recognised that opportunities for the supply of heat do not always exist from the outset (i.e. when a plant is first consented, constructed and commissioned).

In cases where there are no immediate opportunities for the supply of heat from the outset, we consider that BAT is to build the plant to be CHP Ready (CHP-R) to a degree which is dictated by the likely future opportunities which are technically viable and which may, in time, also become economically viable.

The BREF says that 0.4 – 0.8 MWh of electricity can be generated per tonne of waste.

Our technical guidance note, EPR S5.01, states that where electricity only is generated, 5-9 MW of electricity should be recoverable per 100,000 tonnes/annum of waste (which equates to 0.4 – 0.72 MWh/tonne of waste).

The Installation will generate electricity only and has been specified to maximise electrical output with little or no use of waste heat. The CHP ready assessment of the Application shows 20.5 MW of electricity produced for an annual burn of 230,000 tonnes, which represents 8.9 MW per 100,000 tonnes/yr of waste burned (0.78 MWh/tonne of waste). The Installation is therefore above the indicative BAT range.

The Applicant provided a calculation of the gross electrical efficiency and compared it to the BAT AEEL specified in BAT conclusions BAT 20.

The gross electrical efficiency was calculated as 30.3%. The BAT AEEL for gross electrical efficiency is 25-35%

The value calculated by the Applicant is within the acceptable range as set by the BAT AEEL.

In accordance with BAT 2 table S3.3 of the Permit requires the gross electrical efficiency to be measured by carrying out a performance test at full load.

Guidance note EPR 5.01 and Chapter IV of the IED both require that, as well as maximising the primary use of heat to generate electricity; waste heat should be recovered as far as practicable.

The facility will initially operate in electricity-only mode because, despite a thorough assessment, there are currently no existing district heat networks within a viable distance (15km) and limited immediately feasible heat offtake opportunities. While some industrial and civic users have shown interest and signed Letters of Intent, the infrastructure needed to distribute heat—such as pipelines and connection agreements—is not yet in place. Additionally, many potential users would require costly retrofits or are only seasonal heat users, which limits the commercial viability of a heat network at this stage. Therefore, until a reliable and economically sound heat demand is established, the Installation will generate electricity only.

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 carried out a feasibility study and provided a CHP-R assessment as part of their application, which showed there was potential to provide district heating to local businesses; suitable opportunities are being explored, though there are no firm commitments at this stage. There is provision within the design of the steam turbine to extract low-grade steam for a district heating scheme. Establishing a district heating network to supply local users would involve significant technical, financial and planning challenges such that this is not seen as a practicable proposition at present.

Our CHP-R guidance also states that opportunities to maximise the potential for heat recovery should be considered at the early planning stage, when sites are being identified for incineration facilities.

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

(iv) R1 Calculation

The R1 calculation does not form part of the matters relevant to our determination. It is however a general indicator that the installation is achieving a high level of energy recovery.

The Applicant has presented a calculation of the R1 factor (as defined under the WFD 2008). The applicant's figures showed that the R1 factor could be achieved. If the operator wants the facility to be classified as R1 then they would need to submit for our approval a separate application in line with our guidance.

(v) Choice of Steam Turbine

The super-heated steam coming from the boiler at a temperature in excess of 400°C and pressure of ca. 50-60 bar is delivered at the steam turbine for electrical power production. The steam turbine has one sliding pressure bleed feeding the deaerator and combustion air pre-heater. We are satisfied that this represents BAT in terms of steam conditions to ensure efficient energy recovery. The steam turbine design allows for heat export to local consumers via medium pressure steam.

(vi) Choice of Cooling System

Steam from the steam turbine exhaust, flows into the main steam duct to an Air Cooled Condenser (ACC). The steam is condensed inside a heat exchanger using air as the cooling medium. The cooling air is forced through the heat exchanger by axial fans, driven by electric motors and speed reducing gearboxes. Condensate is collected by gravity into the condensate tank, from where it is pumped to the deaerator to be recycled to the steam boiler for a new cycle.

We agree that an ACC represents BAT for this Installation.

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

The operator has submitted a cost-benefit assessment of opportunities for high efficiency co-generation within 15 km of the installation in which they calculated net present value. If the NPV is positive (i.e. any number more than zero) it means that the investors will make a rate of return that makes the scheme commercially viable. A negative NPV means that the project will not be commercially viable. The Applicant's assessment showed a negative net

present value which demonstrates that operating as a high-efficiency cogeneration installation will not be financially viable. We agree with the applicant's assessment and will not require the installation to operate as a high-efficiency cogeneration installation.

(viii) Permit conditions concerning energy efficiency

Pre-operational condition PO2 requires the Operator to carry out a comprehensive review of the available heat recovery options prior to commissioning, in order to ensure that waste heat from the plant is recovered as far as possible.

Conditions 1.2.2 and 1.2.3 have also been included in the Permit, which require the Operator to review the options available for heat recovery 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 electrical energy generated; electrical energy exported; total energy usage and energy exported as heat (if any). Together with the total waste burned per year, this will enable the 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 urea 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 tracked 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), air pollution control (APC) residues and recovered metals.

The first objective is to avoid producing waste at all. Waste production will be avoided by achieving a high degree of burnout of the ash in the furnace, which results in a material that is both reduced in volume and in chemical reactivity. Condition 3.1.3 and associated Table S3.4 specify limits for loss on ignition (LOI) of <5% in bottom ash. 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 will normally be classified as non-hazardous waste. However, 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 S3.4 requires the Operator to carry out an ongoing programme of monitoring.

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 process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models, 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 that 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 exceedences 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 exceedences 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 Quality Assessment: Swadlincote Energy Recovery Facility (AQA) and Swadlincote Human Health Risk Assessment (HHRA) which were received as part of the Application. The Air Quality Assessment document was revised in February 2025 to take account for an administrative error in the report. This version is the one used as the basis of our assessment. The assessments comprise:

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

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 and potential odour impacts including those during plant shutdowns are considered in section 6.5.4.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon local conservation and habitat 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 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 Sutton Bonnington between 2017 and 2021. The Applicant notes that Sutton Bonnington is located approximately 24.7km to the northeast of the site and is deemed to be the nearest monitoring station representative of meteorological conditions at the site. 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 NO_2
    - Total dust
    - Carbon monoxide (CO)
    - Sulphur dioxide (SO_2)
    - 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 (NH_3)
- 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 used is reported in tables 7 to 16 of the AQA. A variety of sources have been used, including diffusion tubes managed by South Derbyshire and East Staffordshire councils, annual status report, air quality networks spread across the UK and Defra background maps for the pollutants assessed. We note that the consultant assumed that Cr (VI) backgrounds were 8% of total Cr backgrounds. This differs from our approach which assumes 20%.

As part of our sensitivity checks of the applicant's conclusion, we used reasonable worst-case background data from our own analysis as well as assuming that Cr (VI) as being 20% of total Cr background concentration.

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 and at discrete receptors. The tables below show their predicted ground level concentrations at the most impacted receptor for NO_2 and PM10 and the maximum in the modelling domain for all other pollutants. NO_2 and PM10 includes the PCs of both the main stack and the emergency diesel generator.

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. Where process contributions can be screened out as insignificant we have not added the background concentrations to the below tables. Where the process contributions are not screened out, we have added the backgrounds to illustrate the PECs.

Non-metals

Pollutant	**ES**		**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	18.9	1	**2.5**	19.9	49.8
	200	99.79th %ile of 1 hour means	37.8	67.5	**33.8**	105.3	52.7
PM_{10}	40	Annual mean	-	0.1	0.25	-	-
	50	90.41st %ile of 24 hour means	-	1.6	3.2	-	-
$PM_{2.5}$	20	Annual mean	-	0.07	0.35	-	-
SO_2	266	99.9th %ile of 15-min means	5.2	62.5	**23.5**	67.7	25.5
	350	99.73rd %ile of 1 hour means	5.2	57.4	**16.40**	62.6	17.9
	125	99.18th %ile of 24 hour means	-	6.4	5.1	-	-
HCl	750	1-hour mean	-	23.5	3.1	-	-
HF	16	Monthly mean	-	0.02	0.13	-	-
	160	1 hour mean	-	1.57	0.98	-	-

CO	10000	Maximum daily running 8 hour mean	-	29.0	0.29	-	-
	30000	1 hour mean	-	39.2	0.13	-	-
TOC	2.25	Annual mean	0.18	0.15	**6.67**	0.33	14.67
	30	Daily mean	0.44	5.2	**17.33**	5.67	18.80
	2.25	24 Hour mean (Short Term)	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1
PAH	0.00025	Annual mean	-	2.26E-06	0.90	-	-
NH_3	180	Annual mean	-	0.15	0.08	-	-
	2500	1 hour mean	-	3.9	0.16	-	-
PCBs	0.2	Annual mean	-	1.1E-09	<0.01	-	-
	6	1 hour mean	-	3.14E-08	<0.01	-	-

Note 1: The applicant did not include the TOC 24 Hour short term mean ES in their assessment. We included this ES as part of our own audit. See section 5.2.3 below.

TOC as 1,3 butadiene for annual mean and 24 hour mean and Benzene as daily mean

PAH as benzo[a]pyrene

Metals

Pollutant	**ES**		**Back-ground**	**Process Contribution**		**Predicted Environmental Concentration**	
	ng/m^3	**Reference period**	**ng/m^3**	**ng/m^3**	**% of EAL**	**ng/m^3**	**% of EAL**
Cd	5	Annual mean	0.3	0.3	**6.0**	0.60	12.0
	30	24 hour mean (short term)		SEE NOTE 1			
Hg	600	1 hour mean		4 SEE NOTE 2	0.7	4.00	0.67

	60	24 hour mean (long term)		SEE NOTE 1			
Sb	5000	Annual mean		5	0.1		
	150000	1 hour mean		118	0.1		
Pb	250	Annual mean	8	5	**2.0**	13.00	5.2
Cu	50	24 hour mean (long term)		SEE NOTE 1			
Mn	150	Annual mean	8	5	**3.3**	13.00	8.67
	1500000	1 hour mean		118	7.9E-5		
V	1000	24 hr average (short term)		80	8.0		
As	6	Annual mean	1	5	**83.3**	6.00	100.0
Cr (II)(III)	2000	24 hour mean (long term)		SEE NOTE 1			
Cr (VI)	0.25	Annual mean	0.33	5	**2000**	5.33	**2132.0**
Ni	20	Annual mean	2	5	**25.0**	7.00	35.0
	700	1 hour mean		SEE NOTE 1			

Note 1: The applicant did not include the 24 Hour short term mean ES for Cd, Hg, Cu, or Cr (II)(III), or the Ni 1 hour mean in their assessment. We included these ES this as part of our audits of the applicant's modelling outputs. See section 5.2.4 below.

Note 2: The consultant used an ES of 750 instead of the correct 600. We checked against an ES of 600.

(i) Screening out emissions which are insignificant

5.2.2 Assessment of non-metals

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:

- PM_{10}
- $PM_{2.5}$
- HCl

- HF
- PAH
- NH_3
- PCBs

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.

- NO_2
- SO_2
- 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

All non-metal emissions either screen out as insignificant or where they do not screen out as insignificant are considered unlikely to give rise to significant pollution. Therefore, we are satisfied that there are no emissions requiring further assessment. Metals are considered further below in section 5.2.4

5.2.3 Consideration of key pollutants

(i) Nitrogen dioxide (NO_2)

The impact on air quality from NO_2 emissions has been assessed against the ES of 40 $\mu g/m^3$ as a long term annual average and 200 $\mu g/m^3$ as a short term hourly average.

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 greater than 10% of the ES and therefore cannot be screened out as insignificant. However, it is not expected to result in the ES being exceeded.

(ii) Particulate matter PM_{10} and $PM_{2.5}$

The impact on air quality from particulate emissions has been assessed against the ES for PM_{10} (particles of 10 microns and smaller) and $PM_{2.5}$ (particles of 2.5 microns and smaller). For PM_{10}, the ES are a long term annual average of 40 $\mu g/m^3$ and a short term daily average of 50 $\mu g/m^3$. For $PM_{2.5}$ the ES of 20 $\mu g/m^3$ as a long-term annual average was used, having changed from 25 $\mu g/m^3$ 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 PM_{10} for the PM_{10} 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 (PM_{10}) 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 PM_{10} 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 PM_{10} 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 PM_{10} 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 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 (SO_2), hydrogen chloride (HCl) and hydrogen fluoride (HF)

From the table 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 $\mu g/m^3$, 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 $\mu g/m^3$ and a monthly ES of 16 $\mu g/m^3$ – 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 SO_2 for the protection of human health. Protection of ecological receptors from SO_2 for which there is a long term ES is considered in section 5.4. There are three short term ES, hourly of 350 $\mu g/m^3$, 15 – minute of 266 $\mu g/m^3$ and daily of 125 $\mu g/m^3$.

Whilst SO_2 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 SO_2 emissions using BAT, this is considered further in Section 6. We are satisfied that SO_2 emissions will not result in significant pollution.

(iv) Emissions to air of carbon monoxide (CO), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), Dioxins and ammonia (NH_3)

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 above tables show that for VOC emissions, the maximum long term PC is greater than 1% of the 1,3 butadiene ES (which is used as a proxy for VOC emissions) and therefore cannot be screened out as insignificant. However, the PEC is not expected to result in the ES being exceeded.

The Applicant has based their assessment of short-term VOC impacts on the Environmental Standard (ES) for benzene. In addition to reviewing this assessment, we have audited the Applicant's modelling outputs against the relevant short-term ES for 1,3-butadiene. This approach was taken because 1,3-butadiene has the lowest ES among the organic compounds likely to be present in VOC emissions (excluding PAHs, PCBs, dioxins, and furans). For both benzene and 1,3-butadiene, the maximum predicted short-term process contribution (PC) exceeds 10% of the respective ES and therefore cannot be screened out as insignificant. However, the predicted environmental concentration (PEC) is not expected to exceed the applicable ES in either case.

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 impact from VOCs was based on the emission limit set in the permit for total organic carbon.

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/m^3. We are satisfied that this level of emission is consistent with the operation of a well controlled SNCR NO_x abatement system.

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

5.2.4 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/m^3 for cadmium and thallium and their compounds (formerly WID group 2 metals).

- An aggregate emission limit of 0.3 mg/m^3 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:

- Hg (short term)
- Sb
- V
- Mn (Short term)
- Cr II III

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:

- Hg (long term)
- Cd
- Pb
- Cu
- Mn (Long term)
- Ni

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

Where the BREF sets an aggregate limit, the Applicant's assessment assumes that each metal is emitted individually at the relevant aggregate emission limit value. This is a something which can never actually occur in practice as it would inevitably result in a breach of the said limit and so represents a very much worst case scenario.

For metals As and Cr(VI) the Applicant used representative emissions data from other municipal waste incinerators using our guidance note "Guidance to Applicants on Impact Assessment for Group 3 Metals Stack Releases – version 4".

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

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

(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 PM_{10} 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.

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 than 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 (NO_2, SO_2 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 PHE. 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
Agricultural	3.3%	4.7%
Residential	0.01%	0.03%

Calculated maximum daily intake of dioxins over a lifetime by local receptors resulting from the operation of the proposed facility (WHO-TEQ/ kg-BW/day)

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 advise 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 ($PM_{0.1}$). 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 $PM_{2.5}$ 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 $PM_{2.5}$ by 1 µg/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 PM_{10} 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 PM_{10}. It goes on to say that PM_{10} 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 PM_{10} levels and 0.05% to ambient ground level PM2.5 levels. The 2016 data also shows that road traffic contributed to 5.35% of PM10 and 4.96% of PM2.5 and that domestic wood burning contributed 22.4% to PM10 and 34.3% of PM2.5 levels.

This is consistent with the assessment of this Application which shows emissions of PM_{10} to air to be insignificant.

A 2016 a 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 ES have been developed primarily to protect human health. The Applicant's 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 key findings were as follows:

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 effect for people living close by is likely to be very small.

vi. UKHSA and the Local Authority Director of Public Health 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 Local Authority Director of Public Health did not provide a response. The Food Standards Agency was also consulted during the permit determination process, and it did not provide a response to our consultation. Details of the responses provided by UKHSA, the Local Authority Director of Public Health and the FSA 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 Impact on protected conservation areas (SPAs, SACs, Ramsar sites and SSSIs and local nature sites)

5.4.1 Sites Considered

The following Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar~~)~~ sites are located within 10 km of the Installation:

- River Mease SAC (7.3km from the Installation at its closest point)

There are no Sites of Special Scientific Interest (SSSI) within 2 km of the proposed Installation. However, the operator did model SSSIs within a 10km radius of the site which is beyond the 2 km screening distance that we have agreed with Natural England.

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

- Cadley Hill Railway Area (LWS) (Installation boundary is within this site)
- Bretby Railway Line (LWS) 560m from Installation
- Badgers Hollow (LNR) 590m
- Bretby Disused Railway (LWS) 945m
- Castle Mound, Castle Gresley (LWS) 1.4km
- White Lady's Spring (LWS) 1.6km

- Castle Gresley Wetland (LWS) 1.6km
- Hall Wood (LWS and Ancient Woodland) 1.7km
- Netherseal Colliery Line (LWS) 1.8km

5.4.2 Habitats Assessment

The Applicant's habitats assessment was reviewed by our technical specialists for air dispersion modelling and assessment who agreed with the assessment's conclusions, that there would be no likely significant effect on the interest features of the protected site (River Mease SAC).

The impacts detailed in the table below.

Pollutant	ES / EAL ($\mu g/m^3$)	Process Contribution (PC) ($\mu g/m^3$)	PC as % of ES
Direct Impacts			
NO_x Annual	30	0.06	0.2
NO_x Daily Mean	75	1.66	2.2
SO_2	20	0.015	0.1
Ammonia	3	0.005	0.2
HF Weekly Mean	0.5	0.004	0.8
HF Daily Mean	5	0.030	0.6

The operator presented that there is no comparable critical load for nutrient nitrogen or acid deposition. We agree that this is the case, however, we have also carried out a worst-case check against highly conservative critical loads for sensitive features. We found PCs for these pollutants to be not significant.

We have completed an HRA assessment, in line with the requirements of the habitats regulations as referred to in section 7.3.1 of this decision document and sent this to Natural England for information only

5.4.3 SSSI Assessment

There are no Sites of Special Scientific Interest (SSSI) within 2 km of the proposed Installation which is the screening distance we have agreed with Natural England. Therefore, we are satisfied that emissions from the Installation will not damage the special features of the SSSIs.

5.4.4 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 proposed facility is located within the Cadley Hill Railway Local Wildlife Site. While the use of land for development is primarily addressed through the planning system, the environmental permitting process focuses on whether emissions from the operation of the facility could cause unacceptable harm to designated sites, including Local Wildlife Sites. So, whether it is appropriate to develop part of the Local Wildlife Site is a matter for planning.

As part of our assessment, we have reviewed the Biodiversity Net Gain report submitted with the planning application, which outlines measures to protect and enhance ecological value. We have also conducted a detailed audit of the operator's air quality modelling to evaluate potential impacts on the retained areas of the Local Wildlife Site not being developed as part of the facility.

Based on this air quality assessment, we are confident that the operational activities of the facility will not result in any significant adverse effects on the retained areas of the Local Wildlife Site and our overall assessment is that there will be no significant impact on this site or species.

The Applicant's assessment showed that the PCs are below the critical levels or loads at all areas of other Local Nature Sites. We have audited the applicant's assessment and also carried out our own assessment including discrete receptor points at each of the local nature sites and we are satisfied

that the Installation will not cause significant pollution at the sites. The Applicant is required to prevent, minimise and control emissions using BAT, this is considered further in Section 6.

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/m^3 (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.

In making an assessment of abnormal operations the following worst case scenario has been assumed:

- Dioxin emissions of 100 x normal
- Mercury emissions are 10 times those of normal operation (we also audited the abnormal emissions at 20 times)
- NO_x emissions of 800 mg/m^3 (2x normal)
- Particulate emissions of 150 mg/m^3 (5 x normal)

- Metal emissions other than mercury are 5 times those of normal operation
- SO_2 emissions of 400 mg/m^3 (2x normal)
- HCl emissions of 600 mg/m^3 (10x normal)
- HF emissions of 10 mg/m^3 (10x normal)
- PCBs (100 x normal)

This is a worst-case scenario in that these abnormal conditions include a number of different equipment failures not all of which will necessarily result in an adverse impact on the environment (e.g. a failure of a monitoring instrument does not necessarily mean that the incinerator or abatement plant is malfunctioning). This analysis assumes that any failure of any equipment results in all the negative impacts set out above occurring simultaneously.

The result on the Applicant's short-term environmental impact is summarised in the table below.

The applicant carried out an assessment against various ESs as presented by Table 43 of their Air Quality Assessment:

Table 43: Maximum Predicted PCs in the Study Area (µg/m^3)

Pollutant	Averaging Period	Maximum PC	EAL	% of EAL	Further Assessment Required
Nitrogen dioxide	1-hour mean	80.9	200	**40.4**	**Yes**
SO_2	1-hour mean	114.8	350	**32.8**	**Yes**
	15-minute mean	124.9	266	**47.0**	**Yes**
HF	1-hour mean	15.69	160	9.8	No
HCl	1-hour mean	235.3	750	**31.4**	**Yes**
Mercury	1-hour mean	0.039	7.5	0.5	No
Antimony	1-hour mean	0.588	150	0.4	No
Chromium (III)	1-hour mean	0.588	150	0.4	No
Copper	1-hour mean	0.588	200	0.3	No
Manganese	1-hour mean	0.588	1,500	<0.1	No
NH_3	1-hour mean	7.8	2,500	0.3	No
PCDD/F	Annual mean	1.52×10^{-9}	3×10^{-7}	0.5	No
PCBs	1-hour mean	3.14×10^{-6}	6	<0.1	No

The applicant used the incorrect ES to assess Mercury (7.5µg/m^3). We carried out our audit against the correct ES (6µg/m^3). Mercury still screened out as insignificant against the correct ES.

The ES in the above table for Chromium III and Copper have been withdrawn so are not relevant for assessment.

The Applicant included ammonia in their assessment of abnormal emissions. Our view is that this is not required because elevated ammonia emissions would not be expected during periods of abnormal operation. No further assessment is required.

For those pollutants that did not then screen out, the applicant assessed the PC in combination with the background, as presented in tables 44 to 47 of their Air Quality assessment:

Table 44: Maximum PC and Adjusted EAL 1-hour Mean Nitrogen Dioxide (µg/m^3)

Objective	EAL	PC	Background	Adjusted EAL	PC as % of Adjusted EAL	PEC	PEC as % of EAL
1-hour mean	200	80.9	37.8	162.2	49.9	118.7	59.3

Table 45: Maximum PC and Adjusted EAL 1-hour Mean Sulphur Dioxide (µg/m^3)

Objective	EAL	PC	Background	Adjusted EAL	PC as % of Adjusted EAL	PEC	PEC as % of EAL
1-hour mean	350	114.8	5.2	344.8	33.3	120.0	34.3

Table 46: Maximum PC and Adjusted EAL 15-minute Mean Sulphur Dioxide (µg/m^3)

Objective	EAL	PC	Background	Adjusted EAL	PC as % of Adjusted EAL	PEC	PEC as % of EAL
15-minute mean	266	124.9	5.2	260.8	47.9	130.1	48.9

Table 47: Maximum PC and Adjusted EAL for HCl (µg/m^3)

Objective	EAL	PC	Background	Adjusted EAL	PC as % of Adjusted EAL	PEC	PEC as % of EAL
1-hour mean	750	235.3	0.21	749.79	31.4	235.5	31.4

The applicant did not present an assessment against the following relevant ESs:

Pollutant	ES ng/M^3	
PM10	50	90.41st %ile of 24 hour means
SO_2	125	99.18TH %ile of 24 hour means
Hg	600	1 hour mean
Cd	30	24 hour mean (short term)
V	1000	24 hour mean (short term)
Ni	588	1 hour mean

We have audited and used the modelling data within the applicant's air quality report to assess against these ESs and have concluded that whilst these pollutants cannot be screened out as insignificant, they have been assessed as being unlikely to give rise to significant pollution in that the predicted environmental concentration is less than 100% of short term ES.

From the tables above the emissions of the following substances can still be considered insignificant, in that the PC is still <10% of the short-term ES:

- HF
- Hg
- Sb
- Mn
- PCBs

Also, from the tables above emissions of 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 predicted environmental concentration is less than 100% of short term ES:

- PM10
- NO_2
- SO_2
- HCl
- Hg
- Cd
- V
- Ni

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/m^3 for the maximum period of abnormal operation, this would result in an increase of approximately 70% in the TDI reported in section 5.3.3. In these circumstance the worst case TDI (agricultural child receptor) would be 7.99% 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. I
- 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 Municipal Waste can be incinerated in traveling grates, rotary kilns and fluidised bed technology. Fluidised bed technology requires MSW to be of a certain particle size range, which usually requires some degree of pre-treatment even when the waste is collected separately.

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 NOx as the furnace choice could have an effect on the amount of unabated NOx 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 70 70 t/h	• Good mixing • High steam parameters up to 500oC • 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
- Rotary Kiln
- Fluidised Bed
- Pyrolysis / Gasification

Moving Grate technology has a robust and has a proven track record across Europe and is the most common technology for the incineration of waste in the UK. The moving grate allows agitation of the waste improving aeration and therefore combustion, and the speed and throw of the grate can be adjusted to accommodate different waste types as they move through the process. This system, therefore, has the capacity to effectively handle fuel with varying ranges of size, CV, and moisture content.

Rotary Kiln Incinerators provide high levels of combustion effectiveness and can accommodate a wide range of fuels. However, overall energy recovery efficiency is reduced as such systems require high levels of excess air.

Fluidised bed reactors can provide good levels of combustion effectiveness but require a uniform particle size and is therefore unsuited to the combustion of semi- processed RDF or mixed wastes.

Gasification and pyrolysis concepts provide the potential for a high level of energy recovery efficiency. However, the technology has provided problematic when implementing non- homogenous materials such as refuse derived fuel (RDF) and municipal wasted leading to uncertain operating reliabilities.

The Applicant has proposed to use a furnace technology comprising of the moving grate furnace. Moving grate technology will deliver a robust and proven system for a waste stream that may have variable composition and calorific value. In addition, the speed of the moving grate can be adjusted to vary the quantity of waste on the grate, ensuring complete burn out of all the material.

The Applicant proposes to use gasoil (also known as low-sulphur diesel oil) as support fuel for start-up, shut down and for the auxiliary burners.

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:

- ensuring that the steam/metal heat transfer surface temperature is a minimum where the exhaust gases are within the de-novo synthesis range;
- design of the boilers using computerised fluid dynamics (CFD) to ensure no pockets of stagnant or low velocity gas;

- boiler passes are progressively decreased in volume so that the gas velocity increases through the boiler; and
- design of boiler surfaces to prevent boundary layers of slow moving gas.

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^{o}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/m^3 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)	NOx 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 NOx 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_2O 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 stated that flue gas recirculation (FGR) may be used if required. This technique reduces the consumption of reagents for secondary NOx control and can increase overall energy recovery, although in some applications there can be corrosion. Our view is that the use of FGR can be BAT in some designs but agree that corrosions problems can be an issue and in some cases there is limited benefit. Both using FGR and not using FGR can be BAT so we have included a pre-operational condition (PO14) in the permit which requires the operator to confirm its use or otherwise after the final design of the plant has been completed.

There are three recognised techniques for secondary measures to reduce NO_x. These are Selective Catalytic Reduction (SCR), SCR by catalytic filter bags and Selective Non-Catalytic Reduction (SNCR) with or without catalytic filter bags. For each technique, there is a choice of urea or ammonia reagent.

SCR can reduce NO_x levels to below 50 mg/m^3 and can be applied to all plant, it is generally more expensive than SNCR and requires reheating of the waste gas stream which reduces energy efficiency, periodic replacement of the

catalysts also produces a hazardous waste. The use of SCR by catalytic filter bags can reduce emissions to 50 -120 mg/m^3 with low investment costs. SNCR can typically reduce NO_x levels to between 80 and 180 mg/m^3, it relies on an optimum temperature of around 900 ^oC and sufficient retention time for reduction. SNCR is more likely to have higher levels of ammonia slip. The technique can be applied to all plant unless lower NO_x releases are required for local environmental protection. Urea or ammonia can be used as the reagent with either technique, urea is somewhat easier to handle than ammonia and has a wider operating temperature window but tends to result in higher emissions of N_2O. Both reagents are BAT, and the use of one over the other is not normally significant in environmental terms.

The Applicant proposes to use SNCR with ammonia / urea as the reagent.

Emissions of NO_x cannot be screened out as insignificant. Therefore, the Applicant has carried out a cost / benefit study of the alternative techniques. The cost per tonne of NO_x abated over the projected life of the plant has been calculated and compared with the environmental impact as shown in the table below.

	Cost of NO_x removal £/tonne	PC (long term)	PEC (long term)
SCR	£3,930	13.47%	32.37%
SNCR	£1,319	20.20%	39.37%

Based on the figures above the Applicant considers that the additional cost of SCR over SNCR is not justified by the reduction in environmental impact. Thus SCR is not BAT in this case, and SNCR is BAT for the Installation. justified the use of urea as the reagent on the basis of We agree with this assessment. The Applicant has proposed urea rather than ammonia as the SNCR reagent. We are satisfied that both can be BAT.

The amount of urea used for NO_x abatement will need to be optimised to maximise NO_x reduction and minimise NH_3 slip. Improvement condition IC5 requires the Operator to report to the Environment Agency on optimising the performance of the NO_x abatement system. The BAT AEL for ammonia has been set and the Operator is also required to monitor and report on N_2O 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 SOx 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	Higher solid residue production Reagent consumption controlled		All plant

	other FGC techniques but may be reduced by recycling in plant Lower energy use Higher reliability Lowest visible plume potential	only by input rate		
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		Partial abatement upstream of other techniques in fluidised beds

		cleaning system.		
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 has proposed to use gasoil as the support fuel. We are satisfied with this. Gas oil is often used by plants to ensure no interruption of supply which can occur if natural gas is used as auxiliary fuel.
- 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.

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 applicable for all plants and can improve overall performance of the acid gas abatement system as well as reducing reagent usage. This is not proposed at this plant. The BREF describes it as a partial abatement technique with its use for controlling peak loads. Our view is that sorbent injection into the flue gas is BAT for controlling acid gas emissions.

In this case, the Applicant proposes to inject dry sorbent in the flue gas, achieved by the dosing of hydrated lime into the flue stream after the boiler. We are satisfied that this is BAT

A NOx, SO_2 and HCl analyser will be installed after the boiler and before the lime injection. The SO_2 and the HCl concentration will be used as feedforward signal for the lime injection (2nd step of acidic gases abatement). The lime injection rate will be further optimised by using the concentration of SO_2 and HCl read at stack by CEMS.

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 proposes separate feed and we are satisfied their proposals are 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 removal method.	Consumption of aqueous bromine. Can lead to formation of polybrominated dioxins. Can damage bag filter. Effects can be limited use is restricted to dealing with peak emissions		Not suitable for pyrolysis or gasification. Can deal with mercury peaks.

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 proposes separate feed and we are satisfied their proposals are BAT. We are satisfied their proposals are 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 (CO_2) 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, CO_2 is clearly a pollutant for IED purposes.

The principal greenhouse gas emitted is CO_2, but the plant also emits small amounts of N_2O arising from the operation of secondary NO_x abatement. N_2O has a global warming potential 310 times that of CO_2. 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 CO_2 from the combustion of waste. There will also be CO_2 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 electricity that is generated by the Installation will displace emissions of CO_2 elsewhere in the UK, as virgin fossil fuels will not be burnt to create the same electricity.

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 CO_2 emissions from the Installation are:
On the debit side

- CO_2 emissions from the burning of the waste;
- CO_2 emissions from burning auxiliary or supplementary fuels;
- CO_2 emissions associated with electrical energy used;
- N_2O from the de-NOx process.

On the credit side

- CO_2 saved from the export of electricity 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 N_2O emitted.

The Applicant considered energy efficiency and BAT for the de-NOx process in its BAT assessment. This is set out in sections 4.3.7, 6.1.1 and 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/m^3 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/m^3.

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/m^3. 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 Other Emissions to the Environment

6.5.1 Emissions to water

Only clean and uncontaminated surface water run-off will be discharged from the facility.

See section 4.2.2 for detail on the measures that will be in place on site in order to ensure that these emissions are clean and uncontaminated.

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.

6.5.2 Emissions to sewer

There will not be any emissions to sewer of waters arising from the facility.

Domestic sewage arising from the facility will be discharged to sewer under general binding rules which do not fall under the regulation of this Permit.

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.

6.5.3 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.

See section 4.2.2. for details of the measures that will be in place at the facility.

The operator has also submitted a dust management plan which describes the measures that will be in place at the facility. This dust management plan will form part the facility's EMS. Below is a summary of the key measures that will be in place at the facility:

- Waste handling in enclosed buildings maintained under negative pressure to prevent dust escape.
- Fast-acting roller doors that will only open when vehicles enter or exit, minimising air exchange.
- Dust suppression misting systems that will be used during dry weather or maintenance periods.
- Sealed systems for ash and residue handling, with all transport vehicles covered before leaving the site.
- Regular visual inspections and monitoring, with weather forecasts and wind conditions used to guide proactive dust control actions.

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

6.5.4 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 operator has also submitted an odour management plan which describes the measures that will be in place at the facility.

Waste accepted at the installation will be delivered in covered vehicles or within containers and bulk storage of waste will only occur in the installation's waste bunker.

A roller shutter door will be used to close the entrance to the tipping hall outside of the waste delivery periods and combustion air will be drawn from above the waste storage bunker in order to prevent odours and airborne particulates from leaving the facility building.

During shut-down the Applicant has proposed to:

- run down wastes prior to periods of planned maintenance

- extract air via an alternative system comprising of carbon filtration during planned or unplanned maintenance

The operator will be required, through pre-operation condition PO12, to submit a revised odour management plan based on the final design of the permit. This odour management plan will form part the facility's EMS.

6.5.5 Noise and vibration

The Application contained a noise impact assessment which identified local noise-sensitive receptors, potential sources of noise at the proposed plant and noise attenuation measures. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey and an assessment was carried out in accordance with BS 4142:2014 to compare the predicted plant rating noise levels with the established background levels. A summary of the applicant's assessment, our subsequent audit and actions arisings from this audit are detailed below:

The applicant submitted a Noise Impact Assessment (NIA) in support of its application. The Installation is proposed to operate continuously, 24 hours a day, seven days a week.

The applicant concluded that the noise impact from the Installation would be low across all operational periods—daytime, evening, and night. These conclusions were based on predicted sound levels derived from historical data from similar facilities and preliminary design information provided by the Applicant's engineering team. The assessment incorporated both primary and enhanced mitigation measures, such as acoustic enclosures, silencers, and sound-insulating building materials. The modelling also included a precautionary +3 dB correction during evening and night-time periods to account for the potential audibility of plant operations during quieter hours.

The applicant's modelling was carried out using CadnaA software and followed the 1996 version of the ISO 9613-2 standard for predicting outdoor sound propagation.

We reviewed the applicant's NIA and conducted our own analysis using updated methodologies and more detailed breakdowns of background sound data. While we broadly agreed with the applicant's conclusions, we identified several areas where the assessment could be improved or where assumptions introduced uncertainty.

We found that background sound levels were lower than those reported by the applicant when data was separated by weekday, Saturday, and Sunday periods. Additionally, we used the updated 2024 version of ISO 9613-2 and refined modelling assumptions, which resulted in higher predicted specific sound levels than those presented by the applicant.

Despite these differences, we concluded that the noise impact from the facility would still be low during daytime and evening periods across the week. During

night-time periods, the impact was assessed as “below adverse,” which remains within acceptable limits under Environment Agency guidance.

We also noted that the applicant’s modelling included some inaccuracies, such as overestimating the number of HGV movements per hour and omitting first-floor receptors. Nonetheless, the assumptions made were considered reasonable for the current outline design stage.

We are satisfied that there is unlikely to be a significant impact from noise but our view is that this should be confirmed with a revised Noise Impact Assessment (NIA) after the final design of the plant, which we have required as pre-operational condition PO11

The revised NIA will need to include, as a minimum:

- A reference for each sound source associated with the detailed design, i.e., each sound power level or internal reverberant sound pressure level.
- Clarification whether the above reference data has been derived from a site measurement or manufacturer’s data. If the data has been sourced from manufacturer’s data, the name of the referenced unit/product is to be provided.
- If the data has been sourced from a measurement at an alternative site where an equivalent sound source is installed and operational, measured sound pressure level, measurement distance from the acoustic centre of the source and any other relevant notes should be included.
- Details of the construction and acoustic performance (for example in terms of octaves band insertion loss in dB for proposed acoustic attenuators, in particular the attenuators for the chimney outlets and turbine venting outlet(s).
- Operational procedure(s) relating to the management and maintenance of the off-site acoustic barrier.
- Updated noise modelling using the most recent standards and corrected assumptions, including accurate HGV movement data and consideration of all relevant receptor heights.

This additional assessment will ensure that the final design continues to meet the required noise standards and that any changes to the plant or mitigation measures are properly evaluated before the facility becomes operational

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.

6.6 Setting ELVs and other Permit conditions

6.6.1 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) Global Warming

CO_2 is an inevitable product of the combustion of waste. The amount of CO_2 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 CO_2, 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 CO_2. 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 CO_2 emissions.

(ii) Commissioning

Before the plant can become fully operational it will be necessary for it to be commissioned. Before commissioning can commence the Operator is required by pre-operational condition PO4 to submit a commissioning plan to the Environment Agency for approval. Commissioning can only begin and be carried out in accordance with the approved proposals in the plan. Pre-operational condition PO4 will ensure that measures to protect the environment during commissioning are agreed with the Environment Agency.

The Operator will also be required to submit a written report to the Environment Agency on the commissioning of the installation within 4 months of completion of commissioning, in accordance with Improvement Condition IC3. In the report they will be required to summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report will also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions and confirm that the Environmental Management System (EMS) has been updated accordingly.

6.7 Monitoring

6.7.1 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.

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

The Operator has stated that they will provide back-up CEMS working in parallel to the operating CEMS. These will be switched into full operation immediately in the event that there is any failure in the regular monitoring equipment. The back-up CEMS measure the same parameters as the operating CEMS. In the unlikely event that the back-up CEMS also fail condition 2.3.11 of the permit requires that the abnormal operating conditions apply.

6.7.3 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 and control measures proposed in the Application we expect that emissions of dioxins will be stable and that the mercury content of the waste 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 conditions IC8 and IC9 and we can require long term monitoring for dioxins and continuous monitoring for mercury if required.

6.8 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 European 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 on 04/08/2025.
- The report and decision notice of the planning inspectorate accompanying the grant of planning permission.

From our 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 includes the Environmental Statement submitted to the local planning authority. The results of our consultation are described in Annex 4.

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 does not allow the mixing of hazardous waste, so Article 18(2) is not relevant.

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 444.

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.

(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 have regard to 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.

We assessed the Application and concluded that the Installation will not damage the special features of any SSSI.

The Wildlife and Countryside Act (CRoW) assessment is summarised in greater detail in section 5.4 of this document. An Appendix 4 Assessment was not carried out as there are no SSSIs within the agreed 2km screening distance.

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 have regard to 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.

We have done so and consider that no different or additional conditions in the Permit are required. 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 sites 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.

The Habitats Regulations Assessment is summarised in greater detail in section 5.4.2 of this document. A copy of the Habitats Regulations Assessment can be found on the public register. We did not consult with Natural England on the assessment due to no likely significant effects. This assessment was sent to Natural England for information.

We have also considered our general duties under Regulation 9(3) to have regard to the requirements of the Habitats Directive in the exercise of our powers and under Regulation 10 in relation to wild bird habitat to take such steps in the exercise of their functions as they consider appropriate so far as lies within our powers to secure preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds.

We considered whether we should impose any additional or different requirements in the permit in terms of these duties but concluded that we should not.

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, and that it will not compromise the ability of this water body to achieve good status by 2027.

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.

7.3.4 **Bathing Water Regulations 2013**

We have considered our duty, under regulation 5 of these Regulations, to exercise our relevant functions to ensure compliance with the Bathing Water Directive, and in particular to take realistic and proportionate measures with a view to increasing the number of bathing waters classified as "good" or "excellent".

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

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 2.2 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 and 3.1.2 and Tables S3.1, S3.1(a) in Schedule 3 of the Permit.
45(1)(d)	The permit shall include the requirements for pH, temperature and flow of waste water discharges.	Not Applicable
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 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 2.3.14 and 2.3.15.
45(2)(a)	The permit shall include a list of the quantities of the different categories of hazardous waste which may be treated.	Not Applicable
45(2)(b)	The permit shall include the minimum and maximum mass	Not Applicable

IED Article	Requirement	Delivered by
	flows of those hazardous waste, their lowest and maximum calorific values and the maximum contents 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 and 3.1.2 and Tables S3.1, S3.1a.
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 firefighting.	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/m3), CO and TOC not to be exceeded during this period.	Conditions 2.3.8 to 2.3.13

IED Article	Requirement	Delivered by
47	In the event of breakdown, reduce or close down operations as soon as practicable.	condition 2.3.10
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, 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%.	Conditions 3.6.1 and Table S3.4
50(2)	Flue gas to be raised to a temperature of 850ºC for two seconds, as measured at representative point of the combustion chamber.	Condition 2.3.8, Pre-operational condition PO6 and Improvement condition IC4 and Table S3.3
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 2.3.13

IED Article	Requirement	Delivered by
50(4)(a)	Automatic shut-down to prevent waste feed if at start up until the specified temperature has been reached.	Condition 2.3.10
50(4)(b)	Automatic shut-down to prevent waste feed if the combustion temperature is not maintained.	Condition 2.3.10
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 2.3.10 and 2.3.14
50(5)	Any heat generated from the process shall be recovered as far as practicable.	(a) The plant will generate electricity (b)Operator to review the available heat recovery options prior to commissioning (Condition PO2) and then every 4 years (Conditions 1.2. 1 to 1.2.3)
50(6)	Relates to the feeding of infectious clinical waste into the furnace.	No infectious clinical waste will be burnt
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 1.1.4 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 me.	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.	No such conditions Have been allowed
52(1)	Take all necessary precautions concerning delivery and reception of	Conditions 2.3.1, 2.3.4, 3.3, 3.4, 3.5 and 3.7

IED Article	Requirement	Delivered by
	Wastes, to prevent or minimise pollution.	
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).	Not Applicable
52(4)	Prior to accepting hazardous waste, the operator shall carry out the procedures set out in Article 52(4).	Not Applicable
52(5)	Granting of exemptions from Article 52(2), (3) and (4).	Not Applicable
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 S3.4
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
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 S3.4 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 conclusion	Criteria	Delivered by
1	Implement environmental management system	Condition 1.1 and Pre-operational condition PO1
2	Determine gross electrical efficiency	Section 4.3.7 of this decision document. Permit table S3.3
3	Monitor key process parameters	Condition 3.6.1 and table S3.38
4	Monitoring emissions to air	Condition 3.561 and table S3.1 and S3.1(a)
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 and 3.6.1, and table S3.4
8	Analysis of hazardous waste	Not applicable
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	Not applicable
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 3.8.1
13	Storage and handling of clinical waste	Not applicable
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, 3.1.3, 3.6.1 and table S3.4

BAT conclusion	Criteria	Delivered by
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
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, 3.4.1, 3.4.2, 3.3.1, 3.3.2. Sections 4.2.2, 6.5.3 and 6.5.4 of this decision document.
22	Handling of gaseous and liquid wastes	Not applicable
23	Management system to prevent or reduce dust emissions from treatment of slags and ashes	. Not applicable
24	Techniques to prevent or reduce diffuse emissions to air from treatment of slags and ashes	Not applicable
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, 3.4.1, 3.3.1, 3.3.2. 3.1.1 and 3.1.2 and table S3.1

BAT conclusion	Criteria	Delivered by
26	Techniques and BAT AEL for dust emissions from enclosed slags and ashes treatment	Not treatment on site
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 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, 3.1.1 and 3.1.2 and table S3.1
29	Techniques to reduce emissions of NO_2, N_2O, 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, 3.1.1 and 3.1.2 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 S1.22.3.1, table S1.2, 3.1.1 and 3.1.2 and table S3.1
32	Segregate waste water streams to prevent contamination	Measures described in the Application Sections 4.2.2, 6.5.1 and 6.5.3 of this decision document. Permit conditions 2.3.1, table S1.2 and table S3.2

BAT conclusion	Criteria	Delivered by
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
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 2.3.14
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 6.5.5 of this decision document. Permit conditions 2.3.1, table S1.2, 3.5.1, 3.5.2

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.

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.

Annex 4: Consultation Reponses

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, initially from 28/06/2024 to 02/09/2024 and then from 01/11/2024 to 13/12/2024 and in the Burton Mail on 28/06/2024 and 01/11/2024. The additional consultation period and newspaper advertisement was due to the high level of public interest that occurred after our initial consultation.

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

- Local Authority - Environmental Health/Environmental Protection department
- Local Authority – Planning
- Fire and Rescue
- Director of Public Health / UKHSA
- Health and Safety Executive
- Food Standards Agency
- National Grid

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from UKHSA	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Given that some of the PECs for short-term effect emissions to air (SO2, NO2, HCl) are above 20% of the short-term environmental standard minus twice the long-term background concentration, the EA may wish to request detailed modelling to be conducted. It is suggested to gain clarification on how the Step 2 chromium (VI) and arsenic screening was undertaken, the EALs used, and the PCs calculated. Nearest residential areas lists are inconsistent within the documents attached to this application.	The operator has submitted detailed modelling We have audited the Applicant's air quality modelling. This included short term impacts, chromium (VI) and arsenic at receptor locations. We are satisfied that these aspects were considered appropriately and that no significant pollution will be caused. The approach to assessing metals is presented in section 5.2.4 of this document. As part of our audit, we have checked that the nearest residential receptors have been considered

The site boundary presented in the Human Health Risk Assessment, appears different to that presented within other documentation.	We audited the HHRA and are satisfied that the impacts were assessed appropriately from emissions from the Installation.
Consideration of pest, vermin and insects management	Pests are not usually an issue at incineration plants because the waste is only stored for a short period of time. The waste reception and storage area, and all incoming waste handling activities will be undertaken within a fully enclosed building. The Applicant has set out good housekeeping practices in the Application to prevent and minimise the risk of pests and vermin. A management system is not required although we could request one through conditions 3.7.1 and 3.7.2 in the unlikely event that pests were to be an issue..

Response Received from South Derbyshire District Council	
Brief summary of issues raised:	Summary of action taken / how this has been covered
The response brought our attention to the planning applications relevant to the proposed facility and surrounding land. The response stated that the District Council would be objecting to planning permission for the incineration plant.	As detailed in in section 7.1.1 above, 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 on 04/08/2025. • The report and decision notice of the planning inspectorate accompanying the grant of planning permission. From our consideration of all the documents above, the Environment Agency considers that no additional or different conditions are necessary.

2) Consultation Responses from 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.

a) Representations from Local MP, Councillors and Parish / Town / Councils

Representations were received from the MP for South Derbyshire, County Councillor, elected member of Seales Ward and Linton Parish Councils who raised the following issues.

Brief summary of issues raised:	Summary of action taken / how this has been covered
Air quality comments	
Concern over how the air dispersion modelling was carried out including: • The weather data that was used is not local / representative • Concerns over already high local background Nox levels	We audited the Applicant's dispersion modelling. As part of the audit, we checked that the weather data and background levels, including Nox levels, used by the Applicant were appropriate and we are satisfied that they were. Based on the Applicant's modelling we are satisfied that there will not be a significant impact in air quality. Further information in in section 5.2 of this decision document for further details.
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.
In-combination (cumulative) effects from other facilities have not been considered	The air quality assessment considered existing background pollution levels which includes emissions from existing sources. We have carried out our own sensitivity checks for in combination effects from the

	Drakelow incinerator. We are satisfied any impacts from the Drakelow incinerator fall below our significance tests and therefore an in combination assessment is not required. There are not any other not yet operational facilities (including the Sinfin incinerator) which would contribute significantly to the cumulative effects of the proposed SERF.
Concern over impacts at AQMAs.	This is covered in section 5.2.4 (i) of this decision document.
Ecological comments	
Concerns about loss of biodiversity at Cadley Hill Railway LWS Protected species and other species are present on the site including: Great crested newts Bats Grass snakes Birds	The utilisation of the land on which the facility is situated falls within the scope of the statutory planning process. As part of this process, a biodiversity compensation proposal has been formally submitted to the relevant planning authority. Following its review, the authority has issued a Section 106 Agreement that legally obligates the facility operator to deliver the proposed biodiversity compensation measures in accordance with the authority's stipulated requirements. Our remit is to assess impacts due to emissions from the Installation. We assessed air quality impacts on the retained areas of the Cadley Hill Railway LWS, as referenced in the Biodiversity Net Gain (BNG) Assessment. Based on this air quality assessment, we are confident that the operational activities of the facility will not result in any significant adverse effects on the Cadley Hill Railway LWS and our overall assessment is that there will be no significant impact on this site or species. For further details, please refer to Section 5.4.
Concern over the impact on species in the wider area including on: Great crested newts Bats Grass snakes Birds	We have carried out an assessment on the designated habitats, which includes protected species. Our assessment is described in section 5.4 of this decision document. We are satisfied that there will be no likely significant effect on either habitats or the species within them as well as protected and other species in the wider nearby area.
Concern over the impact at habitat sites and other ecological sites. The site is located in the National Forest	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. The National Forest does not have a particular formal protection designation and its status is one that is a consideration for planning. We are, however, satisfied that

	there is unlikely to be any significant impact on the National Forest.
Comments about noise	
Concerns that there will be unacceptable noise pollution from the installation	We audited the Applicant's noise assessment. As part of the audit, we checked that relevant factors were considered appropriately by the Applicant, and we are satisfied that they were. Based on the Applicant's modelling we are satisfied that there will not be a significant impact from noise.
Expectation that best practice will be in place and concerns that BAT will not be in place	We are satisfied that the proposed measures are BAT. These are described in more detail in section 6.5.5 of this decision document.
Reference made to the Environment Agency's recommendations that were made regarding noise through the planning process	The applicant has presented a noise impact assessment which we have audited and found to be appropriate for the facility. We have also included PO11 which requires a final design noise impact assessment to be submitted to us for approval prior to the commencement of commissioning. See section 6.5.5 for further details.
Noise limits should be set, and monitoring carried out.	We have assessed noise from the Installation and are satisfied that it will not be significant. Permit conditions 3.5.1 and 3.5.2 will ensure that noise is controlled and will allow us to take further action should it be required.
Other comments	
Concerns over compliance history of the neighbouring Wilshees site including waste fires that have occurred on the Wilshees site	The regulation of the Wilshees site is carried out by the Environment Agency in line with the requirements of the Wilshees permit and is mostly not part of our consideration for this incinerator Permit determination. However, we consider that any potential off-site ignition sources should be taken into consideration by the fire prevention plan that will be in place at the SERF. With that in mind, we have placed a specific requirement as part of a pre-operational condition to detail how any risks posed by potential off-site sources of ignition, including neighbouring sites, will be mitigated. See PO13.
Concerns over the carbon intensity of incineration when compared to gas fired electricity production	We have not compared emissions of other fuels 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.
Attention was brought to the Environment Agency's comments on the facility's planning application and with specific	These recommendations are for the consideration of the planning authority and complement the measures that have been

reference to Flood Risk Assessment and Ground remediation strategy	assessed as part of this permit determination in terms of operational controls to protect groundwater, baseline groundwater assessment, ongoing groundwater monitoring and flood event mitigation. See sections 4.2.2, 4.3.4, and 6.5.3 for further information.
Concerns about Ground water protection and the sensitive location of the facility. Concerns over the management of leachate from the wastes.	We are satisfied that suitable appropriate groundwater protection measures will be in place at the facility, including the containment of any leachate arising from waste in the bunker Only clean and uncontaminated water is permitted to be discharged to surface water. No discharges to groundwater or sewer are permitted. See sections 4.2.2, 4.3.4, and 6.5.3 for further information.
Concerns about the mobilisation of contamination on site during development works The local geology presents engineering concerns	Development works are controlled through the planning regime whilst environmental permitting ensures the operation of a facility once built does not cause pollution. We have considered the engineering methods regarding containment that will be in place once the facility has been constructed and are satisfied that they are appropriate and will prevent mobilisation of any pollutants. See sections 4.2.2, 4.3.4, and 6.5.3 for further information.
Historical contamination risks have not been adequately assessed	The applicant has submitted a Site Condition Report as part of their application. We have reviewed that report and consider that it adequately describes the condition of the soil prior to the start of operations. They did not submit a groundwater baseline. This information will be secured through PO7. See section 4.2.2 for further information.
Monitoring	
Concerns over how monitoring will be carried out.	See section 6.7.2 for more information. We are satisfied that a suitable monitoring process will be in place
Concern over how monitoring results will be made available. Inadequate real-time emissions data proposals	The Permit requires that monitoring results are reported to the Environment Agency. We will make the reports available on our public register. Real time emissions data will not be available. It is not a requirement of the Industrial Emissions Directive to provide real-time monitoring data. We consider the requirements of IED to be appropriate and robust

Concerns that the operator will rely on manual fire checks rather than automated systems	The operator has proposed various automated approaches for the detection of fires. See section 4.3.4 for more information
Concern over the impact from odour. Concerns that odour controls are not suitable for the waste types to be received Concern that Odour controls are not BAT Request for an odour management plan to be put in place	We are satisfied that the proposed control methods are BAT for the proposed waste types and that there will not be a significant impact from odour, further details are in section 6.5.4 of this decision document. The applicant has submitted an odour management plan. An updated odour management plan will need to be submitted under PO12 based on the final design of the facility.
Concern about fugitive emissions including dust emission to air	We are satisfied that there will not be a significant impact from fugitive emissions including dust, further details are in section 6.5.4 of this decision document.
Concern over emissions to surface water including the associated effects on protected habitats. Request for a surface water management plan to be implemented	The only water emission allowed under the Permit will be clean surface water run off that will be emitted to Darklands Brook. We are satisfied that this will not cause pollution. A sustainable drainage system will be implemented at the installation and wider site which will moderate flows into the receiving watercourse.
Concern over how the Environment Agency will regulate the site. Question over how it will be ensured that permit conditions will be met. Concern that there is no emergency procedure in place for emission breaches	We will regulate the site carrying out a continual assessment of plant operations and its environmental performance. This will include: The operator must monitor emissions and report the results to us in accordance with the permit. 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 immediately 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 will take appropriate enforcement action and/or prosecute.
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 that BAT is not being used including 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.
Comments submitted expressing concern over fire risk. Concerns that Fire prevention controls are not BAT	The Applicant submitted a Fire Prevention Plan. The operator has described the key measures that will be in place in order to prevent fire occurring at the site and how it will be managed if it does (see section 4.3.4). In the absence of final design information, we have set Preoperational condition PO13 which requires the operator to submit an updated FPP based on the final design of the facility. 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.

b) Representations from Community and Other Organisations

Representations were received from Stanton Village Hall of the issues raised, all were the same as those raised by the Local MP / Councillors or were not relevant to the permit determination.

c) Representations from Individual Members of the Public

Over 160 responses were received from individual members of the public. Many of the issues raised were the same as those considered above. Only those issues additional to those already considered are listed below:

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: • The weather data that was used is not local / representative • Concerns over already high local background NOx levels • Not clear how conversion of NO_X to NO_2 was calculated	We audited the Applicant's dispersion modelling. As part of the audit, we checked that the weather data and background levels, including Nox levels, used by the Applicant were appropriate and we are satisfied that they were. We also considered appropriate conversion ratios in our audit. Based on the Applicant's modelling we are satisfied that there will not be a significant impact in air quality. Further information in in section 5.2 of this decision document for further details.
Concern that impacts at all receptors were not considered, including: • Schools • Nurseries • Other residential areas	We are satisfied that there will not be a significant impact from emissions to air when based on the worst impacted receptors that represent the worst-case predictions. We are satisfied there will not be an unacceptable impact at any receptor and that the identified

• New housing developments within a mile of the facility	receptors do not need to be assessed individually. Section 5.2 of this decision document has further details.
Concern over the impacts from: • Oxides of nitrogen • Acid gases • Particulate matter • Metals • Volatile organic compounds	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 5.2.3 (consideration of key pollutants) of this decision document for further details.
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 abatement failure.	The EMS will include a preventative maintenance scheme so that equipment is serviced and replaced before it breaks down. The permit 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 should they occur. If an emission limit is exceeded at other times, then the Permit requires that the plant must stop feeding waste immediately.
Comments about health impacts	
Concern was expressed that there will be an impact on health due to the Installation including: • those with existing health conditions • young people • elderly	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 and the impacts on agricultural land. How will impacts on local farmland be monitored	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. Monitoring of farmland around operating incinerators is not a reliable method of establishing the impact as it does not identify the source of the emissions. We consider it is better to use air dispersion modelling and deposition modelling to predict the impact based on the highest allowed emissions (emission limit values). We have audited the applicant's human

	health risk assessment, and we are satisfied that it is suitable for assessing the impact from the Installation. The Permit requires monitoring to be carried out to ensure that the emission limits values that were used in the modelling are met.
Several reports, papers and articles were cited claiming 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 how human health has been considered can be found in section 5.3 of this decision document.
A UKHSA study showed birth defects for people living 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 on the health risks.
Comments about noise impacts	
Concerns that there will be unacceptable noise pollution from the installation .	We audited the Applicant's noise assessment. Based on the Applicant's modelling we are satisfied that there will not be a significant impact from noise. See section 6.5.5 for further details.
Concern over noise from traffic	Only vehicle movements within the Installation can be considered through environmental permitting. Vehicle movements outside of Installations are not within our remit. The Applicant's noise assessment included on-site vehicle movements, and we are satisfied that there will not be a significant impact.
Comments about odour impacts	
Concern over odour impacts during shutdown	The Applicant described measures in the Application and odour management plan including the use of carbon filters for air extraction. 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.	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 generally 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 that there will not be a significant impact from odour
Odour modelling and monitoring should be carried out	The applicant submitted odour modelling to us as part of their application. However, due to the inherent uncertainties of odour modelling we have not based our decision

	making on this. We instead ensure that suitable, proven mitigation measures will be in place which meet the requirements of the incineration BAT conclusions. Our view is that odour monitoring is not required in this case. We will use Permit condition 3.4.1 to control and regulate odour. Our standard odour condition will allow effective regulation of the site and prevent odour pollution
Comments about impacts at ecological sites / species	
Concern that the site is very close to a Site of Special Scientific Interest	The are no SSSIs within the screening distance of 2km from the installation.
Concern over in-combination impacts at habitat sites.	Air emissions at European habitats sites (River Mease) were below the significance screening thresholds. Therefore, we are satisfied that emissions from the Installation acting in-combination are not likely to have a significant effect. See section 5.4 for further details of this assessment.
Comments about other impacts	
Reference was made to the document ''The Environment Agency's approach to groundwater protection' (February 2018, Version 1.2)' and requests that a precautionary principal should be put in place with regard to groundwater protection	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. We have confidence that there is enough evidence available to us to inform decision making and are satisfied that appropriate measures will be in place to protect groundwater.
Concerns over the containment of firewater and the sensitivity of the groundwater in the locale of the facility. Question over what containment measures will be in place for spillages Concerns over how contaminated firewater may be retained in flood conditions	See sections 4.2.2 and 4.3.4 of this decision document.
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 over emissions to sewer.	There will be no discharge to sewer from the facility.

	Water will be re-used at the site; there will be an occasional tankering of process water off-site for treatment in the event that there is an excess of process water. See section 6.5.2 for further details.
Concerns about flies and pests.	Pests are not usually an issue at incineration plants because the waste is only stored for a short period of time. The waste reception and storage area, and all incoming waste handling activities will be undertaken within a fully enclosed building. The Applicant has set out good housekeeping practices in the Application to prevent and minimise the risk of pests and vermin. Conditions 3.7.1 and 3.7.2 will provide controls.
The waste reception area should be enclosed.	The waste reception hall is enclosed and will be kept under negative pressure to prevent odour escape, with roller doors only opening for vehicle access.
Concern about fugitive emissions including dust emission to air	See section 4.2.2 and 6.5.3 for detail on the measures that will be in place at the facility
Comments about BAT, emission limits and control measures	
Carbon capture should be used or plant should be carbon capture ready.	There is currently no permitting requirement for incineration plants to have carbon capture or be carbon capture ready. This is likely to change, in the near future, following a government consultation on decarbonisation readiness legislation for combustion plants (including energy from waste plants). The applicant has stated that the plant is carbon capture ready. We have not assessed this as it is not a requirement at this time.
Comments about monitoring	
Concern that Operator will 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 normally required because of the following 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.
Ambient air monitors should be placed nearby.	Ambient air monitoring around operating incinerators is not a reliable method of establishing the impact as it does not identify the source of the emissions. We consider it is better to use air dispersion modelling to predict the impact based on the highest allowed emissions (emission limit values). We have audited the modelling and we are satisfied that it is suitable for assessing the impact from the Installation. The Permit requires monitoring to be carried out to ensure that the emission limits values that were used in the modelling are met.
Comments about accident prevention	
Concern over the impact in the event of a major spillage and how this would be managed.	Measures to prevent spillages and any resultant leaks are summarised in section 4.2.2 and 4.3.4 of this decision document. We consider that the risk of a major spillage and resultant leak is low. We are satisfied that the risk of accidents and their consequences will be minimised through the measures detailed in sections 4.2.2 and 4.3.4 of this decision document and the implementation of the EMS that is subject to Pre-operational condition PO1.
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 we expect the Operator to have procedures in place to achieve this. Pre-operational condition PO13 has been set for the Operator to submit a final FPP after the final design has been finalised and this will need to include these procedures.
An accident plan and emergency plan should be in place.	The Applicant provided an outline accident risk assessment in the Application. A full accident management plan will also form part of their EMS that is subject to Pre-operational condition PO1. COMAH legislation covers sites that pose the highest accident risks and these sites would have major accident plans. This Installation

	is not subject to COMAH regulations due to not meeting any of the COMAH thresholds.
Comments about waste types	
The incineration of wastes goes against the waste hierarchy. Some waste types, including plastic waste, could be recycled or recovered.	This is primarily outside the scope of this determination. Recycling initiatives are a matter for the local authority. The Permit restricts wastes that have been separately collected for recycling.
Concern that the wastes will not only be refuse derived fuel (RDF).	There was reference within the main application document that fuel being received at the facility would only be RDF. This was not consistent with the waste code list included in the application. We have assessed all waste codes requested by the applicant and are satisfied that the wastes presented in the draft permit are suitable to be incinerated at the facility. See section 4.3.6 of this document.
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 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. The emission limits detailed in the permit, against which the air quality assessment from the plant has been made, have to be complied with whatever wastes are being incinerated.
Comments about energy efficiency/recovery	
Concern that the plant will not operate as combined heat and power (CHP).	The Applicant assessed the possibility of supplying heat to the local area: The conclusion was that opportunities are not currently viable. Section 4.3.7 of this decision document has further details.
Concern over the amount of energy that will be recovered from the waste.	We are satisfied that as much energy as practicable will be recovered from the waste.

	Further details are in section 4.3.7 of this decision document.
Comments about the Applicant	
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 in line with our guidance will be in place • A management structure which will have responsibility for Permit compliance will be in place • An environmental policy will require that the Installation operates in full compliance with legislative requirements will be in place Additional information in section 4.3 of this decision document
Concern as to whether employees will have sufficient experience/training.	Qualifications, experience and training requirements will all be part of the EMS.
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 that will be as robust as required.
Concern over whether the Environment Agency will investigate complaints. Request for an independent complaints' verifier.	If we receive any complaint, we will assess the complaint and investigate it as appropriate. The Environment Agency are the regulator and have the authority and competency to substantiate complaints.
Question on how incidents will be communicated to residents	The Operator's Environmental Management System will contain details of how they will communicate with residents in the event of an incident.
Comments about other issues	
Concerns about the neighbouring Wilshees site being in breach of current planning.	This is a matter for the planning authority and outside of our remit.
Request for a groundwater monitoring regime to be put in place.	The permit, through condition 3.3.4, requires the operator to carry out periodic monitoring of groundwater. PO7 will ensure that a baseline of groundwater conditions will be in place prior to the facility becoming operational. The measures detailed in sections 4.3.4 and 4.3.1 provide further information on the measures that will be in place to protect groundwater.
Concern over flooding.	The Environment Agency provides advice and guidance to the local planning authority on flood risk in our consultation response to the local planning authority. Our advice on these matters is normally accepted by both Applicant and Planning Authority. 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. See sections 4.2.2 and 4.3.4 on this decision document for further detail.
Concerns over the impacts on nitrate vulnerable zones	The facility is situated in a nitrate vulnerable zone catchment; however, only clean and uncontaminated surface water will be discharged to Darklands Brook. We are satisfied that appropriate controls are in place to ensure that this is the case.
Concern over litter.	Waste will be delivered in enclosed delivery vehicles and tipped into the bunker within the reception building. We are satisfied that impacts from litter are unlikely to occur.
The 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 the impact of light pollution	Pollution from light is primarily a concern for considering visual impacts and as such generally covered by the planning process. In any event light pollution is not likely to have a significant effect on health or the environment.
Concerns over the impacts on the newly opened Coronation Park	We have assessed the impacts of the facility of all appropriate receptors, including all relevant habitats designations and human health receptors.
Claimed that emissions from a comparison incinerators in other countries are lower	Our assessment is against the requirements of the waste incineration BREF and the associated BAT conclusions. We are satisfied that the facility will meet these requirements, that emissions from the incinerator covered by this permit will be BAT and that setting lower limits would not be justified.
Responses received after the consultation had closed	
We received a several responses after the consultation had closed (13/12/2024). We have read all those responses and responded to them as appropriate in this decision document. None of the issues raised affect our decision.	

d) Representations on issues that do not fall within the scope of this permit determination

Brief summary of issues raised:	Environment Agency comment
View expressed that this is not the right location for the Installation.	Decisions over land use 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. Decisions over the need for an incinerator in terms of capacity 'need' are matters for the planning system.
That the Swadlincote incinerator is not needed due to current capacity	Decisions over the need for an incinerator in terms of capacity is not something we can consider as part of Environmental Permitting.
Comments about vehicle access to the installation and traffic movements on local roads.	These are relevant considerations for the grant of planning permission, but do not form part of the Environmental Permit decision making process except where there are established high background concentrations contributing to poor air quality and the increased level of traffic might be significant in these limited circumstances. That is not the case here.
Concern over impact on property prices	Environmental permitting is about assessing the impact of emissions on people and the environment. Emissions would not impact on property prices.
Concerns about tree loss as a result of the construction of the facility	Tree loss coming about during the construction of the facility and any associated mitigation is a material consideration for planning, and it is through the planning process that developers must demonstrate how impacts will be avoided or mitigated
Concerns over the visual impact of the facility	Visual impacts are a material consideration for planning, and it is through the planning process that developers must demonstrate how impacts will be avoided or mitigated.
Request that there is a community liaison group in place	This is not a requirement under our permitting process and is in the operator's remit.
Comment that the biodiversity net gain assessment is trading down	The assessment of the biodiversity net gain assessment is a material consideration for planning, and it is through the planning process that developers must demonstrate how impacts will be avoided or mitigated.