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

Decision document recording our decision-making process

The Permit Number is:	EPR/SP3239FU
The Application reference is:	EPR/SP3239FU/V010 & S011
The Applicant / Operator is:	Enfinium Ferrybridge 1 Limited
The Installation is located at:	Ferrybridge 1, Kirkhaw Lane, Knottingley, West Yorkshire, WF11 8DX

What this document is about

This is a decision document, which accompanies a varied Permit.

It explains how we have considered the Operator's Application, and why we have included the specific conditions in the permit we are issuing to the Operator. 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 Operator's proposals.

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 variation application the reference number EPR/SP3239FU/V010 and the partial surrender application the reference number EPR/SP3239FU/S011. We refer to both applications together as "the **Application**" in this document in order to be consistent.

The Permit number is EPR/LP3132FX. We refer to the variation to the Permit as "the **varied Permit**" in this document.

The Application was duly made on 17/12/2025.

The Operator is Enfinium Ferrybridge 1 Limited. We refer to Enfinium Ferrybridge 1 Limited as "the **Operator**" in this document.

Enfinium Ferrybridge 1 Limited's facility is located at Ferrybridge 1, Kirkhaw Lane, Knottingley, West Yorkshire, WF11 8DX. We refer to this as "the **Installation**" in this document.

The Installation comprises a waste incineration facility with three waste incineration lines that share some of the infrastructure at the Installation. We refer to the two existing waste incineration lines as ''the **Line 1 and Line 2**'' and to the proposed new waste incineration line as ''the **Line 3**'' in this document.

The variation and partial surrender

The Operator applied to vary the Permit as follows:

- Partially surrender a small area of unused land.
- Authorise the operation of Line 3, where Line 3 is a standalone waste incineration line with a nominal design capacity of 32.7 tonnes per hour and has its own dedicated flue gas treatment and energy generation systems. Line 3 will share the waste bunker and will incinerate the same wastes as the existing Line 1 and Line 2.
- Change the site plan to reflect the removal of unused land and addition of land associated with operation of Line 3.

During determination a separate variation, EPR/SP3239FU/V012, was issued. The permit and permit schedules were updated prior to issue so that this determination was made against the latest version of the permit.

How this document is structured

Contents

Glossary of acronyms used in this document 4
Links to guidance documents 7
1 Our decision....8
2 How we reached our decision....8
3 The legal framework 10
4 The Installation 10
4.1 Description of the Installation and related issues....10
4.2 The site and its protection....12
4.3 Operation of the Installation – general issues....14
5 Minimising the Installation's environmental impact 21
5.1 Assessment Methodology....21
5.2 Assessment of Impact on Air Quality....23
5.3 Human health risk assessment....34
5.4 Nature conservation, landscape, heritage and protected species and habitat designations 42
5.5 Impact of abnormal operations 48
6 Application of Best Available Techniques 51
6.1 Scope of Consideration 51
6.2 BAT and emissions control 57
6.3 BAT and global warming potential 68
6.4 BAT and POPs 69
6.5 Other Emissions to the Environment 72
6.6 Setting ELVs and other Permit conditions 74
6.7 Monitoring....76
6.8 Reporting....77
7 Other legal requirements 78
7.1 The EPR 2016 and related Directives 78
7.2 National primary legislation....80
7.3 National secondary legislation 85
7.4 Other relevant legal requirements 86
Annexes....87
Annex 1A: Application of chapter IV of the Industrial Emissions Directive .87
Annex 1B: Compliance with Bat Conclusions....92
Annex 2: Pre-Operational Conditions 96
Annex 3: Improvement Conditions....98
Annex 4: Consultation Reponses 101

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
APCr	Air Pollution Control residues
AQA	Air Quality Assessment
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
CW	Clinical waste
CWI	Clinical waste incinerator
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EAL	Environmental assessment level
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)
HW	Hazardous waste
HWI	Hazardous waste incinerator
IBA	Incinerator Bottom Ash
IED	Industrial Emissions Directive (2010/75/EU)
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)
LNR	Local Nature Reserve
LOI	Loss on Ignition
LWS	Local Wildlife Site
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
PAC	Powder Activated Carbon
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
SCR	Selective catalytic reduction
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 decision

We have decided to issue the varied Permit to the Operator. This will allow it to continue operate the Installation, subject to the conditions in the varied 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 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 decision

2.1 Receipt of Application

The Application was duly made on 17/12/2025. This means we considered it was in the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we would need to complete that determination: see section 2.3 below.

The Operator 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, and our statutory Public Participation Statement (PPS).

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. The advertising period ran between 17/02/2026 and 02/04/2026.

We made a copy of the Application and all other documents relevant to our determination available to view on our Citizen Space web-based consultation portal. We also made them available on our public register, so anyone wishing to see these documents could do so and arrange for copies to be made.

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

- Wakefield Environmental Protection Department
- Wakefield Planning Department
- Food Standards Agency
- The Health and Safety Executive
- UK Health Security Agency and director of public health
- Sewerage Authorities – Yorkshire Water

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.

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 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 12/02/2026, 29/04/2026 and 22/07/2026. A copy of each information notice was placed on our public register.

In addition to our information notices, we received additional information during the determination from the operator on 12/08/2026, 10/09/2026 & 18/09/2026 as a follow up to the 22/07/2026 information notice response. We made a copy

of this information available to the public in the same way as the responses to our information notices.

3 The legal framework

The surrendered in part and varied Permit will be granted, under Regulation 20 and 25 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;
- 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, in granting the varied 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 or waste co-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, including storage and preparation of treatment chemicals e.g. lime slaking, 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 back up 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

As part of the Application the site boundary of the Installation has been revised to remove small area of unused land and to add land that will be used for operation of Line 3.

The Operator submitted a revised plan which we consider is satisfactory, showing the revised 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

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 never the less 'incineration' because it is considered that its main purpose is the thermal treatment of waste.

The purpose of the variation is to permit operation of a third waste incineration line at the Installation.

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

Waste throughput, Tonnes	1,011,452/annum	124/hour
Waste processed	MSW, RDF	
Number of lines	3	

Furnace technology	Grate	
Auxiliary Fuel	Gas Oil	
Acid gas abatement	Dry	Lime
NOx abatement	SNCR	Ammonia
Reagent consumption	Auxiliary Fuel: Ammonia solution: Lime: Activated carbon: Mains water: Borehole water:	2,454 m^3/year 4,179 t/year 14,639 t/year 294 t/year 163,481 m^3/year 61,268 m^3/year
Flue gas recirculation	Yes	
Dioxin abatement	Activated carbon	
Stacks A1 & A2 (Line 1 & Line 2)	Grid Reference: SE 47240 24987	
	Height, 100 m	Diameter, 2.2 m
Stack A5 (Line3)	Grid Reference: SE 47244 24989	
	Height, 100 m	Diameter, 2.1 m
Flue gas Stacks A1 & A2 (Line 1 & Line 2)	Flow, 85.6 Nm^3/s	Velocity, 29.1 m/s
	Temperature 136°C	
Flue gas Stack A5 (Line3)	Flow, 64.4 Nm^3/s	Velocity, 25.0 m/s
	Temperature 136°C	
Electricity generated	110.9 MWe	909,380 MWh
Electricity exported	100.1 MWe	820,820 MWh
Steam conditions	Temperature, 430°C	Pressure, 72 bar(a)

4.1.4 Key Issues in the Determination

The key issues arising during determination of the Application were emissions to air and their potential impact on nearby habitat sites 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

As part of this Application to permit operation of Line 3, the site boundary of the Installation has been extended to include additional land to the east of the existing site and a small area of unused land has been removed from the permit.

There are no historical pollution incidents associated with the land within the Installation boundary. There are no records of sites determined as

‘contaminated land’ within 500m of the land within the Installation boundary. There was a reported pollution incident in 2003 approximately 400m from the Installation. This was associated with contaminated water from fire-fighting and pre-dates construction of the facility.

4.2.2 Proposed site design: potentially polluting substances and prevention measures

The activities undertaken at the Installation will utilise a number of fuels and treatment chemicals: Fuel oil (<0.1% sulphur); Ammonia solution; Dry Lime; Activated carbon; Water treatment chemicals. These materials will be stored in accordance with current guidance.

Various maintenance materials: oils, greases, insulants, antifreezes, welding and firefighting gases etc., will be stored in an appropriate manner. Any gas bottles on-site are kept secure in a dedicated storage area.

All waste unloading and storage arrangements will be undertaken on areas of impermeable hardstanding. Waste storage facilities are designed as water-retaining structures to prevent leaks to underlying ground and groundwater. Any spillages will be cleaned up, and the storage facilities will undergo regular preventive maintenance.

Fuel oil tanks will undergo periodic inspections as part of the preventative maintenance. Refuelling will be undertaken on areas of hardstanding with contained drainage and tanks will be fitted with overfill protection.

Unloading operations of ammonia solution will be undertaken on areas of hardstanding with contained drainage. Ammonia solution will be storage in a bunded area or area with sump. Site drainage will be able to be isolated in a spill event.

Any spillages of lime and activated carbon can be easily swept up. Storage silos will be located above concrete hardstanding and fitted with high-level alarms for unloading operations. Drainage in these areas will be contained.

Any leaks during loading/ unloading operations of the APCr will be contained by concrete hardstanding, with measures to prevent overfilling in place. APCr storage and unloading will be in areas with contained drainage.

IBA is non-hazardous waste. Prior to transfer IBA is stored within an IBA bunker. Transfer of IBA to road haulage vehicles is undertaken within an enclosed IBA area with hardstanding.

Various flue gas treatment techniques will be used at Line 3. NOx levels will primarily be managed by careful control of the combustion air and Selective non-catalytic reduction (SNCR) will also be employed as secondary abatement to further reduce NOx levels. Acid gases produced during the combustion process will be reduced through a dry sorbent injection system within a reactor vessel. In addition to lime injection, Powder Activated Carbon (PAC) will be

injected into the reactor vessel, to reduce emissions of dioxins, mercury (volatile metals) and other heavy metals. After the flue gas has passed through the reactor vessel, a fabric bag filter will provide filtration of particulates (including the lime and PAC reagents, which will remain on the inside of the bag filter as a 'cake') prior to release of the flue gas from the stack.

We consider that the proposed pollution prevention measures at the Installation are sufficient for the prevention of pollution to ground and ground water.

Under Article 22(2) of the IED the Operator 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 Operator 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 and groundwater prior to the start of operations of Line 3.

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

No change from the existing arrangements. Operation, closure and decommissioning of Line 3 will be incorporated in the existing EMS.

4.3 Operation of the Installation – general issues

4.3.1 Administrative issues

The Operator is the sole Operator of the Installation.

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

4.3.2 Management

The Operator has stated that the documented management systems for Line 1 and 2 will be extended to incorporate the operation of Line 3 and that the management team responsible for the operation of Line 1 and 2 will also be responsible for the operation of Line 3.

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

No change with this application.

4.3.5 Off-site conditions

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

4.3.6 Operating techniques

In addition to the existing operating techniques, we have specified that the Operator must operate the Installation in accordance with the following documents contained in the EPR/SP3239FU/V010 Application:

Description	Parts Included	Justification
Variation application EPR/SP3239FU/V010	Operating techniques described in response to question 3a of application form C3	These documents contain key operating techniques that will ensure environmental risk from operation of Line 3 is managed on site.
Response to information notices dated 29/04/2026 and 22/07/2026	Responses to questions 1, 2 and 4 in clarification emails dated 29/04/2026; and responses to questions 1 and 4 in clarification emails dated 22/07/2026	These documents provide clarification on the Installation's abatement systems, raw materials, Line 3 operating hours, and annual waste throughput.

The details set out above describe the techniques that will be used for the operation of the Line 3 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 retained the following limits and controls on the use of raw materials and fuels:

Raw Material or Fuel	Specifications	Justification
Fuel 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. This Application does not make any changes to the existing list of permitted wastes.

We have limited the capacity of the Installation to 1,011,452 tonnes per annum. This is based on existing permitted capacity for Line 1 and Line 2 plus Line 3 operating continuously (8,760 hours) at a nominal capacity of 32.7 tonnes per hour.

Line 3 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 extent to which the Installation meets the requirement of Article 14 (5) of the Energy Efficiency Directive which requires substantially refurbished 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:

- Heat will be recovered from the flue gases by means of steam boiler integral with the furnace;
- The boiler will be equipped with economisers and superheaters to optimise thermal cycle efficiency without prejudicing boiler tube life, having regard for the nature of the waste that is combusted;
- High steam conditions (approximately 430°C and approximately 72 bar(a), subject to detailed design), will be utilised to increase electricity conversion efficiency;
- Line 3 has been designed as a combined heat and power plant and will have the capacity to provide heat to local users. Subject to commercial agreements with heat users, a scheme for the export of heat will be implemented.

The Application states that the specific energy consumption, a measure of total energy consumed per unit of waste processed, will be 120 kWh/tonne. The installation capacity is 1,011,452 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 Sankey diagram in section 3.8.2 of the Supporting Information document of the Application shows 30.9 MW of electricity produced by Line 3 for an annual burn of 268,210 tonnes, which represents 11.5 MW per 100,000 tonnes/yr of waste burned (0.94 MWh/tonne of waste). Line 3 is therefore above the indicative BAT range.

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

The gross electrical efficiency was calculated as 31.25%.

The BAT AEEL for gross electrical efficiency is 25-35.

The value calculated by the Operator is towards the upper end of the range.

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 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 Operator carried out a feasibility study 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) 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 Operator's assessment showed a net present value of -42.79 which demonstrates that operating as a high-efficiency cogeneration installation will not be financially viable. We agree with the Operator's assessment and will not require the installation to operate as a high-efficiency cogeneration installation.

(v) Permit conditions concerning energy efficiency

Conditions 1.2.2 and 1.2.3 that were already included in the Permit, 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 MSW burned per year, this will enable us to monitor energy recovery efficiency at the Installation and take action if at any stage the energy recovery efficiency is less than proposed.

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

4.3.8 Efficient use of raw materials

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

The Operator is required to report with respect to raw material usage under condition 4.2. and Schedule 4, including consumption of lime, activated carbon and ammonia used per tonne of waste burned. This will enable the Environment Agency to assess whether there have been any changes in the efficiency of the air pollution control plant, and the operation of the SNCR to abate NO_x. These

are the most significant raw materials that will be used at the Installation, other than the waste feed itself (addressed elsewhere). The efficiency of the use of auxiliary fuel will be 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 residues (APCr) 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 total organic carbon (TOC) of <3% 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.

APCr 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 APCr is minimised through optimising the performance of the air emissions abatement plant.

IBA sampling protocol has been developed for Line 1 and Line 2 and will also apply to IBA produced by Line 3. Table S3.4 requires the Operator to carry out an ongoing programme of IBA monitoring.

The Application states that some ferrous metal fractions will be recovered from the bottom ash by the use of a magnetic separator and sent for recycling. The Application also proposes that, where possible, bottom ash will be transported to a suitable treatment facility, from where it could be re-used in the construction industry as an aggregate.

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 Operator 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 Operator's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

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

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the Operator'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 Operator to go beyond what would normally be considered BAT for the Installation or we may refuse the application if the Operator is unable to provide suitable proposals. Whether or not exceedances are considered likely, the application is subject to the requirement to operate in accordance with BAT.

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

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

5.2 Assessment of Impact on Air Quality

The Operator's assessment of the impact of air quality is set out in Appendix D: Air Quality Dispersion Modelling Assessment of the Application. The assessment comprises:

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

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

The Operator 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 Bramham meteorological recording station between 2018 and 2022. Bramham is approximately 17 km to the north of the Installation and is the closest and most representative meteorological station available. 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 Operator established the background air quality against which to measure the potential impact of Line 3. A variety of sources has been used, including Wakefield Council 2024 annual status report, air quality networks spread across the UK and Defra background maps for the pollutants assessed. The Operator also included PCs from the adjacent Ferrybridge 2 Energy from Waste Facility in their background concentrations. The Air Pollution Information System (APIS) website has been used to establish baseline concentrations and deposition fluxes, critical levels and critical loads for the protected conservation designations assessed.

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

The Operator'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 Operator'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 Operator's assessment leads us to agree with the Operator's conclusions for nature conservation sites, apart from for nitrogen deposition at Fairburn and Newton Ings SSSI. Our checks confirm the nitrogen deposition PCs are not insignificant at Fairburn and Newton Ings SSSI relative to the most sensitive habitat feature with a critical load of 10 kgN/ha/yr, where the background exceeds the critical load. Potential impact from the proposed changes on the Fairburn and Newton Ings SSSI are considered further in section 5.4.3 of this decision document.

We have also audited the air quality and human health impact assessment and agree that the conclusions drawn in the reports were acceptable.

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

5.2.1 Assessment of Air Dispersion Modelling Outputs

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

The Operator's modelling predicted peak ground level exposure to pollutants in ambient air and at discreet receptors. The tables below show their predicted ground level concentrations at the most impacted receptor.

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

Whilst we have used the Operator'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.

Pollutant	**ES**		**Back-ground**	**Process Contribution (PC)**		**Predicted Environmental Concentration (PEC)**	
	µg/m³	**Reference period**	**µg/m³**	**µg/m³**	**% of EAL**	**µg/m³**	**% of EAL**
NO_2	40	Annual mean	15.01	0.61	**1.53**	15.62	39.06
	200	99.79th %ile of 1 hour means	30.02	25.24	**12.62**	55.26	27.63
PM_{10}	40	Annual mean	17.12	0.03	0.07	17.15	42.88
	50	90.41st %ile of 24 hour means	34.25	0.11	0.22	34.36	68.71
$PM_{2.5}$	20	Annual mean	7.84	0.03	0.15	7.87	39.35
SO_2	266	99.9th %ile of 15-min means	5.87	40.43	**15.20**	46.29	17.40
	350	99.73rd %ile of 1 hour means	5.87	35.58	**10.17**	41.45	11.84
	125	99.18th %ile of 24 hour means	5.87	3.05	2.44	8.92	7.13
HCl	750	1-hour mean	1.57	15.99	2.13	17.55	2.34
HF	16	Monthly mean	2.35	0.01	0.06	2.36	14.74

	160	1 hour mean	4.71	0.27	0.17	4.97	3.11
CO	10000	Maximum daily running 8 hour mean	460.3	24.4	0.24	484.71	4.85
	30000	1 hour mean	460.3	39.96	0.13	500.25	1.67
TOC*	5	Annual mean	0.48	0.06	**1.11**	0.53	10.68
	30	24 Hour mean (Short Term)	0.96	1.08	3.61	2.04	6.80
PAH**	0.00025	Annual mean	0.0001906	0.00000111	0.44	0.0001918	76.67
NH_3	180	Annual mean	1.94	0.08	0.04	2.02	1.12
	2500	1 hour mean	3.89	3.63	0.15	7.52	0.3
PCBs	0.2	Annual mean	0.00014	0.00003	0.0015	0.00017	0.09
	6	1 hour mean	0.00029	0.00133	0.02	0.00162	0.03

*TOC as benzene for long term and short term
**PAH as benzo[a]pyrene

Pollutant	**ES**		**Back-ground**	**Process Contribution**		**Predicted Environmental Concentration**	
	ng/m³	**Reference period**	**ng/m³**	**ng/m³**	**% of EAL**	**ng/m³**	**% of EAL**
Cd	5	Annual mean	0.48	0.11	**2.22**	0.59	11.76
	30	24 hour mean (short term)	0.95	2.16	7.21	3.12	10.4
Hg	600	1 hour mean	5.71	5.33	0.89	11.04	1.84

	60	24 hour mean (long term)	5.71	2.16	**3.61**	7.88	13.13
Sb	5000	Annual mean	1.33	1.66	0.03	3.00	0.06
	150000	1 hour mean	2.67	79.92	0.05	82.59	0.06
Pb	250	Annual mean	15.14	1.66	0.67	16.81	6.72
Cu	50	24 hour mean (long term)	18.08	1.66	**3.32**	19.74	39.48
Mn	150	Annual mean	10.17	1.66	**1.11**	11.83	7.89
	1500000	1 hour mean	20.34	79.92	0.01	100.27	0.01
V	1000	24 hr average (short term)	6.03	32.47	3.25	38.50	3.85
As	6	Annual mean	1.07	1.66	**27.72**	2.73	45.57
Cr (II)(III)	2000	24 hour mean (long term)	5.06	1.66	0.08	6.72	0.34
Cr (VI)	0.25	Annual mean	1.01	1.66	**665.3**	2.68	**1070.3**
Ni	20	Annual mean	3.13	1.66	**8.32**	4.79	23.95
	700	1 hour mean	6.26	79.92	**11.42**	86.18	12.31

(i) Screening out emissions which are insignificant

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

- PM_{10}
- $PM_{2.5}$
- HCl
- HF
- CO
- PAH

- NH_3
- PCBs
- Sb, Pb, V, Cr (II)(III)

Therefore, we consider the Operator'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 (as benzene)
- Cd, Hg, Cu, Mn, As, Ni

For these emissions, we have carefully scrutinised the Operator'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

From the tables above the following emissions are considered to have the potential to give rise to significant pollution in that the Predicted Environmental Concentration exceeds 100% of the long term or short term ES.

- Cr (VI)

In any case, with respect to these pollutants, we have carefully scrutinised the Operator's proposals to ensure that they are applying the Best Available Techniques to prevent and minimise emissions of these substances. This is reported in section 6 of this document.

We have also carefully considered whether additional measures are required above what would normally be considered BAT in order to prevent significant pollution. Consideration of additional measures to address the pollution risk from these substances is set out in section 5.2.4.

5.2.2 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 model assumes a 70% NO_X to NO_2 conversion for the long term and 35% for the short term assessment in line with Environment Agency guidance on the use of air dispersion modelling.

The above tables show that the maximum long term PC is greater than 1% of the ES and therefore cannot be screened out as insignificant. However, from the table above, the emission is not expected to result in the ES being exceeded. The maximum short term PC is 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 Operator'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 Operator's particulate matter impact assessment and are satisfied in the robustness of the Operator'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 Operator'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 (IC6) has been included that will require a full analysis of particle size distribution in the flue gas from Line 3, 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 tables above, emissions of HCl and HF can be screened out as insignificant in that the process contribution is <10% of the short term ES. The ES for HCl is 750 $\mu g/m^3$, 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 Operator's modelling shows that the installation is unlikely to result in a breach of the ES. The Operator 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, 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 Operator's proposals for preventing and minimising the emissions of CO 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 ES and therefore cannot be screened out as insignificant. However, the emission is not expected to result in the ES being exceeded.

The maximum short term PC for VOC emissions is less than 10% of the ES and so can be screened out as insignificant.

The Operator has used the ES for benzene for their assessment of the impact of VOC. Our guidance: ''Air emissions risk assessment for your environmental permit'' advises applicants to treat VOCs that cannot be identified as 100%

benzene in the risk assessment. However, 1,3-butadiene has the lowest ES (other than PAH, PCBs, dioxins and furans) so we have checked the modelling against the ES for 1,3 butadiene, and, using 1,3 butadiene as the ES does not affect the conclusions.

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 Operator'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 Operator 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

The ammonia emission from Line 3 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.

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

(V) Summary

For the above emissions to air, for those emissions that have not screened out as insignificant, we have carefully scrutinised the Operator'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 Operator's proposals for preventing and minimising emissions to be BAT for the Installation. Dioxins and furans are considered further in section 5.3.2.

5.2.3 Assessment of Emission of Metals

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

There are three sets of BAT AELs for metal emissions from Line 3:

- An emission limit value of 0.02 mg/m^3 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:

- Antimony
- Lead
- Vanadium
- Chromium (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:

- Cadmium
- Mercury
- Copper
- Manganese
- Arsenic
- Nickel

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

Where the BREF sets an aggregate limit, the Operator'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 Chromium (VI) the Operator used representative emissions data from other municipal waste incinerators using our guidance note "Guidance to Operators 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:

- Chromium (VI)

Improvement condition IC10 has been set for this to be confirmed with monitoring data.

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

5.2.4 Consideration of Local Factors

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

Wakefield Metropolitan District Council has declared four AQMAs with respect to annual mean nitrogen dioxide. These are located as follows:

- A1 AQMA No. 546 (NO_2, annual mean) approximately 1.9 km south of the EfW Facility.
- Knottingley AQMA No. 552 (NO_2, annual mean) approximately 2 km south-west of the EfW Facility.
- Pontefract AQMA No. 551 (NO_2, annual mean) approximately 3.2 km south-east of the EfW Facility.
- Castleford AQMA No. 5549 (NO_2, annual mean) approximately 3.4 km east of the EfW Facility.

From the Operators model, the process contribution at all points within each of the AQMAs is predicted to be below 1% of the ES and can be considered insignificant. All four AQMAs are compliant with the AQAL and contributions from the Installation are negligible.

The Operator is required to prevent, minimise and control emissions using the best available techniques; this is considered further in Section 6.

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 Operator'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 predicted maximum contribution as presented in the below table is 1.96% of the TDI for an adult, and 2.77% of the TDI for a child, both modelled at agricultural maximum point of impact. Since their predictions are below the TDI the Operator concluded: ''The impact of emissions of dioxins and dioxin-like PCBs from the Facility on human health is predicted to be not significant.'' We have interrogated the Operator's assessment and agree with their conclusion.

Receptor	Adult (pg I-TEQ kg-BW^{-1}d^{-1})	Adult (%age TDI)	Child (pg I-TEQ kg-BW^{-1}d^{-1})	Child (%age TDI)
Point of maximum impact - agricultural	0.039	1.96%	0.055	2.77%

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)

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 $PM_{2.5}$ levels. The 2016 data also shows that road traffic contributed to 5.35% of PM_{10} and 4.96% of $PM_{2.5}$ and that domestic wood burning contributed 22.4% to PM_{10} and 34.3% of $PM_{2.5}$ levels.

This is consistent with the assessment of this Application which shows emissions of PM_{10} to air to be insignificant.
A 2016 paper by Jones and Harrison concluded that 'ultrafine particles (<100nm) in flue gases from incinerators are broadly similar to those in urban air and that after dispersion with ambient air ultrafine particle concentrations are typically indistinguishable from those that would occur in the absence of the incinerator.

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

5.3.4 Assessment of Health Effects from the Installation

Our assessment of health impacts is summarised below

i. We have applied the relevant requirements of the Environmental legislation in imposing the permit conditions. We are satisfied that compliance with these conditions will ensure protection of the environment and human health.

ii. In carrying out air dispersion modelling as part of the environmental impact assessment and comparing the PC and PEC with the ES, the Operator has effectively made a health risk assessment for many pollutants. The ES have been developed primarily to protect human health. The Operator's assessment of the impact from PM_{10}, $PM_{2.5}$, HCl, HF, CO, PAH, NH_3, PCBs, Sb, Pb, V and Cr (II)(III) have all indicated that the Installation emissions screen out as insignificant; where the impact of emissions of NO_2, SO_2, TOC (as benzene), Cd, Hg, Cu, Mn, As, and Ni have not been screened out as insignificant, the assessment still shows that the PEC are well within the ES. Following step 2 of the guidance ''Waste incinerators: guidance on impact assessment for group 3 metals'', annual Cr (VI) emissions show insignificant PC and therefore can be screened out.

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 Operator to carry out the health impact assessment.

As a result of our checks and sensitivity analysis, we found that although we do not necessarily agree with the Operator's exact numerical predictions, we agree with the Operator's conclusions.

Regarding human health receptors, our checks indicate that PCs are either below 1% and 10% of the ES or PECs are below the ES for both normal and abnormal operations. Regarding the HHRA, our checks indicate that dioxin, furan and dioxin-like PCB intakes are below 10% of the COT TDI and are unlikely to result in risk to health, including abnormal operations. This criterion is based on the UKHSA advice:

- If total exposure, including the PC results in an exceedance of the COT TDI, as long as the PC from the facility is less than 10% it would be unlikely to result in a significant risk.
- 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.

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 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 and the Local Authority Director of Public Health to the consultation on this Application can be found in Annex 4.

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

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

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

5.4.1 Sites Considered

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

Although there are no Sites of Special Scientific Interest (SSSI) within 2 km of the proposed Installation, the Operator has assessed the impacts on the following SSSI, which is located approximately 2.2 km from the facility:

- Fairburn and Newton Ings SSSI

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

- Well Wood Local Nature Reserve (LNR) & Local Wildlife Site (LWS)
- Orchard Head LWS
- Fryston Park LWS
- Former Fryston Colliery LWS
- Bank River Aire LWS
- Byram Park LWS

The are no protected species and habitat designations within 10 km of the Installation.

The are no landscape and heritage designations within 10 km of the Installation.

5.4.2 SSSI Assessment

The Operator's assessment of SSSIs was reviewed by our technical specialists for air dispersion modelling and specialists for habitats and conservation, who agreed with the assessment's conclusions, that the proposal does not damage the special features of the SSSI. The Operator applied overly conservative environmental standard for ammonia, we have assessed the impacts from ammonia based on the more appropriate standard. Predicted impacts on the Fairburn and Newton Ings SSSI are as follows:

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.26	0.86	-	-

NO_x Daily Mean	75	29.3	6.86	9.14	-	-
SO_2	10	2.82	0.061	0.61	-	-
Ammonia	3	1.9	0.022	0.73	-	-
HF Weekly Mean	0.5	2.7	0.016	3.25	-	-
HF Daily Mean	5	2.7	0.043	0.87	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	26.6	0.224	**1.50-2.24**	26.82	**178.8-268.2%**
Acidification (Keq/ha/yr)	1.659	1.9	0.043	**2.59**	1.92	**130.4%**

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

The SSSI is outside the standard 2 km screening distance however it has been determined that air emissions from the proposal may still be sufficient to impact at the site and therefore modelling has been conducted to predict the likelihood and severity of that impact.

The Operator modelled emissions of NO_x (annual and daily), NH_3, HF, and SO_2. Results for all these pollutants screened out as insignificant in line with the methodology outlined in the published guidance.

Nitrogen deposition and acid deposition were also modelled. Predicted results for nitrogen deposition were >1% the critical load (CLo) and PECs were then found to be over 100% of the applicable CLo for two of the three habitats found in the SSSI. Acid deposition results were also >1% CLo and the PEC was found to be >100% CLo for one of the two applicable habitats.

A PEC exceeding the CLo does not necessarily equate to damage to the SSSI features however, therefore further investigation is required to determine if the proposal is likely to lead to such an impact.

It is first noted that air pollution is not listed as a pressure on the SSSI and, the unfavourable – recovering condition status for the site units is due to scrub/invasive species encroachment, which is unlikely to be exacerbated by air emissions from the proposal. It is also noted that Environment Agency data does not identify any lichen or bryophyte species in the SSSI.

Lines 1 and 2 at the Ferrybridge 1 installation are not new, they already contribute to the background load. The Operator's Air Quality Assessment (AQA) provided modelling outputs for the existing facility and the predicted changes in emissions due to the addition of Line 3. As shown in the AQA, for acid deposition there is a negligible increase of 0.02% in the acid deposition emissions. This change is small enough to be considered insignificant. Emissions from the facility remain above the 1% threshold for acid deposition however this is only for the woodland habitat. This habitat is not a notified feature of the SSSI and is therefore considered in the role of supporting habitat for bird species. All bird features of the SSSI are in a favourable status (where a status is assigned) and so it can be assumed current emissions are not causing damage to the features or the habitats upon which they depend.

Therefore, the predicted change in acid deposition is low enough to safely conclude it would not lead to any impacts.

Regarding nutrient deposition, there is a small reduction of -0.01% to -0.02% in the emissions from the proposal, however emissions are still above 100% CLo for two of the three habitats. For low and medium altitude hay meadows, only the lower CLo is exceeded. The minor reduction in nutrient deposition is likely due to changes in the plume dispersal resulting from the addition of Line 3. The SSSI previously had issues arising from nutrient-rich floodwater input to the wetland habitats, however the most recent surveys of the site by NE (2024) do not list any concerns over nutrient loads. Direct atmospheric deposition into aquatic environments is considered insignificant and so emissions from the proposal are not expected to contribute to these issues.
As air emissions are not listed as a pressure for the SSSI, and current emissions do not appear to be having any impacts on the site or its features, it can be concluded that the addition of Line 3 and the resulting changes to emissions are unlikely to cause damage to the SSSI.

5.4.3 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 Operator is using BAT to control emissions.

Well Wood LNR & LWS

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.26	0.86	-	-
NO_x Daily Mean	75	29.3	5.63	7.50	-	-
SO_2	10	2.82	0.061	0.61	-	-
Ammonia	3	1.9	0.022	0.73	-	-
HF Weekly Mean	0.5	2.7	0.012	2.33	-	-
HF Daily Mean	5	2.7	0.036	0.71	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	25.8	0.23	1.50-2.25	-	-
Acidification (Keq/ha/yr)	4.86	1.8	0.022	0.46	-	-

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

Orchard Head LWS

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.14	0.47	-	-
NO_x Daily Mean	75	29.3	4.23	5.64	-	-
SO_2	10	2.82	0.033	0.33	-	-
Ammonia	1	1.9	0.012	1.21	-	-
HF Weekly Mean	0.5	2.7	0.009	1.85	-	-
HF Daily Mean	5	2.7	0.027	0.53	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	26.0	0.12	0.82-1.23	-	-
Acidification (Keq/ha/yr)	4.86	1	0.13	0.25	-	-

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

Fryston Park LWS

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.29	0.95	-	-
NO_x Daily Mean	75	29.3	8.91	11.88	-	-
SO_2	10	2.82	0.067	0.067	-	-
Ammonia	1	1.9	0.025	2.47	-	-
HF Weekly Mean	0.5	2.7	0.017	3.37	-	-
HF Daily Mean	5	2.7	0.056	1.13	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	26.1	0.25	1.66-2.50	-	-
Acidification (Keq/ha/yr)	4.86	1	0.025	0.51	-	-

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

Former Fryston Colliery LWS

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.27	0.91	-	-
NO_x Daily Mean	75	29.3	6.32	8.42	-	-
SO_2	10	2.82	0.064	0.64	-	-
Ammonia	1	1.9	0.023	2.34	-	-
HF Weekly Mean	0.5	2.7	0.015	2.99	-	-
HF Daily Mean	5	2.7	0.040	0.80	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	26.5	0.24	1.58-2.37	-	-
Acidification (Keq/ha/yr)	1.66	1.9	0.045	2.73	-	-

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

Bank River Aire LWS

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.32	1.08	-	-
NO_x Daily Mean	75	29.3	0.076	0.76	-	-
SO_2	10	2.82	7.31	9.75	-	-
Ammonia	1	1.9	0.028	2.8	-	-
HF Weekly Mean	0.5	2.7	0.015	3.03	-	-
HF Daily Mean	5	2.7	0.046	0.92	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	26.5	0.28	1.89-2.83	-	-
Acidification (Keq/ha/yr)	2.88	1.9	0.054	1.88	-	-

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

Byram Park LWS

Pollutant	ES / EAL (µg/m³)	Back-ground (µg/m³)	Process Contribution (PC) (µg/m³)	PC as % of ES	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % ES
Direct Impacts*						
NO_x Annual	30	14.65	0.36	1.2	-	-
NO_x Daily Mean	75	29.3	4.72	6.29	-	-
SO_2	10	2.82	0.085	0.85	-	-
Ammonia	1	1.9	0.31	3.1	-	-
HF Weekly Mean	0.5	2.7	0.011	2.17	-	-
HF Daily Mean	5	2.7	0.005	0.10	-	-
Deposition Impacts*						
N Deposition (kg N/ha/yr)	10-15	26.5	0.31	2.09-3.14	-	-
Acidification (Keq/ha/yr)	10.86	1.9	0.06	0.55	-	-

* Direct impact units are µg/m³ and deposition impact units are kg N/ha/yr or Keq/ha/yr.

The tables above show that the PCs are below the critical levels or loads. We are satisfied that the Installation will not cause significant pollution at any of the other conservation sites. The Operator 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 100x normal
- Mercury emissions are 30 times those of normal operation
- NO_x emissions of 500 mg/m^3 (1.25x normal)
- Particulate emissions of 150 mg/m^3 (5x normal)
- Metal emissions other than mercury are 30 times those of normal operation
- SO_2 emissions of 450 mg/m^3 (2.25x normal)
- HCl emissions of 900 mg/m^3 (15x normal)
- HF emissions of 20 mg/m^3 (20x normal)
- PCBs 0.6 mg/m^3 (100x 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 Operator's short-term environmental impact is summarised in the table below.

Pollutant	**ES**		**Back-ground**	**Process Contribution (PC)**		**Predicted Environmental Concentration (PEC)**	
	µg/m³		**µg/m³**	**µg/m³**	**% of EAL**	**µg/m³**	**% of EAL**
NO_2	200	99.79th %ile of 1 hour means	30.02	31.55	15.78	61.57	30.8
PM_{10}	50	90.41st %ile of 24 hour means	34.25	0.63	1.27	34.88	69.8
SO_2	266	99.9th ile of 15-min means	5.87	90.96	34.20	96.83	36.4
	350	99.73rd %ile of 1 hour means	5.87	80.06	22.87	85.93	24.6
	125	99.18th %ile of 24 hour means	5.87	8.68	6.94	14.55	11.6
HCl	750	1 hour mean	1.57	239.79	31.97	241.36	32.2
HF	160	1 hour mean	4.71	5.33	3.33	10.04	6.3
PCBs	6	1 hour mean	0.00029	0.13321	2.22	0.1335	2.2

Pollutant	ES		Back-ground	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
	ng/m³		ng/m³	ng/m³	% of EAL	ng/m³	% of EAL
Hg	600	1 hour mean	5.71	159.85	26.64	165.56	27.59
Sb	150000	1 hour mean	2.67	91.91	0.06	94.58	0.063
Cd	30	24 hour mean (short term)	0.95	6.31	21.04	7.26	24.20
Mn	1500000	1 hour mean	20.34	479.54	0.03	499.88	0.03
V	1000	24 hour mean (short term)	6.03	3.79	0.38	9.82	0.98
Ni	700	1 hour mean	6.26	423.59	60.51	429.85	61.41

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

- PM_{10}
- HF
- PCBs
- Sb, Mn, V

Also, from the table 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:

- NO_2
- SO_2
- HCl
- Hg, Cd, 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 circumstances the TDI would be 0.093 pg (WHO-TEQ/ kg-BW/day), which is 4.7% 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 Operator'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 Operator has chosen the same technology for Line 3 as is currently used in the existing Line 1 and Line 2.

- 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. They are:

    - NO_2
    - SO_2
    - TOC (as benzene)
    - Cd, Hg, Cu, Mn, As, Ni and Cr (VI)
    - Nitrogen deposition
    - Acidification

- We also have to consider the combustion efficiency and energy utilisation of Line 3.

- 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 Operator 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
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

Technique	Key waste characteristics and suitability	Throughput per line	Advantages	Disadvantages / Limitations of use	Bottom Ash Quality	Cost
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
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

Technique	Key waste characteristics and suitability	Throughput per line	Advantages	Disadvantages / Limitations of use	Bottom Ash Quality	Cost
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
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

Line 3 will share some of the existing site infrastructure with Lines 1 & 2 and will use the same furnace technology- Moving Grate Furnace. As the review of the available furnace types was done when Line 1 and Line 2 were permitted, the same review has not been repeated for this Application. We agree with this approach.

The Operator proposes to use gas oil as support fuel for start-up, shut down and for the auxiliary burners for Line 3, similar to Lines 1 and 2. The choice of support fuel is based on availability, risks associated with storage of the fuel, and emissions to air. We agree that gas oil is a suitable choice as it represents BAT for the auxiliary firing at the Installation.

Boiler Design

In accordance with BAT 30 of the BAT-C and our guidance, EPR 5.01, the Operator 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 Operator has chosen a furnace technique that is listed in the BREF and we are satisfied that the Operator's chosen technique is BAT. 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 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	Where scrubbing required for other pollutants

			dew point problems.	
Ceramic filters	High temperature applications Smaller plant.	May “blind” more than fabric filters		Small plant. High temperature gas cleaning required.
Electrostatic precipitators (ESP)	Low pressure gradient. Use with BF may reduce the energy consumption of the induced draft fan.	Not normally BAT by itself Risk of dioxin formation if used in 200-400°C range		When used with other particulate abatement plant

The Operator 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 Operator 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 Operator’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.	Some applications experience corrosion problems.		Justify if not used

	May increase overall energy recovery	Can result in elevated CO and other products of incomplete combustion		

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 Operator 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.
- Flue gas recirculation – this technique reduces the consumption of reagents for secondary NO_x control and can increase overall energy recovery, although in some applications there can be corrosion problems.

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 Operator proposes to use SNCR with ammonia as the reagent.

Emissions of NO_x cannot be screened out as insignificant. As part of the original application for Lines 1 and 2, the Operator carried out a cost / benefit study of the alternative abatement techniques. The assessment calculated the total annualised cost of NO_x abatement over the projected 25 year operational life of the plant and compared this against the associated environmental benefits. The Operator concluded that the additional cost of SCR over SNCR is not justified by the corresponding reduction in environmental impact.
Consequently, SCR was not considered BAT in that case, and SNCR was determined to be BAT for the Installation. The Environment Agency agreed with this conclusion for Lines 1 and 2.

The Operator has stated that the quantitative and qualitative BAT assessments submitted in support of Lines 1 and 2 are also applicable to Line 3. Accordingly, the Operator considers that a separate cost-benefit assessment of the

alternative techniques for Line 3 is not necessary, as it would be expected to reach the same conclusions as those for Lines 1 and 2. We agree with this position.

The amount of ammonia used for NO_x abatement for Line 3 will need to be optimised to maximise NO_x reduction and minimise NH_3 slip. Improvement condition IC9 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 for Line 3 and the Operator is also required to continuously monitor N_2O emissions from Line 3 and report monitoring results 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		Used for wide range of waste types Can be used as polishing step after other techniques where emissions are high or variable

		Energy required for effluent treatment and plume reheat		
Dry	Low water use Higher reagent consumption to achieve emissions of other FGC techniques but may be reduced by recycling in plant Lower energy use Higher reliability Lowest visible plume potential	Higher solid residue production Reagent consumption controlled only by input rate		All plant
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 de-sulphurisation	Reduced boiler corrosion	Does not improve overall performance. Can affect bottom ash quality. Corrosion problems in flue gas cleaning system.		Partial abatement upstream of other techniques in fluidised beds
Reagent Type: Sodium Hydroxide	Highest removal rates Low solid waste production	Corrosive material ETP sludge for disposal		HWIs
Reagent Type: Lime	Very good removal rates Low leaching solid residue Temperature of reaction well suited to use with bag filters	Corrosive material May give greater residue volume if no in-plant recycle	Wide range of uses	MWIs, CWIs
Reagent Type: Sodium Bicarbonate	Good removal rates Easiest to handle Dry recycle systems proven	Efficient temperature range may be at upper end for use with bag filters Leachable solid residues Bicarbonate more expensive	Not proven at large plant	CWIs

The Operator 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 Operator has justified its

choice of gas oil as the support fuel on the basis of availability, risks associated with storage of the fuel, and options to mitigate emissions to air and we agree with that assessment.

- Management of heterogeneous wastes – this will disperse problem wastes such as PVC by ensuring a homogeneous waste feed.

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

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.

In this case, the Operator proposes to use a dry lime system for the abatement of acid gases for Line 3. This is the same abatement option utilised within Line 1 and 2. We are satisfied that this is BAT

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 Operator proposes independent dosing controls and separate feed rates for the activated carbon and lime dosing systems. 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	Consumption of aqueous bromine. Can lead to formation of polybrominated		Not suitable for pyrolysis or gasification.

	leading to improved removal in downstream removal method.	dioxins. Can damage bag filter. Effects can be limited use is restricted to dealing with peak emissions		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 Operator 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 Operator proposes separate feed. 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 Operator 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 Line 3 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 Operator 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.

GWP was assessed for Line 1 and Line 2, and it was concluded that based on Operator's assessment, Line 1 and Line 2 is BAT for GWP. Line 3 will use similar technologies as Line 1 and Line 2 and GWP from Line 3 will be similar to that for Lines 1 and 2, therefore a separate assessment in regard to GWP was not submitted with this Application. We agree with this approach. We are satisfied that the Installation is BAT taking GWP into account.

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 Operator 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

During normal operations, process effluents from the Installation (such as washdown water) will be reused within the site (e.g. for the ash quench). In the event that excess process effluents are generated, these will be tankered off site for disposal.

Surface water run-off from building roofs and areas of hardstanding relating to Line 3 will be collected in an on-site surface water drainage system and collected in an attenuation pond, prior to discharge into the existing surface water drainage system for Line 1 and Line 2 prior to discharge into Fryston Beck.

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

6.5.2 Emissions to sewer

There will be no discharges to sewer from the permitted site.

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.

All waste handling activities will be undertaken within enclosed buildings. The waste bunker area will be held under negative pressure. Fast-acting roller shutter doors (or equivalent) will be installed at the ingress/egress to the tipping hall. During shutdown doors to the tipping hall will be kept shut. Prior to periods of planned shutdown, the quantities of waste stored within the waste bunker will be run-down, with incoming waste deliveries halted. In the event of an extended unplanned shutdown requiring waste to be removed from the bunker, it will be backloaded from the bunker and transferred off-site to a suitably licensed waste management facility. Waste will be delivered in enclosed vehicles. All waste unloading activities will be undertaken within the enclosed tipping hall. Housekeeping procedures will be employed to minimise the build-up of dust or litter.

A bottom ash quench will minimise the potential of fugitive dust emissions. Ash handling will be undertaken in an area with contained drainage which discharges into the process water drainage system. Therefore, there is minimal risk of bottom ash leachate being discharged to surface water drainage systems.

When unloading the APCr silo, the displaced air from the tanker will be recirculated into the silo to prevent releases into the atmosphere. A fabric filter will minimise the risk of fugitive emissions of dust.

APCr and chemical storage tanks will be located within suitably designed secondary containment. Chemicals will be delivered in sealed tankers and off-loaded via a standard hose connection. For solid chemicals, air displaced from the silo will be discharged through fabric filters. Regular inspections and maintenance will be undertaken of abatement equipment. Unloading activities will only be undertaken in areas of hardstanding with contained drainage. Lime handling systems will be enclosed, and regular inspections and preventative maintenance will be carried out. Lime will be injected via a completely enclosed dosing and conveying system. Process areas will have contained drainage. Automated control systems will be in place to detect leaks from lime handing and dosing systems.

Any spillages will be cleaned up in accordance with documented management systems. Waste unloading areas will have contained drainage systems which discharge into the process drainage system to minimise the risk of emissions of contaminated water.

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

The Facility will be designed in accordance with the requirements of EA Guidance Note 'H4: Odour' and will include a number of controls to minimise odour during normal and abnormal operation.

The controls for odour associated with the delivery and storage of waste to Line 3 will be as per the existing controls for Line 1 and 2.

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.

6.5.5 Noise and vibration

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.

The Application contained a noise impact assessment which identified local noise-sensitive receptors and potential sources of noise at the proposed plant. 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.

Operation of the combined three incineration lines compared to the existing two lines would result in at worst, noise levels increasing by 1 dB. This would be a negligible increase which would likely not be noticeable or increase the risk for adverse impacts to occur.

Due to the construction of a new onsite building (Line 3 Boiler Hall) providing screen effects, noise level at one noise sensitive receptor, would be up to 5 dB lower as a result.

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 Operator's proposals are BAT, and that there is no justification to reduce ELVs below the BAT AELs and Chapter IV limits.

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

(i) Local factors

We have considered the location when assessing BAT, including proximity of human and ecological receptors. We are satisfied that the BAT measures described will ensure a high level of protection for the environment and human health.

(ii) National and European ESs

We have assessed emissions against National and European environmental quality standards, determining that the Installation can comply without requiring stricter conditions than BAT.

(iii) 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.

(iv) Commissioning

We have set pre-operational measure POM1 for the Operator to produce commissioning plans for commissioning of the Line 3. The plan must be reviewed and approved by the Environment Agency before commissioning can begin.

Improvement condition IC7 require collection of data throughout the commissioning process and submission of a summary report of the

environmental performance during commissioning to demonstrate that the plant performs in accordance with the Permit conditions. The Operator must demonstrate that design parameters assessed within the Application EPR/SP3239FU/V010 and updated in response to the pre-operational measures in the varied Permit have been met.

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 varied 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 2.3.10 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 varied Permit. However the Permit requires the stable and low criteria to be demonstrated through Improvement conditions IC13 and IC14 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 assimilated and national laws.

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

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

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

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

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

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

- The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application).
- The response of the Environment Agency to the local planning authority in its role as consultee to the planning process.
- The decision of the Secretary of State For Energy and Climate Change to grant/ planning permission on 31st October 2011.

- The report and decision notice of the Department of Energy and Climate Change accompanying the grant of planning permission.

From consideration of all the documents above, the Environment Agency considers that no additional or different conditions are necessary.
The Environment Agency has also carried out its own consultation on the Environmental Permitting Application. The results of our consultation are described elsewhere in this decision document.

7.1.2 Schedule 9 to the EPR 2016 – **Waste Framework Directive**

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

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

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

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

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

Article 23(1) requires the permit to specify:

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

These are all covered by permit conditions.

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

7.2 National primary legislation

7.2.1 **Environment Act 1995**

(i) Section 4 (Pursuit of Sustainable Development)

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

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

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

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

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

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

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

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

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

(iv) Section 6(6) (Fisheries)

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

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

(v) Section 7 (General Environmental Duties)

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

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

(vi) Section 39 (Costs and Benefits)

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

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

(vii) Section 81 (National Air Quality Strategy)

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

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

We have had regard to the National Air Pollution Control Programme (set under the National Emissions Ceiling Regulations 2018) and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

7.2.2 **Section 108 Deregulation Act 2015 – Growth duty**

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

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

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

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

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

7.2.3 **Legislative and Regulatory Reform Act 2006**

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

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

7.2.4 **Human Rights Act 1998**

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

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

Section 85 of this Act imposes a duty on Environment Agency to seek to further the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB).

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. This was recorded on a CROW Appendix 4 form.

The Wildlife and Countryside Act (CRoW) assessment is summarised in greater detail in section 5.4 of this document. A copy of the full Appendix 4 Assessment can be found on the public register.

7.2.7 **Natural Environment and Rural Communities Act 2006**

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

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

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

7.2.9 Countryside Act 1968

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

7.2.10 National Parks and Access to the Countryside Act 1949

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

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

7.2.12 Environment Act 2021

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

We have had regard to this in our assessments.

7.3 National secondary legislation

7.3.1 Conservation of Habitats and Species Regulations 2017

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

The Habitats Regulations Assessment is summarised in greater detail in section 5.4 of this document. A copy of the Habitats Regulations Assessment can be found on the public register.

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/or that it will not compromise the ability of this water body to achieve good status.

7.3.3 **The Persistent Organic Pollutants Regulations 2007**

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

7.4 Other relevant legal requirements

7.4.1 Duty to Involve

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

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

Annexes

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

IED Article	Requirement	Delivered by
45(1)(a)	The permit shall include a list of all types of waste which may be treated using at least the types of waste set out in the European Waste List established by Decision 2000/532/EC, if possible, and containing information on the quantity of each type of waste, where appropriate.	Condition 2.3.4(a) and Table S2.2 in Schedule 2 of the Permit.
45(1)(b)	The permit shall include the total waste incinerating or co-incinerating capacity of the plant.	Condition 2.3.4(a) and Table S2.2 in Schedule 2 of the Permit.
45(1)(c)	The permit shall include the limit values for emissions into air and water.	Conditions 3.1.1 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 2.3.12 and 2.3.13.
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 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 parts 4 or determined in accordance with part 4 of Annex VI.	Conditions 3.1.1 and 3.1.2 and Tables S3.1, S3.1a

IED Article	Requirement	Delivered by
46(3)	Relates to conditions for water discharges from the cleaning of exhaust gases.	There are no such discharges as condition 3.1.1 prohibits this.
46(4)	Relates to conditions for water discharges from the cleaning of exhaust gases.	There are no such discharges as condition 3.1.1 prohibits this.
46(5)	Prevention of unauthorised and accidental release of any polluting substances into soil, surface water or groundwater. Adequate storage capacity for contaminated rainwater run-off from the site or for contaminated water from spillage or fire-fighting.	The application explains the measures to be in place for achieving the directive requirements. The permit requires that these measures are used. Various permit conditions address this and when taken as a whole they ensure compliance with this requirement.
46(6)	Limits the maximum period of operation when an ELV is exceeded to 4 hours uninterrupted duration in any one instance, and with a maximum cumulative limit of 60 hours per year. Limits on dust (150 mg/m3), CO and TOC not to be exceeded during this period.	Conditions 2.3.12 and 2.3.13.
47	In the event of breakdown, reduce or close down operations as soon as practicable. Limits on dust (150 mg/m3), CO and TOC not to be exceeded during this period.	Condition 2.3.11.
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), and S3.4

IED Article	Requirement	Delivered by
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 POM3
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 2.3.9, Pre-operational measure POM2 and Improvement condition IC8 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 2.3.14
50(4)(a)	Automatic shut-down to prevent waste feed if at start up until the specified temperature has been reached.	Condition 2.3.9
50(4)(b)	Automatic shut-down to prevent waste feed if the combustion temperature is not maintained.	Condition 2.3.9
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 2.3.9 to and 2.3.13
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 every 4 years

IED Article	Requirement	Delivered by
		(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 1.1.3 and 2.3.1 of the Permit.
51(1)	Different conditions than those laid down in Article 50(1), (2) and (3) and, as regards the temperature Article 50(4) may be authorised, provided the other requirements of this chapter are 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 Wastes, to prevent or minimise pollution.	Conditions 2.3.1, 2.3.3, 3.3, 3.4, 3.5 and 3.7
52(2)	Determine the mass of each category of wastes, if possible according to the EWC, prior to accepting the waste.	Condition 2.3.4(a) and Table S2.2 in Schedule 2 of the Permit.
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 3.3.1.
53(3)	Test residues for their physical and chemical characteristics and polluting potential including heavy metal content (soluble fraction).	Condition 3.6.1 and Table S3.4
55(1)	Application, decision and permit to be publicly available.	All documents are accessible from the Environment Agency Public Register.

IED Article	Requirement	Delivered by
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	Permit condition 1.1.1 The existing management systems will be extended to incorporate the operation of Line 3
2	Determine gross electrical efficiency	Section 4.3.7 of this decision document Permit table S3.3
3	Monitor key process parameters	Permit condition 3.6.1 and table S3.3
4	Monitoring emissions to air	Permit condition 3.6.1 and table S3.1
5	Monitoring emissions to air during OTNOC	Permit condition 1.1.1
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	Permit conditions 3.1.3 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
10	Quality management system for bottom ash treatment plant	Not applicable as bottom ash will not be treated on site
11	Monitor waste deliveries as part of waste acceptance procedures	The Application explains the measures that will be used Permit condition 2.3.1, table S1.2
12	Reception, handling and storage of waste	The Application explains the measures that will be used. Also, techniques used for Line 3 will be similar to the ones currently used for Lines 1 and 2 Permit conditions 2.3.1, table S1.2 and conditions 3.8.1 and 3.8.2
13	Storage and handling of clinical waste	Not applicable

BAT conclusion	Criteria	Delivered by
14	Improve overall performance of plant including BAT-AELs for TOC or LOI	The Application explains the measures that will be used Permit condition 2.3.1, table S1.2, 3.1.3, 3.6.1 and table S3.4
15	Procedures to adjust plant settings to control performance	Techniques used for Line 3 will be similar to the ones currently used for Lines 1 & 2 Permit condition 2.3.1 and table S1.2
16	Procedures to minimise start-up and shut down	Measures described in the Application. Permit condition 2.3.1 and table S1.2
17	Appropriate design, operation and maintenance of FGC system	The FGC and wastewater treatment systems will be appropriately designed and operated within the design range. Operation and maintenance procedures will form part of the EMS
18	OTNOC management plan	The existing OTNOC management plan will be extended to incorporate the operation of Line 3
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, 3.3.1, 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 as there will be no treatment of slags and bottom ashes undertaken at the Installation

BAT conclusion	Criteria	Delivered by
24	Techniques to prevent or reduce diffuse emissions to air from treatment of slags and ashes	Not applicable as there will be no treatment of slags and bottom ashes undertaken at the Installation
25	Minimisation of dust and metal emissions and compliance with BAT AEL	Section 6.2 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
26	Techniques and BAT AEL for dust emissions from enclosed slags and ashes treatment	Not applicable as there will be no treatment of slags and bottom ashes undertaken at the Installation
27	Techniques to reduce emissions of HCl, HF and SO_2	Measures described in the Application Permit condition 2.3.1 and table S1.2 Section 6.2 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 6.2 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 6.2 of this decision document Permit conditions 2.3.1, table S1.2, 3.1.1 and 3.1.2 and table S3.1

BAT conclusion	Criteria	Delivered by
31	Reduce emissions of mercury. BAT AEL	Measures described in the Application Section 6.2 of this decision document Permit conditions 2.3.1, 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, 3.1.1, 3.1.2 and table S3.2
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 2.3.15
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, 3.6.1, 3.6.2

Annex 2: Pre-Operational Conditions

Based on the information on the Application, we consider that we do need to impose pre-operational measures for future development for Line 3. These conditions are set out below 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 Line 3.

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
POM1	Third incineration line (Line 3)	**Commissioning plan** Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency, and obtain the Environment Agency's written approval to it, a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
POM2		**Computational fluid dynamic (CFD) modelling** No later than one month after the final design of the furnace and combustion chamber, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the computational fluid dynamic (CFD) modelling. The report shall explain how the furnace has been designed to comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED whilst operating under normal load and the most unfavourable operating conditions (including minimum turn down and overload conditions), and that the design includes sufficient monitoring ports to support subsequent validation of these requirements during commissioning.
POM3		**Continuous and periodic monitoring of emissions to air** At least three months before (or other date agreed in writing with the Environment Agency) the commencement of commissioning, the Operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, specifying arrangements for continuous and periodic monitoring of emissions to air (for all monitoring points listed in table S3.1) to comply with EN 15259 and Environment Agency guidance notes on monitoring stack emissions measuring locations, techniques and standards for periodic monitoring and TGN M20 for quality assurance of CEMS. The report shall include the following:

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
		• Details of monitoring locations, access and working platforms • Evidence that CEMS are MCERTS certified at the appropriate range • Evidence that data handling and acquisition systems are MCERTS certified • Methods and standards for periodic monitoring • Procedures for the quality assurance of CEMS, which includes evidence of completion of CEMS' functional tests and setting up quality assurance level (QAL) 3 checks, prior to completing a QAL2
POM4		**Combustion characteristics** At least 3 months before the commencement of commissioning (or other date agreed in writing with the Environment Agency) the Operator shall submit, for approval by the Environment Agency, a methodology (having regard to Technical Report P4-100/TR Part 2 Validation of Combustion Conditions) to verify the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load, minimum turn down and overload conditions.

Annex 3: Improvement Conditions

Based in the information in the Application we consider that we need to set additional improvement conditions for Line 3. These conditions are set out below - justifications for these is 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 of Line 3.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC6	**Particulate matter size distribution of emissions to air from Line 3** The Operator shall submit a written proposal to the Environment Agency for approval to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A5, identifying the fractions within the PM_{10}, and $PM_{2.5}$ ranges. On receipt of written approval from the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.	Within 6 months of the completion of commissioning of Line 3.
IC7	**Commissioning report for Line 3** The Operator shall submit a written report to the Environment Agency for approval on the commissioning of the third incineration line, Line 3. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application EPR/SP3239FU/V010. The report shall 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.	Within 4 months of the completion of commissioning of Line 3.
IC8	**Validation testing for Line 3** The operator shall notify the Environment Agency of the proposed date(s) that validation testing is planned for the third incineration line, Line 3.	Notification at least 3 weeks prior to validation testing of Line 3
	During commissioning of the third incineration line, Line 3, the operator shall carry out validation testing to validate the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load and most unfavourable operating conditions. The validation shall be to the methodology as approved through pre-operational measures for future development POM4.	Validation tests completed before the end of commissioning of Line 3
	The operator shall submit a written report to the Environment Agency for approval on the validation of residence time, oxygen and temperature whilst operating under normal load, minimum turn down and overload conditions.	Report submitted within 2 months of the completion of

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
	The report shall identify the process controls used to ensure residence time and temperature requirements are complied with during operation of the third incineration line, Line 3.	commissioning of Line 3.
IC9	**Performance and optimisation of Line 3 air emissions abatement systems** The Operator shall submit a written report to the Environment Agency for approval describing the performance and optimisation for the third incineration line, Line 3, of: • The lime injection system for minimisation of acid gas emissions • The carbon injection system for minimisation of dioxin and heavy metal emissions. • The Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NOx). The report shall include an initial assessment of the level of NOx, N_2O and NH_3 emissions that can be achieved under optimum operating conditions of the third incineration line, Line 3.	Within 4 months of the completion of commissioning of Line 3.
IC10	**Monitoring and assessment of emissions to air of metals from Line 3** The Operator shall carry out an assessment of the impact of emissions to air from the third incineration line, Line 3, of the following component metals subject to emission limit values: Cr. A report on the assessment shall be submitted to the Environment Agency for approval. Emissions monitoring data obtained during the first year of operation of Line 3 shall be used to compare the actual emissions with those assumed in the impact assessment submitted with the Application EPR/SP3239FU/V010. An assessment shall be made of the impact of each metal against the relevant ES. In the event that the assessment shows that an environmental standard can be exceeded, the report shall include proposals for further investigative work.	15 months from the completion of commissioning of Line 3.
IC11	**Performance of the Continuous Emission Monitors at Line 3** The Operator shall submit a written summary report to the Environment Agency for approval to confirm that the performance of Continuous Emission Monitors at the third incineration line, Line 3, for parameters as specified in Table S3.1 and Table S3.1(a), for emission point A5, complies with the requirements of EN 14181, specifically the requirements of QAL1, QAL2 and QAL3. The report shall include the results of calibration and verification testing.	Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning of Line 3. Full summary evidence compliance

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
		report to be submitted within 18 months of completion of commissioning of Line 3.
IC12	**Odour management at the reception hall** During commissioning of the third incineration line, Line 3, the operator shall carry out tests to demonstrate whether the furnace combustion air will ensure that negative pressure is achieved throughout the reception hall. The tests shall demonstrate whether air is pulled through the reception hall and bunker area and into the furnace with dead spots minimised. The operator shall submit a report to the Environment Agency, for approval, summarising the findings along with any proposed improvements if required	Within 6 months of completion of commissioning of Line 3.
IC13	**Dioxin and dioxin like PCB monitoring in emissions to air from Line 3** The operator shall carry out a programme of dioxin and dioxin like PCB monitoring for Line 3 over a period and frequency agreed with the Environment Agency. The operator shall submit a report to the Environment Agency for approval with an analysis of whether dioxin emissions from Line 3 can be considered to be stable.	Within 6 months of completion of commissioning of Line 3 or as agreed in writing with the Environment Agency
IC14	**Mercury monitoring in emissions to air from Line 3** The operator shall carry out a programme of mercury monitoring for Line 3 over a period and frequency agreed with the Environment Agency. The operator shall submit a report to the Environment Agency for approval with an analysis of whether the waste feed to Line 3 can be proven to have a low and stable mercury content.	Within 6 months of completion of commissioning of Line 3 or as agreed in writing with the Environment Agency
IC15	**Monitoring locations report** During commissioning of the third incineration line, Line 3, the operator shall carry out tests to assess whether the air monitoring location(s) meet the requirements of BS EN 15259 and supporting Method Implementation Document (MID). A written report shall be submitted for approval setting out the results and conclusions of the assessment including where necessary proposals for improvements to meet the requirements. The report shall specify the design of the ports for PM_{10} and $PM_{2.5}$ sampling. Where notified in writing by the Environment Agency that the requirements are not met, the operator shall submit proposals or further proposals for rectifying this in accordance with the time scale in the notification. The proposals shall be implemented in accordance with the Environment Agency's written approval.	Report to be submitted to the Agency within 3 months of completion of commissioning of Line 3.

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 from 17/02/2026 to 02/04/2026. The Application was made available to view at the Environment Public Register.

The following statutory and non-statutory bodies were consulted:

- Wakefield Environmental Protection Department
- Wakefield Planning Department
- Food Standards Agency
- The Health and Safety Executive
- UK Health Security Agency and director of public health
- Sewerage Authorities – Yorkshire Water

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Wakefield Environmental Protection Department (17/03/2026)	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
Wakefield Environmental Protection Department provided a list of complaints from the public regarding amenity issues arising from the site.	We are aware of these complaints and current conditions in the permit are sufficient to address any amenity issues.

Response Received from UK Health Security Agency (23/03/2026)	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
UKHSA made recommendations regarding information provided in the Dispersion Modelling Assessment and Dioxin Pathway Intake Assessment documents submitted with the application.	We audited the dispersion modelling and the HHRA during determination as detailed in section 5 of this decision document and we are satisfied with those assessments.

2) Consultation Responses from Members of the Public and Community Organisations

No responses received.

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

No responses received.

4) Representations from Community and Other Organisations

No responses received.