

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

## Our decision document recording our decision-making process

The Permit Number is: EPR/RP3004MA/V005  
The Applicant / Operator is: Encyclis Limited  
The Installation is located at: Newhurst Energy Recovery Facility

Consultation commences on: 09/08/2023  
Consultation ended on: 20/09/2023

## What this document is about

This is a decision document, which accompanies a permit.

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

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

## Preliminary information and use of terms

We gave the application the reference number **EPR/RP3004MA/V005**. We refer to the application as "the **Application**" in this document in order to be consistent.

The number we have given to the permit is **EPR/RP3004MA**. We refer to the permit as "the **Permit**" in this document.

The Application was duly made on 22/06/2023.

The applicant is Encyclis Limited. We refer to Encyclis Limited as "the **Applicant**" in this document. Where we are talking about what would happen after the Permit is granted, we call Encyclis Limited "the **Operator**".

The Encyclis Limited facility is located at Newhurst Energy Recovery Facility, Ashby Road, Leicestershire, LE12 9BU. We refer to this as “the **Installation**” in this document.

## How this document is structured

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## Glossary of acronyms used in this document

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

|         |  |
|---------|--|
| AAD     | Ambient Air Directive (2008/50/EC)   |
| APC     | Air Pollution Control  |
| AQS     | Air Quality Strategy   |
| BAT     | Best Available Technique(s)  |
| BAT-AEL | BAT Associated Emission Level  |
| BREF    | Best Available Techniques (BAT) Reference Documents for Waste Incineration   |
| BAT C   | BAT conclusions  |
| CEM     | Continuous emissions monitor   |
| 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   |
| DAA     | Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out |
| DD      | Decision document  |
| EAL     | Environmental assessment level   |
| EIAD    | Environmental Impact Assessment Directive (85/337/EEC)   |
| ELV     | Emission limit value   |
| EMAS    | EU Eco Management and Audit Scheme   |
| EMS     | Environmental Management System  |
| EPR     | Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No. 1154) as amended  |
| EQS     | Environmental Quality Standard   |
| ES      | Environmental standard   |
| EWC     | European waste catalogue   |
| FGC     | Flue gas cleaning  |
| FPP     | Fire prevention plan   |
| FSA     | Food Standards Agency  |
| GWP     | Global Warming Potential   |

|        |  |
|--------|--|
| HHRAP  | Human Health Risk Assessment Protocol                                      |
| HPA    | Health Protection Agency (now UKHSA – UK Health Security Agency)           |
| HRA    | Human Rights Act 1998  |
| HW     | Hazardous waste  |
| HWI    | Hazardous waste incinerator  |
| IBA    | Incinerator Bottom Ash   |
| IED    | Industrial Emissions Directive (2010/75/EU)                                |
| 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)  |
| LOI    | Loss on Ignition   |
| MBT    | Mechanical biological treatment  |
| MSW    | Municipal Solid Waste  |
| MWI    | Municipal waste incinerator  |
| NOx    | Oxides of nitrogen (NO plus NO <sub>2</sub> expressed as NO <sub>2</sub> ) |
| OTNOC  | Other than normal operating conditions                                     |
| PAH    | Polycyclic aromatic hydrocarbons   |
| PC     | Process Contribution   |
| PCB    | Polychlorinated biphenyls  |
| PEC    | Predicted Environmental Concentration                                      |
| PHE    | Public Health England (now UKHSA – UK Health Security Agency)              |
| POP(s) | Persistent organic pollutant(s)  |
| 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  |
| 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                               | <a href="#">RGN 6</a>            |
| CHP Ready Guidance for Combustion and Energy from Waste Power Plants                        | <a href="#">CHP ready</a>        |
| Risk assessments for your environmental permit  | <a href="#">Risk assessments</a> |
| Guidance to Applicants on Impact Assessment for Group 3 Metals Stack Releases – version 4”. | <a href="#">Metals guide</a>     |
| The Incineration of Waste (EPR 5.01)  | <a href="#">EPR 5.01</a>         |
| Waste incineration BREF and BAT conclusions   | <a href="#">BREF and BAT C</a>   |
| UKHSA: Municipal waste incinerators emissions: impact on health                             | <a href="#">UKHSA reports</a>    |

## 1 Our decision

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

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

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

The 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 22/06/2023. This means we considered it was in the correct form and contained sufficient information for us to begin our determination.

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

### 2.2 Consultation on the Application

We carried out consultation on the Application in accordance with the EPR, our statutory Public Participation Statement (PPS) and our own internal guidance RGN 6 for Determinations involving Sites of High Public Interest. RGN 6 was withdrawn as external guidance, but it is still relevant as Environment Agency internal guidance.

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

We advertised the Application by a notice placed on our website, which contained all the information required by the IED, including telling people where and when they could see a copy of the Application. We also placed an advertisement in the *Leicester Mercury and Loughborough Echo* that contained the same information.

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

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

- *Local Authority Environmental Protection Department*
- *Food Standards Agency*
- *Health and Safety Executive*

- *UK Health Security Agency (previously Public Health England)*
- *Director of Public Health*
- *National Grid*
- *Charnwood Brough Council*
- *Leicestershire County Council*
- *Shepshed Town Council*
- *MP for Loughborough*
- *Chairman of Loughborough Air Quality Protection Group*
- *Chief Operating Officer Loughborough University*

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.

### 3 The legal framework

The Permit has been granted, under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* and a *waste incineration plant* as described by the IED;
- an *operation* covered by the WFD, and
- subject to aspects of other relevant legislation which also have to be addressed.

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

We consider that, in granting the Permit, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

## 4 The Installation

### 4.1 Description of the Installation and related issues

#### 4.1.1 The permitted activities

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

- Section 5.1 Part A(1)(b) – incineration of non-hazardous waste in a waste incineration plant 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, 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 Application

The variation authorises the increase in throughput from 350,000 tonnes per annum to 455,000 tonnes per annum. This is based on operation at the 102% Maximum Continuous Rating (MCR) point on the firing diagram and an availability of 8,760 hours per annum.

The key changes to the Installation can be summarised in the table below.

|                   |               |            |
|-------------------|---------------|------------|
| Waste throughput, | 455,000/annum | 51.95/hour |
|-------------------|---------------|------------|

|                       |   |                     |
|-----------------------|---|---------------------|
| Tonnes/line           |   |                     |
| Reagent consumption   | Fuel oil: 584 te/annum<br>Ammonia: 1,040 te/annum<br>Lime: 7,150 te/annum<br>Activated carbon: 228 te/annum<br>Process water: 46,121 te/annum |                     |
| Stack                 | Grid Reference, SK 48885 17913  |                     |
|                       | Height, 96.5 m  | Diameter, 2.4 m     |
| Flue gas              | Flow, 72 Nm <sup>3</sup> /s   | Velocity, 20.23 m/s |
|                       | Temperature 132 °C  |                     |
| Electricity generated | 44 MWe  |                     |
| Electricity exported  | 40 MWe  |                     |

All pre-operational measures have been signed off. These have been removed from the permit notice. The pre-operational measures are listed in Annex 2 of this document.

The improvement programme requirements table has been amended within the permit notice in the following ways:

- IC2, IC4, and IC5 have been completed
- The Operator has been given an extension to the deadlines for IC9 and IC10

The improvement programme requirements are listed in Annex 3 of this document.

The key issues arising during determination of the Application were:

- annual throughput
- air quality
- energy efficiency

We therefore describe how we determined these issues in greater detail in the body of this document.

## 4.2 Operation of the Installation – general issues

### 4.2.1 Accident management

The Applicant has not submitted an updated Accident Management Plan to support this application. However, having considered the other information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised. An Accident Management Plan will form part of the Environmental Management System.

### 4.2.2 Operating techniques

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

| Description     | Parts Included   | Justification   |
|-----------------|--|---|
| The Application | Responses to questions 6a, 6b, 6d, 6e, and Appendix 3 question 4, 5 and 6 of form Part C3.<br>S2939-4110-0015KLH Supporting Information. | Additional operating techniques to be used in addition to the documents already stated within the Permit. |

The details set out above describe the techniques that will be used for the operation of the Installation that have been assessed by us as BAT; they form part of the Permit through Permit condition 2.3.1, 2.3.2 and Table S1.2 in the Permit Schedules.

#### 4.3.3 Energy efficiency

##### (i) Use of energy within the Installation

The annual throughput of waste has increased to 455,000 tonnes/year. As a result, the energy generation capacity has increased from 43 MW to 44 MW.

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 states that the specific energy consumption, a measure of total energy consumed per unit of waste processed, will decrease from 0.115 MWh/tonne to 0.0905 MWh/tonne.

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

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. An assessment of the Installation against our CHP-Ready Guidance was not carried out as part of this Application.

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 3.4 of the Application shows 44 MW of electricity produced for an annual burn of 387,139 tonnes, which represents 11.37 MW per 100,000 tonnes/yr of waste burned (0.905 MWh/tonne of waste). The Installation is therefore above the indicative BAT range.

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

The gross electrical efficiency was calculated as 33.87%.

The BAT AEEL for gross electrical efficiency is 20-35.

The value calculated by the Applicant is within the range of the BAT AEEL for gross electrical efficiency.

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.

#### 4.3.4 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 5, 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<sub>x</sub>. 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.

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

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

The first objective is to avoid producing waste at all. Waste production will be avoided by achieving a high degree of burnout of the ash in the furnace, which results in a material that is both reduced in volume and in chemical and biological reactivity. Condition 3.6.1 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.

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

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

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



## 5 Minimising the Installation’s environmental impact

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

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

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

### 5.1 Assessment Methodology

#### 5.1.1 Application of Environment Agency guidance ‘risk assessments for your environmental permit’

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

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

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

including local meteorology – these techniques are expensive but normally lead to a lower prediction of PC.

### 5.1.2 Use of Air Dispersion Modelling

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

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

Our web guide sets out the relevant ES as:

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

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

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

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

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

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

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

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

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

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

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

For those pollutants which do not screen out as insignificant, we determine whether exceedences of the relevant ES are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an AAD limit value is identified, we may require the applicant to go beyond what would normally be considered BAT for the Installation or we may refuse the application if the applicant is unable to provide suitable proposals. Whether or not exceedences are considered likely, the application is subject to the requirement to operate in accordance with BAT.

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

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

## **5.2 Assessment of Impact on Air Quality**

The Applicant's assessment of the impact of air quality is set out in form Part C3 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 Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon local conservation and habitat sites and human health. These assessments predict the potential effects on local air quality from the Installation's stack emissions using the air dispersion model software ADMS 5.2 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 East Midlands Airport between 2015 and 2019. The Applicant chose this weather data because East Midlands Airport is approximately 9 km to the north-west of the facility and in their opinion the closest and most representative meteorological station available. The difference in elevation between East Midlands Airport and the facility is 2 m, and missing data percentages are less than 2% for all parameters. 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<sub>x</sub>), expressed as NO<sub>2</sub>
  - Total dust
  - Carbon monoxide (CO)
  - Sulphur dioxide (SO<sub>2</sub>)
  - 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<sub>3</sub>)
- Second, they assumed that the Installation operates continuously at the relevant long-term or short-term ELVs, i.e. the maximum permitted emission rate (metals are considered further in section 5.2.3 of this decision document).
- Third, the model also considered emissions of pollutants not covered by Annex VI of IED, specifically, polycyclic aromatic hydrocarbons (PAH) and polychlorinated biphenyls (PCBs). Emission rates used in the modelling have been drawn from data in the Waste Incineration BREF and are considered further in section 5.2.2.

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

The Applicant established the background (or existing) air quality against which to measure the potential impact of the incinerator. The consultant has used background data from different air quality networks spread across the UK and Defra background maps for the pollutants considered. We have reviewed the

data and can confirm they are reasonably representative. We have however identified some minor differences and have used the most conservative background data for all the pollutants in our check modelling assessments.

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

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

Our review of the Applicant's assessment leads us to agree with the Applicant's conclusions. We have also audited the air quality and human health impact assessment and similarly agree that the conclusions drawn in the reports were acceptable. However, The Applicant did not assess the consumption of locally caught fish and the intake of methylmercury and thallium in their human health impact assessment. This has been discussed in section 5.3.4.

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

#### 5.2.1 Assessment of Air Dispersion Modelling Outputs

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

The Applicant's modelling predicted peak ground level exposure to pollutants in ambient air and at 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 applicant's modelling predictions are reliable.

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

During determination, new Environmental Assessment Levels (EAL) were implemented for a few pollutants including some metals. The values were updated on the GOV.UK risk assessment page on 20 November 2023, [Air emissions risk assessment for your environmental permit - GOV.UK](#)

[www.gov.uk](http://www.gov.uk)). A comparison of the changes can be viewed here, [New Environmental Assessment Levels for 13 substances \(sharepoint.com\)](#).

We checked the applicants modelling against these new EALs and requested more information from the Applicant for specific pollutants where required. We are satisfied that the new EALs do no change the conclusions of our audit.

| Pollutant         | ES                |                                   | Back-ground | Process Contribution (PC) |                   | Predicted Environmental Concentration (PEC) |                   |
|-------------------|-------------------|-----------------------------------|-------------|---------------------------|-------------------|---|-------------------|
|                   | µg/m <sup>3</sup> | Reference period                  |             | µg/m <sup>3</sup>         | µg/m <sup>3</sup> | % of EAL                                    | µg/m <sup>3</sup> |
| NO <sub>2</sub>   | 40                | Annual Mean                       | 18.54       | 1.11                      | 2.78              | 19.7  | 49.1              |
|                   | 200               | 99.79th %ile of 1-hour means      | 37.08       | 7.05                      | 3.5               | 44.1  | 22.1              |
| PM <sub>10</sub>  | 40                | Annual Mean                       | 18.83       | 0.08                      | 0.20              | 18.9  | 47.3              |
|                   | 50                | 90.41st %ile of 24-hour means     | 37.66       | 0.26                      | 0.52              | 37.92                                       | 75.8              |
| PM <sub>2.5</sub> | 20                | Annual Mean                       | 11.8        | 0.08                      | 0.40              | 11.88                                       | 59.4              |
| SO <sub>2</sub>   | 266               | 99.9th %ile of 15-min means       | 11.22       | 5.61                      | 2.1               | 16.83                                       | 6.3               |
|                   | 350               | 99.73rd %ile of 1-hour means      | 11.22       | 4.98                      | 1.42              | 16.2  | 4.6               |
|                   | 125               | 99.18th %ile of 24-hour means     | 11.22       | 3.14                      | 2.5               | 14.36                                       | 11.5              |
| HCl               | 750               | 1-hour average                    | 1.42        | 1.28                      | 0.17              | 2.7   | 0.36              |
| HF                | 16                | Monthly average                   | 2.35        | 0.01                      | 0.06              | 2.36  | 14.75             |
|                   | 160               | 1-hour average                    | 4.7         | 0.13                      | 0.08              | 4.83  | 3.0               |
| CO                | 10000             | Maximum daily running 8-hour mean | 780         | 4.8                       | 0.05              | 785   | 7.8               |

|                 |         |                |          |          |      |         |       |
|-----------------|---------|----------------|----------|----------|------|---------|-------|
|                 | 30000   | 1-hour average | 780      | 6.41     | 0.02 | 786     | 2.6   |
| TOC             | 2.25    | Annual Mean    | 0.27     | 0.08     | 3.56 | 0.35    | 15.56 |
|                 | 30      | Daily average  | 0.67     | 0.81     | 2.70 | 1.48    | 4.93  |
| PAH             | 0.00025 | Annual Mean    | 0.0006   | 1.58E-06 | 0.63 | 0.0006  | 240.6 |
| NH <sub>3</sub> | 180     | Annual Mean    | 3.68     | 0.08     | 0.04 | 3.76    | 2.09  |
|                 | 2500    | 1-hour average | 7.36     | 1.28     | 0.05 | 8.64    | 0.3   |
| PCBs            | 0.2     | Annual Mean    | 0.000129 | 0.00004  | 0.02 | 0.00017 | 0.08  |
|                 | 6       | 1-hour average | 0.000258 | 0.00064  | 0.01 | 0.0009  | 0.01  |

TOC as 1,3 butadiene for long term and benzene for short term  
PAH as benzo[a]pyrene

| Pollutant | ES                |                  | Back-ground | Process Contribution |                   | Predicted Environmental Concentration |                   |
|-----------|-------------------|------------------|-------------|----------------------|-------------------|---------------------------------------|-------------------|
|           | ng/m <sup>3</sup> | Reference period |             | ng/m <sup>3</sup>    | ng/m <sup>3</sup> | % of EAL                              | ng/m <sup>3</sup> |
| Cd        | 5                 | Annual mean      | 0.57        | 0.39                 | 7.8               | 0.96                                  | 19.2              |
| Hg        | 250               | Annual mean      | 2.8         | 0.39                 | 0.16              | 3.19                                  | 1.28              |
|           | 7500              | 1-hour average   | 5.6         | 6.41                 | 0.09              | 12.01                                 | 0.16              |
| Sb        | 5000              | Annual mean      | 1.1         | 3.95                 | 0.08              | 5.05                                  | 0.1               |
|           | 150000            | 1-hour average   | 2.6         | 64.06                | 0.04              | 66.66                                 | 0.04              |
| Pb        | 250               | Annual mean      | 20          | 3.95                 | 1.58              | 23.95                                 | 9.58              |
| Co        |                   |                  | 0.92        | 3.95                 |                   | 4.87                                  |                   |

|  |         |                |      |                      |       |        |        |
|--|---------|----------------|------|----------------------|-------|--------|--------|
| Cu   | 10000   | Annual mean    | 33   | 3.95                 | 0.04  | 36.95  | 0.37   |
|  | 200000  | 1-hour average | 66   | 64.06                | 0.03  | 130.06 | 0.07   |
| Mn   | 150     | Annual mean    | 36   | 3.95                 | 2.63  | 39.95  | 26.63  |
|  | 1500000 | 1-hour average | 72   | 64.06                | 0.004 | 136.06 | 0.01   |
| V  | 5000    | Annual mean    | 1.7  | 3.95                 | 0.08  | 5.65   | 0.11   |
|  | 1000    | 24-hr average  | 3.4  | 40.49                | 4.05  | 43.89  | 4.39   |
| As   | 6       | Annual mean    | 1.1  | 3.95                 | 65.83 | 5.05   | 84.2   |
| Cr (II)(III)   | 5000    | Annual mean    | 39   | 3.95                 | 0.08  | 42.95  | 0.859  |
|  | 150000  | 1-hour average | 78   | 64.06                | 0.04  | 142.06 | 0.0947 |
| Cr (VI)  | 0.25    | Annual mean    | 7.80 | 0.001 <sup>[1]</sup> | 0.40  | 7.8    | 3120.4 |
| Ni   | 20      | Annual mean    | 2.7  | 3.9500               | 19.75 | 6.65   | 33.3   |
| Notes:   |         |                |      |                      |       |        |        |
| [1] Metal as maximum percentage of the group 3 ELV, as detailed in <a href="#">EA metals guidance document (v.4)</a> Table A1. |         |                |      |                      |       |        |        |

(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<sub>10</sub>
- PM<sub>2.5</sub>
- HCl
- SO<sub>2</sub>
- HF
- CO
- PAH
- NH<sub>3</sub>
- PCB

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

(ii) Emissions unlikely to give rise to significant pollution



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

- NO<sub>2</sub>
- TOC
- Cd
- Pb
- Mn
- As
- Ni

(iii) Emissions requiring further assessment

All emissions either screen out as insignificant or where they do not screen out as insignificant are considered unlikely to give rise to significant pollution. Therefore, we are satisfied that there are no emissions requiring further assessment.

#### 5.2.2 Consideration of key pollutants

(i) Nitrogen dioxide (NO<sub>2</sub>)

The impact on air quality from NO<sub>2</sub> emissions has been assessed against the ES of 40 µg/m<sup>3</sup> as a long term annual average and 200 µg/m<sup>3</sup> as a short term hourly average.

The model assumes a 70% NO<sub>x</sub> to NO<sub>2</sub> 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 the maximum short term PC is greater than 10% of the ES and therefore cannot be screened out as insignificant. However, from the table above, the emission is not expected 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

(ii) Particulate matter PM<sub>10</sub> and PM<sub>2.5</sub>

The impact on air quality from particulate emissions has been assessed against the ES for PM<sub>10</sub> (particles of 10 microns and smaller) and PM<sub>2.5</sub> (particles of 2.5 microns and smaller). For PM<sub>10</sub>, the ES are a long term annual average of 40 µg/m<sup>3</sup> and a short term daily average of 50 µg/m<sup>3</sup>. For PM<sub>2.5</sub> the ES of 20 µg/m<sup>3</sup> as a long-term annual average was used, having changed from 25 µg/m<sup>3</sup> in 2020.

The Applicant's predicted impact of the Installation against these ES is shown in the tables above. The assessment assumes that **all** particulate emissions are present as PM<sub>10</sub> for the PM<sub>10</sub> assessment and that **all** particulate emissions are present as PM<sub>2.5</sub> for the PM<sub>2.5</sub> 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<sub>10</sub>) or 2.5 microns (PM<sub>2.5</sub>), when some are expected to be larger.

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

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

The above table also shows that the predicted PC for emissions of PM<sub>2.5</sub> is also below 1% of the ES. Therefore, the Environment Agency concludes that particulate emissions from the installation, including emissions of PM<sub>10</sub> or PM<sub>2.5</sub>, will not give rise to significant pollution.

(iii) Acid gases, sulphur dioxide (SO<sub>2</sub>), 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 less than <10% of the short term ES. The ES for HCl is 750 µg/m<sup>3</sup>, this is an hourly short term average, there is no long term ES for HCl. HF has 2 assessment criteria – a 1-hr ES of 160 µg/m<sup>3</sup> and a monthly ES of 16 µg/m<sup>3</sup> – 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<sub>2</sub> for the protection of human health. Protection of ecological receptors from SO<sub>2</sub> for which there is a long term ES is considered in section 5.4. There are three short term ES, hourly of 350 µg/m<sup>3</sup>, 15 – minute of 266 µg/m<sup>3</sup> and daily of 125 µg/m<sup>3</sup>.

From the above table, emissions of SO<sub>2</sub> can be screened out as insignificant in that the short term process contribution is <10% of each of the three short term ES values. Therefore, we consider the Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation.

(iv) Emissions to air of carbon monoxide (CO), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), Dioxins and ammonia (NH<sub>3</sub>)

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

The above tables show that for VOC (TOC) 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 in that the PEC is less than 100% (taking expected modelling uncertainties into account) of both the long term and short term ES. Therefore, we consider the Applicant's proposals for preventing and minimising the emissions of these substances to be BAT for the Installation.

The Applicant has used the ES for 1,3 butadiene for their assessment of the impact of TOC. This is based on 1,3 butadiene having the lowest ES of organic species likely to be present in TOC (other than PAH, PCBs, dioxins and furans).

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

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

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

From the tables above all the other emissions can be screened out as insignificant in that the PC is < 1% of the long term ES and <10% of the short term ES. Metals are considered in section 5.2.3.

The ammonia emission is based on a release concentration of 10 mg/m<sup>3</sup>. We are satisfied that this level of emission is consistent with the operation of a well-controlled SNCR NO<sub>x</sub> abatement system.

Whilst all emissions cannot be screened out as insignificant, the Applicant's modelling shows that the installation is unlikely to result in a breach of the ES.

(v) Summary

For the above emissions to air, for those emissions that have not screened out as insignificant, we have carefully scrutinised the Applicant's proposals to ensure that they are applying the BAT to prevent and minimise emissions of these substances. This is reported in section 6 of this document. Therefore, we consider the Applicant's proposals for preventing and minimising emissions to be BAT for the Installation. Dioxins and furans are considered further in section 5.3.2.

### 5.2.3 Assessment of Emission of Metals

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

There are three sets of BAT AELs for metal emissions:

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

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

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

- Hg
- Sb
- Co
- Cu
- V
- Cr (II) (III)
- Cr (VI)

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:

- Cd
- Pb
- Mn
- As
- Ni

There were no metal emissions requiring further assessment. The Applicant has concluded that exceedances of the ES for all metals are not likely to occur.

The installation has been assessed as meeting BAT for control of metal emissions to air. See section 6 of this document. The Environment Agency's experience of regulating incineration plant is that emissions of metals are in any event below the BAT AELs which are lower than the Annex VI limits set in IED, and that the above assessment is an over prediction of the likely impact. We therefore agree with the Applicant's conclusions.

For Cr (VI) the Applicant Used representative emissions data from other municipal waste incinerators using our guidance note. Please refer to "Guidance to Applicants on Impact Assessment for Group 3 Metals Stack Releases – version 4". Measurement of Chromium (VI) at the levels anticipated at the stack emission points is expected to be difficult, with the likely levels being below the level of detection by the most advanced methods.

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

#### 5.2.4 Consideration of Local Factors

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

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

### **5.3 Human health risk assessment**

#### 5.3.1 Our role in preventing harm to human health

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

##### **i) Applying Statutory Controls**

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

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

## ii) Environmental Impact Assessment

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

## iii) Expert Scientific Opinion

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

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

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

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

A number of papers have been published by SAHSU since 2012 which show no effect on birth outcomes. One paper in the study looked at exposure to emissions from MWIs in the UK and concluded that exposure was low. Subsequent papers found no increased risk of a range of birth outcomes (including stillbirth and infant mortality) in relation to exposure to PM<sub>10</sub> 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. Further assessment into the exposure of methylmercury and thallium has been carried out and detailed within section 5.3.4 (iv).

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<sub>2</sub>, SO<sub>2</sub> and particulates) in terms of the numbers of “deaths brought forward” and the “number of hospital admissions for respiratory disease brought forward or additional”. Defra reviewed this methodology and concluded that the use of the COMEAP methodology is not generally recommended for modelling the human health impacts of individual installations.

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

#### **v) Consultations**

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

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

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

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

The results of the Applicant’s assessment of dioxin intake are detailed in the table below (worst case results for each category are shown). The results showed that the predicted daily intake of dioxins, furans and dioxin like PCBs at all receptors, resulting from emissions from the proposed facility, were significantly below the recommended TDI levels. At the point of maximum



impact, the results show the total uptake for adults to be 39.88% and 35.12% for agricultural and residential receptors respectively. For children, the total uptake is 97.56% and 90.99% for agricultural and residential receptors respectively.

| <b>Receptor</b> | <b>Adult</b> | <b>Child</b> |
|-----------------|--------------|--------------|
| Agricultural    | 9.76E-02     | 1.38E-01     |
| Residential     | 2.18E-03     | 6.77E-03     |

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

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<sub>0.1</sub>). 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<sub>10</sub> and PM<sub>2.5</sub> 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<sub>2.5</sub> by 1 µg/m<sup>3</sup> 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<sub>10</sub> 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<sub>0.1</sub> is around 5-10% of PM<sub>10</sub>. It goes on to say that PM<sub>10</sub> includes and exceeds PM<sub>2.5</sub> which in turn includes and exceeds PM<sub>0.1</sub>. The National Atmospheric Emissions Inventory (NAEI) figures show that in 2016 municipal waste incineration contributed 0.03% to ambient ground level PM<sub>10</sub> levels and 0.05% to ambient ground level PM<sub>2.5</sub> levels. The 2016 data also shows that road traffic contributed to 5.35% of PM<sub>10</sub> and 4.96% of PM<sub>2.5</sub> and that domestic wood burning contributed 22.4% to PM<sub>10</sub> and 34.3% of PM<sub>2.5</sub> levels.

This is consistent with the assessment of this Application which shows emissions of PM<sub>10</sub> to air to be insignificant.

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

We take the view, based on the foregoing evidence, that techniques which control the release of particulates to levels which will not cause harm to human

health will also control the release of fine particulate matter to a level which will not cause harm to human health.

#### 5.3.4 Assessment of Health Effects from the Installation

Our assessment of health impacts is summarised below

- i. We have applied the relevant requirements of the Environmental legislation in imposing the permit conditions. We are satisfied that compliance with these conditions will ensure protection of the environment and human health.
- ii. In carrying out air dispersion modelling as part of the environmental impact assessment and comparing the PC and PEC with the ES, the Applicant has effectively made a health risk assessment for many pollutants. The ES have been developed primarily to protect human health. The Applicant's assessment of the impact from dioxins, furans, and dioxin-like polychlorinated biphenyls (PCBs) have all indicated that the Installation emissions screen out as insignificant.
- iii. We have assessed the health effects from the operation of this installation in relation to the above (sections 5.3.1 to 5.3.3).
- iv. We have reviewed the methodology employed by the Applicant to carry out the health impact assessment.

The consultant has completed an health impact assessment of the potential effects on human health due to intake from diet and inhalation of dioxins, furans, and dioxin-like polychlorinated biphenyls (PCBs).

The consultant has assessed 14 residential receptors and the point of maximum impact for both agricultural and residential receptors in their Dioxin Pathway Intake Assessment. The consultant considers the following pathways: direct inhalation and ingestion of soil, home grown produce, drinking water, eggs from home-grown chickens, home grown poultry, beef, pork, milk, and breast milk (infants only). The consultant excluded the ingestion of fish as a potential pathway stating that the closest game fishing lake, Cropston Reservoir, is 8.5 km south-east of the facility, and the likelihood of a person sourcing a large proportion of their diet from a fishery is very low. The Environment Agency has agreed to a position with UK Health Protection Agency (UKHSA) that intakes from certain metals only need to be assessed if fish consumption is a significant pathway; otherwise, the environmental standards for air emissions are protective for human health. Fish consumption could be a significant pathway if there is a game fishery within 10 km of the stack. Therefore, we have included the fish pathway within our HHRA screening checks. Additionally, we have checked the intake of methylmercury and thallium against their health criteria values

(HCVs) because the risks from these two contaminants increase when locally caught fish are a potential pathway of exposure.

We have conducted our own HHRA screening checks based on US EPA HHRAP and agree with the consultant's conclusions. Regarding the assessment of methylmercury and thallium, our checks indicate that the intake PCs from locally caught fish from Cropston Reservoir could be greater than 10% of the HCVs for these pollutants. However, our checks assume that all dietary fish is consumed from this location and emissions of mercury and thallium are the ELV, which is highly conservative. We expect the actual risk from the intake of these contaminants from locally caught fish is likely to be much lower. The impact of the proposal is also likely to be lower than what is currently permitted.

We consulted UKHSA on the assessment of methylmercury and thallium intake and their response stated that they are satisfied that based on the conservative nature of the assessment, emissions from the site will not have a significant impact on human health via the food chain. This is because the increased exposure of thallium is undesirable but within tolerable levels and there are no other significant food sources. For methylmercury, the estimated intake is also undesirable but comparable to intakes from other sources of fish and thus would not increase current exposure.

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.

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

## **5.4 Impact on protected conservation areas (SPAs, SACs, Ramsar sites and SSSIs and local nature sites)**

### **5.4.1 Sites Considered**

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

The following Sites of Special Scientific Interest (SSSI) are located within 2 km of the Installation:

- Ives Head SSSI
- Newhurst Quarry 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:

Local Nature Reserves:

- Morley Quarry

Local Wildlife Sites:

- Morely Lane Field
- White Horse Wood
- Charley Road Fields
- IvesHead
- British Piece
- Lubcloud Crack Willow
- Morley Quarry
- Home Farm Wood
- Burleigh Wood
- Nanpantan Reservoir
- Hermitage Estate
- Holywell Wood
- Longcliffe Golf Course
- Nanpantan Hall Wood

Ancient Woodland:

- Holywell Wood
- White Horse Wood

#### 5.4.2 SSSI Assessment

Ives Head SSSI and Newhurst Quarry SSSI are of geological interest only and therefore not considered within our assessment. The Applicant assessed the impact of the site on a SSSI outside of the 2 Km screening distance and found a reduced impact in comparison to the previous assessment.

#### 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 Applicant is using BAT to control emissions.

PCs are below the critical levels or loads for all pollutants and averaging periods. In addition, PCs for the proposed facility are lower than for the permitted facility for all pollutants and averaging periods. We are satisfied that the Installation will not cause significant pollution at any of the other conservation sites. The Applicant is required to prevent, minimise and control emissions using BAT. We are satisfied that BAT is still being applied and no further measures are required.

## **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<sup>3</sup> (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 10 ng/m<sup>3</sup> (9,900% above the maximum permitted emissions)
- Mercury emissions are 9,900% of the emission limit value (ELV) of 0.05 mg/Nm<sup>3</sup>
- NO<sub>x</sub> emissions of 500 mg/m<sup>3</sup> (25% above the maximum permitted emissions)
- Particulate emissions of 150 mg/m<sup>3</sup> (400% above the maximum permitted emissions)
- Metal emissions other than mercury are 1,400% above the maximum permitted emissions
- SO<sub>2</sub> emissions of 450mg/m<sup>3</sup> (125% above the maximum permitted emissions)
- HCl emissions of 900mg/m<sup>3</sup> (1,400% above the maximum permitted emissions)
- PCBs (9,900% above the maximum permitted emissions)

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

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

| Pollutant        | ES                       |                               | Back-ground<br>$\mu\text{g}/\text{m}^3$ | Process Contribution (PC) |                         | Predicted Environmental Concentration (PEC) |          |
|------------------|--------------------------|-------------------------------|---|---------------------------|-------------------------|---|----------|
|                  | $\mu\text{g}/\text{m}^3$ |                               |   | $\mu\text{g}/\text{m}^3$  | % of EAL                | $\mu\text{g}/\text{m}^3$                    | % of EAL |
| NO <sub>2</sub>  | 200                      | 99.79th %ile of 1-hour means  | 41.4                                    | 17.62                     | 8.8                     | 59.02                                       | 29.5     |
| PM <sub>10</sub> | 50                       | 90.41st %ile of 24-hour means | 33.7                                    | 3.85                      | 7.70                    | 37.55                                       | 75.1     |
| SO <sub>2</sub>  | 266                      | 99.9th ile of 15-min means    | 11.22                                   | 50.5                      | 19.0                    | 61.72                                       | 23.2     |
|                  | 350                      | 99.9th ile of 15-min means    | 11.22                                   | 44.8                      | 12.80                   | 56.02                                       | 16.0     |
|                  | 125                      | 99.18th %ile of 24-hour means | 11.22                                   | 28.23                     | 22.58                   | 39.45                                       | 31.6     |
| HCl              | 750                      | 1-hr average                  | 1.42                                    | 57.7                      | 7.69                    | 59.1  | 7.88     |
| HF               | 160                      | 1-hr average                  |   | 1.3                       | 0.81                    | 1.30  | 0.8      |
|                  | <b>ng/m<sup>3</sup></b>  |                               | <b>ng/m<sup>3</sup></b>                 |                           | <b>ng/m<sup>3</sup></b> |   |          |
| Hg               | 7500                     | 1-hr average                  | 4.2                                     | 640.65                    | 8.54                    | 644.85                                      | 8.6      |
| Sb               | 150000                   | 1-hr average                  |   | 22.1                      | 0.01                    | 22.1  | 0.02     |
| Cu               | 200000                   | 1-hr average                  |   | 55.74                     | 0.03                    | 55.74                                       | 0.03     |
| Mn               | 1500000                  | 1-hr average                  |   | 115.32                    | 0.01                    | 115.32                                      | 0.01     |



|              |        |              |  |       |      |       |      |
|--------------|--------|--------------|--|-------|------|-------|------|
| PCBs         | 6000   | 1-hr average |  | 64.06 | 1.07 | 64.06 | 1.07 |
| Cr (II)(III) | 150000 | 1-hr average |  | 55.74 | 0.04 | 55.74 | 0.04 |

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.

- NO2
- PM10
- HCl
- HF
- Hg
- Sb
- Cu
- Mn
- PCBs
- Cr (II)(III)

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.

- SO2

We have not assessed the impact of abnormal operations against long term ESs for the reasons set out above.

## 5.6 Summary

We have audited the Applicant's assessment on the impact of abnormal emissions and concluded that this will not have a significant impact on air quality.

The impacts are not increasing as such to require a reassessment of BAT. We are satisfied that BAT is still being applied and no further measures are required.

## **6 Application of Best Available Techniques**

### **6.1 Scope of Consideration**

BAT was addressed during the original permit determination. This was reviewed during the statutory permit review in 2022. The considerations in this permit variation do not change the previous decision and we are satisfied that our previous assessment on BAT is still valid.

## 7 Other legal requirements

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

### 7.1 The EPR 2016 and related Directives

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

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

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

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

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

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

The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application), and the planning permission was assessed when the Permit was originally determined. There has been no change as a result of this variation Application.

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

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

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

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

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

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

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

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

Article 23(1) requires the permit to specify:

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

These are all covered by permit conditions.

The permit 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 2.

## 7.2 National primary legislation

### 7.2.1 Environment Act 1995

- (i) Section 4 (Pursuit of Sustainable Development)

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

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

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

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

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

(iii) Section 6(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.

(iv) 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.

(v) Section 39 (Costs and Benefits)

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

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

(vi) 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 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.

### **7.2.4 Countryside and Rights of Way Act 2000 (CROW 2000)**

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

### **7.2.5 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.



### **7.2.6 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 of the general biodiversity objective, which is to further the conservation and enhancement of biodiversity through the exercise of our functions. We have 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.

### **7.2.7 Marine and Coastal Access Act 2009**

Section 58 of this Act requires us to act in accordance with appropriate marine policy documents, unless relevant considerations indicate otherwise.

Section 125 of this Act requires that, so far as is consistent with their proper exercise, we exercise our functions in a manner that we consider best furthers the conservation objectives stated for Marine Conservation Zone(s) (MCZs) certain features of which are capable of being affected by our determination (to more than an insignificant degree) or else, where this is not possible, which least hinders the achievement of those objectives.

Section 126 of this Act requires that, before granting a Permit for an Installation capable of affecting certain features of a MCZ(s) (to more than an insignificant degree), we consult with Natural England and that we are satisfied that there is no significant risk of the operation of the Installation hindering the achievement of the conservation objectives stated for any relevant MCZ(s).

We have considered the Application and are satisfied that it would not affect, to more than an insignificant degree, the protected features of MCZs or the ecological or geomorphological process on which the conservation of such features are dependent.

### **7.2.8 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.

### **7.2.9 National Parks and Access to the Countryside Act 1949**

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

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

### **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.

There are no European Sites within 10 Km of the site.

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.

#### **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 1: Pre-Operational Conditions

The pre-operational conditions listed below have all been completed as of 21/02/2023 and as such the table has been removed from the permit.

| Reference | Pre-operational measures   |
|-----------|--|
| PO1       | Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and obtain the Environment Agency's written approval to it. The Operator shall make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Environment Agency web guide on developing a management system for environmental permits (found on <a href="http://www.gov.uk">www.gov.uk</a> ). The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.   |
| PO2       | Prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency, and obtain the Environment Agency's written approval to it, which will contain a comprehensive review of the options available for utilising the heat generated, including operating as CHP or supplying district heating, by the waste incineration process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of heat and shall provide a timetable for their implementation.  |
| PO3       | 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 protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.   |
| PO4       | At least 4 months prior to the commencement of commissioning the Operator shall provide 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. The plan shall include proposals for the validation of the noise assessment review that was submitted in accordance with pre operational condition PO11. Commissioning shall be carried out in accordance with the commissioning plan as approved. |

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| PO5 | 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.  |
| PO6 | 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.  |
| PO7 | At least two years prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval, written confirmation of which option (one or two incineration lines) that was specified in application EPR/TP3036KB/V004 will be implemented at the installation. The written confirmation shall include details of the final incinerator technology configuration and a review of the air dispersion modelling submitted as part of the Air Emissions Risk Assessment (as part of EPR/TP3036KB/V004). The review shall identify if there are any changes to the assessment and if any significant changes, in the opinion of the Environment Agency, are identified the Operator shall submit to the Environment Agency for approval, via a new variation application, an updated detailed modelling air dispersion assessment in line with the final incinerator technology configuration. The assessment shall be completed in line with the Environment Agency's guidance, Air emissions risk assessment for your environmental permit and Environmental permitting: air dispersion modelling reports. The assessment shall include an air dispersion model as defined in the above guidance and a revised human health risk assessment. |
| PO8 | Should the final procurement decision be made to construct and operate a single incineration line, an odour abatement system (activated carbon filtration system as described in variation application EPR/TP3036KB/V004) shall be provided to control odours during commissioning and full operational stages in the event of breakdown or shutdown. Prior to the commencement of commissioning of the installation, the Operator shall submit a   |

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|      | <p>written report to the Environment Agency for approval that includes:</p> <ul style="list-style-type: none"> <li>• A commissioning plan for the installation of the odour abatement system (inlet dust filters and carbon filter). No waste shall be accepted until the odour abatement system is installed and operational.</li> <li>• A monitoring procedure. The procedure shall outline how the following parameters will be monitored as agreed in writing with the Environment Agency and in line with manufacturer's recommendations: <ul style="list-style-type: none"> <li>• inlet and outlet VOC concentration</li> <li>• bed operating temperature</li> <li>• inlet gas temperature</li> <li>• gas flow rate</li> <li>• pressure differential</li> <li>• gas moisture content</li> </ul> </li> </ul> <p>The procedure shall identify trigger levels to initiate remedial actions and determine when the carbon filter media requires replacement.</p> |
| PO9  | <p>During commissioning, the Operator shall carry out tests to demonstrate whether the furnace combustion air will provide the required air flows to 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 into the furnace and activated carbon filter odour abatement system (if the installation has only one incineration line) with dead spots minimised. The Operator shall submit a report to the Environment Agency for approval, and obtain the Environment Agency's written approval to it, summarising the findings along with any proposed improvements if required.</p>   |
| PO10 | <p>At least 3 months prior to the commencement of commissioning the operator shall confirm if any changes are required to the fire prevention plan after the detailed design stage of the installation. The operator shall submit a revised version of the plan that was submitted with the application (if required) to the Environment Agency for approval. The plan shall be in line with current Environment Agency guidance on fire prevention plans.</p>   |
| PO11 | <p>Prior to the commencement of commissioning of any part of the installation, the Operator shall submit to the Environment Agency for approval a review of the Noise Impact Assessment (Newhurst Energy Recovery Facility (ERF) BS4142:2014 Noise Assessment Feb 2019 (SLR Ref No: 416.00034.00577)) based on the final design of the installation. The review shall include evidence that the noise rating level from the Tipping Hall will not exceed the background sound level at the nearby noise-sensitive receptors during the night-time period. The review shall also include an assessment of the impact of noise on potential Peregrine Falcon nesting sites within Newhurst Quarry.</p>   |

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| PO12 | <p>Prior to the commencement of commissioning, the Operator shall submit a written report to the Environment Agency detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for incineration at the site will be controlled.</p> <p>The procedure shall be implemented in accordance with the written approval from the Agency.</p>         |
| PO13 | <p>Prior to the commencement of commissioning the Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED.</p> <p>The procedure shall be implemented in accordance with the written approval from the Agency.</p> |

## Annex 2: Improvement Conditions

| <b>Improvement programme requirements</b> |  |  |
|---|--|--|
| <b>Reference</b>                          | <b>Requirement</b>   | <b>Date</b>  |
| IC1                                       | The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System (EMS) and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.   | Within 12 months of the completion of commissioning. |
| IC2                                       | The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A1 identifying the fractions within the PM <sub>10</sub> , and PM <sub>2.5</sub> 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.                            | Completed<br>02/11/2023                              |
| IC3                                       | The Operator shall carry out an assessment of the impact of emissions to air of Chromium (VI) having regard to the 2009 report of the Expert Panel on Air Quality Standards – Guidelines for Metal and Metalloids in Ambient Air for the Protection of Human Health. The assessment shall predict the impact of Chromium (VI) against the guidelines through the use of emissions monitoring data during the first year of operation and air dispersion modelling. A report on the assessment shall be made to the Environment Agency. | Within 12 months of completion of commissioning      |
| IC4                                       | The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility  | Completed<br>02/11/2023                              |



| <b>Improvement programme requirements</b> |   |  |
|---|---|--|
| <b>Reference</b>                          | <b>Requirement</b>  | <b>Date</b>  |
|   | 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.   |  |
| IC5                                       | <p>The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of:</p> <ul style="list-style-type: none"> <li>• The Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NOx). The report shall include an assessment of the level of NOx, N<sub>2</sub>O and NH<sub>3</sub> emissions that can be achieved under optimum operating conditions.</li> <li>• The lime injection system for minimisation of acid gas emissions</li> <li>• The carbon injection system for minimisation of dioxin and heavy metal emissions.</li> </ul> | Completed<br>02/11/2023  |
| IC6                                       | <p>The operator shall notify the Environment Agency of the proposed date(s) that validation testing is planned for.</p> <p>During commissioning 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 condition PO6.</p>   | <p>Notification at least 3 weeks prior to validation testing</p> <p>Validation tests completed before the end of commissioning</p> |
| IC7                                       | Where the installation operates with a single incineration line, and an odour abatement system has been provided  | Within 15 months of first receipt of waste at the site.  |

| <b>Improvement programme requirements</b> |  |             |
|---|--|-------------|
| <b>Reference</b>                          | <b>Requirement</b>   | <b>Date</b> |
|   | <p>to control odours during shutdown or breakdown, the Operator shall carry out an assessment and characterisation of the odour profile within the areas of waste storage (the bunker and reception halls) and demonstrate how this air is treated by the odour abatement system. The Operator shall submit a written report to the Environment Agency for approval that outlines:</p> <ul style="list-style-type: none"> <li>• The chemical composition of the odorous air generated within the areas of waste storage (the bunker and reception halls).</li> <li>• The suitability of the proposed odour abatement (inlet dust filters and carbon filters) for treating all expected odours from the facility.</li> </ul>  |             |
| IC8                                       | <p>The operator shall perform a study to determine the extent to which the operation of the current systems in place at the plant to minimise NOx emissions can be further optimised such that emissions are reduced as far as possible below 180 mg/Nm<sup>3</sup> as a daily average, without significantly increasing emissions of other pollutants or having a significant negative effect on plant operation, reliability or bottom ash quality. The study shall be based on the results of trials carried out at the installation and shall have regard to the recommendations for test conditions set out in Section 5.4.3 of report titled 'Establishing factors that influence NOx reduction at waste incineration plant to levels below the upper end of the BAT-AELs' (dated 14/01/2022), or other methodology agreed in writing with the Environment Agency. A written report of the study shall be submitted to the Environment Agency which shall include but not necessarily be limited to the following:</p> | 31/01/2024  |

| <b>Improvement programme requirements</b> |   |             |
|---|---|-------------|
| <b>Reference</b>                          | <b>Requirement</b>  | <b>Date</b> |
|   | <ul style="list-style-type: none"> <li>• A brief description of the currently installed measures at the installation to minimise NOx emissions, including details of how the reagent dosing system responds to emissions monitoring data and historic data which illustrates the current achievable level of daily NOx emissions.</li> <br/> <li>• The results of trials conducted to further reduce daily average NOx emissions using currently installed measures, including: <ul style="list-style-type: none"> <li>○ a description of the parameters that were varied during the trial e.g. ammonia or urea feed rates, physical form of urea injected, air flows, and the range over which they were varied</li> <li>○ the levels of NOx achieved and associated levels of ammonia and nitrous oxide emissions and reagent consumption</li> <li>○ observed effects and predicted long-term impacts on plant operation, reliability and maintenance regime</li> <li>○ any changes to the composition of the bottom ash and boiler ash and the implications of those changes for the ability to process and use the ash, as well as for the pollution potential of the ash both during processing and its subsequent use as a secondary aggregate</li> <li>○ any other relevant cross-media effects</li> </ul> </li> </ul> |             |

| <b>Improvement programme requirements</b> |   |             |
|---|---|-------------|
| <b>Reference</b>                          | <b>Requirement</b>  | <b>Date</b> |
|   | The report shall also include a description of the extent to which current systems in place at the plant to minimise NOx emissions can be optimised on a permanent basis, including justification and an implementation plan where relevant.  |             |
| IC9                                       | The operator shall submit a report to the Environment Agency on whether waste feed to the plant can be proven to have a low and stable mercury content. The report shall have regard to BAT 4 of the BAT conclusions, be based on historic mercury emissions monitoring data and have regard to the Environment Agency Mercury Monitoring Protocol. | 30/11/23    |
| IC10                                      | The operator shall submit a report to the Environment Agency on whether dioxin emissions to air are stable. The report shall have regard to BAT 4 of the BAT conclusions, be based on historic dioxin emissions monitoring data and have regard to the Environment Agency Dioxins Monitoring Protocol.  | 30/11/23    |

## Annex 3: Consultation Responses

### A) Advertising and Consultation on the Application

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

The Application was advertised on the Environment Agency website from 09/08/2023 to 20/09/2023 and in the Leicester Mercury and Loughborough Echo on 16/08/2023.

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

- Local Authority Environmental Protection Department
- Food Standards Agency
- Health and Safety Executive
- UK Health Security Agency (previously Public Health England)
- Director of Public Health
- National Grid
- MP for Loughborough
- Charnwood Brough Council
- Leicestershire County Council
- Shepshed Town Council
- Chairman of Loughborough Air Quality Protection Group
- Chief Operating Officer Loughborough University

#### 1) Consultation Responses from Statutory and Non-Statutory Bodies

No responses received.

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

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

No responses received.

##### b) Representations from Community and Other Organisations

A total of one response was received. Only those issues additional to those already considered are listed below:

| <b>Brief summary of issues raised:</b>                               | <b>Environment Agency comment</b>                                       |
|--|---|
| A formal objection to vary the current permit to increase the annual | We are satisfied that all relevant risks have been considered, and that |

|  |   |
|--|---|
| <p>throughput of waste fuels from 350,000 tonnes per annum to 455,000 tonnes per annum. Also a request to halt any work that would progress this permit application or would allow the issuing any permit to this effect until the related lease issues are fully resolved to the Landlord's satisfaction.</p> <p>The current lease for this land allows the annual waste throughput of 350,000 tonnes per annum and any increase of waste fuel throughput would be in direct contravention of the limitations within lease for this land.</p> | <p>the permit will ensure that a high level of protection is provided for the environment and human health. Whilst the variation would allow the Operator to burn up to 455,000 tonnes of waste per annum, there is no requirement to do so. The Operator should comply with the lower limit of throughput until such time as a change to restrictions in their lease have been re-negotiated. The Operator will need to comply with all other legal requirements that affect their operations.</p> |
|--|---|

c) Representations from Individual Members of the Public

A total of one response was received from individual members of the public. Only those issues additional to those already considered are listed below:

| <b>Brief summary of issues raised:</b>   | <b>Environment Agency comment</b>   |
|--|---|
| <p>Request for confirmation that a remodelling of the air quality risk assessment submitted in 2018 was carried out and a request for the results of this remodelling.</p> | <p>The air dispersion modelling report submitted by the applicant was provided with the information published as part of the public consultation.</p> <p>The air dispersion modelling report has been assessed, and the results discussed in Section 5.</p> |

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

None.