

Determination of an Application for an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010

Decision document recording our decision-making process

The application number is:	EPR/PP3733WW/A001
The Permit Number is:	EPR/PP3733WW
The Applicant / Operator is:	WTI (UK) Limited
The Installation is located at:	Parc Adfer Energy Recovery Facility Deeside Industrial Park Deeside Flintshire CH5 2LL
Consultation commences on:	10 th September 2015
Consultation ends on:	14 th October 2015

What this document is about

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

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

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

In this document we frequently say “we have decided”. That gives the impression that our mind is already made up; but as we have explained above, we have not yet done so. The language we use enables this document to become the final decision document in due course with no more re-drafting than is absolutely necessary.

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

Preliminary information and use of terms

We gave the application the reference number EPR/PP3733WW/A001. 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/PP3733WW. We refer to the permit as “the **Permit**” in this document.

The Application was duly made on 27th October 2014.

The Applicant is WTI (UK) Limited. We refer to WTI (UK) Limited as “the **Applicant**” in this document. Where we are talking about what would happen after the Permit is granted, we call WTI (UK) Limited “the **Operator**”.

WTI (UK) Limited’s proposed facility is located at Parc Adfer Energy Recovery Facility, Deeside Industrial Park, Deeside, Flintshire, CH5 2LL. We refer to this as “the **Installation**” in this document.

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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.)

APC	Air Pollution Control
BAT	Best Available Technique(s)
BAT-AEL	BAT Associated Emission Level
BREF	BAT Reference Note
CEM	Continuous emissions monitor
CFD	Computerised fluid dynamics
CHP	Combined heat and power
COMEAP	Committee on the Medical Effects of Air Pollutants
CROW	Countryside and rights of way Act 2000
CV	Calorific value
CW	Clinical waste
CWI	Clinical waste incinerator
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EAL	Environmental assessment level
EIAD	Environmental Impact Assessment Directive (85/337/EEC)
ELV	Emission limit value
EMAS	EU Eco Management and Audit Scheme
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No. 675) as amended
EQS	Environmental quality standard
EU-EQS	European Union Environmental Quality Standard
EWC	European waste catalogue
FSA	Food Standards Agency
GWP	Global Warming Potential
HHRAP	Human Health Risk Assessment Protocol
HRA	Human Rights Act 1998
HW	Hazardous waste
HWI	Hazardous waste incinerator

IBA	Incinerator Bottom Ash
IED	Industrial Emissions Directive (2010/75/EU)
IPPCD	Integrated Pollution Prevention and Control Directive (2008/1/EC) – now superseded by IED
I-TEF	Toxic Equivalent Factors set out in Annex VI Part 2 of IED
I-TEQ	Toxic Equivalent Quotient calculated using I-TEF
LCPD	Large Combustion Plant Directive (2001/80/EC) – now superseded by IED
LCV	Lower calorific value – also termed net calorific value
LfD	Landfill Directive (1999/31/EC)
LHB	Local Health Board
LOI	Loss on Ignition
MBT	Mechanical biological treatment
MSW	Municipal Solid Waste
MWI	Municipal waste incinerator
NOx	Oxides of nitrogen (NO plus NO ₂ expressed as NO ₂)
Opra	Operator Performance Risk Appraisal
PAH	Polycyclic aromatic hydrocarbons
PC	Process Contribution
PCB	Polychlorinated biphenyls
PCT	Primary Care Trust
PEC	Predicted Environmental Concentration
PHW	Public Health Wales
POP(s)	Persistent organic pollutant(s)
PPS	Public participation statement
PR	Public register
PXDD	Poly-halogenated di-benzo-p-dioxins
PXB	Poly-halogenated biphenyls
PXDF	Poly-halogenated di-benzo furans
RDF	Refuse derived fuel
RGS	Regulatory Guidance Series
SAC	Special Area of Conservation
SED	Solvent Emissions Directive (1999/13/EC) – now superseded by IED
SCR	Selective catalytic reduction
SGN	Sector guidance note

SHPI(s)	Site(s) of High Public Interest
SNCR	Selective non-catalytic reduction
SPA(s)	Special Protection Area(s)
SS	Sewage sludge
SSSI(s)	Site(s) of Special Scientific Interest
SWMA	Specified waste management activity
TDI	Tolerable daily intake
TEF	Toxic Equivalent Factors
TGN	Technical guidance note
TOC	Total Organic Carbon
UHV	Upper heating value –also termed gross calorific value
UN_ECE	United Nations Environmental Commission for Europe
US EPA	United States Environmental Protection Agency
WFD	Waste Framework Directive (2008/98/EC)
WHO	World Health Organisation
WID	Waste Incineration Directive (2000/76/EC) – now superseded by IED

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 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 the details are sufficient and satisfactory to make the standard condition appropriate.

2 How we reached our decision

2.1 Receipt of Application

The Application was duly made on 27th October 2014. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

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 PPS and our Regulatory Guidance Note RGN6 for Determinations involving Sites of High Public Interest. We consider that this process satisfies 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, our consultation already satisfies the Act's requirements.

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 Flintshire Chronicle and the Wirral News and issued a press release about the application on 3rd December 2014.

We placed a copy of the Application and all other documents relevant to our determination (see below) on our electronic 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":

- Flintshire County Borough Council (Environmental Protection Department)
- Flintshire County Borough Council (Planning Department)
- Cheshire West and Chester Council (Environmental Protection Department)
- Wirral Metropolitan Borough Council (Environmental Protection Department)

- Dŵr Cymru Welsh Water
- Food Standards Agency
- Health and Safety Executive
- Betsi Cadwaladr University Health Board
- Public Health Wales
- North Wales Fire and Rescue Service
- National Grid

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our determination.

2.3 Requests for Further Information

Although we were able to consider the Application duly made, we did in fact need more information in order to determine it, and requested further information relating to noise modelling by email on 4th February 2015 and again sought further clarification by email on 17th April 2015. We also issued a Schedule 5 Notice – Notice requiring further information in relation to the Applicants application of Best Available Techniques and Operating Techniques and sought clarification relating to their Air Quality Modelling and Habitats Assessment on 15th May 2015. Further information was requested relating to reverberant noise levels which was sent by email 4th June 2015. We also requested that the impact of dioxin like PCB's be included in the Human Health Risk Assessment via email on 29th June 2015. On 11th August 2015 an email was sent requesting clarification of some of the waste types to be accepted and also relating to drainage arrangements. A copy of the information notice and emails requesting further information were placed on our public register as were the responses when received.

3 The legal framework

The Permit will be granted, under Regulation 13 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

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

We address the legal requirements directly where relevant in the body of this document. We consider that, in granting the Permit that a high level of protection will be delivered for the environment and human health through the operation of the Installation

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” for EPR purposes (see below), such as air pollution control plant and the ash storage bunker, are therefore included in the listed activity description.

There is also on-site treatment of ash produced by the Parc Adfer Energy Recovery Facility with this installation which is carried out as an activity listed in Part 1 of Schedule 1 to the EPR:

- Section 5.4 Part A(1)(b) – Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities covered by Council Directive 91/271/EEC – (iii) treatment of slags and ashes.

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, steam turbine and treatment of slags and ashes are successive steps in an integrated activity.

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

4.1.2 The Site

The installation will be developed on an area of brownfield reclaimed land, once consisting of tidal mudflats of the Dee Estuary that was previously part of the Shotton Steelworks facility. WTI (UK) Limited propose to construct new bespoke buildings to house the proposed incinerator and Incinerator Bottom Ash (IBA) processing activities.

The site is centred on National Grid Reference SJ 310 716. The surrounding land use is predominantly industrial. Immediately adjacent to the site lies UPM Kymmene's Paper Mill and Great Bear Distribution.

The closest residential receptors are located approximately 2000m to the north of the site and are associated with the village of Puddington. In the future, houses will be built approximately 2km to the south of the site at the Northern Gateway development. Farmland and areas of open space lie approximately 50m to the north of the proposed permit boundary. The Borderlands railway line is adjacent to the east of the site. There are existing drainage ditches on site, and surface water drains running within 20m to the east and west of the site's boundary.

Access to the site will be via Weighbridge Road which runs parallel and adjacent to the western boundary of the site. Weighbridge Road can be accessed off the A548 located north of the site. The A548 links to the A494/A550 to the east of the industrial estate.

There are a number of ecologically sensitive sites including Sites of Special Scientific Interest (SSSIs) within 2km of the site boundary and Special Areas of Conservation (SACs) within 10km of the site boundary. The Dee Estuary is the closest SAC and this is the site that the habitats assessment focusses on. This approach was confirmed to be appropriate by Natural Resources Wales conservation and ecology specialists. The location of the installation is material to our determination of the permit application to the extent that it has implications for the following matters:

- The impact of emissions on local communities and sensitive environmental receptors;
- The question of whether or not the recovery of waste or process heat is a Best Available Technique (BAT) for the Installation; and

These matters are addressed in this decision document.

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

Further information on the site is addressed below at 4.3.

4.1.3 What the Installation does

The Applicant has described within the Best Available Techniques and Operating Techniques document submitted with the Application what the installation does. The installation is a combustion process employing moving grate technology to incinerate non-hazardous municipal and commercial waste and to subsequently generate electricity using high pressure steam driven through a steam turbine. The installation will also treat Incinerator Bottom Ash (IBA) to produce aggregate for use as construction material.

4.1.4 Key Issues in the Determination

The key issues arising during this determination were:

- Emissions to air. The discharge from emission point A1 required careful consideration of the potential impacts on human health and nature conservation sites in the context of the Emission Limit Values (ELVs) set by the Industrial Emissions Directive (IED). The Applicant used air dispersion modelling to establish the predicted impact of the installation on air quality and made comparisons against Environmental Quality Standards (EQS) for the protection of human health and standards for the protection of habitats provided in the Environment Agency's H1 Environmental Risk Assessment guidance which Natural Resources Wales have adopted.
- Noise and nuisance. Noise was a key concern for nearby receptors. The applicant submitted a noise impact assessment which demonstrated that noise would not cause nuisance. Although we agreed with the conclusions that noise was not likely to cause nuisance, additional information was required to quantify some of the assumptions made in the modelling report submitted to us.
- Emissions to surface water. The Applicant proposed to discharge via an attenuation pond, water from the Incinerator Bottom Ash Aggregate (IBAA) storage area subject to water quality testing to establish suitability for discharge. A suite of suitable parameters for monitoring was not submitted with the application. We therefore rejected this approach and did not allow potentially contaminated water from the IBAA storage area to be discharged to surface water.

We therefore describe how we determined these issues in more detail in this document.

4.2 The site and its protection

4.2.1 Site setting, layout and history

The site setting, layout and history of the site is described by the Applicant in section 6 of the application within section 1 of the Best Available Techniques and Operating Techniques (BATOT v2) document supplied with the application. We were able to confirm the details submitted within the Application. We have based our assessment of the environmental impact of the proposed site on this information.

The site layout is shown on the site plan in Schedule 7 of the permit.

4.2.2 Proposed site design: potentially polluting substances and prevention measures

There are no releases to land or groundwater associated with the installation.

The Applicant has confirmed that all relevant elements of the facility will be designed in accordance with recognised standards, methodologies and practices.

Construction Quality Assurance (CQA) plans will govern all construction activities and they confirm that these CQA plans will be prepared by competent and suitably qualified persons and will detail the assurance and validation process for relevant elements of the facility, which shall include:

- material selection;
- handling, storage and installation;
- conformance and performance testing; and
- Inspection and validation.

A competent and suitably qualified person will supervise the construction activities, and prepare a validation report confirming that the construction activities have been carried out in accordance with the CQA plan. The Applicant will require subcontractors to work within acceptable quality and environmental standards. The requirements will be set out in the Applicants Integrated Management System which will be accredited to ISO14001 standard.

Operational areas of the site will benefit from an engineered containment system comprising an impermeable concrete surface. The precise locations of subsurface drains, pipework, interceptors and tanks will be established and recorded and relevant documentation maintained in the site office. An inspection and maintenance programme for all subsurface structures will be followed and records will be maintained by the site manager. Bunds and or double skinned walls will be provided for all tanks containing liquids whose spillage could be harmful to the environment. Containment bunds or double skinned walls will be provided to make sure that any

leaks/spillages will be contained in the event of a leak of the primary containment. Containment measures will be:

- capable of containing at least 110% of the volume of the largest tank within the bund;
- constructed of materials which are impermeable and resistant to the stored materials in accordance with relevant material safety data sheets (MSDS);
- constructed to the appropriate British Standard and Health and Safety Executive (HSE) guidance; of a type suitable for the containment of the materials in the event of leak or spill;
- pipework will be routed within bunded areas so that no penetration of walls or base of the bund takes place; and
- connection points will be located within the bund.

Furthermore, the operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED. PO5 requires the Applicant to submit a protocol to demonstrate to Natural Resources Wales how this will be achieved.

The operator has identified the hazards associated with the installation, which could present a risk to the environment in the event of an accident. The risks have been evaluated in Section 8 “H1 Environmental Risk Assessment” of the permit application and the operator has described the procedural and physical control measures which are being developed to mitigate them.

We have assessed this information and are satisfied that the proposals will offer appropriate protection of the surrounding environment.

4.2.3 Closure and decommissioning

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the Installation, as referred to in section 18 of the BATOT supporting information document within the permit application. Permit condition 1.1.1a requires the Operator to have a written management system in place which identifies and minimises risks of pollution including those arising from closure.

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

4.3 Operation of the Installation – general issues

4.3.1 Administrative issues

The Applicant is the sole Operator of the Installation.

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

The incineration of waste is not a specified waste management activity (SWMA). Natural Resources Wales has considered whether any of the other activities taking place at the Installation are SWMAs. The recovery of Incinerator Bottom Ash (IBA) carried out on its own is an SWMA, however when carried out at the same installation as another Part A(1) installation this activity is not considered an SWMA as specified in Schedule 9, paragraph 3 (4) of EPR.

We are satisfied that the Applicant's submitted OPRA profile is accurate.

The OPRA score will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. OPRA is Natural Resources Wales method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required.

4.3.2 Management

The Applicant has stated in the Application that they will implement an Environmental Management System (EMS) that will be certified under ISO14001. Natural Resources Wales recognises that certification of the EMS cannot take place until the Installation is operational. An improvement condition (IC5) is included requiring the Operator to report progress towards gaining accreditation of its EMS.

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

4.3.3 Site security

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

4.3.4 Accident management

The Applicant has submitted an Accident Risk Management Plan as part of the BATOT document and has also submitted an Accident Risk Assessment in Table 9 of the H1 Risk Assessment. Considering this along with 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. In order to ensure that the management system proposed by the Applicant sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

4.3.5 Off-site conditions

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

4.3.6 Operating techniques

We have specified that the installation must be operated in accordance with the techniques set out in Table S1.2 of the Permit. The details referred to in that table describe the techniques that will be used for the operation of the Installation that have been assessed by Natural Resources Wales as BAT; they form part of the Permit through Permit condition 2.3.1 and Table S1.2 in the Permit Schedules.

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

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

Article 45(1) of the IED requires that the Permit must include a list of all types of waste which may be treated using at least the types of waste set out in the Commission Decision 2000/532/EC as amended from time to time (the 'List of Wastes Decision', if possible, and containing information on the quantity of each type of waste, where appropriate. The Application contains a list of those wastes set out in the List of Wastes Decision, which the Applicant will accept in the waste streams entering the plant and which the plant is capable of burning in an environmentally acceptable way. We have specified the permitted waste types, descriptions and where appropriate quantities which can be accepted at the installation for incineration in Table S2.2. We have specified the waste types the applicant can accept for IBA treatment in Table S2.3.

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

- (i) the wastes are all categorised as non-hazardous in the List of Wastes Decision and are capable of being safely burnt at the installation.
- (ii) these wastes are likely to be within the design calorific value (CV) range for the plant;
- (iii) these wastes are unlikely to contain harmful components that cannot be safely processed at the Installation.

We have however set PO3 which requires the Applicant to submit for Natural Resources Wales a detailed waste acceptance procedure detailing the systems and processes by which wastes unsuitable for incineration shall be controlled.

The Applicant is permitted to accept up to 200,000 tonnes of waste at the facility per annum. The nominal design capacity of the plant is 175,000 tonnes of waste per annum, based on the installation operating 8,000 hours per year at a nominal capacity of 21.9 tonnes per hour, using fuel with a net calorific value of 9.8 MJ/kg. The difference between the total waste quantity to be accepted on site and the nominal design capacity provides for:

- (i) Variations in the net calorific value of the fuels being combusted. Net calorific value is expected to range between 9.8 MJ/kg to 13 MJ/kg; and
- (ii) any availability exceeding the predicted 8,000 hours.

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

We are satisfied that the Applicant can accept the wastes contained in Table S2.3 of the Permit because: -

- (i) the wastes are all categorised as non-hazardous in the European Waste Catalogue and are produced by the incineration of waste for energy recovery.
- (ii) these wastes are unlikely to contain harmful components that cannot be safely processed at the Installation.

The wastes that the Applicant can accept for treatment in the IBA Treatment Plant is restricted to IBA from the Parc Adfer Incinerator only.

4.3.7 Energy efficiency

(i) Consideration of energy efficiency

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

1. The use of energy within, and generated by, the Installation which are normal aspects of all EPR permit determinations. This issue is dealt with in this section.
2. The extent to which the Installation meets the requirements of Article 50(5) of the IED, which requires "*the heat generated during the incineration and co-incineration process is recovered as far as practicable through the generation of heat, steam or power*". This issue is covered in this section.
3. The combustion efficiency and energy utilisation of different design options for the Installation are relevant considerations in the

determination of BAT for the Installation, including the Global Warming Potential of the different options. This aspect is covered in the BAT assessment in section 6 of this Decision Document.

(ii) Use of energy within the Installation

Having considered the information submitted in Section 6 of 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 be 100 kWh/tonne. This is based on the nominal design capacity of 175,000 t/a.

Data from the BREF for Municipal Waste Incinerators shows that the range of specific energy consumptions is as in the table below.

MSWI plant size range (t/yr)	Process energy demand (kWh/t waste input)
Up to 150,000	300 – 700
150,000 – 250,000	150 – 500
More than 250,000	60 – 200

The BREF says that it is BAT to reduce the average installation electrical demand to generally below 150 kWh/tonne of waste with an LCV of 10.4 MJ/kg. The LCV in this case is expected to be 9.8 MJ/kg. Taking account of the difference in LCV, the specific energy consumption in the Application is in line with that set out above.

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

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

Natural Resources Wales considers that BAT for energy efficiency for Energy from Waste (EfW) plant is the use of CHP in circumstances where there are technically and economically viable opportunities for the supply of heat from the outset.

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

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

The BREF says that where a plant generates electricity only, it is BAT to recover 0.4 – 0.65 MWh/ tonne of waste (based on LCV of 10.4 MJ/kg). Our technical guidance note, SGN EPR S5.01, states that where electricity only is generated, 5-9 MW of electricity should be recoverable per 100,000 tonnes/annum of waste (which equates to 0.4 – 0.72 MWh/tonne of waste).

The Installation will generate electricity only at present, but has been designed with the potential to export approximately 8 MW of heat to local heat users. Based on the current mode of operation, where the installation is generating electricity only, the Applicant states in section 5.1.3 of the BATOT supporting information within the Application that 16.4 MW of electricity is produced for an annual burn of 175,000 tonnes, which represents 9.37 MW per 100,000 tonnes/year of waste burned (0.0937 MWh/tonne of waste). The Installation therefore exceeds BAT in this respect.

The SGN 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.

We consider that, within the constraints of the location of the Installation explained above, the Installation is designed to be CHP ready, however as yet there is no uptake for steam. We therefore consider that the requirements of Article 50(5) are met.

(iv) R1 Calculation

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

The Applicant has presented a calculation of the R1 factor (as defined under the WFD 2008). The R1 formula is a measure of the extent to which energy is recovered from incineration plant. The formula is:

$$R1 = (E_p - (E_f + E_i)) / (0.97 \times (E_w + E_f))$$

Where:

- E_p means annual energy produced as heat or electricity. It is calculated in the form of electricity being multiplied by 2.6 and heat for commercial use being multiplied by 1.1 (GJ/yr).
- E_f means annual energy input to the system from fuels contributing to the production of steam (GJ/yr).
- E_w means annual energy contained in the treated waste calculated using the net calorific value of the waste (GJ/yr).
- E_i means annual energy imported excluding E_w and E_f (GJ/yr)
- 0.97 is a factor accounting for energy losses due to bottom ash and radiation.

Where municipal waste incinerators can achieve an R1 factor of 0.65 or above, the plant will be considered to be a 'recovery activity' for the purposes of the Waste Framework Directive. Again whether or not an installation achieves an R1 score of >0.65 is not a matter directly relevant to this determination. However by being classified as a 'recovery activity' rather than as a 'disposal activity', the Operator could draw financial and other benefits.

The R1 factor can only be determined from operational data over a full year. At application stage it is only possible to make a provisional assessment.

The Applicant has presented an R1 calculation with this application. The presented R1 calculation score of 0.76 demonstrates that the installation can be considered a recovery facility.

Note that the availability or non-availability of financial incentives for renewable energy such as the ROC and RHI schemes is not a consideration in determining this application.

(v) Choice of Cooling System

Details of the cooling system have been provided in Table 7 of the BATOT document supplied in Section 6 of the application. The facility has been designed to use an air cooled condenser (ACC) thus resulting in no plume (as may be found in some cooling designs) and does not need to make use of local natural water sources for cooling purposes. The ACC results in high efficiencies with minimal losses.

We accept that the air cooling system that will be used at the site represents BAT for the installation.

(vi) Permit conditions concerning energy efficiency

Permit conditions 1.2.2 and 1.2.3 require the Operator to review the options available for heat recovery on an ongoing basis, and to provide and maintain the proposed steam/hot water pass-outs.

The Operator is required to report energy usage and energy generated under condition 4.2 and Schedule 4. The following parameters are required to be reported: electrical energy generated; electrical energy exported; electrical energy used on installation, thermal energy produced (e.g. steam), thermal energy used on installation, together with the total waste incinerated per year. This will enable Natural Resources Wales to monitor energy recovery efficiency at the Installation and take action if at any stage the energy recovery efficiency is less than proposed.

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

4.3.8 Efficient use of raw materials

Having considered the information submitted in Section 7 of the BATOT document submitted in support of the Application, we are satisfied that the appropriate measures will be in place to ensure the efficient use of raw materials and water.

The Operator is required to report with respect to raw material usage under condition 4.2 and Schedule 4, including consumption of urea, activated carbon and lime used per tonne of waste burned. This will enable Natural Resources Wales to assess whether there have been any changes in the efficiency of the air pollution control plant, and the operation of the SNCR to abate NO_x. These are the most significant raw materials that will be used at the Installation, other than the waste feed itself. The efficiency of the use of auxiliary fuel will be tracked separately as part of the energy reporting requirement under condition 4.2.2.

4.3.9 Avoidance, recovery or disposal of wastes produced by the 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 bottom ash, boiler ash, air pollution control residues and recovered metals.

The first objective is to avoid producing waste at all. Waste production will be minimised by achieving a high degree of burnout of the ash in the furnace, which results in a material that is both reduced in volume and in chemical reactivity. Condition 3.1.3 and associated Table S3.4 specify limits for total organic carbon (TOC) of <3% in bottom ash. Compliance with this limit will demonstrate that good combustion control and waste burnout is being achieved in the furnace and waste generation is being avoided where practicable.

Incinerator bottom ash (IBA) will normally be classified as non-hazardous waste. However, IBA is classified in the List of Wastes Decision 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 incinerator ash 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.

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

In order to ensure that the IBA and APC residues are adequately characterised, pre-operational condition PO1 requires the Operator to provide a written plan for approval detailing the ash sampling protocols. Table S3.4 requires the Operator to carry out an ongoing programme of monitoring.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD will be applied to the generation of waste and that any waste generated will be treated in accordance with this 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. Permit 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 and generation of waste. 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 of Impact on Air Quality

The Applicant's assessment of the impact on air quality is set out in Section 8 of the Application. The assessment comprises:

- An H1 screening assessment of emissions to air from the operation of the incinerator.
- Dispersion modelling of emissions to air from the operation of the incinerator.
- A study of the impact of emissions on nearby sensitive habitat / conservation sites.

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 5.3.

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.

The air impact assessments, and the dispersion modelling has been based on:

- (i) maximum permitted concentration release in Article 46(2) of the IED.
- (ii) the Installation operates continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate

The Applicant has also considered the impact of emissions of pollutants not covered by Annex VI of IED, specifically ammonia (NH₃).

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary.

The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by Natural Resources Wales 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 health impacts and impact on habitats and conservation sites.

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.

Natural Resources Wales therefore agrees that the proposed site will not significantly impact on air quality in the area.

5.2 Human health risk assessment

We have assessed the human health impact assessment presented by the Applicant within Section 9 of the Application.

The Applicant has not considered the impact of PCB's or PAH's separately citing the following reason: "The release of dioxins and furans to air is required by the IED to be assessed against the I-TEQ (International Toxic Equivalence) limit of 0.1ng/m³. Further development of the understanding of the harm caused by dioxins has resulted in the World Health Organisation (WHO) producing updated factors to calculate the WHO-TEQ value. Certain PCBs have structures which make them behave like dioxins (dioxin-like PCBs), and these also have toxic equivalence factors defined by WHO to make them capable of being considered together with dioxins. The UK's independent health advisory committee, the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) has adopted WHO-TEQ values for both dioxins and dioxin-like PCBs in their review of Tolerable Daily Intake (TDI) criteria. EPR requires that, in addition to the requirements of the IED, the WHO-TEQ values for both dioxins and dioxin-like PCBs should be specified for monitoring and reporting purposes, to enable evaluation of exposure to dioxins and dioxin-like PCBs to be made using the revised TDI recommended by COT. **The release of dioxin-like PCBs and PAHs is expected to be low where measures have been taken to control dioxin releases.** We require monitoring of a range of PAHs and dioxin-like PCBs in waste incineration permits at the same frequency as dioxins are monitored. We have included a requirement to monitor and report against these WHO-TEQ values for dioxins and dioxin-like PCBs and the range of PAHs identified by Defra in the Environmental Permitting Guidance on the IED. **We are confident that the measures taken to control the release of dioxins will also control the releases of dioxin-like PCBs and PAHs.**

The Food Standards Agency (FSA) has reported that recent dietary studies have shown that estimated total dietary intakes of dioxins and dioxin-like PCBs from all sources by all age groups fell by around 50% between 1997 and 2001, and are expected to continue to fall. In 2001, the average daily intake by adults in the UK from diet was 0.9 pg WHO-TEQ/kg bodyweight. In 2010, FSA studied the levels of chlorinated, brominated and mixed (chlorinated-brominated) dioxins and dioxin-like PCBs in fish, shellfish, meat and eggs consumed in 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, the Applicant assessed the impact of chlorinated compounds as representing the impact of all chlorinated, brominated and mixed dioxins / furans and dioxin like PCBs.

We are in agreement with this approach, by making conservative assumptions regarding the ratio of total dioxin-like PCBs to total dioxins and furans, then it is unlikely the inclusion of the impact of dioxin-like PCBs with total dioxins and furans will result in an exceedance of the COT TDI.

In addition, as part of our normal procedures for the determination of a permit application, we consulted with Public Health Wales, Betsi Cadwaldr University Health Board and the Food Standards Agency. 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 3 of this document.

Natural Resources Wales are satisfied based on the information within the Application and advice from the consultees stated above that the operation of the proposed facility will not have an adverse impact on human health in the area.

5.3 Impact on Habitats sites, SSSIs and non-statutory conservation sites.

5.3.1 Sites Considered

The following Habitats (i.e. Special Areas of Conservation, Special Protection Areas and Ramsar) sites are located within 10Km of the Installation:

- Halkyn Mountain / Mynydd Helygain SAC
- Dee Estuary/Aber Dyfrdwy SAC SAC
- River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC SAC
- Deeside and Buckley Newt Sites SAC SAC

The following Sites of Special Scientific Interest are located within 2Km of the Installation:

- Dee Estuary
- Inner Marsh Farm
- Shotton Lagoon and Reedbeds
- River Dee

The following non-statutory local wildlife sites are located within 2Km of the Installation:

- Dee Rifle Ranges
- Shotton Steelworks
- River Dee.

5.3.2 Habitats Assessment

The Applicant's Habitats assessment was reviewed by Natural Resources Wales technical specialists for air quality modelling and the conservation body in Wales, who agreed with the assessment's conclusions, that there would be no likely significant effect on the interest features of the protected sites.

For all designated sites the impacts have screened out as being environmentally insignificant. In fact emissions are so low that they could be deemed as in-consequential. Further to this the prevailing wind direction in this area is from a westerly direction. This means that for the majority of time, any emissions are carried away from the designated sites which are located to the south and west of the facility.

It was not necessary to carry out formal consultation with regards to any of the SSSI's within 2km of the facility, this was confirmed by our conservation and ecology specialists.

Details of our assessment are recorded within the Stage 2 Assessment of Likely Significant Effects (Appendix 11) completed during our assessment of this Application.

5.4 Impact of abnormal operations

Article 50(4)(c) of 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 emission limit value (ELV) is exceeded due to disturbances or failures of the purification devices. Notwithstanding this, Article 46(6) allows for the continued 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.

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).

Given that these abnormal operations are limited to no more than a period of 4 hours continuous operation and no more than 60 hour 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. For the most part therefore consideration of abnormal operations is limited to consideration of its impact on short term EQSs.

The Applicant within Section 8, H1 Environmental Risk Assessment – Atmospheric Dispersion Modelling of the Application has assessed the short-term environmental impact that may result from the worst case realistic abnormal operation.

Natural Resources Wales agrees with this assessment and we therefore agree with the Applicant's conclusions that there will be no adverse impact on the local environment or human health as a result of abnormal operation at the site.

6. Application of Best Available Techniques

6.1 Combustion unit and control of emissions to air.

The Applicant details the technology of the combustion unit and associated abatement of the emissions to air which will be used at the site within Section 5 of BATOT (version 2) and within the Acid Gas Abatement Assessment and NO_x Abatement Assessment submitted with Section 6 of the Application.

The Applicant has proposed to use a furnace technology comprising of an air cooled reciprocating grate which is designed to mix and transport waste as part of the combustion process. It is widely used in Energy from Waste (EfW) applications across Europe.

The grate will be designed to process waste with a blended calorific value (CV) of 9.8MJ/kg. The grate will have the ability to process waste of varying CVs and throughputs. The grate will be constructed to ensure complete combustion of the fuel. The grate will follow a modular design allowing the adaptation of the grate in order to accommodate specific needs.

Combustion control will take place using a number of different plant features. The main features will include the following;

- ☐ primary air system;
- ☐ secondary air system;
- ☐ waste feed system;
- ☐ additive dosing system; and
- ☐ auxiliary fuel firing system.

The primary air system comprises of the primary air fan and primary air pre-heater. The system controls and delivers primary combustion air to the boiler. The air flow rate is variable across the grate zones and can be adjusted for optimum combustion for each individual grate zone. The primary air pre-heater comprises a heat exchanger supplied with low pressure steam from the turbine.

The secondary air system delivers and regulates secondary combustion air to mix with the flue gases within the first boiler pass and complete the combustion process. Secondary air is drawn from the top of the boiler house and is delivered into the combustion chamber. The secondary air system also comprises a heat exchanger to improve combustion.

The boiler waste feed system comprises the ram feeder and grate speed controllers. These enable the regulation of waste fed onto the grate to ensure optimal combustion.

Diesel oil will be used for the boiler burners and site vehicles. The boiler will have two auxiliary diesel fired burners, which will be utilised during start-up, shut down and abnormal operations.

The use of acoustic pyrometry will determine the temperature profile close to the grate surface and enable better combustion and emissions control. In order for Natural Resources Wales to verify this PO4 has been set for the operator to

provide details of the Computational Fluid Dynamic modelling (CFD) to demonstrate that residence times and temperature requirements comply with the IED.

The FGT and boiler SNCR treatment shall ensure that all stack emissions shall comply with the IED. In order to control NO_x emissions, SNCR will be utilised. Urea will be injected into the front and side walls of the furnace at various levels. The urea reacts with the NO_x yielding nitrogen (N₂), carbon dioxide (CO₂) and steam. Injecting urea at varying heights in the furnace allows for efficient use of the reagent, while minimising NO_x emissions.

SNCR is a proven, economical technology, widely used in the EfW industry. The ERF layout accommodates future inclusion of selective catalytic reduction (SCR) should changes in legislation require NO_x emissions to be below the capability of the SNCR technology.

The flue gases exit the boiler and enter the FGT plant at a temperature of between 160°C (clean boiler) to 200°C (fouled boiler). The FGT plant comprises a semi-dry reactor and fabric filter. The first stage of the FGT involves the injection of hydrated lime into the flue gases with the intention to absorb free acids, which include chlorine, fluorine and sulphur laden gases.

The second stage involves reducing the flue gas temperature to approximately 150°C in order to optimise the reaction with the hydrated lime. Compressed air and water are injected for this purpose

For the third stage of the treatment, additional hydrated lime and activated carbon are added. The activated carbon will capture heavy metals such as mercury as well as dioxins, furans and other high-molecular organic compounds. At this stage, particles captured from further downstream of the process are also re-circulated and reintroduced into the flue gases. The flue gas then pass through a conditioning rotor which breaks up large particles and creates a homogeneous distribution of particles.

The final stage of the FGT is the fabric filter. The fabric filter is comprised of vertical filter bags through which the flue gases flow. A draught fan will draw the flue gases through the filter bags. Particles are deposited on the outside of the bags and the clean flue gases flow through the bags. The particles captured on the outside of the filter bags also form a porous cake providing further filtration as the flue gases flow through it.

The filter bags are cleaned by pulses of compressed air (from the clean side) down the bag. As the bag expands the particles that have built up on the bag drop and collect in a hopper at the bottom of the fabric filter. Part of this residue is re-circulated back to the third stage, in order to maximise the use of the lime and activated carbon injected.

Natural Resources Wales have reviewed this information and agree that the proposed technologies can be regarded as BAT for the site.

6.2 Emissions to water.

The techniques proposed to control water releases from the site are detailed in Section 6 of BATOT(version 2) submitted with Section 6 of the Application.

The Applicant propose to discharge via an oil interceptor and silt trap uncontaminated surface water into an attenuation pond, which will overtop into the drainage channel on the eastern boundary of the site. It will then discharge via a culvert beneath the railway line into the drainage network that serves the wider industrial area.

Natural Resources Wales have not accepted the Applicants proposal to discharge water from the IBAA storage area to the attenuation pond subject to water quality testing. Because of the uncertainties of this and the sensitivity of the Dee Estuary we decided that all run-off from the IBA processing, IBAA storage and other waste handling areas was not suitable for discharge to the attenuation pond and should either be tankered off site, or discharged to foul sewer subject to agreement with the sewerage undertaker, unless it can be proven that this run-off is uncontaminated. PO6 requires the operator derive appropriate parameters and limits to determine if run-off can be considered uncontaminated.

Natural Resources Wales are satisfied that there will be no adverse impact on the environment as a result of emissions to water from the site.

6.3 Emissions to land or groundwater.

There are no releases to land or groundwater associated with the installation.

We are satisfied that the pollution risk associated with the installation is low based on the use of appropriate surfacing, satisfactory containment, inspection measures and the operating procedures which will be put in place as part of the ISO 14001 environmental management system. The Applicant has confirmed that CIRIA guidelines will be complied with for the design and construction of all containment tanks and bunding.

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

6.4 Emissions to sewer

There are no releases to sewer associated with the installation. Any potentially contaminated water that is not suitable for discharge to surface water via the attenuation pond as detailed in Section 6 of BATOT will be tankered off site.

We are satisfied that the pollution risk associated with the installation is low based on the use of appropriate surfacing, satisfactory containment, inspection measures and the operating procedures which will be put in place as part of the ISO 14001 environmental management system.

6.5 Fugitive emissions

The Applicant describes within Section 8 – Environmental Risk Assessment, Table 8 – Fugitive Emissions and Management Plan the techniques and processes that will be used to minimise fugitive emissions from the site. These techniques are also included within the Fugitive Emissions Management Plan for the site. Measures to control fugitive emissions are also described within sections 14 – 16 of the BATOT supporting document. The design of the buildings is based on the principles of containment, extraction and treatment in order to prevent fugitive releases. With regards to fugitive emissions of dust and litter, good housekeeping will be implemented across the site in order to mitigate the potential for dust emissions, including the use of a road sweeper. Water bowzers will also be used if appropriate. Hard surfaced areas including access roads will be subject to a regular programme of cleaning.

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

6.6 Odour

The Applicant describes within Section 8 of the Application the techniques and processes that will be used to minimise fugitive emissions from the site. These techniques are included within the Odour Management Plan for the site.

Odour management at the ERF is based on the following principles:

- the facility is designed to be enclosed with reception and treatment occurring within the confines of the building;
- the building has been designed and constructed to minimise fugitive emissions; and
- the building heights have been minimised to control the total volume of air to be managed by the combustion process.

The Odour Management Plan has been incorporated into the Operating techniques of the permit in Table S1.2.

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

6.7 Noise and vibration

Noise has been identified as one of the key concerns with regards to this application. The Applicant has carried out a detailed assessment of potential noise impacts. This has been thoroughly scrutinised by NRW's noise specialists including several requests for extra information relating to manufacturers sound

values, internal noise reverberation and sound reduction properties of building materials.

NRW's noise specialists made an assessment of the information supplied as part of the noise assessment supporting the application. Although we did not agree with the Applicant's specific numerical predictions, our checks, based on the given sound information indicate that: the proposed facility is unlikely to lead to cause for noise complaints in line with the methodology set out in BS 4142: 1997. We therefore concur with the Applicant's conclusion that at sensitive residential receptors, the difference between the predicted rating level and background according to BS 4142:1997 are either: a positive indication complaints are unlikely (i.e. a difference of more than -10dB); or between a positive indication complaints are unlikely and marginal significance (i.e. difference between -10dB and +5dB)

The Applicant's noise modelling was conducted using proprietary software CadnaA (version 4.4). CadnaA implements the attenuation calculation scheme detailed in ISO 9613-2.

The applicant has assessed three operational periods: Daytime, Night-time and Weekend (Sunday morning).

The Applicant has assessed operational noise using the BS 4142: 1997 method for rating industrial noise affecting mixed residential and industrial areas. BS 4142: 1997 assesses the likelihood of complaints by subtracting the measured background noise level from the rating level:

- A difference of 'around +10dB' or more indicates complaints are likely.
- A difference of 'around +5dB' is of marginal significance.
- If the rating level is more than 10dB below the measured background level then this is a positive indication complaints are unlikely.

BS 4142: 1997 states that a +5dB rating correction should be added to the specific noise level where the noise contains a distinguishable, discrete, continuous note (whine, hiss, screech, hum, etc.); distinct impulses (bangs, clicks, clatters, or thumps); or is irregular enough to attract attention.

The Applicant has applied the +5dB rating correction to all assessed sensitive human receptors. They state: *"It is assumed that the plant would have some intermittent noise sources or noise sources that will be variable in nature, therefore an acoustic feature correction of +5dB has been added to the noise level to give a noise rating level, L_{Ar,T}."*

The Applicant has conducted a background noise survey at three locations. Measurements were recorded at Burton Point Farm, Barn Farm and Sealand Avenue on Thursday 15th and Friday 16th of November 2012 and on the morning of Sunday 8th June 2014.

The Applicant has assessed noise impacts at five sensitive residential receptors: Burton Point Farm, Burton Mere House, Barn Farm, Sealand Avenue and The Airfield (a development site with a proposed industrial, commercial and

residential elements). The closest of which is Burton Mere House just over 1.5km from the proposed ERF. The Applicant has assumed that the background measurements at Burton Mere House and The Airfield are the same as those recorded at Barn Farm and Sealand Avenue respectively.

Following BS 4142: 1997 their rating levels indicate either: a positive indication complaints are unlikely (i.e. a difference of more than -10dB); or between a positive indication complaints are unlikely and marginal significance (i.e. difference between -10dB and +5dB).

An independent report into the submitted noise assessment highlighted concerns related to operational noise and some assumptions that had been made by the applicant. It was recommended that clarification be sought regarding how values had been derived and also details of algorithms employed in the calculations. It should be noted that the report agrees with the Applicants conclusions that noise and vibration are unlikely to cause nuisance.

We requested additional information for the applicant to clarify some uncertainties:

- Manufacturers sound power level data for the mechanical equipment within the facility. We also requested clarification of how sound levels for Flue Gas Treatment, Air Cooled Condenser, stack outlet, through to IBA Processing area were estimated.
- We requested clarification of where the sound reduction properties of the building materials were derived from.
- We asked that sound breakout from the IBA processing building and raw IBA area building be modelled.
- We also requested that noise impact when doors are open be modelled.
- We requested clarification of whether the internal reverberant sound levels were taken from measurements at another similar plant or calculated from manufacturer data. If it was calculated we requested demonstration of how the power levels from each machine had been considered and how the size of the building has been considered.

The Applicants provided all information requested. We assessed all submitted information and are satisfied that there is unlikely to be pollution due to noise at any of the sensitive receptors.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise noise and to prevent noise disturbance.

In addition, the permit also contains the standard conditions for noise (3.4.1 and 3.4.2). We consider that these will be sufficiently protective.

6.8 Global warming potential

This section summarises the assessment of greenhouse gas impacts which has been made in the determination of this Permit. Emissions of carbon dioxide (CO₂) and other greenhouse gases differ from those of other pollutants in that, except at gross levels, they have no localised environmental impact. Their

impact is at a global level and in terms of climate change. Nonetheless, CO₂ is clearly a pollutant for IED purposes.

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

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

The electricity that is generated by the Installation will displace emissions of CO₂ elsewhere in the UK, as virgin fossil fuels will not be burnt to create the same electricity. The Applicant has therefore included within its GWP calculations a CO₂ offset for the net amount of electricity exported from the Installation.

Global Warming Potential (GWP100) emissions as carbon dioxide equivalents (CO₂e) are estimated for the proposed Parc Adfer ERF in accordance with the Environment Agency's Horizontal Guidance Note, H1. Assessment uses the H1 screening tool, developed to support the H1 Guidance method.

Energy use information has been obtained from information from the technology providers and supported by data from BREF notes and experience of similar projects elsewhere. Data includes GWP releases from the combustion technologies and fuel use and savings by recovering energy and reducing GWP from all sources.

The EA factors for Electrical Supply are low compared to Defra/DECC guidelines. Using the latter factors indicates overall emissions from recovered electrical energy mode and full CHP mode of CO₂e as **3,317tpa** and - **7,562tpa** respectively.

H1 does not provide criteria for the determination of GWP significance. For comparison, government figures indicate that the UK is responsible for releasing around 700-800 million tpa CO₂, the average household is responsible for around 25 tpa CO₂ and a 1km stretch of motorway generates around 3000 tpa as CO₂ [based on 70,000 vehicles per day at an average release rate of 120 g/km].

Assessment indicates that when electrical energy generation and heat recovery are taken into account the proposed ERF does not have a significant negative impact on GWP and when fully operational as a CHP plant will have a positive benefit on GWP reduction.

7. Setting ELVs and other Permit conditions

7.1 Translating BAT into Permit conditions

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

At the time of writing of this document, no BAT conclusions have been published for waste incineration or co-incineration.

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

7.1.1 National and European EQSs

As detailed in section 5.1, the environmental impact of the installation has been assessed against relevant EQSs, at the level of performance required by IED. The installation will not result in the breach of any EQSs. We accept that the applicant's proposals are BAT and that there is no justification to reduce ELVs below IED levels in these circumstances.

7.1.2 Global Warming

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

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

7.1.3 Commissioning

Before the plant can become fully operational, it will be necessary for it to be commissioned. Before commissioning is allowed to start, the operator is required by pre-operational condition PO2 to submit a commissioning plan to Natural Resources Wales for approval. The commissioning plan will address the expected emissions to the environment associated with the different stages of commissioning and the duration and timelines for completion of each stage. The purpose of this pre-operational condition is to ensure that the risks to the environment continue to be minimised throughout the commissioning process. As such, the operator is required to describe the actions that will be taken to protect the environment and also to inform Natural Resources Wales in the event of actual emissions exceeding expected emissions. The operator will be required to carry out commissioning in line with the commissioning plan, once it is approved by Natural Resources Wales.

We have also set improvement condition (IC1) which is required to be completed within 4 months of the completion of commissioning. IC1 requires the operator to submit a written report for approval on the commissioning of the installation. The purpose of this condition is to provide a comparison of the environmental performance of the plant as installed against the original design parameters which were set out in the application. The report shall also review the performance of the installation against the permit conditions and shall include details of any procedures developed during commissioning for achieving and demonstrating compliance with permit conditions. This will provide an accurate picture of the plant's performance in its "as built" state and the response to this improvement condition will be incorporated into Table S1.2 of the permit as an operating technique.

In addition, it is recognised that certain information presented in the application was based on design data, or data from comparable equipment and the commissioning phase is the earliest opportunity to verify much of this information. The following improvement conditions have been included in the permit so that appropriate verifications will be determined by the operator:

- Verification of furnace residence time, temperature and oxygen content (IC2);
- Optimisation of the abatement plant. (IC3)
- Identification of the size distribution of particulate matter in exhaust gases (IC4)
- Calibration of the CEMs in accordance with BS EN 14181 (IC6).

7.2 Monitoring

7.2.1 Monitoring during normal operations

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

For emissions to air, the methods for continuous and periodic monitoring are in accordance with the Environment Agency's Guidance M2 for monitoring of stack emissions to air.

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

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

The operator has confirmed that they wish to take advantage of the IED Article 45(1)(f) allowance which allows abnormal operation of the plant under certain circumstances when the CEM for releases to air have failed. The operator has confirmed that a standby probe and standby CEMs will be available in the event of primary CEMs failure. In the unlikely event that the back-up CEMS also fail Condition 2.3.10 of the permit requires that the abnormal operating conditions apply.

The operator has stated that they will provide back-up CEMS working in parallel to the operating CEMS. These will be switched into full operation immediately in the event that there is any failure in the regular monitoring equipment. The back-up CEMS measure the same parameters as the operating CEMS.

7.3 Reporting

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

ANNEX 1: Pre-Operational Conditions

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

Reference	Pre-operational measures
PO1	At least 1 month prior to the commencement of commissioning, the operator shall submit to Natural Resources Wales for approval 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.
PO2	At least 2 months prior to the commencement of commissioning; the operator shall provide a written commissioning plan, including timelines for completion, for approval by Natural Resources Wales. 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 Natural Resources Wales in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO3	At least 1 month prior to the commencement of commissioning, the operator shall submit a written report to Natural Resources Wales 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. The procedure shall be implemented in accordance with the written approval from Natural Resources Wales
PO4	After completion of furnace design and at least three calendar months before any furnace operation; the operator shall submit a written report to Natural Resources Wales of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by the Industrial Emissions Directive.
PO5	At least 4 months prior to operations commencing, the Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by Natural Resources Wales. 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. The procedure shall be implemented in accordance with the written approval from Natural Resources Wales.

ANNEX 2: Improvement Conditions

Based in the information in the Application we consider that we need to set improvement conditions. These conditions are set out below - justifications for these are provided at the relevant section of the decision document. We are using these conditions to require the Operator to provide Natural Resources Wales with details that need to be established or confirmed during and/or after commissioning.

Reference	Improvement measure	Completion date
IC1	The operator shall submit a written report to Natural Resources Wales 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 against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 4 months of the completion of commissioning.
IC2	The operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to Natural Resources Wales.	Within 4 months of the completion of commissioning.
IC3	<p>The operator shall submit a written report to Natural Resources Wales describing the performance and optimisation of the Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO_x) emissions within the emission limit values described in this permit with the minimisation of nitrous oxide emissions. The report shall include an assessment of the level of NO_x and N₂O emissions that can be achieved under optimum operating conditions.</p> <p>The report shall also provide details of the optimisation (including dosing rates) for the control of acid gases and dioxins</p>	Within 4 months of the completion of commissioning.

Reference	Improvement measure	Completion date
IC4	<p>The operator shall submit a written proposal to Natural Resources Wales to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1, identifying the fractions within the PM₁₀, and PM_{2.5} ranges. The proposal shall include a timetable for approval by Natural Resources Wales to carry out such tests and produce a report on the results.</p> <p>On receipt of written agreement by Natural Resources Wales to the proposal and the timetable, the Operator shall carry out the tests and submit to Natural Resources Wales a report on the results.</p>	Within 6 months of the completion of commissioning.
IC5	The operator shall submit a written report to Natural Resources Wales on the implementation of its Environmental Management System 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.
IC6	The operator shall submit a written summary report to Natural Resources Wales to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	<p>Initial calibration report to be submitted to Natural Resources Wales within 3 months of completion of commissioning.</p> <p>Full summary evidence compliance report to be submitted within 18 months of commissioning.</p>

ANNEX 3: Consultation Responses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with Natural Resources Wales 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 all consultation responses have been placed on Natural Resources Wales public registers.

The Application was advertised on the Natural Resources Wales website from 3rd December 2014 to 3rd February 2015 and in the Flintshire Chronicle on the 5th December 2014 and the Wirral News on the 10th December 2014. We also issued a press release about the application on 3rd December 2014. Copies of the Application were placed on our Public Register at Natural Resources Wales, Chester Road, Buckley, Flintshire, CH7 3AJ.

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

- Flintshire County Borough Council (Environmental Protection Department)
- Flintshire County Borough Council (Planning Department)
- Cheshire West and Chester Council (Environmental Protection Department)
- Wirral Metropolitan Borough Council Environmental Protection Department.
- Dŵr Cymru Welsh Water
- Food Standards Agency
- Health and Safety Executive
- Betsi Cadwaladr University Health Board
- Public Health Wales
- North Wales Fire and Rescue Service
- National Grid

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Flintshire Borough Council	
Brief summary of issues raised:	Summary of action taken / how this has been covered
No issues raised	None required

Response Received from Betsi Cadwaladr University Health Board / Public Health Wales	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<p>Acknowledged that there is generally little health risk from well-run incinerators. Provided the following recommendations:</p> <ul style="list-style-type: none"> • Applicant should agree a timetable for accreditation to ISO14001 • NRW should be satisfied that air quality is not adversely compromised. • The applicant should undertake stack emission testing • Fugitive emissions should be controlled. • NRW should be satisfied with implementation of fire prevention measures. • NRW should be satisfied that the Odour Management Plan is suitable. • NRW should be satisfied that all on site storage of liquids is suitably bunded. 	<ul style="list-style-type: none"> • Improvement condition 5 requests a written report on the implementation of its Environmental Management System 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. • We have assessed the applicants Air Quality Dispersion modelling and we agree with the conclusion that there is unlikely to be an exceedance of any long-term and short-term air quality standards for human health at sensitive receptors. • A combination of periodic and Continuous Emissions Monitoring will monitor for the parameters listed in Table S3.1 of the permit. • Condition 3.2 of the permit addresses fugitive emissions as follows Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. • The applicant has considered fire risk in section 3.2.9 of the BATOT document. We are satisfied with the measures proposed. • A pre-operational Odour Management Plan (OMP) was submitted with the application. NRW were satisfied that OMP was satisfactory. Condition 3.3.1 has been set that requires the activities to be free from odour at levels likely to cause pollution outside of the site. • We are satisfied that all liquids will be stored in suitably bunded containers. Condition 3.2.3 has been set which requires that all liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment.

Response Received from National Grid	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Objections have been raised with regards to the proximity of the facility to the National Gas Grid Line	None required – these concerns are related to location of the facility which is controlled by planning.
No responses received from	<ul style="list-style-type: none"> • North Wales Fire and Rescue Service • Health and Safety Executive • Cheshire West and Chester Council Environmental Protection Department • Wirral Metropolitan Borough Council Environmental Protection Department • Dŵr Cymru Welsh Water • Food Standards Agency.

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

A number of the issues raised during the consultation process are outside Natural Resources Wales remit in reaching its permitting decisions. Specifically questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission.

Guidance on the interaction between planning and pollution control is given in PPS23 / Planning Policy Wales. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues, which fall within the scope of the Environmental Permitting Regulations.

a) **Representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils**

There were no representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils

b) Representations from Community and Other Organisations

Response Received from Burton Residents Association	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<p>Burton Resident Association employed Professor Oldham of Liverpool University to prepare a report on the Applicants Noise Assessment. Professor Oldham had concerns related to operational noise and some assumptions that had been made by the applicant. It was recommended that clarification be sought regarding how values had been arrived at and also details of algorithms employed in the calculations. It should be noted that the report agrees with the Applicants conclusions that noise and vibration are unlikely to cause nuisance. The association also have concerns that noise and odour could escape from the building when doors are open.</p>	<p>We requested additional information from the applicant to clarify:</p> <ul style="list-style-type: none"> • Manufacturers sound power level data for the mechanical equipment within the facility. We also requested clarification of how sound levels for the Flue Gas Treatment, Air Cooled Condenser, stack outlet, through to IBA Processing area were estimated. • We requested clarification of where the sound reduction properties of the building materials were derived from. • We asked that sound breakout from the IBA processing building and raw IBA area building be modelled. • We also requested that noise impact when doors are open be modelled. • We requested clarification of whether the internal reverberant sound levels were taken from measurements at another similar plant or calculated from manufacturer data. In considering how the reverberant sound levels were derived we requested demonstration of how the sound power levels from each machine had been considered and how the size of the building has been considered. • The Applicant provided all information that we requested. Our noise specialists carried out an assessment of all submitted information and were satisfied that there is unlikely to be an issue with noise from this facility. • With regards to odour, the applicant has submitted an Odour Management Plan which we have agreed is satisfactory.

c) Representations from Individual Members of the Public

Response Received from Member of the public	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<ul style="list-style-type: none"> Comments about mobile refuse container (bins) susceptibility to high winds Comments regarding refuse collection and grading of waste 	None taken. This is outside of Natural Resources Wales remit under the Environmental Permitting (England and Wales) Regulations 2010 (as amended).

Response Received from Member of the public	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<ul style="list-style-type: none"> Suggested monitoring of IBAA for concentration of harmful chemicals especially heavy metals which could leach into environment from rain or dust. Also suggested monitoring for dioxins and PCB's. Queried eventual fate of active carbon filters and fabric filters (bag filters). Response made about segregating recycling. Not burning PVC from old window frames. Suggest that alternative transport should be used other than road. Suggested that waste can be brought in by new river crossing but especially suggests that rail should be made use of. 	<ul style="list-style-type: none"> IBA will be appropriately monitored. PO1 has been set which requires a protocol for monitoring of IBA to be submitted to Natural Resources Wales for approval. The operator has demonstrated tour satisfaction that the risk from dioxins and PCB's is very low. This is addressed in the section on Human Health Risk Assessment. Permit Condition 1.4.1 requests that the operator shall take appropriate measures to ensure that: <ul style="list-style-type: none"> (a) The waste hierarchy referred is applied to the generation of waste by the activities; and (b) any waste generated by the activities is treated in accordance with the waste hierarchy; and (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment. Natural Resources Wales have no control over recycling collection. This is controlled by the relevant Local Authority. Waste shall only be incinerated if it is not suitable for recycling. Natural Resources Wales have no remit to control transport used this is considered by the Local Planning Authority. .

Response Received from Member of the public	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<ul style="list-style-type: none"> Queried if applicant had completed R1 calculations 	None taken. R1 calculations have been completed by the applicant however assessment of R1 calculations is not material to the determination of the permit application.

Annex 4 - Consultation Responses following “minded to” consultation

Response Received from Burton Residents Association	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<ul style="list-style-type: none"> • Reiterated concerns with regards to noise and in particular noise escaping through the tipping hall. • Requested confirmation that the tipping hall has sound absorbent materials added to the internal surfaces of the building or if this is not the case that these measures be added to the inside surfaces of the buildings. 	<p>None taken. Noise modelling has been carried out as described in section 6.7 of this document which assumed that the roller shutter doors are acoustically transparent. This means that no noise attenuation factors have been attributed to the doors, (in essence this provides the same sound attenuation as though the doors were open). The results of the modelling conclude that there is no positive indication that complaints are likely to be caused by noise from the proposed facility when assessed against BS 4142:1997 methodology. On this basis, we are satisfied that additional sound absorbent material on the internal surfaces of the building is not required.</p>

Response Received from member of the public	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<ul style="list-style-type: none"> • Objection based on grounds of health risks posed by the incinerator. • Requests that permits only be granted if there are no risks and no emissions. • Queries why a bespoke permit is being issued and believes that this implies there is more than a low risk associated with this type of facility. 	<p>None taken. Air Dispersion Modelling has been undertaken which demonstrates that the emissions screen out as insignificant from the proposed facility. Public Health Wales and the local Health Board have been consulted and have acknowledged that there is very little health risk associated with well-run waste incinerators. We are satisfied that emissions from the facility will not adversely affect human health and the environment.</p>

Response Received from member of the public	
Brief summary of issues raised:	Summary of action taken / how this has been covered
<ul style="list-style-type: none"> • Objection based on size and that Flintshire would not produce enough waste to keep incinerator burning. • Objection because of increased traffic. • Objection based on grounds of health risks posed by the incinerator. • Objection based on climate change. • Suggested alternatives – wave power. 	<p>None taken.</p> <p>The size of the facility is outside of NRW's remit, and is instead controlled by the planning authority. The facility will accept waste from all the counties of North Wales and we are confident that the proposed permitted volumes are sufficient.</p> <p>Traffic concerns are outside of NRW's remit. Instead these are controlled by the planning authority.</p> <p>Air Dispersion Modelling has been undertaken which demonstrates that the emissions screen out as insignificant from the proposed facility. Public Health Wales and the local Health Board have been consulted with who acknowledge that there</p>

	<p>is very little health risk associated with well-run waste incinerators.</p> <p>By diverting non-recyclable waste from landfill and generating energy from waste, the facility will have a less negative effect on climate change than other waste disposal options.</p> <p>It is beyond NRW's remit to consider alternative energy solutions when assessing permit applications.</p>
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