

## Natural Resources Wales permitting decisions

### Variation and consolidation of a bespoke permit – Tradebe Healthcare National Limited

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Wrexham Clinical Waste Treatment Facility (Incinerator) in Wrexham operated by Tradebe Healthcare National Limited.

The permit number is EPR/WP3836ZF and the variation number is EPR/WP3836ZF/V005.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Document (BREF) for Waste Incineration. The associated BAT conclusions to this document were published on 3 December 2019 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Waste Incineration sector. These include the amendment of the wording of several permit conditions including changes to emissions limits and monitoring requirements.

The opportunity has been taken to consolidate the original permit and subsequent variations. The rest of the installation is unchanged and continues to be operated as stated in the permit.

### Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's permit;
- why we have decided to vary the permit as a result of that review; and
- why we have included the specific conditions in the revised permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

### Structure of this document

- Assessment of the installation against the published BAT conclusions for Waste Incineration
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions for Waste Incineration.

- Annex 2 – Decision Checklist regarding additional information requested in Regulation 61(1) Notice

## **Assessment of the installation against the published BAT conclusions for Waste Incineration**

### **1. Our decision**

We have issued a variation, which will allow the Operator to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through this and any earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate BAT and BAT-Associated Emission Levels (BAT-AELs).

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

The original permit, issued on 14/12/2005 and any subsequent variations, ensured that the installation, employed BAT and ensured a high level of protection for human health and the environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a higher level of protection to that which was previously achieved. Where a site is not currently compliant with BAT, Improvement Conditions have been included to ensure compliance with the latest BAT standards by 3 December 2023.

### **2. The legal framework**

The variation and consolidation notice (which includes the consolidated permit as Schedule 2) will be issued under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 (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 as described by the Industrial Emissions Directive (IED);
- an operation covered by the Waste Framework Directive;
- subject to aspects of other legislation including the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We consider that, in issuing the variation and consolidated permit, it will ensure that the operation of the installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

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

### **3. How we reached our decision**

#### **Requesting information to demonstrate compliance with BAT Conclusion techniques**

We issued a notice under Regulation 61(1) of EPR on 15/06/2021 requiring the operator to provide information to demonstrate how the operation of their installation currently meets, or will meet by the compliance date of 3 Dec 2023, the revised standards described in the relevant BAT Conclusions document.

The Regulation 61(1) Notice required the operator to undertake the following actions, where relevant:

1. Confirm whether or not they currently comply with the requirements of the BAT Conclusion, including any associated emission levels, providing a description of the techniques in place and how they meet the standard
2. If they do not comply with the BAT conclusion, describe how and by when they intend to meet the standard, before the compliance date
3. Confirm if they intend to continue operating in a manner which would not comply with the relevant new BAT Conclusion after the compliance date, if so, provide a justification for being allowed to do so and by what date they intend to come into full compliance, or a description of alternative measures to be adopted that will provide equivalent environmental protection
4. Where the BAT conclusion has a BAT-AEL specified, with which they will not comply with by the compliance date, requirement that the operator should consider requesting a derogation. The notice also explained the strict criteria under which a derogation application may be considered and made clear that any application is the responsibility of the operator.

The following additional information was also required:

- A. Where compliance with the BAT conclusions leads to the substantial refurbishment or installation of a new industrial installation with an aggregate thermal input of greater than 20 MWth, which generated more than 100 KWth of waste heat, the Operator must provide sufficient technical and commercial evidence to demonstrate compliance with Article 14, paragraph 5 of directive 2012/27/EU on Energy Efficiency.
- B. For all discharges to surface water and/or sewers from the site, the Operator must provide information for priority hazardous substances and any other relevant substances.
- C. Where their permitted activity involves the use, production or release of a relevant hazardous substances (as defined in Article 3(18) of the IED) the Operator was required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances.
- D. Provide us with details of fixed combustion plant from 1 MWth up to but not including 50 MWth.
- E. Provide an updated completed OPRA spreadsheet for the facility.

The Regulation 61(1) Notice response from the operator was received on 14/12/2021

and additional information received on 05/04/2022. Where the operator has concluded that they have achieved BAT, and we are in agreement, no further information or justification has been sought by Natural Resources Wales.

We considered that the response contained sufficient information for us to commence determination of the permit review. The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part.

#### 4. Key issues/Regulation 61 response

BAT Conclusions for Waste Incineration were published as Commission Implementing Decision EU 2019/2010/EU in the Official Journal of the EU on 3 December 2019. There are 37 BAT Conclusions. Annex 1 provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit/variation notice issued. Annex 2 provides a record of decisions made in relation to each of the five additional requested items (A – E as above).

The main changes introduced by the latest BAT conclusions include:

- Introduction of new, more stringent BAT-Associated Emission Limits for certain substances, as detailed below
- Enhanced monitoring requirements for certain emissions
- Further enhancements to required management systems and processes, for example the requirement for every site for an OTNOC (other than normal operating conditions) management plan.

#### Other IED BREFs relevant to the permit review

There are no specific listed activities within Table S1.1 of the permit, therefore no other IED BREFs are relevant to the permit review.

#### 5. Changes we have made

We have varied the permit where appropriate to incorporate BAT and BAT-AELs, along with the necessary monitoring. A notable new monitoring requirement includes continuous monitoring of mercury as detailed in Annex 1.

#### Improvement Conditions

Based on the information provided in the Regulation 61(1) response, we consider that we need to set 7 improvement conditions. These conditions are set out below.

**Table S1.3 Improvement programme requirements**

| Reference | Requirement | Date |
|-----------|-------------|------|
|-----------|-------------|------|

|      |  |  |
|------|--|--|
| IC11 | <p>The operator shall submit to Natural Resources Wales an assessment of the impacts to air quality and habitats on the worst case use of the plant's emergency release valve (ERV) considering both duration and frequency of events based on operation of the ERV at the installation over the last 5 years. Where the assessment uses data from sources other than measured data at this incineration plant, the operator shall provide a justification.</p>  | 21/06/2023   |
| IC12 | <p>The operator shall carry out a study to determine if additional measures will be needed at the installation to meet the standards specified within BAT Conclusion 29 of the Waste Incineration BREF Document (EU 2019):</p> <p>The study shall also contain a description of how the measures will be operated on an ongoing basis to minimise NOx emissions, including target emission limit values for NOx and for any reagent used (including process optimisation and monitoring).</p> <p>A written report of the study shall be submitted to Natural Resources Wales.</p>  | 30/09/2023 or as agreed in writing with Natural Resources Wales          |
| IC13 | <p>The operator shall calculate the boiler efficiency using the method set out in the general considerations section of the BAT conclusions and submit details of the calculation to Natural Resources Wales. The calculation shall use the R1 efficiency status, boiler efficiency determination guidance (or other methodology as agreed in writing with Natural Resources Wales) to calculate boiler efficiency which can then be used to calculate Qth.</p> <p>Where the calculated boiler efficiency is below the range specified in BAT 20 of the BAT conclusions. The operator shall carry out an assessment of the opportunities to increase the energy efficiency of the installation.</p> <p>The assessment shall include but not necessarily be limited to:</p> <ul style="list-style-type: none"> <li>• Improvements that could be made to the furnace (including control systems) in order to increase the amount of thermal energy produced per unit of thermal energy in the waste.</li> <li>• Improvements that could be made to the steam system and related components to allow a greater quantity of electricity to be generated per unit of thermal energy in the steam.</li> <li>• Improvements in the heat and electrical efficiency of the plant's ancillary systems that could be made in order to reduce the parasitic heat and electrical loads of the plant.</li> <li>• Where relevant, an implementation plan for the improvements identified, including the anticipated increase in the gross and/or net electrical efficiency of the plant which would be achieved.</li> <li>• A review of the viability of Combined Heat and Power (CHP) implementation</li> </ul> <p>A written copy of the assessment shall be submitted to Natural Resources Wales.</p> | 21/09/2023   |
| IC14 | <p>The operator shall submit an Other than normal operating conditions (OTNOC) management plan to Natural Resources Wales for approval.</p> <p>The OTNOC management plan shall be produced in line with all relevant current guidance provided by Natural Resources Wales to the operator and shall consider the requirements of the following BAT conclusions of the Waste Incineration BREF Document (EU 2019):</p> <ul style="list-style-type: none"> <li>• BAT 1 (xxiv) – BAT is also to incorporate the following features in the EMS: <ul style="list-style-type: none"> <li>◦ (xxiv) for incineration plants, an OTNOC management plan (see BAT 18)</li> </ul> </li> <li>• BAT 5 – BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC</li> <li>• BAT 18 – In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions to air and, where relevant, to water from the incineration plant during OTNOC, BAT is to set</li> </ul>   | 03 June 2023 or otherwise agreed in writing with Natural Resources Wales |

|      |   |  |
|------|---|--|
|      | <p>up and implement a risk based OTNOC management plan as part of the environmental management system (BAT 1) that includes all of the following elements:</p> <ul style="list-style-type: none"> <li>o Identification of potential OTNOC (e.g. failure of equipment critical to the protection of the environment ('critical equipment')), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below;</li> <li>o Appropriate design of critical equipment (e.g. compartmentalisation of the bag filter, techniques to heat up the flue-gas and obviate the need to bypass the bag filter during start-up and shutdown, etc.);</li> <li>o Set-up and implementation of preventative maintenance plan for critical equipment (see BAT 1(xii))</li> <li>o Monitoring and recording of emissions during OTNOC and associated circumstances (see BAT 5)</li> <li>o Periodic assessment of the emissions during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.</li> </ul> <p>The OTNOC management plan shall be submitted to Natural Resources Wales for approval by the date specified.</p>  |  |
| IC15 | <p>The Operator shall submit a written report to Natural Resources Wales for written approval on all discharges to surface waters and/or sewer from the site, you must provide information for priority hazardous substances and any other relevant substances.</p> <p>The emissions monitoring for these substances should be carried out using the methods and standards described in the M18 guidance on "Monitoring of discharges to water and sewer".</p> <p>With reference to the risk assessment guidance on the gov.uk website entitled "Surface water pollution risk assessment for your environmental permit" (accessible via this link: <a href="https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit">https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit</a>) carry out the following assessments:</p> <ul style="list-style-type: none"> <li>• Screening tests for priority hazardous pollutants and any other relevant priority hazardous substances.</li> <li>• For any substance which is not screened out by the screening tests you will need to carry out modelling, as described in the risk assessment guidance "Surface water pollution risk assessment for your environmental permit".</li> </ul> <p>You must provide us with the results from the emissions monitoring, the results from the screening tests and the results from any modelling.</p> <p>You can use the H1 electronic screening tool to present the emissions data and to carry out the screening tests. We will provide a copy of the tool to your local representative at the site address.</p> <p>With regard to the screening a full list of relevant substances is provided on the "Surface water pollution risk assessment for your environmental permit" pages of the gov.uk website. You should review the list and carry out the screening for any hazardous pollutants.</p> | 03 June 2023 or otherwise agreed in writing with Natural Resources Wales |
| IC16 | <p>The Operator shall submit a written report to Natural Resources Wales for written approval on the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED and provided in accordance with the European Commission Guidance concerning the baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions. The report shall contain information, supplementary to that already provided in the application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED</p>  | 03 June 2023 or otherwise agreed in writing with Natural Resources Wales |

|      |  |   |
|------|--|---|
| IC17 | <p>The operator shall submit a residues management plan to Natural Resources Wales for written approval. This plan shall include measures aimed to:</p> <ul style="list-style-type: none"> <li>(a) Minimise the generation of residues</li> <li>(b) Optimise the reuse, regeneration, recycling of and/or energy recovery from the residues</li> </ul> <p>Ensure the proper disposal of residues</p> | <p>03 June 2023 or otherwise agreed in writing with Natural Resources Wales</p> |
|------|--|---|

IC11 has been included in the permit for the operator to provide an assessment of the impacts to air quality and habitats on the use of the plant's emergency release valve.

IC12 has been included in the permit for the operator to demonstrate compliance with all relevant BATc relating to the measures to control NO<sub>x</sub> emissions.

IC13 has been included in the permit for the operator to demonstrate compliance with all relevant BATc relating to the Energy Efficiency.

IC14 has been included in the permit for the operator to demonstrate compliance with all relevant BATc relating to the OTNOC management plan.

IC15 has been included in the permit for the operator to provide necessary information for any priority hazardous substances in discharges to water.

IC16 has been included in the permit for the operator to provide information on the current state of soil and groundwater contamination.

IC17 has been included for the operator to submit a residues management plan.

### **Other changes**

The operating techniques have been updated to incorporate the response due in compliance with improvement condition IC14.

### **Changes to permit conditions**

The permit has been consolidated which means it has taken account of all previous variations and been issued in line with our modern permit template. Therefore, there will have been changes to the permit conditions due to the consolidation. Where we have added specific conditions these are discussed below. We have not detailed any existing conditions that have been amended due to the review of our permit template.

### **Circular economy conditions**

We have added the following conditions to the permit. These conditions have been added to ensure compliance with the Waste (England and Wales) Regulations 2011:

- 2.3.3 Waste paper, metal, plastic or glass that has been separately collected for the purpose of preparing for re-use or recycling shall not be accepted. Waste from the treatment of these separately collected wastes shall only be accepted if



incineration delivers the best environmental outcome in accordance with regulation 12 of the Waste (England and Wales) Regulations 2011.

- 2.3.4 Separately collected fractions other than those listed in condition 2.3.4 shall not be accepted unless they are unsuitable for recovery by recycling.

#### Monitoring of N<sub>2</sub>O, flow and CO<sub>2</sub>

We have added the monitoring of N<sub>2</sub>O, volumetric flow and CO<sub>2</sub> into Table S3.1 from the BREF compliance date (3 December 2023). We have implemented this to improve the quality of the data supply for UK Pollutant Release and Transfer Register (PRTR) reporting. This monitoring is already being completed on a voluntary basis at sites and now becomes part of the permit requirements.

#### **Emissions to Air**

There were changes to the ELVs for emissions to air taking into account BAT Conclusions 25 to 31.

The tables below outline the changes to the ELVs.

| Release point | Parameter   | Limit / BAT-AEL (effective until 2 December 2023) | Limit / BAT-AEL (effective from 3 December 2023) |
|---------------|---|---|--|
| A1            | Particulate matter  | 10 mg/m <sup>3</sup>                              | 5 mg/Nm <sup>3</sup>                             |
|               | Hydrogen chloride   | 10 mg/m <sup>3</sup>                              | 8 mg/Nm <sup>3</sup>                             |
|               | Hydrogen fluoride   | 2 mg/m <sup>3</sup>                               | 1 mg/Nm <sup>3</sup>                             |
|               | Sulphur dioxide   | 50 mg/m <sup>3</sup>                              | 40 mg/Nm <sup>3</sup>                            |
|               | Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) | 400 mg/m <sup>3</sup>                             | 180 mg/Nm <sup>3</sup>                           |
|               | Cadmium & thallium and their compounds (total)                            | 0.05 mg/m <sup>3</sup>                            | 0.02 mg/Nm <sup>3</sup>                          |
|               | Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)          | 0.5 mg/m <sup>3</sup>                             | 0.3 mg/Nm <sup>3</sup>                           |
|               | Mercury and its compounds   | 0.05 mg/m <sup>3</sup>                            | 0.02 mg/Nm <sup>3</sup>                          |
|               | Dioxins / furans (I-TEQ)  | 0.1 ng/m <sup>3</sup>                             | 0.06 ng/Nm <sup>3</sup>                          |

Where BAT-AELs are identified, limits may be prescribed at the top end of the range unless the proximity of sensitive receptors requires a tighter limit, or if tighter limits are previously on the permit, in which case these are retained to ensure no backsliding of emission limits.

#### **Emissions to Air – Article 15(4) Derogations**

No derogations.

#### **Emissions to water**

There are two emissions to surface water from the installation, one of uncontaminated surface water to surface water and one of Boiler blowdown, effluent from ash quench pit and drainage from bin wash to foul sewer. There are no emissions to a water body from the following processes:

- Flue-gas cleaning (FGC)
- Bottom ash treatment



The BAT-AELs only apply if either of these two processes are being carried out. Therefore, the BAT-AELs do not apply and there are no changes to any current ELVs.

#### **Emissions to Water – Article 15(4) Derogations**

No derogations.

### **6. Conclusion**

We consider that the installation will require improvements in performance by the compliance date to achieve BAT. The revised BREF and its BAT-AELs provide the opportunity to implement environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

## Annex 1: Decision Checklist regarding relevant BAT Conclusions for Waste Incineration

BAT Conclusions for Waste Incineration were published as Commission Implementing Decision EU 2019/2010/EU in the Official Journal of the EU on 3 December 2019. There are 37 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the permit. For definitions and acronyms see the BAT Conclusions Document: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN>. All BAT Conclusions arising are listed by number in order below:

| BATc number | Summary of BAT Conclusion requirement  | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>   |
|-------------|--|--|
| 1           | <b>Environmental management systems (EMS)</b> – In order to improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features:   |  |
|             | (i) Commitment, leadership and accountability of the management, including senior management, for the implementation of an effective EMS;  | <b>Currently Compliant</b><br>The Operator has confirmed that there is an EMS in place that complies with all the points listed in BAT 1. The Operator has stated a certified IMS system is in place that meets the requirements of ISO 14001:2015. We consider this sufficient of demonstrating compliance with the BATc. |
|             | (ii) An analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment; |  |
|             | (iii) Development of an environmental policy that includes the continuous improvement of the environmental performance of the installation;  |  |
|             | (iv) establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements;  |  |
|             | (v) Planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;  |  |
|             | (vi) Determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;  |  |
|             | (vii) Ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);   |  |

| BATc number   | Summary of BAT Conclusion requirement |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> , <b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b> |
|---|---------------------------------------|---|---|
|   | (viii)                                | Internal and external communication;  |   |
|   | (ix)                                  | Fostering employee involvement in good environmental management practices;  |   |
|   | (x)                                   | Establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;  |   |
|   | (xi)                                  | Effective operational planning and process control;   |   |
|   | (xii)                                 | Implementation of appropriate maintenance programmes;   |   |
|   | (xiii)                                | Emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;   |   |
|   | (xiv)                                 | When (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;   |   |
|   | (xv)                                  | Implementation of a monitoring and measurement programme, if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;  |   |
|   | (xvi)                                 | Application of sectoral benchmarking on a regular basis;  |   |
|   | (xvii)                                | Periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained; |   |
|   | (xviii)                               | Evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;                               |   |
|   | (xix)                                 | Periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;   |   |
|   | (xx)                                  | Following and taking into account the development of cleaner techniques.  |   |
| Specifically for incineration plants and where relevant, bottom ash treatment plants, BAT is to also incorporate the following features in the EMS: |                                       |   |   |

| BATc number | Summary of BAT Conclusion requirement |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> , <b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|-------------|---------------------------------------|---|--|
|             | (xxi)                                 | For incineration plants, waste stream management (see BAT 9);   | <b>Compliant in the future</b><br>The Operator has confirmed as part of existing waste acceptance procedures all of techniques a, b and c are carried out. They have also confirmed that technique d will be carried out prior to BAT implementation date. |
|             | (xxii)                                | For bottom ash treatment plants, output quality management (see BAT 10);  | <b>Not Applicable</b><br>No bottom ash treatment plant on site.  |
|             | (xxiii)                               | A residues management plan including measures aimed to:<br>(c) Minimise the generation of residues<br>(d) Optimise the reuse, regeneration, recycling of and/or energy recovery from the residues<br>(e) Ensure the proper disposal of residues | <b>No plan identified in response.</b>   |
|             | (xxiv)                                | For incineration plants, an OTNOC management plan (see BAT 18);   | <b>Compliant in the future</b><br>The Operator has confirmed that an OTNOC management plan will be in place before BAT implementation date. Therefore we will review compliance with this BATc via improvement condition IC14 in the permit.               |
|             | (xxv)                                 | For incineration plants, an accident management plan;   | <b>Currently Compliant</b><br>Contained within Tradebe core procedures document received on 2 November 2015  |
|             | (xxvi)                                | For bottom ash treatment plants, diffuse dust emissions management (see BAT 23);  | <b>Not Applicable</b><br>No bottom ash treatment taking place on site.   |

| BATc number       | Summary of BAT Conclusion requirement   |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>   |
|-------------------|---|---|--|
|                   | (xxvii)   | An odour management plan where an odour nuisance at sensitive receptors is expected and/or has been substantiated;            | Not Applicable<br>Do not consider odour nuisance at sensitive receptors expected nor has it been substantiated.  |
|                   | (xviii)   | A noise management plan (see BAT 37) where a noise nuisance at sensitive receptors is expected and/or has been substantiated; | <b>See BAT 37</b>  |
| <b>MONITORING</b> |   |   |  |
| 2                 | <b>BAT is to determine either the gross electrical efficiency, the gross energy efficiency, or the boiler efficiency of the incineration plant as a whole or of all the relevant parts of the incineration plant.</b>   |   | <b>Compliant in the future</b><br>The Operator has not calculated the boiler efficiency therefore an improvement condition (IC13) has been included.   |
| 3                 | <b>BAT is to monitor key process parameters relevant for emissions to air and water including those given below:</b>  |   | <b>Currently Compliant</b><br>The Operator has confirmed that process monitoring is carried out in line with BAT 3 requirements for all of the relevant parameters<br>The monitoring for waste water from wet FGC is not applicable as there is no wet FGC in place. The monitoring of waste water from bottom ash treatment plants is not applicable as there is no bottom ash treatment plant on site. All relevant monitoring requirements will be implemented in the permit. |
|                   | <b>Stream/location</b>  | <b>Parameter(s)</b>   |  |
|                   | Flue-gas from the incineration of waste   | Flow, oxygen content, temperature, pressure, water vapour content   |  |
|                   | Combustion chamber  | Temperature   |  |
|                   | Waste water from wet FGC  | Flow, pH, temperature   |  |
|                   | Waste water from bottom ash treatment plants  | Flow, pH, conductivity  |  |
| 4                 | <b>BAT is to monitor channelled emissions to air with at least the frequency given and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quantity.</b> |   |  |

| BATc number | Summary of BAT Conclusion requirement   | <b>Status/comment</b><br><b>One of the following:</b><br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|-------------|---|---|
|             | Refer to monitoring emissions to air table in BAT Conclusion 4: <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN</a> | <b>Compliant in the Future.</b><br>Monitoring requirements of the BATc will be implemented in the permit from the compliance date.<br><br><b>Hydrogen fluoride (HF)</b><br>As per footnote 4 continuous monitoring of HF may be replaced by HF if the HCl emissions are proven to be sufficiently stable. The operator has not proven the HCl emission levels are sufficiently stable therefore continuous monitoring will be implemented from the compliance date (Note: HCl concentration breaches have been recorded at the site). The permit does however allow for this to be replaced with periodic monitoring if proof is submitted and agreed in writing by Natural Resources Wales.<br><br><b>Brominated dioxins/furans</b><br>The UK WI BREF Interpretation Document states PBDD/F monitoring will be required if a plant is taking waste streams that are known to contain materials treated with brominated flame retardants. The Operator has stated “waste is not known to contain brominated flame retardants”. As the |

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|-------------|---------------------------------------|--|
|             |                                       | <p>presence or absence is not known by the operator, the monitoring of PBDD/F (brominated dioxins/furans) will be implemented in the permit from the compliance date.</p> <p><b>Mercury</b></p> <p>Best Available Techniques (BAT) Reference Document (BREF) for Waste Incineration Conclusion 4 describes that mercury monitoring should be continuous. However it adds that Continuous monitoring does not apply for plants incinerating wastes with a proven low and stable mercury content. The operator has not provided such proof. Therefore as per the UK WI BREF Interpretation Document continuous monitoring of mercury will be implemented in the permit from the compliance date. The permit does however allow for this to be replaced with periodic monitoring if proof is submitted and agreed in writing by Natural Resources Wales.</p> <p><b>Dioxins/furans (PCDD/F) &amp; Dioxin-like PCBs</b></p> |



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|-------------|---|--|
|             |   | <p>Footnote 7 states for long-term sampling 'the monitoring does not apply if the emission levels and proven to be sufficiently stable'. The UK Dioxin Monitoring Protocol is the UK approach to determining whether 'emission levels are sufficiently stable'. If the Operator satisfies the protocol they can remain on periodic monitoring, if they cannot, long-term sampling is required.</p> <p>The Operator has not yet demonstrated that the emission levels are sufficiently stable. Therefore the permit will specify both long-term sampling and periodic monitoring. The permit does however allow for this to be replaced with periodic monitoring alone, if proof is submitted and agreed in writing by Natural Resources Wales.</p> |
| 5           | <b>BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC.</b>  | <b>Compliant in the future</b><br>We will review compliance with this BATc via an improvement condition in the permit. (IC14)  |
| 6           | <b>BAT is to monitor emissions to water from FGC and/or bottom ash treatment with at least the frequency given and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quantity.</b> |  |

| BATc number   | Summary of BAT Conclusion requirement  |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> , <b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|---|--|---|--|
|   | Refer to monitoring emissions to water table in BAT Conclusion 6: <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN</a>  |   | Not Applicable<br>No emissions to water from FGC and/or bottom ash treatment from the site.  |
| 7   | <b>BAT is to monitor the content of unburnt substance in slags and bottom ashes at the incineration plant with at least the frequency given and in accordance with EN standards.</b>   |   |  |
|   | Refer to monitoring table in BAT Conclusion 7: <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN</a>   |   | <b>Currently compliant</b><br>The requirement to measure Total organic carbon (TOC) monthly is currently part of the existing permit requirements. Monitoring will continue to be required in the permit.  |
| 8   | <b>For the incineration of hazardous wastes containing Persistent organic pollutants, POPs, BAT is to determine the POP content in the output streams (e.g. slags and bottom ashes, flue-gas, waste water) after the commissioning of the incineration plant and after each change that may significantly affect the POP content in the output stream.</b> |   | Not Applicable<br>The operator has stated that this is not relevant due to the nature of the wastes accepted. We have not disputed this assertion. As per the UK WI BATC interpretation document this BATc only applies to plants dedicated to the incineration of hazardous waste and not those dedicated to the incineration of clinical waste.. |
| <b>GENERAL ENVIRONMENTAL AND COMBUSTION PERFORMANCE</b> |  |   |  |
| 9   | <b>In order to improve the overall environmental performance of the incineration plant by waste stream management (see BAT 1), BAT is to use all of the techniques (a), (b) and (c) given below, and, where relevant, also techniques (d), (e) and (f).</b>  |   |  |
|   | (a)  | Determination of the types of waste that can be incinerated                       | <b>Compliant in the future</b><br>The Operator has confirmed as part of existing waste acceptance procedures all of techniques a, b and c are carried out.   |
|   | (b)  | Set-up and implementation of waste characterisation and pre-acceptance procedures |  |
|   | (c)  | Set-up and implementation of waste acceptance procedures                          |  |

| BATc number | Summary of BAT Conclusion requirement   |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>   |
|-------------|---|---|--|
|             | (d)   | Set-up and implementation of a waste tracking system and inventory                      | They have also confirmed that technique d will be carried out prior to BAT implementation date.  |
|             | (e)   | Waste segregation   |  |
|             | (f)   | Verification of waste compatibility prior to the mixing or blending of hazardous wastes |  |
| 10          | <b>In order to improve the overall environmental performance of the bottom ash treatment plant, BAT is to include output quality management features in the EMS (see BAT 1)</b>   |   | Not Applicable<br>No bottom ash treatment plant on site.   |
| 11          | <b>In order to improve the overall environmental performance of the incineration plant, BAT is to monitor the waste deliveries as part of the waste acceptance procedures (see BAT 9(c)) including, depending on the risk posed by the incoming waste, the element given.</b> |   | <b>Currently Compliant</b><br>The Operator has confirmed that as well as pre acceptance audits, incoming wastes are weighed and visually inspected as part of their waste acceptance procedures.   |
|             | Refer to monitoring table in BAT Conclusion 11: <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&amp;from=EN</a>                                       |   | As per the UK WI BREF Interpretation Document the UK Radioactive Substances Regulation is sufficiently robust to minimise the risk of radioactive material inadvertently being sent to incinerators, therefore the current UK regulators position is that radioactivity detection is not required at any incineration plant. |
| 12          | <b>In order to reduce the environmental risks associated with the reception, handling and storage of waste, BAT is to use both of the techniques given below:</b>   |   | <b>Currently Compliant</b>   |
|             | (a)   | Impermeable surfaces with an adequate drainage infrastructure                           |  |
|             | (b)   | Adequate waste storage capacity   |  |

| BATc number | Summary of BAT Conclusion requirement  |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b> |
|-------------|--|---|--|
|             |  |   | The Operator has confirmed that both impermeable surfaces with adequate drainage and adequate storage capacity are in place.   |
| 13          | <b>In order to reduce the environmental risk associated with the storage and handling of clinical waste, BAT is to use a combination of the techniques given below:</b>  |   | <b>Currently Compliant</b><br>The Operator has confirmed the site uses methods a, b and c.   |
|             | (a)  | Automated or semi-automated waste handling                |  |
|             | (b)  | Incineration of non-reusable sealed containers, if used   |  |
|             | (c)  | Cleaning and disinfection of reusable containers, if used |  |
| 14          | <b>In order to improve the overall environmental performance of the incineration of waste, to reduce the content of unburnt substances in slags and bottom ashes, and to reduce emissions to air from the incineration of waste, BAT is to use an appropriate combination of the techniques given below:</b>   |   | <b>Currently Compliant</b><br>The Operator has confirmed that both b and c techniques are currently carried out.   |
|             | (a)  | Waste blending and mixing                                 |  |
|             | (b)  | Advanced control system                                   |  |
|             | (c)  | Optimisation of the incineration process                  |  |
|             | <b>Table 1 including footnotes: BAT-associated environmental performance levels for unburnt substances in slags and bottom ashes from the incineration of waste</b><br><b>Associated monitoring given in BAT 7</b><br><i>Footnote 1: Either the BAT-AEPL for TOC content or the BAT-AEPL for the loss on ignition applies</i><br><i>Footnote 2: The lower end of the BAT-AEPL range can be achieved when using fluidised bed furnaces or rotary kilns operating in slagging mode</i> |   | <b>Currently Compliant</b><br>The permit previously contained and continues to contain the appropriate TOC limit of 3%.  |
|             | TOC content in slags and bottom ashes (1)  | 1 – 3 Dry wt-% (2)  |  |
|             | Loss on ignition of slags and bottom ashes (1)   | 1 – 5 Dry wt% (2)   |  |
| 15          | <b>In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement procedures for the adjustment of the plant's settings, e.g. through the advanced control system, as and when needed and practicable, based on the characterisation and control of the waste (see BAT 11)</b>   |   | <b>Currently Compliant</b><br>The operator has confirmed the following:<br>An advanced control system is in place to achieve the requirements of BAT 15.   |

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|-------------|---|---|
|             |   | SICK M Certs control system monitors the emission parameters identified in the Permit and a MCerts software package analyses the data and provides a visual profile of emissions. This system is fitted with alarms to give warnings in advance of potential exceedences. A new data handling system is ready to be installed which will monitor and respond to the CEMs data in real time and make adjustment to plant controls to maintain compliance |
| 16          | <b>In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement operational procedures (e.g. organisation of the supply chain, continuous rather than batch operation) to limit as far as practicable shutdown and start-up operations.</b>   | <b>Currently Compliant</b><br>The operator has confirmed that start-up and shut-down is minimised by continuous supply of waste through Tradebe Healthcare network of contracts and treatment plants  |
| 17          | <b>In order to reduce emissions to air and, where relevant, to water from the incineration plant, BAT is to ensure that the FGC system and the waste water treatment plant are appropriately designed (e.g. considering the maximum flow rate and pollutant concentrations), operated within their design range, and maintained so as to ensure optimal availability.</b> | <b>Compliant in the future</b><br>The operator has confirmed that the flue gas cleaning operates within the design parameters.<br><br>However the existing flue gas cleaning is limited to carbon lime is injection into the combustion gases to reduce emissions of acid gases and metals and the use of bag filters remove particulates.  |

| BATc number              | Summary of BAT Conclusion requirement   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>   |   |
|--------------------------|---|--|---|
|                          |   | It is likely that additional measures will be necessary to meet the necessary Oxides of nitrogen limits.<br><br>There is no waste water treatment plant in place at the site.  |   |
| 18                       | <b>In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions to air and, where relevant, to water from the incineration plant during OTNOC, BAT is to set up and implement a risk-based OTNOC management plan as part of the environmental management system (see BAT 1) that includes all of the following elements:</b> | <b>Compliant in the future</b><br>The Operator has confirmed that an OTNOC management plan will be in place before BAT implementation date. Therefore we will review compliance with this BATc via improvement condition IC14 in the permit. |   |
|                          | Identification of potential OTNOC (e.g. failure of equipment critical to the protection of the environment ('critical equipment')), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below;  |  |   |
|                          | Appropriate design of critical equipment (e.g. compartmentalisation of the bag filter, techniques to heat up the flue-gas and obviate the need to bypass the bag filter during start-up and shutdown etc.)  |  |   |
|                          | Set-up and implementation of a preventative maintenance plan for critical equipment (see BAT 1 (xii))   |  |   |
|                          | Monitoring and recording of emissions during OTNOC and associated circumstances (see BAT 5)   |  |   |
|                          | Periodic assessment of the emissions occurring during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.   |  |   |
| <b>ENERGY EFFICIENCY</b> |   |  |   |
| 19                       | <b>In order to increase the resource efficiency of the incineration plant, BAT is to use a heat recovery boiler.</b>  | <b>Currently Compliant</b><br>The Operator has confirmed a heat recovery boiler is in place.   |   |
| 20                       | <b>In order to increase the energy efficiency of the incineration plant, BAT is to use an appropriate combination of the techniques given below:</b>  |  |   |
|                          | (a)   | Drying of sewage sludge  | <b>Compliant in the future</b><br>The Operator has confirmed the following techniques are employed: b, c and d. |
|                          | (b)   | Reduction of the flue-gas flow   |   |
|                          | (c)   | Minimisation of heat losses  |   |

| BATc number      | Summary of BAT Conclusion requirement  |   |                             |   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>   |   |
|------------------|--|---|-----------------------------|---|--|---|
|                  | (d)  | Optimisation of the boiler design   |                             |   | Given the Operator has not calculated the relevant efficiency below we are not currently satisfied this constitutes an appropriate combination and IC13 has been included in the permit. <b>If the efficiency turns about to be below the range below they are not BAT</b> |   |
|                  | (e)  | Low-temperature flue-gas heat exchangers                                  |                             |   |  |   |
|                  | (f)  | High steam conditions   |                             |   |  |   |
|                  | (g)  | Cogeneration  |                             |   |  |   |
|                  | (h)  | Flue-gas condenser  |                             |   |  |   |
|                  | (i)  | Dry bottom ash handling   |                             |   |  |   |
|                  | <b>Table 2 including footnotes: BAT-associated energy efficiency levels for incineration of waste</b><br><b>Associated monitoring given in BAT 2</b><br><i>Footnote 1: The BAT-AEEL only applies where a heat recovery boiler is applicable</i><br><i>Footnote 2: The BAT-AEELs for gross electrical efficiency only apply to plants or parts of plants producing electricity using a condensing turbine</i><br><i>Footnote 3: The higher end of the BAT-AEEL range can be achieved when using BAT 20 (f)</i><br><i>Footnote 4: The BAT-AEELs for gross energy efficiency only apply to plants or parts of plants producing only heat or producing electricity using a back-pressure turbine and heat with the steam leaving the turbine</i><br><i>Footnote 5: A gross energy efficiency exceeding the higher end of the BAT-AEEL range (even above 100 %) can be achieved where a flue-gas condenser is used</i><br><i>Footnote 6: For the incineration of sewage sludge, the boiler efficiency is highly dependent on the water content of the sewage sludge as fed into the furnace</i> |   |                             |   |  |   |
|                  | Plant  | Municipal solid waste, other non-hazardous waste and hazardous wood waste |                             | Hazardous waste other than hazardous wood waste (1) | Sewage sludge  | <b>Compliant in the future</b><br>There is a heat recovery boiler in place therefore the relevant BAT-AEEL range is for the Boiler efficiency for hazardous waste 60 – 80 %. The operator has not calculated this therefore IC13 has been included in the permit. The lower end of the relevant BAT-AEEL is set in the permit from the compliance date. |
|                  |  | Gross electrical efficiency (2)(3)  | Gross energy efficiency (4) | Boiler efficiency                                   |  |   |
|                  | New plant  | 25 – 35 %   | 72 – 91 %                   | 60 – 80 %   | 60 – 70 % (6)  |   |
|                  | Existing plant   | 20 – 35 %   |                             |   |  |   |
|                  |  |   |                             |   |  |   |
| EMISSIONS TO AIR |  |   |                             |   |  |   |



| BATc number                              | Summary of BAT Conclusion requirement   | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b> |   |
|--|---|--|---|
| DIFFUSE EMISSIONS                        |   |  |   |
| 21                                       | In order to prevent or reduce diffuse emissions from the incineration plant, including odour emissions, BAT is to:  |  |   |
|  | store solid and bulk pasty wastes that are odorous and/or prone to releasing volatile substances in enclosed building under controlled sub-atmospheric pressure and use the extracted ait as combustion ait for incineration or sent it to another suitable abatement system in the case of a risk of explosion | <b>Currently Compliant</b><br>The Operator has confirmed that appropriate measures are in place.   |   |
|  | Store liquid wastes in tanks under appropriate controlled pressure and duct the tank vents to the combustion air feed or to another suitable abatement system   |  |   |
|  | Control the risk of odour during complete shutdown periods when no incineration capacity is available, examples given.  |  |   |
| 22                                       | In order to prevent diffuse emissions of volatile compounds from the handling of gaseous and liquid wastes that are odour and/or prone to releasing volatile substances at incineration plants, BAT is to introduce them into the furnace by direct feeding.  | Not Applicable<br>The plant does not receive bulk gaseous or liquid wastes.  |   |
| 23                                       | In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to include in the environmental management system (see BAT 1) the following diffuse dust emissions management features:  |  |   |
|  | Identification of the most relevant diffuse dust emission sources (e.g. using EN 15445)   | Not Applicable   |   |
|  | Definition and implementation of appropriate actions and techniques to prevent or reduce dust emissions over a given time frame   | There is no treatment of slags and bottom ashes on site.   |   |
| 24                                       | In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below:   |  |   |
|  | (a)   | Enclose and cover equipment  | <b>Not Applicable</b><br>There is no treatment of slags and bottom ashes on site. |
|  | (b)   | Limit height of discharge  |   |
|  | (c)   | Protect stockpiles against prevailing winds  |   |
|  | (d)   | Use water sprays   |   |
|  | (e)   | Optimise moisture content  |   |
|  | (f)   | Operate under sub-atmospheric pressure   |   |
| CHANNELLED EMISSIONS                     |   |  |   |
| EMISSIONS OF DUST, METALS AND METALLOIDS |   |  |   |

| BATc number | Summary of BAT Conclusion requirement  |                                 |                              | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> , <b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>                                 |
|-------------|--|---------------------------------|------------------------------|---|
| 25          | In order to reduce channelled emissions to air of dust, metals and metalloids from the incineration of waste, BAT is to use one or a combination of the techniques given below   |                                 |                              |   |
|             | (a)  | Bag filter                      |                              | <b>Currently Compliant</b><br>The Operator has confirmed that a bag filter and dry sorbent injection techniques are in place.   |
|             | (b)  | Electrostatic precipitator      |                              |   |
|             | (c)  | Dry sorbent injection           |                              |   |
|             | (d)  | Wet scrubber                    |                              |   |
|             | (e)  | Fixed- or moving-bed adsorption |                              |   |
|             | Table 3 including footnote: BAT-AELs for channelled emissions to air of dust, metals and metalloids from the incineration of waste<br>Associated monitoring given in BAT 4<br>Footnote 1: For existing plants dedicated to the incineration of hazardous waste and for which a bag filter is not applicable, the higher end of the BAT-AEL range is 7 mg/Nm <sup>3</sup> |                                 |                              |   |
|             | Parameter  | BAT-AEL (mg/Nm <sup>3</sup> )   | Averaging period             |   |
|             | Dust   | <2 – 5 (1)                      | Daily average                | <b>Currently Compliant</b><br>Operator states that for dust the plant would be able to achieve an emission limit value set at the top end of the range. The BAT-AEL will be implemented in the permit from the compliance date. |
|             | Cd+Tl  | 0.005 – 0.02                    | Average over sampling period | <b>Currently Compliant</b><br>Operator states that top end of range would be met. The BAT-AEL will be implemented in the permit from the compliance date.   |
|             | Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V  | 0.01 – 0.3                      | Average over sampling period | <b>Compliant in the future</b><br>Operator states that top end of range would generally be met, and no derogation has been applied for. The   |

| BATc number                              | Summary of BAT Conclusion requirement  |  |                                  | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b> |
|--|--|--|----------------------------------|--|
|  |  |  |                                  | BAT-AEL will be implemented in the permit from the compliance date.  |
| 26                                       | In order to reduce channelled dust emissions to air from the enclosed treatment of slags and bottom ashes with extraction of air (see BAT 24(f)), BAT is to treat the extracted air with a bag filter.   |  |                                  | Not Applicable<br>There is no treatment of slags and bottom ashes on site.   |
|  | Table 4: BAT-AELs for channelled emissions to air of dust from the enclosed treatment of slags and bottom ashes with extraction of air<br>Associated monitoring given in BAT 4   |  |                                  |  |
|  | Parameter  | BAT-AEL (mg/Nm <sup>3</sup> )          | Averaging period                 | Not Applicable<br>There is no treatment of slags and bottom ashes on site.   |
|  | Dust   | 2 – 5                                  | Average over the sampling period |  |
| EMISSIONS OF HCl, HF AND SO <sub>2</sub> |  |  |                                  |  |
| 27                                       | In order to reduce channelled emissions of HCl, HF and SO <sub>2</sub> to air from the incineration of waste, BAT is to use one or a combination of the techniques given below:  |  |                                  |  |
|  | (a)  | Wet scrubber                           |                                  | <b>Currently Compliant</b><br>The Operator has confirmed that dry sorbent injection is used.   |
|  | (b)  | Semi-wet absorber                      |                                  |  |
|  | (c)  | Dry sorbent injection                  |                                  |  |
|  | (d)  | Direct desulphurisation                |                                  |  |
|  | (e)  | Boiler sorbent injection               |                                  |  |
| 28                                       | In order to reduce channelled peak emissions of HCl, HF and SO <sub>2</sub> to air from the incineration of waste while limiting the consumption of reagents and the amount of residues generated from dry sorbent injection and semi-wet absorbers, BAT is to use technique (a) or both of the techniques given below:                                  |  |                                  |  |
|  | (a)  | Optimised and automated reagent dosage |                                  | <b>Currently Compliant</b><br>The Operator has confirmed that methods a and b are used.  |
|  | (b)  | Recirculation of reagents              |                                  |  |
|  | Table 5 including footnote: BAT-AELs for channelled emissions to air HCl, HF and SO <sub>2</sub> from the incineration of waste<br>Associated monitoring given in BAT 4<br>Footnote 1: The lower end of the BAT-AEL range can be achieved when using a wet scrubber, the higher end of the range may be associated with the use of dry sorbent injection |  |                                  |  |

| BATc number   | Summary of BAT Conclusion requirement  |   |                | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|---|--|---|----------------|---|
|   | Parameter  | BAT-AEL (mg/Nm <sup>3</sup> )                     |                | Averaging period  |
|   |  | New plant   | Existing plant |   |
|   | HCl  | <2 – 6 (1)  | <2 – 8 (1)     | Daily average   |
|   | HF   | <1  | <1             | Daily average of average over the sampling period   |
|   | SO <sub>2</sub>  | 5 - 30  | 5 - 40         | Daily average   |
| <i>EMISSIONS OF NO<sub>x</sub>, N<sub>2</sub>O, CO AND NH<sub>3</sub></i> |  |   |                |   |
| 29  | <b>In order to reduce channelled NO<sub>x</sub> emissions to air while limiting the emissions of CO and N<sub>2</sub>O from the incineration of waste and the emissions of NH<sub>3</sub> from the use of SNCR and/or SCR, BAT is to use an appropriate combination of the techniques given below:</b> |   |                |   |
|   | (a)  | Optimisation of the incineration process          |                |   |
|   | (b)  | Flue-gas recirculation                            |                |   |
|   | (c)  | Selective non-catalytic reduction (SNCR)          |                |   |
|   | (d)  | Selective catalytic reduction (SCR)               |                |   |
|   | (e)  | Catalytic filter bags                             |                |   |
|   | (f)  | Optimisation of the SNCR/SCR design and operation |                |   |
|   |  |   |                | <b>Compliant in the future</b><br>The site presently uses techniques a and b. The operator has confirmed that they do not consider that these techniques are sufficient to consistently meet the necessary NO <sub>x</sub> BAT-AEL, therefore |

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|--|---------------------------------------|-------------------------------|--|------------------|---|
|  | (g)                                   | Wet scrubber                  | improvements will be required for NO <sub>x</sub> abatement. They indicated that they may wish to apply for a derogation although this has not been formally requested.<br><br>Therefore the BAT-AEL are implemented in the permit from the compliance date. |                  |   |
| <b>Table 6 including footnotes: BAT-AELs for channelled NO<sub>x</sub> and CO emissions to air from the incineration of waste and for channelled NH<sub>3</sub> emissions to air from the use of SNCR and/or SCR</b><br><b>Associated monitoring given in BAT 4</b><br><i>Footnote 1: The lower end of the BAT-AEL range can be achieved when using SCR. The lower end of the BAT-AEL range may not be achievable when incinerating waste with a high nitrogen content (e.g. residues from the production of organic nitrogen compounds)</i><br><i>Footnote 2: The higher end of the BAT-AEL range is 180 mg/Nm<sup>3</sup> where SCR is not applicable</i><br><i>Footnote 3: For existing plants fitted with SNCR without wet abatement techniques, the higher end of the BAT-AEL range is 15 mg/Nm<sup>3</sup></i> |                                       |                               |  |                  |   |
| Parameter  |                                       | BAT-AEL (mg/Nm <sup>3</sup> ) |  | Averaging period |   |
|  |                                       | New Plant                     | Existing plant   |                  |   |
| NO <sub>x</sub>  |                                       | 50 – 120 (1)                  | 50 – 150 (1) (2)   | Daily average    | <b>Compliant in the future</b><br>The Operator stated that the BAT-AEL for NO <sub>x</sub> will not always be met. The Operator has not requested a derogation therefore, the BAT-AEL will be implemented in the permit from the compliance date. |
| CO   |                                       | 10 – 50                       | 10 – 50  |                  | There is no change in the current ELV in the permit for CO, therefore it will continue to be implemented in the permit.   |
| NH <sub>3</sub>  |                                       | 2 – 10 (1)                    | 2 – 10 (1) (3)   |                  | Ammonia monitoring not required at present as no ammonia dosing used  |
| EMISSIONS OF ORGANIC COMPOUNDS   |                                       |                               |  |                  |   |

| BATc number | Summary of BAT Conclusion requirement   |  |              |                                  | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b> |
|-------------|---|--|--------------|----------------------------------|--|
| 30          | In order to reduce channelled emissions to air of organic compounds including PCDD/F and PCBs from the incineration of waste, BAT is to use techniques (a), (b), (c), (d) and one or a combination of techniques (e) to (i) given below:  |  |              |                                  |  |
|             | (a)   | Optimisation of the incineration process |              |                                  | <b>Currently compliant</b><br>The Operator has confirmed the following techniques are in place: a, b, c and e and that they can currently achieve the necessary BAT-AELs below.                    |
|             | (b)   | Control of the waste feed                |              |                                  |  |
|             | (c)   | On-line and off-line boiler cleaning     |              |                                  |  |
|             | (d)   | Rapid flue-gas cooling                   |              |                                  |  |
|             | (e)   | Dry sorbent injection                    |              |                                  |  |
|             | (f)   | Fixed- or moving- bed adsorption         |              |                                  |  |
|             | (g)   | SCR                                      |              |                                  |  |
|             | (h)   | Catalytic filter bags                    |              |                                  |  |
|             | (i)   | Carbon sorbent in a wet scrubber         |              |                                  |  |
|             | Table 7 including footnotes: BAT-AELs for channelled emissions to air of TVOC, PCDD/F and dioxin-like PCBs from the incineration of waste<br>Associated monitoring given in BAT 4<br>Footnote 1: Either the BAT-AEL for PCDD/F or the BAT-AEL for PCDD/F + dioxin-like PCBs applies<br>Footnote 2: The BAT-AEL does not apply if the emission levels are proven to be sufficiently stable |  |              |                                  |  |
|             | Parameter   | Unit                                     | BAT-AEL      |                                  | Averaging period   |
|             |   |  | New plant    | Existing plant                   |  |
|             | TVOC  | mg/Nm³                                   | <3 – 10      | <3 – 10                          | Daily average  |
| PCDD/F (1)  | ng I-TEQ/Nm³  | <0.01 – 0.04                             | <0.01 – 0.06 | Average over the sampling period |  |

| BATc number   | Summary of BAT Conclusion requirement  |                            |  |              |                                  | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|---|--|----------------------------|--|--------------|----------------------------------|---|
|   |  |                            | <0.01 – 0.06   | <0.01 – 0.08 | Long-term sampling period (2)    | The Operator has stated the plant can currently achieve the BAT-AEL. The BAT-AEL will be implemented in the permit from the compliance date.  |
|   | PCDD/F + dioxin-like PCBs (1)  | ng WHO-TEQ/Nm <sup>3</sup> | <0.01 – 0.06   | <0.01 – 0.08 | Average over the sampling period | <b>Currently compliant</b><br>The Operator has stated the plant can currently achieve the BAT-AEL. As per footnote 1, the BAT-AEL for PCDD/F will be set in the permit from the compliance date as opposed the BAT-AEL for PCDD/F + dioxin-like PCBs. |
|   |  |                            | <0.01 – 0.08   | <0.01 – 0.1  | Long-term sampling period (2)    |   |
| EMISSIONS OF MERCURY  |  |                            |  |              |                                  |   |
| 31  | In order to reduce channelled mercury emissions to air (including mercury emission peaks) from the incineration of waste, BAT is to use one of a combination of the techniques given below:  |                            |  |              |                                  |   |
|   | (a)  |                            | Wet scrubber (low pH)                                  |              |                                  | <b>Currently compliant</b><br>The Operator has confirmed that dry sorbent injection techniques are in place   |
|   | (b)  |                            | Dry sorbent injection                                  |              |                                  |   |
|   | (c)  |                            | Injection of special, highly reactive activated carbon |              |                                  |   |
|   | (d)  |                            | Boiler bromine addition                                |              |                                  |   |
|   | (e)  |                            | Fixed- or moving-bed adsorption                        |              |                                  |   |
|   | Table 8 including footnotes: BAT-AELs for channelled mercury emissions to air from the incineration of waste   |                            |  |              |                                  |   |
|   | Associated monitoring given in BAT 4   |                            |  |              |                                  |   |
|   | Footnote 1: Either the BAT-AEL for daily average or average over the sampling period or the BAT-AEL for long-term sampling period applies. The BAT-AEL for long-term sampling may apply in the case of plants incinerating waste with a proven low and stable mercury content (e.g. mono-streams of waste of a controlled composition) |                            |  |              |                                  |   |
|   | Footnote 2: The lower end of the BAT-AEL ranges may be achieved when:  |                            |  |              |                                  |   |
| - incinerating wastes with a proven low and stable mercury content (e.g. mono-streams of waste of a controlled composition); or   |  |                            |  |              |                                  |   |
| - using specific techniques to prevent or reduce the occurrence of mercury peak emissions while incinerating non-hazardous waste. The higher end of the BAT-AEL ranges may be associated with the use of dry sorbent injection. |  |                            |  |              |                                  |   |



| BATc number | Summary of BAT Conclusion requirement   |                                   |                | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> , <b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|-------------|---|-----------------------------------|----------------|--|
|             | As an indication the half-hourly average mercury emissions level will generally be:<br>- <15 – 40 µg/Nm <sup>3</sup> for existing plants;<br>- <15 – 35 µg/Nm <sup>3</sup> for new plants |                                   |                |  |
|             | Parameter   | BAT-AEL (µg/Nm <sup>3</sup> ) (1) |                | Averaging period   |
|             |   | New plant                         | Existing plant |  |
|             | Hg  | <5 – 20 (2)                       | <5 – 20 (2)    | Daily average or average over the sampling period  |
|             |   | 1 - 10                            | 1 - 10         | Long-term sampling period  |
|             |   |                                   |                | <b>Currently Compliant</b><br>The Operator has stated the plant can currently achieve the BAT-AEL. The BAT-AEL will be implemented in the permit from the compliance date.<br><br>The waste incineration mercury protocol includes the following clarification note: “Note 1: The protocol is voluntary and applies on a per-line basis to all non-hazardous waste incinerators and co-incinerators (both new and existing). Hazardous waste incinerators taking multiple hazardous waste types must have mercury CEMs.”<br><br>This waste incinerator takes multiple hazardous waste types and therefore the protocol does not apply and continuous monitoring of mercury will be implemented in the permit from the compliance date. As per footnote 1 either the BAT-AEL for daily average or average over the sampling period or |

| BATc number        | Summary of BAT Conclusion requirement  |                                   |  |  | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|--------------------|--|-----------------------------------|--|--|---|
|                    |  |                                   |  |  | long-term sampling period applies, as continuous monitoring is being implemented then the BAT-AEL for daily average will be implemented in the permit from the compliance date.   |
| EMISSIONS TO WATER |  |                                   |  |  |   |
| 32                 | In order to prevent the contamination of uncontaminated water, to reduce emissions to water, and to increase resource efficiency, BAT is to segregate waste water streams and to treat them separately, depending on their characteristics.  |                                   |  |  | <b>Currently Compliant</b><br>There is only one process related wastewater stream from the installation which is boiler blow down. This is segregated from uncontaminated surface water and discharged to foul sewer. The operator has stated that they are compliant with the requirements of BAT32. |
| 33                 | In order to reduce water usage and to prevent or reduce the generation of waste water from the incineration plant, BAT is to use one or a combination of the techniques given below:   |                                   |  |  | <b>Currently Compliant</b><br>The operator has stated that they are compliant with the requirements of BAT33 using technique (a).   |
|                    | (a)  | Waste water free FGC techniques   |  |  |   |
|                    | (b)  | Injection of waste water from FGC |  |  |   |
|                    | (c)  | Water reuse/recycling             |  |  |   |
|                    | (d)  | Dry bottom ash handling           |  |  |   |
| 34                 | In order to reduce emissions to water from FGC and/or from the storage and treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below, and to use secondary techniques as close as possible to the source in order to avoid dilution: |                                   |  |  | <b>Compliant in the future</b><br>The operator makes no mention in regard to this BAT conclusion of using primary technique “a” (optimisation of the incineration process). However, in   |
|                    |  |                                   |  |  |   |

| BATc number                | Summary of BAT Conclusion requirement  | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b>  |
|----------------------------|--|---|
|                            |  | <p>relation to BATc 14 the operator did confirm optimisation of the incineration process.</p> <p>The rest of the BAT conclusion is not applicable. The operator has stated that there are no direct or indirect emissions to water from FGC or bottom ash treatment therefore no BAT-AELs to water apply.</p> |
| <b>MATERIAL EFFICIENCY</b> |  |   |
| 35                         | In order to increase resource efficiency, BAT is to handle and treat bottom ashes separately from FGC residues.  | <b>Currently Compliant</b><br>The Operator has confirmed that incinerator bottom ash remains separated from all other residues.   |
| 36                         | In order to increase resource efficiency for the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below based on a risk assessment depending on the hazardous properties of the slags and bottom ashes: |   |
|                            | (a)  | Screening and sieving   |
|                            | (b)  | Crushing  |
|                            | (c)  | Aeraulic separation   |
|                            | (d)  | Recovery of ferrous and non-ferrous metals  |
|                            | (e)  | Ageing  |
|                            | (f)  | Washing   |
|                            |  | Not Applicable<br>No treatment of slags and bottom ashes takes place on site.   |
| <b>NOISE</b>               |  |   |
| 37                         | In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below:  |   |
|                            | (a)  | Appropriate location of equipment and buildings   |
|                            | (b)  | Operational measures  |
|                            | (c)  | Low-noise equipment   |
|                            | (d)  | Noise attenuation   |
|                            |  | <b>Currently Compliant</b><br>The Operator has confirmed the use of techniques a, b, c and d.   |

| BATc number | Summary of BAT Conclusion requirement      | Status/comment<br>One of the following:<br>Not Applicable, <b>Currently Compliant</b> ,<br><b>Compliant in the future</b> (within 4 years of publication of BAT conclusions), <b>Not Compliant</b> |
|-------------|--|--|
|             | (e) Noise-control equipment/infrastructure |  |

## Annex 2: Decision Checklist regarding additional requested items

| Item as listed in Regulation 61(1) Notice and Section 3 above | Comment on Operator's response to request   |
|---|---|
| A – Energy Efficiency Directive                               | As per the notice, this request is not applicable as there is no requirement for substantial refurbishment or installation of a new industrial installation with an aggregate thermal input of greater than 20 MWth, which generates more than 100 kWth of waste heat.  |
| B – Discharges to surface waters and/or sewers                | There are two emissions to surface water from the installation, one of uncontaminated surface water to surface water and one of Boiler blowdown, effluent from ash quench pit and drainage from bin wash to foul sewer. We do not expect uncontaminated surface water to be assessed.<br><br>The Operator has not provided a response in relation to the request within the Regulation 61(1) Notice, therefore an improvement condition has been set. |
| C – Soil and groundwater contamination – baseline report      | The Operator has not provided a response in relation to the request within the Regulation 61(1) Notice, therefore an improvement condition has been set.  |
| D – Medium Combustion Plant                                   | The Operator has not provided detail of any Medium Combustion Plant on site, therefore we assume there are no MCP on site that require permitting.  |
| E – OPRA profile  | The Operator did not respond to requests to review and update the OPRA score. NRW have reviewed the OPRA score and consider it is 151, this is an increase from 141 therefore there will be a slight increase in the subsistence fees following the issue of this variation.  |