

Environment Agency

Review of an Environmental Permit for an Installation subject to Chapter II of the Industrial Emissions Directive under the Environmental Permitting (England & Wales) Regulations 2016

Decision document recording our decision-making process following review of a permit

The Permit number is: EPR/XP3030XX
The Operator is: Enviropower Ltd
The Installation is: Unit 7, Marlborough Business Centre, 24
Marlborough Road, Lancing Business Park, Lancing.
This Variation Notice number is: EPR/XP3030XX/V008

What this document is about

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on best available techniques (BAT) conclusions.

We have reviewed the permit for this installation against the revised BAT Conclusions for waste incineration published on 3rd December 2019. This is our decision document, which explains the reasoning for the consolidated variation notice that we are issuing. This review has been undertaken with reference to the decision made by the European Commission establishing best available techniques (BAT) conclusions ('BAT conclusions') for incineration as detailed in document reference C(2019) 7987. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

It explains how we will ensure that the installation complies with the BAT conclusions by 3rd December 2023. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

As well as ensuring that the Installation complies with the BAT conclusions the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issued. It also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and philosophy and with other permits issued to installations in this sector. Although the wording of some conditions has changed, while others have been removed because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the permit in any way. In this document we therefore address mainly our determination of substantive issues relating to the new BAT Conclusions.

Throughout this document we will use a number of expressions. These are as referred to in the glossary.

We try to explain our decision as accurately, comprehensively and plainly as possible. We would welcome any feedback as to how we might improve our decision documents in future. The use 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.

How this document is structured

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1 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-AEEL	BAT Associated Energy Efficiency Level
BAT-AEPL	BAT Associated environmental performance level
BAT-AEL	BAT Associated Emission Level
BATc	BAT conclusion
BREF	Best available techniques reference document
CEM	Continuous emissions monitor
CHP	Combined heat and power
CV	Calorific value
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
ELV	Emission limit value derived under BAT or an emission limit value set out in IED
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No. 1154)
EWC	European waste catalogue
FSA	Food Standards Agency
IC	Improvement Condition
IED	Industrial Emissions Directive (2010/75/EU)
NOx	Oxides of nitrogen (NO plus NO ₂ expressed as NO ₂)
PHE	Public Health England
SAC	Special Area of Conservation
SGN	Sector guidance note
TGN	Technical guidance note
TOC	Total Organic Carbon
WFD	Water Framework Directive (2000/60/EC)

2 Our decision

We have decided to issue the consolidated variation notice to the operator. This will allow it to continue to operate the Installation, subject to the conditions in the consolidated variation notice.

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

The consolidated variation notice 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 Notice, we consider that those conditions are appropriate.

3 How we reached our decision

3.1 Requesting information to demonstrate compliance with BAT Conclusions for incineration Plant

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 (a Regulation 61 Notice) on 05/04/22 requiring the Operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the incineration BAT Conclusions document. The Notice also required that where the revised standards are not currently met, the operator should provide information that:

- Describes the techniques that will be implemented before 3rd December 2023, which will then ensure that operations meet the revised standard, or
- Justifies why standards will not be met by 3rd December 2023, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or
- Justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

Where the Operator proposed that they were not intending to meet a BAT standard that also included a BAT Associated Emission Level (BAT AEL) described in the BAT Conclusions Document, the Regulation 61 Notice requested that the Operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must

be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 61 Notice response from the Operator was received on 29/06/22.

We have not received any information in relation to the Regulation 61 Notice response that appears to be confidential in relation to any party.

3.2 Review of our own information in respect to the capability of the installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous regulatory activities with the facility we have no reason to consider that the operator will not be able to comply with the conditions that we include in the permit.

4 The legal framework

The consolidated variation notice will be issued under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that the consolidated variation notice 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.

5 The key issues

The key issues arising during this permit review are:

- Ensuring the Installation complies with the BAT conclusions.
- Setting emission limits (including BAT AELs) for emissions to air,
- The energy efficiency levels associated with the Best Available Techniques (BAT-AEELs)

5.1 Ensuring the Installation complies with the BAT conclusions

We have reviewed the operator's response to the regulation 61 notice and we are satisfied that the Installation will meet the requirements of the BAT conclusions by 3rd December 2023. Further detail on our assessment is in annex 1 of this decision document.

Based on our records and previous regulatory activities with the Installation we have no reason to consider that the operator will not be able to comply with the conditions that we have included in the permit.

5.2 Emissions to air and the emission limits applied to the plant

The consolidated permit includes new emission limits for emissions to air. These limits ensure that the installation will comply with the relevant BAT-AELs, as specified in the BAT conclusions, and the relevant limits from IED Annex VI.

A number of general principles were applied during the permit review, including those set out in the UK Waste Incineration BAT Conclusions Interpretation Document . These included:

- The upper value of the BAT-AELs ranges specified were used unless use of the tighter limit was justified.
- The principle of no backsliding where if existing limits in the permit were already tighter than the upper end of the BAT-AEL ranges, the existing permit limits were retained.
- Where a limit was specified in both IED Annex VI and the BAT Conclusions for a particular reference period, the tighter limit was applied and in the majority of cases this was from the BAT Conclusions.

We have set the emissions limit values at the top end of the BAT-AEL range in line with section 4.35 of Defra's Industrial emissions Directive EPR Guidance on Part A installations which states: *Where the BAT AELs are expressed as a range, the ELV should be set on the basis of the top of the relevant BAT-AEL range – that is to say, at the highest associated emission level - unless the*

installation is demonstrably capable of compliance with a substantially lower ELV, based on the BAT proposed by the operator, or exceptional environmental considerations compel a tighter ELV.

For all pollutants with the exception of NO₂ we are satisfied that environmental considerations do not require tighter ELVs to be set in this case, and the operator has not proposed any lower ELVs, and so we have set the ELVs at the top end of the BAT-AEL ranges. For NO₂ we have set a lower limit than the top end of the BAT-AEL range to ensure sufficient environmental protection. This limit has been in place since the permit was first issued and the justification for this can be found in that decision document.

We have set IC1 which requires the operator to assess options to reduce NO_x emissions further below the top of the BAT AEL range.

5.3 Energy efficiency

The BAT conclusions specify an energy efficiency level associated with the best available techniques (BAT-AEEL). The BAT AEEL is based on gross electrical efficiency, gross energy efficiency or boiler efficiency depending on the type of plant.

The relevant BAT AEEL for this installation is gross electrical efficiency.

The Applicant stated that gross electrical efficiency is 14.3%. This is below the range specified in the BAT conclusions and we have therefore set improvement condition IC4 that requires the operator to assess options to improve efficiency.

5.4 Monitoring

The monitoring requirements for mercury and dioxins/furans are dependent on whether the waste has low a low and stable mercury content and whether emissions of dioxins are stable respectively. Improvement conditions IC2 and IC3 require the operator to submit information to enable us to require the correct monitoring.

5.5 Issues not directly related to BAT conclusions

Hazardous waste wood from demolition activities and other sources is sometimes chipped and blended with non-hazardous waste wood, and the resulting mixture sent to Chapter-IV compliant co-incinerators. Although this mixed waste stream is pre-mixed hazardous, [RPS 291](#) (and the previous [RPS 250](#)) means it can be moved as non-hazardous under a waste transfer note, and so co-incinerators have not been required to have hazardous waste codes in their permits.

RPS 291 expires at the end of September 2024. We have therefore included, at the request of the operator, hazardous waste codes and other relevant conditions as part of this permit review. These changes will not lead to any change to the emissions from the plant as they will simply formalise what it is already allowed to do under RPS 291, and there will be no actual changes to

the types of waste types received by the plant. However, changing a non-hazardous permitted plant to a hazardous permitted plant is a substantial change under IED, and we therefore consulted on the change from 28th June 2023 until 26th July 2023. Key issues from the responses received and how we considered them are set out below.

Brief summary of issues raised:	Summary of action taken / how this has been covered
Gasification should be used rather than incineration.	The addition of hazardous waste codes to the permit does not change our assessment that the technology used at the installation is BAT
Concern over emissions to air	The addition of the hazardous waste code will not change emissions to air and does not change our view that emissions will not be significant.

Annex 1

Decision checklist regarding relevant BAT Conclusions

This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation.

The overall status of compliance with the BAT conclusion is indicated in the table below as

NA - Not Applicable

CC - Currently Compliant

FC - Compliant in the future (by 3rd December 2023)

NC - Not Compliant

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
1	EMS	Improve overall performance via use of a compliant EMS.	The EMS meets the requirements of BAT 1 with the exception of [xvi & xxiv] and the EMS will be updated by 03/12/23 to ensure that it meets BAT 1	FC
2	Energy efficiency	Determine gross electrical efficiency, gross energy efficiency or boiler efficiency (depending on plant type).	Energy efficiency has been calculated using method explained in column G and report describing how it was calculated is attached "BAT 2 Energy Efficiency Calculations".	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
3	Process Monitoring	Monitor key process parameters for emissions to air and water specified in the corresponding table.	<p>Process monitoring is carried out in line with BAT 3 requirements for the following relevant parameters Oxygen Content, Temperature, Pressure, Water Vapour Content & Combustion Chamber Temperature.</p> <p>The continuous measurement of flow is not in place but is displayed as a calculated figure based on the differential pressures monitored in the stack. We consider the addition of a flow meter to be unnecessary for our installation noting its scale, consistent waste input and operational performance, however we are currently discussing the options for this with our preferred supplier and will endeavour to install these prior to 1st January 2023.</p>	CC

4	Air emissions monitoring	<p>Monitor emissions to air with at least the frequency in the corresponding table and in accordance with the EN standards.</p>	<p>Monitoring is carried out in line with BAT 4 requirements.</p> <p>'Below is an overview of current monitoring frequency vs BAT 4 table</p> <p>NOX - continuous already ISO 10849 - compliant no change required NH3 - continuous already MCERTS - compliant no change required N20 - bi-annual spot VDI standards - reduce to annual and use EN 21258 ? CO - continuous already - ISO 12039 - compliant no change required SO2 - continuous already - BS 6069-4.4 - compliant already no change required HCl - continuous already - MCERTS certified - - compliant already no change required HF - currently bi-annual USEPA 26/26A - no change required as compliant with EA policy (where HCl complied with HF not required) Dust - continuous already - compliant no change required Metals - bi-annual BS EN 14385 - no change required as compliant TVOC - continuous already BS EN 12619 - no change required as compliant</p> <p>We note the EA draft permit proposes to add CEM for N20 and CO2. Our CEMS are not currently capable of monitoring these. We consider it would be excessively costly (not BAT) to add these CEMs so we propose to continue with periodic monitoring in line with the BREF and</p>	CC
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BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
			<p>review this situation over time e.g. if CEMS are due for upgrade/replacement.</p> <p>We believe our BAT case for not fitting the additional N₂O, CO₂ and flow CEMs is supported by the (small) scale of the plant, consistent feedstock quality and operational performance, including for N₂O the good combustion performance overall e.g. low and stable NO_x, CO and VOC. It is important to note that the consistent waste feed quality (via pre-treatment) means that our installation is very different to municipal EFW plants that are generally of much larger scale and receive a much more heterogeneous waste input. Furthermore, the proportion of "low carbon biomass fuel" is much higher with our waste feed being primarily waste wood.</p> <p>NOTE from EA: We are not currently planning to require operators whose CEMS cannot measure CO₂ or N₂O or whose flow meters cannot be calibrated, to install new monitoring equipment specifically for this purpose, but we expect when that monitoring equipment reaches the end of its service life that the Operator will choose replacements which are capable of meeting the requirements.</p>	

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
	PBDD/F	Monitor emissions to air of brominated dioxins and furans periodically if waste streams are known to contain brominated flame retardants are burned	<p>PBDD/F monitoring is not required as no waste containing brominated flame retardants are/will be burned.</p> <p>'In accordance with EA policy the plant does not need to monitor PBDD/F.</p> <p>Note: Our waste feed is very different to MSW in that it is over 95% wood waste. All waste incinerated will have gone through substantial pre-treatment and is subject to rigorous acceptance and quality checks including sampling and testing. The small amount of trommel fines treated in the plant arise from skip waste pre-treatment that itself only receives very limited amounts of potential sources of brominated flame retardants (such as furniture) "incidentally". As such we consider the costs of any such monitoring to be excessive in comparison to the benefits and not BAT.</p>	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
	PCDD/F	Monitor emissions to air of dioxins and furans using a continuous sampler unless emissions are sufficiently stable.	<p>Attempts will be made to demonstrate via the PCDD/F Monitoring Protocol that emissions to air of PCDD/F are sufficiently stable and that a continuous sampler (long-term monitoring) is not required by 03/12/23; if these are unsuccessful, continuous sampling will be installed as soon as reasonably practical.</p> <p>'PCDD/F - please refer to our submitted historical monitoring results which suggest low and stable so compliant with protocol and CEM not required.</p>	FC
	Mercury	Monitor emissions to air of mercury using continuous monitoring if required.	<p>Attempts will be made to demonstrate via the Mercury Monitoring Protocol that emissions to air of mercury are low and stable and that a continuous sampler is not required by 03/12/23; if these are unsuccessful, continuous monitoring will be installed as soon as reasonably practical.</p> <p>'Hg - please refer to our submitted historical monitoring results which suggest low and stable so compliant with protocol and CEM not required.</p>	FC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
5	OTNOC monitoring	<p>Appropriately monitor emissions during OTNOC.</p> <p>Monitor PCCD/F and dioxin-like PCB mass emissions during a planned start-up and shut-down following the successful commissioning of the plant; already-operational plants must carry out this monitoring every 3 years; emissions profiles of continuously monitored pollutants must also be established following successful commissioning and for existing plants; consider further monitoring for plants that use abatement-system bypasses during start-up and/or shut-down.</p>	<p>Plant has been successfully commissioned, or is likely to be before 03/12/23. Emissions profiles of continuously monitored pollutants have been established during start-up and shut-down or will be established by 03/12/23. Monitoring of PCCD/F and dioxin-like PCB mass emissions during a planned start-up and shut-down will be carried within 3 years of 03/12/23.</p> <p>'The plant is not fitted with a bypass.</p> <p>No monitoring during SU/SD has been carried out to date.</p> <p>The high availability and low incidence of shut downs at the plant demonstrates that our existing management plan and operational procedures ensure that OTNOC is already effectively avoided.</p> <p>Noting our very stable operation, and low incidence of SU/SD and OTNOC, and that the BREF also allows for the use of "surrogate parameters" we propose to monitor and report the results seen with currently installed CEMs during a routine outage prior to 3 Dec 2023, and then discuss next steps with the EA.</p>	FC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
6	Water emissions monitoring	Monitor emissions from FGC and/or bottom ash treatment. Monitor to frequencies and standards in corresponding table.	Not applicable as no emissions to water from FGC or bottom ash treatment.	NA
		Reduced monitoring frequency permitted if emissions can be shown to be sufficiently stable.	Not applicable as no emissions to water from FGC or bottom ash treatment.	NA
7	Ash monitoring	Monitor LOI or TOI content of bottom ash to the frequencies and standards in corresponding table .	Monitoring carried out for TOC. We test TOC and it is always less than 3%, using BS EN 12457-3	CC
8	POP monitoring	For hazardous waste containing POPs, monitor POP content of waste streams (applicable to dedicated hazardous waste incinerators only). After commissioning and then after significant change that could affect POP content.	Not applicable - plant is not a dedicated hazardous waste incinerator.	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
9	Waste input controls	Pre-acceptance / acceptance procedures. Use all techniques (a) to (c) in corresponding table, and where relevant (d), (e) and (f).	<p>Techniques set out in BAT 9 (a)-(c) are in place. Techniques (d)-(f) are not relevant.</p> <p>Techniques A to C required at all plants:</p> <ul style="list-style-type: none"> - A. Determination of waste input types based on plant characteristics YES see EMS and Fuel Supply Agreement - B. Implementation of pre-acceptance procedures....from supply chain YES see EMS - C. Site acceptance procedures – checks to verify on site – see list on BAT 11 YES see EMS <p>Techniques d, e & f – only required as relevant:</p> <ul style="list-style-type: none"> - D Waste tracking system - YES as appropriate to waste type. - E Waste segregation - not applicable - F blending of haz waste - not applicable 	CC
10	Bottom ash treatment	Quality output management system part of EMS where bottom ash treatment is carried out.	Not applicable - bottom ash treatment is not carried out.	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
11	Waste delivery, storage and handling	Monitor waste deliveries in line with corresponding table, depending on the risk posed by the waste type.	Measures in line with BAT 10 are in place. Confirm that the following are carried out: - Weighing of deliveries Yes covered in EMS - Visual inspection Yes covered in EMS - Periodic sampling testing Yes covered in EMS	CC
		Radioactivity detection	Not required - no increased risk identified	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
12		Storage and handling. Use both techniques listed in corresponding table.	Measures in line with BAT 12 are in place. 'The Fuel Store (Bunker) is constructed from impermeable concrete. Fuel store is monitored using remote cameras and automated level control linked to fuel feed so that levels are maintained within capacity at all times. Fire detection and control systems are in place. The capacity of the store is approximately 730 tonnes and this capacity would be theoretically depleted in less than 4 days therefore providing rapid stock rotation. The operation is very much based on a "just in time" process meaning there is always enough fuel to ensure continuous and stable operation of the plant without excessive amounts of fuel being stored on site.	CC
13		Storage and handling of clinical waste. Combination of techniques listed in corresponding table.	Not applicable as clinical waste not received at the installation.	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
14	Overall environment performance	Reduce unburnt substances in slags / bottom ash and reduce emissions. Use a combination of techniques listed in corresponding table	<p>The following measures listed in the table of BAT 14 are used: A, B & C.</p> <p>The following techniques relevant to BAT 14 table are in place:</p> <p>a) waste blending & mixing - waste is prepared using shredding. Metals and other impurities are excluded / removed. The feeder crane is used to blend waste as it is fed into the plant, and ensures level control and stock rotation.</p> <p>b) advanced control system - automated controls are linked to operational, safety and emissions parameter feedback loops.</p> <p>c) process optimisation - automated control points are set to ensure good burnout and compliance with emissions permit requirements and also to deliver optimal efficiency & continuous operation (low AO, OTNOC and low frequency of outages)</p>	CC
		BAT-AEPL for TOC or LOI	The installation meets the BAT-AEPL for TOC as shown by historic monitoring data	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
15		Control plant settings to reduce emissions to air. Use techniques such as an advanced control system.	<p>An advanced control system is in place to achieve the requirements of BAT 15.</p> <p>Examples of the automated control system features are as follows:</p> <ul style="list-style-type: none"> • Temperature control adjusts the fuel supply speed and fan speeds to maintain steady temperatures • The oxygen level is continuously monitored and fan speeds automatically adjust to maintain compliance • Emissions levels are continuously monitored and abatement system dosing adjusts automatically to maintain compliance 	CC

16		<p>Procedures to limit shutdown and start-up. Set up and implement procedures such as continuous rather than batch operation</p>	<p>Start-up and shut-down is minimised by following operational procedures and maintaining a continuous process.</p> <p>'The plant is run as a continuous process with a strong focus on avoiding unplanned outages. Exceptionally high annual availability e.g. 8497.93 turbine hours over the period March '21 to Feb '22 the availability is 97% (compared to a 'normal' EFW plant average closer to 91% this is exceptionally high). We hold 2 planned outages per line per year, 6 months apart, to conduct preventative and planned maintenance. Aside from this we also follow a Planned Preventative Maintenance schedule and conduct any additional online maintenance as required.</p> <p>There is a strong focus on incoming fuel specification . Maintenance and shutdown planning procedures are in place:</p> <p>11.1 Power Plant Maintenance Procedure - This is a high-level procedure to describe how planned preventative maintenance programmes are established and followed at the installation. 11.2 Enviropower Shutdown Planning Procedure - This procedure describes how shutdowns are scheduled, planned and managed</p>	CC
17	Emission to air and water	Design of FGC system and waste water treatment plant. Appropriate design, operated in design range, maintained to ensure optimal availability.	<p>Flue gas system is designed appropriately and is operated within those design parameters.</p> <p>'The plant minimises emissions to air and water through a combination of its design and through good operating</p>	CC

			<p>practice. In particular this delivers stable operations and exceptionally high availability, which contributes to avoiding emissions that may be associated with less stable operating conditions, start up and shut down etc.</p> <p>FGC is in place and includes:</p> <ul style="list-style-type: none"> - Systems overview: bag filters, reagent injection (bicarbonate, activated carbon), urea prills, FGR - Control overview: CEMs feedback control loop to variable speed dosing pumps, urea concentration adjustment - Maintenance overview: scheduled, preventative & responsive - please refer also to BAT 16 answer <p>We are continuously assessing PM, HCl and SO₂ emission concentration reduction possibilities. This includes discussion with flue gas treatment suppliers to receive offers. Further information on the approaches will be known and discussed with the local EA officer. The current status is that:</p> <ul style="list-style-type: none"> -We do not envisage any challenges in meeting the new HCl & SO₂ emissions limits, although this will result in increased reagent usage. - Trials have demonstrated that the new limit for particulates is achievable and a derogation will not be required. 	
18	OTNOC	Reduce frequency of OTNOC by setting up and implementing an OTNOC management plan.	An OTNOC management plan which meets the requirements of BAT 18 will be implemented by 03/12/23. A description of how critical equipment has been designed to minimise occurrence of abnormal operation (AO) and minimise impacts from AO and start-up and shut-down periods is included with this submission.	FC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
			<p>'The exceptionally high availability and low historical number of Abnormal Operation incidents demonstrates that our existing procedures already provide a very high degree of OTNOC frequency reduction.</p> <p>Please refer to accompanying document "List of design measures to minimise OTNOC"</p>	
19	Energy efficiency	Increase efficiency by using a heat recovery boiler.	A heat recovery boiler is used to generate electricity and steam .	CC

20		<p>Increase efficiency by using a combination of techniques listed in corresponding table.</p>	<p>The following measures listed in the table of BAT 20 are used: B, C, D, E, F, G & H.</p> <p>'Description of current approaches against each of the listed techniques in table in BAT 20:</p> <p>a- N/A - no sewage sludges treated. b- Both techniques noted are used. c- the furnace and boiler have been designed to incorporate FGR and thermal insulation. Refractory lining in the furnace is used to maintain design temperatures and good combustion conditions, and to reduce slag accumulation. An integral furnace boiler (water walls) is not applicable due to the overall thermal design. Recovery of heat from the slag and bottom ashes is not applicable owing to the low quantity of heat available, and lack of available use for such heat at this plant. d- All techniques noted were incorporated at the design stage and remain in use. e- The design does not incorporate low temperature flue gas heat exchangers, but economisers are fitted on the steam cycle. The design in place delivers flue gas temperature at the right temperature profile for the FGC system. f- The 40bar / 400C steam conditions used are at the upper level typically applied to installations of this (smaller) scale. g- Heat supply was investigated to fulfill Improvement Condition 10 in the permit. No suitable users were identified, and the situation has not changed. (see also reply to BAT 2above for further detail) h- Flue gas condensation is not applicable and there is no suitable heat offtake system</p>	CC
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BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
			<p>i- N/A – a wet ash bath design is in place to provide a water seal and allow stable combustion conditions in the furnace.</p> <p>Related investments & initiatives relevant to energy efficiency BAT:</p> <p>Improved Superheater Design to give additional heat transfer surface & improved resistance to fouling and corrosion, including Inconel overlaying</p> <p>Improved Economiser Design to give additional heat transfer surface & improved resistance to fouling including sootblowers</p> <p>Added a 4th ACC bay to improve condenser performance and therefore power generation</p> <p>Kaolin Clay fuel additive injection to raise ash melting temperature and reduce fouling</p> <p>Replaced moving floor fuel feed system with more effective and efficient quad screw auger system to provide consistent fuel feed</p> <p>Increased heat transfer surface area in boiler</p> <p>Improvement to the automated control system to better maintain consistent temperatures and steam flow</p>	

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
		BAT-AEEL is within the BAT – AEEL range	<p>The gross electrical efficiency is 14.30 %.</p> <p>' A GEE of 11.94% was achieved in the 12 months to March 2022. A higher efficiency of 14.30 % is calculated if only the fuel content of the incoming waste is considered - see also BAT 2 response above for calculation method and additional comments.</p> <p>Note from EA: We have include IC4 in the permit that requires the Operator to assess opportunities to increase the energy efficiency of installation.</p>	NC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
21	Diffuse emissions to air	Prevent or reduce diffuse emissions (including odour) using the listed techniques.	<p>Measures in line with BAT 21 are in place.</p> <p>'Measures in place are described in EMS 8.1 Fugitive Emissions Procedure, and include:</p> <ul style="list-style-type: none"> - strict QA of incoming waste for odour potential - good combustion and abnormal operations shutdown procedure - good housekeeping in general - prepared waste is stored indoors and fuel handling is enclosed all the way to the combustors - inventory control (FIFO approach) - level monitoring and control - controlled ventilation <p>The combustion system operates at negative pressure and therefore does not allow the escape of combustion gasses. In the event of positive pressure being detected the affected line(s) will go into an immediate shutdown and the fuel will cease to be charged to the combustion system. Regular maintenance and inspection of plant by Senior Technicians & Fitters and monthly Fixed Infrastructure Inspection reinforce the above control systems.</p>	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
22		Prevent diffuse emissions of VOCs from gaseous and liquid wastes by direct feed to furnace.	Not applicable - gaseous or liquid waste are not accepted	NA
23		Prevent or reduce diffuse emissions to air from treatment of slags and bottom ashes by including listed measures in the EMS.	Not applicable - bottom ash treatment is not carried out.	NA
24		Prevent or reduce diffuse emissions to air from treatment of slags and bottom ashes. Use one or a combination of techniques in corresponding table	Not applicable - bottom ash treatment is not carried out.	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
25	Channelled emissions to air	Reduce emissions of metals and metalloids from incineration of waste. Use one or a combination of techniques in corresponding table.	<p>The following measures listed in the table of BAT 25 are used: A & C.</p> <p>We confirm that the techniques applied with reference to those listed in BAT 25 are:</p> <ul style="list-style-type: none"> a) Bag filter – yes b) EP – no c) Dry sorbent injection – yes bicarb & act carbon d) Wet scrubber – no e) Fixed / moving bed absorption – no 	CC
		BAT-AELs for dust and metals	<p>In the Regulation 61 submission the Operator stated that ‘there is a possibility that a derogation from the BAT-AEL for Dust will be requested’.</p> <p>The Operator has subsequently completed trials on site that have demonstrated that the BAT-AEL is achievable and therefore a derogation will not be required.</p>	FC
26		Reduce emissions of dust from treatment of slags and bottom ashes. Use a bag filter if treating air from treatment of IBA under sub-atmospheric conditions.	Not applicable - bottom ash treatment is not carried out.	NA

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
		BAT-AEL for dust from IBA treatment. Applies if using a bag filter to treat air from treatment of IBA under sub-atmospheric conditions	Not applicable - bottom ash treatment is not carried out.	NA
27		Reduce emissions of HCl, HF and SO ₂ using one or a combination of techniques in corresponding table.	The following measures listed in the table of BAT 27 are used: C 'Please also refer to information provided in our application. In summary, with ref to the BAT 27 table: a) Wet scrubber – no b) Semi -wet – no c) Dry – yes with bicarb and activated carbon d) Direct desulphurisation – no e) Boiler sorbent injection - no	CC
28		Reduce peak emissions of HCl, HF and SO ₂ and amount of residue produced, using technique (a) or both techniques in corresponding table.	The following measures listed in the table of BAT 28 are used: A The following techniques are in place from BAT 28 table: a) Optimised & automated reagent dosage - yes b) Reagent recirculation - no the current design does not include recirculation and there are capacity & functionality issues regard the feasibility of its addition. Also noting the small scale of the installation.	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
		BAT-AELs for HCl, HF and SO ₂	<p>The plant will be able to achieve an emission limit value set at the top end of the BAT-AEL range by 03/12/23.</p> <p>'We are currently undertaking investigations to achieve compliance with the new BAT-AELs. Current indications are that compliance is achievable by 3 Dec 2023 by increasing reagent dose rates to reduce emissions of the target substances.</p>	FC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
29		Reduce emissions of NOx while limiting emissions of CO, N ₂ O and NH ₃ using appropriate combination of techniques in corresponding table.	<p>The following measures listed in the table of BAT 29 are used: A, B, C & F.</p> <p>The following techniques are in place from BAT 29 table :</p> <ul style="list-style-type: none"> a) Yes b) Yes c) Yes – urea SNCR is applied d) No - SCR not applicable e) No - bag filters are used, but not catalytic bag filters f) Degree of optimisation: Improvement Condition 3 which related to optimisation of the SNCR system and was signed off by the Agency in EPR CAR dated 27/06/14, following submission of the report on 24 June 2014. Key ongoing optimisation approaches include: <ul style="list-style-type: none"> - urea pills allow solution strength trimming - real time solution strength adjustment with control loop linked to CEMS - combustion control optimised for NOx reduction, including the FGR system - preventative maintenance g) Wet scrubber is not used 	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
		BAT-AELs for NO _x , CO and NH ₃	<p>The plant is currently able to achieve an emission limit value set at the top end of the BAT-AEL range.</p> <p>'Summary of compliance with BAT-AELs:</p> <ul style="list-style-type: none"> - NO_x - The plant is already compliant with an emission limit value set at the top end of the BAT-AEL range (150mg/Nm³ daily average is new BAT-AEL and is current permit level too & monitoring results confirm compliance) - CO – despite some limited short term historical exceedances (as reported to the EA and as is common with such plant) the plant is currently able to achieve an emission limit value set at the top end of the BAT-AEL range (50 mg/Nm³ is the new BAT-AEL and the same daily average level is also in the current permit) - NH₃ – the plant is currently able to achieve an emission limit value set at the top end of the BAT-AEL range (note 3 in table below allows 15mg/Nm³) 	CC
30		Reduce emissions of organic compounds including PCDD/F and PCBs using techniques (a), (b), (c), (d) and one or a combination of techniques (e) to (i) in corresponding table	<p>The following measures listed in the table of BAT 30 are used: A, B, C, D & E.</p> <p>Compared to the techniques table in BAT 30:</p> <p>a, b , c, d & e - yes these are applied</p> <p>Others - not applied</p>	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
		BAT-AELs for PCDD/F	<p>The plant is currently able to achieve an emission limit value set at the top end of the BAT-AEL range.</p> <p>The plant is currently able to achieve an emission limit value set at the top end of the BAT-AEL range.</p>	CC
31		Reduce mercury emissions using one or a combination of techniques in the corresponding table.	<p>The following measures listed in the table of BAT 31 are used: B</p> <p>'Confirmation of the applied techniques compared with those in the BAT 31 table as follows:</p> <ul style="list-style-type: none"> a) No – no wet scrubber b) Yes – activated carbon is used c) No – not required as compliant with existing methods d) No – not required as compliant with existing methods e) No – not required as compliant with existing methods <p>NOTE: The rigorous waste preparation and quality processes applied to ensure input meets the plant fuel specification mean that the risk of Hg contamination is considered very low.</p>	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
		BAT-AEL for mercury	The plant is currently able to achieve an emission limit value set at the top end of the BAT-AEL range.	CC
32	Emissions to water	Reduce contamination of uncontaminated water, reduce emissions to water and increase resource efficiency. Segregate waste water streams and treat them separately.	<p>The measures listed under BAT 32 are used.</p> <p>'EMS 3.2 sets out our water discharge and monitoring procedures.</p> <p>This includes appropriate segregation, holding, discharge, treatment (e.g. settlement) and monitoring as applicable to each waste water stream.</p>	CC
33	Water usage	Reduce water usage, prevent waste water generation using one or a combination of techniques in the corresponding table	<p>The following measures listed in the table of BAT 33 are used: A</p> <p>'Comparison with BAT 33 techniques gives the result below:</p> <ul style="list-style-type: none"> a) Yes b) Not applicable c) Not applicable d) No – wet ash discharge design 	CC

BAT No.	Topic	Brief Description	Operator response	Complies with BAT? (NA, CC, FC, NC)
34	Emissions to water	Reduce emissions to water from FGC and/or from storage and treatment of slags and bottom ashes using one or a combination of techniques in the corresponding table and use secondary techniques as close to source as possible.	Not applicable - no direct or indirect emissions to water from FGC or bottom ash treatment	NA
		BAT-AELs	Not applicable - no direct or indirect emissions to water from FGC or bottom ash treatment	NA
35	Resource efficiency	Resource efficiency. Handle and treat bottom ashes separately from FGC residues.	Bottom ashes are handled and treated separately from FGC residues.	CC
36		Resource efficiency for treatment of slags and bottom ashes. Use appropriate combination of techniques in corresponding table depending on hazardous properties of the slags and bottom ashes.	Not applicable - bottom ash treatment is not carried out.	NA

37	Noise	<p>Reduce noise emissions using one or a combination of techniques in the corresponding table.</p>	<p>The following measures listed in the table of BAT 37 are used: A, B, C & E.</p> <p>'Comparison with BAT 33 techniques:</p> <p>a) The plant is located within a building. Relocation of equipment is constrained by existing layout / design - see other measures adopted.</p> <p>b) Operational measures noted in BAT 37(b) are all implemented.</p> <p>c) Low noise equipment is deployed, and a consideration when replacements are made</p> <p>d) No – embankments / sound attenuation walls not in current design and there is no space for their addition.</p> <p>e) Noise control equipment, reducers, insulation, enclosures & soundproofing are already in place. For example, noise attenuators are fitted to the outlets of both lines ID Fans and QFT (Quiet Fan Technology) designed by INVC (Industrial Noise & Vibration Control Ltd) is fitted to both of the ID fans and also both the Recirculation Fans.</p> <p>Note: A noise management plan is implemented at the installation A noise report undertaken by the Agency in August 2014 concluded "noise from regular and frequent trains is highly dominant in the acoustic environment and because of this, the impact of the site noise is considered minimal and further monitoring is not recommended at this time".</p>	CC
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6 Review and assessment of derogation requests made by the operator in relation to BAT Conclusions which include an associated emission level (AEL) value

The IED enables a competent authority to allow derogations from BAT AELs stated in BAT Conclusions under specific circumstances as detailed under Article 15(4):

By way of derogation from paragraph 3, and without prejudice to Article 18, the competent authority may, in specific cases, set less strict emission limit values. Such a derogation may apply only where an assessment shows that the achievement of emission levels associated with the best available techniques as described in BAT conclusions would lead to disproportionately higher costs compared to the environmental benefits due to:

(a) the geographical location or the local environmental conditions of the installation concerned; or

(b) the technical characteristics of the installation concerned.

As part of their Regulation 61 Note response, the operator has not requested a derogation from compliance with any AEL values.

7 Summary checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on confidentiality.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator where they are relevant to the BAT Conclusions and compared these with the relevant guidance notes. The permit conditions ensure compliance with the relevant BREF, BAT Conclusions. The ELVs deliver compliance with the BAT-AELs.
Permit conditions	
Updating permit conditions during consolidation	We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide at least the same level of protection as those in the previous permit and in some cases will provide a higher level of protection to those in the previous permit.
Changes to the permit conditions due to an Environment Agency initiated variation	We have varied the permit as stated in the variation notice.
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. We have imposed an improvement programme see key issue section for further details. We have also removed the completed improvement conditions from the permit.
Emission limits	We have decided that emission limits should be set for the parameters listed in the permit. These are described in the relevant BAT Conclusions in Section 5 of this document.

Aspect considered	Decision
	It is considered that the ELVs/equivalent parameters or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment is secured.
Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These are described in the relevant BAT Conclusions in Section 5 of this document.</p>
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>