

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/NP3438LK
The Operator is: Sembcorp Utilities (UK) Limited
The Installation is: Wilton No. 1 Gas Turbine
This Variation Notice number is: EPR/NP3438LK/V004

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 large combustion plant (LCP) published on 17 August 2017. This is our decision document, which explains the reasoning for the consolidated variation notice that we are issuing.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. This review has been undertaken with reference to the decision made by the European Commission establishing BAT Conclusions for LCP as detailed in document reference IEDC-7-1. 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 considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, 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 only our determination of substantive issues relating to the new BAT Conclusions.

This is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position.

Throughout this document we will use a number of expressions. These are as referred to in the glossary and have the same meaning as described in “Schedule 6 Interpretation” of the permit.

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. A lot of technical terms and acronyms are inevitable in a document of this nature: we provide a glossary of acronyms near the front of the document, for ease of reference.

How this document is structured

Glossary of terms

- 1 Our decision
- 2 How we reached our decision
- 2.1 Requesting information to demonstrate compliance with BAT Conclusions for Large Combustion Plant
- 2.2 Review of our own information in respect to the capability of the installation to meet revised standards included in the BAT Conclusions document
- 3 The legal framework
- 4 Key issues
- 5 Decision checklist regarding relevant BAT Conclusions
- 6 Review and assessment of derogation requests made by the Operator in relation to BAT Conclusions which include an associated emission level (AEL) value
- 7 Emissions to water
- 8 Additional IED Chapter II requirements
- 9 Review and assessment of changes that are not part of the BAT Conclusions derived permit review.

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-AEL	BAT Associated Emission Level
BATc	BAT conclusion
BREF	Best available techniques reference document
CCGT	Combined Cycle Gas Turbine
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
DLN	Dry Low NOx burners
DLN-E	Dry Low NOx effective
EIONET	European environment information and observation network is a partnership network of the European Environment Agency
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)
IPPCD	Integrated Pollution Prevention and Control Directive (2008/1/EC) – now superseded by IED
LCP	Large Combustion Plant subject to Chapter III of IED
MSUL/MSDL	Minimum start up load/minimum shut-down load
NOx	Oxides of nitrogen (NO plus NO ₂ expressed as NO ₂)
NPV	Net Present Value
OCGT	Open Cycle Gas Turbine
PHE	Public Health England
SAC	Special Area of Conservation
SGN	Sector guidance note
TGN	Technical guidance note
TNP	Transitional National Plan
TOC	Total Organic Carbon
WFD	Water Framework Directive (2000/60/EC)

1 Our decision

We have decided to issue the consolidated variation notice to the Operator. This will allow them 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 (EPR) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the notice, we have considered the techniques identified by the Operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our permit template provides two or more options.

2 How we reached our decision

2.1 Requesting information to demonstrate compliance with BAT Conclusions for Large Combustion Plant

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 (a Regulation 61 Notice) on 01 May 2018 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 LCP 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 17 August 2021, which will then ensure that operations meet the revised standard, or
- Justifies why standards will not be met by 17 August 2021, 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 Operator did not make any such request.

The Regulation 61 Notice response from the Operator was received on 19 March 2019.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that review: see below.

Request for information sent 03 January 2020. BAT Conclusions 1, 2, 5, 10, 12, 15, 16, 40, 42 and 44.	Response received 13 March 2020.
BAT Conclusions 40 and 44.	Response received 01 April 2020.
MSUL/MSDL, DLN-E, energy efficiency and BAT AELs.	Response received 29 April 2020.
LCP thermal inputs	Response received 04 May 2020

2.2 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.

In relation to BAT Conclusions 2 and 40 we agree with the Operator in respect to their current stated capability as recorded in their Regulation 61 notice response that improvements are required.

We have therefore included an improvement condition in the consolidated variation notice, which requires them to upgrade their operational techniques so that the requirements of the BAT Conclusion are delivered by 17 August 2021. This is discussed in more detail in the Key issues section and in the decision checklist regarding relevant BAT Conclusions.

3 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.

4 The key issues

The key issues arising during this permit review are:

- Emissions to air and the emission limits applied to the plant.
- The energy efficiency levels associated with the Best Available Techniques (BAT AEELs).

We therefore describe how we determined these issues in most detail in the relevant sections of this document.

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

A number of general principles were applied during the permit review. These included:

- The upper value of the BAT AEELs 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 those specified in the BREF, the existing permit limits were retained.
- Where a limit was specified in both IED Annex V 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.
- Where AEELs are indicative in the BAT Conclusions, these were applied unless adequate justification was provided by the Operator to demonstrate that an alternative limit was more appropriate.

- For gas turbines where the IED specified that limits applied over 70% load and the BAT Conclusions specified that AELs applied when dry low NOx is effective (DLN-E), we have used DLN-E as a default across all monitoring requirements for NOx and CO.

a. Plant configuration

LCP 416 comprises one 192 MWth combined cycle gas turbine (CCGT) plant known as GT1 and one heat recovery steam generator (HRSG), fuelled by natural gas. Waste gases are discharged to one stack, at emission point A3. The plant does not operate in open cycle i.e. open cycle gas turbine (OCGT).

Natural gas is supplied by pipe-line and used directly on the plant.

This plant supplies steam and electricity to other operators within the Wilton International site and is therefore a combined heat and power (CHP) plant.

The plant was put into operation before the IED came into force and therefore the existing limits in the permit are from Part 1 of IED Annex V applicable to existing plant.

The emission limit values (ELVs) and AELs are based on an unlimited hours operating regime.

The following tables outline the limits that have been incorporated into the permit for LCP 416, where these were derived from and the reference periods at which they apply. The emission limits refer to concentrations, expressed as mass of emitted substance per volume of flue-gas under the following standard conditions:

- dry gas at a temperature of 273.15 K;
- pressure of 101.3 kPa; and
- 15% volume reference oxygen concentration in flue gases.

The emission limits and monitoring requirements have been incorporated into Schedule 3 of the permit.

b. NOx limits – BAT Conclusion 44

NOx limits (mg/Nm ³) – corrected to 15% oxygen						
Averaging	IED (Annex V Part 1) – Existing plant	BREF (BAT C 44, Table 24)	Revised permit limits	Basis	Limits apply	Monitoring
Annual	None	45 (50-600 MW _{th} , <75%) ¹	45	BREF	DLN-E	Continuous
Monthly	50	None	50	IED	DLN-E	
Daily	55	55 (50-600 MW _{th} , <75%) ¹	55	BREF	DLN-E	
95 th %ile of hourly means	100	None	100	IED	DLN-E	

1 – Existing CCGT with a net total fuel utilisation of <75%.

The Operator confirmed that DLN operation is effective for the gas turbine at 26 MW, which corresponds to 62% load (telecon 30 April 2020). They also confirmed that this is also the point of MSUL/MSDL. Refer to section 8 of this document.

A formal submission will be required in accordance with existing permit improvement condition IP25.

We have also set a daily limit applicable from MSUL/MSDL to baseload, consistent with the daily limit when DLN is effective. The Operator will be required to submit a formal submission in accordance with existing permit improvement condition IP26.

Tables S1.4, S1.5, S3.1 and S3.1a of the permit have been updated to reflect these requirements.

c. CO limits – BAT Conclusion 44

CO indicative emission levels are a yearly average of 30 mg/Nm³. For plants operating at low load, the higher end of this range will be 50 mg/Nm³.

The Operator has proposed a yearly average limit of 30 mg/Nm³ (telecon 30 April 2020), with the existing IED Annex V ELVs remaining unchanged.

The applicable indicative BAT AELs are set out in the table below. We have also added the limits which will be in the varied permit and confirmed the basis for their inclusion.

CO (indicative) limits (mg/Nm ³) – corrected to 15% oxygen						
Averaging	IED (Annex V Part 1) – Existing plant	BREF (BAT C 44, Table 24)	Permit limits	Basis	Limits apply	Monitoring
Annual	None	30	30	BREF	E-DLN	Continuous
Monthly	100	None	100	IED	E-DLN	
Daily	110	None	110	IED	E-DLN	
95 th %ile of hr means	200	None	200	IED	E-DLN	

We have also set a daily limit applicable from MSUL/MSDL to baseload, consistent with the daily limit when DLN is effective. The Operator will be required to submit a formal submission in accordance with existing permit improvement condition IP26.

Tables S1.4, S1.5, S3.1 and S3.1a of the permit have been updated to reflect these requirements.

4.2 The energy efficiency levels associated with the Best Available Techniques Conclusions

An energy efficiency level associated with the best available techniques (BAT-AEEL) refers to the ratio between the combustion unit's net energy output(s) and the combustion unit's fuel/feedstock energy input at actual unit design. The net energy output(s) is determined at the combustion unit boundaries, including auxiliary systems (e.g. flue-gas treatment systems), and for the unit operated at full load.

We have included a process monitoring requirement in table S3.4 of the consolidated variation notice. This is required to demonstrate that efficiency levels are maintained following any significant overhauls of equipment in order to fulfil the requirement of BAT Conclusion 2.

The table below sets out the BAT AEELs specified in the LCP BAT Conclusions for the LCP on the site and the energy efficiency levels confirmed through the additional information received 01 April 2020.

The Operator confirmed that the efficiency falls out of the BAT AEEL when the condensing steam turbine (ST11) is running.

ST11 runs when it is commercially advantageous and operationally available and is linked to the spark spread. The percentage of running hours for ST11 is shown in the table below:

Year	Running hours	% of Year
2015	5044	58%
2016	5315	61%
2017	3270	37%
2018	6920	79%
2019	4981	57%

BAT AEELs (%) ^{Note 1}			Plant efficiency (%)		
Net electrical efficiency	Net total fuel utilisation ^{Note 2}	Net mechanical efficiency	Net electrical efficiency	Net total fuel utilisation	Net mechanical efficiency
CHP CCGT, 50–600 MWth LCP416 CHP CCGT 192 MWth					
46 - 54	65-95	None	Note 1	63.7	NA
Note 1: In the case of CHP units, only one of the two BAT-AEELs 'Net electrical efficiency' or 'Net total fuel utilisation' applies, depending on the CHP unit design (i.e. either more oriented towards electricity generation or heat generation. The Operator confirmed that 'Net total fuel utilisation' applies. Note 2: Net total fuel utilisation BAT AEELs may not be achievable if the potential heat demand is too low.					

We consider this plant is not BAT in relation to the AEELs when ST11 is running. The Operator confirmed that this is due to the potential heat demand being too low i.e. when the steam demand is below the optimal level. This BAT Conclusion recognises this factor (note 3 of table 23), this is note 2 to the table above.

The heat demand is out of the control of the Operator, and it is recognised that this has been a long standing problem with CHPs.

We are not fully satisfied that performance testing has been carried out in accordance with BAT Conclusion 2 and have set an improvement condition to address this. The Operator has committed to carrying out a performance test after the next major overhaul which is anticipated to take place in 2021. The improvement condition secures this commitment.

We anticipate that an energy efficiency review will be undertaken as part of a sector group compliance audit programme. If appropriate we may ask the Operator to review the potential heat demand periodically.

5 Decision checklist regarding relevant BAT Conclusions

BAT Conclusions for LCP were published by the European Commission on 17 August 2017. There are 75 BAT Conclusions. Only the BAT Conclusions relevant to the particular fuel type used on site have been replicated below.

This annex 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 consolidated variation notice.

The conditions in the permit through which the relevant BAT Conclusions are implemented include but are not limited to the following:

BAT Conclusion requirement topic	Permit condition(s)	Permit table(s)
Environmental Management System	1.1.1	S1.2
BAT AELs	3.1.1 and 3.5.1	S3.1a
Monitoring	2.3, 3.5 and 3.6	S1.2, S1.4, S1.5, S3.1a
Energy efficiency	1.2 and 2.3	S3.4
Noise	2.3 and 3.4	S1.2
Other operating techniques	2.3	S1.2

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

- NA Not applicable
- CC Currently compliant
- FC Compliant in the future (within 4 years of publication of BAT Conclusions)
- NC Not compliant
- PC Partially compliant

BAT C No.	Summary of BAT Conclusion requirement	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
General			
1	<p>In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:</p> <ul style="list-style-type: none"> i. commitment of the management, including senior management; ii. definition of an environmental policy that includes the continuous improvement of the installation by the management; iii. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment; iv. implementation of procedures <ul style="list-style-type: none"> (a) Structure and responsibility (b) Training (c) Communication (d) Employee involvement (e) Documentation (f) Efficient process control (g) Maintenance programmes (h) Emergency preparedness and response (i) Safeguarding compliance with environmental legislation v. checking performance and taking corrective action, paying particular attention to: <ul style="list-style-type: none"> (a) monitoring and measurement (see also the Reference Document on the General Principles of Monitoring) (b) corrective and preventive action (c) maintenance of records (d) independent (where practicable) internal and external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained; vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management; vii. following the development of cleaner technologies; viii. consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life; viii. consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life; 	FC	<p>The Operator confirmed that:</p> <p>An environmental management system (EMS) currently exists but is not formalised into ISO 14001. They already have ISO50001 (energy management) and ISO 90001 (quality management system).</p> <p>The EMS will also need to cover:</p> <ul style="list-style-type: none"> • Plans in order to reduce emissions to air and/or to water during other than normal operating conditions, including start-up and shut-down periods (see BAT Conclusions 10 and 11); • Plans to ensure that waste is avoided, prepared for reuse, recycled or otherwise recovered, including the use of techniques given in BAT Conclusion 16; <p>In their response to our request for information received 13 March 2020 they confirmed that the aim is to achieve certification of the EMS by the middle of 2020.</p> <p>We agree with the Operator's stated compliance.</p>

BAT C No.	Summary of BAT Conclusion requirement	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement													
	ix. application of sectoral benchmarking on a regular basis. Etc - see BAT Conclusions Applicability. The scope (e.g. level of detail) and nature of the EMS (e.g. standardised or non-standardised) will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.															
2	BAT is to determine the net electrical efficiency and/or the net total fuel utilisation and/or the net mechanical energy efficiency of the gasification, IGCC and/or combustion units by carrying out a performance test at full load (1), according to EN standards, after the commissioning of the unit and after each modification that could significantly affect the net electrical efficiency and/or the net total fuel utilisation and/or the net mechanical energy efficiency of the unit. 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 quality.	FC	<p>In their response to our request for information received 13 March 2020 the Operator confirmed that the original test results were at full load only which explains the higher efficiency. The lower heating value (LHV) varies as a result of varying customer steam demand. The BAT AEEL is met.</p> <p>They monitor energy efficiency on the assets using something called the “assumptions book”. This method is listed in their ISO 50001 management system.</p> <p>This looks at the GT design criteria for a given set of conditions and measures current performance against what the design criteria states the efficiency to be. There is a variation against this which is measured monthly.</p> <p>We are not satisfied that the requirements of this BAT Conclusion are met and have set an improvement condition to address the deficiencies.</p> <p>We do not agree with the Operator’s stated compliance of CC and have set the compliance status to FC.</p>													
3	<p>BAT is to monitor key process parameters relevant for emissions to air and water including those given below.</p> <table border="1" data-bbox="280 1166 1115 1380"> <thead> <tr> <th data-bbox="280 1166 539 1198">Stream</th> <th data-bbox="539 1166 853 1198">Parameter(s)</th> <th data-bbox="853 1166 1115 1198">Monitoring</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 1203 539 1353" rowspan="3">Flue-gas</td> <td data-bbox="539 1203 853 1257">Flow</td> <td data-bbox="853 1203 1115 1257">Periodic or continuous determination</td> </tr> <tr> <td data-bbox="539 1262 853 1316">Oxygen content, temperature, and pressure</td> <td data-bbox="853 1262 1115 1316">Periodic or continuous measurement</td> </tr> <tr> <td data-bbox="539 1321 853 1353">Water vapour content ⁽³⁾</td> <td data-bbox="853 1321 1115 1353"></td> </tr> <tr> <td data-bbox="280 1358 539 1386">Waste water from flue-</td> <td data-bbox="539 1358 853 1386">Flow pH and temperature</td> <td data-bbox="853 1358 1115 1386">Continuous measurement</td> </tr> </tbody> </table>	Stream	Parameter(s)	Monitoring	Flue-gas	Flow	Periodic or continuous determination	Oxygen content, temperature, and pressure	Periodic or continuous measurement	Water vapour content ⁽³⁾		Waste water from flue-	Flow pH and temperature	Continuous measurement	CC	<p>The Operator confirmed that:</p> <p>CEMS are already in place on the GT, monitoring the required parameters.</p> <p>The existing permit does not require the measurement of flow. The Operator confirmed that monitoring is in place for this parameter.</p> <p>We agree with the Operator’s stated compliance.</p>
Stream	Parameter(s)	Monitoring														
Flue-gas	Flow	Periodic or continuous determination														
	Oxygen content, temperature, and pressure	Periodic or continuous measurement														
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BAT C No.	Summary of BAT Conclusion requirement					Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement																										
	gas treatment					4	<p>BAT is to monitor emissions to air with at least the frequency given below 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 quality.</p> <table border="1" data-bbox="280 491 1124 1390"> <thead> <tr> <th data-bbox="280 491 392 651">Substance/Parameter</th> <th data-bbox="392 491 616 651">Fuel/Process/Type of combustion plant</th> <th data-bbox="616 491 728 651">Combustion plant total rated thermal input</th> <th data-bbox="728 491 853 651">Standard(s)⁽¹⁾</th> <th data-bbox="853 491 1010 651">Minimum monitoring frequency⁽²⁾</th> <th data-bbox="1010 491 1124 651">Monitoring associated with</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 651 392 738">NH₃</td> <td data-bbox="392 651 616 738">— When SCR and/or SNCR is used</td> <td data-bbox="616 651 728 738">All sizes</td> <td data-bbox="728 651 853 738">Generic EN standards</td> <td data-bbox="853 651 1010 738">Continuous⁽⁶⁾ ⁽⁷⁾</td> <td data-bbox="1010 651 1124 738">BAT 7</td> </tr> <tr> <td data-bbox="280 738 392 1302">NO_x</td> <td data-bbox="392 738 616 1302"> <ul style="list-style-type: none"> — Coal and/or lignite including waste co-incineration — Solid biomass and/or peat including waste co-incineration — HFO- and/or gas-oil-fired boilers and engines — Gas-oil-fired gas turbines — Natural-gas-fired boilers, engines, and turbines — Iron and steel process gases — Process fuels from the chemical industry — IGCC plants </td> <td data-bbox="616 738 728 1302">All sizes</td> <td data-bbox="728 738 853 1302">Generic EN standards</td> <td data-bbox="853 738 1010 1302">Continuous⁽⁶⁾ ⁽⁸⁾</td> <td data-bbox="1010 738 1124 1302">BAT 20 BAT 24 BAT 28 BAT 32 BAT 37 BAT 41 BAT 42 BAT 43 BAT 47 BAT 48 BAT 56 BAT 64 BAT 65 BAT 73</td> </tr> <tr> <td data-bbox="280 1302 392 1390"></td> <td data-bbox="392 1302 616 1390">— Combustion plants on offshore platforms</td> <td data-bbox="616 1302 728 1390">All sizes</td> <td data-bbox="728 1302 853 1390">EN 14792</td> <td data-bbox="853 1302 1010 1390">Once every year⁽⁹⁾</td> <td data-bbox="1010 1302 1124 1390">BAT 53</td> </tr> </tbody> </table>	Substance/Parameter	Fuel/Process/Type of combustion plant	Combustion plant total rated thermal input	Standard(s) ⁽¹⁾	Minimum monitoring frequency ⁽²⁾	Monitoring associated with	NH ₃	— When SCR and/or SNCR is used	All sizes	Generic EN standards	Continuous ⁽⁶⁾ ⁽⁷⁾	BAT 7	NO _x	<ul style="list-style-type: none"> — Coal and/or lignite including waste co-incineration — Solid biomass and/or peat including waste co-incineration — HFO- and/or gas-oil-fired boilers and engines — Gas-oil-fired gas turbines — Natural-gas-fired boilers, engines, and turbines — Iron and steel process gases — Process fuels from the chemical industry — IGCC plants 	All sizes	Generic EN standards	Continuous ⁽⁶⁾ ⁽⁸⁾	BAT 20 BAT 24 BAT 28 BAT 32 BAT 37 BAT 41 BAT 42 BAT 43 BAT 47 BAT 48 BAT 56 BAT 64 BAT 65 BAT 73		— Combustion plants on offshore platforms	All sizes	EN 14792	Once every year ⁽⁹⁾	BAT 53	CC	<p>The Operator confirmed that:</p> <p>CEMS are already in place on this GT and monitoring the required parameters and in accordance with the EN standards.</p> <p>We agree with the Operator's stated compliance.</p>
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BAT C No.	Summary of BAT Conclusion requirement						Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	N ₂ O	<ul style="list-style-type: none"> — Coal and/or lignite in circulating fluidised bed boilers — Solid biomass and/or peat in circulating fluidised bed boilers 	All sizes	EN 21258	Once every year ⁽¹⁰⁾	BAT 20 BAT 24		
	CO	<ul style="list-style-type: none"> — Coal and/or lignite including waste co-incineration — Solid biomass and/or peat including waste co-incineration — HFO- and/or gas-oil-fired boilers and engines — Gas-oil-fired gas turbines — Natural-gas-fired boilers, engines, and turbines — Iron and steel process gases — Process fuels from the chemical industry — IGCC plants 	All sizes	Generic EN standards	Continuous ⁽⁶⁾ ⁽⁸⁾	BAT 20 BAT 24 BAT 28 BAT 33 BAT 38 BAT 44 BAT 49 BAT 56 BAT 64 BAT 65 BAT 73		
		<ul style="list-style-type: none"> — Combustion plants on offshore platforms 	All sizes	EN 15058	Once every year ⁽⁹⁾	BAT 54		
	SO ₂	<ul style="list-style-type: none"> — Coal and/or lignite incl waste co-incineration — Solid biomass and/or peat incl waste co-incineration 	All sizes	Generic EN standards and EN 14791	Continuous ⁽⁶⁾ ⁽¹¹⁾ ⁽¹²⁾	BAT 21 BAT 25 BAT 29 BAT 34 BAT 39 BAT 50 BAT 57 BAT 66		

BAT C No.	Summary of BAT Conclusion requirement					Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
		<ul style="list-style-type: none"> — HFO- and/or gas-oil-fired boilers — HFO- and/or gas-oil-fired engines — Gas-oil-fired gas turbines — Iron and steel process gases — Process fuels from the chemical industry in boilers — IGCC plants 				BAT 67 BAT 74	
SO ₃		<ul style="list-style-type: none"> — When SCR is used 	All sizes	No EN standard available	Once every year	—	
Gaseous chlorides, expressed as HCl		<ul style="list-style-type: none"> — Coal and/or lignite — Process fuels from the chemical industry in boilers 	All sizes	EN 1911	Once every three months ⁽⁶⁾ ⁽¹³⁾ ⁽¹⁴⁾	BAT 21 BAT 57	
		<ul style="list-style-type: none"> — Solid biomass and/or peat 	All sizes	Generic EN standards	Continuous ⁽¹⁵⁾ ⁽¹⁴⁾	BAT 25	
		<ul style="list-style-type: none"> — Waste co-incineration 	All sizes	Generic EN standards	Continuous ⁽⁶⁾ ⁽¹⁶⁾	BAT 66 BAT 67	
HF		<ul style="list-style-type: none"> — Coal and/or lignite — Process fuels from the chemical industry in boilers 	All sizes	No EN standard available	Once every three months ⁽⁶⁾ ⁽¹³⁾ ⁽¹⁴⁾	BAT 21 BAT 57	
		<ul style="list-style-type: none"> — Solid biomass and/or peat 	All sizes	No EN standard available	Once every year	BAT 25	
		<ul style="list-style-type: none"> — Waste co-incineration 	All sizes	Generic EN standards	Continuous ⁽⁶⁾ ⁽¹⁶⁾	BAT 66 BAT 67	
Dust		<ul style="list-style-type: none"> — Coal and/or lignite — Solid biomass and/or peat — HFO- and/or gas- 	All sizes	Generic EN standards and EN 13284-1 and	Continuous ⁽⁶⁾ ⁽¹⁷⁾	BAT 22 BAT 26 BAT 30 BAT 35 BAT 39	

BAT C No.	Summary of BAT Conclusion requirement					Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
		<ul style="list-style-type: none"> oil-fired boilers — Iron and steel process gases — Process fuels from the chemical industry in boilers — IGCC plants — HFO- and/or gas-oil-fired engines — Gas-oil-fired gas turbines 		EN 13284-2		BAT 51 BAT 58 BAT 75	
		— Waste co-incineration	All sizes	Generic EN standards and EN 13284-2	Continuous	BAT 68 BAT 69	
Metals and metalloids except mercury (As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn)		— Coal and/or lignite	All sizes	EN 14385	Once every year ⁽¹⁸⁾	BAT 22 BAT 26 BAT 30	
		— Solid biomass and/or peat					
		— Waste co-incineration	< 300 MW _{th}	EN 14385	Once every six months ⁽¹³⁾	BAT 68 BAT 69	
			≥ 300 MW _{th}	EN 14385	Once every three months ⁽¹⁹⁾ ⁽¹³⁾		
— IGCC plants	≥ 100 MW _{th}	EN 14385	Once every year ⁽¹⁸⁾	BAT 75			
Hg		— Coal and/or lignite including waste co-incineration	< 300 MW _{th}	EN 13211	Once every three months ⁽¹³⁾ ⁽²⁰⁾	BAT 23	
			≥ 300 MW _{th}	Generic EN standards and EN 14884	Continuous ⁽¹⁶⁾ ⁽²¹⁾		
		— Solid biomass and/or peat	All sizes	EN 13211	Once every year ⁽²²⁾	BAT 27	
		— Waste co-	All sizes	EN 13211	Once every	BAT 70	

BAT C No.	Summary of BAT Conclusion requirement						Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement										
		incineration with solid biomass and/or peat			three months ⁽¹³⁾													
	—	IGCC plants	≥ 100 MW _{th}	EN 13211	Once every year ⁽²³⁾	BAT 75												
	TVOC	— HFO- and/or gas-oil-fired engines — Process fuels from chemical industry in boilers	All sizes	EN 12619	Once every six months ⁽¹³⁾	BAT 33 BAT 59												
	—	Waste co-incineration with coal, lignite, solid biomass and/or peat	All sizes	Generic EN standards	Continuous	BAT 71												
	Formaldehyde	— Natural-gas in spark-ignited lean-burn gas and dual fuel engines	All sizes	No EN standard available	Once every year	BAT 45												
	CH ₄	— Natural-gas-fired engines	All sizes	EN ISO 25139	Once every year ⁽²⁴⁾	BAT 45												
	PCDD/F	— Process fuels from chemical industry in boilers — Waste co-incineration	All sizes	EN 1948-1, EN 1948-2, EN 1948-3	Once every six months ⁽¹³⁾ ⁽²⁵⁾	BAT 59 BAT 71												
5	<p>BAT is to monitor emissions to water from flue-gas treatment with at least the frequency given below 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 quality.</p> <table border="1" data-bbox="271 1193 1133 1386"> <thead> <tr> <th data-bbox="271 1193 528 1278">Substance/Parameter</th> <th data-bbox="528 1193 786 1278">Standard(s)</th> <th data-bbox="786 1193 954 1278">Minimum monitoring frequency</th> <th data-bbox="954 1193 1133 1278">Monitoring associated with</th> </tr> </thead> <tbody> <tr> <td data-bbox="271 1278 528 1334">Total organic carbon (TOC)⁽²⁶⁾</td> <td data-bbox="528 1278 786 1334">EN 1484</td> <td data-bbox="786 1278 954 1334" rowspan="2">Once every month</td> <td data-bbox="954 1278 1133 1334" rowspan="2">BAT 15</td> </tr> <tr> <td data-bbox="271 1334 528 1386">Chemical oxygen</td> <td data-bbox="528 1334 786 1386">No EN standard</td> </tr> </tbody> </table>						Substance/Parameter	Standard(s)	Minimum monitoring frequency	Monitoring associated with	Total organic carbon (TOC) ⁽²⁶⁾	EN 1484	Once every month	BAT 15	Chemical oxygen	No EN standard	NA	<p>The Operator confirmed that:</p> <p>They currently monitor emissions to water daily with analysis carried out by Sembcorp internal laboratory to UKAS standards (a certificate can be provided).</p> <p>In their response to our request for information received 13 March 2020 they confirmed that this BAT Conclusion is not applicable because there is no flue-gas treatment at the installation.</p> <p>We agree that this BAT Conclusion is not applicable to the activities</p>
Substance/Parameter	Standard(s)	Minimum monitoring frequency	Monitoring associated with															
Total organic carbon (TOC) ⁽²⁶⁾	EN 1484	Once every month	BAT 15															
Chemical oxygen	No EN standard																	

BAT C No.	Summary of BAT Conclusion requirement	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement																																																			
	<table border="1"> <tr> <td>demand (COD)₍₂₆₎</td> <td>available</td> <td></td> <td></td> </tr> <tr> <td>Total suspended solids (TSS)</td> <td>EN 872</td> <td></td> <td></td> </tr> <tr> <td>Fluoride (F⁻)</td> <td>EN ISO 10304-1</td> <td></td> <td></td> </tr> <tr> <td>Sulphate (SO₄²⁻)</td> <td>EN ISO 10304-1</td> <td></td> <td></td> </tr> <tr> <td>Sulphide, easily released (S²⁻)</td> <td>No EN standard available</td> <td></td> <td></td> </tr> <tr> <td>Sulphite (SO₃²⁻)</td> <td>EN ISO 10304-3</td> <td></td> <td></td> </tr> <tr> <td rowspan="7">Metals and metalloids</td> <td>As</td> <td rowspan="7">Various EN standards available (e.g. EN ISO 11885 or EN ISO 17294-2)</td> <td></td> </tr> <tr> <td>Cd</td> <td></td> </tr> <tr> <td>Cr</td> <td></td> </tr> <tr> <td>Cu</td> <td></td> </tr> <tr> <td>Ni</td> <td></td> </tr> <tr> <td>Pb</td> <td></td> </tr> <tr> <td>Zn</td> <td></td> </tr> <tr> <td>Hg</td> <td>Various EN standards available (e.g. EN ISO 12846 or EN ISO 17852)</td> <td></td> </tr> <tr> <td>Chloride (Cl⁻)</td> <td>Various EN standards available (e.g. EN ISO 10304-1 or EN ISO 15682)</td> <td>—</td> <td></td> </tr> <tr> <td>Total nitrogen</td> <td>EN 12260</td> <td>—</td> <td></td> </tr> </table>	demand (COD) ₍₂₆₎	available			Total suspended solids (TSS)	EN 872			Fluoride (F ⁻)	EN ISO 10304-1			Sulphate (SO ₄ ²⁻)	EN ISO 10304-1			Sulphide, easily released (S ²⁻)	No EN standard available			Sulphite (SO ₃ ²⁻)	EN ISO 10304-3			Metals and metalloids	As	Various EN standards available (e.g. EN ISO 11885 or EN ISO 17294-2)		Cd		Cr		Cu		Ni		Pb		Zn		Hg	Various EN standards available (e.g. EN ISO 12846 or EN ISO 17852)		Chloride (Cl ⁻)	Various EN standards available (e.g. EN ISO 10304-1 or EN ISO 15682)	—		Total nitrogen	EN 12260	—			carried out at the installation.
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6	<p>In order to improve the general environmental performance of combustion plants and to reduce emissions to air of CO and unburnt substances, BAT is to ensure optimised combustion and to use an appropriate combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a. Fuel blending and mixing</td> <td>Ensure stable combustion conditions and/or reduce the emission of pollutants by mixing different qualities of the</td> <td>Generally applicable</td> </tr> </tbody> </table>	Technique	Description	Applicability	a. Fuel blending and mixing	Ensure stable combustion conditions and/or reduce the emission of pollutants by mixing different qualities of the	Generally applicable	CC	<p>The Operator confirmed that the following techniques are implemented:</p> <p>b. Maintenance of the combustion system. d. Good design of the combustion system. This is an appropriate combination of techniques for the installation.</p> <p>We agree with the Operator's stated compliance.</p>																																													
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BAT C No.	Summary of BAT Conclusion requirement				Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			same fuel type			
	b	Maintenance of the combustion system	Regular planned maintenance according to suppliers' recommendations			
	c	Advanced control system	See description in Section 8.1	The applicability to old combustion plants may be constrained by the need to retrofit the combustion system and/or control command system		
	d	Good design of the combustion equipment	Good design of furnace, combustion chambers, burners and associated devices	Generally applicable to new combustion plants		
	e	Fuel choice	Select or switch totally or partially to another fuel(s) with a better environmental profile (e.g. with low sulphur and/or mercury content) amongst the available fuels, including in start-up situations or when back-up fuels are used	Applicable within the constraints associated with the availability of suitable types of fuel with a better environmental profile as a whole, which may be impacted by the energy policy of the Member State, or by the integrated site's fuel balance in the case of combustion of industrial process fuels. For existing combustion plants, the type of fuel chosen may be limited by the configuration and the design of the plant		
7	<p>In order to reduce emissions of ammonia to air from the use of selective catalytic reduction (SCR) and/or selective non-catalytic reduction (SNCR) for the abatement of NO_x emissions, BAT is to optimise the design and/or operation of SCR and/or SNCR (e.g. optimised reagent to NO_x ratio, homogeneous reagent distribution and optimum size of the reagent drops).</p> <p>BAT-associated emission levels</p> <p>The BAT-associated emission level (BAT-AEL) for emissions of NH₃ to air from the use of SCR and/or SNCR is < 3–10 mg/Nm³ as a yearly average or average over the sampling period. The lower end of the range can be achieved when using SCR and the upper end of the range can be achieved when using SNCR without wet abatement techniques. In the case of plants combusting</p>				NA	<p>The Operator confirmed that:</p> <p>No SCR or SNCR used.</p> <p>This BAT Conclusion is not applicable to the activities carried out at the installation.</p>

BAT C No.	Summary of BAT Conclusion requirement	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	biomass and operating at variable loads as well as in the case of engines combusting HFO and/or gas oil, the higher end of the BAT-AEL range is 15 mg/Nm ³ .		
8	In order to prevent or reduce emissions to air during normal operating conditions, BAT is to ensure, by appropriate design, operation and maintenance, that the emission abatement systems are used at optimal capacity and availability.	CC	<p>The Operator confirmed that:</p> <p>Regular monitoring and maintenance of the equipment is carried out.</p> <p>We agree with the Operator's stated compliance.</p>
9	<p>In order to improve the general environmental performance of combustion and/or gasification plants and to reduce emissions to air, BAT is to include the following elements in the quality assurance/quality control programmes for all the fuels used, as part of the environmental management system (see BAT 1):</p> <ul style="list-style-type: none"> (i) Initial full characterisation of the fuel used including at least the parameters listed below and in accordance with EN standards. ISO, national or other international standards may be used provided they ensure the provision of data of an equivalent scientific quality; (ii) Regular testing of the fuel quality to check that it is consistent with the initial characterisation and according to the plant design specifications. The frequency of testing and the parameters chosen from the table below are based on the variability of the fuel and an assessment of the relevance of pollutant releases (e.g. concentration in fuel, flue-gas treatment employed); (iii) Subsequent adjustment of the plant settings as and when needed and practicable (e.g. integration of the fuel characterisation and control in the advanced control system (see description in Section 8.1)). <p>Description Initial characterisation and regular testing of the fuel can be performed by the</p>	CC	<p>The Operator confirmed that:</p> <p>Details of how points (i), (ii) and (iii) are implemented are not required for natural gas.</p> <p>We consider that for plants which burn natural gas from the National Grid as a fuel that it is not necessary for the Operator to replicate the testing carried out by the National Grid.</p> <p>We agree with the Operator's stated compliance.</p>

BAT C No.	Summary of BAT Conclusion requirement	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement																										
	<p>operator and/or the fuel supplier. If performed by the supplier, the full results are provided to the operator in the form of a product (fuel) supplier specification and/or guarantee.</p> <table border="1" data-bbox="280 411 1115 1380"> <thead> <tr> <th data-bbox="280 411 562 472">Fuel(s)</th> <th data-bbox="562 411 1115 472">Substances/Parameters subject to characterisation</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 472 562 675" rowspan="3">Biomass/peat</td> <td data-bbox="562 472 1115 515">— LHV</td> </tr> <tr> <td data-bbox="562 515 1115 558">— moisture</td> </tr> <tr> <td data-bbox="562 558 1115 675"> — Ash — C, Cl, F, N, S, K, Na — Metals and metalloids (As, Cd, Cr, Cu, Hg, Pb, Zn) </td> </tr> <tr> <td data-bbox="280 675 562 914" rowspan="4">Coal/lignite</td> <td data-bbox="562 675 1115 718">— LHV</td> </tr> <tr> <td data-bbox="562 718 1115 761">— Moisture</td> </tr> <tr> <td data-bbox="562 761 1115 804">— Volatiles, ash, fixed carbon, C, H, N, O, S</td> </tr> <tr> <td data-bbox="562 804 1115 914"> — Br, Cl, F — Metals and metalloids (As, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Sb, Tl, V, Zn) </td> </tr> <tr> <td data-bbox="280 914 562 994" rowspan="2">HFO</td> <td data-bbox="562 914 1115 957">— Ash</td> </tr> <tr> <td data-bbox="562 957 1115 994">— C, S, N, Ni, V</td> </tr> <tr> <td data-bbox="280 994 562 1074" rowspan="2">Gas oil</td> <td data-bbox="562 994 1115 1037">— Ash</td> </tr> <tr> <td data-bbox="562 1037 1115 1074">— N, C, S</td> </tr> <tr> <td data-bbox="280 1074 562 1153" rowspan="2">Natural gas</td> <td data-bbox="562 1074 1115 1117">— LHV</td> </tr> <tr> <td data-bbox="562 1117 1115 1153">— CH₄, C₂H₆, C₃, C₄₊, CO₂, N₂, Wobbe index</td> </tr> <tr> <td data-bbox="280 1153 562 1265">Process fuels from the chemical industry⁽²⁷⁾</td> <td data-bbox="562 1153 1115 1265"> — Br, C, Cl, F, H, N, O, S — Metals and metalloids (As, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Sb, Tl, V, Zn) </td> </tr> <tr> <td data-bbox="280 1265 562 1345">Iron and steel process gases</td> <td data-bbox="562 1265 1115 1345">— LHV, CH₄ (for COG), C_xH_y (for COG), CO₂, H₂, N₂, total sulphur, dust, Wobbe index</td> </tr> <tr> <td data-bbox="280 1345 562 1386">Waste⁽²⁸⁾</td> <td data-bbox="562 1345 1115 1386">— LHV</td> </tr> </tbody> </table>	Fuel(s)	Substances/Parameters subject to characterisation	Biomass/peat	— LHV	— moisture	— Ash — C, Cl, F, N, S, K, Na — Metals and metalloids (As, Cd, Cr, Cu, Hg, Pb, Zn)	Coal/lignite	— LHV	— Moisture	— Volatiles, ash, fixed carbon, C, H, N, O, S	— Br, Cl, F — Metals and metalloids (As, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Sb, Tl, V, Zn)	HFO	— Ash	— C, S, N, Ni, V	Gas oil	— Ash	— N, C, S	Natural gas	— LHV	— CH ₄ , C ₂ H ₆ , C ₃ , C ₄₊ , CO ₂ , N ₂ , Wobbe index	Process fuels from the chemical industry ⁽²⁷⁾	— Br, C, Cl, F, H, N, O, S — Metals and metalloids (As, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Sb, Tl, V, Zn)	Iron and steel process gases	— LHV, CH ₄ (for COG), C _x H _y (for COG), CO ₂ , H ₂ , N ₂ , total sulphur, dust, Wobbe index	Waste ⁽²⁸⁾	— LHV		
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	<ul style="list-style-type: none"> — Moisture — Volatiles, ash, Br, C, Cl, F, H, N, O, S — Metals and metalloids (As, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Sb, Tl, V, Zn) 		
10	<p>In order to reduce emissions to air and/or to water during other than normal operating conditions (OTNOC), BAT is to set up and implement a management plan as part of the environmental management system (see BAT 1), commensurate with the relevance of potential pollutant releases, that includes the following elements:</p> <ul style="list-style-type: none"> — appropriate design of the systems considered relevant in causing OTNOC that may have an impact on emissions to air, water and/or soil (e.g. low-load design concepts for reducing the minimum start-up and shutdown loads for stable generation in gas turbines), — set-up and implementation of a specific preventive maintenance plan for these relevant systems, — review and recording of emissions caused by OTNOC and associated circumstances and implementation of corrective actions if necessary, — periodic assessment of the overall emissions during OTNOC (e.g. frequency of events, duration, emissions quantification/estimation) and implementation of corrective actions if necessary. 	CC	<p>The Operator confirmed that the following elements are included:</p> <ul style="list-style-type: none"> - Standard operating procedures (controlled documents) are used to adjust for optimum load ensuring the load does not fall below minimum levels and to ensure system balance for good environmental performance of emissions. <p>In their response to our request for information received 13 March 2020 they confirmed that:</p> <ul style="list-style-type: none"> - Fuel/air mix is optimised and automated and is mainly used at times of start-up and shut-down. - Review of emissions caused by OTNOC. Emissions are displayed real time in the control room and monitored 24 hours per day. CEMS are in place. Emissions are reviewed after OTNOC but no formal procedure is in place. - Assessment after OTNOC takes place and any issues are logged or reported and actions are assigned if necessary. <p>We agree with the Operator's stated compliance.</p>
11	<p>BAT is to appropriately monitor emissions to air and/or to water during OTNOC.</p> <p>Description</p> <p>The monitoring can be carried out by direct measurement of emissions or by monitoring of surrogate parameters if this proves to be of equal or better scientific quality than the direct measurement of emissions. Emissions during start-up and shutdown (SU/SD) may be assessed based on a detailed emission measurement carried out for a typical SU/SD procedure at least once every year, and using the results of this measurement to estimate the emissions for each and every SU/SD throughout the year.</p>	CC	<p>The Operator confirmed that:</p> <p>Whilst operational the GT operates at optimal load, if there are abnormal operating conditions then the GT would be shut-down until these were able to be corrected. If the CEMS fails a portable meter is deployed.</p> <p>We agree with the Operator's stated compliance.</p>

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12	<p>In order to increase the energy efficiency of combustion, gasification and/or IGCC units operated $\geq 1\,500$ h/yr, BAT is to use an appropriate combination of the techniques given below.</p> <table border="1" data-bbox="280 411 1124 1377"> <thead> <tr> <th data-bbox="280 411 468 443">Technique</th> <th data-bbox="468 411 808 443">Description</th> <th data-bbox="808 411 1124 443">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 443 468 579">a. Combustion optimisation</td> <td data-bbox="468 443 808 579">See description in Section 8.2. Optimising the combustion minimises the content of unburnt substances in the flue-gases and in solid combustion residues</td> <td data-bbox="808 443 1124 579" rowspan="4">Generally applicable</td> </tr> <tr> <td data-bbox="280 579 468 786">b. Optimisation of the working medium conditions</td> <td data-bbox="468 579 808 786">Operate at the highest possible pressure and temperature of the working medium gas or steam, within the constraints associated with, for example, the control of NO_x emissions or the characteristics of energy demanded</td> </tr> <tr> <td data-bbox="280 786 468 922">c. Optimisation of the steam cycle</td> <td data-bbox="468 786 808 922">Operate with lower turbine exhaust pressure by utilisation of the lowest possible temperature of the condenser cooling water, within the design conditions</td> </tr> <tr> <td data-bbox="280 922 468 1007">d. Minimisation of energy consumption</td> <td data-bbox="468 922 808 1007">Minimising the internal energy consumption (e.g. greater efficiency of the feed-water pump)</td> </tr> <tr> <td data-bbox="280 1007 468 1114">e. Preheating of combustion air</td> <td data-bbox="468 1007 808 1114">Reuse of part of the heat recovered from the combustion flue-gas to preheat the air used in combustion</td> <td data-bbox="808 1007 1124 1114">Generally applicable within the constraints related to the need to control NO_x emissions</td> </tr> <tr> <td data-bbox="280 1114 468 1220">f. Fuel preheating</td> <td data-bbox="468 1114 808 1220">Preheating of fuel using recovered heat</td> <td data-bbox="808 1114 1124 1220">Generally applicable within the constraints associated with the boiler design and the need to control NO_x emissions</td> </tr> <tr> <td data-bbox="280 1220 468 1377">g. Advanced control system</td> <td data-bbox="468 1220 808 1377">See description in Section 8.2. Computerised control of the main combustion parameters enables the combustion efficiency to be improved</td> <td data-bbox="808 1220 1124 1377">Generally applicable to new units. The applicability to old units may be constrained by the need to retrofit the combustion system and/or control command system</td> </tr> </tbody> </table>	Technique	Description	Applicability	a. Combustion optimisation	See description in Section 8.2. Optimising the combustion minimises the content of unburnt substances in the flue-gases and in solid combustion residues	Generally applicable	b. Optimisation of the working medium conditions	Operate at the highest possible pressure and temperature of the working medium gas or steam, within the constraints associated with, for example, the control of NO _x emissions or the characteristics of energy demanded	c. Optimisation of the steam cycle	Operate with lower turbine exhaust pressure by utilisation of the lowest possible temperature of the condenser cooling water, within the design conditions	d. Minimisation of energy consumption	Minimising the internal energy consumption (e.g. greater efficiency of the feed-water pump)	e. Preheating of combustion air	Reuse of part of the heat recovered from the combustion flue-gas to preheat the air used in combustion	Generally applicable within the constraints related to the need to control NO _x emissions	f. Fuel preheating	Preheating of fuel using recovered heat	Generally applicable within the constraints associated with the boiler design and the need to control NO _x emissions	g. Advanced control system	See description in Section 8.2. Computerised control of the main combustion parameters enables the combustion efficiency to be improved	Generally applicable to new units. The applicability to old units may be constrained by the need to retrofit the combustion system and/or control command system	CC	<p>The Operator confirmed that the following techniques are in place:</p> <ul style="list-style-type: none"> a. Combustion optimisation; c. Optimisation of the steam cycle; d. A new efficient feed water pump is due to be installed; f. Fuel preheating; h. Feed water preheating; i. Heat recovery by cogen CHP is in place. <p>In their response to our request for information received 13 March 2020 they confirmed that the installation of the feed water pump is now part of a larger project for improved process performance, including a new pressure de-aerator (PDA) and a new heat exchanger. Anticipated timescales for this are 2021 to 2022.</p> <p>We agree with the Operator's stated compliance.</p>
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BAT C No.	Summary of BAT Conclusion requirement			Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	h.	Feed-water preheating using recovered heat	Preheat water coming out of the steam condenser with recovered heat, before reusing it in the boiler	Only applicable to steam circuits and not to hot boilers. Applicability to existing units may be limited due to constraints associated with the plant configuration and the amount of recoverable heat	
	i.	Heat recovery by cogeneration (CHP)	Recovery of heat (mainly from the steam system) for producing hot water/steam to be used in industrial processes/activities or in a public network for district heating. Additional heat recovery is possible from: — flue-gas — grate cooling — circulating fluidised bed	Applicable within the constraints associated with the local heat and power demand. The applicability may be limited in the case of gas compressors with an unpredictable operational heat profile	
	j.	CHP readiness	See description in Section 8.2.	Only applicable to new units where there is a realistic potential for the future use of heat in the vicinity of the unit	
	k.	Flue-gas condenser	See description in Section 8.2.	Generally applicable to CHP units provided there is enough demand for low-temperature heat	
	l.	Heat accumulation	Heat accumulation storage in CHP mode	Only applicable to CHP plants. The applicability may be limited in the case of low heat load demand	
	m	Wet stack	See description in Section 8.2.	Generally applicable to new and existing units fitted with wet FGD	
	n.	Cooling tower discharge	The release of emissions to air through a cooling tower and not via a dedicated stack	Only applicable to units fitted with wet FGD where reheating of the flue-gas is necessary before release, and where the unit cooling system is a cooling tower	

BAT C No.	Summary of BAT Conclusion requirement			Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	o.	Fuel pre-drying	The reduction of fuel moisture content before combustion to improve combustion conditions	Applicable to the combustion of biomass and/or peat within the constraints associated with spontaneous combustion risks (e.g. the moisture content of peat is kept above 40 % throughout the delivery chain). The retrofit of existing plants may be restricted by the extra calorific value that can be obtained from the drying operation and by the limited retrofit possibilities offered by some boiler designs or plant configurations	
	p.	Minimisation of heat losses	Minimising residual heat losses, e.g. those that occur via the slag or those that can be reduced by insulating radiating sources	Only applicable to solid-fuel-fired combustion units and to gasification/IGCC units	
	q.	Advanced materials	Use of advanced materials proven to be capable of withstanding high operating temperatures and pressures and thus to achieve increased steam/combustion process efficiencies	Only applicable to new plants	
	r.	Steam turbine upgrades	This includes techniques such as increasing the temperature and pressure of medium-pressure steam, addition of a low-pressure turbine, and modifications to the geometry of the turbine rotor blades	The applicability may be restricted by demand, steam conditions and/or limited plant lifetime	
	s.	Supercritical and ultra-supercritical steam conditions	Use of a steam circuit, including steam reheating systems, in which steam can reach pressures above 220,6 bar and temperatures above 374 °C in the case of supercritical conditions, and above 250 – 300 bar and temperatures above 580 – 600 °C in the case of ultra-supercritical	Only applicable to new units of $\geq 600 \text{ MW}_{th}$ operated $> 4\,000 \text{ h/yr}$. Not applicable when the purpose of the unit is to produce low steam temperatures and/or pressures in process industries. Not applicable to gas turbines	

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13	<p>In order to reduce water usage and the volume of contaminated waste water discharged, BAT is to use one or both of the techniques given below.</p> <table border="1"> <thead> <tr> <th data-bbox="277 587 315 614">Technique</th> <th data-bbox="315 587 427 614"></th> <th data-bbox="427 587 808 614">Description</th> <th data-bbox="808 587 1120 614">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="277 614 315 802">a</td> <td data-bbox="315 614 427 802">Water recycling</td> <td data-bbox="427 614 808 802">Residual aqueous streams, including run-off water, from the plant are reused for other purposes. The degree of recycling is limited by the quality requirements of the recipient water stream and the water balance of the plant</td> <td data-bbox="808 614 1120 802">Not applicable to waste water from cooling systems when water treatment chemicals and/or high concentrations of salts from seawater are present</td> </tr> <tr> <td data-bbox="277 802 315 959">b</td> <td data-bbox="315 802 427 959">Dry bottom ash handling</td> <td data-bbox="427 802 808 959">Dry, hot bottom ash falls from the furnace onto a mechanical conveyor system and is cooled down by ambient air. No water is used in the process.</td> <td data-bbox="808 802 1120 959">Only applicable to plants combusting solid fuels. There may be technical restrictions that prevent retrofitting to existing combustion plants</td> </tr> </tbody> </table>	Technique		Description	Applicability	a	Water recycling	Residual aqueous streams, including run-off water, from the plant are reused for other purposes. The degree of recycling is limited by the quality requirements of the recipient water stream and the water balance of the plant	Not applicable to waste water from cooling systems when water treatment chemicals and/or high concentrations of salts from seawater are present	b	Dry bottom ash handling	Dry, hot bottom ash falls from the furnace onto a mechanical conveyor system and is cooled down by ambient air. No water is used in the process.	Only applicable to plants combusting solid fuels. There may be technical restrictions that prevent retrofitting to existing combustion plants	NA	<p>The Operator confirmed that:</p> <p>The water run-off produced by the installation is minimal.</p> <p>Whilst the Operator stated that they are NC, we consider that this BAT Conclusion is NA to the activities carried out at the installation.</p>
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14	<p>In order to prevent the contamination of uncontaminated waste water and to reduce emissions to water, BAT is to segregate waste water streams and to treat them separately, depending on the pollutant content.</p> <p>Description Waste water streams that are typically segregated and treated include surface run-off water, cooling water, and waste water from flue-gas treatment.</p> <p>Applicability The applicability may be restricted in the case of existing plants due to the configuration of the drainage systems.</p>	CC	<p>The Operator confirmed that:</p> <p>The site is a large industrial site and all effluent goes to a drain via a consent to discharge. Consideration is being given to building an industrial effluent treatment plant but no firm date is in place.</p> <p>It is anticipated that this plant would receive effluent from all industries within Wilton International and not just effluent from this installation. If this is the case, emissions from this plant would be regulated by a discharge consent and therefore this is not relevant to this permit review.</p> <p>Whilst the Operator stated that they are NC, we consider that they are CC with this BAT Conclusion.</p>												

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15	<p>In order to reduce emissions to water from flue-gas treatment, 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.</p> <table border="1" data-bbox="280 411 1117 1366"> <thead> <tr> <th data-bbox="280 411 562 475">Technique</th> <th data-bbox="562 411 786 475">Typical pollutants prevented/abated</th> <th data-bbox="786 411 1117 475">Applicability</th> </tr> </thead> <tbody> <tr> <td colspan="3" data-bbox="280 475 1117 507" style="text-align: center;">Primary techniques</td> </tr> <tr> <td data-bbox="280 507 562 643">a. Optimised combustion (see BAT 6) and flue-gas treatment systems (e.g. SCR/SNCR, see BAT 7)</td> <td data-bbox="562 507 786 643">Organic compounds, ammonia (NH₃)</td> <td data-bbox="786 507 1117 643">Generally applicable</td> </tr> <tr> <td colspan="3" data-bbox="280 643 1117 675" style="text-align: center;">Secondary techniques ⁽²⁹⁾</td> </tr> <tr> <td data-bbox="280 675 562 738">b. Adsorption on activated carbon</td> <td data-bbox="562 675 786 738">Organic compounds, mercury (Hg)</td> <td data-bbox="786 675 1117 738">Generally applicable</td> </tr> <tr> <td data-bbox="280 738 562 922">c. Aerobic biological treatment</td> <td data-bbox="562 738 786 922">Biodegradable organic compounds, ammonium (NH₄⁺)</td> <td data-bbox="786 738 1117 922">Generally applicable for the treatment of organic compounds. Aerobic biological treatment of ammonium (NH₄⁺) may not be applicable in the case of high chloride concentrations (i.e. around 10 g/l)</td> </tr> <tr> <td data-bbox="280 922 562 986">d. Anoxic/anaerobic biological treatment</td> <td data-bbox="562 922 786 986">Mercury (Hg), nitrate (NO₃⁻), nitrite (NO₂⁻)</td> <td data-bbox="786 922 1117 986">Generally applicable</td> </tr> <tr> <td data-bbox="280 986 562 1042">e. Coagulation and flocculation</td> <td data-bbox="562 986 786 1042">Suspended solids</td> <td data-bbox="786 986 1117 1042">Generally applicable</td> </tr> <tr> <td data-bbox="280 1042 562 1129">f. Crystallisation</td> <td data-bbox="562 1042 786 1129">Metals and metalloids, sulphate (SO₄²⁻), fluoride (F⁻)</td> <td data-bbox="786 1042 1117 1129">Generally applicable</td> </tr> <tr> <td data-bbox="280 1129 562 1209">g. Filtration (e.g. sand filtration, microfiltration, ultrafiltration)</td> <td data-bbox="562 1129 786 1209">Suspended solids, metals</td> <td data-bbox="786 1129 1117 1209">Generally applicable</td> </tr> <tr> <td data-bbox="280 1209 562 1265">h. Flotation</td> <td data-bbox="562 1209 786 1265">Suspended solids, free oil</td> <td data-bbox="786 1209 1117 1265">Generally applicable</td> </tr> <tr> <td data-bbox="280 1265 562 1305">i. Ion exchange</td> <td data-bbox="562 1265 786 1305">Metals</td> <td data-bbox="786 1265 1117 1305">Generally applicable</td> </tr> <tr> <td data-bbox="280 1305 562 1345">j. Neutralisation</td> <td data-bbox="562 1305 786 1345">Acids, alkalis</td> <td data-bbox="786 1305 1117 1345">Generally applicable</td> </tr> <tr> <td data-bbox="280 1345 562 1366">k. Oxidation</td> <td data-bbox="562 1345 786 1366">Sulphide (S²⁻),</td> <td data-bbox="786 1345 1117 1366">Generally applicable</td> </tr> </tbody> </table>	Technique	Typical pollutants prevented/abated	Applicability	Primary techniques			a. Optimised combustion (see BAT 6) and flue-gas treatment systems (e.g. SCR/SNCR, see BAT 7)	Organic compounds, ammonia (NH ₃)	Generally applicable	Secondary techniques ⁽²⁹⁾			b. Adsorption on activated carbon	Organic compounds, mercury (Hg)	Generally applicable	c. Aerobic biological treatment	Biodegradable organic compounds, ammonium (NH ₄ ⁺)	Generally applicable for the treatment of organic compounds. Aerobic biological treatment of ammonium (NH ₄ ⁺) may not be applicable in the case of high chloride concentrations (i.e. around 10 g/l)	d. Anoxic/anaerobic biological treatment	Mercury (Hg), nitrate (NO ₃ ⁻), nitrite (NO ₂ ⁻)	Generally applicable	e. Coagulation and flocculation	Suspended solids	Generally applicable	f. Crystallisation	Metals and metalloids, sulphate (SO ₄ ²⁻), fluoride (F ⁻)	Generally applicable	g. Filtration (e.g. sand filtration, microfiltration, ultrafiltration)	Suspended solids, metals	Generally applicable	h. Flotation	Suspended solids, free oil	Generally applicable	i. Ion exchange	Metals	Generally applicable	j. Neutralisation	Acids, alkalis	Generally applicable	k. Oxidation	Sulphide (S ²⁻),	Generally applicable	NA	<p>The Operator confirmed that:</p> <p>a. optimised combustion. No SCR or SNCR is required.</p> <p>The BAT AELs refer to direct discharges to a receiving water body at the point where the emission leaves the installation.</p> <p>In their response to our request for information received 13 March 2020 they confirmed that this BAT Conclusion is not applicable.</p> <p>We agree that this BAT Conclusion is not applicable to the activities carried out at the installation.</p>
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16	In order to reduce the quantity of waste sent for disposal from the combustion and/or gasification process and abatement techniques, BAT is to organise operations so as to maximise, in order of priority and taking into account life-cycle thinking:	CC	The Operator confirmed that waste goes to an energy recovery plant (d). In response to our request for information received 13 March 2020 they confirmed that a) to c) of this BAT Conclusion are not applicable.																																																												

BAT C No.	Summary of BAT Conclusion requirement	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement															
	<p>(a) waste prevention, e.g. maximise the proportion of residues which arise as by-products;</p> <p>(b) waste preparation for reuse, e.g. according to the specific requested quality criteria;</p> <p>(c) waste recycling;</p> <p>(d) other waste recovery (e.g. energy recovery),</p> <p>by implementing an appropriate combination of techniques such as:</p> <table border="1" data-bbox="280 571 1124 1380"> <thead> <tr> <th data-bbox="280 571 465 603">Technique</th> <th data-bbox="465 571 824 603">Description</th> <th data-bbox="824 571 1124 603">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 603 465 837">a . Generation of gypsum as a by-product</td> <td data-bbox="465 603 824 837">Quality optimisation of the calcium-based reaction residues generated by the wet FGD so that they can be used as a substitute for mined gypsum (e.g. as raw material in the plasterboard industry). The quality of limestone used in the wet FGD influences the purity of the gypsum produced</td> <td data-bbox="824 603 1124 837">Generally applicable within the constraints associated with the required gypsum quality, the health requirements associated to each specific use, and by the market conditions</td> </tr> <tr> <td data-bbox="280 837 465 1045">b . Recycling or recovery of residues in the construction sector</td> <td data-bbox="465 837 824 1045">Recycling or recovery of residues (e.g. from semi-dry desulphurisation processes, fly ash, bottom ash) as a construction material (e.g. in road building, to replace sand in concrete production, or in the cement industry)</td> <td data-bbox="824 837 1124 1045">Generally applicable within the constraints associated with the required material quality (e.g. physical properties, content of harmful substances) associated to each specific use, and by the market conditions</td> </tr> <tr> <td data-bbox="280 1045 465 1204">c. Energy recovery by using waste in the fuel mix</td> <td data-bbox="465 1045 824 1204">The residual energy content of carbon-rich ash and sludges generated by the combustion of coal, lignite, heavy fuel oil, peat or biomass can be recovered for example by mixing with the fuel</td> <td data-bbox="824 1045 1124 1204">Generally applicable where plants can accept waste in the fuel mix and are technically able to feed the fuels into the combustion chamber</td> </tr> <tr> <td data-bbox="280 1204 465 1380">d . Preparation of spent catalyst for reuse</td> <td data-bbox="465 1204 824 1380">Preparation of catalyst for reuse (e.g. up to four times for SCR catalysts) restores some or all of the original performance, extending the service life of the catalyst to several decades. 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Technique	Description	Applicability																
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17	<p>In order to reduce noise emissions, BAT is to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th data-bbox="271 437 472 472">Technique</th> <th data-bbox="472 437 835 472">Description</th> <th data-bbox="835 437 1133 472">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="271 472 472 815">a. Operational measures</td> <td data-bbox="472 472 835 815"> These include: <ul style="list-style-type: none"> — improved inspection and maintenance of equipment — closing of doors and windows of enclosed areas, if possible — equipment operated by experienced staff — avoidance of noisy activities at night, if possible — provisions for noise control during maintenance activities </td> <td data-bbox="835 472 1133 815">Generally applicable</td> </tr> <tr> <td data-bbox="271 815 472 900">b. Low-noise equipment</td> <td data-bbox="472 815 835 900">This potentially includes compressors, pumps and disks</td> <td data-bbox="835 815 1133 900">Generally applicable when the equipment is new or replaced</td> </tr> <tr> <td data-bbox="271 900 472 1034">c. Noise attenuation</td> <td data-bbox="472 900 835 1034">Noise propagation can be reduced by inserting obstacles between the emitter and the receiver. Appropriate obstacles include protection walls, embankments and buildings</td> <td data-bbox="835 900 1133 1034">Generally applicable to new plants. In the case of existing plants, the insertion of obstacles may be restricted by lack of space</td> </tr> <tr> <td data-bbox="271 1034 472 1214">d. Noise-control equipment</td> <td data-bbox="472 1034 835 1214"> This includes: <ul style="list-style-type: none"> — noise-reducers — equipment insulation — enclosure of noisy equipment — soundproofing of buildings </td> <td data-bbox="835 1034 1133 1214">The applicability may be restricted by lack of space</td> </tr> <tr> <td data-bbox="271 1214 472 1331">e. Appropriate location of equipment and buildings</td> <td data-bbox="472 1214 835 1331">Noise levels can be reduced by increasing the distance between the emitter and the receiver and by using buildings as noise screens</td> <td data-bbox="835 1214 1133 1331">Generally applicable to new plant</td> </tr> </tbody> </table>	Technique	Description	Applicability	a. Operational measures	These include: <ul style="list-style-type: none"> — improved inspection and maintenance of equipment — closing of doors and windows of enclosed areas, if possible — equipment operated by experienced staff — avoidance of noisy activities at night, if possible — provisions for noise control during maintenance activities 	Generally applicable	b. Low-noise equipment	This potentially includes compressors, pumps and disks	Generally applicable when the equipment is new or replaced	c. Noise attenuation	Noise propagation can be reduced by inserting obstacles between the emitter and the receiver. Appropriate obstacles include protection walls, embankments and buildings	Generally applicable to new plants. In the case of existing plants, the insertion of obstacles may be restricted by lack of space	d. Noise-control equipment	This includes: <ul style="list-style-type: none"> — noise-reducers — equipment insulation — enclosure of noisy equipment — soundproofing of buildings 	The applicability may be restricted by lack of space	e. Appropriate location of equipment and buildings	Noise levels can be reduced by increasing the distance between the emitter and the receiver and by using buildings as noise screens	Generally applicable to new plant	CC	<p>The Operator confirmed that the following techniques are in place:</p> <p>a. Operational measures are in place as described by this BAT Conclusion.</p> <p>c. Location of existing assets are on an industrial site and are located specifically away from the nearest residential areas.</p> <p>We agree with the Operator's stated compliance.</p> <p>We have however included a general noise improvement condition as detailed in section 8 of this document.</p>
Technique	Description	Applicability																			
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Combustion of solid fuels only (coal and/or lignite) – BAT Conclusions 18 to 23 deleted - not applicable to the activities carried out at the installation																					

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<p>Combustion of solid fuels (solid biomass and/or peat) - BAT Conclusions 24 to 27 deleted - not applicable to the activities carried out at the installation Combustion of liquid fuels (HFO and/or gas-oil-fired boilers) – BAT Conclusions 28 to 30 deleted - not applicable to the activities carried out at the installation Combustion of liquid fuels (HFO and/or gas-oil-fired engines) – BAT Conclusions 31 to 35 deleted - not applicable to the activities carried out at the installation Combustion of liquid fuels (gas oil fired gas turbines) – BAT Conclusions 36 to 39 deleted - not applicable to the activities carried out at the installation</p>																																										
<p>Combustion of gaseous fuels</p>																																										
40	<p>In order to increase the energy efficiency of natural gas combustion, BAT is to use an appropriate combination of the techniques given in BAT 12 and below.</p> <table border="1" data-bbox="280 555 1124 901"> <thead> <tr> <th data-bbox="280 555 414 619">Technique</th> <th data-bbox="421 555 577 619">Description</th> <th data-bbox="584 555 1124 619">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 624 414 901">a. Combined cycle</td> <td data-bbox="421 624 577 901">See description in Section 8.2</td> <td data-bbox="584 624 1124 901">Generally applicable to new gas turbines and engines except when operated < 1 500 h/yr. Applicable to existing gas turbines and engines within the constraints associated with the steam cycle design and the space availability. Not applicable to existing gas turbines and engines operated < 1 500 h/yr. Not applicable to mechanical drive gas turbines operated in discontinuous mode with extended load variations and frequent start-ups and shutdowns. Not applicable to boilers</td> </tr> </tbody> </table> <p>BAT-associated energy efficiency levels (BAT-AEELs) for the combustion of natural gas</p> <table border="1" data-bbox="280 959 1124 1369"> <thead> <tr> <th data-bbox="280 959 472 1161" rowspan="3">Type of combustion unit</th> <th colspan="5" data-bbox="479 959 1124 1002">BAT-AEELs ⁽¹³⁶⁾ ⁽¹³⁷⁾</th> </tr> <tr> <th colspan="2" data-bbox="479 1002 667 1082">Net electrical efficiency (%)</th> <th data-bbox="667 1002 862 1082" rowspan="2">Net total fuel utilisation (%) ⁽¹³⁸⁾ ⁽¹³⁹⁾</th> <th colspan="2" data-bbox="862 1002 1124 1082">Net mechanical energy efficiency (%) ⁽¹³⁹⁾ ⁽¹⁴⁰⁾</th> </tr> <tr> <th data-bbox="479 1082 555 1161">New unit</th> <th data-bbox="555 1082 667 1161">Existing unit</th> <th data-bbox="862 1082 974 1161">New unit</th> <th data-bbox="974 1082 1124 1161">Existing unit</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 1161 472 1225">Gas engine</td> <td data-bbox="479 1161 555 1225">39,5–44 ⁽¹⁴¹⁾</td> <td data-bbox="555 1161 667 1225">35–44 ⁽¹⁴¹⁾</td> <td data-bbox="667 1161 862 1225">56–85 ⁽¹⁴¹⁾</td> <td colspan="2" data-bbox="862 1161 1124 1225">No BAT-AEEL.</td> </tr> <tr> <td data-bbox="280 1225 472 1289">Gas-fired boiler</td> <td data-bbox="479 1225 555 1289">39–42,5</td> <td data-bbox="555 1225 667 1289">38–40</td> <td data-bbox="667 1225 862 1289">78–95</td> <td colspan="2" data-bbox="862 1225 1124 1289">No BAT-AEEL.</td> </tr> <tr> <td data-bbox="280 1289 472 1369">Open cycle gas turbine, ≥ 50 MWth</td> <td data-bbox="479 1289 555 1369">36–41,5</td> <td data-bbox="555 1289 667 1369">33–41,5</td> <td data-bbox="667 1289 862 1369">No BAT-AEEL</td> <td data-bbox="862 1289 974 1369">36,5–41</td> <td data-bbox="974 1289 1124 1369">33,5–41</td> </tr> </tbody> </table>	Technique	Description	Applicability	a. Combined cycle	See description in Section 8.2	Generally applicable to new gas turbines and engines except when operated < 1 500 h/yr. Applicable to existing gas turbines and engines within the constraints associated with the steam cycle design and the space availability. Not applicable to existing gas turbines and engines operated < 1 500 h/yr. Not applicable to mechanical drive gas turbines operated in discontinuous mode with extended load variations and frequent start-ups and shutdowns. Not applicable to boilers	Type of combustion unit	BAT-AEELs ⁽¹³⁶⁾ ⁽¹³⁷⁾					Net electrical efficiency (%)		Net total fuel utilisation (%) ⁽¹³⁸⁾ ⁽¹³⁹⁾	Net mechanical energy efficiency (%) ⁽¹³⁹⁾ ⁽¹⁴⁰⁾		New unit	Existing unit	New unit	Existing unit	Gas engine	39,5–44 ⁽¹⁴¹⁾	35–44 ⁽¹⁴¹⁾	56–85 ⁽¹⁴¹⁾	No BAT-AEEL.		Gas-fired boiler	39–42,5	38–40	78–95	No BAT-AEEL.		Open cycle gas turbine, ≥ 50 MWth	36–41,5	33–41,5	No BAT-AEEL	36,5–41	33,5–41	FC	<p>The Operator confirmed that:</p> <p>GT1 – 63.7% is calculated from: Net Fuel input to GT1 & HRSG (Feed heat produced internally) Net power from GT1 & ST11</p> <p>In their response received 01 April 2020 they confirmed that the applicable BAT AEEL is the 'net total fuel utilisation'.</p> <p>The BAT AEEL is not met when ST11 is operational. Refer to section 4.2 of this document.</p> <p>We are not fully satisfied that the requirements of this BAT Conclusion are met and have set an improvement condition to address the deficiencies.</p> <p>We do not agree with the Operator's stated compliance of CC and have set the compliance status to FC.</p>
Technique	Description	Applicability																																								
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41	<p>In order to prevent or reduce NO_x emissions to air from the combustion of natural gas in boilers, BAT is to use one or a combination of the techniques given below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Technique</th> <th style="width: 30%;">Description</th> <th style="width: 60%;">Applicability</th> </tr> </thead> <tbody> <tr> <td>a . Air and/or fuel staging</td> <td>See descriptions in Section 8.3. Air staging is often associated with low-NO_x burners</td> <td rowspan="3">Generally applicable</td> </tr> <tr> <td>b . Flue-gas recirculation</td> <td>See description in Section 8.3</td> </tr> <tr> <td>c . Low-NO_x burners (LNB)</td> <td></td> </tr> <tr> <td>d . Advanced control system</td> <td>See description in Section 8.3. This technique is often used in combination with other techniques or may be used alone for combustion plants operated < 500 h/yr</td> <td>The applicability to old combustion plants may be constrained by the need to retrofit the combustion system and/or control command system</td> </tr> <tr> <td>e . Reduction of the combustion air temperature</td> <td>See description in Section 8.3</td> <td>Generally applicable within the constraints associated with the process needs</td> </tr> <tr> <td>f . Selective non-catalytic reduction (SNCR)</td> <td></td> <td>Not applicable to combustion plants operated < 500 h/yr with highly variable boiler loads. The applicability may be limited in the case of combustion plants operated between 500 h/yr and 1 500 h/yr with highly variable</td> </tr> </tbody> </table>	Technique	Description	Applicability	a . Air and/or fuel staging	See descriptions in Section 8.3. Air staging is often associated with low-NO _x burners	Generally applicable	b . Flue-gas recirculation	See description in Section 8.3	c . Low-NO _x burners (LNB)		d . Advanced control system	See description in Section 8.3. This technique is often used in combination with other techniques or may be used alone for combustion plants operated < 500 h/yr	The applicability to old combustion plants may be constrained by the need to retrofit the combustion system and/or control command system	e . Reduction of the combustion air temperature	See description in Section 8.3	Generally applicable within the constraints associated with the process needs	f . Selective non-catalytic reduction (SNCR)		Not applicable to combustion plants operated < 500 h/yr with highly variable boiler loads. The applicability may be limited in the case of combustion plants operated between 500 h/yr and 1 500 h/yr with highly variable	NA	<p>The Operator confirmed that they are CC with advanced control systems in place.</p> <p>This BAT Conclusion is applicable to the combustion of natural gas in boilers and therefore is not applicable to this installation.</p> <p>We don't agree with the Operator's stated compliance. This BAT Conclusion is not applicable to the activities carried out at the installation.</p>	
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42	In order to prevent or reduce NO _x emissions to air from the combustion of natural gas in gas turbines, BAT is to use one or a combination of the techniques given below.			CC	<p>The Operator confirmed that:</p> <p>In their response to our request for information received 13 March 2020 they confirmed that the following techniques are used to manage NO_x emissions:</p> <p>a. Advanced control system b. DLN burners and Air staging Lean burn concept and advanced lean burn</p> <p>We agree with the Operator's stated compliance.</p>																		
<table border="1"> <thead> <tr> <th data-bbox="271 699 443 730">Technique</th> <th data-bbox="443 699 837 730">Description</th> <th data-bbox="837 699 1133 730">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="271 730 443 890">a. Advanced control system</td> <td data-bbox="443 730 837 890">See description in Section 8.3. This technique is often used in combination with other techniques or may be used alone for combustion plants operated < 500 h/yr</td> <td data-bbox="837 730 1133 890">The applicability to old combustion plants may be constrained by the need to retrofit the combustion system and/or control command system</td> </tr> <tr> <td data-bbox="271 890 443 975">b. Water/steam addition</td> <td data-bbox="443 890 837 975">See description in Section 8.3</td> <td data-bbox="837 890 1133 975">The applicability may be limited due to water availability</td> </tr> <tr> <td data-bbox="271 975 443 1134">c. Dry low-NO_x burners (DLN)</td> <td data-bbox="443 975 837 1134"></td> <td data-bbox="837 975 1133 1134">The applicability may be limited in the case of turbines where a retrofit package is not available or when water/steam addition systems are installed</td> </tr> <tr> <td data-bbox="271 1134 443 1318">d. Low-load design concept</td> <td data-bbox="443 1134 837 1318">Adaptation of the process control and related equipment to maintain good combustion efficiency when the demand in energy varies, e.g. by improving the inlet airflow control capability or by splitting the combustion process into decoupled combustion stages</td> <td data-bbox="837 1134 1133 1318">The applicability may be limited by the gas turbine design</td> </tr> <tr> <td data-bbox="271 1318 443 1375">e. Low-NO_x burners</td> <td data-bbox="443 1318 837 1375">See description in Section 8.3</td> <td data-bbox="837 1318 1133 1375">Generally applicable to supplementary firing for heat</td> </tr> </tbody> </table>			Technique			Description	Applicability	a. Advanced control system	See description in Section 8.3. This technique is often used in combination with other techniques or may be used alone for combustion plants operated < 500 h/yr	The applicability to old combustion plants may be constrained by the need to retrofit the combustion system and/or control command system	b. Water/steam addition	See description in Section 8.3	The applicability may be limited due to water availability	c. Dry low-NO _x burners (DLN)		The applicability may be limited in the case of turbines where a retrofit package is not available or when water/steam addition systems are installed	d. Low-load design concept	Adaptation of the process control and related equipment to maintain good combustion efficiency when the demand in energy varies, e.g. by improving the inlet airflow control capability or by splitting the combustion process into decoupled combustion stages	The applicability may be limited by the gas turbine design	e. Low-NO _x burners	See description in Section 8.3	Generally applicable to supplementary firing for heat	
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	f. Selective catalytic reduction (SCR)		Not applicable in the case of combustion plants operated < 500 h/yr. Not generally applicable to existing combustion plants of < 100 MW _{th} . Retrofitting existing combustion plants may be constrained by the availability of sufficient space. There may be technical and economic restrictions for retrofitting existing combustion plants operated between 500 h/yr and 1 500 h/yr																		
43	In order to prevent or reduce NO _x emissions to air from the combustion of natural gas in engines, BAT is to use one or a combination of the techniques given below.			NA	The Operator did not provide a response to this BAT Conclusion. We consider that this BAT Conclusion is not applicable to the activities carried out at the installation because there are no engines at the installation.																
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44	<p>In order to prevent or reduce CO emissions to air from the combustion of natural gas, BAT is to ensure optimised combustion and/or to use oxidation catalysts.</p> <p>Description - See descriptions in Section 8.3.</p> <p>BAT-associated emission levels (BAT-AELs) for NO_x emissions to air from the combustion of natural gas in gas turbines</p>			CC	<p>The Operator confirmed that they are compliant with both the yearly and daily average BAT AELs for NO_x and the indicative yearly average for CO.</p> <p>We have set limits as detailed in section 4.1 of this document.</p> <p>We agree with the Operator's stated compliance.</p>																																												
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45	<p>In order to reduce non-methane volatile organic compounds (NMVOC) and methane (CH₄) emissions to air from the combustion of natural gas in spark-ignited lean-burn gas engines, BAT is to ensure optimised combustion and/or to use oxidation catalysts.</p> <p>Description</p> <p>See descriptions in Section 8.3. Oxidation catalysts are not effective at reducing the emissions of saturated hydrocarbons containing less than four carbon atoms.</p> <p>BAT-associated emission levels (BAT-AELs) for formaldehyde and CH₄ emissions to air from the combustion of natural gas in a spark-ignited lean-burn gas engine</p> <table border="1" data-bbox="280 1161 1117 1385"> <thead> <tr> <th rowspan="4">Combustion plant total rated thermal input (MW_{th})</th> <th colspan="3">BAT-AELs (mg/Nm³)</th> </tr> <tr> <th>Formaldehyde</th> <th colspan="2">CH₄</th> </tr> <tr> <th colspan="3">Average over the sampling period</th> </tr> <tr> <th>New or existing plant</th> <th>New plant</th> <th>Existing plant</th> </tr> </thead> <tbody> <tr> <td>≥ 50</td> <td>5–15 ⁽¹⁶²⁾</td> <td>215–500 ⁽¹⁶³⁾</td> <td>215–560 ⁽¹⁶²⁾ _{⁽¹⁶³⁾}</td> </tr> </tbody> </table>	Combustion plant total rated thermal input (MW _{th})	BAT-AELs (mg/Nm ³)			Formaldehyde	CH ₄		Average over the sampling period			New or existing plant	New plant	Existing plant	≥ 50	5–15 ⁽¹⁶²⁾	215–500 ⁽¹⁶³⁾	215–560 ⁽¹⁶²⁾ _{⁽¹⁶³⁾}	NA	<p>The Operator did not provide a response to this BAT Conclusion.</p> <p>We consider that this BAT Conclusion is not applicable to the activities carried out at the installation because there are no engines at the installation.</p>						
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<p>BAT Conclusions for iron and steel process gases – BAT Conclusions 46 to 51 deleted - not applicable to the activities carried out at the installation</p> <p>BAT Conclusions for offshore platforms – BAT Conclusions BAT 52 to 54 deleted - not applicable to the activities carried out at the installation</p> <p>BAT Conclusions for chemical process gases – BAT Conclusions 55 to 59 deleted – not applicable to the activities carried out at the installation</p> <p>BAT Conclusions for co-incineration – BAT Conclusions 60 to 71 – not applicable to the activities carried out at the installation</p> <p>BAT Conclusions for gasification – BAT Conclusions 72 to 75 deleted - not applicable to the activities carried out at the installation</p>			

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.

The Operator has not made any such request.

7 Emissions to water

There are no direct emissions to water from the installation.

There are no BAT AELs specified in the BAT Conclusions for this type of plant.

8 Additional IED Chapter II requirements:

Condition/table	Justification
Installation name	<p>Changed from Wilton Power Station to Wilton No.1 Gas Turbine at the request of the Operator.</p> <p>The Operator confirmed that the rest of the 'power station' no longer exists. The original permit application included the coal boilers and the permit has been varied to remove these.</p>
Condition 2.3.4 added	To reference table S2.1
Condition 2.3.7, improvement condition IP28 and definition in Schedule 6 added	<p>In the event of a black out National Grid would call on combustion plant to operate and may require them to do so outside their permitted conditions. We have dedicated black start plant and they are permitted to run as such but this scenario is relevant to the rest of the LCP which could be called depending on the circumstances.</p> <p>A risk assessment will be carried out by Energy UK/Joint Environmental Programme on behalf of LCP connected to the National Transmission System. Air emissions modelling will be based on generic black start scenarios to establish whether they have the potential to have a local impact on the environment or not (on a national basis). If the modelling demonstrates that no significant impacts are likely, the plant can operate under condition 2.3.7. This condition allows the hourly ELVs for plants operating under a black start instruction to be discounted for the purpose of reporting. We would also require there to be a procedure in place for minimisation of emissions in the case of a black start event and for reporting in the event of a black start. This modelling and the procedures have not been agreed in advance of the issue of the permit review and therefore a condition linking back to an improvement condition has been included in the permit.</p>
Table S1.1 amended	<p>To include the ST11 condensing steam turbine authorised by variation EPR/NP3438LK/V002.</p> <p>To amend the thermal input of the LCP from 192 MWth to 183 MWth, which comprises a 127 MWth gas turbine and a 56 MWth HRSG.</p> <p>To include waste oil storage.</p>
Table S1.2 amended	To incorporate approved noise controls associated with an improvement condition.
Table S1.3 amended to confirm the completion of improvement	<p>IP22 - Submission dated 05 July 2012.</p> <p>IP23 – test report received 07 December 2016.</p> <p>IP24 – response received 02 September 2016, no changes to the permit were required.</p> <p>IP27 complete.</p>

<p>conditions and the addition of a noise improvement condition</p>	<p>We regularly receive notifications that the LCP has started up during night-time hours which can result in noise complaints. We have added an improvement condition to reintroduce the control measures which were removed by a previous variation, see table S1.7 below.</p> <table border="1" data-bbox="518 450 1348 913"> <thead> <tr> <th colspan="2" data-bbox="518 450 1348 488">Table S1.7 Appropriate measures for noise</th> </tr> <tr> <th data-bbox="518 488 1157 526">Measure</th> <th data-bbox="1157 488 1348 526">Dates</th> </tr> </thead> <tbody> <tr> <td data-bbox="518 526 1157 712">Ensure night-time noise is minimised by not starting GT1 or venting steam between 22:00 hours and 08:00 hours on any calendar day, except in an emergency where it is essential to maintain site security, as defined in PSOI/Environment/ENV-005.</td> <td data-bbox="1157 526 1348 712">24th March 2006</td> </tr> <tr> <td data-bbox="518 712 1157 779">No routine maintenance shall occur during night-time hours of 2200-08:00.</td> <td data-bbox="1157 712 1348 779"></td> </tr> <tr> <td data-bbox="518 779 1157 913">Silencing equipment on all plant relief valve exhaust vents as listed in table shall be maintained as necessary to maintain correct operation as per permit application section 2.9.6 and inspected to the preventative maintenance schedule</td> <td data-bbox="1157 779 1348 913">24th March 2006</td> </tr> </tbody> </table> <p>The improvement condition requires the submission of noise minimisation procedures which includes a definition for 'emergency' operation.</p> <p>Following approval these will be incorporated into table S1.2 of the permit.</p>	Table S1.7 Appropriate measures for noise		Measure	Dates	Ensure night-time noise is minimised by not starting GT1 or venting steam between 22:00 hours and 08:00 hours on any calendar day, except in an emergency where it is essential to maintain site security, as defined in PSOI/Environment/ENV-005.	24 th March 2006	No routine maintenance shall occur during night-time hours of 2200-08:00.		Silencing equipment on all plant relief valve exhaust vents as listed in table shall be maintained as necessary to maintain correct operation as per permit application section 2.9.6 and inspected to the preventative maintenance schedule	24 th March 2006
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Table S1.4	<p>Amended to redefine the MSUL/MSDL following a telecom 30 April 2020.</p> <p>A formal submission will be required in accordance with existing permit improvement condition IP25.</p>										
Table S2.1	To add natural gas, consistent with other permits in the sector.										
Table S3.3 amended	To update the noise monitoring standard from BS4142:1997 to BS 4142:2014.										
Table S4.1 amended	To change the reporting period for SO ₂ to every 6 months.										
Table S4.4 amended	To replace form performance1 with REM1.										
Schedule 6 Interpretation	Amended the reference conditions interpretation to remove those that are not applicable to the facility.										

9 Review and assessment of changes that are not part of the BAT Conclusions derived permit review.

This document should be read in conjunction with the application, supporting information and notice.

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 facility	
The regulated facility	<p>We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1', guidance on waste recovery plans and permits.</p> <p>The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.</p>
The site	
Extent of the site of the facility	The Operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility. The plan is included in the permit.
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>A full assessment of the application and its potential to affect the sites/species/habitat has not been carried out as part of the permit review process. We consider that the review will not affect the features of the sites/species/habitat as the conditions will provide at least the same level of protection as those in the</p>

Aspect considered	Decision
	<p>previous permit and in some cases will provide a higher level of protection to those in the previous permit.</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p>
Operating techniques	
<p>General operating techniques</p>	<p>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.</p> <p>The permit conditions ensure compliance with the relevant BREF, BAT Conclusions. The ELVs deliver compliance with the BAT AELs.</p>
Permit conditions	
<p>Updating permit conditions during consolidation</p>	<p>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.</p>
<p>Changes to the permit conditions due to an Environment Agency initiated variation</p>	<p>We have varied the permit as stated in the variation notice.</p>
<p>Improvement programme</p>	<p>Based on the information in the Regulation 61 response, we consider that we need to impose an improvement programme. The reasons for this are detailed in the relevant sections of this document.</p>
<p>Emission limits</p>	<p>We have decided that emission limits should be set for the parameters listed in the permit.</p> <p>These are described in the relevant BAT Conclusions in Sections 4.1 and 5 of this document.</p> <p>It is considered that the ELVs described above will</p>

Aspect considered	Decision
	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 Sections 4.1 and 5 of this document.</p> <p>Table S3.4 Process monitoring requirements was added to include the requirement to monitor energy efficiency after overhauls on site in line with BAT Conclusion 2.</p> <p>Based on the information in the application we are satisfied that the Operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.</p>
Reporting	<p>We have specified reporting in the permit for the following parameters:</p> <ul style="list-style-type: none"> • Nitrogen dioxide • Carbon monoxide • Sulphur dioxide (IED Chapter III requirement) <p>These are described in the relevant BAT Conclusions in Sections 4.1 and 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>

Aspect considered	Decision
	<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>