Permitting decisions

Variation

We have decided to issue the variation of the permit for Kemsley Paper Mill CHP operated by E.ON UK CHP Limited.

The variation number is EPR/BJ7395IG/V011.

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

Purpose of this document

This decision document provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken in to account.

This decision document provides a record of the decision making process. It:

- highlights key issues in the determination
- summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account
- shows how we have considered the consultation responses

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the variation notice. The introductory note summarises what the variation covers.

Key issues of the decision

Background to the variation

The majority of the electricity and heat requirements of the DS Smith Kemsley Paper Mill are currently being met by the operation of a combined heat and power (CHP) plant known as K1 which is a gas turbine and heat recovery steam generators (DEFRA reference number LCP 208). Additional steam has ben supplied by six low pressure (LP) auxiliary boilers arranged in two banks of three (DEFRA reference numbers LCP 206 and LCP207). K1 began operation in the 1990s and is now reaching the end of its life so there is a requirement for a new CHP plant to supply energy to the Kemsley Paper Mill.

This variation is primarily to incorporate a new gas-fired CHP plant known as K4. This requires additional land to be included in the permitted site boundary. The new CHP plant will supply electricity and steam to the adjacent Kemsley Paper Mill, operated by D S Smith. The new plant will be located on land within the existing Kemsley Paper Mill complex. A separate application was submitted by Kemsley Paper Mill operator DS Smith to surrender the area from their permit.

This variation implements the following changes to the permit:

- A new gas-fired Combined Heat and Power (CHP) plant known as K4;
- A new medium pressure (MP) auxiliary boiler knows as the K4 boiler;
- Upgrades to the existing auxiliary boiler plant;
- A new emergency diesel generator;
- A new water treatment plant;
- Additional land included in the permit site boundary to facilitate the above changes.

The CHP will be made up of a 143 MWth input gas turbine producing approximately 57 MW of electrical power and a heat recovery steam generator (HRSG) with supplementary firing, producing approximately 110 MWth of steam and steam turbine, producing approximately 16MW of electrical power. The CHP will be classed as a large combustion plant (LCP). The HRSG will be fitted with supplementary firing natural gas burners. Exhaust gases will be emitted via a new 70 meter high stack at emission point A8.

A new MP auxiliary boiler with thermal input of 9.6 MWth will produce MP steam. This is classified as a Medium Combustion Plant (MCP). Exhaust gases will emit via emission point A9.

Five of the six existing Low Pressure (LP) auxiliary boilers will be taken out of service and replaced by 4 new boilers (each approximately 17 MWth). The existing LP auxiliary boiler A with a thermal input of approximately 15.6 MW will remain in service. Following this modification each of the two banks of boilers (known as Package Boiler Bank 1 and Package Boiler Bank 2) will have a combined thermal input of <50MWth and will be classed as MCP. They will operate to provide back up steam in the event of a planned or unplanned temporary shutdown of K3 (an adjacent energy from waste plant operated by Wheelabrator to the east of the main mill complex) or K4.

K4 CHP, K4 Medium Pressure auxiliary boiler and the K1 area LP auxiliary boilers will burn natural gas which shall be connected to the existing gas supply on the site.

The steam produced is for the paper making process and is contained, de-pressurised and sent to the Paper Mill for use within the paper production process.

A new water treatment plant will provide treated water for steam production.

new area included in the permit boundary will connect into the existing drainage system via emission to sewer E2.

Once K4 is commissioned, K1 will be decommissioned.

Chapter III of the Industrial Emissions Directive

Chapter III of the Industrial Emissions Directive applies to new and existing large combustion plants (LCPs) which have a total rated thermal input which is greater or equal to 50MW. Articles 28 and 29 explain exclusions to chapter III and aggregation rules respectively.

The aggregation rule is as follows:

- A Large Combustion Plant (LCP) has a total rated thermal input ≥50MW.
- Where waste gases from two or more separate combustion plant discharge through a common windshield, the combination formed by the plants are considered as a single large combustion plant.
- The size of the LCP is calculated by adding the capacities of the plant discharging through the common windshield disregarding any units <15MWth.

A “common windshield” is frequently referred to as a common structure or windshield and may contain one or more flues.

The new CHP consisting of the CCGT and HRSG on this site consists of an individual combustion unit with a total rated thermal input ≥50MW making it an LCP.

Combustion plant on the installation that do not form part of an LCP and so do not come under chapter III requirements, are still listed within the Section 1.1 Part A(1)(a) activity listed in Schedule 1 of the Environmental Permitting Regulations. In this instance the medium pressure auxiliary boiler and standby diesel generator will fall into this category. This plant are also within the scope of the Medium Combustion Plant Directive (MCPD) and have been listed as MCPs in the permit. The diesel generator will operate for less than 500 hours per year and therefore no limits have been specified. We have specified limits for the auxiliary boiler and the package boilers in line with the MCPD.

Large Combustion Plant(s) Description and Number

The Permit uses the DEFRA LCP reference numbers to identify each LCP. The LCP permitted is as follows: **LCP 681.**

This LCP consists of one 143 MWth CHP which vents via a single stack. The unit burns natural gas.

Net thermal input

The Applicant has stated that the Net Thermal Input of LCP 681 is 143 MWth.

The Applicant has not provided sufficient information to demonstrate the net thermal input of the LCP as the plant has not been built yet. Consequently we have set an improvement condition, requiring them to provide this information within 12 months of the plant starting up.

Minimum start up load and Minimum shut-down load (MSUL/MSDL)

The Applicant has not provided sufficient information to set the MSUL/MSDL as the plant has not been built yet. Consequently we have set an improvement condition, requiring them to provide this information within 12 months of the plant starting up. Table S1.5 in the permit has also been completed to reflect this.

Large Combustion Plant Best available techniques reference document conclusions (BATc)

We have reviewed the permit application against the revised BAT Conclusions for the large combustion plant sector published on 31st July 2017.

BAT conclusions 1 – 17 applicable to all sites and 40 – 45 applicable to plant combusting gaseous fuels (but excluding those relating to iron and steel and chemical industries) have been considered. The response to each is set out in this decision document.

The BAT AELs for emissions of NOx and CO have been included in table S3.1 of the permit.

Emission Limit Values

A number of general principles were applied during the setting of emission limit values for LCP. These include:

- The upper value of the BAT AELs ranges specified are used unless use of the tighter limit is justified.
- Where a limit is specified in both IED Annex V and the BAT Conclusions for a particular reference period, the tighter limit is applied and in the majority of cases this is from the BAT Conclusions.
- Where AELs are indicative in the BAT Conclusions, these are applied unless adequate justification is 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.

LCP 681 – New K4 Combined Heat and Power Plant

LCP 681 will be put into operation after IED came into force and therefore the limits in the permit are from Part 2 of IED Annex V applicable to new plant.

The ELVs and AELs are based on the following operating regime:

- Unlimited hours operation

LCP 681 can operate in two different modes:

Mode 5: Gas turbine operation and HRSG without supplementary firing.

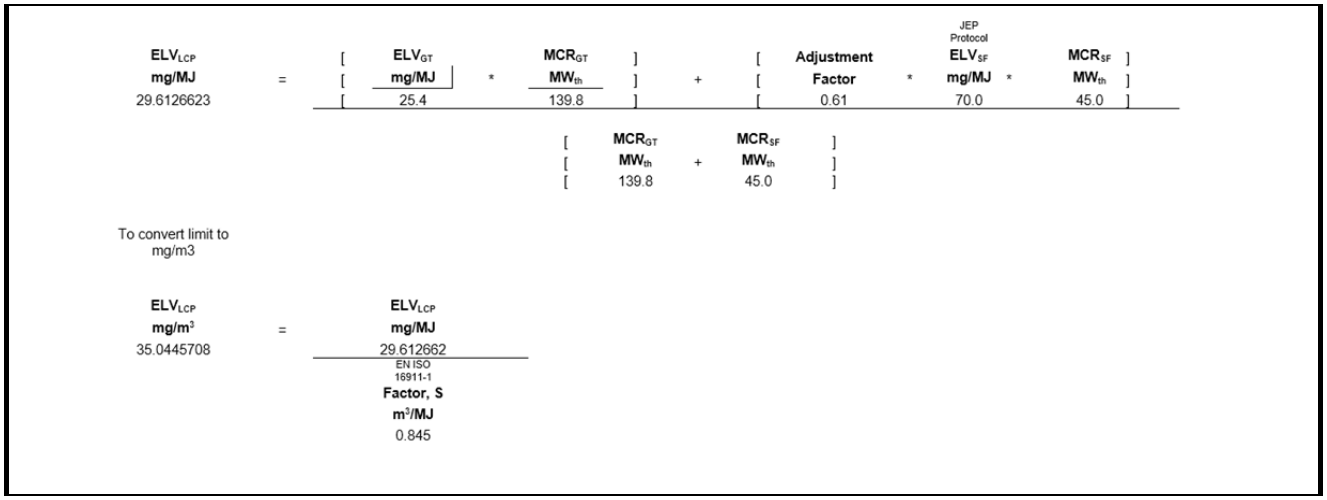
Mode 6: Gas turbine operation and HRSG with supplementary firing.

The operator proposed a different yearly limit for both oxides of nitrogen and carbon monoxide as set out in the tables below.

An additional daily limit from start up/shut down to baseload has been added to the post TNP limits in table S3.1. Although this is not a regulatory requirement, it was requested by the Emissions Methodology Working Group of the Joint Environmental Protocol to ensure consistency across the sites.

The following tables outline the limits that have been incorporated into the permit for LCP 681, 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.

NOx limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 2) – New**	**BREF**	**Expected permit limits**	**Basis**	**Limits apply**	**Monitoring**
Annual (Mode 5)	**None**	**30**	**30**	BREF	DLN effective to baseload	Continuous
Annual (Mode 6)	**None**	**30**	**35 Note 1**	BREF & IED protocol	DLN effective to baseload	
Monthly	**50**	**None**	**50**	IED	DLN effective to baseload	
Daily	**55**	**40**	**40**	BREF	DLN effective to baseload	
Hourly	**100**	**None**	**100**	IED	DLN effective to baseload	
Note 1: Supporting calculation submitted proposing limit of 35 mg/m^3 based on the calculation set out in the JEP protocol taking into account the supplementary firing of the HRSG and therefore the LCP AEL for boiler operation. We have accepted this approach and applied the annual limit of 35mg/m^3 for the LCP in Mode 6 operation.						



CO limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 2) – New**	**BREF**	**Expected permit limits**	**Basis**	**Limits apply**	**Monitoring**
Annual (Mode 5)	**None**	**30**	**30**	BREF	DLN effective to baseload	Continuous
Annual (Mode 6)	**None**	**30**	**100 Note 1**	Justified by Operator	DLN effective to baseload	
Monthly	**100**	**None**	**100**	IED	DLN effective to baseload	
Daily	**110**	**None**	**110**	IED	DLN effective to baseload	
Hourly	**200**	**None**	**200**	IED	DLN effective to baseload	
Note 1: The operator has justified an alternative indicative AEL for operation in Mode 6 which is with supplementary firing. As the AEL for carbon monoxide is indicative we have accepted this approach and included a limit of 100mg/m^3 in the permit for operation in Mode 6.						

LCP 208 – Existing K1 Combined Heat and Power Plant (post TNP Limits) - Modes 1, 2, 3

LCP 208 was put into operation IED came into force and therefore the limits in the permit are from Part 1 of IED Annex V applicable to existing plant.

The ELVs are based on the following operating regime:

- Unlimited hours operation with an efficiency of >55%

The following tables outline the limits that have been incorporated into the permit for LCP 208, 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.

NOx limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 1) – Existing (mg/m^3)**	**BREF (mg/m^3) Note 2**	**Expected permit limits (mg/m^3)**	**Basis**	**Limits apply**	**Monitoring**
Annual	**None**	**NA**	**None**	NA	70% to baseload	Continuous
Monthly	**75**	**NA**	**75**	IED	70% to baseload	
Daily	**82.5**	**NA**	**82.5**	IED	70% to baseload	
Hourly	**150**	**NA**	**150**	IED	70% to baseload	
Note 1: The higher Annex V limits are based on the plant operating at >55% efficiency. Note 2: The LCP BAT Conclusions will apply to this plant when the primary activity associated with the permit is subject to the next permit review, in this case Paper and Pulp.						

CO limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 1) – Existing (mg/m^3)**	**BREF (mg/m^3) Note 1**	**Expected permit limits (mg/m^3)**	**Basis**	**Limits apply**	**Monitoring**
Annual	**None**	**NA**	**None**	NA	70% to baseload	Continuous
Monthly	**100**	**NA**	**100**	IED	70% to baseload	
Daily	**110**	**NA**	**110**	IED	70% to baseload	
Hourly	**200**	**NA**	**200**	IED	70% to baseload	
Note 1: The LCP BAT Conclusions will apply to this plant when the primary activity associated with the permit is subject to the next permit review, in this case Paper and Pulp.						

LCP 206 and LCP 207 – Existing Package Plant Boilers >50MWth (post TNP Limits and Medium Combustion Plant Limits)

Following the permit application submission, the operator confirmed that LCP 206 had been decommissioned and the boiler bank was therefore classified as a Medium Combustion Plant. We have therefore considered IED Annex V limits for LCP 207 only.

For the Medium Combustion Plant in Boiler Bank 1, an emission limit value of 100mg/m^3 for oxides of nitrogen for the two new boilers will be applicable and a limit of 200mg/m^3 for NOx for the one existing boiler will be applicable. All 3 will be required to monitor for carbon monoxide but with no associated limit.

LCP 207 was put into operation before IED came into force and therefore the limits in the permit are from Part 1 of IED Annex V applicable to existing plant.

The ELVs are based on the following operating regime:

- Unlimited hours operation

LCP 207 is also due to be reduced below the threshold for being an LCP and as a result be classified as Medium Combustion Plant.

The following tables outline the post TNP limits that have been incorporated into the permit for LCP 207, 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 3% volume reference oxygen concentration in flue gases. The emission limits and monitoring requirements have been incorporated into Schedule 3 of the permit.

NOx limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 1) – Existing (mg/m^3)**	**BREF (mg/m^3) Note 1**	**Expected permit limits (mg/m^3) Note 2 Note 3**	**Basis**	**Limits apply**	**Monitoring**
Annual	**None**	**NA**	**None**	NA	MSUL/MSDL to baseload	Periodic if <100MWth or Continuous
Monthly	**100**	**NA**	**NA**	IED	MSUL/MSDL to baseload	
Daily	**110**	**NA**	**110**	IED	MSUL/MSDL to baseload	
Hourly	**200**	**NA**	**NA**	IED	MSUL/MSDL to baseload	
Note 1: The LCP BAT Conclusions will apply to this plant when the primary activity associated with the permit is subject to the next permit review, in this case Paper and Pulp. Note 2: Where an LCP requires only periodic monitoring as <100MWth as is the case with the package boilers, we set only one limit which is usually the equivalent to the daily limit from IED. Note 3: Once the package boilers are no longer considered LCP and the new MCP boilers are installed the limit applicable will be 100mg/m^3 which is in line with MCP requirements.						

CO limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 1) – Existing**	**BREF Note 1**	**Expected permit limits Note 2 Note 3**	**Basis**	**Limits apply**	**Monitoring**
Annual	**None**	**NA**	**NA**	NA	MSUL/MSDL to baseload	Periodic if <100MWth or Continuous
Monthly	**100**	**NA**	**NA**	IED	MSUL/MSDL to baseload	
Daily	**110**	**NA**	**110**	IED	MSUL/MSDL to baseload	
Hourly	**200**	**NA**	**NA**	IED	MSUL/MSDL to baseload	
Note 1: The LCP BAT Conclusions will apply to this plant when the primary activity associated with the permit is subject to the next permit review, in this case Paper and Pulp. Note 2: Where an LCP requires only periodic monitoring as <100MWth as is the case with the package boilers, we set only one limit which is the equivalent to the daily limit from IED. Note 3: Once LCP 206 and LCP 207 cease to be LCP and become MCP, this limit will no longer be applicable in line with the monitoring requirements from LCP.						

SO_2 limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 1) – Existing**	**BREF Note 1**	**Expected permit limits Note 2 Note 3**	**Basis**	**Limits apply**	**Monitoring**

Annual	**None**	**NA**	**None**	NA	MSUL/MSDL to baseload	Periodic or by calculation
Monthly	**35**	**NA**	**35**	IED	MSUL/MSDL to baseload	
Daily	**38.5**	**NA**	**NA**	IED	MSUL/MSDL to baseload	
Hourly	**70**	**NA**	**NA**	IED	MSUL/MSDL to baseload	

Note 1: The LCP BAT Conclusions will apply to this plant when the primary activity associated with the permit is subject to the next permit review, in this case Paper and Pulp.

Note 2: Where an LCP requires only periodic monitoring as <100MWth as is the case with the package boilers, we set only one limit which is the equivalent to the daily limit from IED however in this case the monthly is already included in the permit so we have maintained this under the 'no backsliding' principle.

Note 3: Once LCP 207 ceases to be LCP and become MCP, this limit will no longer be applicable in line with the monitoring requirements from LCP.

Dust limits (mg/Nm^3)						
Averaging	**IED (Annex V Part 1) – Existing (mg/m^3)**	**BREF (mg/m^3) Note 1**	**Expected permit limits (mg/m^3) Note 2 Note 3**	**Basis**	**Limits apply**	**Monitoring**
Annual	**None**	**NA**	**None**	NA	MSUL/MSDL to baseload	Periodic or by calculation
Monthly	**5**	**NA**	**5**	IED	MSUL/MSDL to baseload	
Daily	**5.5**	**NA**	**None**	IED	MSUL/MSDL to baseload	
Hourly	**10**	**NA**	**None**	IED	MSUL/MSDL to baseload	

Note 1: The LCP BAT Conclusions will apply to this plant when the primary activity associated with the permit is subject to the next permit review, in this case Paper and Pulp.

Note 2: Where an LCP requires only periodic monitoring as <100MWth as is the case with the package boilers, we set only one limit which is the equivalent to the daily limit from IED however in this case the monthly is already included in the permit so we have maintained this under the 'no backsliding' principle.

Note 3: Once LCP 207 ceases to be LCP and become MCP, this limit will no longer be applicable in line with the monitoring requirements from LCP.

Air Quality Impact Assessment for addition of LCP 681 to the permit

Both air quality assessment (AQA) of human health and of ecological impacts were undertaken. Air dispersion modelling software ADMS Version 5.2 was used to carry out the air quality assessment. Meteorological data observed primarily at Gravesend for the years 2012 to 2016 was used. The site is approximately 26 km north-west from the plant and we consider this meteorological site to be representative of the dispersion site. We also conducted sensitivity analysis to meteorological data from Manston, Ramsgate which is approximately 40 km east from the plant and this did not alter our conclusions.

A surface roughness value which is representative of parkland and open suburbia for the dispersion site was used. We consider the surface roughness could be lower at the meteorological and dispersion site because much of the surrounding land is used for agriculture. Therefore, we conducted sensitivity to lower surface roughness values in our checks which did not alter our conclusions.

Buildings were appropriately included within the model.

Complex terrain was included in the model. We have conducted model sensitivity analysis assuming flat terrain, and our own terrain data.

The new K4 CHP gas turbine was modelled at two possible locations as these were at the time under consideration. Therefore, they presented their predicted contributions and results for both locations in relevant tables within their report. We checked sensitivity to both locations.

Cumulative impacts were modelled to account for emissions from the K3 generator of the adjacent energy from waste site, the existing K1 CHP plant and existing K2 generator. It was also assumed that the K1 and K4 engines may run simultaneously for a short period of time. Therefore the inclusion of both CHPs operating all year around is a conservative assumption.

Emission rates for nitrogen oxides (NO_X) and carbon monoxide (CO) were derived for the new K4 gas turbine from the Emission Limit Values (ELVs) set out in Paragraph 6, Part 2 of Annex V in the Industrial Emissions Directive (IED) for the new gas turbine as this is the maximum concentration that could be permitted which is a worst case assumption.

Emission rates for NO_X and CO for existing K1 gas turbine and K2 generator are consistent with the ELVs in their current permit.

Emission rates for NO_X and CO for existing K1 boilers are based on the emissions used within the modelling provided with the original K1 permit application.

We agree with emission rates used to predict emission concentrations for NO_2 and CO for these combustion sources.

The emission rates for NO_X and CO for the K3 generator are consistent with the ELVs set out in Annex VI - Waste incineration plants and waste co-incineration plants in the IED.

The background data used was derived from DEFRA background maps and local urban background monitoring, diffusion tubes for NO_2 and CO to determine the predicted environmental concentrations (PECs) at receptors. Swale Borough Council (SBC) (Air Quality Annual Status Report dated month 2018) operates the closest roadside monitoring location at Kemsley Fields (SW77) to the site. The DEFRA NO_2 concentrations are below the monitored concentrations, therefore, 31.7 $\mu g/m^3$ was used which is the average of the concentrations measured at SW77. There is no local CO monitoring so the DEFRA background concentration estimate was used. The nearest continuous automatic urban and rural network monitoring station (AURN) in the neighbouring borough of Maidstone, Chatham Roadside is approximately 13 km from the site which measures urban traffic background. The site is in an industrial setting, and is approximately 2.8 km away from St Paul's Street, Sittingbourne Air Quality Management Area (AQMA). We have checked all available background data and have included the most conservative background data of 34.5 $\mu g/m^3$ in our check modelling assessment.

A worst case 70% long-term and 35% short-term NO_X to NO_2 conversion was used.

Human Impact assessment

In addition to modelling gridded receptor locations, the model made predictions at eighteen sensitive human health receptors located near the facility. We have checked the locations of these receptors and agree with their selections.

The process contributions (PCs) and PECs were presented for the sensitive human health receptors for long-term annual mean NO_2 and for short-term hourly mean NO_2, and for CO 8 hour running mean. We observe that:

- The predicted long-term NO_2 PCs are insignificant (less than the 1% significance criteria) at all sensitive human health receptors.
- The predicted short-term NO_2 PCs are insignificant (less than the 10% significance criteria) at all sensitive human health receptors.

- The predicted short-term 8 hour mean CO PCs are insignificant (less than the 10% significance criteria) at all sensitive human health receptors.

Based on the report, modelling provided and the results from our audit, the proposed plant is not likely to cause any exceedances of environmental standards for the protection of human health.

Ecological Impact Assessment

Four ecological receptors were considered within the 2 km and 10 km habitat screening distances for Site of Special Scientific Interest (SSSI), European and local nature sites which includes Local Wildlife Sites (LWS), Ancient Woodland, and Local and National Nature Reserves (LNR and NNR) respectively. These are as follows:

- Queendown Warren Special Area of Conservation (SAC);
- Thames Estuary and Marshes Special Protection Area (SPA);
- Medway Estuary and Marshes SPA, and
- The Swale SPA.

We checked the locations of these receptors and included six more ecological and local nature receptors within the appropriate screening distances.

- The Swale SSSI;
- Outer Thames Estuary SPA;
- Medway Estuary and Marshes Ramsar;
- The Swale Ramsar;
- Milton Creek, Sittingbourne LWS; and
- Elmley NNR within the 10 km screening distance.

When considering the impacts on ecological sites the report has used APIS to identify the feature habitats, background concentrations and relevant critical levels and critical loads. Their nutrient nitrogen and acid deposition predictions have been made following AQTAG guidance. However, they used nitrogen deposition velocity of 0.003 m/s at all habitat types which is only applicable for forests (tall habitats). This is a conservative approach. We have checked the nitrogen deposition velocity, critical level and load values and are satisfied that they are likely to be representative with the exception of nitrogen deposition velocity, which could be 0.0015 m/s at some receptor locations within habitat sites. Where the habitat feature is a 'grassland' type feature with an NO_2 deposition velocity of 0.0015 m/s instead of 0.003 m/s, the nitrogen deposition would be half of that predicted by the consultant.

The PCs were presented for annual NO_X, nutrient nitrogen deposition and acid deposition in their report at the ecological sites. We observe that:

- The predicted PCs are insignificant (less than the 1% significance criteria) compared to the critical level for annual NO_X at all ecological sites except The Swale SPA. The PEC is 47% of the critical level of 30 µg/m^3 for annual NO_X at The Swale SPA.
- They have not presented their results for daily NO_X.
- The predicted PCs are insignificant compared to the critical loads for nutrient nitrogen and acid depositions at all ecological receptors.

As a results of this, we agree with the consultant's conclusions for all ecological and local nature sites except for the nutrient nitrogen predictions for Swale SPA/Ramsar and SSSI.

Based on the worst scenario, we predict that:

- Annual critical level NO_X PCs are insignificant for all ecological sites except for Outer Thames Estuary SPA, Medway Estuary SPA/Ramsar, and Swale SPA/Ramsar and SSSI. However the PECs do not exceed the annual critical level of 30 µg/m^3 for these ecological receptors.

- Daily critical level NO_X PCs are insignificant for all ecological sites except for Medway Estuary SPA/Ramsar, and Swale SPA/Ramsar and SSSI. However the PECs do not exceed the daily critical level of 75 µg/m^3 for these ecological receptors.
- Nutrient nitrogen deposition PCs are insignificant against the critical loads except for Swale SPA/Ramsar and SSSI.
- Acid deposition PCs are insignificant against the critical loads for all ecological receptors.
- Annual and daily critical level NO_X, nutrient nitrogen and acid deposition PCs are insignificant (less than 100%) for the relevant LWS and NNR sites.

As a results of this, we disagree with the consultant's conclusions for Swale SPA/Ramsar and SSSI.

Based on the worst scenario, i.e. K1, K2, K3, K4 and package boilers operating all together we predict that:

- Nutrient nitrogen deposition PCs are not insignificant against the critical loads for Swale SPA/Ramsar and SSSI. The nutrient nitrogen background deposition already exceeds the relevant critical load at the habitat site.

However, based on the existing and the proposed scenarios for Swale SPA/Ramsar and SSSI, we predict that:

- Nutrient nitrogen deposition PCs are not insignificant (just over 1%) against the critical load for the existing scenario, however, PCs are insignificant (below 1%) for the proposed scenario.
- We can conclude that the replacement of the old CHP with the new CHP would result in a slight reduction in impacts.

We predict that during transition, with K1 and K4 CHPs potentially operating concurrently, the nutrient nitrogen deposition PCs could exceed the insignificance criteria with background deposition already exceeding the relevant critical load at Swale SPA/Ramsar and SSSI. We have included pre operational condition PO2 which requires the Operator to develop a commissioning plan outlining how commissioning will be carried out to ensure that concurrent operation of the plant is minimised.

Conclusion

We have audited the Applicant's air quality and habitats assessments and made several observations about the validity of the methodologies used and assumptions made. We have undertaken detailed check modelling and completed sensitivity analysis to these observations. As a result, we agree with the consultant's conclusions and are satisfied that exceedances are unlikely at both human and ecological receptors.

Based on the report, modelling provided and the results from our audit, the proposed plant is not likely to cause an exceedances of environmental standards for the protection of human health and conservation of habitats sites.

Energy efficiency assessment for addition of LCP 681 to the permit

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.

The table below sets out the BAT-AEELs specified in the LCP BAT Conclusions LCP 681 on the site and the energy efficiency levels confirmed through the Regulation 61 notice response. Net fuel utilisation is predicted to be above the AEELs specified in the BAT Conclusions. The Operator is required to report the efficiency of the plant following commissioning via the process monitoring requirement specified in table S3.5. This process monitoring requirement is also to demonstrate that efficiency levels are maintained following any significant overhauls of equipment in order to fulfil the requirement of BAT Conclusion 2.

BAT AEELs (%)			Plant efficiency (%)		
Net electrical efficiency	**Net total fuel utilisation**	**Net mechanical efficiency**	**Net electrical efficiency**	**Net total fuel utilisation**	**Net mechanical efficiency**
LCP 681: New CHP Combined Cycle Gas Turbine					
53 – 58.5	**65 - 95**	**NA**	**NA**	**TBC via table S3.5**	**NA**

Noise impact assessment for addition of LCP 681 to the permit

A noise impact assessment was submitted in accordance with BS 4142, to predict noise impacts at the nearest residential receptors to the proposed development site. The assessment describes a baseline noise survey, noise modelling using Soundplan 8.1 and determination of rating sound levels at the nearest residential receptors based on source sound data.

Residential properties were identified to the west and south-west of the site, and used eight assessment receptors to represent the nearest residential properties to the site.

The nearest Noise Sensitive Receptors (NSRs) are located approximately 600m to the west of the site, at Recreation Way and Reams Way. The next nearest NSRs are over 700m to the south-west of the site, at Walsby Drive. There are no residential receptors within close proximity of the north, east or south of the site. We consider the NSRs to be representative of the nearest residential receptors to the site.

A baseline sound survey was undertaken, the results of which are summarised in the Noise Impact Assessment report and include the range of the residual sound level ($L_{Aeq,T}$), range of background sound levels (L_{A90}) and identification of the 'representative' L_{A90} sound levels.

The assessment concluded that rating levels ($L_{Ar,Tr}$, dB) will be below the existing background sound levels (L_{A90}, dB) at the nearest residential receptors during daytime hours, and above the night-time background sound levels by up to 2dB at some receptors. The consultant has considered the rating levels within the context of the residual (L_{Aeq}) sound levels, highlighting that the rating levels are below the residual levels.

Specific mitigation measures have not been proposed to reduce noise emissions from the operation of the K4 CHP. However, the consultant notes that best available techniques (BAT) will be adopted in the design of the plant, including enclosing the steam turbine and associated pumps in a building, and locating other significant sound sources within the middle of the site to benefit from screening from existing buildings on the site.

We have audited the assessment and conducted check modelling with sensitivity analysis to our observations, in accordance with BS 4142. Based on the baseline survey results, we do not agree with all of the background sound levels (L_{A90}, dB) which have been identified at the NSRs.

Our check modelling indicates a potential for higher rating levels during daytime and night-time hours. For daytime hours, rating levels will still be below the existing background sound levels, indicating a low impact. For night-time hours, the rating levels could be above the background sound levels by more than 5 dB at some locations. However, it is recognised that they are below the residual (L_{Aeq}) sound levels by a minimum of 6 dB, indicating a lower likelihood of an adverse impact.

Nevertheless, as the rating levels could exceed the background sound levels by more than 5dB, we require that a Noise Management Plan (NMP) should be prepared, which should include strategies for reducing noise emissions from all plant associated with the K4 CHP, including implementation of BAT. Guidance related to NMP and BAT is available online. We have included a pre operational condition in the permit requiring that a NMP in line with the principles specified in the guidance is written and submitted for approval prior to operation of the new CHP plant.

BAT Conclusions applicable to LCP 681

BAT Conclusions for large combustion plant, were published by the European Commission on 17th 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	S3.1
Monitoring	2.3, 3.5 and 3.6	S1.2, S1.5, S1.6, S3.1
Energy efficiency	1.2 and 2.3	S3.5
Noise	3.4 and 2.3	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 Concn. Number	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	**In order to improve the overall environmental performance of the plants for the refining of mineral oil and gas, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:** 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 (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: (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;	FC	An EMS is in place at the installation and is certified to ISO14001, this will be extended to cover the new plant.

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td></td><td>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;

ix. application of sectoral benchmarking on a regular basis.

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.</td><td></td><td></td></tr>
<tr><td>2</td><td>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.</td><td>FC</td><td>A process monitoring table specifies that the operator shall determine the net efficiency after commissioning.</td></tr>
<tr><td>3</td><td>BAT is to monitor key process parameters relevant for emissions to air and water including those given below.
<table><tr><th>Stream</th><th>Parameter(s)</th><th>Monitoring</th></tr><tr><td rowspan="3">Flue-gas</td><td>Flow</td><td>Periodic or continuous determination</td></tr><tr><td>Oxygen content, temperature, and pressure</td><td rowspan="2">Periodic or continuous measurement</td></tr><tr><td>Water vapour content (3)</td></tr><tr><td>Waste water from flue-gas treatment</td><td>Flow, pH, and temperature</td><td>Continuous measurement</td></tr></table></td><td>FC</td><td>Monitoring parameters specified within the permit emissions table S3.1.</td></tr>
<tr><td>4</td><td>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.
<table><tr><th>Substanc</th><th>Fuel/Process/Type of</th><th>Combusti</th><th>Standard(s)</th><th>Minimum</th><th>Monitorin</th></tr></table></td><td>FC</td><td>NOx, CO and SO_2 monitoring specified in table S3.1 for the CHP. Other parameters are not applicable to this plant.</td></tr>
</table>

BAT Concn. Number	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

e/Parameter	combustion plant	on plant total rated thermal input	([4])	monitoring frequency ([5])	g associated with
NO_X	— 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
CO	— 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	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

BAT Concn. Number	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
		— Natural-gas-fired boilers, engines, and turbines — Iron and steel process gases — Process fuels from the chemical industry — IGCC plants						
		— Combustion plants on offshore platforms	All sizes	EN 15058	Once every year (9)	BAT 54		
	SO_2	— Coal and/or lignite incl waste co-incineration — Solid biomass and/or peat incl waste co-incineration — 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	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 67 BAT 74		
5	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.						NA	This BAT Conclusion is not applicable to this site because there is no flue-gas treatment.
6	In order to improve the general environmental performance of combustion plants and to reduce						FC	(a) NA natural gas use only.

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr>
<td></td>
<td>
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.
<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>a.</td><td>Fuel blending and mixing</td><td>Ensure stable combustion conditions and/or reduce the emission of pollutants by mixing different qualities of the same fuel type</td><td rowspan="2">Generally applicable</td></tr>
<tr><td>b.</td><td>Maintenance of the combustion system</td><td>Regular planned maintenance according to suppliers' recommendations</td></tr>
<tr><td>c.</td><td>Advanced control system</td><td>See description in Section 8.1</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>d.</td><td>Good design of the combustion equipment</td><td>Good design of furnace, combustion chambers, burners and associated devices</td><td>Generally applicable to new combustion plants</td></tr>
<tr><td>e.</td><td>Fuel choice</td><td>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</td><td>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</td></tr>
</table>
</td>
<td></td>
<td>(b) Regular and planned maintenance will be implemented.

(c) An advanced control system will be implemented to automatically control and optimise combustion efficiency and manage prevention and reduction of emissions

(d) The combustion system selected will be of a proven design.

(e) Only natural gas will be used as a fuel.</td>
</tr>
</table>

BAT Concn. Number	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
7	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). **BAT-associated emission levels** The BAT-associated emission level (BAT-AEL) for emissions of NH_3 to air from the use of SCR and/or SNCR is < 3–10 mg/Nm^3 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 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.	NA	This BAT Conclusion is not applicable to this site because there is no SCR.
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.	NA	This BAT Conclusion is not applicable to this site because there is no abatement on site.
9	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): (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)). ***Description*** Initial characterisation and regular testing of the fuel can be performed by the 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. **Fuel(s)** | **Substances/Parameters subject to characterisation**	FC	As the natural gas supplied by the National Grid is required to meet a standard we consider acceptable environmentally we have decided that plant fuelled on natural gas from the grid will not require characterisation or testing.

BAT Concn. Number	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><tr><td>Biomass/peat</td><td>— LHV — moisture</td></tr><tr><td></td><td>— Ash — C, Cl, F, N, S, K, Na — Metals and metalloids (As, Cd, Cr, Cu, Hg, Pb, Zn)</td></tr><tr><td>Natural gas</td><td>— LHV — CH_4, C_2H_6, C_3, C_4+, CO_2, N_2, Wobbe index</td></tr></table>		
10	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: — 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.	FC	The main function of the CHP is to deliver heat and electricity to the Kemsley Paper Mill. As such, the plant is typically under normal operating conditions the majority of the time offering a baseload output. Start up and shut down occurrences are therefore less frequent than an equivalent flexible CCGT plant. Start up and shut down times are minimised through use of advanced control techniques and experienced operators. Start up and shut down periods are governed by a suite of operating instructions in order to deliver safe, reliable and replicable SUSD sequences optimised to minimise mass emissions whilst maintaining plant integrity. Maintenance requiring shut down of the plant or otherwise leading to OTNOC is minimised by scheduling significant works to occur within specific planned outages (typically one major outage per year). The CHP plant is included in the

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td></td><td></td><td></td><td>ongoing servicing and maintenance regime in place at the site as part of the site management systems. This shall ensure that the plant is maintained to the manufacturer’s requirements and that any potential faults are identified at the earliest opportunity and rectified before any issues arise. The servicing and maintenance regime shall also take in to account the frequency of any OTNOC events in order to identify and alleviate problems.</td></tr>
<tr><td>11</td><td>BAT is to appropriately monitor emissions to air and/or to water during OTNOC.
Description
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.</td><td>FC</td><td>See BAT Conclusion 10.</td></tr>
<tr><td>12</td><td>In order to increase the energy efficiency of combustion, gasification and/or IGCC units operated ≥ 1 500 h/yr, BAT is to use an appropriate combination of the techniques given below.
<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>a.</td><td>Combustion optimisation</td><td>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 rowspan="2">Generally applicable</td></tr>
<tr><td>b.</td><td>Optimisation of the working medium</td><td>Operate at the highest possible pressure and temperature of the working medium gas or steam, within the constraints associated with,</td></tr>
</table></td><td>CC</td><td>The descriptions listed below shall be used to increase the energy efficiency of the plant:
a) Combustion optimisation – The plant will use an advanced control system and good design of the combustion equipment shall ensure combustion and temperature optimisation.
b) Optimisation of the working medium conditions - Almost full available natural grid pressure will be used for gas turbine operation
c) Optimisation of the</td></tr>
</table>

BAT Concn. Number	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
		conditions	for example, the control of NO_X emissions or the characteristics of energy demanded			**steam cycle -** Steam turbine exhaust pressure closely matches the low-pressure steam requirements of customer's heat load d) **Minimisation of energy consumption -** All drivers will have high efficiency motors. Feed water pumps use both high efficiency motors and VSDs. Some other main drivers will be also be equipped with VSDs e) **Fuel preheating -** Fuel gas preheating using waste heat for gas turbine fuel is applied f) **Advanced control system –** An advanced control system shall be used, this shall give a computerised control of the main combustion parameters enabling an improvement of the combustion efficiency g) **Feed-water preheating using recovered heat -** Auxiliary condenser operating parameters are selected for maximal recovery of heat (operated nearly above low-pressure system) h) **Heat recovery by cogeneration (CHP) -** Feed water for auxiliary is degassed/preheated using waste heat from the flue gas i) **CHP readiness -** Plant will be CHP from outset. A CHP-ready assessment is included as **Appendix M**
		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	
		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	

BAT Concn. Number	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
	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 Concn. Number	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	Only applicable to new units of ≥ 600 MW_{th} operated > 4 000 h/yr. Not applicable when the purpose of the unit is to produce low steam temperatures and/or pressures in		

BAT Concn. Number	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><tr><td></td><td></td><td>temperatures above 580 – 600 °C in the case of ultra-supercritical conditions</td><td>process industries. Not applicable to gas turbines and engines generating steam in CHP mode. For units combusting biomass, the applicability may be constrained by high-temperature corrosion in the case of certain biomasses</td></tr></table>		
13	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. <table><tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr><tr><td>a.</td><td>Water recycling</td><td>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>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>b.</td><td>Dry bottom ash handling</td><td>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>Only applicable to plants combusting solid fuels. There may be technical restrictions that prevent retrofitting to existing combustion plants</td></tr></table>	FC	(a) Primary water use at the site is for steam production. Recycling of run-off water is not applicable due to the quality requirements of this system. (b) No ash handing on site so NA.
14	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. ***Description*** Waste water streams that are typically segregated and treated include surface run-off water, cooling water, and waste water from flue-gas treatment. ***Applicability*** The applicability may be restricted in the case of existing plants due to the configuration of the drainage systems.	FC	A minimal number of waste water streams will be present on site - these are dealt with separately. Surface water runoff is not mixed with process effluent.

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td>15</td><td>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.</td><td>NA</td><td>This BAT Conclusion is not applicable to this site as there is no flue gas treatment on the site.</td></tr>
<tr><td>16</td><td>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:
(a) waste prevention, e.g. maximise the proportion of residues which arise as by-products;
(b) waste preparation for reuse, e.g. according to the specific requested quality criteria;
(c) waste recycling;
(d) other waste recovery (e.g. energy recovery),
by implementing an appropriate combination of techniques such as:
<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>a.</td><td>Generation of gypsum as a by-product</td><td>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>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>b.</td><td>Recycling or recovery of residues in the construction sector</td><td>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>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>c.</td><td>Energy recovery by using waste in the</td><td>The residual energy content of carbon-rich ash and sludges generated by the combustion of</td><td>Generally applicable where plants can accept waste in the fuel mix and are</td></tr>
</table></td><td>FC</td><td>The activities do not produce large amounts of waste. E.ON currently have separate segregated waste collections for wood, paper and cardboard and general waste all go to DS Smith where it is bulked for offsite recycling.
Waste oils will be produced during service and maintenance and are taken by the service contractor for recovery at a permitted facility.
Where possible waste is kept to a minimum and if possible, waste such as packaging/pallets shall be re-used.
Document EMI06 Waste Storage and Disposal in Appendix O details waste minimisation processes in use at the site. Each waste stream is reviewed annually to assess if the waste produced can be eliminated at source, reduced in quantity, reused with in the installation or recycled, with the intention to reduce the quantities ending up in landfill, resulting in both economic and environmental benefits.

No generation of gypsum on site.
No generation of residues on site.
No acceptance of waste onto site.</td></tr>
</table>

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>fuel mix</td><td>coal, lignite, heavy fuel oil, peat or biomass can be recovered for example by mixing with the fuel</td><td>technically able to feed the fuels into the combustion chamber</td></tr>
<tr><td>d.</td><td>Preparation of spent catalyst for reuse</td><td>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. Preparation of spent catalyst for reuse is integrated in a catalyst management scheme</td><td>The applicability may be limited by the mechanical condition of the catalyst and the required performance with respect to controlling NO_X and NH_3 emissions</td></tr>
</table>
</td><td></td><td>No catalyst used on site.</td></tr>
<tr><td>17</td><td>In order to reduce noise emissions, BAT is to use one or a combination of the techniques given below.
<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>a.</td><td>Operational measures</td><td>These include:
— 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>Generally applicable</td></tr>
<tr><td>b.</td><td>Low-noise equipment</td><td>This potentially includes compressors, pumps and disks</td><td>Generally applicable when the equipment is new or replaced</td></tr>
</table>
</td><td>FC</td><td>A planned preventative maintenance programme will be in place. See key issues section for more information on noise.</td></tr>
</table>

<table>
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<tr><td></td><td>
<table>
<tr><td>c.</td><td>Noise attenuation</td><td>Noise propagation can be reduced by inserting obstacles between the emitter and the receiver. Appropriate obstacles include protection walls, embankments and buildings</td><td>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>d.</td><td>Noise-control equipment</td><td>This includes:
— noise-reducers
— equipment insulation
— enclosure of noisy equipment
— soundproofing of buildings</td><td>The applicability may be restricted by lack of space</td></tr>
<tr><td>e.</td><td>Appropriate location of equipment and buildings</td><td>Noise levels can be reduced by increasing the distance between the emitter and the receiver and by using buildings as noise screens</td><td>Generally applicable to new plant</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>40</td><td>
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.
<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>a.</td><td>Combined cycle</td><td>See description in Section 8.2</td><td>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>
</table>
BAT-associated energy efficiency levels (BAT-AEELs) for the combustion of natural gas
<table>
<tr><th rowspan="2">Type of combustion unit</th><th colspan="4">BAT-AEELs (136) (137)</th></tr>
<tr><th colspan="2">Net electrical efficiency (%)</th><th>Net total fuel utilisation (%) (138) (139)</th><th colspan="2">Net mechanical energy efficiency (%) (139) (140)</th></tr>
<tr><th></th><th>New</th><th>Existing</th><th></th><th>New unit</th><th>Existing unit</th></tr>
</table>
</td><td>FC</td><td>The CHP will operate in Combined Cycle. See key issues section for more information on energy efficiency and AEELs.</td></tr>
</table>

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td></td><td>
<table>
<tr><th></th><th>unit</th><th>unit</th><th></th><th colspan="2"></th></tr>
<tr><td>Gas engine</td><td>39,5–44 (141)</td><td>35–44 (141)</td><td>56–85 (141)</td><td colspan="2">No BAT-AEEL.</td></tr>
<tr><td>Gas-fired boiler</td><td>39–42,5</td><td>38–40</td><td>78–95</td><td colspan="2">No BAT-AEEL.</td></tr>
<tr><td>Open cycle gas turbine, ≥ 50 MWth</td><td>36–41,5</td><td>33–41,5</td><td>No BAT-AEEL</td><td>36,5–41</td><td>33,5–41</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>41</td><td>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 specified.</td><td>FC</td><td>See information in BAT Conclusion 42 – the CHP is made up of a GT and boiler.</td></tr>
<tr><td>42</td><td>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.
<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>a.</td><td>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>b.</td><td>Water/steam addition</td><td rowspan="2">See description in Section 8.3</td><td>The applicability may be limited due to water availability</td></tr>
<tr><td>c.</td><td>Dry low-NO_X burners (DLN)</td><td>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>d.</td><td>Low-load design concept</td><td>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>The applicability may be limited by the gas turbine design</td></tr>
</table>
</td><td>FC</td><td>(a) An advanced electronic control system will be implemented to automatically control and optimise combustion efficiency and manage prevention and reduction of emissions.
(b) NA – other techniques implemented.
(c) Dry low NOx burners will be fitted.
(d) An advanced electronic control system will be implemented to optimise combustion efficiency and manage emissions.
(e) Dry low NOx burners fitted.
(f) NA as no SCR.</td></tr>
</table>

<table>
<tr><th>BAT Concn. Number</th><th>Summary of BAT Conclusion requirement</th><th>Status NA/ CC / FC / NC</th><th>Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement</th></tr>
<tr><td></td><td>
<table>
<tr><td>e.</td><td>Low-NO_X burners (LNB)</td><td>See description in Section 8.3</td><td>Generally applicable to supplementary firing for heat recovery steam generators (HRSGs) in the case of combined-cycle gas turbine (CCGT) combustion plants</td></tr>
<tr><td>f.</td><td>Selective catalytic reduction (SCR)</td><td></td><td>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</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>43</td><td>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 specified.</td><td>NA</td><td>This BAT conclusion is not applicable to this site as there are no engines on site</td></tr>
<tr><td>44</td><td>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.
Description - See descriptions in Section 8.3.
BAT-associated emission levels (BAT-AELs) for NO_X emissions to air from the combustion of natural gas in gas turbines
<table>
<tr><th rowspan="2">Type of combustion plant</th><th rowspan="2">Combustion plant total rated thermal input (MW_{th})</th><th colspan="2">BAT-AELs (mg/Nm^3) (142) (143)</th></tr>
<tr><th>Yearly average (144) (145)</th><th>Daily average or average over the sampling period</th></tr>
<tr><td colspan="4">Open-cycle gas turbines (OCGTs) (146) (147)</td></tr>
<tr><td>New OCGT</td><td>≥ 50</td><td>15–35</td><td>25–50</td></tr>
<tr><td>Existing OCGT (excluding turbines for</td><td>≥ 50</td><td>15–50</td><td>25–55 (148)</td></tr>
</table>
</td><td>FC</td><td>The relevant BAT AELs are specified in table S3.1 of the permit.

An improvement condition requires the operator to define an output load or operational parameters and provide a written justification for when the dry low NO_X operation is effective. The report shall also include the NO_X profile through effective dry low NO_X to 70% and</td></tr>
</table>

BAT Concn. Number	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

mechanical drive applications) — All but plants operated < 500 h/yr			

Combined-cycle gas turbines (CCGTs) (146) (149)

New CCGT	≥ 50	10–30	15–40
Existing CCGT with a net total fuel utilisation of < 75 %	≥ 600	10–40	18–50
Existing CCGT with a net total fuel utilisation of ≥ 75 %	≥ 600	10–50	18–55 (150)
Existing CCGT with a net total fuel utilisation of < 75 %	50–600	10–45	35–55
Existing CCGT with a net total fuel utilisation of ≥ 75 %	50–600	25–50 (151)	35–55 (152)

Open- and combined-cycle gas turbines

Gas turbine put into operation no later than 27 November 2003, or existing gas turbine for emergency use and operated < 500 h/yr	≥ 50	No BAT-AEL	60–140 (153) (154)
Existing gas turbine for mechanical drive applications — All but plants operated < 500 h/yr	≥ 50	15–50 (155)	25–55 (156)

As an indication, the yearly average CO emission levels for each type of existing combustion plant operated ≥ 1 500 h/yr and for each type of new combustion plant will generally be as follows:

— New OCGT of ≥ 50 MW_{th}: < 5–40 mg/Nm^3. For plants with a net electrical efficiency (EE) greater than 39 %, a correction factor may be applied to the higher end of this range, corresponding to [higher end] × EE/39, where EE is the net electrical energy efficiency or net mechanical energy efficiency of the plant determined at ISO baseload conditions.

— Existing OCGT of ≥ 50 MW_{th} (excluding turbines for mechanical drive applications): < 5–40 mg/Nm^3. The higher end of this range will generally be 80 mg/Nm^3 in the case of existing plants that cannot be fitted with dry techniques for NO_X reduction, or 50 mg/Nm^3 for plants that operate at low load.

— New CCGT of ≥ 50 MW_{th}: < 5–30 mg/Nm^3. For plants with a net electrical efficiency (EE) greater than 55 %, a correction factor may be applied to the higher end of the range, corresponding to [higher end] × EE/55, where EE is the net electrical energy efficiency of the plant determined at ISO baseload conditions.

— Existing CCGT of ≥ 50 MW_{th}: < 5–30 mg/Nm^3. The higher end of this range will generally be 50 mg/Nm^3 for plants that operate at low load.

			then to full load. The Operator is also required to propose achievable emission limit values (ELV) for NO_X and CO expressed as a daily mean of validated hourly averages from Minimum start-up load (MSUL) to baseload through an improvement condition. See Key issues section for further information.

<table>
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<tr><td></td><td>
— Existing gas turbines of ≥ 50 MW_{th} for mechanical drive applications: < 5–40 mg/Nm^3. The higher end of the range will generally be 50 mg/Nm^3 when plants operate at low load.
In the case of a gas turbine equipped with DLN burners, these indicative levels correspond to when the DLN operation is effective.
BAT-associated emission levels (BAT-AELs) for NO_X emissions to air from the combustion of natural gas in boilers and engines
<table>
<tr><th rowspan="3">Type of combustion plant</th><th colspan="4">BAT-AELs (mg/Nm^3)</th></tr>
<tr><th colspan="2">Yearly average (157)</th><th colspan="2">Daily average or average over the sampling period</th></tr>
<tr><th>New plant</th><th>Existing plant (158)</th><th>New plant</th><th>Existing plant (159)</th></tr>
<tr><td>Boiler</td><td>10–60</td><td>50–100</td><td>30–85</td><td>85–110</td></tr>
<tr><td>Engine (160)</td><td>20–75</td><td>20–100</td><td>55–85</td><td>55–110 (161)</td></tr>
</table>
As an indication, the yearly average CO emission levels will generally be:
— < 5–40 mg/Nm^3 for existing boilers operated ≥ 1 500 h/yr,
— < 5–15 mg/Nm^3 for new boilers,
— 30–100 mg/Nm^3 for existing engines operated ≥ 1 500 h/yr and for new engines.
</td><td></td><td></td></tr>
<tr><td>45</td><td>In order to reduce non-methane volatile organic compounds (NMVOC) and methane (CH_4) 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.</td><td>NA</td><td>This BAT conclusion is not applicable to this site as there are no engines on site</td></tr>
</table>

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation/Engagement	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: • Food Standards Agency • Mid Kent Council - Environmental Health • National Grid • Health and Safety Executive • Kent - Department of Public Health • Public Health England The comments and our responses are summarised in the consultation section.
The facility	
The regulated facility	We considered the extent and nature of the facilities at the site in accordance with RGN2 ‘Understanding the meaning of regulated facility’, Appendix 2 of RGN 2 ‘Defining the scope of the installation’. The extent of the facilities are defined in the site plan and in the permit. The activities related to the permit are defined in table S1.1 of the permit. This permit applies to only one part of the installation which is the combustion plant permitted under EPR/BJ7395IG and not the paper mill itself permitted under permit reference EPR/BJ7468IC. The names and permit numbers of the Operators of other parts of the installation are detailed in the permit's introductory note.
The site	
Extent of the site of the facility	The Operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility and the location of the part of the installation to which this permit applies on that site. The plan is included in the permit. Land has been incorporated into the permit to facilitate the changes

Aspect considered	Decision
	introduced by the variation. This land was surrendered from the Paper Mill Permit operated by DS Smith Limited. This change is reflected in the updated installation plan.
Site condition report	The Operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports.
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat. See Key issues section for further information. We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process. We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified. We sent a Habitats Risk Assessment to Natural England for information only on 17/06/2020.
Environmental risk assessment	
Environmental risk	We have reviewed the Operator's assessment of the environmental risk from the facility. The Operator's risk assessment is satisfactory. See Key issues section for further information.
Operating techniques	
Operating techniques	We have reviewed the techniques proposed by the Operator and compared these with the relevant technical guidance and we consider them to represent appropriate techniques for the facility. See Key issues section above. The operating techniques that the Applicant must use are specified in table S1.2 in the environmental permit.
Permit conditions	
Updating permit conditions during consolidation	We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit(s).
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational conditions. See Key issues section for further information on the pre operational condition requiring submission of a Noise Management Plan.
Improvement programme	Based on the information in the application, we consider that we need to impose an improvement programme. We have imposed an improvement programme – see Key issues section for

Aspect considered	Decision
	further information.
Emission limits	See Key issues section for further information on emission limit values and BAT AELs.
Monitoring	See Key issues section for further information on the monitoring specified. 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.
Reporting	See key issues section for further information on the reporting specified.
Operator competence	
Management system	There is no known reason to consider that the Operator will not have the management system to enable them to comply with the permit conditions.
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	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. Paragraph 1.3 of the guidance says: "The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation." We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections. We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This 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.

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received on 21/10/2019 from
Public Health England
Brief summary of issues raised
The main emissions of potential concern are emissions to the atmosphere; however modelling has shown these emissions to be within acceptable concentrations. Based on the information contained in the application supplied to them, Public Health England has no significant concerns regarding the risk to the health of the local population from the installation. This consultation response is based on the assumption that the permit holder shall take all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice.
Summary of actions taken or show how this has been covered
No action required - see Key issues section for further information on pollution prevention and assessment against Best Available Techniques and sector guidance.

We did not receive responses from any of the other consultees listed in the decision checklist above.

Representations from local MP, assembly member, **councillors and parish/town community councils**

None received

Representations from community and other organisations

None received

Representations from individual members of the public.

None received