

# Permitting decisions

## Bespoke permit

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We have decided to grant the permit for Chatterley operated by Conrad Energy (Holdings) Limited.

The permit number is EPR/XP3132QU.

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. The introductory note summarises what the permit covers.

# Key issues of the decision

## Air quality

This is a complex bespoke Medium Combustion Plant/Specified Generator application. In line with the Environment Agency's guidance (<https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/>), we require applicants to submit detailed air dispersion modelling and impact assessment to assess the predicted impacts on both human receptors (for example dwellings, work places and parks) and ecological sites.

A methodology for risk assessment of point source emissions to air, which we use to assess the risk of applications we receive for permits, is set out in our guidance *Air emissions risk assessment for your environmental permit* and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Screen out insignificant emissions that do not warrant further investigation using the Environment Agency's screening tool (specific to assessing impacts from Specified Generators (SG))
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions

The methodology uses a concept of "process contribution (PC)", which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The methodology provides a simple method of calculating PC primarily for screening purposes and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models, which take into account relevant parameters of the release and surrounding conditions, including local meteorology.

Air dispersion modelling enables the PC to be predicted at any environmental receptor that might be impacted by the plant. Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES).

PCs are considered insignificant if:

- the long-term process contribution is less than 1% of the relevant ES; and
- the short-term process contribution is less than 10% of the relevant ES.

The long term 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality; and
- the threshold provides a substantial safety margin to protect health and the environment.

The short term 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions; and
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the applicant's proposals for the prevention and control of the emission to be acceptable. However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the applicant's air dispersion modelling, taking background concentrations and modelling uncertainties into account.

Where the PC is greater than these thresholds, the assessment must continue to determine the impact by considering the predicted environmental concentration (PEC). The PEC is the combination of the PC substance to air and the background concentration of the substance which is already present in the environment.

The PECs can be considered 'not significant' if the assessment has shown that both the following apply:

- proposed emissions comply with associated emission levels (AELs) or the equivalent requirements where there is no AEL.
- the resulting PECs won't exceed 100% of the environmental standards

The applicant's air dispersion model used the recognised modelling software, ADMS 5.2, developed and supplied by Cambridge Environmental Research Consultants (CERC). The report is titled, *Conrad Energy (Holdings) Limited. Chatterley. Air Quality Assessment for EP Application*. The model assumes a maximum of 2,500 annual operating hours. For plant combusting natural gas as a fuel, the key pollutant within the combustion gas that require consideration is nitrogen dioxide. The applicant's model looks at the impacts from oxides of nitrogen. We have assessed the applicant's dispersion model and we agree with the applicant's conclusion that impacts will not be significant and there will be no exceedances of the relevant environmental standards.

### Predicted impacts at human receptors

The applicant's modelling looks at the impact on a range of sensitive human locations within the proximity of the site. The model assesses the impact at 13 locations at representative locations. We have presented the predicted concentrations at the point of maximum impact and at the most sensitive human receptor location (R13). The applicant's predictions are summarised in the tables below

Table 1 – Airborne pollutants. Maximum modelled impact						
Pollutant	Environmental standard	Background	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	% of Environmental standard	µg/m <sup>3</sup>	PEC % of Environmental standard
NO <sub>x</sub> annual mean	40	14.5	10.2	25.5	24.7	61.7
NO <sub>x</sub> hourly mean	200	29	185.4	92.7	214.4	107.2

Pollutant	Environmental standard	Background	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
			$\mu\text{g}/\text{m}^3$	% of Environmental standard	$\mu\text{g}/\text{m}^3$	PEC % of Environmental standard
NO <sub>x</sub> annual mean	40	14.5	1.84	4.6	16.34	40.9
NO <sub>x</sub> hourly mean	200	29	88.5	44.2	117.5	58.7

Emissions from modelled oxides of nitrogen show that impacts at the point of maximum impact and at R13 cannot be considered to be insignificant as the long term impacts are greater than 1% of the environmental standard and short term impacts are greater than 10% of the environmental standard. However, as shown in Table 2, the PECs for both long term and short term impacts there is adequate headroom between the PEC and the environmental standard to indicate that an exceedance of the environmental standards is unlikely. We agree with the applicant's conclusions that the impacts from the proposed plant on human receptors will be not significant.

#### **Predicted impacts at ecological receptors**

Our screening process identified that there is a Site of Special Scientific Interest and 14 local sites (Local Wildlife Sites and Ancient Woodlands) within 2km of the site. The revised screening distance from the standard 10km for European habitats sites is reduced to 5km for medium combustion plant using natural gas or low sulphur diesel. This is defined within the Environment Agency's guidance on the Medium Combustion Plant Directive (MCPD) and Specified Generator Regulations (<https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/>).

We have not directly reviewed the impacts at the local sites. The thresholds for Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and SSSI features are more stringent than those for other nature conservation sites. Therefore, we would generally conclude that emissions to air will not cause significant pollution at these other sites if the process contribution at the SPAs, SACs and SSSIs is less than the relevant critical level or critical loads.

The applicant has modelled the impacts from atmospheric NO<sub>x</sub> and nutrient nitrogen depositions. Acidification has also been considered but has not been modelled. The results are represented in the tables below.

<b>Table 3 – Atmospheric pollution impacts on SSSIs within 2km (Ford Green Reedbed) – Modelled results</b>						
<b>Pollutant</b>	<b>Environmental standard</b>	<b>Background</b>	<b>Process Contribution (PC)</b>		<b>Predicted Environmental Concentration (PEC)</b>	
<b>Unit</b>	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	<b>% of Environmental standard</b>	$\mu\text{g}/\text{m}^3$	<b>PEC % of Environmental standard</b>
NO <sub>x</sub> annual mean	30	--	0.06	0.3	--	--
NO <sub>x</sub> 24 hour mean*	75	--	1.43	1.9	--	--

Note 1: where the PC is considered insignificant, the background is not considered.

<b>Table 4 – Deposition impacts from nutrient nitrogen on SSSIs within 2km (Ford Green Reedbed) – Modelled results</b>					
<b>CLo (kgN/ha/yr)</b>	<b>Baseline deposition rates (kgN/ha/yr)</b>	<b>PC (kgN/ha/yr)</b>	<b>PC % of Environmental standard</b>	<b>PEC (kgN/ha/yr)</b>	<b>PEC % of Environmental standard</b>
10 – 15 Valley mires, poor fens and transition mires	27.16	0.0082	0.082	--	--

Note 1: where the PC is considered insignificant, the background is not considered.

As shown in the results of Table 3, atmospheric pollution from oxides of nitrogen is shown to be at less than 1% of the benchmark for long term impacts and less than 10% of the environmental standard for short term impacts. Therefore, we consider that the predicted atmospheric impacts from oxides pollution impacts will be insignificant at the SSSI. The benchmarks used by the applicant were derived from the Environment Agency's guidance, *Air emissions risk assessment for your environmental permit*.

The applicant also considered the impacts from nutrient nitrogen deposition (represented in Table 4 above) and acidification on the SSSI. Benchmarks (critical loads) for these pollutants are derived from site specific information provided by Air Pollution Information System (APIS). For Ford Green Reedbed SSSI there are no site specific critical loads for nutrient nitrogen or acidification. The applicant has used the location tool on APIS to determine the appropriate critical load. The habitat is defined by Natural England under the SSSI designation as, 'fen, marsh and swamp'. We have checked the nitrogen deposition critical load against the habitat type on APIS and we agree with the critical loads assigned. APIS also indicates that this habitat is not

sensitive to acidification. Therefore we agree with the applicant that there is no likely impact from acidification.

From Table 4, it is clear from the baseline data provided by APIS that the pollution levels at the SSSI are already much higher than the critical load. However, the applicant has shown that the process contribution will be less than 1% of the critical load. We can therefore agree that the contribution to the impacts from nutrient nitrogen deposition will be insignificant.

In conclusion, the Environment Agency is in agreement with the applicant that the proposed combustion operation is not likely to breach any relevant environmental standard. No further assessment is necessary.

### **Emission limit values**

The permit sets an emission limit value (ELV) for oxides of nitrogen (expressed as NO<sub>2</sub>). Emission levels are set depending on the type of medium combustion plant, operating hours and the fuel types. ELVs are derived from the Medium Combustion Plant Directive (MCPD) Annex II, Part 2, Table 2 for new natural gas engines. The site overall is considered to be a 'Tranche B' SG as the SG has not been in operation prior to 01 December 2016 and is not subject to a capacity agreement arising from the 2014 or 2015 capacity auctions. The applicant applied for 8 new natural gas engines (each being new MCPs), however, during the determination the applicant indicated that four of the engines will be put into operation prior to the relevant date of 20 December 2018. This means that those four engines in operation could be considered to be 'existing medium combustion plant' under the regulations and would not necessarily require permitting until 2024. However, as the collection of engines is classed as a SG, these must be permitted by 1 January 2019. In addition, the applicant's model assesses the impact with the limit for a new gas engine as defined within the MCPD and have agreed to operate to this limit. We are satisfied that the applicant is capable of complying with this lower limit.

### **Energy efficiency**

Where the combustion units aggregate above 20 MW, an applicant must demonstrate that they have considered all of the requirements of Article 14 of the Energy Efficiency Directive. An installation type 14,5(a) under the directive is defined as, *New thermal electricity generation installation with a total aggregated net thermal input of more than 20 MW (e.g. power station or EfW plant)*. In that scenario, the directive requires an applicant to perform a cost benefit analysis for the operation of the installation as a high-efficiency cogeneration installation.

Using the Environment Agency's guidance, *Draft guidance on completing cost-benefit assessments for installations under Article 14 of the Energy Efficiency Directive*, the applicant has concluded that it would not be feasible to operate as a cogeneration facility, utilising the heat energy produced during the process.

The applicant has justified this by outlining that their commitment to supply electricity under their Capacity Market Agreement. The agreement requires the applicant to supply electricity during stress events declared by the National Grid. This means that predicting when system stress events will occur and how long they will last is difficult. Therefore, identifying potential heat users of an inconsistent heat source would make it unfeasible to export heat on an intermittent basis.

## Decision checklist

Aspect considered	Decision
<b>Receipt of application</b>	
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.
<b>Consultation</b>	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>We consulted the local authority.</p> <p>No response was received.</p>
<b>Operator</b>	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
<b>The facility</b>	
The regulated facility	The operator has provided the grid reference for the emission points from the medium combustion plants/specified generator and the activity is defined in table S1.1 of the permit.
<b>The site</b>	
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of nature conservation or habitat.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We have assessed the operator's air emissions impact modelling report and consider that emissions will not affect any sites of nature conservation or habitats identified. See Key Issues section above.</p> <p>Conservation sites are protected in law by legislation. The Habitats Directive provides the highest level of protection for Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), domestic legislation provides a lower but important level of protection for Sites of Special Scientific Interest (SSSIs) and the Environment Act provides more generalised protection for flora and fauna rather than for specifically named conservation designations. The thresholds for SACs, SPAs, and SSSI features are more stringent than those for other nature conservation sites. Therefore, we would generally conclude that emissions to air will not cause significant pollution at these other sites if the process contribution at the SPAs, SACs and SSSIs is less than the relevant critical level or critical loads. Therefore, we have not assessed the impact on these other sites as we have concluded that there is no impact on the SPA, SACs and SSSIs.</p>

Aspect considered	Decision
<b>Environmental risk assessment</b>	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory.</p> <p>The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be categorised as environmentally insignificant. See <a href="#">key issues</a> section above.</p>
<b>Operating techniques</b>	
Operating techniques	We have specified the operating techniques and the operator must use the operating techniques specified in tables S1.2A and table S1.2B of the permit.
<b>Permit conditions</b>	
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.
Emission limits	<p>ELVs have been set for the following substances:</p> <p>Oxides of nitrogen. The limit set is based on the requirement specified within the Medium Combustion Plant Directive Annex II, Part 2, Table 2 for new natural gas engines. More explanation is provided within <a href="#">key issues</a>.</p>
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 monitoring requirements have been imposed in order for the operator to demonstrate compliance with each individual MCP by carrying out monitoring as specified in the permit. The operator will conduct monitoring in line with relevant MCERTS methods.</p> <p>We made these decisions in accordance with the MCP and SG technical guidance;</p> <p><i>Medium Combustion Plan Guidance</i> <a href="https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/">https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/</a></p> <p><i>Specified Generator Guidance</i> <a href="https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/">https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/</a></p>
Reporting	<p>We have specified reporting in the permit.</p> <p>We made these decisions in accordance with the MCP and SG technical guidance;</p> <p><i>Medium Combustion Plan Guidance</i> <a href="https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/">https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/</a></p> <p><i>Specified Generator Guidance</i> <a href="https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/">https://consult.environment-agency.gov.uk/psc/mcp-and-sg-regulations/</a></p>
<b>Operator competence</b>	
Management system	<p>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.</p> <p>The decision was taken in accordance with the guidance on operator</p>



Aspect considered	Decision
	competence and how to develop a management system for environmental permits.
Relevant convictions	<p>The Case Management System has been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.
<b>Growth Duty</b>	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

# Consultation

The following summarises the response to consultation with the local authority and the way in which we have considered this in the determination process.

## Responses from organisations listed in the consultation section

<b>Response received from</b>
Stoke-on-Trent City Council
<b>Brief summary of issues raised</b>
We did not receive a response as a result of the consultation.
<b>Summary of actions taken or show how this has been covered</b>
Not applicable