

NNB GENERATION COMPANY (HPC) LTD Company Document

HPC COMBUSTION ACTIVITY PERMIT VARIATION – NON- TECHNICAL SUMMARY

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**BUREAU
VERITAS**

Non-Technical Summary (NTS)

TO	Nuclear New Build Generation Company	FROM	Bureau Veritas UK Ltd
DATE	25/09/2025	VERSION	Final version 1
REFERENCE	Non-Technical Summary (NTS)	SUBJECT	Hinkley Point C

1 Purpose of Report

This report supports the variation application for a Combustion Activity (CA) Environmental Permit (EP) associated with a new nuclear power station situated directly west of HPA (in decommissioning), which is directly west of HPB (defueling). The new power station will be referred to as Hinkley Point C (HPC). The power station will have 49 back-up diesel generators, which have a combined thermal input in excess of 50 megawatts thermal (MW_{th}), therefore requiring an EP under the Environmental Permitting Regulations (EPR)¹.

NNB Generation Company (HPC) Limited (NNBGenCo) is applying for a Combustion Activity (CA) Environmental Permit (EP) variation application associated with the proposed UK European Pressurised Water Reactors at the Hinkley Point C (HPC) site (the Site), as required under the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

The Operator of the installation will be NNB Generation Company (HPC) Limited (NNBGenCo). NNBGenCo is a wholly owned subsidiary of NNB Holding Company (HPC) Limited, which in turn is 80% owned by EDF Energy Holdings Limited and 20% owned by General Nuclear International Limited.

This document presents details of the installation and its potential impact on the environment. It explains the requirement to use Best Available Techniques (BAT) to ensure an appropriate balance between costs to the Operator and benefits to the environment.

The Site currently has an Environmental Permit for combustion activity, which covers the permanent generators at the Site. The current Environmental Permit (reference EPR/ZP3238FH) is required to be varied due to a number of design changes that have taken place since the previous application. The variation notice number is EPR/ZP3238FH/V005.

2 Changes in this Variation

For the purpose of this variation application, the term 'plant' generally refers to the diesel generators that form the permitted installation and not the wider nuclear power station. The reactor operations are specifically excluded from the scope of this EP variation application, as radioactive substances activities interactions are addressed under a separate environmental permit (under Schedule 23 of the EP Regulations), and the Office for Nuclear Regulation under the nuclear site licence conditions.

This permit variation application does not seek to alter the permitted activity described above, only to amend the EP to add several diesel generators that were not included in the previous application.

The current permit allows the operation of 12 back-up diesel generators. The variation is sought in order to make the site more resilient in a loss of off-site power (LOOP) scenario. The variation is also being sought to update the air quality assessment to account for updated estimated duration of commissioning activities. The variation seeks the addition of 37 back-up generators for a total of 26 MW_{th}, bringing the total to 243 MW_{th}. Additionally, the EDGs and UDGs procured for site are different to the ones included in the original application, however this will not alter their activities or permit compliance.

The table overleaf presents the proposed additional generators and associated point source emission to air in bold blue text.

¹ [The Environmental Permitting \(England and Wales\) Regulations 2016](#)

Table 2.1 – Proposed Amendment to Point Source Emissions to Air

Emission Point Ref	Source	Thermal input (MW_{th}) – each individual emission point
A1, A2, A4, A5, A7, A8, A10 and A11	Essential Diesel Generator exhaust stack	23.11
A3, A6, A9 and A12	Ultimate Diesel Generator exhaust stack	8.00
A13, A14, A15, A16, A17 and A18	Diversified Ultimate Cooling Water Supply System Generator exhaust stack	0.47
A19	Emergency Response Training Centre Back-up Generator exhaust stack	1.34
A20, A21 and A22	Small Mobile Diesel Generator exhaust stack	3.89
A23 and A24	Cooling Water Injection Pumps Back-up Generator exhaust stack	0.10
A25	Beyond Design Basis Spare Back-up Generator exhaust stack	3.89
A26	HBX Building Back-up Generator exhaust stack	1.28
A27, A28, A29, A30, A31, A32, A33, A34, A35, A36, A37, A38, A39, A40, A41, A42, A43, A44 and A45	Site Systems Back-up Generator exhaust stack	0.14
A46	Outage Access Control Building Back-up Generator exhaust stack	0.53
A47	Training Centre Back-up Generator exhaust stack	0.53
A48	Framatome Warehouse Back-up Generator exhaust stack	0.53
A49	Oil and Grease Store Back-up Generator exhaust stack	0.53

Emissions to water from the operation of the Site will be covered within the water discharge permit ref: EPR/HP3228XT. All current emissions to water from current activities at the Site are covered within the construction phase Water Discharge Activity permit.

3 Site Location and Setting

The site address is:

NNB Generation Company Limited
Hinkley Point C Power Station
Wick Moor Drove
Bridgwater
Somerset
TA5 1UD

As illustrated in Figure 3.1, HPC is located in a coastal area adjacent to the decommissioning HPA site, owned by Nuclear Restoration Services (NRS).

The surrounding land use is a mixture of industrial and agricultural land. The nearest residential properties are approximately 1.1 km south from the centre of the Site (Doggett Farm). The human receptors are shown in Figure 2.10 of the Operational Modelling Report².

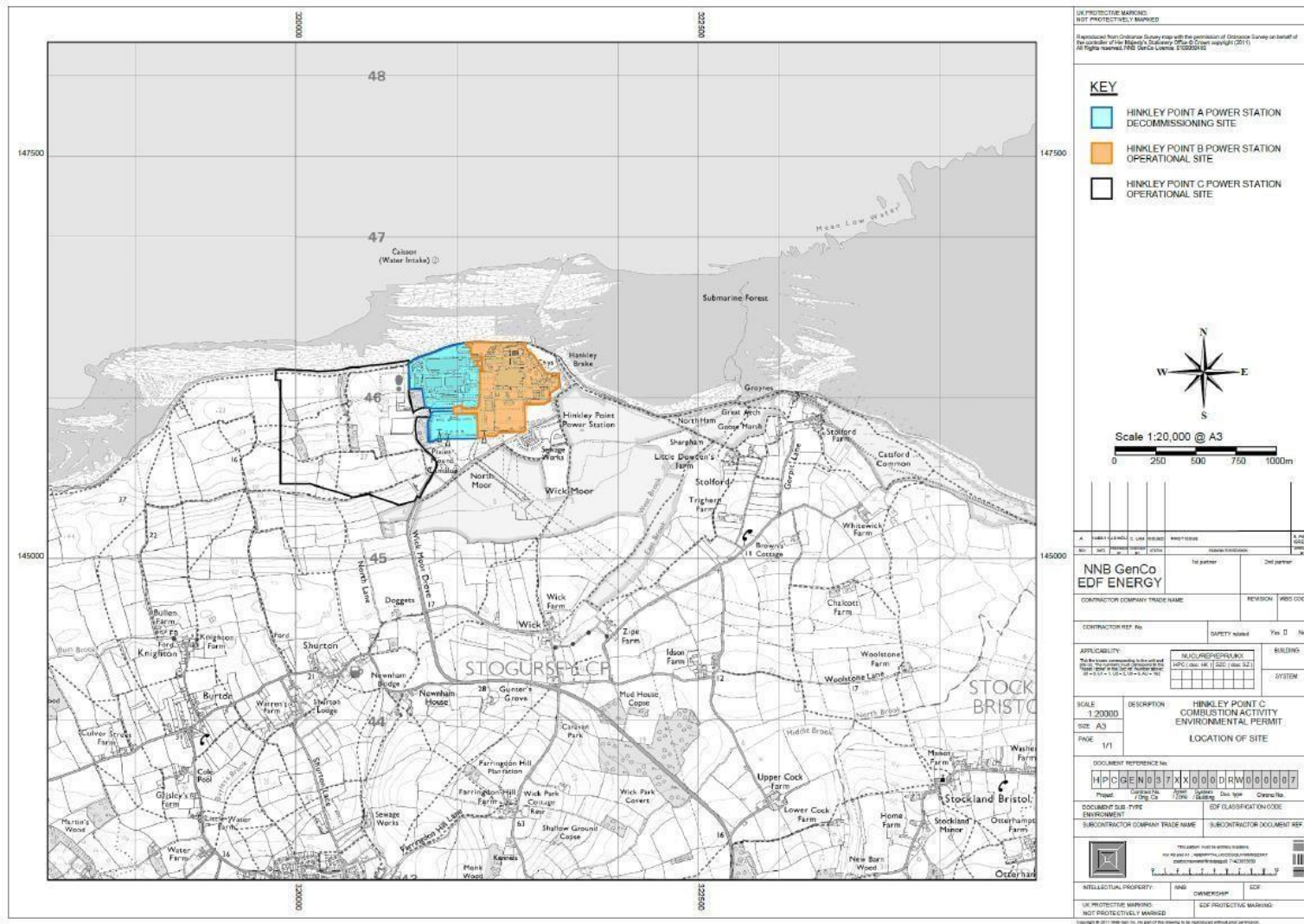
The installation is located adjacent to the Severn Estuary. The ecologically designated sites to be assessed are as follows:

- Severn Estuary (Ramsar, Special Protection Areas (SPA), Special Areas of Conservation (SAC));
- Bridgwater Bay (Sites of Special Scientific Interest (SSSI), national nature reserve (NNR));
- Somerset Wetlands NNR; and
- Exmoor and Quantock Oakwoods SAC.

Their location in relation to the Site is illustrated in Figure 2.11 of the Operational Modelling Report².

² AIR13252516_HPC Operational Modelling Report F PREL 0925 v1.0, Bureau Veritas, September 2025

Figure 3.1 – Site Location



4 Emissions and Environmental Risk Assessments

In order to assess the potential impact of emissions as a result of the proposed permit application, the following elements have been completed:

- Air Emissions Risk Assessment;
- Ecological Assessment;
- Noise Assessment; and
- A review of Best Available Techniques (BAT) and Operating Techniques.

Emissions monitoring for emission points to air will be undertaken and reported on an annual basis. It is anticipated that this will be undertaken for emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), sulphur dioxide (SO₂) and particulate matter (PM). The emissions monitoring programme will be agreed with the Environment Agency (EA) and all sampling will be carried out in line with the requirements of the EA's Monitoring Certification Scheme (MCERTS), using approved test equipment by a trained technician, or an MCERTS accredited test team.

4.1 Air Emissions Risk Assessment

A detailed assessment of emissions to air has been undertaken in line with the EA's *Air emissions risk assessment for your environmental permit* guidance³, using detailed dispersion modelling. Air quality impacts from the operation of plant were compared against the relevant standards and limit values for both human health and ecological receptors.

The Industrial Emissions Directive – Best Available Techniques (BAT) Reference Document for Large Combustion Plants identifies the following pollutants as being the most important emissions from the combustion of combustible fuels; as such these have been considered within the modelling assessment:

- Oxides of nitrogen (NO_x and NO₂);
- Sulphur dioxide (SO₂);
- Carbon monoxide (CO); and
- Particulate matter (PM₁₀ and PM_{2.5}).

The following scenarios were considered within the air quality assessment:

1. **Commissioning** – this scenario assesses all potential releases to air from the back-up generators during the commissioning of the power station, assuming the commissioning phase to be during a period of one calendar year. Three plausible Commissioning sub-scenarios were considered.
2. **Routine Testing** – this scenario presents the likely potential impacts to be expected as a result of the standard generator testing, which will be scheduled throughout the lifetime of the power station; and

³ <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>

3. **LOOP** – this scenario will cover a loss of off-site power (LOOP) situation where grid connection for both reactor units is lost.

The air quality dispersion modelling assessment concluded:

- During the Commissioning scenarios, the results indicate that all long- and all short-term human health assessment metrics (with the exception of the 1-hour mean NO₂ only) are below the relevant Air Quality Assessment Levels (AQALs). A further probability analysis was then carried out for the considered Commissioning scenarios. The probability analysis concluded that when considering worst case conditions, there was a very low likelihood of a predicted exceedance of the permitted number of 1-hour mean NO₂ concentrations above 200 µg/m³. Therefore, the results for the Commissioning scenario are not significant for human receptors.
- During the Routine Testing scenario, the results indicated that all long-term and all short-term human health assessment metrics (with the exception of the 1-hour mean NO₂ only) are below the relevant AQALs. A further probability analysis was then carried out for the Routine Testing scenario. The probability analysis concluded that when considering worst case conditions, there was a very low likelihood of a predicted exceedance of the permitted number of 1-hour mean NO₂ concentrations above 200 µg/m³. Therefore, the results for the Routine Testing Scenario are not significant for human receptors.
- During the LOOP scenario, the results indicated that all long-term and all short-term human health assessment metrics (with the exception of the 1-hour mean NO₂ only) are below the relevant AQALs. A further probability analysis was then carried out for the LOOP scenario. The probability analysis concluded that when considering worst case conditions, there was a very low likelihood of a predicted exceedance of the permitted number of 1-hour mean NO₂ concentrations above 200 µg/m³. Therefore, the results for the LOOP Scenario are not significant for human receptors.

4.2 Ecological Assessment

The air quality dispersion modelling assessment concluded the following for the modelled ecological receptors:

- Potential exceedances of the relevant AQALs were predicted at ecological receptors considered within the assessment. Further assessment was undertaken by an ecological specialist to determine any predicted impacts at these ecological designations.
- Any potential adverse impacts on the ecological designations as a result of emissions to air from the Site, were predicted to be negligible by the specialist ecologist.
- Due to worst-case conditions being employed through the assessment, the modelled predictions are expected to represent the upper limit of concentrations. Therefore, the impacts are likely to be lower than those predicted.

A technical note was prepared by a specialist ecologist to determine any predicted impacts at any ecologically relevant sites. The ecology assessment concluded that any predicted increases in nitrogen deposition would not have any impact on the considered habitats. In addition, due to high tidal velocity and range experienced at the Severn Estuary, it is expected that the flushing effect of the tides will negate any impacts of nitrogen or acid deposition.

4.3 Noise Assessment

The permit requirement is for a noise assessment in accordance with the methodology set out in BS4142:2014 'Methods for rating and assessing industrial and commercial sound', for human receptors.

A computational noise model of the Site was assembled and populated with noise emission data of the sound emission sources. Standard noise propagation calculations were used to predict the plant operation noise levels at the three nearest noise sensitive receptors.

Only a single operational scenario has been considered as part of the HPC noise propagation modelling. An absolute worst case operational profile was considered, assuming that Commissioning and/or Routine Testing will take place on both EPR units at the same time, with all generators operating simultaneously.

The assessment concludes that the noise impact of the plant operation would not be adverse at the nearest human sensitive receptors. No additional noise mitigation measures would be required.

The Environment Agency also requested that noise impacts associated with the proposed permit variation are assessed at sensitive ecological receptors in proximity to the site. As the species considered within the assessment are therefore non-human, the typical environmental permitting assessment methodology based upon guidance presented within BS 4142 is not applicable.

As such, alternative guidance has been employed in accordance with the Environment Agency guidance document 'Noise and Vibration Management: Environmental Permits'. The criteria utilised within the assessment has been derived from the TIDE Toolbox 'Waterbird Disturbance & Mitigation Toolkit'.

Based upon the modelling parameters described within this report, noise emission contours for the site have been produced at a height of 1.0m above relative ground level (considered to represent waterbirds roosting or wading), which demonstrate that noise emissions from emergency generators are significantly below the TIDE Toolbox 'Moderate' risk level within Ecological Protection Areas.

4.4 Best Available Techniques (BAT) and Operating Techniques

NNBGenCo recognises the importance of managing any potential environmental impacts of their operations at the Hinkley Point C site and, as such, implements appropriate management and maintenance arrangements in place in order that environmental compliance is maintained. These arrangements will conform to the BAT requirements, where applicable. However, given there is not a BAT conclusion document or BAT Reference document (BREF) that specifically covers the activities at HPC, a combination of guidance documents have been used for the purpose of this review. The main documents utilised within the BAT review are:

- The Environment Agency's 'Data Centre FAQ Headline Approach' guidance - developed by the Environment Agency as a draft non-statutory guidance following the principles set out in IED Article 14(6); and
- BAT Reference document for Large Combustion Plant (LCP) – reviewed for potential general measures applicable to HPC;
- The Environment Agency's 'Emergency backup diesel engines on installations: BAT'; and
- The Environment Agency's withdrawn guidance 'How to comply with your environmental permit additional guidance for: Combustion Activities (EPR 1.01)'.

The review concludes that operations at the Site are proposed to be in line with BAT requirements. However, given that primary consideration at the Site is one of nuclear safety, this could mean that there is justification for departure from the prevailing BAT guidance, given particular circumstances.

5 Managing the Activities

5.1 Raw Materials Consumption

The proposed changes will not add any new raw materials relative to those already considered in the Environmental Permit.

The raw materials associated with the operation of the generators are:

- Diesel fuel: the approximate total fuel consumption per annum is estimated to be 721 tonnes.
- Lubricating oil: The amount used per annum depends on the chemical analysis performed on samples that will be taken regularly; these results will be used to determine the frequency of oil replacement. Each of the EDGs holds approximately 1.8 m³ of lubricating oil and each of the UDGs holds 0.335 m³. The amount required for the other HPC generators will be significantly less.
- Antifreeze: The proposed material used in the diesel generators cooling system is a ready-to-use mixture of ethylene glycol and water, stored on site in drums. For the EDGs, the cooling system capacity is approximately 14.2 m³ in total. The cooling system capacity for UDGs is approximately 15.8 m³ in total.
- Batteries: 4 batteries per UDG may be required per year.

5.2 Avoidance, Recovery and Disposal of Waste

The storage of wastes associated with the operation of the generators will generally be carried out as part of a site-wide activity, with dedicated facilities that are out with the installation boundary. Site-wide procedures will cover all activities on the HPC site; these will be developed as part of the Integrated Management Systems. In preparation, a site Integrated Waste Strategy (IWS) has been produced to develop an approach to the management of all radioactive and non-radioactive waste types across HPC, including those detailed within this EP (non-radioactive).

5.3 Energy Efficiency

As standby plant, with the exception of the HDU (which will run up to 1.6% of the year), each generator plant will typically operate for no more than 1% of the year, with operation scheduled for Routine Testing and maintenance purposes during periodic nuclear safety tests. Energy efficiency is therefore of much less relevance than it would be to plant operating on a more frequent or continuous basis. NNB GenCo will take steps to adopt relevant basic energy efficiency measures in the design, operation and maintenance of the generators, as far as is practicable.

5.4 Environmental Management System and Emergency Response

NNB GenCo is preparing an overarching EMS for the operation of the HPC Site, which will be ISO 14001 accredited. The structure of the EMS will follow the framework for the ISO 14001 standard.