

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Vantage Data Centers UK Limited

**Newport Data Centre
Imperial Park
Celtic Way
Marshfield
Newport
NP10 8BE**

Variation number

EPR/BB3599CW/V003

Permit number

EPR/BB3599CW

DRAFT

Newport Data Centre

Permit number EPR/BB3599CW

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

The permit regulates a Section 1.1 Part A (1) (a) installation activity under the Environmental Permitting (England and Wales) Regulations 2016 ("EPR") for the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts. The site consists of 202 standby diesel generators with an aggregated thermal input rating of 520 MW. They will provide back-up generation for Newport Data Centre in the event of a power supply failure from the National Grid. Each generator has its own individual stack and generators are enclosed in containers. The permit regulates testing and maintenance activity and operation of the engines as well as the emergency back-up generation, which is further controlled under an Air Quality Management Plan (AQMP). The generators will be used solely for the purpose for generating power for the facility in the event of mains supply failure. No electricity will be exported from the installation.

There are 6 generator types in total with varying thermal inputs (MW_{th}), from 1.311 MW_{th} to 3.226 MW_{th} as detailed in the permit and the generators are grouped into 37 different cells. Stack heights range from 3.184 m to 12.3 m. Each cell has a group of one generators type with 4-9 engines per cell (the majority have 5 engines). The engines are in "n+1" configuration, meaning each cell has one more engine than is required to fully power the associated load demand, meaning full backup power is still provided if one engine is unavailable.

Each engine has a thermal input between 1 MW and 50MW and are not subject to Chapter III of Industrial Emissions Directive (IED). Therefore, each engine is considered a Medium Combustion Plant (MCP) and subject to Schedule 25A of EPR. Each operates less than 500 hours per year and therefore are considered Limited Operating Hours MCP and exempt from the emission limit values within Schedule 25A of EPR. There are 140 engines that are considered new MCP as first put into operation after 20 December 2018 while the remaining 62 engines are considered existing MCP. New MCP are subject to Schedule 25A of EPR now, whilst existing MCP benefit from a transitional arrangement and do not need to comply with Schedule 25A of EPR until the relevant compliance date.

The emissions from the installation will primarily comprise of combustion gases including oxides of nitrogen. The engines meet the TA-Luft "2g" performance specification, which is considered Best Available Technique (BAT) technology. BAT is also employed in minimising the likelihood of mains supply failure, via measures such as having 2 direct and independent connections to the national grid high voltage network which has a reported reliability of at least 99.999964 %. In the unlikely event of a mains power failure, all 202 standby generators would start up, after which an automated system would instruct load-shedding to take place to turn individual generators off to match power requirements. This load shedding occurs within 10 minutes of a power failure occurring.

The hours of operation for the testing of the stand-by diesel generators is restricted to 0900 to 1700 Monday to Friday and at no times on weekends or Bank or Public Holidays.

Planned testing and maintenance scenarios are:

- Quarterly Servicing and testing - Each generator has three minor services and one major service a year, with associated individual testing of 2 x 2 hours and 2 x 15 minutes per year:
- Cell testing - Twice per year per cell of generators (a total of 74 times per year), a controlled mains failure is simulated to prove the system's response. A single data hall powertrain is selected, mains power supply is isolated and the system responds as it would in an emergency scenario. All generators associated with the data hall powertrain fire up during this test, with load shedding down to the required output occurring within 10 minutes. As in a real emergency scenario, the number of generators which would continue to operate after load shedding would depend on data use at the time. The full test duration is 15 minutes. Only one cell test shall be carried out in any one day.

There is no overlapping of the two testing scenarios. Cell testing and separate quarterly servicing and testing involving any cell may occur on the same day.

The generators shall only be used outside the above-mentioned time of testing in the case of an emergency (i.e. offsite or onsite failure of power supply to the data halls) according to the conditions of this permit and the referenced AQMP, or unplanned break-fix testing as described in the application.

All fuel and other fluids (e.g. oil, coolant) are suitably bunded, including pipe lines where present to provide at least secondary and in some cases tertiary containment. Each generator has fuel supply capacity for 48 hours of operation, either provided by individual engine tank only, or with an additional shared cell tank. There is no further fuel interconnection between cells. Engines and fuel supply are suitably located on hardstanding or permeable ground (stone chippings).

Uncontaminated surface water is discharged into the business park drainage system at W1 and W2. There is a drain isolation system in place on site where 'bladders' inflate within the pipework to provide tertiary containment. The drains are manually isolated during higher risk activities such as refuelling and are also fitted with leak detection sensors in the drains to automatically isolate the drains in case of a spill. Any contaminated water would be pumped and removed for offsite treatment/disposal. The Surface Water drains flow from site down to a Pen Stock approximately a mile away from the site, on land controlled by a third party. Outside the installation boundary and wider Data Centre site, there are also interceptors installed within the business park drainage system which act as a further protection to surface water receptors. There will be no discharges of any process effluent to sewer, as none is generated by this activity. The onsite surface water system also has an automatic shut off system to close the site outflow pipes at W1 and W2 in the event of a fuel leak, this has an automatic function and will notify the maintenance team upon activation or fault.

The site is located on an Industrial Estate at Imperial Park, Newport. The National Grid Reference (NGR) for the site is ST 2819 8463. The site is approximately 6 hectares in size. The surrounding area is a mix of industrial, commercial and residential use along with environmentally sensitive receptors. Nearby designated sites that have been considered in assessments are the Gwent Levels – St Brides Site of Special Scientific Interest, River Usk Special Area of Conservation, and Severn Estuary Special Area of Conservation, Special Protection area & Ramsar, along with surrounding Local Wildlife Sites.

The facility has an ISO 14001:2015 certified management system.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application EPR/BB3599CW/A001	Duly made 07/02/2019	Application for a combustion activity providing emergency power supply to a data centre.
Schedule 5 request for more information	11/04/2019	Further information sought regarding noise and air quality assessment.
Schedule 5 additional information received	15/07/2019	Air quality assessment
	17/07/2019	Air quality modelling files
	25/07/2019	Noise quality report
	29/07/2019	Noise modelling files
Schedule 5 request for more information	15/08/2019	Additional information sought regarding Air Quality assessment.
Schedule 5 additional information received	06/09/2019	Further air quality details and modelling files.
Schedule 5 request for more information	14/10/2019	Additional information sought regarding noise assessment/conclusion.
Schedule 5 additional information received	28/10/2019	Further noise modelling information.
	26/11/2019	Amended noise modelling/report (Generator Testing Rev 4.0).
	09/12/2019	Associated noise modelling files.
Permit determined	22/04/2020	Permit issued to Next Generation Data Ltd.
Variation application EPR/BB3599CW/V002	Duly made 14/01/2021	Admin variation to change the operator name. No change in legal entity.
Variation issued	01/07/2021	Variation issued to Vantage Data Centers UK Limited
Variation application EPR/BB3599CW/V003	Duly Made 28/02/2022	Substantial variation application PAN-015219 to increase site capacity to 202 engines, 520 MW _{th}
Schedule 5 request for more information	01/06/2022	Revised Air Quality Management Plan required reflecting proposed capacity increase.
Schedule 5 additional information received	18/07/2022	Updated and revised air quality management plan
Variation issued	DD/MM/YY	Permit variation issued with increased site capacity of 202 engines, 520 MW _{th} .

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/BB3599CW

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BB3599CW/V003 authorising

Vantage Data Centers UK Limited ("the operator"),
whose registered office is

**2 Old Bath Road
Newbury
Berkshire
England
RG14 1QL**

company registration number **06132144**
to operate an installation at

**Newport Data Centre
Imperial Park
Celtic Way
Marshfield
Newport
NP10 8BE**

to the extent authorised by and subject to the conditions of this permit.

Signed

Date

<i>Subject to final decision</i>	DD MM YYYY
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Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities.
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 AR1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2a, unless otherwise agreed in writing by Natural Resources Wales.
- (b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2a or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.2 The activities shall be operated using the techniques and, in the manner, described in schedule 1, table S1.2b.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.6 The activities shall not operate for more than 500 hours in emergency use per year.

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.
- 2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Limited Operating Hours MCPs shall:
- (a) not exceed 500 hours operation in a 12-month period as a rolling average over a 3 year period for new MCP and thereafter annually.
 - (b) not exceed 500 hours operation in a 12-month period as a rolling average over a 5 year period for existing MCP and thereafter annually.
 - (c) Not to be operated for more than 750 hours in any single year
- 3.1.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.
- 3.3.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1 and S3.2.
 - (b) ambient air monitoring specified in table S3.3
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring shall not take place during periods of start up or shut down.
- 3.5.4 The first monitoring measurements shall be carried out:
- (a) For new MCP within four months of the issue date of the permit or the date when the new MCP is first put into operation, whichever is later; and
 - (b) For existing MCP and at any time but no later than 4 months after the relevant compliance date.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

- 4.1.3 The operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation for each MCP.
- 4.1.4 The operator shall maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the performance parameters set out in schedule 4 table S4.2 using the forms specified in table S4.3 of that schedule.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.3; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

- 4.3.1 (a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
- (i) inform Natural Resources Wales,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) in the event of a breach of any permit condition the operator must immediately—
- (i) inform Natural Resources Wales, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

- 4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (a) any change in the operator's name or address; and
 - (b) any steps taken with a view to the dissolution of the operator.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 Natural Resources Wales shall be given at least 14 days' notice before implementation of any part of the site closure plan.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 activities

Activity listed in the EP Regulations and general description	Description of specified activity	Limits of specified activity
Schedule 1 Part 2 Section 1.1 Part A(1) (a) : Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts	62 engines (existing MCP) (A1 – A62) comprising: <ul style="list-style-type: none"> • 10 x 1.97 MW_{th} • 29 x 1.457 MW_{th} • 18 x 1.311 MW_{th} • 5 x 3.226 MW_{th} 	From receipt of raw materials to combustion of fuel and release of exhaust gases to atmosphere. Distribution of emergency standby electrical power to the data centre.
Consisting of individual Schedule 25A: Medium Combustion Plant	140 engines (new MCP) (A63 – A202) comprising: <ul style="list-style-type: none"> • 140 x 2.987 MW_{th} 	Electricity produced at the installation shall not be used to provide commercial services to the National Grid or Distribution Network Operator.
Combustion of diesel in 202 compression ignition engines for the purpose of electricity generation with a total thermal input of 520 MW.		The hours of operation for the testing of the stand-by diesel generators shall be restricted to 0900 to 1700 Monday to Friday and at no times on weekends or Bank or Public Holidays.
Operation consisting only of:		There shall be no overlapping of any type of testing scenarios. Only one cell test shall be carried out in any one day, although individual engine testing from any cells may occur on the same day but at different times.
<ul style="list-style-type: none"> • Planned operation of the engines for testing purposes (single engine / single cell) • Unscheduled testing following unplanned repair (single engine / single cell) • Unplanned emergency operation for backup power provision in the event of failure of supply from the National Grid (initially all engines, followed by load shedding). 		Testing operation shall be minimised and in any case shall not exceed 50 hours per year per engine
		No more than 500 operating hours per MCP per year.
		Engines A1-A82 stack heights ranging from 3.184 m – 3.937 m as specified in the permit applications. Engines A83-A202 stack height of 12.3 m when all operational; A83-142 stack height of at least 9.3 m prior to A143-A202 being operational
		The operator shall immediately cease or reduce unplanned emergency operation if there is credible information that, as a result of such operation and any other sources of NO ₂ there may be an immediate danger to human health or the threat of an immediate significant adverse effect on the environment. Such impact may be indicated by factors including but not limited to: <ul style="list-style-type: none"> • AEGL 2 NO₂ level of 12,600 µg/m³ has been breached at one or more sensitive receptors • AEGL 1 NO₂ level of 940 µg/m³ has been exceeded continuously for more than 8 hours at one or more sensitive receptors.
		Such credible information may be as a result of information obtained by the operator, or notification by Natural Resources Wales or other Statutory Regulatory Body. Continued operation may only be at a level (number of engines) which does not present an immediate danger to human health or the threat of an immediate significant adverse effect on the environment, nor pose further risk of exceedance any of the above standards.

Directly associated activity	Fuel storage -Fuel tanks provide generators with diesel fuel for the above schedule 1 activity	From receipt of diesel to despatch for use in emergency standby generators.
Directly associated activity	Surface water drainage system servicing area in which schedule 1 activity takes place	Input to site drainage system until discharged into wider business park drainage system.

Table S1.2a Operating techniques

Description	Parts	Date Received
Application PAN-003940	Next Generation Data Limited Environmental Permit Application – Application Supporting Information. All parts. Application Forms B2 and B3.	29/11/2018
Schedule 5 Notice Request dated 11/04/2019	Response to Schedule 5 Notice - report date 24 th July 2019 (Rev 2.0). Information relating to noise assessment, air quality assessment, plant configuration, BAT and grid support services. All parts.	25/07/2019
3 rd Schedule 5 Notice Request dated 14/10/2019	Generator Testing Assessment Rev 4.0 – all parts. Including section 7 Mitigation measures (addition of acoustic barrier around cell GF19 and omit monthly testing scenario). Assessment Summary Nov 2019 – all parts.	26/11/2019
Additional Information - Process control email	Fuel system description and surface water system operations and control measures	23/01/2020
Additional information – Concrete area	Fuel storage tanks on concrete areas	05/02/2020
Additional information - Maintenance strategy	Maintenance strategy document PM18-16 WBPS V3 Fuel tank maintenance and all other relevant sections	07/04/2020
Application PAN-015219	Vantage Data Centers Limited Environmental Permit Application – Application Supporting Information. All parts. Application Forms B2 and B3.	06/09/2021
Schedule 5 Notice dated 01/06/2022	Air Quality Management Plan (AQMP) dated 18/07/2022	18/07/2022
Revised Air Quality Management Plan	Approved revised and updated Air Quality Management Plan referenced in IC5	Post variation V003 issue

Table S1.2b Operating techniques for Medium Combustion Plant as detailed in Schedule 8

Description
Each MCP must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this
The operator must keep periods of start-up and shut-down of each MCP as short as possible
There must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC1	Construct an acoustic barrier around GF19 as detailed in Generator testing Assessment, Revision 4.0.	<u>22/07/2020</u>
		Completed
IC2	<p>The operator shall develop and submit a site-specific Air Quality Management Plan AQMP in conjunction with the Local Authority which identifies the emergency operating conditions (grid failure) when Local Air Quality may be adversely impacted by emissions to air from the installation. This shall include but not be limited to the following considerations:</p> <ul style="list-style-type: none"> • predicted potential impacts indicated by the air modelling at individual receptors; • timescales for response measures; • how local conditions during a grid failure might influence the response required, for example meteorological conditions or time of day; • contingency for how the response will be carried out in the event scenario i.e. loss of power and; • timescales for continued review of the management plan. <p>The agreed AQMP shall be submitted to Natural Resources Wales for approval.</p>	<u>22/07/2020</u>
		Completed
IC3	<p>The Operator shall undertake noise monitoring at the nearest local receptors for all testing/maintenance scenarios. A detailed plan of the noise monitoring to be carried out shall be submitted to NRW for approval prior to the commencement of noise monitoring. This shall include:</p> <ul style="list-style-type: none"> • A full noise monitoring survey and assessment meeting the BS4142:2014 standard including details of local conditions e.g. meteorological conditions (wind direction) • 1/3rd octave and narrow band (FFT) measurements to identify any tonal elements or low frequency noise • Reference to the World Health Organisation guidelines for community noise • Reference to the Noise Action Plan for Wales 2018-2023 Upon completion of the work, a written report shall be submitted to Natural Resources Wales. • Monitor noise levels at GF19 after the installation of the acoustic barrier (IC1) to demonstrate that the actual reduction is in line with what was predicted and report to writing to NRW. <p>The report shall refer to the predictions in the report produced as part of the application. If rating levels likely to cause adverse impact at sensitive receptors are detected, the report shall include an assessment of the most suitable abatement techniques, an estimate of the cost and a proposed timetable for their installation.</p>	<u>22/01/2021</u>
		Completed

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC4	<p>The operator shall produce a report outlining the maintenance and operating regime following the first year of operation after permitting. This shall include but is not limited to the following:</p> <ul style="list-style-type: none"> • An update on the control systems used to carry out the testing of the generators and how these have been used to minimise emissions and; • Any additional improvements that have been identified to reduce emissions during the maintenance testing and operation of the generators. This should include timescales for the implementation of the improvements. <p>The operator shall submit this report in writing to Natural Resources Wales.</p>	<p>22/07/2024</p> <p>Completed</p>
IC5	<p>The operator shall update the AQMP incorporating the following technical changes and considerations. The updated AQMP shall be provided to NRW for approval</p> <ul style="list-style-type: none"> • Clarify in Section 4 that (in accordance with permit condition 4.3.1) <u>all</u> emergency operations of the engines will immediately be reported to the Natural Resources Wales emergency number (0300 065 3000) irrespective of risk categorisation, and that agreed frequency/detail of subsequent updates may be based both on NRW response and assigned risk level. • Clarify that if a whole site outage has lasted, or is expected to last for more than 4 hours, then Natural Resources incident hotline will be notified that the outage should be regarded as a potential air quality incident for possible management by the multi-agency Wales Air Quality Cell. • Clarify in section 4.1 and 5.1.3 that (given that advance notification to potentially affected receptors is not proposed), any information/instruction to receptors would be via the regulatory authorities managing an incident, and that as such any advice (such as to close windows and remain indoors) would be determined by the authorities, with decisions informed by data from the operator. • Asses the need for communication of the plan to local health partners (Aneurin Bevan health board), emergency services (fire and rescue), adjacent industrial receptors (see below) and ensure its communication to these organisations if required. • Assess the need for, and if relevant triggers for, informing the local health partners (Aneurin Bevan health board), emergency services (fire and rescue), adjacent industrial receptors of an emergency generation incident upon occurrence in accordance with the procedure set out in section 4.1 of the AQMP. • Ensure that the plan addresses the risk of (general) loss of power on ability to enact emergency plans, and that the plan is therefore capable of being implemented in a loss of grid power event. • Confirm/validate the assessment in the plan that industrial units close to the installation are low sensitivity owing to the assumed presence of mechanical ventilation systems. If this assumption cannot be verified, amend the plan accordingly, for example to notify adjacent neighbours of an incident and the appropriate actions to be taken. 	<p>Revised AQMP to be provided to Natural Resources Wales within 12 weeks of permit variation V003 issue, or as otherwise agreed in writing with Natural Resources Wales</p>

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC6	<p>The operator shall submit a revised and updated AQMP for approval by Natural Resources Wales. The plan shall include, but need not be limited to the following:</p> <ul style="list-style-type: none">Proposals for a detailed ambient monitoring/modelling strategy, and meteorological measurements as referred to in AQMP V1 dated 18/07/22. In order to understand the magnitude of air quality impact at receptors during unplanned operation of >4h duration. These proposals shall include a timetable for implementation as soon as reasonably practicable, and consideration of resourcing during an electricity outage (available personnel and as relevant, assured provision of power for monitoring, communication and other essential equipment).Any other revisions/updates as a result of IC5, otherwise proposed by the operator in the V001 18/07/22 AQMP, or subsequently identified, including assessment of viability of any further potential measures to reduce NO₂ impacts.Records demonstrating that the plan (including outage impacts risk assessment) has been communicated to the local authority (Newport City Council Environment and Public Protection) and a description of how any relevant feedback has been considered / incorporated. <p>The improvement condition shall be considered complete only following the approval of the revised AQMP by Natural Resources Wales. The operator shall implement the approved plan to the approved timetable, including the ambient monitoring/modelling strategy referred to above.</p>	<p>Revised plan to be provided to Natural Resources Wales within 12 months of the issue of Variation V003 or as otherwise agreed in writing with NRW</p>

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC7	<p>In the event that one or more of the following occur:</p> <ol style="list-style-type: none"> 1. emergency operation of 260 MW_{th} or more of the site engines for more than 2 hours of continuous operation, 2. emergency operation of 260 MW_{th} or more of the site engines for more than 18 hours cumulative for any calendar year, 3. The National grid annual reliability falls below 99.99% <p>The operator shall submit for written approval by Natural Resources Wales, a revised environmental risk assessment and AQMP. The risk assessment and AQMP shall re-evaluate the risk, and impact on noise and air quality, of reasonably foreseeable emergency operation of the installation.</p> <p>Any event which has occurred shall be considered reasonably foreseeable as a future event, unless justified otherwise in full technical detail, and shall also result in a review of what other event(s) may subsequently considered as reasonably foreseeable.</p> <p>If the revised reasonably foreseeable impacts (taking into account scale and likelihood) would result in any relevant Air Environmental Quality Objective or US Environmental Protection Agency Acute Exposure Guidance Level (AEGL) being breached, then further mitigations shall be proposed in the plan, with a timetable for implementation, to bring the risk to an acceptable level where a breach of the parameters above is no longer likely. Mitigation measures for consideration shall include, but not be limited to those already identified, i.e. increased stack height, retro-fitting of selective catalytic reduction, and use of alternative fuels such as hydrotreated vegetable oil. If required the plan and timetable shall include any necessary proposals for varying the environmental permit in accordance with the proposed changes.</p>	<p>Within 3 months of any of the numbered specified criteria in IC7 being met or as otherwise agreed in writing with NRW</p>

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Diesel	< 0.1% sulphur content by weight

DRAFT

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit	Reference period	Monitoring frequency	Monitoring standard or method
A1-A62 [Points A1-A62 on site plan reproduced in Schedule 7]	Diesel generator exhausts (existing MCP) 10 x 1.970 MW _{th} Perkins 4006-23TAG3A 29 x 1.457 MW _{th} MTU 12V1600G20F-E (X715C2) 18 x 1.311 MW _{th} Volvo Penta TAD 1642GE 5 x 3.226 MW _{th} Mitsubishi S12R-F1PAW2 (T1650C)	Carbon monoxide	No limit set	In line with web guide: Monitoring stack emissions: low risk MCPs and specified generators	After 3 times the maximum average annual operating hours have elapsed and no less frequent than every 5 years from date of acceptance of first monitoring measurements under condition 3.5.4	Representative engine monitoring In line with web guide: Monitoring stack emissions: low risk MCPs and specified generators
A63-A202 [Points A63-A202 on site plan reproduced in Schedule 7]	Diesel generator exhausts (new MCP) 15 x 2.987 MW _{th} Kohler KD45V20-5DEP 125 x 2.987 MW _{th} Kohler KD45V20-5DES	Carbon Monoxide	No limit set	In line with web guide: Monitoring stack emissions: low risk MCPs and specified generators	After 3 times the maximum average annual operating hours have elapsed and no less frequent than every 5 years	Representative engine monitoring In line with web guide: Monitoring stack emissions: low risk MCPs and specified generators
Vents associated with each diesel storage tank	Vents from diesel storage tanks	No parameters set	No limit set	-	No monitoring required	-

Table S3.2 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit	Reference period	Monitoring frequency	Monitoring standard or method
Emission point W1 Imperial Park surface water drainage system [Point W1 on site plan reproduced in Schedule 7]	Uncontaminated site surface water run-off including rainwater	No parameter set	No limit set	--	-	-

Table S3.2 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit	Reference period	Monitoring frequency	Monitoring standard or method
Emission point W2 Imperial Park surface water drainage system [Point W2 on site plan reproduced in Schedule 7]	Uncontaminated site surface water run-off including rainwater	No parameter set	No limit set	--	-	-

Table S3.3 Ambient air monitoring requirements

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
As determined by response to Improvement condition IC6 and in the event of emergency operation of the facility for >4h	NOX / NO ₂	As determined by response to IC6	As determined by response to IC6	As determined by response to Improvement Condition IC6 and to be reported immediately when available to Natural Resources Wales during ongoing emergency operation

Schedule 4 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1 – A62	Annually (for any monitoring undertaken in the calendar year)	1 January
Emissions to air Parameters as required by condition 3.5.1.	A63-A202	Annually (for any monitoring undertaken in the calendar year)	1 January
Ambient air monitoring	As determined by response to Improvement Condition IC6	As determined by response to Improvement Condition IC6 with immediate notification of results during any emergency operation	1 January

Table S4.2 Performance parameters

Parameter	Frequency of assessment	Units
Diesel usage	Annually	tonnes
Generator operation for maintenance/testing	Annually	Total hours for the site (hours), total hours per generator (hours), total number of runs per generator (quantity) and number of minutes per run (minutes)
Generator operation during emergency scenario	Immediately, and certainly within 24 hours if emergency operation commences	Date and time of emergency operation, number of generators operating immediately after failure, number of generators operating two hours after failure, anticipated duration of the mains supply failure and of emergency operation of engines if different (hours)
Generator operation during emergency scenario	Annually	Total number of runs (quantity), duration of runs (hours) and for each run maximum number of engines and thermal capacity deployed

Table S4.3 Reporting forms

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by Natural Resources Wales	DDMMYY (v003 issue)
Other performance indicators	Form Performance 1 or other form as agreed in writing by Natural Resources Wales	DDMMYY (v003 issue)

Table S4.3 Reporting forms

Media/ parameter	Reporting format	Date of form
Generator operating during emergency scenario	Form Emergency Scenario or other form as agreed in writing by Natural Resources Wales	22/04/2020
Generator operating during maintenance/tes ting scenario	Form Testing and Maintenance Scenario or other form as agreed in writing by Natural Resources Wales	22/04/2020

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	EPR/BB3599CW
Name of operator	Vantage Data Centers UK Limited
Location of Facility	Newport Data Centre, Imperial Park, Celtic Way, Marshfield, Newport, NP10 8BE
Time and date of the detection	

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment

To be notified within 24 hours of detection

Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a permit condition

To be notified within 24 hours of detection unless otherwise specified below

Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) In the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment:

To be notified within 24 hours of detection

Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

“accident” means an accident that may result in pollution.

“AEGL” is the “acute exposure guideline level” for NO₂ as defined by the United States Environmental Protection Agency. NO₂ AEGL-1 is 940 µg/m³ for an exposure duration from 10 minutes to 8 hours, and the most protective AEGL-2 is 12,600 µg/m³ for an exposure duration of up to 8 hours

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“AQMP” Means the current site Air Quality Management Plan, as approved by Natural Resources Wales

“authorised officer” means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“compliance date” means 01/01/2025 for existing MCPs and a tranche A specified generator with net rated thermal input of greater than 5MW or 01/01/2030 for existing MCPs and a tranche A specified generator with a net rated thermal input of less than or equal to 5MW.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emergency use” means maximum 500 hours emergency mode of operation in the event of offsite or onsite failure of power supply to the data halls. The whole or part of site plant can only operate as emergency plant up to 500 hours in total per year as an absolute limit for grid outages.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“existing MCP” means an MCP first put into operation before 20/12/2018.

“first put into operation” means that the plant must have been fired with its design fuel up to its full load. This can be, but does not have to be, during commissioning.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“Limited Operating Hours MCP” means an MCP that meets the requirements of paragraph 7 (existing MCP) or 8 (new MCP) of Part 2 of Schedule 25A of the EP Regulations.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“Medium Combustion Plant” or *“MCP”* means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW.

“Medium Combustion Plant Directive” or *“MCPD”* means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants.

“new MCP” means an MCP first put into operation on or after 20/12/2018.

“Operating hours” means the time, expressed in hours, during which a combustion plant is operating and discharging emissions into the air, excluding start-up and shut-down periods.

“year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- (a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels other than compression ignition engines, 6% dry for solid fuels; and/or
- (b) in relation to emissions from compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- (c) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Schedule 7 - Site plan



Notes:

1. Document Reference EX-01 External Plant and services layout Vantage CWL11, provided with the application by email 23/02/22
2. MCP Location co-ordinates provided with the application in the above email and further email dated 01/03/22

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Schedule (8) – Annex I of MCPD

<p>1. Rated thermal input (MW) of the medium combustion plant.</p> <p><i>NB showing only “new” MCPs and not “Existing” plant which will be regulated under the MCPD from 2030</i></p>	<p>15 x 2.987 MW_{th} Kohler KD45V20-5DEP (A63-A77) 125 x 2.987 MW_{th} Kohler KD45V20-5DES (A78-A202)</p> <p>Total 140 “New” MCP engines 418 MW_{th}</p> <p>10 x 1.970 MW_{th} Perkins 4006-23TAG3A (A1-A6, A20-A23) 29 x 1.457 MW_{th} MTU 12V1600G20F-E (X715C2) (A7-A19, A42-A57) 18 x 1.311 MW_{th} Volvo Penta TAD 1642GE (A24-A41) 5 x 3.226 MW_{th} Mitsubishi S12R-F1PAW2 (T1650C) (A58-A62)</p> <p>Total 62 “Existing” MCP engines 102 MW_{th}</p> <p>Total MCP capacity on installation 520 MW_{th}</p>
<p>2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).</p>	<p>Diesel Engine</p>
<p>3. Type and share of fuels used according to the fuel categories laid down in Annex II.</p>	<p>100% Gas Oil</p>
<p>4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.</p>	<p>Before 20 December 2018:</p> <p>10 x 1.970 MW_{th} Perkins 4006-23TAG3A (A1-A6, A20-A23) 29 x 1.457 MW_{th} MTU 12V1600G20F-E (X715C2) (A7-A19, A42-A57) 18 x 1.311 MW_{th} Volvo Penta TAD 1642GE (A24-A41) 5 x 3.226 MW_{th} Mitsubishi S12R-F1PAW2 (T1650C) (A58-A62)</p> <p>On or after 20 December 2018 but prior to [date of permit issue] 15 x 2.987 MW_{th} Kohler KD45V20-5DEP (A63–A77)</p> <p>On or after [Date of permit issue]: 125 x 2.987 MW_{th} Kohler KD45V20-5DES (A77–A202)</p>
<p>5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).</p>	<p>J63.1.1 - Data processing, hosting and related activities</p>

6. Expected number of annual operating hours of the medium combustion plant and average load in use.	100% load in use, <50h per engine per year (typically approximately 5 hours per engine per year)
7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.	Provided with application and saved to Natural Resources Wales Document Management System
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.	Vantage Data Centers UK Limited 2 Old Bath Road Newbury Berkshire England RG14 1QL Plant located at: Newport Data Centre Imperial Park Celtic Way Marshfield Newport NP10 8BE

END OF PERMIT