NRW Permit - EPR/BB3599CW – Annual Report 2022

Introduction

Vantage Data Centers powers, cools, protects and connects the technology of the world's well-known hyperscalers, cloud providers and large enterprises. Developing and operating across markets in North America, Asia and Europe, Vantage has evolved data center design in innovative ways to deliver dramatic gains in reliability, efficiency and sustainability in flexible environments that can scale as quickly as the market demands.

The CWL 11/12 site is located upon the old LG site in Newport and has been operating successfully for over 10 years. It is a 750,000 sq. Ft, single framed building and is deemed the largest data center building in Europe.

The Permit EPR/BB3599CW was duly made on 22 April 2020 and issued to Next Generation Data Ltd. Since 07 January 2021, the company has changed its name to Vantage Data Centers UK Ltd. The original permit was for 77 engines. A permit variation (variation 003) was granted on 7th December 2022 to incorporate a further 125 engines, bringing the total number of engines at the CWL11/12 facility to 202.

The Permit EPR/BB3599CW permits the following activities:

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 Consisting of individual Schedule 25A: Medium Combustion Plant Combustion of diesel in 202 compression ignition engines for the purpose of electricity generation with a total thermal input of 520 MW. Operation consisting only of: • 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).	62 engines (existing MCP) (A1 – A62) comprising: • 10 x 1.97 MW_{th} • 29 x 1.457 MW_{th} • 18 x 1.311 MW_{th} • 5 x 3.226 MW_{th} 140 engines (new MCP) (A63 – A202) comprising: 140 x 2.987 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. Electricity produced at the installation shall not be used to provide commercial services to the National Grid or Distribution Network Operator. 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. 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. 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: • AEGL 2 NO_2 level of 12,600 $\mu g/m^3$ has been breached at one or more sensitive receptors • AEGL 1 NO_2 level of 940 $\mu g/m^3$ 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.

In accordance with the permit conditions listed within Section 4.2.2, an annual report is required to be submitted:

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; and

(b) the performance parameters set out in schedule 4 table S4.2, using the forms specified in table S4.3, of that schedule.

This document forms that report.

Monitoring

Until the issue of the new permit variation (7/12/22) there were no requirements for monitoring emissions to air. However, as result of the Medium Combustion Plant Directive (MCPD), the permit variation requires carbon monoxide (CO) monitoring for the engines as stated within table S3.1. The 'new' MCP engines are due to be tested for CO emissions by the end of March 2023. No monitoring took place in 2022.

There are no requirements for monitoring emissions to water (as per table S3.2).

Table S3.3 relates to ambient NOX monitoring requirements in the event of emergency operation. The details of this are to be determined through an improvement condition (IC6), which had a deadline for completion in December 2023.

There is therefore no monitoring data to review for 2022.

Performance reporting

As outlined within Permit table S4.2 we will be submitting the Annual report for the hours run and fuel usage in line with the permit requirements and using the reporting forms as stated in S4.3 of the Permit (or as otherwise agreed with NRW).

As reported previously the GF1 & GF2 generator sets account for time in 3-minute segments and we have to convert the time to be consistent with our approach for the other engines.

For this reporting year we had one emergency scenario:

- 18 October 22 – Fault at the National Grid substation.

Improvements

Table S1.3 of the permit lists the various improvement conditions (ICs) that Vantage is required to undertake. All improvement conditions from the original permit (IC1 to IC4) have been previously completed. As a result of the permit variation to incorporate the 125 new engines there are three new ICs, none of which were due for completion in 2022.

In addition, we have decided to make some enhancements on site:

- Replaced and upgraded the Bladder Valve system and replaced the system with a new more robust Flap Valve e drainage system.
- Our specialist supply chain partner has programmed logic software for the AQMP to operate on our EMS monitoring system. The weather stations are in the process of being installed within the next month to complete the project.
- New drainage markings for the various drainage systems on site.
- Enhanced drainage survey undertaken, from both directions, we are in the process of arranging some minor repair works and furthermore we are going to seal all the joints on the surface water drains.
- We have revamped all the site spillage kits and replaced all the out of date components and have installed 30 plus additional chemical kits.

Environmental Incidents

We have had no reports of spillages, leaks, or incidents on site.

We have undertaken spillage training with our Facilities and Security teams.

Notifications and Compliance Assessment Reports

Please find the significant notifications and Compliance Assessment Reports listed below, to maintain the permit:

- Email 17 January 2022 – Confirmation of the submission of the redacted AQMP.
- Email 28/01/2022 – Submission of the annual reports (in line with Permit Table S4.2 requirements).
- Email 25/02/2022 – Permission to use white diesel.

- Email 16/03/2022 – Confirmation that the PRTR report was submitted.
- Email 26/05/2022 – CAR – NRW 003955 Issued for using white Diesel and HVO.
- Email 27/10/2022 - Online submission for the MCP survey.
- Email 07/11/2022 – Completion of the MCPD request for further information.
- Emails/Notifications 18/10/2022 – Various correspondence relating to the fault at the National Grid substation fault.
- Email 05/12/2022 – Regarding clarification for the proposed CO testing of the 'new' MCP.
- Email 08/12/2022 – The New variation of NRW Permit ERP/BB3599CW/V003 was formally issued.

Complaints

We have had no complaints issued to the Vantage DC service desk.

Site audits

On 26/27 January 2022 we had a two-day ISO 14001 certification audit undertaken by a BSI environment specialist at the Newport facility. We were issued one minor observation; overall, it was a successful audit. The outstanding actions have been raised internally and tracked by our compliance team to close out the observation.

Conclusion

Another busy year, the new permit variation was issued prior to the Christmas holiday period and we are busy arranging resources for the completion of the additional testing and additional improvement conditions.

Glenn Kitchen
Principal of Facilities
27 January 2023