

Permitting Decisions- Bespoke Permit

We have decided to grant the permit for KLON-06 operated by KD 2 Limited.

The permit number is EPR/JP3647JU.

The permit was granted on 22/01/2025.

The application is for data centre with a Schedule 1 Part A(1) 1.1(a) activity for burning any fuel in an appliance with a rated thermal input of 50 or more megawatts. There are thirteen standby generators, with an aggregated thermal input of approximately 99 MWth, which provide power to the site in the event of an emergency, such as a failure of the local electricity transmission network, or an internal component failure requiring disconnection from the grid. Under normal operating conditions the data centre will be powered by grid supplied electricity.

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 considerations section to show how the main relevant factors have been taken into account
- highlights key issues in the determination
- 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.

Key issues of the decision

In reaching our decision to grant the permit we took into consideration the following matters:

Overview of the Installation

The installation is located within the Borough of Slough at national grid reference SU 96096 80630, within Slough Trading Estate, an area of light industrial and commercial developments. Residential receptors are adjacent to the west and south of the site.

The site is an existing data centre that has been operational since 2009. There are six existing generators at the site that have been operational since 2010. Expansion will have resulted in the addition of seven new generators during phased expansion works from 2023 to 2025.

The permit authorises the operation of 13 standby liquid fuelled generators serving a data centre, in the event of failure in the electrical grid supply. The generators are not permitted to support Short-Term Operating Reserve (STOR) and/or triad management activities. The permit does not allow the export of electricity to the National Grid.

The contingency standby power solution comprises 6 x 6.49 MWth (classified as existing MCP), and 7 x 8.58 MWth (classified as new MCP) generators with an aggregated thermal input of approximately 99MWth. The seven new generators will be fitted with Selective Catalytic Reduction (SCR) technology to reduce NO_x emissions. The generators can also be fuelled with Hydrotreated Vegetable Oil (HVO) classified as gas oil (or equivalent substitute to be agreed in writing with the Environment Agency) with a maximum sulphur concentration of 0.001% w/w.

The six existing generators and three of the new generators are located within the main data centre building, with their individual stacks extended through the roof to a height of 15m. The four remaining new generators are located outside adjacent to the data centre building and each have a 7m high stack.

The installation is subject to the Environmental Permitting Regulations (EPR) as it carries out an activity listed in Part 1 of Schedule 1 to the EPR:

Section 1.1 Part A(1)(a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.

The activity falls under Chapter II of the Industrial Emissions Directive (IED). The liquid fuelled generators are classed as medium combustion plant (MCP) as part of a Chapter II installation. The Medium Combustion Plant Directive (MCPD)

requirements are fulfilled through compliance with Chapter II of Directive 2010/75/EU.

The incoming power system has been designed to reduce the likelihood of power outages at the installation and is fed from two substations: Foxtrot and Golf. Each feed can support the full site load, meaning that if one feed was to fail electrical provision to the installation would not be compromised.

All of the generators are subject to a maintenance testing schedule to ensure that they are maintained and can perform if/when required. The testing schedule is described in the Non-Technical Summary V2, the BAT Assessment V3 and the Air Quality Permit Assessment V3. The proposed schedule varies between these documents. The BAT assessment V3 provides the following summary:

Frequency	Duration	No. tested	Approach	Total hours per Gen
Monthly test	Up to 2 hours	x6 existing ESGs	Staggered, one generator operating at a time for a max of 2 hours using a load bank. The load bank will allow the load to be cycled up from 0 – 100% load.	22 hrs
Monthly test	Up to 1 hour	x7 new ESGs	Off-load test with all generators coming online, synchronising and then running for 1 hour allowing them to fully warm up. After the completion of the hour all machines would drop off and shut down.	12 hrs
Annual full load Test	Up to 2 hours	All ESGs	Annually a full load test shall be performed individually on each generator against a load bank for 2 hours. The load bank will allow the load to be cycled up from 0 – 100% load.	2 hrs
Annual Black Building test	30 mins	All ESGs	Black building test shall also be performed annually to check the response of the systems to utility failure during which all generators would synchronise and run for 30 minutes against the site load.	30 mins

For the Monthly Test this summary distinguishes between existing generators which are proposed to be tested individually and new generators which are proposed to be tested simultaneously. However, the modelling undertaken as part of the Air Quality Permit Assessment V3 simulates all engines being tested individually as part of the Monthly Test. Confirmation was sought and received via email (21/03/2024) that the proposed schedule contained within the Air Quality Permit Assessment V3 was the correct one and representative of the actual testing regime on site.

The Air Quality Permit Assessment V3 did not detail the Annual Full Load Test or Annual Black Building Test as detailed in the BAT assessment, both of which are typical of a data centre site such as this. However, it is possible to draw conclusions from the modelling undertaken about the likely impact of these annual tests based on the predicted impact of the emergency scenario

(discussed further below) and as such we consider it appropriate for these tests to take place and feature within the Schedule 1 table S1.2 Operating techniques. The summary table from the BAT Assessment V3 has therefore been adopted with the exception of the Monthly Test for the new generators which must be tested individually (not simultaneously) in accordance with the Air Quality Permit Assessment V3 as specified within the Schedule 1 table S1.2 Operating Techniques of the permit.

The testing schedule is therefore as follows;

Monthly test: Existing generators will be tested individually for two hours at 100% load each month. New generators will be tested individually for one hour at the current site load each month. (It should be noted that modelling within the Air Quality Permit Assessment V3 has taken the conservative approach of assuming 2 hours testing for both existing and new generators). Total hours per existing generator per year = 24, total hours per new generator = 12.

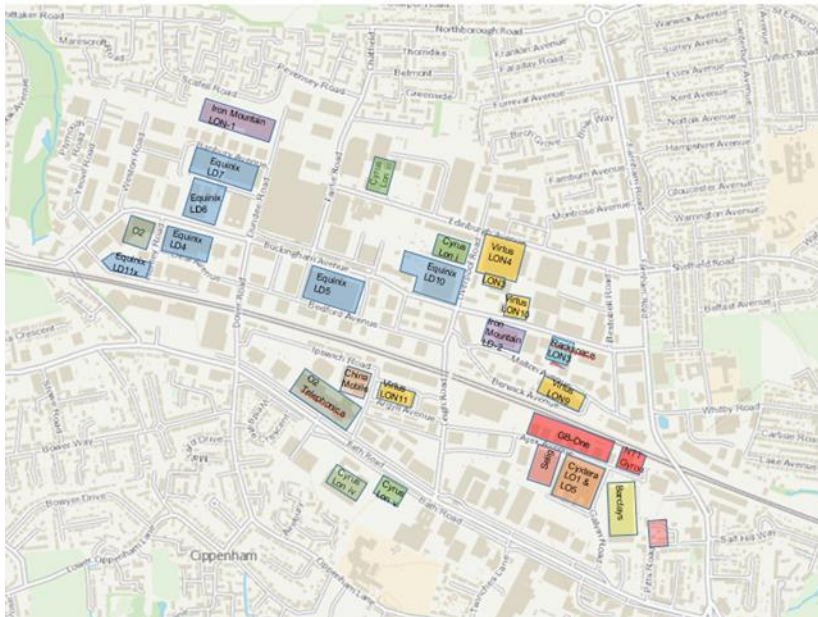
Annual full load test: Once a year the monthly test will be replaced by an annual test performed individually on each generator against a load bank for 2 hours. The load bank will allow the load to be cycled up from 0 to 100% load. This will not represent any increase in operational hours already defined for the monthly test for existing generators, but will represent an additional hour of testing for the new generators. Total hours per new generator = 1

Annual Black Building test: All generators would synchronise and run for 30 minutes against the site load to check the response of the systems to utility failure. Total hours per generator per year = 0.5.

Generators and fuel tanks are located above-ground. The 6 existing generators are fed fuel from individual day tanks which are in turn fed from two larger bulk tanks. Both the day tanks and bulk tanks are double skinned to 110% capacity. The 7 new generators will be fed fuel from dedicated belly tanks beneath each generator. The belly tanks are to be integrally banded to 110% and refuelled directly from a fuel tanker. All tanks are located above ground (either internally or externally) over good quality hardstanding, have high- and low-level alarms and overfill prevention valves to prevent over filling and are fitted with electronic gauges for physical and remote monitoring.

Fuel transfer from bulk tanks to the generators is via double skinned above-ground pipework. The total fuel storage capacity is 313,500 litres. The site is covered in hardstanding.

There are currently a significant number of data centres located in close proximity in the Slough area and as of August 2022 there were 26 data centres all located in the same area as shown below.



SLOUGH DATACENTERS
August 2022

Operator	Address	Size
Equinix LD4	2 Buckingham Avenue	66
Equinix LD5	8 Buckingham Avenue	121
Equinix LD6	352 Buckingham Avenue	92
Equinix LD7	1 Banbury Avenue	109
Equinix LD10	13 Liverpool Road	71
Equinix LD11x	756 Henley Road	96
NTT GDC EMEA Gyron	665 – 670 Ajax Avenue	35
CyrusOne London j	12 Liverpool Road	32
CyrusOne London iii	700 Stirling Road	58
CyrusOne London iv	225b Bath Road	100
CyrusOne London V	225c Bath Road	100
Cytera LO1 & LO5	628 – 635 Ajax Avenue	88
Virtus Lon4	14 Liverpool Road, Slough	60*
Virtus Lon3	Liverpool Road	60*
Virtus Lon9	470-474 Malton Avenue	132
Virtus Lon10	Buckingham Avenue	60*
Virtus Lon11	Ipswich Road	69
Iron Mountain LON-1	724-729 Dundee Road	
Iron Mountain Amazon LON-2	110 Buckingham Avenue	151
GB-One	Ajax Avenue	186
Rackspace LON3	115 Buckingham Avenue	
China Mobile	536 Ipswich Road	
Barclays Datacentre	672 Galvin Road	
O2 Telephonica	260 Bath Road	
O2	354 Buckingham Avenue	
UCB	Ajax Avenue	
Total		1,686

If the National Grid was to fail in this area, then the majority of the data centres connected to the same grid would go offline and their back-up diesel or equivalent fuel generators would be put into action. Therefore, in order to reduce the NO_x air emissions to acceptable levels in the event of a national grid failure the operator has specified abatement for all new generators, which reduces NO_x emissions from 2991 mg/Nm³ at 100% load to 507 mg/Nm³ per generator.

Air Quality Assessment

Our online guidance (“Air emissions risk assessment for your environmental permit”, gov.uk) sets out how air emissions risk assessments should be completed, by calculating the impact of emissions and comparing against appropriate environmental standards.

The applicant submitted air dispersion modelling as part of their Air Quality Impact Assessment, which allowed the process contribution (PC) to be predicted at any human and ecological receptor that could be impacted by the operation of the Schedule 1 Part A(1) 1.1(a) activity.

The PC is the estimated concentration of an emitted substance, and when calculated within a dispersion model, takes into account relevant parameters of the release and surrounding conditions, including local meteorology.

Once short-term and long-term PCs have been calculated, they are compared with Environmental Standards (ES).

PCs are considered insignificant if:

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

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

- Spatial and temporal conditions mean that short term PCs 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.

When assessing the significance of PCs at local nature sites, we consider that emissions are insignificant if:

- The long-term PC is less than 100% of the relevant ES for protected conservation areas; and
- The short-term PC is less than 100% of the relevant ES for protected conservation areas.

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

Where pollutants 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 dispersion modelling, taking background concentrations and modelling uncertainties into account.

The assessment considers the predicted environmental concentration (PEC), which is the PC of the substance, plus the background concentration of the substance already present in the environment.

PECs are considered to be not significant where:

- Proposed emissions comply with associated emission levels (AELs) or the equivalent requirements where there is no AEL; and
- The resulting PECs do not exceed 100% of the environmental standards.

Where exceedances are predicted, we may require the applicant to go beyond what would normally be considered BAT for the installation to ensure that ESs are met. Local factors are also taken into consideration, for example proximity and impacts upon sensitive designated habitats sites (SAC, SPA, Ramsar, SSSI), which may require us to include more stringent conditions within the permit.

The applicant's assessment of the impact of air quality was completed by a consultant using ADMS 6. A number of revisions of the assessment were made during the course of the determination process:

Air Quality Permit Assessment report V0, dated 23/12/2022

Air Quality Permit Assessment report V1, dated 26/01/2023

Air Quality Permit Assessment report V2, dated 20/02/2023

Air Quality Permit Assessment report V3, dated 05/03/2024

The final version received was used for the purpose of decision-making and is the source of all information contained within this document.

Nitrogen oxides (NO_x) are noted as the principal pollutant for human and ecological impacts, with both acid and nutrient nitrogen deposition assessed.

Assessment of SO₂ was scoped out, as the applicant will be fuelling generators with HVO or ultra-low sulphur gas oil. For the testing scenario, the consultant completed an assessment of ammonia, CO, PM₁₀, PM_{2.5} and total hydrocarbons (as benzene), however they did not appear to assess results for emissions from the testing scenario for 1-hour CO, 8-hour CO or 24-hour benzene PCs. We have included an assessment of those pollutants in our own checks, discussed further below. Within this scenario, the long-term and short-term PCs for all pollutants other than nitrogen oxides were found to be 'insignificant' and are therefore not discussed further within this document.

With respect to the emergency scenario, the long-term PCs for all pollutants other than nitrogen oxides were found to be 'insignificant' and are therefore not discussed further within this document. Within this scenario short-term PCs for CO and PM₁₀ were also found to be insignificant and are therefore not discussed further either. The consultant did not appear to assess results for the emergency scenario for PM_{2.5}. We have included an assessment of this pollutant in our own checks, discussed further below.

The data centre is located within Slough Borough Council. An Air Quality Management Area (AQMA) is located 200m to the east of the site which is managed for nitrogen dioxide (NO₂-annual mean objective).

For the assessment, it is assumed that both the existing engines and proposed new engines will be operational. Operation of the generators will occur during testing and maintenance and in the event of an outage of power at the facility. Both of these scenarios were assessed.

Testing and Maintenance Scenario

For the purposes of the modelling assessment, this scenario assumed that each generator will be tested individually at 100% load for two hours per month.

For this scenario, modelling results predicted:

- **Long Term NO₂:** Predicted annual mean NO₂ concentrations inclusive of background levels (i.e. PECs) are less than 100% of the ES and can be screened out as not significant in accordance with the Environment Agency screening criteria.
- **Short Term NO₂:** The predicted NO₂ PC concentrations are 'not insignificant' but the PECs are not predicted to exceed the ES at any of the discrete receptors.
- **AEGL-1:** Predicted short term NO₂ concentrations have also been compared to US EPA Acute Exposure Guideline Levels (AEGLs). They are used for the assessment of sub-hourly impacts to human health receptors and represent threshold exposure limits for the general public. Predicted concentrations were below the relevant AEGL-1 at all sensitive receptor locations over the modelled 5-year period for all exposure periods considered.
- **Short Term NO:** The predicted PC is less than 10% of the associated ES at all receptor locations sensitive to short term-term exposure. As such, impacts on 1-hour mean NO concentrations can be screened out as insignificant in accordance with the Environment Agency screening criteria.

Emergency Scenario

For the purposes of the modelling assessment, this scenario assumed that all generators will be operational for a continual period of 72 hours and operating concurrently. This scenario assumed that the existing generators would operate at 50% load and the new generators would operate at 75% load. For annual

impacts, the consultant presented the results for testing and emergency operations combined.

- **Long Term NO₂:** Predicted annual mean NO₂ process contributions exceed the 1% screening criterion at 5 of 23 receptors, however predicted concentrations inclusive of background levels (PECs) are less than 100% of the ES at all receptor locations and can be screened out as not significant in accordance with the Environment Agency screening criteria.
- **Long Term Benzene:** Predicted annual mean C₆H₆ process contributions exceed the 1% screening criterion at 2 of 23 receptors, however predicted concentrations inclusive of background levels (PECs) are less than 100% of the ES at all receptor locations and can be screened out as not significant in accordance with the Environment Agency screening criteria.
- **Short Term NO₂:** 1-hour mean NO₂ concentrations are predicted to be greater than the 10% screening criterion at 12 of 23 discrete receptors and exceed the associated ES at 1 receptor location (R16) during the emergency scenario.
- **Short Term Benzene:** 1-hour mean C₆H₆ process contributions exceed the 10% screening criterion at all identified receptors. However, predicted concentrations inclusive of background levels (PECs) are less than 100% of the ES at all receptor locations and can be screened out as not significant in accordance with the Environment Agency screening criteria.
- **AEGL-1:** Predicted NO₂ concentrations were predicted to be 'not insignificant' but were below the relevant AEGL-1 at all receptor locations.
- **Short Term NO:** 1-hour mean NO process contributions exceed the 10% screening criterion at 18 of the 23 discrete receptors. However, predicted concentrations inclusive of background levels (PECs) are less than 100% of the ES at all receptor locations and can be screened out as not significant in accordance with the Environment Agency screening criteria.

Ecological Impact

Testing and maintenance scenario

- **Long Term:** The NO_x PC is less than 1% of the ES at both Special Area of Conservation (SAC) receptor locations (Burnham Beeches and Windsor Forest) and at South West London Waterbodies Special Protection Area (SPA). The predicted concentration is also less than 100% at all locally designated nature sites. As such, impacts on annual mean NO_x concentrations at these locations can be screened out as insignificant in accordance with the initial stage of the Environment

Agency screening criteria. The NH₃ PC is also less than 1% of the ES at the internationally designated sites and less than 100% of the ES at locally designated sites, therefore all impacts are screened out as insignificant.

- **Short Term:** The NO_x PC proportion of the adopted ES is less than 10% at both SAC receptor locations (Burnham Beeches and Windsor Forest) and less than 100% at all locally designated nature sites. As such, impacts on 24-hour mean NO_x concentrations at these locations can be screened out as insignificant in accordance with the initial stage of the Environment Agency screening criteria. There are no relevant ES for the assessment of short-term impacts of NH₃.
- **Nitrogen and Acid Deposition:** The predicted PC is less than 1% of the minimum of the ES range for nitrogen deposition at both SAC receptor locations (Burnham Beeches and Windsor Forest) and less than 100% at all locally designated sites. The predicted PC is less than 1% of the maximum of the ES range for acid deposition at both SAC receptor locations (Burnham Beeches and Windsor Forest) and less than 100% at all locally designated sites. The PC is not compared to the minimum of the ES range within the report but comparison to this does not change the outcome. As such, impacts on annual mean nitrogen and acid deposition rates at these locations can be screened out as insignificant. The South West London Waterbodies SPA site is not considered sensitive to nitrogen and acid deposition/ has no applicable ESs.

Emergency scenario

- **Long Term:** The NO_x PC is less than 1% of the ES at both Special Area of Conservation (SAC) receptor locations (Burnham Beeches and Windsor Forest) and at South West London SPA. The predicted concentration is also less than 100% at all locally designated sites. As such, impacts on annual mean NO_x concentrations at these locations can be screened out as insignificant in accordance with the initial stage of the Environment Agency screening criteria. The NH₃ PC is also less than 1% of the ES at the internationally designated sites and less than 100% of the ES at locally designated sites, therefore all impacts are screened out as insignificant.
- **Short term:** The NO_x PC proportion of the adopted ES is less than 10% at both SAC receptor locations (Burnham Beeches and Windsor Forest) and less than 100% at all locally designated nature sites. As such, impacts on 24-hour mean NO_x concentrations at these locations can be screened out as insignificant in accordance with the initial stage of the Environment Agency screening criteria. There are no relevant ES for the assessment of short-term impacts of NH₃.

- **Nitrogen and Acid Deposition:** The predicted PC is less than 1% of the minimum of the ES range for nitrogen deposition at both SAC receptor locations (Burnham Beeches and Windsor Forest) and less than 100% at all locally designated sites. The predicted PC is less than 1% of the maximum of the ES range for acid deposition at both SAC receptor locations (Burnham Beeches and Windsor Forest) and less than 100% at all locally designated sites. The PC is not compared to the minimum of the ES range within the report but comparison to this does not change the outcome. As such, impacts on annual mean nitrogen and acid deposition rates at these locations can be screened out as insignificant. The South West London Waterbodies SPA site is not considered sensitive to nitrogen and acid deposition/ has no applicable ESs.
- **Environment Agency review of operator assessment of potential impact on air quality**

We audited the dispersion modelling and Air Quality Impact Assessment, carrying out check modelling and sensitivity analysis. We reviewed the selection of modelling inputs, methodologies and assumptions, selection of receptors, outputs of the model, statistical interpretations, and conclusions of the assessment.

We agree with the consultant's conclusions regarding human health as their numerical predictions and statistical analysis indicates that exceedances of the relevant environmental standards are unlikely at sensitive human health receptor locations during both testing and emergency operations, provided the grid reliability remains high.

We agree with the consultant's conclusions regarding ecological sites, as their numerical predictions indicate that exceedances of the environmental standards for the protection of habitats are unlikely during testing and emergency operations, provided the grid reliability remains high.

The modelled electrical outages likely represent worst case scenarios as the operator stated in their BAT Assessment V3 that, the installation and is fed from two substations: Foxtrot and Golf. Each feed can support the full site load, meaning that if one feed was to fail electrical provision to the installation would not be compromised. A site wide failure is considered extremely rare as it would require a catastrophic regional failure on the grid, or at the supplying power station, and would likely impact not only the site but the surrounding area.

We noted that:

- The NO_x emission rates for the new generators are likely to be slightly underestimated for short-term impacts. This is because the consultant

assumed that SCR would start operating after 15 minutes, and they time weighted the emission rates to account for 15 minutes of unabated NO_x emissions out of two hours of operation for testing, or out of 72 hours for emergency operation. In fact, for the first hour of operation the emission rate would be higher, with 15 minutes unabated and 45 minutes abated, and so the consultant's maximum 1-hour PCs may not be worst-case.

- The six existing generators emit horizontally. The consultant modelled the generators as vertical point sources in ADMS to consider the effects of building downwash, however they did not reduce the emission velocities to account for the worsened dispersion of a horizontal stack. We tested sensitivity to lower emission velocities for the horizontal stacks within our own modelling exercise.
- Airflow around buildings may create zones of turbulence and downward mixing on the lee side ('downwash effect'). To account for this, the consultant modelled 11 buildings as shown in Table B.1 of their AQA. Sensitive receptor locations are close to the facility but are unlikely to be located within the cavity regions of the modelled buildings. However, to help analyse the modelling uncertainty around building downwash effects, we tested sensitivity to an alternative air dispersion model, Breeze AERMOD version 11.0.0.7 (Breeze 22112 executable), with Breeze AERMET version 9.0.0.4 pre-processed meteorological data.
- The consultant did not use a terrain file for their modelling, because the terrain around the facility is mostly flat. We agree with this approach.
- The consultant modelled 23 discrete human receptors (Table 3.3). We added two additional receptor locations that could be exposed to emissions from the facility.
- The consultant has derived the background NO₂ concentrations for human health receptors from the Defra predicted background concentrations for 2022 and from local monitoring data measured by the Slough Borough Council; these are presented in Tables 4.1–4.4 of the AQA. The consultant has used APIS4 to establish site-specific 2 Defra (2023) Background Mapping data for local authorities, <https://uk-air.defra.gov.uk/data/laqm-background> home [accessed April 2024]. 3 Slough Borough Council 2023 Air Quality Annual Status Report (June, 2023), 2023 Air Quality Annual Status Report (ASR) (slough.gov.uk) [accessed April 2024]. 4 Air Pollution Information System (APIS), <https://www.apis.ac.uk/> [accessed April 2024]. KLON-06 Data Centre C2767 4 critical loads, presented in Tables 3.4 of their AQA. We mostly agree with the background levels the consultant has selected.

The specific findings of our check modelling are summarised below:

Human health assessment

Based on the modelled testing scenario where each engine is tested individually, we find that:

- The 99.79th percentile 1-hour NO₂, NO₂ AEGL-1s, 24-hour benzene, 24-hour PM₁₀, and 1-hour NO PCs are 'not insignificant'; however, the PECs are all below the relevant ES.
- 1-hour CO, 8-hour CO, and 1-hour NH₃ PCs are insignificant.

Based on the modelled emergency scenario representing a 72-hour power outage, we find that:

- The 99.79th percentile 1-hour NO₂ PCs and PECs could exceed the ES, however, statistical analysis using a hypergeometric probability distribution indicates that the chance of exceedance is less than 1% which we consider highly unlikely.
- 1-hour NO, 24-hour benzene and NO₂ AEGL-1 PCs could exceed the ES. Provided grid reliability remains high, we consider exceedances unlikely to occur.
- 1-hour NH₃ and 8-hour and 1-hour CO PCs are insignificant.

For annual impacts, inclusive of both testing and 72 hours of emergency operations, find that:

- The annual NO₂, NO, PM_{2.5}, and benzene PCs are 'not insignificant'; however, the PECs are all below the relevant ES.
- Annual NH₃ and PM₁₀ PCs are insignificant.

Ecological assessment

Based on the modelled testing scenario where each engine is tested individually, we found that:

- Daily NO_x PCs are insignificant compared to the 200 µg/m³ critical level.

Based on the modelled emergency scenario representing a 72-hour power outage, we find that:

- The daily mean NO_x PCs could exceed the 200 µg/m³ critical level at the Railway Triangle LWS and Jubilee River LWS should prolonged emergency operations coincide with worst-case meteorological conditions, however, we consider exceedances to be unlikely provided grid reliability remains high.

For annual impacts, inclusive of both testing and 72 hours of emergency operations, we find that:

- Annual NO_x, acid and nutrient nitrogen deposition PCs are predicted to be 'insignificant' compared to the relevant critical levels and loads.

Additional Routine Testing

As discussed previously in the overview, the Air Quality Permit Assessment V3 did not include and specifically assess the proposed Annual Full Load Test or Annual Black Building Test as detailed in the BAT assessment, both of which are typical of a data centre site such as this. The potential impact of the Annual Full Load Test are accounted for by the modelling and the inclusion of conservative assumptions.

The Annual Black Building Test will involve all generators synchronising and running for 30 minutes against the site load to check the response of the systems to utility failure. This test, once a year, represents the only time during routine maintenance testing that each generator would not be running individually and all generators would be running concurrently. For the emergency scenario, all engines were modelled to be running concurrently for a period of 72 hours. Given that a 30 min test represents a very small proportion of the modelled 72-hour scenario, and the modelling results for this scenario illustrate that exceedances of short-term environmental standards are unlikely, we do not require the Annual Black Building Test to be modelled separately at this time.

Assessment of Best Available Techniques

Technology, Configuration, Sizing and Choice of Fuel

The applicant carried out a BAT assessment of the following viable technologies: fuel oil (diesel) fired generators, Diesel Rotary Uninterruptible Power Supply Engines (DRUPS), gas fired generators, Liquid Petroleum Gas (LPG) Fuelled Generators, Hydrogen Fuel Cell generators and Standby Gas turbine Technology. For each type of generator, consideration was given to the following criteria:

- Proven technology for providing reliable power supply
- Start-up time & cold start capability
- Space requirements
- Capital expenditure
- Environmental impact
- Fuel storage

The conclusion of the assessment was that Gas and fuel oil generators are the preferred method for back up electricity generation at this site. The applicant has decided to install diesel generators at this installation as they outperform Gas generators when comparing their cold start capability and their reliability in providing an uninterruptible power supply, due to no reliance on an off-site supply of natural gas.

Ultra-low sulphur gas oil or HVO is considered to be the most appropriate fuel choice due to ease/safety of storage, availability and costs associated with upkeep, storage and supply.

We have specified the fuel to be burned in the engines to consist of gas oil or equivalent substitute to be agreed in writing with the Environment Agency with a sulphur concentration of 0.001% w/w. The applicant has indicated that they wish to use HVO for the new generators from commissioning onwards and transfer over

from low sulphur diesel to HVO for the existing generators as existing stocks of diesel are used up.

The default engine specification as a minimum for new plant, to minimise the impacts of emissions to air (NO_x), is 2g TA-Luft, Tier II US EPA or equivalent standard. The 'new MCP' generators (emitting via emission points EP7 to EP13), are 2g TA-Luft emissions optimised as per the datasheets, meeting the BAT requirements. All other generators (emitting via emission points EP1 to EP6) were put into operation before 2018, meaning they are classified as 'existing MCP'. They do not meet the 2g TA-Luft or equivalent standard.

The site partly operates with N+1 resilience (new generators) in accordance with the Uptime Institute's Tier III design and partly with N+2 (existing generators) after any failure in accordance with Uptime Institute's Tier IV design. Generators share the load in the event of an emergency scenario, and therefore can still operate if one engine begins to fail. Furthermore, during maintenance of one generator, the others can provide full cover in an emergency scenario.

Routine Testing

Duration of testing must be minimised, with operators seeking to keep individual generator testing to below 50 hours per annum each. Testing should be scheduled to avoid adding to "at risk" high ambient pollutant background levels. In addition, the operator proposes to liaise with Area Officers to undertake testing at alternate times of the week to the adjacent data centres on the industrial park.

To minimise short impacts from routine testing, the operator has proposed the following regime:

- Monthly test: Existing generators will be tested individually for two hours at 100% load each month. New generators will be tested individually for one hour at the current site load each month. (It should be noted that modelling within the Air Quality Permit Assessment V3 has taken the conservative approach of assuming 2 hours testing for both existing and new generators). Total hours per existing generator per year = 24, total hours per new generator = 12.
- Annual full load test: Once a year the monthly test will be replaced by an annual test performed individually on each generator against a load bank for 2 hours. The load bank will allow the load to be cycled up from 0 to 100% load. This will not represent any increase in operational hours already defined for the monthly test.
- Annual Black Building test: All generators would synchronise and run for 30 minutes against the site load to check the response of the systems to utility failure. Total hours per generator per year = 0.5.

Except for the annual Black Building Test (30 mins per year), generators will not be tested simultaneously; they will be tested during the day avoiding peak traffic times (when background NO_x levels would be at their highest). As a result of the testing regime, each generator will run for no more than 24.5 hours per year for routine testing.

Electrical Reliability

As the operation of generators is considered undesirable, the incoming power system was designed to ensure that only the most major power outages would trigger the need for the generators to be used to support the data centre.

Initially when a fault is detected an 'uninterruptible power supply' is provided by on-site battery arrays to cover any potential loss or deduction in the supply to data servers.

Power to the site is provided by the National Grid. The installation can be fed from two substations: Foxtrot and Golf. Each feed can support the full site load, meaning that if one feed was to fail, electrical provision to the installation would not be compromised. Two power supplies are beneficial, as the site would not need to utilise the generators should one main power feed undergo a fault, be accidentally or maliciously damaged or be shut down. Furthermore, we note that the National Grid give a network reliability of 99.999612% during 2021-22.

Permit Conditions

The permit limits use of generators in an emergency scenario to 500 hours per year. Routine testing of generators is <50 hours per year, with the operating techniques incorporated into Table S1.2 in the permit. Emission limit values have not been incorporated into the permit, as they are not applicable to MCPs operating for <500 hours per year.

Monitoring requirements are included in the permit; stack monitoring is included for NOx and CO every 1500 hours of operation or once every five years (whichever comes first). The first monitoring measurements for the new MCP (EP7 to EP13) shall be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later. For the existing MCP (EP1 to EP6) the first monitoring measurements can be undertaken at any time, but no later than the relevant compliance date of 01/01/2025.

Limits to the AR1 activity within the permit exclude any elective power operation such as Short-Term Operating Reserve (STOR) and triad management activities.

Table S1.2 incorporates operational and management procedures within the BAT Assessment V3, with the exception of simultaneous monthly testing of the new generators which is replaced by a requirement to test these individually as per the Air Quality Permit Assessment report V3, dated 05/03/2024, minimising the duration of testing, the duration and frequency of whole site tests.

The permit application has assessed and provided evidence of the reliability of the local electricity grid distribution allowing us to judge that the realistic likelihood of the plant needing to operate for prolonged periods in an emergency mode is very low.

Tables S4.2 and S4.3 require annual reporting of standby engine maintenance run and any electrical outages (planned or grid failures regardless of duration) require both immediate notification to the Environment Agency and annual reporting.

Table S2.1 restricts the fuel to ultra-low sulphur gas oil or equivalent substitute as agreed in writing with the Environment Agency.

Protection of Land, Surface Water & Groundwater

Due to the nature of the site being part legacy generators (operational since 2010) and part new generators, fuel storage tank specifications differ across the site.

The 6 existing generators are fed fuel from individual day tanks (adjacent to each generator within the generator room) which are in turn fed from two larger bulk tanks (external to main data centre building). Both the day tanks and bulk tanks are double skinned to 110% capacity and a double skinned above-ground fuel feed pipework system is provided from the bulk tanks to the day tanks.

The 7 new generators (3 of which are located within the main data centre building and 4 of which are located externally) will be fed fuel from dedicated belly tanks beneath each generator. The belly tanks are to be integrally banded to 110% and refuelled directly from a fuel tanker. The total fuel storage capacity is 313,500 litres. All tanks are located above ground (either internally or externally) over good quality hardstanding, have high- and low-level alarms and overfill prevention valves to prevent over filling and are fitted with electronic gauges for physical and remote monitoring.

Tanks are filled either directly or remotely via tank fill points which are located inside locked cabinets. Drip trays are present inside the cabinets to capture minor spillages during refuelling. To help reduce the risk of corrosion, all pipework is either painted or constructed of corrosion resistant material. Spill kits are located adjacent to the generator enclosures / within generator rooms / fuel tanks and fill points. These cabinets will be locked when not in use.

Urea is to be used in the SCR abatement equipment. Each generator will have its own 2500 litre urea tank located adjacent to each generator, banded to contain a minimum 110% volume of the inner tank.

Fuel consumption is low at this installation due to the plant being used for emergency back-up power generation only. Fuel deliveries are on average less than once per year. When required, refuelling is carried out by trained fuel tanker drivers, and supervised by a trained member of the site engineering team. A standard operating procedure (SOP) is in place to facilitate refuelling activities to reduce the risk of a spillage during refuelling.

There will be no process effluent discharge from the installation. Uncontaminated surface run off from the roof and external yard/ generator area will drain to the surface water drainage system at emission points SW1 and SW2. Surface water drainage from the area of the site where four of the new generators and their associated belly tanks are located will pass via a hydrodynamic vortex separator prior to discharging to the local sewer network at emission point SW2. This will be fitted with an automatic shut off valve which will activate when fuel is detected. This valve can also be closed manually in the event of a fuel spillage or in order to contain fire water. The remaining areas of the site drain to emission point SW1 without passing through an interceptor. Improvement condition IC4 has been added to the permit to address this.

We are satisfied that, with the addition of Improvement Condition IC4, the fuel storage arrangements meet our Oil Storage Regulations for Businesses guidance requirements.

Noise Impact

A Noise Impact Assessment (NIA) was provided by the applicant. We reviewed the requirement for a full noise impact assessment using our qualitative noise screening criteria. Based on the location of the installation and the close proximity of residential receptors to the site boundary, we agreed that a NIA was necessary.

The original NIA received was not undertaken in accordance with our guidance and a revised assessment was requested at the duly making stage. The revised assessment was received on 14/09/2023. This identified local noise-sensitive receptors, potential sources of noise at the proposed plant and noise attenuation measures. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey, and an assessment was carried out in accordance with BS 4142:2014+1:2019 to compare predicted plant rating noise levels with the established background levels.

The assessment modelled noise from the existing and proposed generators using an in-house model. The predicted rating noise level from the existing and proposed generators is +1 dB above the nighttime background noise climate, with all generators operating in the event of a power outage. Based on the context of this only occurring during a power outage, the consultant concluded that this would be considered as a low impact at night.

We have undertaken an audit of the assessment and undertaken our own sensitivity check modelling to compare results to the consultants'. We broadly agree with the consultants' findings in the assessment and consider the plant to have a potential low impact at nearby residential receptors with respect to noise and vibration. We therefore concluded that an accompanying Noise Management Plan (NMP) was not required for this application at this time.

Routine operation of the generators for testing purposes will only occur during the daytime, when residual and background sound levels are naturally higher. As sustained operation of the engines should occur only infrequently this limits the potential for impact from the generators. We consider the likelihood of prolonged outages to be low.

The following measures will be in place to reduce potential noise impacts from the installation:

- All on-load tests will be carried out on weekdays when background levels are at their highest.
- Equipment (including generators) is maintained and inspected in accordance with manufacturer's guidance).
- Unusual noises / vibrations will be investigated immediately in accordance with EMS procedures.
- The existing generators and three of the new generators are located internally within the main data centre building and are installed within a purpose built acoustically treated plantroom with inlet and outlet exhaust attenuators. The remaining four new generators will be installed externally within a purpose-built container complete with inlet outlet and exhaust attenuators. As such the generators will generally be a negligible noise source compared to the ventilation paths.

Despite not requiring a NMP as part of this determination, we have included our standard noise conditions (3.4) within the permit, which allows us to ask for a Noise Management Plan if we become aware of noise-related issues on site.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Health & Safety Executive (HSE)
- Slough Borough Council Local Authority (planning and environmental health)
- UK Health Security Agency (UKHSA) (formerly Public Health England (PHE))

The comments and our responses are summarised in the [consultation responses](#) section.

Operator

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.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation' and Appendix 1 of RGN 2 'Interpretation of Schedule 1'.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

This shows the extent of the site of the facility including the emission points.

The plan is included in the permit.

Site condition report

The operator has provided a description of the condition of the site. The original description of the site contained data from only a single round of groundwater monitoring from only three of the six installed boreholes. The site was a former industrial works and had undergone remediation prior to the current applicant locating there. We therefore did not consider that this was satisfactory and asked for further monitoring to be undertaken, to include a minimum of three rounds of groundwater monitoring (at no less than monthly intervals) and analysis at all six boreholes installed during the site investigation. An updated Site Condition Report and Site Investigation Report were received on 02/08/2024.

We consider the updated information is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England. A Stage 1 Habitats Regulations Assessment (HRA) was sent to Natural England for information only.

The decision was taken in accordance with our guidance.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Operating techniques for emissions that do not screen out as insignificant

Short-term emissions of 1-hour NO₂, NO₂ AEGL-1s, 24-hour benzene, 24-hour PM₁₀, and 1-hour NO cannot be screened out as insignificant during the testing and emergency scenarios. In addition, long-term emissions (inclusive of both testing and 72 hours of emergency operations) of NO₂, NO, PM_{2.5}, and benzene cannot be screened out as insignificant during the emergency scenario.

We have assessed whether the proposed techniques are Best Available Techniques (BAT). We consider that emergency operation of the generators for 72 hours is very unlikely to occur; resilience has been built into the power supply system with multiple power cables, to reduce the likelihood of emergency operations.

The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. However, we have included Improvement Condition IC5 in order to seek improvements in short term emissions of NO_x from the existing generators. The permit conditions

enable compliance with our Environment Agency Data Centre FAQ guidance.

Operating techniques for emissions that screen out as insignificant

Short-term emissions of 1-hour NH₃ and 8-hour and 1-hour CO have been screened out as insignificant for both the testing and emergency scenario, and long-term emissions (inclusive of both testing and 72 hours of emergency operations) of NH₃ and PM₁₀ have been screened out as insignificant. We therefore agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

We consider that the emission limits included in the installation permit reflect the BAT for the sector.

National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values in line with technical guidance we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

Raw materials

We have specified limits and controls on the use of raw materials and fuels.

Table S2.1 specifies that the gas oil (or equivalent fuel agreed by the Environment Agency) for fuelling generators must have a sulphur content lower than 0.001%.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

We have included the following Improvement Conditions:

We have specified that the operator shall have a written action Air Quality Management Plan (AQMP) to manage the risks for prolonged emergency running of the plant and limit the duration of an outage event to less than 50 hours, as far as possible. This needs to be proportionate to the level of risk at the receptors. The operator is expected to work with the Local Authority to develop this plan to

ensure local factors are fully considered. This AQMP is included in the permit through improvement condition 1 (IC1).

We have set improvement condition 2 (IC2) requiring the operator to detail proposals and subsequently undertake a monitoring programme to verify the predicted short-term nitrogen oxides (NO_x) and dust concentrations at the boundary of the site or off-site locations of sensitive receptors as appropriate.

Improvement condition 3 (IC3) requires the operator to submit a report for approval outlining the performance of the SCR systems associated with emission points EP7 to EP13.

Improvement condition 4 (IC4) requires the operator to submit a revised drainage plan for approval outlining proposals and timescales for directing the drainage to an oil interceptor prior to discharge off site. This is to address the areas of the site draining into emission point SW1 that currently do not pass through a separator.

Improvement condition 5 (IC5) requires the operator to submit a plan to reduce the predicted short-term nitrogen dioxide emission impacts during the maintenance, testing and emergency operations of the generators.

Emission Limits

We have decided that emission limits are not required in the permit.

As the plant is limited to less than 500 hours of emergency operation by permit condition 2.3.3 and less than 50 hours for maintenance and testing in permit table S1.2, air emission limits are not applicable.

Monitoring

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. In particular:

We have specified monitoring of emissions of carbon monoxide from emission points EP1 to EP13, with a minimum frequency of once every 1,500 hours of operation or every five years (whichever comes first). This monitoring has been included in the permit in order to comply with the requirements of Medium Combustion Plant Directive (MCPD), which specifies the minimum requirements for monitoring of carbon monoxide emissions, regardless of the reduced operating hours of the plant.

We have also specified monitoring of emissions of nitrogen oxides (NO_x) from emission points EP1 to EP13, with the same frequency specified for the monitoring of carbon monoxide emissions. In setting out this requirement, we

have applied our regulatory discretion, as we consider that this limited monitoring, to happen in concurrence with the carbon monoxide monitoring, is proportionate to the risk associated with the emissions of NOx from the installation.

Taking into account the limited hours of operation of the engines operating at the installation, and the fact that we are not setting emission limits for NOx and carbon monoxide, we consider this monitoring can be carried out in line with web guide 'Monitoring stack emissions: low risk MCPs and specified generators' Published 20 March 2024 (formerly known as TGN M5).

We have set an improvement condition (IC2) requesting the operator to submit a monitoring plan for approval by the Environment Agency detailing the operator's proposal for the implementation of the flue gas monitoring requirements specified in the permit. The improvement condition is applicable to all data centre permits which include new and any existing MCP with net rated thermal input of greater than 5MW, unless the application includes a monitoring proposal that already meets the requirements of table S3.1. This improvement condition is meant to leave some flexibility to regulatory officers to agree a practical timeline for the installation of sampling ports, when these are not available from the outset, or to take into account any relevant safety, cost and operational constraints affecting the monitoring regime: for example we would not consider BAT running a standby combustion plant for the sole purpose of testing emissions.

For new MCP, we have set a requirement for the first monitoring to happen within 4 months of the issue date of the permit or the date when each new medium combustion plant is first put into operation, whichever is later (permit condition 3.5.2) unless otherwise agreed under Improvement Condition 2.

For existing MCP with net rated thermal input of greater than 5MW, we have set a requirement for the first monitoring to happen at any time, but no later than the relevant compliance date (permit condition 3.5.2) unless otherwise agreed under Improvement Condition 2.

We have also specified continuous process monitoring of levels of nitrogen oxides (NOx) from emission points EP7 to EP13 because these generators are fitted with SCR, hence we consider this monitoring necessary to ensure the effective operations of the abatement system, to prevent excessive ammonia slip and to dose the right amount of urea solution. Because this monitoring is not specified to assess compliance with emission limits, we are satisfied that it will not require certification to MCERTS standards.

Reporting

We have specified reporting in the permit.

We require reporting of monitoring data as specified in Table S4.1

Table S4.2 requires additional performance parameters to be reported. Hours operating for both routine testing and emergency must be reported annually. Furthermore, upon commencement of emergency operations, the applicant will need to inform the Environment Agency within 24 hours of the engines starting up.

We made these decisions in accordance with our Environment Agency Data Centre FAQ document.

Management System

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Previous performance

We have assessed operator competence. There is no known reason to consider

We have checked our systems to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.

Financial competence

There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

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

Responses from organisations listed in the consultation section:

Response received from UKHSA

Brief summary of issues raised:

According to the EA guidance to understand the potential health impact on members of the public, the maximum hourly (100th percentile) NO₂ Predicted Environmental Concentration (PEC) should be reported as representative of the short-term impacts. The applicant reported, instead, the NO₂ short-term process contribution as 87.89th percentile hourly mean NO₂, only for scenario 2. We recommend that the applicant provides tables for the short-term impact on human receptors, for both scenarios 1 and 2, considering the 100% percentile NO₂ PEC.

While appreciating that exceedances of the hourly NO₂ will be infrequent, as apart from testing, a grid failure would be required to potentially result in 18 hourly means greater than 200 µg/m³, the applicant has not suitably assessed potential impacts. The maximum levels offsite should be calculated, and potential impacts assessed, taking into account that adjacent sites are also data centres. They may wish to make comparison of peak hourly levels offsite with the Health and Safety Executive's Workplace Exposure Limits (EH40), taking into account that they are for healthy workers.

In the accidents section of the Environmental Risk Assessment, the applicant has not considered the direct impact of fires on human receptors. We recommend the EA ensures that the mitigation measures in place, such as fire suppressions and fire detection systems are satisfactory to mitigate the off-site impact of fires.

Summary of actions taken:

Revisions of the Air Quality Permit Assessment were requested after the initial consultation which have included the addition of reporting and assessment of the 100% percentile hourly NO₂ if the most polluting generator ran all hours of the year.

Revisions of the Air Quality Permit Assessment also included an assessment of acute exposure for NO₂, comparing predicted concentrations to the United States Environmental Protection Agency's (EPA's) Acute Exposure Guideline Levels (AEGs) which represent guideline concentrations at which certain toxicological health effects are considered likely to occur.

With respect to the mitigation of fires the applicant has detailed adopted measures within the Environmental Risk Assessment. For the existing generators and three of the new generators that are housed internally within a purpose-built plant room a mist system is in place to extinguish fires. In addition, all existing and new generators are fitted with fire detection systems that utilise automatic shut off valves that will close in the event of a fire to shut off the fuel supply to the generator. In the event of a fire, firewater would drain to the surface water drainage system at emission points SW1 and SW2. Surface water drainage from the area of the site where the four new generators and their associated belly tanks are located will pass via a hydrodynamic vortex separator prior to discharging to the local sewer network at emission point SW2. This will be fitted with an automatic shut off valve which will activate when fuel is detected. This valve can also be closed manually in the event of a fuel spillage or in order to contain fire water. The remaining areas of the site drain to emission point SW1 without passing through an interceptor. Improvement condition IC4 has been added to the permit to address this.