Permitting Decisions- Bespoke Permit

We have decided to grant the permit for Union Park operated by Ark Data Centres Limited.

The permit number is ZP3527SS

The permit was granted on 06/10/2025.

The application is for the installation and operation of standby electricity generating combustion plant at a data centre. The data centre, known as Union Park and associated Energy Centre (EC3) is located in Hayes, in an urban location, which is relatively industrial in the immediate vicinity with residential properties to the north and south at national grid reference TQ 10436 79275.

The combustion plant comprises:

12 gas oil or equivalent substitute fuelled generators operating as standby generators each with a thermal input of 8.01 MWth.

The combined net rated thermal input of all gas oil or equivalent substitute fuelled standby generators on site is 96.12 MWth (12 x 8.01 MWth standby generators).

Operation of the data centre combustion plant will be regulated as a Section 1.1 Part A (1) (a) activity under the Environmental Permitting (England and Wales) Regulations (EPR) 2016 for the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts (MW).

The generators will supply emergency power to the data centre in the event of National Grid failure. In non-emergency scenarios, they will be operated only for testing and maintenance purposes to an agreed schedule. They will not provide any electricity themselves to the National Grid and all electricity generated will be used within the data centre.

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 Operator'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:

Nature of the site

The Union Park data centre and associated Energy Centre 3 (EC3) is one of three data centres to be constructed on the 'Union Park Data Centre Campus'. The other two data centres Energy Centre 1 (EC1) and Energy Centre 2 (EC2) are under the control of a separate Operator and thus are covered by a separate environmental permit (EPR/DP3442QV).

This application relates solely to EC3 which lies immediately adjacent to EC1.

As there is a different Operator to the existing permitted sites EC1 and EC2, the fuel store and delivery are specific to EC3 and the management system and operation of EC3 is separate from that for EC1 and EC2, the activity is not part of a multi-operator Installation. Therefore, EC3 is an Installation in its own right as there is no technical connection between the three sites.

Best Available Techniques (BAT) Assessment – Emergency Power Provision on Site

Technology & Fuel

The Operator carried out a BAT assessment of the viable technologies and fuel capable of providing emergency power at the data centre.

As outlined in the Environment Agency's 'Data Centre FAQ' document, we accept that gas oil or equivalent fuel generators are presently a commonly used technology for standby generators. Currently gas oil or equivalent fuel generators are the preferred option for the supply of standby power for data centres and are a proven technology for providing reliable resilience of functionality which can be started from cold very quickly.

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 maximum sulphur content of 0.001% w/w. We are in the process of developing our position on the use of gas oil substitute fuels such as HVO, therefore we have required that if any of these fuels are proposed, written agreement is sought by the Operator from the Environment Agency's regulatory officer. The Operator confirmed that the units can run on both gas oil and HVO. This fuel usage was agreed by us on 11/04/2025.

Managing Emissions

Point Source Emissions to Air

Emissions to air from the Installation will principally comprise combustion gases arising from the operation of the generation plant under emergency, testing and maintenance scenarios.

The primary pollutants of concern to air quality from the combustion processes at the Installation are oxides of nitrogen (NOx), carbon monoxide (CO), particulates (PM10, PM2.5), sulphur dioxide (SO_2) and ammonia (NH_3) from the SCR abatement.

The Operator has taken measures to minimise emissions from the gas oil or equivalent fuelled generators under emergency, testing and maintenance scenarios.

Both the Data Centre FAQ Headline Approach v21 and Emergency backup diesel engines on installations: best available techniques (BAT) - GOV.UK (www.gov.uk) specifies the BAT emissions specification for new gas oil fired reciprocating engines as emissions optimised to 2g-TA Luft or US EPA Tier 2 or an equivalent. These are the international standards that we have concluded that we will use to infer what BAT is for sites.

The Operator has confirmed that the 12 generators to be used at the data centre are emissions optimised to meet the US EPA Tier 2 standard. The Operator has also included a Selective Catalytic Reduction (SCR) NOx abatement system within the design. The SCR NOx abatement system on the generators will be used to limit the NOx emissions to a maximum of 95 mg/Nm^3 per generator at 5% oxygen, which is below the Medium Combustion Plant Directive (MCPD) 2015 limit for new gas oil or equivalent fuelled engines.

We do not consider SO_2 emissions to be a risk from the operation of the Installation as we have included a condition in the permit restricting the fuel to ultra-low sulphur gas oil or equivalent fuel resulting in negligible emissions of sulphur. The ammonia emission rate (due to slip from the use of SCR) is based on the emission concentration of 5 mg/Nm^3 at 5% O_2 as stated in the SCR datasheet. The Operator confirmed that the dosing of ammonia would not

commence during the first 15 to 20 minutes of generator operation (warm-up time), but for the purposes of the Air Quality Assessment, it was assumed that ammonia slip would occur as soon as the genrators operated. This is considered BAT.

Aqueous Releases from Site

The Operator confirmed that there will be no process emissions to surface water, foul sewer, groundwater, or land associated with the site.

The Operator confirmed that the site's drainage system is split into separate foul and surface water networks. This network serves the entire campus irrespective of the Operator/permit boundaries as it was originally designed for a single Operator for all 3 data centres.

As this site (EC3) lies adjacent to EC1 and EC2 (already permitted), the surface water and foul drainage emission points for EC3 will be the existing emission points in the EC1 and EC2 permit. These emission points will not be included in the permit as there cannot be dual regulation as it is already in the permit for EC1 and EC2. Therefore, 3 manholes have been identified that are close to the boundary with EC1 and EC2 that are considered to be the point at which the surface water and foul drainage system is discharged from EC3 into the campus drainage system of EC1 and EC2.

The Operator confirms that there will be an arrangement between both Operators regarding action to be taken should pollution be identified at any of the listed emissions points to determine the source of the pollution and which Operator is at fault and thus responsible.

Point Source Emissions to Foul Sewer

The Operator confirmed that there will be no contaminated emissions to the site foul sewer system associated with the regulated activity undertaken at the Installation.

Drainage from the fuel filling area, which includes the receiver fuel storage tanks discharges to the site foul sewer system via a Class I forecourt separator.

The site foul sewer system covering EC3 discharges into the already permitted EC1 and EC2 site via 1 manhole referenced as FWMH1 on the Plan in Schedule 7 of the permit.

The campus foul sewer system then discharges from EC1 and EC2 via a point source emission into the public foul sewer system maintained by Thames Water referenced as FW1 on the Plan in Schedule 7 of the permit (FW1 is not covered by this permit).The final point of discharge from the sewer is the River Thames via Beckton Sewage Treatment Works.

Point Source Emissions to Surface Water

The Operator confirmed that there will be no contaminated emissions to the site surface water drainage system associated with the regulated activity undertaken at the Installation.

The Operator confirms that the site surface water drainage network system collects surface water from building roofs and hard landscaping surfaces including site access roads, carparks and footways. Site roads and carparks are permeable pavements, which provide treatment through a combination of Permafilter geomembrane, coarse graded aggregates and permaceptors – These areas are not considered to be part of the permitted area as they are not associated with the generator, fuel storage or fuel unloading areas.

The Operator confirms that surface water run-off from all external areas discharge via full retention petrol interceptors to the site surface water drainage system except for the fuel filling areas which discharge to the site foul sewer system.

The site surface water system covering EC3 discharges into the already permitted EC1 and EC2 sites via 2 manholes referenced as SWMH1 and SWMH2 on the Plan in Schedule 7 of the permit.

The campus surface water drainage then discharges from EC1 and EC2 via 2 point source emissions into the River Crane referenced as SW1 and SW2 on the Plan in Schedule 7 of the permit (SW1 and SW2 are not covered by this permit).

Firewater

The Operator confirms that the generator enclosures include a fire suppression system. The fire suppression system will rely on mains water to extinguish fires. In the unlikely event of a fire, there is potential for fire water from either the site suppression system or emergency services to enter the environment and cause harm.

The Operator has sufficient emergency preparedness plans in place to mitigate this risk.

Interceptors

The Operator confirms the use of full petrol retention interceptors and forecourt separators.

- Two full retention interceptors (60 litre Kingspan) will treat run-off from the site including the loading ramp areas. The full retention interceptors will be a connected to the site surface water drainage system.

- A Class I forecourt separator (10,000 litre Kingspan) will treat run-off from the fuel filling area. The forecourt separator is connected to the site foul sewer system.

The Operator confirms that the interceptor tanks will contain a sensor that will be linked to the BMS and trigger an alarm if the presence of fuel is detected.

The Operator cofirms that all interceptors will be subject to periodic visual inspections.

Point Source Emissions to Groundwater/ Land

The Operator confirms that there would be no emissions to groundwater or land associated with the regulated activity undertaken at the Installation.

Air Quality

In line with the Environment Agency's guidance (Air emissions risk assessment for your environmental permit - GOV.UK (www.gov.uk)) and the relevant parts of the guidance applicable to the assessment of air dispersion modelling of emissions from generators (Specified generators: dispersion modelling assessment - GOV.UK (www.gov.uk)) the Operator submitted detailed air dispersion modelling and impact assessment to assess the predicted impacts on human receptors and ecological sites.

The methodology for risk assessment of point source emissions to air, and the associated definitions, are set out in our guidance Air emissions risk assessment for your environmental permit - GOV.UK (www.gov.uk).

Operator's Assessment of Potential Impact on Air Quality

The Operator submitted an Air Emissions Risk Assessment prepared by Phlorum Limited (the Consultant), which considered the potential impacts of the principal pollutants of concern with respect to emissions to air from low sulphur gas oil or equivalent fuelled generators. The Consultant has assessed potential impacts at human and ecological receptors for nitrogen oxides (NOx), sulphur dioxide (SO_2), particulates (PM10, PM2.5), carbon monoxide (CO), ammonia (NH_3) and VOCs as Benzene (C_6H_6) within the defined screening distances.

We will only focus on the impacts of NOx emissions because the other emissions are generally low risk compared to the emissions of NOx.

Human Receptors

The Consultant modelled 20 discrete human receptor locations to represent relevant public exposure.

Ecological Receptors

They considered the following protected European sites:

- South West London Waterbodies Special Protection Area (SPA)
- Richmond Park Special Area of Conservation (SAC)

They also considered 12 Sites of Importance for Nature Conservation (SINCs) and 1 Priority Woodland as receptor points.

The data centre is situated in an Air Quality Management Area (AQMA) (Hillingdon AQMA) declared by the London Borough of Hillingdon in 2003 for exceedances of the UK Air Quality Standard (AQS) for annual mean concentrations of nitrogen dioxide (NO_2). The site is also located in close proximity to an Air Quality Focus Area (AQFA), which is an area of known elevated concentrations of NO_2 and high levels of human exposure.

The Consultant assessed **four** scenarios: three testing and one emergency.

Scenario 1: Monthly start up testing - all generators run simultaneously at 10% load for 15 minutes.

Scenario 2: Quarterly testing - all generators run simultaneously at 80% load for 1 hour.

Scenario 3: Annual on load testing - generators run independently at 100% load for 2 hours each.

Scenario 4: Emergency Scenario - all generators operate simultaneously at 100% load for 72 hours.

Their conclusions were:

Impact on Human Health Receptors

- **No exceedances** of any Long Term (LT) environmental standards (ES) for any modelled scenario.
- **No exceedances** of any Short term (ST) ES for any modelled scenario.
- **No exceedances** of acute exposure guideline levels (AEGL) for any modelled scenario.

- It is also considered **unlikely** that cumulative air quality impacts would arise due to the operation of the neighbouring data centre facility.

Impact on Ecological Receptors

- PCs are **insignificant** compared to the annual and daily NOx critical levels, and nutrient nitrogen and acid deposition critical loads for all ecological sites in all modelled scenarios.
- It is also considered **unlikely** that cumulative air quality impacts would arise due to the operation of the neighbouring data centre facility.

Environment Agency review of Operator assessment of potential impact on air quality

We have carried out our own audit by means of detailed check modelling and sensitivity analysis on the air quality and habitats assessments presented by the Consultant which included:

- Using our own observed meteorological data from Heathrow Airport for the years 2016 to 2020.
- Using alternative surface roughness lengths at both the dispersion and meteorological sites.
- Using 50 m resolution Ordnance Survey (OS) terrain data for topography.
- Including one additional human health receptor to the north-east of the dispersion site.
- Including additional receptors in the South West London Waterbodies SPA and South West London Waterbodies Ramsar sites to ensure modelling of worst-case exposures.
- Including one additional LWS (Yeading Brook, Minet Country Park and Hitherbroom Park LWS) within the relevant 2 km screening distance of the combustion sources.

Human Health Assessment

As a result of our checks, we find that the process contributions (PCs) from the facility are **not predicted to exceed** the ES at locations of exposure for human health under any operating scenario.

Habitats Assessment

As a result of our checks, we find that the process contributions (PCs) from the facility are **not likely to exceed** the critical loads and levels at any of the ecological sites under any operating scenario.

The testing and emergency scenario predictions are **unlikely to exceed** the daily NOx critical level of 200 µg/m^3.

Overall

We conclude **no exceedances** at either human health or ecological receptors for either the testing or emergency scenarios.

We consider the risk of significant in-combination impacts with the neighbouring data centre to be low, as the testing regimes are infrequent and unlikely to overlap during worst-case meteorological conditions.

Protection Against Power Outage and Minimisation of Generator Operation

The largest risk of gaseous emissions from the site occurring which could impact human health or ecological receptors would be if the gas oil or equivalent fuel generators had to operate for any significant period of time following a National Grid failure.

To address this scenario and minimise emissions, the Operator:

- Has designed the data centre so the redundancy arrangement for the generators is N+1, where 'N' is the number of generators required to carry the maximum electrical load. At full capacity, each set would be running at a maximum of 85.7%. Thus, in an outage only 11 of the 12 generators are required to carry the maximum site load i.e. 1 of 12 generators are not required to operate.

- Utilises uninterruptable power supply (UPS). Power is initially provided by the site's Uninterruptible Power Supply (UPS) (arrangement of batteries) until the generators start to take the site's electrical load. The generators start from 'cold' to take on the load from the UPS (typically within 30-120 seconds). The backup generators then provide ongoing power until a stable mains electrical supply is restored.

- Has designed the data centre to be a Tier III facility, this includes having multiple independent distribution paths serving the IT equipment, all IT equipment is dual-powered and fully compatible with the topology of the site's architecture and has concurrently maintainable site infrastructure with expected availability of 99.982%.

- Has designed the data centre so that each generator will be independent in terms of fuel supply, cooling, fire safety, shut down and control.

- Has developed multiple electrical feed connections. The grid electrical infrastructure to the site includes 2 substations (Iver 275kV substation and North Hyde 66kV substation). The relevant part of the grid substation has 3 incoming feeds to make 2 outgoing supplies to the on-site substation.

Each supply can support the full site load, meaning that if one supply was to fail, electrical provision to the Installation would not be compromised.

- Has designed the site to be operated 24-7. The site will be manned 365 days a year with monitoring by security staff from a security office using an extensive CCTV and alarm system. Entry and exit to the site will be tightly controlled via a security gate and turnstiles. There will also be a 2.5m palisade security fence which will act as an impenetrable perimeter to prevent unauthorised access to the site.

Furthermore, the likelihood of long periods of reliance on the generators to provide power to the site is considered to be highly unlikely given that the National Grid Electricity Transmission System, which serves the site, reportedly achieved an overall reliability of supply of 99.999981% over the period 2022-23.

Operational hours

In order to minimise generator operation, we set operational hour limits for data centres at 500 hours as they are permitted for emergency use only. The limit on the emergency use of 500 hours is for the Installation as a whole i.e. as soon as one generator starts operating the hours count towards the 500 hours.

The operational hours on the site will be monitored and reported as follows:

- Emergency operation limited to 500 hours for the Installation via permit condition 2.3.3.
- Maintenance and testing regime limited to <50 hours per stack, linked to operating techniques table S1.2.

Containment and Prevention of Pollution to Ground, Surface water and Groundwater

Fuel Storage, Distribution and Containment

The Operator has demonstrated that there are robust systems in place for the containment of fuel.

Fuel Storage - Day (Belly) Tanks

Gas oil or equivalent fuel will be stored at the site in day (belly) tanks. The day tanks will be located underneath each generator set providing the generators with a minimum of 72 hours of continuous operation at 100% rated load.

Fuel storage - There are 12-day tanks on site and each stores approximately 52,000 litres of fuel. Therefore, there is a total of 624,000 litres of fuel (12 generators @ 52,000 litres = 624,000 litres) stored in the day tanks.

Fuel Storage - Receiver Tanks

Gas oil or equivalent fuel will also be stored at the site in 2 above ground receiver tanks providing further fuel storage from which the belly tanks will be fed.

Fuel storage - There are 2 above ground bulk storage tanks and each stores 2,500 litres of fuel. Therefore, there is a total of 5,000 litres of fuel (2 bulk storage tanks @ 2,500 litres = 5,000 litres) stored in the above ground bulk storage tanks.

The total capacity for fuel storage on this site is 629,000 litres.

Containment Protection - Day (Belly) Tanks

The generator sets are present inside the Energy Centre building.

Each generator will be provided with a day tank containing sufficient fuel for the units to operate for a minimum of 72 hours at 100% load, with each tank operating independently. Each tank will be located underneath the generator it serves, with fuel being transferred from the tanks to the generating sets via pumps and pipelines. Each day tank will be contstructed from carbon steel fully welded internally and externally and manufactured to the water environment standard for oil storage.

The independent day tanks will be fed from the receiver tanks located inside the Energy Centre building via one of two external fill points.

The day tanks will have the following protection measures to ensure no loss of containment:

- Constructed from carbon steel fully welded internally and externally and manufactured to the water environment standard for oil storage.
- The tanks conform to BS 799 pat 5 type J 2010 with a max working head above tank of 0.5m and are integrally bunded to 110%.
- Located internally in the generator building limiting exposure to the elements and reducing the risk of corrosion and spillages entering the environment.
- Overfill prevention valves - probes in tank which set off an alarm at the fill point cabinet if filling process exceeds the max levels.
- Leak detection - float switch within the tank bund to provide leak detection which sets off an alarm at the fill point cabinet.
- Level detectors linked to fuel control panel in the fuel fill cabinet showing actual tank contents.
- All generator enclosures will be fitted with fire detection systems - Generators and tanks are to be fitted with valves that will automatically shut in the event of a fire shutting off the fuel supply.

- Spill kits (including drain covers) will be provided in close proximity of fuel storage and fill points.
- Drip trays to capture spillages from fill points and associated pipework will also be provided.
- PPM regime.

Containment Protection - Receiver Tanks

There will be 2 above ground receiver tanks on site for gas oil or equivalent fuel, which will fill the individual belly tanks associated with each generator.

The receiver tanks are present inside the Energy Centre building.

The receiver tanks will be connected to one of two fill point cabinets (fill system A and B). Should a malfunction occur using fill system A, the Operator can switch to fill system B to continue operation.

The receiver fuel tanks are filled via a locked floor cabinet, fitted with a non-return valve, fuel fill control panel, and manual isolation value (complete with drip tray).

Each tank contains a vent to bund and an inspection hatch.

The above ground receiver tanks will have the following protection measures to ensure no loss of containment:

- Constructed from tank plates of 3mm sheet steel fully welded internally and externally and manufactured to the water environment standard for oil storage.
- The tanks conform to S274JR BS EN 1025:2004, in accordance with BS 799 Pt. 5 Type J and are integrally bunded to 110%.
- Located internally in the generator building limiting exposure to the elements and reducing the risk of corrosion and spillages entering the environment.
- Fill points for the tanks are located external to the generator building and are located in a lockable cabinet with a drip tray to capture minor spills.
- A bunded pump cabinet with roller shutter door and internal leak detection shall be connected at the end of the fuel oil receiver tanks to contain the fuel transfer pump system.
- Overfill prevention valves - probes in tank which set off an alarm at the fill point cabinet if filling process exceeds the max levels.
- Leak detection - float switch within the tank bund to provide leak detection which sets off an alarm at the fill point cabinet.
- Level detectors linked to fuel control panel in the fuel fill cabinet showing actual tank contents.
- Spill kits (including drain covers) will be provided in close proximity of fuel storage and fill points.

- Drip trays to capture spillages from fill points and associated pipework will also be provided.
- PPM regime.

Containment Protection - Tanker Unloading Area

Fuel consumption is low in this Installation due to the plant being used for emergency backup power generation only. As such, fuel deliveries are on average less than once per year. When required, refuelling is conducted by trained fuel tanker drivers and supervised by a trained member of the site engineering team.

The tanker unloading area will have the following protection measures to ensure no loss of containment:

- Impermeable concrete hardstanding.
- A full fuel interceptor is to be installed at each loading ramp to prevent any spillages from entering the surface water drainage system.
- A forecourt separator is to be installed at the fill points to prevent spillages from entering the foul water system.
- Refuelling is conducted by trained fuel tanker drivers and supervised by a trained member of the site engineering team.
- The Operator will establish a standard operating procedure (SOP) (or similar) to facilitate refuelling activities. This SOP is intended to help reduce the risk of a spillage during refuelling. These are supplemented by additional supplier procedures for fuel deliveries.
- The Operator will develop additional controls to help reduce the risk of an incident including a SOP for spill response and spill kits.
- Deliveries of fuel are expected to be infrequent since the generators are only to be used for emergency operations.
- Spill kits and drain covers will be provided in refuelling areas.
- Drip trays shall be provided underneath the fuel pumps in case of a leakage.
- PPM regime.

Containment Protection - Pipework

The pipework on site will have the following protection measures to ensure no loss of containment:

- The 2 pipelines that supply the belly tanks, as well as the connected pipework from the header to the generator canopies will be double skinned steel welded pipe.

- As the pipework enters the canopies it shall step down to a single skinned pipe connecting to the motorised valves and belly tank through a bunded area.
- The generator supply and return lines shall consist of single skinned pipework connected through an internal connection between the belly tank and the generating set canopy.
- Vacuum leak detection on double skinned pipework.
- PPM regime.

Raw Material Storage, Distribution and Containment

As well as gas oil or HVO, the raw materials associated with the operation of the generator plant are:

- Urea Solution

Urea Solution

Containment Protection - Day Tanks

The generators have been fitted with an SCR system which uses urea as a raw material to provide NOx abatement. Each generator will have its own 2,500 litre urea storage tank which contains sufficient urea to operate for 48 hours and enables a urea flow rate of 37 litres per hour.

The urea tanks will be located on top of the generator containers inside the Energy Centre building.

The tanks for urea will have the following protection measures to ensure no loss of containment:

- Each urea tank is constructed from polyethylene and is integrally bunded to 110% of the capacity of the tank.
- Located internally in the generator building limiting exposure to the elements and reducing the risk of corrosion and spillages entering the environment.
- Monitoring of the system is to be achieved remotely once connected to BMS (or similar system).
- Overflow protection with alarms.
- Leak detection devices with alarms.
- PPM regime.

Tertiary Containment

Tertiary containment includes:

- All operational areas of the Installation will comprise of impermeable concrete flooring with site drainage.
- Site drainage via alarmed interceptors before discharge.
- All site infrastructure will be maintained regularly, including site drainage systems.
- Spillage procedures.
- PPM.

Noise

Noise is not a significant aspect of data centre permitting (noting that it is only the standby generators and associated gas oil or equivalent fuel supply systems that are permitted – not the operation of the data centre itself). The site will only run the generators regularly as part of the testing regimes described earlier, occurring during daytime hours. Overnight operation of the generators will only occur in an emergency situation. As this is a new Installation it is not possible to consider the likelihood of overnight operation by examining the frequency of historical outages, but the potential for prolonged power outages in the area is considered to be low.

However, the Operator has carried out a Noise Impact Assessment (NIA) for the operation of the generators at the data centre and has done so in full cognisance of the operating regime of the other two adjacent data centres.

Operator's assessment of potential noise impact:

The Operator submitted a Noise Impact Assessment prepared by Auricl Acoustic Consulting (the Consultant), which considered the potential impacts of noise emissions on the nearest residential Noise Sensitive Receptors (NSRs) with respect to the operation of the generators.

The Consultant included the following sources of noise generation:

- 11No. emergency generators operating simultaneously (12 generators in total, operating with a redundancy of N+1).

The Consultant considered the nearst Noise Sensitive Receptors (NSRs) to the site, which were residential.

The Consultant assessed simultaneous operation of 11 proposed emergency generators only. Testing of generators has not been included. This was the worst-case scenario.

Their conclusions were that the noise levels associated with the plant are predicted to achieve the noise limits at the nearest noise sensitive properties.

Environment Agency review of Operator's assessment of potential noise impacts

We have carried out our own audit by means of detailed check modelling and sensitivity analysis on the Noise Impact Assessment (NIA) presented by the Consultant.

As a result of our checks, we find that during emergency conditions the noise is low impact by day and night.

Following sensitivity check modelling, we find that low impacts are likely from the permitted activities at the nearest residential receptors. This is acceptable in terms of Environment Agency guidance, and therefore, sound emissions from the site are acceptable.

Permit Conditions

The Permit condition 2.3.3 limits emergency operation to 500 hours/ annum.

Table S1.2 incorporates the maintenance and testing regime, which is less than 50 hours/ generator.

Emission limit values (ELVs) to air are not applicable to MCPs operating less than 500 hours per year.

Emergency operation includes those unplanned hours required to come off grid to make emergency repair of electrical infrastructure associated but occurring only within the data centre itself. The Environment Agency expects planned testing and generator operations to be organised to minimise occasions and durations (subject to client requirements).

Each individual standby generator that is a new Medium Combustion Plant (MCP) is required to have stack monitoring for carbon monoxide (CO) and NOx, refer to monitoring section below.

Table S1.1 of the permit prevents any electricity produced at the Installation from being exported to the National Grid.

Table S1.2 incorporates operational and management procedures reflecting the outcomes of the air quality modelling by minimising the duration of testing, the duration and frequency of whole site tests and planning off-grid maintenance

days and most importantly times/ days to avoid adding to any high ambient pollutant background levels.

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.

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

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.

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.

The decision was taken in accordance with our guidance on confidentiality.

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:

- Local Authority - Environmental Protection Department
- Local Authority - Planning
- Health and Safety Executive
- UK Health Security Agency (previously Public Health England)
- Local sewerage undertaker
- Canal & River Trust
- Airport operator and National air traffic services (NATS)

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', 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 plans which we consider to be satisfactory.

These show the extent of the site of the facility including the discharge points.

The plan is included in the permit.

Site condition report

The Operator has provided a description of the condition of the site, which we consider 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.

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 Operator must use are specified in table S1.2 in the environmental permit.

Operating techniques for emissions that screen out as insignificant

Emissions of nitrogen oxides (NOx), ammonia (NH_3), sulphur dioxide (SO_2), carbon monoxide (CO), particulate matter (with a diameter less than 10 microns (PM10) and 2.5 microns (PM2.5)) and VOCs as Benzene (C_6H_6) have been screened out as insignificant, and so we agree that the Operator'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.

Pre-operational conditions

Based on the information in the application, we consider that we need to include Pre-operational Conditions. The following pre-operational conditions have been included in the permit:

PO1 - Commissioning
The Operator shall submit a commissioning plan to the Environment Agency for approval. The plan shall provide timescales for the commissioning of the generators and shall demonstrate that the commissioning of the generators is covered within the site's permitted regular testing regime, thereby minimising durations and impacts.

We have included this pre-operational condition as the risk assessment submitted with the application does not cover the commissioning phase.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme. The following improvement conditions (ICs) have been included in the permit:

IC1 - Air Quality Management Plan (AQMP)
We have specified that the Operator shall have a written 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.

IC2 - Monitoring plan - flue gas monitoring requirements
We have specified that the Operator shall have a written monitoring plan to ensure that they comply with the monitoring requirements of the permit.

IC3 - Performance of SCR systems
The Operator shall submit a report to the Environment Agency for approval. The report shall provide information on the specification and suitability of the NOx sensors and urea solution dosing to the SCR systems. It will also contain evidence of the calibration of the NOx sensors and verification of the levels of unabated and abated NOx emissions upstream and downstream of the SCR system and whether the NOx system is achieving the NOx abatement performance stated in the application.

We have included this improvement condition to satisfy ourselves that the NOx abatement system is fit for purpose.

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-EP12 (new MCP), with a minimum frequency of once every 1500 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 the 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 (NOx) from emission points EP1-EP12 (new MCP), 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 04 June 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.

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 MCP is first put into operation, whichever is later (permit condition 3.5.2) unless otherwise agreed under IC2.

We have also specified continuous process monitoring of levels of nitrogen oxides (NOx) from emission points EP1-EP12 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 to ensure the site is operated to the standards specified in the Operating Techniques including the reporting of emissions to air and SCR abatement efficiency.

We have specified reporting to ensure the Operator notifies us of any operation of the stand-by generators in emergency mode in response to national grid power outage.

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 the Operator will not comply with the permit conditions.

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 Local Authority - Environmental Protection Department

Brief summary of issues raised: No comment in relation to land contamination.

Summary of actions taken: None.

Response received from UK Health Security Agency (previously Public Health England)

Brief summary of issues raised:

- Noted that the Operator indicates that generator testing and maintenance scheduling will not overlap with neighbouring sites. Recommendation that where possible other mitigation measures such as undertaking the testing and maintenance in favourable weather conditions that aid dispersion to minimise the potential for impacts on public health are considered.

- The Operator plans to produce an air quality management plan once the site is operational, which would be implemented in the event of a grid failure. Recommendation that the Environment Agency should satisfy themselves that the proposed measures within the air quality management plan are appropriate to minimise exposures off-site.

- The Operator's Environmental Risk Assessment outlines a number of mitigation measures related to presented accident/ incident scenarios. This includes a PPM regime which will be implemented once operational to cover visible emissions occurrences, visual checks on leaks/ spills/ smoke emissions and generator maintenance but no additional details are provided. Recommendation that the Environment Agency should satisfy themselves that there are appropriate procedures in place.

Summary of actions taken:

With regard to the Operator's generator testing and maintenance schedule, as described in more detail in the Air Quality Section above, we audited the Operator's air quality assessment, including undertaking detailed check modelling and completing sensitivity analysis. We agree with the Consultant's overall conclusions that the site is unlikely to cause an exceedance of an ES at human health receptors and is unlikely to make a significant contribution to or cause an exceedance of any critical loads and levels at ecological receptors providing they adhere to their testing and maintenance schedule.

With regard to the air quality management plan, we have specified that the Operator shall have a written 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.

With regard to the Operator's proposed PPM regime, we have received further information from the Operator regarding their PPM and inspection regime and we are satisfied that there are appropriate procedures in place.

Response received from Local sewerage undertaker

Brief summary of issues raised: No comments.

Summary of actions taken: None.