

# Permitting decisions

## Bespoke permit

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We have decided to grant the permit for Cody Park Data Centre operated by Ark Data Centres Limited. The permit number is EPR/VP3235DJ.

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 checklist to show how all relevant factors have been taken in to account.

This decision document provides a record of the decision making process. It:

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision checklist](#) to show how all relevant factors have been taken into account
- 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. The introductory note summarises what the permit covers.

## Key issues of the decision

### Description of the installation

The combustion plant comprises 69 diesel fuelled standby generators. 36 of the generators have a thermal input of 2.71MWth, 24 generators at 5.38MWth and 9 generators at 3.66MWth each. The aggregated total combustion capacity on site is approximately 260MWth. At the time of permitting 53 of the 69 generators had been installed but the supporting information including the air quality risk assessment within the application considered the total proposed capacity of 69 generators.

Electrical power is provided to the data centre from the National Grid. However, in the event of a failure in the electrical supply, the operator will utilise the generators to maintain the electrical supply. The generators will be used solely for the purpose for generating power for the facility. No electricity will be exported from the installation. The generators have either individual exhaust or dual flues which range between 4.93m and 5.65m in height above ground level.

The diesel fuel is stored in individual double skinned tanks below the generators. The tanks vary in size from 19,000 litres up to 41,700 litres. They are bunded and fitted with leak detection alarms. The site is covered in hardstanding and surface water drains into an oil interceptor prior to discharge from site. Surface water run off from the concrete refuelling bays is discharged to foul sewer.

The standby generators are designed and configured so that in the event of a mains failure all the generators will fire up then subsequently ramp down to meet the load demand at the site. All the generators are subject to a testing schedule which is as follows:

- **Scenario 1 - Weekly testing**

Each week a different group of 4 generators is tested. This includes running the generators simultaneously to an off-load power (up to 30% maximum continuous rating (MCR)) for 10 minutes. Once a quarter the 4 generators selected for testing are run simultaneously for 15 minutes at up to 80% MCR.

- **Scenario 2 - Annual service testing**

Annually a full service test is undertaken where once a year one standby diesel generator is started, loaded using a load bank (up to 100% maximum continuous rating (MCR)). This scenario is usually undertaken over a two-hour period. Only one generator is tested per day.

- **Scenario 3 - Grid Outage Event**

Standby operation of the generators will only occur in the event of a power failure. A Grid Outage Event of up to five days loss of grid power at a frequency of once per five years has been assumed as a worst case event. The applicant has confirmed that in the past 10 years the maximum number of hours that the generators have been required to run has been 4 hours.

## Air Quality

The primary pollutant of concern to air quality is nitrogen dioxide (NO<sub>2</sub>) resulting from the combustion process on site. The Applicant has submitted an air dispersion modelling report which assesses the potential impact of emission of NO<sub>2</sub> from the generators on local air quality.

The data centre is not situated in an Air Quality Management Area (AQMA) and there are no AQMAs within 2km of the site.

We have audited the air dispersion modelling and report submitted with the permit application. Both the maintenance testing and emergency scenarios within the modelling were assessed.

### Data inputs and assumptions for the submitted modelling

The modelling was based on the incorrect NO<sub>x</sub> emission rates for the generators associated with buildings A101 and A102. They used a value of 0.656 g/s, which is inconsistent with the generator data sheets in the latest air quality submission. We have conducted sensitivity analysis to 1.689 g/s from these generators.

The emissions from the sixty nine generators were consolidated into four point sources, one for each of the four buildings A101, A102, A103 and A104. This method led to inaccurate predictions for ground level concentrations close to the site.

The nitrogen monoxide (NO) Environmental Assessment Levels were not considered. They had however assessed against the United States Environmental Protection Agency Acute Exposure Guideline Levels (AEGs). We considered NO and NO<sub>2</sub> impacts in our checks.

The eastern side of the Cody Sports and Social Club grounds, which is close to the data centre and where predicted NO<sub>x</sub> levels are higher were not considered. We considered all locations where human health public exposure is likely in our checks.

A NO<sub>x</sub> to NO<sub>2</sub> conversion ratio of 15% was assumed, referencing our generic diesel generators short term NO<sub>2</sub> risk assessment report. This is likely to be appropriate for public exposure within 500 m.

ADMS v.5 was used with meteorological data from the nearby Farnborough Airport for the years 2011 - 2015 and a dispersion site surface roughness length of 0.5 m. We tested sensitivity to lower values.

The effects of adjacent buildings were taken into account.

### Maintenance testing

For 'event 1 - weekly testing' we have concluded that there is unlikely to be any exceedance of EAL at human health receptors or habitats sites.

For the 'event 2 - service test scenario', which is a two hour test of each generator individually on separate days, we found that:

- There is unlikely to be exceedances of the environmental standards at sensitive human health receptor locations.
- There is unlikely to be an exceedance of the NO<sub>2</sub> AEGL-1 outside the site boundary.
- Impacts at protected conservation areas are unlikely to be significant.

### **Emergency scenario**

An assumed 5 day worst case scenario for full loss of power has been modelled which is a worst case scenario.

For 'Event 3 - grid outage scenario' we found that there is the potential for exceedance of:

- The NO<sub>2</sub> and NO environmental standards at sensitive human health receptor locations.
- The NO<sub>2</sub> AEGL-1 outside the site boundary.
- The daily NO<sub>x</sub> critical level at a number of nearby protected conservations areas.

The highest risk locations where there is potential public exposure are west of building A104, in particular the playing fields area of the Cody Sports and Social Club grounds. Provided power outages continue to be unlikely the risk of an air quality exceedance is low. According to the applicant, in the last 10 years generators have only been run for a maximum of 4 hours.

The EA has specified that the operator shall have a written action Air Quality Management Plan (AQMP) to manage the issue for prolonged emergency running of the plant. 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 IC1.

### **Permit conditions**

The permit will include a maximum 500 hour 'emergency/standby operational limit' for any or all the plant producing on-site power under the limits of the combustion activity; and thereby emission limit values ELVs to air (and thus engine emissions monitoring) are not required within the permit. Emergency hours' 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.

Each individual generator, can be maintained, tested and used in a planned way for up to 500 hours per calendar year each without ELVs or associated monitoring under IED/MCPD. Though clearly the EA expects planned testing and generator operations to be organised to minimise occasions and durations as far as practicable.

Reporting of standby engine maintenance run hours is required annually and any electrical outages (planned or grid failures regardless of duration) requires both immediate notification of the Environment Agency and annual reporting.

### **Noise**

The primary noise sources on site are the generators, chillers, fans and transformers. The generators are located within acoustic containers to reduce sound emissions. The generators have dual flues for noise attenuation purposes.

We are not aware of any previous noise complaints relating to the site.

The Applicant submitted a noise assessment with the application in line with BS4142. As Cody Park was not fully built, the predicted operational noise levels were based on another data centre which is built in the same layout. Noise levels predicted at the closes sensitive receptors were 4-11 dB lower than the background levels. In line with BS4142 this indicates that the installation is unlikely to have an adverse impact on nearby receptors.

Although no noise management plan has been requested to date, condition 3.4 enables the Environment Agency to request one if considered necessary in the future.

### **BAT**

We accept that oil fired diesel generators are presently a commonly used technology for standby generators in data centres. However we requested a BAT assessment detailing the choice of engine, the particular configuration and plant sizing meeting the standby arrangement.

The default generator specification as a minimum for new plant to minimise the impacts of emissions to air (NO<sub>x</sub>) is 2g TA-Luft (or equivalent standard) or an equivalent NO<sub>x</sub> emission concentration of 2000mg/m<sup>3</sup>. The

generators on the site meet this standard. We agree with the operator that the engines are BAT for the proposed operation.

## **Protection of Groundwater**

The site is covered in hardstanding. Diesel tanks are double skinned and part of a preventative maintenance programme. Leak detection alarms are installed within the tanks. Each set of generators are housed within bunded containers. Fuel lines to generators are enclosed.

Storm drains in the generator compound run into the petrol / oil interceptor located under the car park. The interceptor is cleaned on an annual basis.

Each set of generators are housed within bunded containers sufficient to contain complete loss of all fluids held within the generator / engine. Spill prevention kits are located in the plant areas.

Fuel is supplied to the engine by a suction pump. A float switch is present in the tank to detect the level of liquid. Fuel fill points are bunded Oil interceptors have been installed on the drainage system surrounding the fuel tank/fill points and drain to foul sewer.

## Decision checklist

Aspect considered	Decision
<b>Receipt of application</b>	
Confidential information	A claim for commercial or industrial confidentiality has not been made. The decision was taken in accordance with our guidance on confidentiality.
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.
<b>Consultation</b>	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: Environmental Health – Hart District Council Food Standards Agency Health and Safety Executive Public Health England and Director of Public Health The comments and our responses are summarised in the <a href="#">consultation section</a> .
<b>Operator</b>	
Control of the facility	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.
<b>The facility</b>	
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 RGN 2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1', guidance on waste recovery plans and permits. 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.
<b>The site</b>	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. 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. Based on the site condition report, we consider that appropriate pollution prevention measures are in place and that the pollution of land and water is unlikely. The decision was taken in accordance with our guidance on site condition reports.
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.  See key issues section for additional information.  We sent a Habitat Risk Assessment (HRA) to Natural England for information only on 20/11/2019. The decision was taken in accordance with our guidance.
<b>Environmental risk assessment</b>	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory, however we have included improvement conditions to ensure additional considerations of risk relating to emissions to air are considered on an ongoing basis.  See key issues section above.
<b>Operating techniques</b>	

<b>Aspect considered</b>	<b>Decision</b>
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.
<b>Permit conditions</b>	
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. We have imposed an improvement programme as outlined in the key issues section above.
Emission limits	We have decided that emission limits are not required in the permit.
Reporting	We have specified reporting in the permit to ensure that the installation is being operated in line with that specified in the operating techniques and to ensure that we are notified immediately in the instance that the site ever operated in emergency scenario mode.
<b>Operator competence</b>	
Management system	There is no known 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.
Relevant convictions	The Case Management System and National Enforcement Database have been checked 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.
<b>Growth Duty</b>	
Section 108 Deregulation Act 2015 – 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

Due to additional data relating to the air quality modelling that we received during determination of this permit we re-advertised the application including the new information on our website between 26 June 2019 and 24 July 2019. We also resent the consultation request to the other organisations as referred to below.

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.

<b>Response received on 12/12/19 from</b>
Public Health England (this response superseded the responses dated 16/11/18 and 18/07/19)
<b>Brief summary of issues raised</b>
<p>The Environment Agency's Air Quality Modelling and Assessment Unit does not consider that there will be any exceedences of the air quality standards at local receptors during maintenance testing of the plant.</p> <p>The Air Quality Management Plan (AQMP) should address potential impacts in the event of the National Grid going down and the operator, working with the Local Authority, will ensure that local receptors are not adversely affected.</p> <p>Based solely on the information provided there are no significant concerns regarding risks to health of the local population from this proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector technical guidance or industry best practice.</p>
<b>Summary of actions taken or show how this has been covered</b>
<p>See key issues section above for information relating to the air quality modelling assessment.</p> <p>No action required.</p>

<b>Response received on 20/11/18 from</b>
Director of Public Health
<b>Brief summary of issues raised</b>
No comments to add to the response submitted by Public Health England.
<b>Summary of actions taken or show how this has been covered</b>
No action required.

We also consulted with Environmental Health – Hart District Council, Food Standards Agency, the Health and Safety Executive and received no responses.