Submission	
Submitter:	Eve Smith HSE
Submission Title:	National Office for Environmental Health Services
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Application	
Applicant:	Amazon Data Services Ireland Limited
Reg. No.:	P1222-01

See below for Submission details.

Attachments are displayed on the following page(s).

An tOifig Náisiúnta um
Sláint Chomhshaoil
Feidhmeannacht na
Seirbhíse Sláinte,Urlár 2,
Teach na Darach, Ascaill na
Teile
Páirc na Mílaoise, An Nás,
Co. Chill Dara

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HSE EIS SUBMISSION REPORT
Environmental Health Service Consultation Report
(as a Statutory Consultee (Planning and Development Acts 2000,
& Regs made thereunder).

Date: 1/04/2025

Our Reference: EHIS 4691

Report To: EPA, Johnstown Castle Estate County Wexford Ireland

EPA reference: P1222-01

Type of Consultation: IPPC Environmental Licences

Applicant: Amazon Data Services Ireland Limited, One Burlington Plaza, Burlington Road, Dublin 4

Location: Data Centre Building B1, Kildare Innovation Campus (KIC), Barnhall Road, Leixlip, Co. Kildare

Nature of Activity: Energy

Introduction

The following HSE departments were notified of the consultation request for this development on the 7/03/2025:

- Emergency Planning
- National Capital Estates Office – Regional AND
- Director of National Health Protection
- REO Dublin and Midlands

No additional investigations/measurements were undertaken in the review of the application.

In respect of this application, the areas reviewed were those of concern to Environmental Health and which are:

- Any potential contamination of surface water and ground water
- Emissions to air including noise and process emissions

Development:

Amazon Data Services Ireland Limited (ADSIL) ('the Applicant') is applying to the Environmental Protection Agency ('the Agency') for an Industrial Emissions (IE) Licence for its data storage facility (hereafter referred to as the 'Installation') located at Data Centre Building B1, Kildare Innovation Campus (KIC), Barnhall Road, Leixlip, County Kildare, Ireland. The proposed Installation site covers an area of c. 3.645 hectares (ha) in total and sits within the wider KIC Masterplan site, which was granted planning permission in January 2024 under Kildare County Council (KCC) Planning Ref. 23/60047.

The proposed IE licence seeks permission to carry out the following activity as listed under the First Schedule of the EPA Act 1992 Activity: 'Class 2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more'. The Installation will include 14 no. 7.65 megawatt thermal (MWth) critical emergency generators; 1 no. 2.50 MWth house emergency generator; and 2 no. 0.57 MWth fire sprinkler pumps. The combined thermal input of the Installation is 110.75 MWth. This exceeds the 50MWth threshold of Class 2.1 First Schedule of the EPA Act 1992. ADSIL is, therefore, applying to the EPA for an IE Licence principally relating to the operation of emergency generators under Activity Class 2.1. The Installation will comprise 1 no. data centre facility (Data Centre Building B1) and is committed to using Hydrotreated Vegetable Oils (HVO). HVO, where supply is available, will be the preferred source of fuel for the operation of the emergency generators at the Installation.

Where insufficient quantities of HVO are available, a blend of diesel and HVO will be supplied to the generators, and in the absence of HVO, diesel will be supplied to the generators. Where a blend of HVO and diesel is supplied to the generators, the ratio of HVO : diesel supplied will vary with the availability of HVO. HVO is a renewable diesel that operates as a direct replacement for conventional diesel, and is made from renewable and sustainable raw materials which do not release any new CO2 into the atmosphere (Refer to Attachment 4-8-1 Operational Report for further details).

The Installation forms part of a wider Masterplan for the KIC, which is c. 72.23 hectares. The KIC masterplan site has planning permission for the construction of 4 no. data centres, 2 no. deep technology buildings and 1 no. energy centre which will be to be completed by 2035. The Installation is expected to be operational in mid-2026. The KIC Masterplan site area, which includes the Installation site, sits on the site of the former Hewlett Packard (HP) Campus originally permitted under KCC Planning Ref. 95/923 at Barnhall Road, Leixlip, County Kildare, W23 X93P. The IE licence for this site (IE Licence No. P0195-02) was surrendered in 2019 with evidence of site closure and decommissioning activities included on EPA LEAP portal.

The Installation will comprise 1 no. single-storey data storage facility building (Data Centre Building B1) with associated office block and ancillary elements. The ancillary elements of the Installation will include: logistics and fuel unloading bays, maintenance and storage spaces, associated water tanks, sprinkler tanks, fire sprinkler pump house, electrical rooms, security and utility spaces, internal road network as well as underground foul and stormwater drainage networks. The generator yard at the Installation will consist of a total of 14 no. critical emergency generators, 1 no. house emergency generator and 2 no. fire sprinkler pumps. The layout of the Installation, ancillary buildings, and structures is shown in Figure 3. Refer to Drawing 305131-ARP-ZZ-XX-YE-DR-1001 - Site Layout Plan for more detail. Attachment 4-8-1 Operational Report presents a more detailed description of the Installation as it relates to this IE Licence application.

Noise:

An assessment of the potential noise impact of the Installation was conducted in accordance with guidance contained in the EPA publication Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) 2016 and ISO 1996-2:2017 Acoustics - Description, Measurement and Assessment of Environmental Noise -Determination of Sound Pressure Levels. The primary sources of outward noise in the operational context are deemed long term and will involve fixed plant at the Installation during normal and emergency site operations. Three scenarios were modelled as part of the Noise Impact Assessment Report (Attachment 7-1-3-2), which include the normal day-to-day operations, testing operations and emergency operations. In summary, the predicted increases in noise

emissions as a result of the operation of the Installation are in compliance with EPA limits at the nearest sensitive receptors. The cumulative impact of the Installation and KIC Masterplan sites were considered to be not significant to moderate, negative and short term, with the implementation of appropriate mitigation measures.

A baseline environmental noise survey was undertaken as part of the EIAR for the KIC Masterplan site planning application. The baseline survey considered the following criteria, according to the EPA NG4 Guidance, to assess the baseline noise environment at the KIC Masterplan site, which includes the Installation site: • Daytime (07:00 to 19:00): 55 dB LAr (15 mins) • Evening (19:00 to 23:00): 50 dB LAr (15 mins)
Night time (23:00 to 07:00): 45Db LAr (15 mins) Noise levels were measured at four NSRs (NSR1, NSR2, NSR3 and NSR4). Existing noise levels at all NSRs are below the day, evening and night-time noise criteria. Further information regarding the results from this assessment are presented in Attachment-7-1-3-2 Noise Emissions Impact Assessment Report.

The NEHS would concur that this, together with the other mitigation measures identified in the EIAR, is adequate protection of Public Health with regard to noise during the operational phase.

Air

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. The most recent annual report on air quality ‘Air Quality in Ireland 2023’ (EPA, 2024a), details the range and scope of monitoring undertaken throughout Ireland. As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2024b). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D. In terms of air monitoring, the Installation site is categorized as Zone C (EPA, 2024c). Refer to Table 3 for further details on the annual mean background concentrations (ug/m3) at Zone C monitoring stations (Dundalk, Kilkenny and Portlaoise) for the following pollutants: NO2, SO2, PM2.5 and PM10.

An assessment of the potential air quality impacts resulting from the Installation was conducted. The modelling of air emissions was carried out to assess concentrations of various pollutants at locations beyond the Installation site boundary. The modelling assessment includes the impact of operations of the Installation alone (termed ‘the Installation Operations Assessment’) and the cumulative impact of additional facilities with emissions near the Installation (termed ‘the Cumulative Operations Assessment’) by evaluating a set of air quality parameters. The air dispersion modelling has been carried out using the United States Environmental

Protection Agency's (USEPA) regulated model AERMOD (USEPA, 2021). The AERMOD model has USEPA regulatory status and is one of the advanced models recommended within the air modelling guidance document 'Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)' published by the EPA in Ireland (EPA, 2020). HVO, where supply is available, will be the preferred source of fuel for the operation of the emergency generators at the Installation. Where insufficient quantities of HVO are available, a blend of diesel and HVO will be supplied to the generators, and in the absence of HVO, diesel will be supplied to the generators. Where a blend of HVO and diesel is supplied to the generators, the ratio of HVO : diesel supplied will vary with the availability of HVO. For the purposes of this assessment, a "worst-case scenario" that only diesel is used to power emergency generators is assumed.

In summary, emissions to atmosphere of NOx, NO2, SO2, PM10, and PM2.5 as the main polluting substances (as defined in the Schedule of EPA (Industrial Emissions) (Licensing) Regulations 2013, S.I. No. 137 of 2013) from the emergency generators, will comply with the air quality standards. Therefore, no significant impacts to the ambient air quality environment are predicted. Additionally, the nearest European site is Rye Water Valley/Carton SAC (site code 001398), located 1.6km north of the Installation. Minimal concentrations of nitrogen oxides are predicted at the site due to emissions from the Installation.

Emission to water

As outlined in Section 1, the Installation forms part of a wider masterplan area – the KIC Masterplan site. The KIC Masterplan site is owned by a separate landowner ('the Landowner'). The proposed IE licence application relates only to the area operated by ADSIL who are applying for this licence. The remaining areas within the KIC Masterplan site are controlled by the Landowner. Stormwater emissions and emissions to sewer identified in this IE licence application will be monitored by ADSIL where they sit within the IE licence boundary.

The water supply to the Installation will be sourced from the Landowner's network via a metred connection to the existing 150 mm diameter watermain line at Celbridge Road to the south-east corner of the Installation in accordance with the KIC Masterplan site planning application (KCC Planning Ref. 23/60047). The Installation will have an average domestic water demand of 912.5 m3 /year, a cooling water demand of 1,166 m3 /year, and an additional potable water demand of 273.5 m3 /year to support the onsite living wall. Additionally, the peak cooling water demand is estimated at 0.96 l/s. Although these figures have been included in the Pre-Connection Enquiry (PCE) to Uisce Eireann, the Installation will be designed to harvest rainwater to meet a significant fraction of the annual cooling water and irrigation requirements for its operation. Consequently, the Installation will require reduced amounts of water from local supply from the first year of its operation.

Rainwater

It is outlined in section 1, that rainwater will be stored on-site such that no water is required from Uisce Eireann during the peak summer months. The water used during these peak summer months will be supplied by on-site water storage only. The storage will be filled during the winter months. For all temperatures below the peak summer days, the cooling system will operate on direct air only. To confirm, no water demand is required for cooling during the winter period. The Installation will fill water tanks during the months of December, January and February. Rainwater storage tanks will be used for rainwater harvesting and will be topped up by the mains supply during offpeak months to reduce overall demand on the public mains supply.
The Installation will be designed to harvest a portion of the rainwater runoff from impermeable surfaces to meet a significant fraction of the annual cooling water and irrigation requirements for its operation. The remaining rainwater runoff at the Installation will be collected via the onsite stormwater and SuDS networks.

Stormwater Drainage System

The stormwater drainage network will be designed in accordance with Greater Dublin Strategic Drainage Study (GDSDS)1 and Greater Dublin Regional Code of Practice2 . Rainwater runoff from impermeable areas (including but not limited to car parks and roads) at the Installation will be collected via onsite stormwater and sustainable drainage systems (SuDS) networks in accordance with the KIC Masterplan site planning application (KCC Planning Ref. 23/60047). The network within the Installation site will convey stormwater via 2 no. monitoring stations and 2 no. bypass interceptors with alarms through 2 no. emission points situated at the IE Licence site boundary (SW1 and SW2) to the KIC Masterplan site's 1 no. attenuation pond (2,132 m3) to the east and 1 no. attenuation pond (1,836 m3) to the north of the Installation site boundary.

Stormwater from the eastern attenuation pond on the KIC Masterplan site will flow to the northern attenuation pond on the KIC Masterplan site before combining with the remainder of the KIC Masterplan site's stormwater network. The attenuation ponds and point of discharge to the Leixlip Reservoir will be situated within KIC Masterplan site (outside of the IE Licence site boundary) and will be under the Landowner's control. Refer to Drawing 305131-ARP-ZZ-XXYE-DR-1004 - Surface Water Layoutpass through 1 no. full retention interceptor prior to combining with the remainder of the Installation site's stormwater network.

The hydrocarbon interceptors at the Installation site will be equipped with level detection sensors which will send an alarm signal to the Building Management System (BMS) to alert the onsite Engineering Operations Technicians (EOTs) to warn of high hydrocarbon, liquid and silt levels in the separator.

The Installation will include 1 no. inbound stormwater connection point to the Landowner's stormwater network (termed ISW1). The stormwater entering the Installation from the Landowner's surface water network will be monitored at 1 no. inbound stormwater monitoring point (termed ISW1-1) to identify any potential contamination of stormwater prior to entering the Installation site. In the unlikely event that this incoming stormwater is contaminated, the incoming stormwater will be subject to the same control measures as the remainder of the stormwater collected onsite. It should be noted that there will be 1 no. hydrocarbon interceptor and 1 no. stormwater flow control device located downstream of KIC Masterplan site's attenuation pond which lies to the north of the Installation (outside of the IE Licence site boundary).

These devices should ensure the quality and flow rate of stormwater prior to discharge to KIC Masterplan site's stormwater drainage system. The KIC Masterplan site's stormwater network will ultimately discharge attenuated flows to the Leixlip Reservoir, located c. 800m southeast of the Installation immediately across from Celbridge Road. The Leixlip Reservoir will flow to the River Liffey which connects with the South Dublin Bay and River Tolka Estuary Special Protection Area (SPA) c. 19.5 km to the east of the Installation and the other Natura Designated Sites within Dublin Bay (South Dublin Bay and North Dublin Bay Special Areas of Conservation (SACs).

Waste

The Installation's foul network will be designed in accordance with the relevant guidance including Uisce Eireann Code of Practice for Wastewater Infrastructure, National Building Regulations Technical Guidance Document H – Drainage & Waste Disposal. The Installation will include 1 no. main emission to sewer, SE1.The Installation's foul drainage network will comprise of 150mm diameter pipes and 2 no. effluent streams. The main foul effluent and cooling water discharge from the Installation will be collected in separate streams throughout the Installation site. The main foul (domestic) and cooling water discharge streams will combine within the IE Licence site boundary prior to outfall and connection to the KIC Masterplan site's foul water network at SE1. The Installation will include 1 no. inbound foul water connection point to the Landowner's foul network (termed IF1). The foul water entering the Installation from the Landowner's foul network will be monitored at 1 no. inbound foul water monitoring point (termed IF1-1) to identify any potential contamination of foul water prior to entering the Installation site. In the unlikely event that this incoming foul water is contaminated, the incoming foul water will be subject to the same control measures as the remainder of the foul water collected onsite. The KIC Masterplan site's foul water network will ultimately discharge by gravity to the existing 450 mm diameter KCC public foul network in accordance with KIC Masterplan site planning application (KCC Planning Ref. 23/60047). The KIC Masterplan site's foul water network will connect to the KCC foul sewer outside of the IE Licence site boundary on Celbridge Road and foul water will ultimately be

disposed of at Leixlip Wastewater Treatment Plant (WWTP). Cooling water discharge from the Installation will be monitored via 2 no. monitoring kiosk within the IE Licence site boundary. Monitoring of the cooling water discharge stream will occur prior to its combination with the Installation's main foul (domestic) effluent stream and emission to the KIC Masterplan site's foul network at SE1.

Main Foul Effluent

The fuel unloading bay at the Installation will be surrounded by ACO drainage channels which will capture any spills via a full retention interceptor and ultimately discharge to the Installation's main foul (domestic) network. Other rainwater runoff drainage from the fuel unloading bay at the Installation will be directed to the Installation's stormwater network. Cooling Water Discharge The cooling water discharge foul stream will comprise of cooling water used in Air Handling Units (AHUs) at the Installation. Discharges from AHUs at the Installation will consist of mains water utilised in the AHUs. No treatment chemicals will be added to water used in the AHUs. As such, cooling water discharges will be of sufficient quality to be discharged to the Installation's foul network. Cooling water will only be used when the external temperature reaches a set point of 24 degrees Celsius, therefore the emissions to foul sewer will vary and will be low. For the majority of the year, there will be no emissions to foul sewer from the cooling systems

Climate

The applicant should assess the vulnerability of the proposed development against the predicted impacts of a warming climate. The applicant should outline proactive adaption measures to ensure the long term resilience of the proposed infrastructure to the impacts climate change. A number of positive elements were discussed within to save energy, harvest rainwater etc. and if these measures are put in place it would be welcomed.

It is proposed that rainwater will be stored on-site such that no water is required from Uisce Eireann during the peak summer months. The water used during these peak summer months will be supplied by on-site water storage only. The storage will be filled during the winter months.

The KIC Masterplan site will include the installation of an array of photovoltaic panels on the roof of buildings, including Data Centre Building B1. The array of photovoltaic panels for Data Centre Building B1 will consist of 180 no. modules yielding a total peak power generated of 72 kWp to offset lighting and electrical power requirements during the peak summer months for the administration section of the Installation.

The Installation will be designed to harvest a portion of the rainwater runoff from impermeable surfaces to meet a significant fraction of the annual cooling water and

irrigation requirements for its operation. The remaining rainwater runoff at the Installation will be collected via the onsite stormwater and SuDS networks.

Conclusion:

Should permission be granted for the proposed development, the Environmental Health Service makes the following recommendations:

The Emissions license is adhered to and will specify the monitoring requirements in the operational stage, which may include:

- **Surface water quality**
- **Groundwater quality**
- **Emissions to air, and**
- **Noise**

It is recommended by the NEHS that a formal complaints procedure should be outlined to resolve any possible issues or community concern in relation to traffic, dust, water, noise, odour or nuisance complaints.

Eve Smith
Environmental Health Officer
Environment/Climate Change, Network Support Unit (NSU)

*** All correspondence or any queries with regard to this report including acknowledgement of this report should be forwarded to: Eve Smith, Environmental Health Officer Environment/Climate Change, Network Support Unit (NSU) Seirbhís Sláinte Comhshaoil, Ospidéal Pobail an Chloic Liath, Bóthar Ghaoth Dobhair IAn Clochán Liath,Leitir Ceanainn, Co.Dhún Na NGall F94 Y326 ,Environmental Health Officer, Environmental Health Service, Dungloe Community Hospital, Letterkenny Co. Donegal. F94 Y326| Eve.smith@hse.ie**