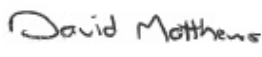


***This Report has been cleared for submission to the Director by Senior Inspector,
David Matthews***

Signed: | 

Date: 19/11/2024

		OFFICE OF ENVIRONMENTAL SUSTAINABILITY	
INSPECTOR'S REPORT ON AN INDUSTRIAL EMISSIONS LICENCE APPLICATION, LICENCE REGISTER NUMBER P1143-01			
TO: EIMEAR COTTER, DIRECTOR			
FROM: NOELLE CRIMMINS O'LEARY		DATE: 19 NOVEMBER 2024	
Applicant:	K2 Strategic Infrastructure Ireland Limited		
CRO number:	639779		
Location/address:	Ballycoolin Buisness Park, Ballycoolin Road, Dublin 15, Dublin.		
Application date:	12 February 2021		
Classes of Activity (under EPA Act 1992 as amended):	2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more.		
Category/ies of activity under IED (2010/75/EU):	1.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more.		
Main CID:	Commission Implementing Decision (CID) (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (here after referred to as LCP CID 2021/2326/EU). All relevant BREF documents are listed in Appendix 4 of this report.		
Activity description/background:	Data storage installation (two main data storage buildings) with 32 diesel powered back-up generators to provide power in the event of a loss or reduction in electricity supply from the grid.		
Additional information received:	Yes (21 June 2024; 3 July 2024; 30 August 2024; 10, 11, 12, 14 & 16 September 2024; 30 October 2024).		
No of submissions received:	1		
Environmental Impact Assessment required: No	Stage 2 Appropriate Assessment required: No		
Site visit: 23 October 2024	Site notice check: 6 June 2021		

1. Introduction

K2 Strategic Infrastructure Ireland Limited ('the applicant') has applied to the Environmental Protection Agency ('the Agency') for an Industrial Emissions (IE) Licence for its data storage installation in Ballycoolin Business Park, Ballycoolin Road, Dublin 15, Dublin. The installation will provide secure data storage services, and distribution of information to individuals, businesses and organisations.

The installation is primarily supplied electricity from the national grid; however, should this power supply fail, electricity will be supplied by diesel powered back-up generators that will automatically start in order to provide continuous power to the installation.

When construction is complete, in total 32 no. 8.66 megawatt thermal (MWth) backup generators will be installed. The requirement for an IE Licence is outlined within the First Schedule of the EPA Act 1992 as amended (hereafter referred to as the EPA Act), activity '*Class 2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more*' specifically relates to this installation. As the combined thermal input from the 32 no. back-up generators will exceed the 50 MWth threshold of Class 2.1 of the First Schedule of the EPA Act, (277.12 MWth), the applicant has therefore applied to the Agency for an IE Licence to operate the installation under Activity Class 2.1.

The installation will require a Greenhouse Gas (GHG) Emissions permit in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2004, (S.I 437/2004 and amendments).

2. Description of activity

The installation is located in Ballycoolin Business Park, Ballycoolin Road, Dublin 15 (Figure 1; Appendix 1). The existing buildings on site were originally built in the 1990's and most recently used as call centres. The lands are bound to the south by a private estate road and to the southwest by Ballycoolin Road. There are residential properties to the immediate north-west and two residential properties directly across Ballycoolin Road to the south-east. Lands in use by Uisce Éireann are located to the north of the site, which include a water tower and an existing office building, and to the east by an area of car parking serving an existing office development.

When fully constructed, the installation will consist of two main data storage buildings named North Building and South Building, and a number of smaller ancillary buildings (Site Layout – Figure 1; Appendix 1). The North and South building components include:

- IT and technical hardware,
- water treatment plant rooms,
- water storage,
- mechanical and electrical spaces,
- Air Handling Unit (AHU) plant space and
- corridors and ancillary spaces.

Associated infrastructure includes an office building located to the west of the site, security and utility spaces, on site attenuation pond, internal roading network, and site landscaping.

The operation of the data centre hardware and associated ancillary equipment produces heat, which must be managed by the cooling systems. Each data hall will utilise Indirect Evaporative Cooling (IEC) Air Handling Units (AHU) to remove the heat generated by the IT equipment (Figure 2-1). The cooling system will consist of 480 no. AHU, 240 no. units located within the plant space of each of the two main buildings.

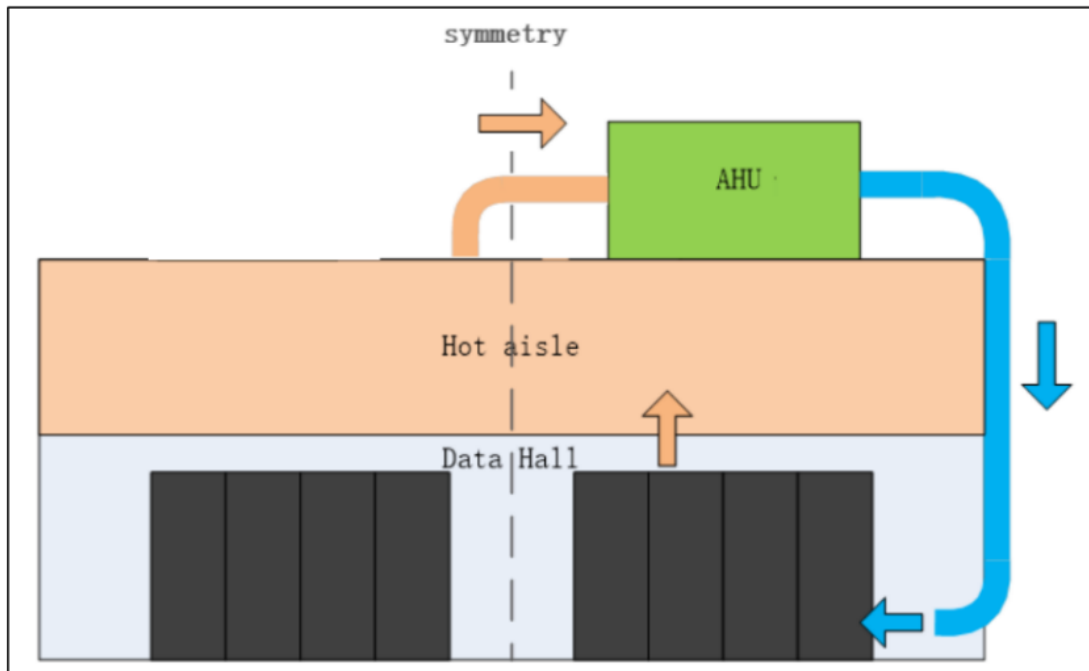


Figure 2-1: Simplified Airflow to Data Hall (AHU located internally within level 1 plantroom)
Source: Figure 4.2, Operational Report

Power to the installation is primarily provided via an underground connection to the existing substation (permitted under planning reference FW16A/0159) located adjacent to an existing data storage installation on lands to the southeast of the main licence application site.

When construction is complete, the 32 no. 8.66 MWth backup generators, which will supply electricity to the installation if the primary power from the national grid fails, will be located in the generator yard adjoining each of the main installation buildings. The generator housing includes acoustic attenuation and belly tank storage for diesel fuel. There is no bulk tank farm or separate storage of diesel on site, and no diesel pipelines, other than what is required to transfer from the belly tank to the generator itself. The individual belly tanks are double skinned tanks, with level gauges (high and low) within the fuel tanks connected to an onboard controller, which are alarmed to prevent overfilling or to identify a sudden loss of fuel within the tank. A maximum of 28 of the 32 back-up generators will run simultaneously during a power outage. Each individual generator includes 2 flues within a single stack, resulting in 64 emission points at a release height of 15 meters (m).

The installation will be in operation 24 hours a day, 7 days a week. There will be approximately 200 personnel employed at the installation once fully operational.

The main production process is supported by ancillary processes including ancillary infrastructure (e.g. reception areas and general office spaces), water, sewer and stormwater drainage infrastructure. The main emissions are emissions to air, noise emissions and to a lesser extent, stormwater discharges.

3. Planning Status

A number of planning applications have been made by the applicant for the area within the installation boundary since 2019. Details of the relevant planning applications and permissions have been provided in the licence application form. These include the following planning permissions for the activity granted by Fingal County Council (FCC):

- FW19A/0089 (granted by FCC, September 2019): Demolition of two existing light industrial / commercial buildings and site clearance works (on a phased basis); construction of two data storage installations (both over two and three levels), to be delivered in two phases.
- FW20A/0181 (granted by FCC, January 2021): Permission for development comprising amendments to the development permitted under Reg. Ref.: FW19A/0089, a ten-year permission.
- FW21A/0092 (granted by FCC, August 2021): Permission for development on a site at Ballycoolin Business Park, Ballycoolin Road, Dublin 15 comprising amendments to the development permitted under Reg. Ref.: FW19A/0089 (a ten-year permission), as amended under Reg. Ref.: FW20A/0181.

An Environmental Impact Assessment Report (EIAR) was not submitted to the planning authority (FCC) as part of these planning applications.

Planning for the data centres also includes their connection to an offsite substation (planning reference: FW16A/0159) (approx. 250 m east of the site), which is already connected to an existing data centre (approx. 100 m east of the site). These developments are not located within the licence boundary.

4. EIA Screening

In accordance with Section 83(2A) of the EPA Act, the Agency must ensure that before a licence or revised licence is granted, that the application is made subject to an environmental impact assessment (EIA), where the activity meets the criteria outlined in Section 83(2A)(b) and 83(2A)(c).

In accordance with the EIA Screening Determination, the Agency has determined that the activity is not likely to have a significant effect on the environment, and accordingly an EIA is not required.

The activity is below the specified threshold of project type 3(a) in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 as amended:

3(a) Industrial installations for the production of electricity, steam and hot water not included in Part 1 of this Schedule with a heat output of 300 megawatts or more.

Having considered the information provided by the applicant, which satisfies the requirements of Annex II A of the EIA Directive, it has been determined that the activity is not likely to give rise to significant effects on the environment by virtue of its nature, size or location. This determination has been made having regard to the following:

- the limited nature and scale of the activity – the activity relates to the operation of back-up generators,
- there will be no process emissions to surface or groundwater,
- the activity will not generate significant dust or odour emissions, and
- the activity will be located in a business park defined primarily by commercial and industrial development.

5. Best Available Techniques

A detailed Best Available Techniques (BAT) assessment was carried out by the applicant and is included in Attachment 4-7 of the application form. Table 1 in Appendix 5 of this report sets out the applicable BAT Conclusions (LCP CID 2021/2326/EU), the specific techniques employed and the relevant condition / schedule in the RD.

Given that the total capacity at the installation level exceeds the threshold for a licence under Class 2.1 of the EPA Act, BAT at the installation level was assessed against the LCP CID 2021/2326/EU. Installation level BAT conclusions included those relating to Environmental Management Systems (EMS) and quality assurance/quality control programmes for all the fuels used (Condition 2 of the Recommended Determination). The applicant proposed the inclusion of BAT 10: *'Implement a management plan (as part of the environmental management system) to reduce emissions to air and/or to water during other than normal operating conditions (OTNOC)'* in a scenario where there is a power outage, and the generators must run continuously (Condition 2 of the Recommended Determination).

Due to the rated thermal inputs of the individual combustion plant being <50 MWth and less than 15 MWth¹, the plant level BAT Conclusions set in the LCP CID 2021/2326/EU, including BAT AELs and monitoring requirements do not apply. The applicable emission limit values and monitoring requirements are those set in the European Union (Medium Combustion Plants) Regulations 2017 SI 595/2017 (hereafter referred to as MCP Regulations) which can be considered BAT at plant level for combustion plant between 1 and 50MWth. In total 32 no. 8.66 MWth back-up generators will be installed at the installation. However, under Reg. 13 of the MCP Regulations, plants which operate for not more than 500 hours per year are not required to comply with the emission limit values set out in the MCP Regulations.

BAT for the installation was also assessed against the following horizontal BREF documents:

- BREF document for Emissions from Storage (July 2006) (Attachment 4-7-2 BREF - Energy Efficiency),
- BREF document for Energy Efficiency (February 2009) (Attachment 4-7-3 BAT REF - Emissions from Storage), and
- BREF Document for Industrial Cooling Systems (December 2001) (Attachment 4-7-4 BAT REF -Industrial Cooling Systems).

The applicant submitted an assessment of the installation's activity against the relevant BAT requirements set out under each of the above listed horizontal BREFs.

The assessment has demonstrated that the installation will comply with all the MCP Regulations and will be in line with the guidance specified in the relevant horizontal BREF documents as listed above.

I consider that the applicable BAT Conclusion requirements are addressed through the technologies and techniques as described in the application, as well as the conditions and limits specified in the RD.

¹ BAT conclusions do not address the following: combustion of fuels in units with a rated thermal input of less than 15 MW (LCP CID 2021/2326/EU).

6. Emissions

6.1 Emissions to Air

This section addresses emissions to air from the installation and the environmental impact of those emissions.

6.1.1 Channelled Emissions to Air

There are a number of main channelled emissions points at the installation, relating to 32 no. diesel back-up generators. These will provide power to the installation when power from the national grid is not available. The 32 no. diesel powered back-up generators at the installation, each have no. 2 flues within a single stack, resulting in a total of 64 emission points. Full details are specified in Attachment 7-4-2 - Emissions to Atmosphere - Minor and Potential Emissions.

There are other emission points to air at the installation including Diesel Storage Belly Tank Relief Vents which, due to their emission characteristics are not considered environmentally significant. These minor emissions are not considered as part of this impact assessment. The AHUs are not considered as minor emissions as these will be emitting warm (35° C) air only.

Each of the back-up generators is a MCP, which will be operated for a limited number of hours. Under Reg. 13 of the MCP Regulations, plant which operate for not more than 500 hours per year are not required to comply with the emission limit values set out in the MCP Regulations. The applicant has requested this exemption be applied to the generators on the basis that they are operated less than 500 hours per year.

As part of the application, air dispersion modelling was carried out to predict the ambient pollutant concentrations resulting from the 32-no. diesel powered back-up generators at the installation. The modelling was carried out in accordance with published Agency guidance and used five years of meteorological data (2019 – 2023 inclusive) from the Dublin Airport meteorological station, which is located approximately 7 km east of the application site. The modelling was used to predict the ambient ground level concentrations for each hour of the five years of meteorological data, at every point on a grid beyond the installation boundary, as well as at nearby residential receptors. As part of the implementation of the Framework Directive on Air Quality (Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management) four air quality zones have been defined in Ireland for air quality management and assessment purposes. In terms of air monitoring, Dublin is categorised as Zone A. With regard to the NO₂ background concentration, EPA data from Zone A was used. Terrain data has been incorporated into the modelling assessment. Building and stack downwash has also been taken into consideration.

Emissions from the installation consist of emissions from back-up generator testing and operation. The modelling of air emissions from the site was carried out to assess concentrations of nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter (PM₁₀ and PM_{2.5}) and sulphur dioxide (SO₂) at a variety of locations beyond the site boundary. The impact of emissions of NO_x, SO₂ and nutrient deposition from the installation, alone and in combination with other facilities, on European and nationally designated habitat sites within 20 km of the installation was also assessed.

Two scenarios were modelled – (1) Proposed Operations Scenario, which includes the scheduled testing and emergency operations of the 32 no. back-up generators for 100 hours per year; (2) Cumulative Assessment, which includes the Proposed Operations as described above, as well as the existing IED licenced sites, and other neighbouring proposed and operational data storage and energy centre installations in the vicinity of the installation.

Scenario 1 involved modelling the continuous operation of the 32 no. back-up diesel generators for 100 hours per year based on the USEPA methodology and were also assessed using the UK Environment Agency methodology. There were three generator testing regimes included in the model as follows:

1. Testing of each generator on an individual basis once per week for 10 minutes at 25% load.
2. Annual load bank testing, once per year, of each generator on an individual basis, for 4 hours at 100% load. For the purposes of this modelling assessment, it was assumed that each generator operated for 4 hours, one day per week, one month of the year.
3. Annual black building test to simulate mains failure, once per year, of 8 no. generators at a time, for 15 mins at 100% load and then 15 mins of 5 no. generators dropping off load. For the purposes of this modelling assessment, it was assumed that 8 no. generators operated for 10 minutes, one day per week, one month of the year.

All testing of the generators was to occur from 8am to 5pm, Monday to Friday only.

Emissions under generator operation were modelled as an average hourly emission rate rather than the maximum rate, which is in line Agency guidance on modelling of emissions from generators. As a result, the maximum hourly emission rates from the generators reduced by 100/8760 and the back-up generators were modelled over a period of one full year.

The cumulative assessment (Scenario 2) involved modelling the emergency operation and scheduled testing of the 32 no. standby generators in addition to the emissions from the EPA licenced sites in the vicinity of the installation. These installations have emissions to air (NO_x , CO, PM_{10} , $\text{PM}_{2.5}$ or SO_2) with the potential for cumulative impact with the emissions associated with this Installation. In relation to cumulative CO, these emissions are likely to be negligible relative to the ambient air quality standard (i.e. the CO emission level is likely to be of a similar magnitude to NO_x emissions whilst the CO ambient air quality standard is $10,000 \mu\text{g}/\text{m}^3$ compared to the NO_2 limit of $200 \mu\text{g}/\text{m}^3$) and thus CO emissions have been screened out of the cumulative assessment.

Scenario 1 (Proposed Operations):

This assessment involved modelling the continuous operation of the 32 no. back-up diesel generators for 100 hours per year, and also considered scheduled testing of the diesel generators, based on the USEPA methodology and the UK Environmental Agency methodology.

Modelling results, based on annual average emissions and maximum hourly and daily emissions, for the proposed operational scenario are presented in Table 6-1 below, and provides the worst-case predicted impact from the main emissions to air. The results presented are for the worst-case location outside the installation boundary, in the worst-case year. This is the highest Predicted Environmental Concentrations (PEC) obtained for each pollutant during the period of the five years data modelled (2019 – 2023).

The values calculated by the Inspector using the data provided by the applicant have been included in this Inspector's Report. Within the Air Impact Assessment Report submitted by the applicant, in some cases the Process Contribution (PC) is showing highest for one particular year, but the PEC is showing highest for a different year. In these cases, the data for both years have been included in the tables below such as the SO_2 where the PC is showing highest for 2023, and the PEC is showing highest for 2022.

Table 6-1: Predicted impact of the channelled emissions to air.

Main channelled emissions impact						
Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$) Note 1
Nitrogen Oxides (as NO ₂)	99.8%ile hourly (2023)	28	90.1	118.1	59	200
	Annual Mean (2020)	14	10.7	24.7	62	40
	Annual mean for Ecosystems NO _x (2019)	16.4	0.12	16.52	55	30
SO ₂	1-hour (99.7%ile) (2022)	29.3	0.092	29.308 ^{Note 2}	8	350
	29.3 (2023)	29.3	0.094	29.307 ^{Note 2}		
	24 hour (99.2%ile) (2022)	13.3	0.028	13.308 ^{Note 2}	11	125
	Annual (2019-2023)	2.2	0.004	4.004	N/A	N/A
SO ₂	Annual mean for Ecosystems SO ₂ (2019-2023)	2.1	0.00003	2.10003	11	20
Carbon Monoxide (CO)	Maximum 8-Hour (2022)	3,700	15	3,715	37	10,000
PM ₁₀	Daily (90.4%ile) (2021)	39	0.113	39.036 ^{Note 2}	78	50
	Annual (2022)	14	0.035	14.035	35	40
PM _{2.5}	Annual Mean (2021)	10	0.036	10.036	40	25

Note 1: Air Quality Standards Regulations, SI 58/2009 and 180/2011, unless otherwise stated.

Note 2: The applicant's assessment methodology explains that the worst-case concentration (process contribution) was added to the background concentration to give the worst-case predicted environmental concentration (PEC), except for PM₁₀ 24 hour, SO₂ 1 hour and SO₂ 24 hour, where other relevant formulae were used.

As can be seen from the table above, the PEC from the modelled scenario are below the relevant air quality standards or guideline values. The following is noted:

- Under the proposed operational scenario, concentrations of NO₂ (including background concentrations) in the worst-case year modelled are at most 62% of the 1-hour limit value (annual limit value) at the worst-case receptor (offsite gridded

receptor, and 59% as a 99.8th percentile, at the worst-case receptor (at the site boundary) modelled.

- Modelled concentrations of SO₂ reached at most 8% of the maximum 1-hour limit value (measured as a 99.7th%ile), and 11% of the maximum 24-hour limit value (measured as a 99.2nd%ile) at the worst-case receptor, including background concentrations.
- CO concentrations are in compliance with the relevant ambient air quality standard. In the worst-case year, concentrations of CO (including background) are at most 37% of the maximum 8-hour limit value, at the worst-case receptor modelled.
- Regarding particulate matter, concentrations of PM₁₀ and PM_{2.5} are in compliance with the relevant limit values. Concentrations of PM₁₀ (including background) are 78% of the maximum ambient 24-hour limit value (measured as a 90.4th%ile) and 35% of the annual limit value at the worst-case receptor, with concentrations of PM_{2.5} reaching at most 40% of the annual mean limit value.

The closest designated ecological site to the installation is the Royal Canal pNHA (Site code: 002102), 2.7 km to the south of the installation. However, according to the applicant's Air Impact Assessment Report, the designated ecological site with the highest predicted concentration from the installation is the Santry Demesne pNHA (Site code: 000178), 6.2 km to the east and downwind of the installation.

The closest Natura 2000 designated site to the installation is the Rye Water Valley/Carton SAC (Site code: 001398), upwind and approximately 10 km to the south-west. However, the modelling results determined that the Natura 2000 designated site with the highest predicted concentration from the installation is the Malahide Estuary SAC (Site code: 000205), approximately 12 km to the north-east and downwind of the installation.

Emissions from the installation lead to an ambient NO_x concentration (including background) which is at most 55% of the annual limit value at the worst-case location within Santry Demesne pNHA (Site code: 000178). Emissions from the installation lead to an ambient SO₂ concentration (including background), which is at most 11% of the annual limit value at the worst-case location within Santry Demesne pNHA (Site code: 000178).

According to the applicant's Air Impact Assessment Report, with regard to nitrogen deposition at ecological receptors, the nitrogen deposition flux for the worst-case year is 6.715 kg/ha/yr for 2019 (Santry Demesne pNHA (Site code: 000178)) and is within the range of the worst-case critical loads of 5-15 kg/ha/yr for the habitat type 'Calcareous grassland' in the Santry Demesne pNHA (Site code: 000178). The modelling undertaken by the applicant indicates that the worst-case PC nitrogen deposition is 0.01 kg N/ha/year at the Santry Demesne pNHA (Site code: 000178). While background N deposition levels may already exceed the lower level in this range (an APIS Background nitrogen deposition figure of 6.7 kg /ha/yr is referred to in the licence application), the contribution of the installation to N deposition is low relative to the background and is approximately 0.2% of the critical load for the most sensitive qualifying interest habitat ('Calcareous grassland') at this pNHA.

Scenario 2 Cumulative Assessment

A cumulative air dispersion modelling assessment was carried out to assess the impact of emissions from the installation in combination with emissions from other EPA licensed installations, proposed and operational energy centres and data storage installations in the area. The other installations included in the cumulative modelling were: K2 Data Centres Planning Application Reference FW17A/0031; South Dublin Routing No. 2 Limited (P1210-01); ADSIL (P1172-01), ADSIL (P1182-01), Keppel Data Centre Planning Application Reference FW19A/0147; Huntstown Data Centre Planning Application Reference FW21A/0151, Equinix

(P1168-01), Mallinckrodt (P1060-02), Alexion (P1030-01), Bristol Myers Squibb (P0552-03), Huntstown (P0483-04), Energia (P0777-02), Huntstown (P1194-01), Huntstown Bioenergy (P0993-02), and ESB Corduff Flexgen (P1138-01).

The cumulative assessment involved modelling the emergency operation and scheduled testing of the 32 no. back-up generators, with the main air emissions from the other EPA licensed installations, proposed and operational energy centres and data storage installations listed above.

CO was screened out of the cumulative assessment as the CO emissions are likely to be negligible relative to the CO ambient air quality standard.

Table 6-2 below gives details of the predicted impact of the proposed main channelled emissions to air under the cumulative operations scenario. The values calculated by the Inspector using the data provided by the applicant have been included in this Inspector's Report.

Table 6-2: Dispersion Model Results – Cumulative Assessment

Main channelled emissions impact						
Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$) Note 1
Nitrogen Oxides (as NO_2)	99.8%ile hourly (2021)	28	131.8	159.8	80	200
	Annual (2020)	14	25.7	39.7	99	40
	Annual Mean for Ecosystems NO_x (2019)	16.4	1.30	17.70	59	30
SO_2	1 hour (99.7%ile) (2020)	29.3	23.9	31.1 ^{Note 2}	9	350
	24 hour (99.2%ile) (2020)	13.3	6.8	15.1 ^{Note 2}	12	125
	Annual (2020)	2.2	0.9	3.1	N/A	N/A
	Annual Mean for Ecosystems SO_2 (2019)	0.0399	2.1	2.1399	11	20
PM_{10}	Daily (90.4%ile) (2020)	39	0.348	39.137 ^{Note 2}	78	50
	Annual (2020)	14	0.14	14.137	35	40
$\text{PM}_{2.5}$	Annual (2020)	10	0.14	10.14	41	25

Note 1: Air Quality Standards Regulations 2022, SI 739/2022 unless otherwise stated.

Note 2: The applicant’s assessment methodology explains that the worst-case concentration (process contribution) was added to the background concentration to give the worst-case predicted environmental concentration (PEC), except for PM₁₀ 24 hour, SO₂ 1 hour and SO₂ 24 hour where other relevant formulae were used.

Cumulative emissions lead to an ambient NO₂ concentration (including background) which is 80% of the maximum ambient 1-hour limit value (measured as a 99.8th percentile) at the worst-case receptor (boundary receptor) for the worst-case year (2021), and 99% of the annual mean limit value at the worst-case receptor (offsite grided receptor) for the worst-case year (2020).

The SO₂ modelling results at the worst-case receptor indicate that the ambient ground level concentrations are in compliance with the relevant air quality standards for SO₂. Cumulative emissions lead to an ambient SO₂ concentration (including background) which is 9% of the maximum 1-hour limit value (measured as a 99.7th%ile), and 12% of the maximum 24-hour limit value (measured as a 99.2nd%ile) at the worst-case receptor.

Figures 6-1 and 6-2 show the extent and direction of the plume and the worst-case offsite grided receptor for NO₂.

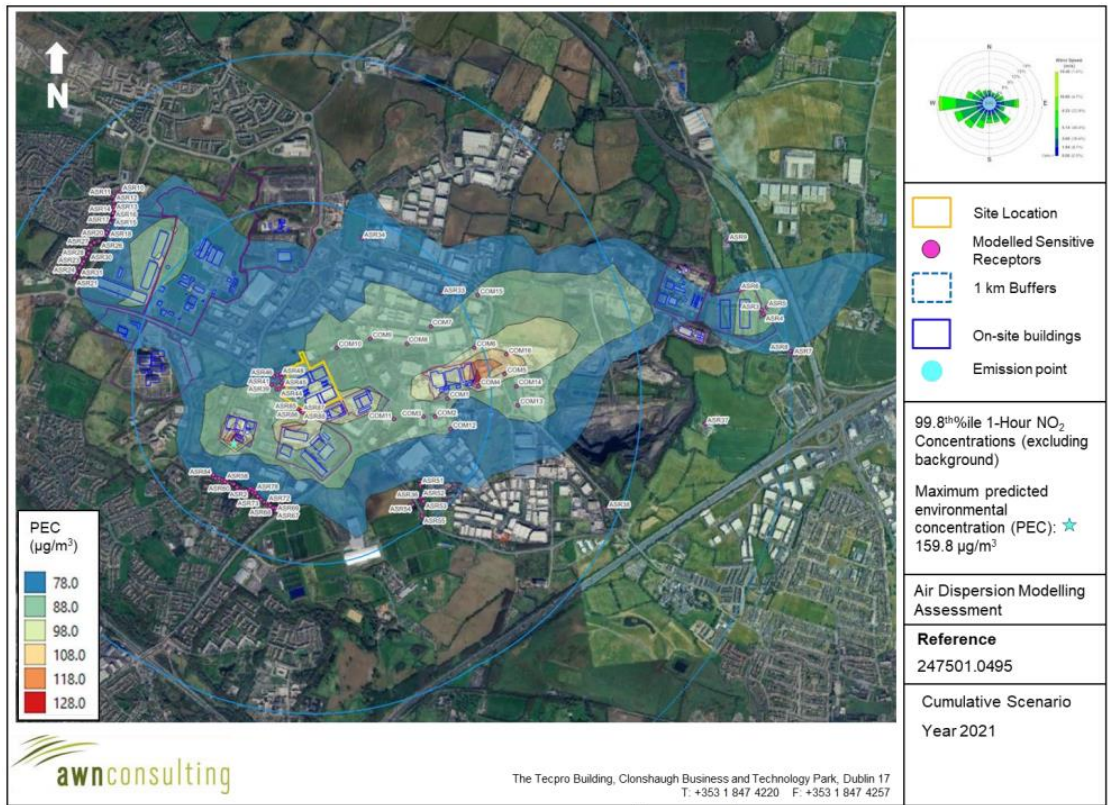
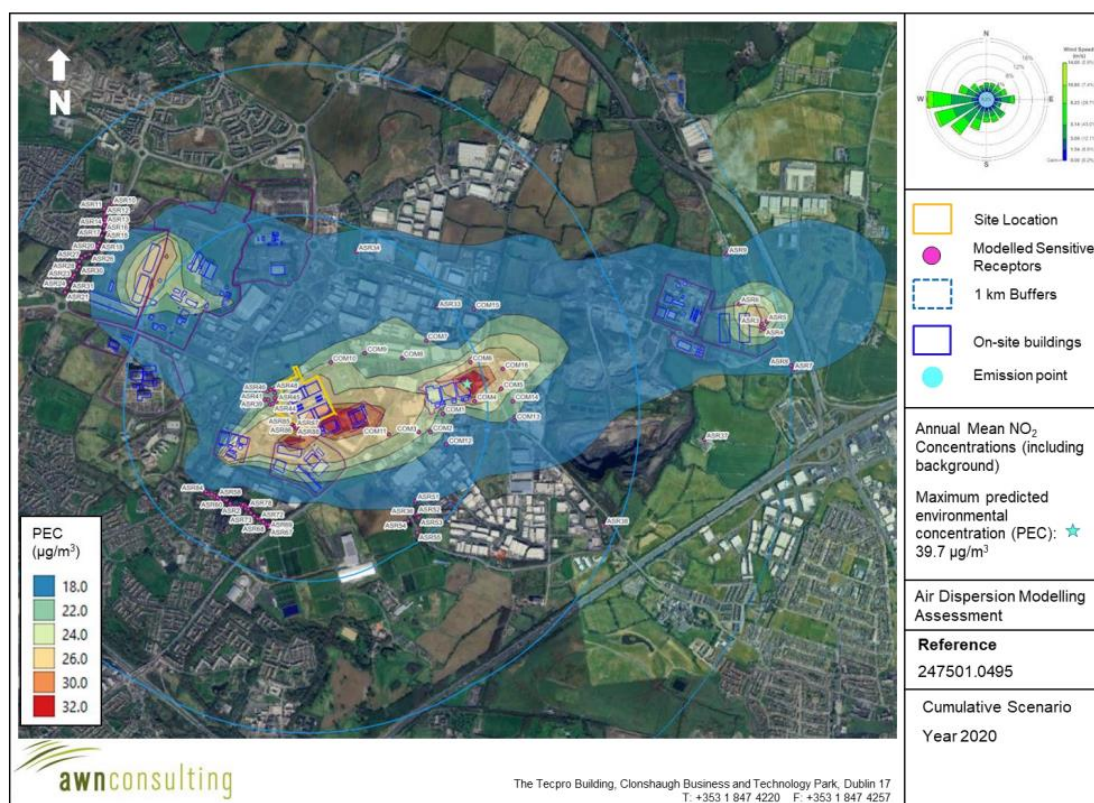


Figure 6-1: Cumulative Assessment - Maximum 1-Hour NO₂ Concentrations (as 99.8th%ile) (µg/m³) (excluding background concentrations)



application), the contribution of the installation to N deposition is low relative to the background and is approximately 3% of the critical load for the most sensitive qualifying interest habitat ('Calcareous grassland') at this pNHA.

Recommendation

Notwithstanding the above, given the worst-case prediction for the annual average impact is very close to the annual average AQS there is the potential for an exceedance if all generators at the installation are operated simultaneously with the nearby unmodelled emissions sources cited above.

Therefore, to address the potential for such an exceedance, the Recommended Determination (RD) includes a number of conditions in order to reduce and mitigate the potential impact of channelled emissions to air:

1. The RD limits the operation of each generator to 100 hours per year with no more than 277.12 MWth operating simultaneously (Schedule A).
2. The RD also restricts the testing of the generators to no more than 25% load for a maximum of 10 minutes each per week, on an individual basis, and to annual load bank testing, once per year, of each generator on an individual basis, for 4 hours at 100% load (Schedule A).
3. Alternative generator operating restrictions (hours and load) may be approved by the Agency subject to the applicant demonstrating that the alternative does not cause an increase in the mass emissions above that permitted under Schedule A of the RD (Condition 3).
4. The applicant is required to establish an Ambient Air Quality Monitoring Programme. As part of the ambient monitoring programme, the applicant is required to establish air quality trigger levels and an associated response programme to ensure compliance with Air Quality Standards at off-site receptors (Condition 3).
5. Schedule B requires the applicant to carry out monitoring of emissions in line with the MCP Regulations.
6. The applicant is required to maintain a record of generator run times, type & quantity of fuel used, and loading under both testing/maintenance and generator operating scenarios (Condition 11).
7. During an Agency visit to the site on 23 October 2024, air emission monitoring ports were not present on each back-up generator. The RD requires that the applicant clearly label and provide safe and permanent access to all on-site sampling and monitoring points, within three months from the date of grant of the licence (Condition 3).

6.1.2 Fugitive Emissions

Fugitive emissions are defined as low level diffuse emissions, mainly of volatile organic compounds, that occur when either gaseous or liquid process fluids escape from plant equipment. There are no such emissions anticipated from the installation.

6.1.3 Dust

There will be no significant fugitive dust as a result of the activity.

6.1.4 Odour

There will be no significant odour emissions as a result of the activity.

6.2 Emissions to Water/Ground/Sewer

6.2.1 Emissions to Surface Waters

There will be no direct process emissions to surface waters from the installation, other than the indirect emissions of the evaporative cooling water discharge which discharges to the storm water drainage network. This is addressed in the storm water discharges section below.

6.2.2 Emissions to ground/groundwater

There will be no process effluent discharged to ground or groundwater.

6.2.3 Emissions to Sewer

Sanitary effluent includes cooling water from the indirect evaporative cooling system for the data halls and domestic effluent. There is no separate cooling water and domestic foul water drainage network on site. The cooling water discharged from the evaporative cooling units is effectively clean water that has passed through the cooling equipment. There is no process effluent discharged to the sewer network on site.

Sanitary effluent from the washroom facilities and break room areas from the data centre buildings is collected and is connected via a new gravity foul sewer and discharges into a single outfall (SE1) into the existing sewer located to the south of the application site.

There is no requirement for onsite treatment or abatement for foul effluent produced from the installation, this is ultimately treated offsite at the Ringsend Wastewater Treatment Plant (WWTP) (D0034-01). Major renovations are currently underway at the plant, in order to treat the increasing volumes of wastewater arriving at the plant to the required standard, enabling future housing and commercial development in the Dublin area. The Ringsend WWTP renovations are due to be completed in 2025. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower. According to EPA Maps, the coastal water quality for Dublin Bay has a reported status of unpolluted for the period 2018-2020.

Uisce Éireann, under Section 99E of the EPA Act, gave its consent for the discharges from the installation, specifying certain ELVs, as well as certain other conditions and monitoring requirements. These ELVs (or stricter limits) have been incorporated into the RD.

The RD specifies emission limit values for parameters and monitoring requirements in line with the Section 99E Consent Notification received from Uisce Éireann. Continuous monitoring is required for flow, pH and temperature. Emission limit values for Concentration (24 Hr. Composite Sample (mg/l)) and Max Daily Load (kg/day) are provided for, as per the Section 99E notice.

Given the above it is considered that the recommended ELVs for this discharge to sewer are considered to satisfy the requirements of the IED, the Water Framework Directive (WFD), and the EPA Act.

6.2.4 Other emissions to ground/groundwater

There will be no process emissions discharged to ground or groundwater. In the unlikely event of a leak or spills at the installation, there are mitigations and designed containment measures in place, including a series of lockdown valves can close off the stormwater drainage system whilst the matter is being addressed.

Monitoring for hazardous substances is required every five years for groundwater and every ten years for soil (see 'Cessation of Activity' section).

The Baseline report submitted as part of the licence application, and which is discussed in the 'Cessation of Activity' section of this report, provides a summary in relation to assessments which have been carried out. The Baseline report states the site was historically used for agricultural lands. The southern part of the site was developed in the 1990's with the construction of two industrial buildings, which were used as call centres. The northern part of the site has remained undeveloped.

6.3 Storm water discharges

Storm water discharges include storm water from roofs and hardstanding areas. There are no process emissions to the storm water network. The storm water drainage network incorporates water management practices known as Sustainable Urban Drainage Systems (SUDS). The SUDS aim to align drainage with natural water processes and will be implemented in accordance with the guidelines of the Greater Dublin Strategic Drainage Strategy.

Storm water discharges from the site at two locations (SW1 and SW2) to the existing public network, south of the site. The public network eventually discharges to the Abbotstown River (EPA code: 09A22) and subsequently the River Tolka, which flows into Dublin Bay. There are two storm water monitoring points proposed (SW1-1 and SW2-1).

Drainage from the generator yard, loading dock, and fuel delivery areas passes through Class 1 full retention interceptors. Drainage from car parking areas passes through Class 1 by-pass interceptors. Shut off valves divert potentially contaminated water to the attenuation pond, where it is tested and removed off site if required. Discharge rates are controlled with a hydrobrake.

Table 6-3 below gives details on the installation's storm water discharges, the sources of potential contamination for these discharges, the type of on-site and off-site abatement, as well as details of the receiving water.

Table 6-3: Storm water discharge point details

Stormwater discharge point details					
Emission Reference	Monitored parameters (monitoring frequency)	Abatement	Drainage areas	Discharging to	Trigger levels established (Y/N)
SW1	Visual: colour and odour (daily). pH, TOC, conductivity and temperature (weekly).	Flow restrictors, Attenuation tank, Hydrocarbon interceptors, and shut off valves	Buildings, site roads, walkways, car parks, generator yard, loading dock, fuel delivery areas.	Abbotstown River (IE_EA_09T0 11000)	N Required by RD
SW2	Visual: colour and odour (daily). pH, TOC, conductivity and temperature (weekly).	Flow restrictors, Attenuation tank, and shut off valves.	Buildings, site roads, walkways, carparks.	Abbotstown River (IE_EA_09T0 11000)	N Required by RD
Automatic diversion in place:	No The RD requires the applicant to carry out a fire water risk assessment (FWRA) and implement the recommendations of the FWRA report.				

The RD requires the applicant to maintain the storm water drainage system. The RD also requires that the storm water discharge is visually inspected daily and monitored for conductivity, pH, temperature, and total organic carbon (TOC) weekly, and any other parameters, as required by the Agency, in accordance with *Schedule B.5 Storm Water Discharge Monitoring* of the RD. It should be noted that the trigger values may be revised, to the satisfaction of the Agency under Condition 6 of the RD.

During an Agency visit to the application site on 23 October 2024, stormwater sampling and monitoring points were not labelled, and there was no interceptor in place on the SW2 drainage line. The RD requires that the applicant clearly label and provide safe and permanent access to all on-site sampling and monitoring points, within three months from the date of grant of the licence, and that an interceptor must be installed on the SW2 line within six months from the date of grant of the licence (Condition 3).

The RD contains standard conditions in relation to the storage and management of materials and wastes. The RD also requires that accident prevention and emergency response procedures are put in place. The controls pertaining to accidents and emergencies are addressed in the Prevention of Accidents section later in this report.

6.4 Noise

The installation is located at Ballycoolin Business Park, Ballycoolin Road, Dublin 15. The nearest residential locations are located to the north-west (adjacent to the application site boundary) and south-west of the development lands (< 50 m). To the north-west, there are 11 single storey residential buildings within St Philomena's Park Halting Site. To the south-west there are four single-storey residential dwellings on the opposite side of the Ballycoolin Road. Further west, the land use is industrial. The primary source of noise is expected to arise from the installation's building service plant (i.e. the AHU air intake, and the AHU air exhaust), as well as the operation of the generators during testing and emergency scenarios (i.e. generator air intake, generator air exhaust and generator engine exhaust).

The applicant stated in the noise assessment report that noise mitigation measures incorporated into the site design include the installation of either acoustic louvres, or low noise equipment to the data hall north and south facades.

In support of its licence application, the applicant has submitted a noise assessment in accordance with the Agency's NG4² guidance note.

A baseline noise survey was conducted at two noise sensitive locations (NSLs) in May 2019. Road traffic noise, both distant and local was noted as the most significant source of noise at the two monitoring locations. Background noise levels (e.g. LA90,T) were typically dictated by distant road traffic noise and plant noise from the adjacent business parks.

Results demonstrated that the NSLs are not within "quiet areas" or areas of "low background noise" as defined in the Agency's NG4 Guidance². As a result, the relevant noise limits as per NG4 are 55 dB LAr,T, 50 dB LAr,T and 45 dB LAeq for day, evening and night time respectively.

The noise impacts from noise sources at the installation were assessed under six operating scenarios. Scenarios A to C considers the South Data hall being operational only as this could be considered the worst case if the proposed phasing of the development changes, i.e., the

² *Guidance Note for Noise: Licence Applications, Surveys and Assessments in relation to Scheduled Activities (NG4)*, as maybe amended or replaced by the Agency.

construction timeline may change, and the south building could be operational prior to the construction commencing on the north building. Scenarios D to E considers both the North and South Data halls being operational. The cumulative impact of all modelled noise sources on the site has been assessed for three distinct operational scenarios.

South Building Only

- Scenario A: Proposed South Data hall only – Day to Day operations.
- Scenario B: Proposed South Data hall only – Emergency Power Operation.
- Scenario C: Proposed South Data hall only – Generator Testing.

North and South Building

- Scenario D: Proposed North & South Data halls – Day to Day operations.
- Scenario E: Proposed North & South Data halls – Emergency Power Operation.
- Scenario F: Proposed North & South Data halls – Generator Testing

Proprietary noise calculation software (DGMR iNoise) was used to quantify the noise level associated with the installation. Based on the noise assessment, it is evident that under normal operating conditions (Scenarios A and D), and under emergency generator testing (Scenarios C and F) that the installation will be compliant with the standard daytime, evening time and night-time limits at the boundary.

However, under Scenarios B and E (generators operating), the model predicts that the installation would not be able to comply with the standard evening time (50 dB) and night time (45 dB) limits (see Figure 6-3 and 6-4). The applicant has proposed that a higher evening time and night time limit of 55 dB LAeq should be applicable in a scenario when the generators are in operation. Section 4.4.1 of EPA NG4² contains the following comments in relation to emergency plant items:

“In some instances, licensed sites will have certain items of emergency equipment (e.g. standby generators) that will only operate in urgent situations (e.g. grid power failure). Depending upon the context, it may be deemed permissible for such items of equipment to give rise to exceedances in the noise criteria/limits during limited testing and emergency operation only. If such equipment is in regular use for any purposes other than intermittent testing, it is subject to the standard limit values for the site”.

Given that the generators could be operated for an extended period, it is considered that the standard noise limit values should apply at the noise sensitive locations, given their proximity to the installation boundary. Based on the foregoing, the RD requires compliance with the standard noise emission limit values at noise sensitive locations.

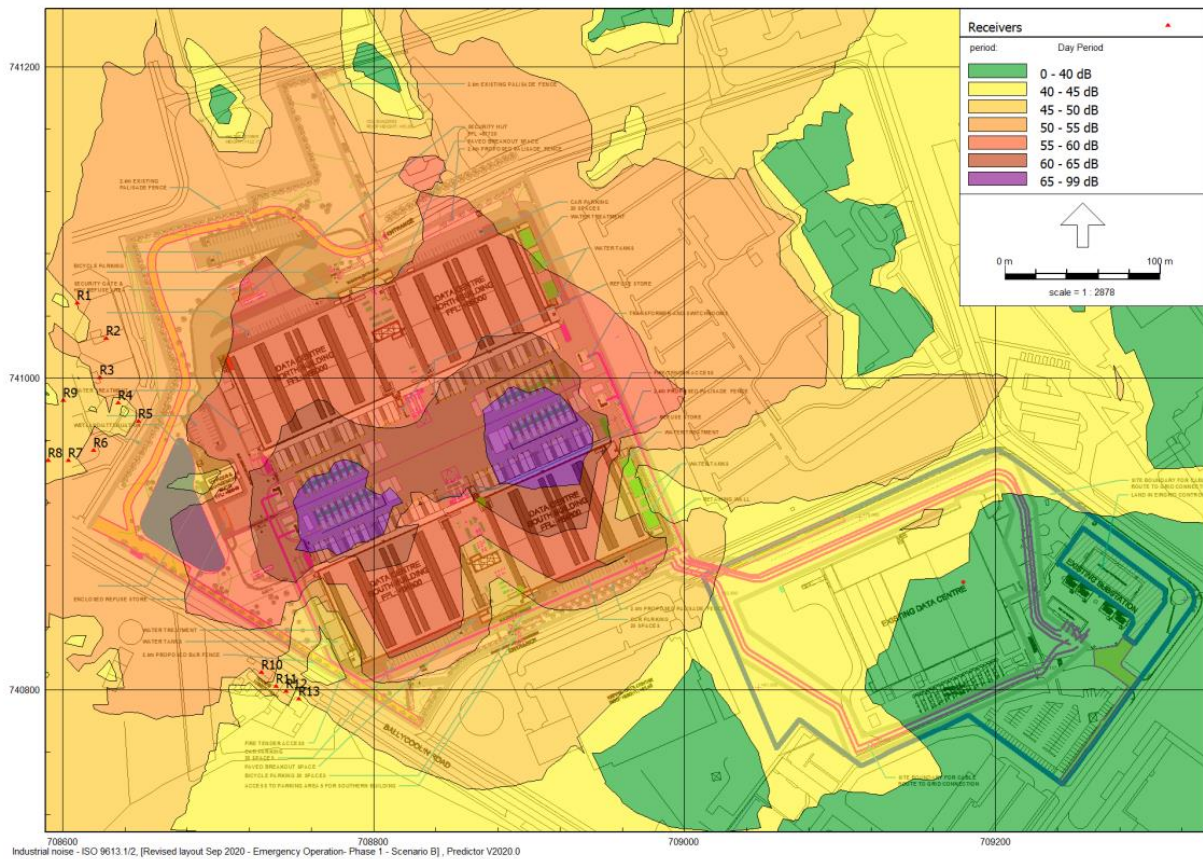


Figure 6-3: Predicted noise levels when generators are in operation South Building Only (Scenario B).

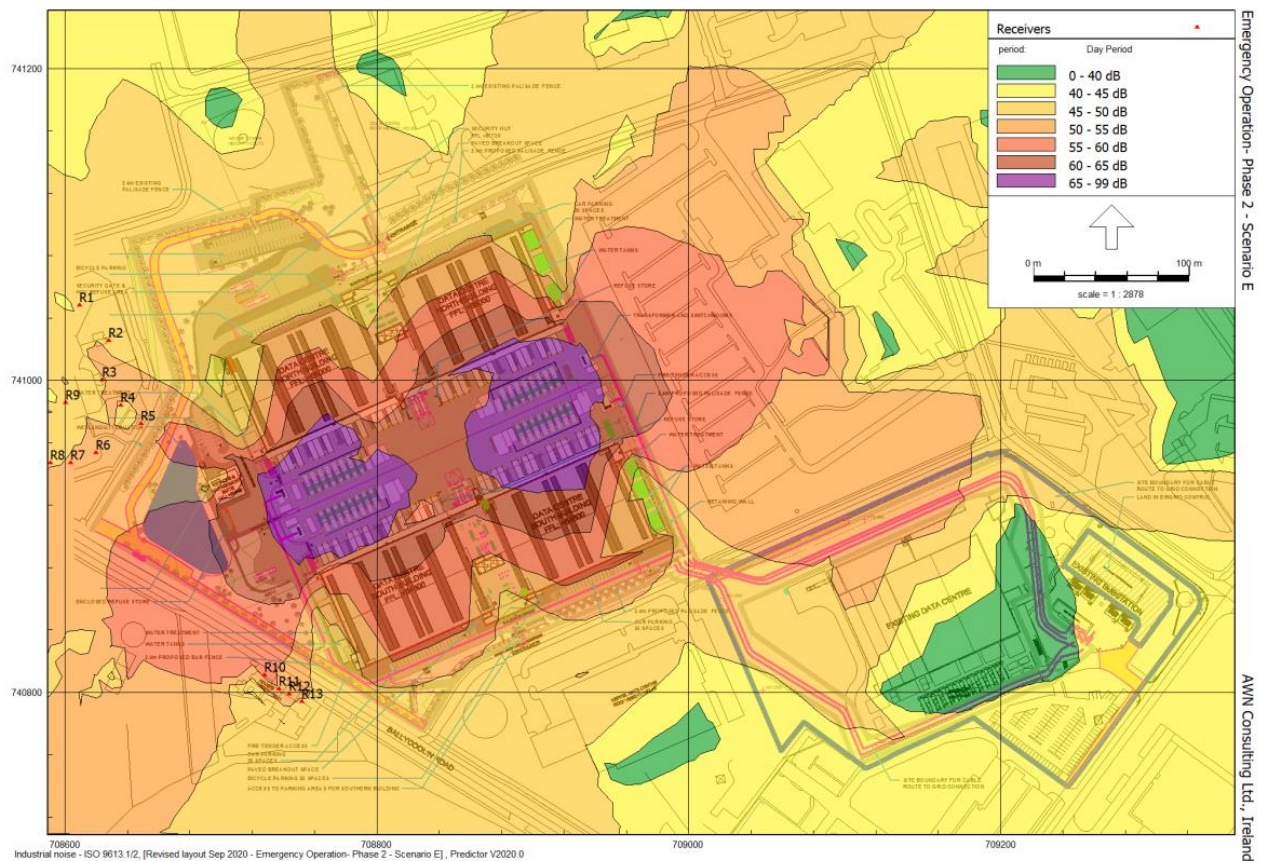


Figure 6-4: Predicted noise levels when generators are in operation North and South Building (Scenario E).

Noise conditions and emission limit values, which apply at the NSLs and boundary, have been included in the RD (i.e. 55 dB LAr,T, 50 dB LAr,T and 45 dB LAeq for day, evening and night time respectively). The applicant has proposed three noise monitoring locations (Figure 6-5).

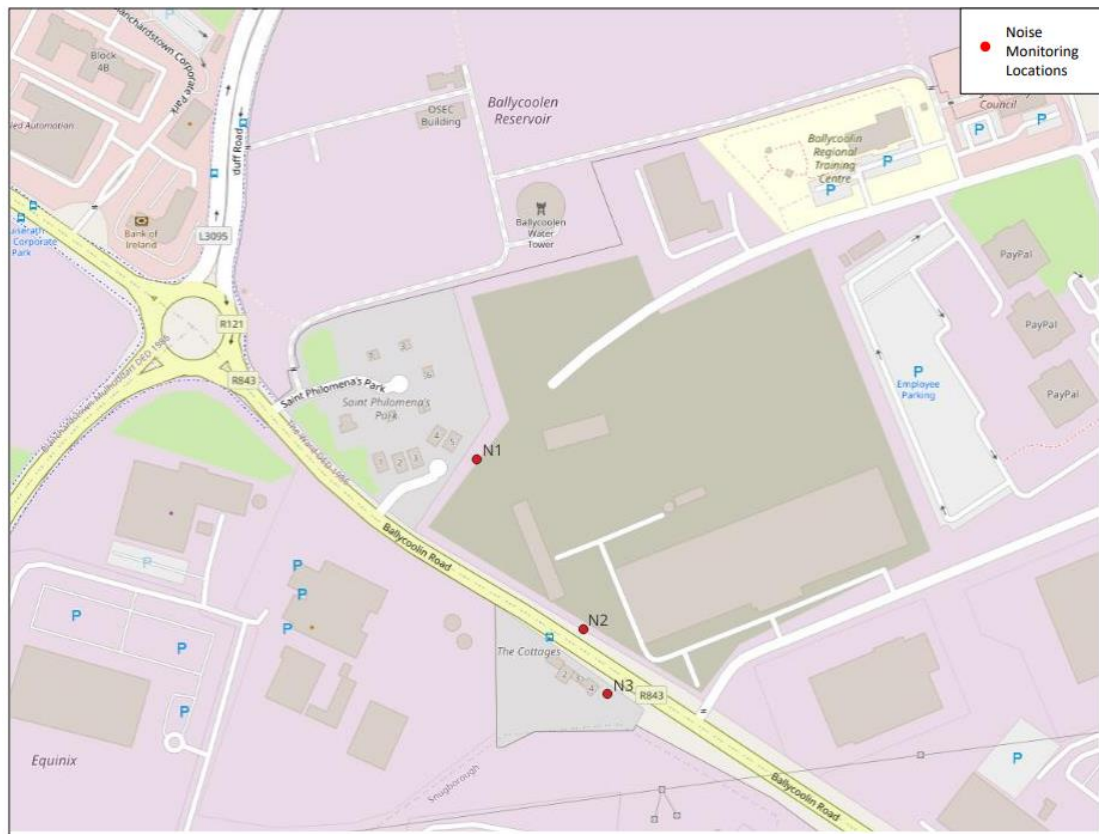


Figure 6-5: Noise Monitoring Locations

As the predicted noise levels under Scenarios B and E, emergency operation of generators, showed an exceedance of the standard evening time (50 dB) and nighttime (45 dB) noise limits at NSLs, the RD includes a requirement on the applicant to prepare a Noise Management Plan (NMP) (Condition 6).

Furthermore, a cumulative assessment was omitted from the noise impact assessment. Given that the installation is surrounded by a number of noise emitting commercial sites, data centres and residential properties, there is the potential for cumulative noise to lead to an exceedance of the standard noise limits at noise sensitive locations. The inclusion of the NMP condition in the RD will also ensure that the necessary actions are taken onsite to ensure compliance with the noise limits at the noise sensitive locations within six months of the date of grant of licence.

7. Waste generation

Certain wastes will be generated on site. The categories of waste that will be generated include dry mixed recyclables, biodegradable kitchen waste, wooden pallets, glass, confidential paper, filters/filter media, metals, waste electrical and electronic equipment (WEEE), general mixed municipal waste, printer cartridges/toners, waste lubricating oil, oily water from separators, lithium batteries, lead acid batteries, and general mixed municipal waste. The total quantity expected to be generated will be approximately 95 tonnes per annum. A full list of waste streams that will be generated at the installation, and conditions under which such waste streams will arise, has been provided in Attachment 8-1 of the application form.

The applicant will apply measures at the installation for the prevention and/or minimisation of waste. Hazardous waste arising will be stored and managed as hazardous waste, until disposed of off-site by a licenced/permitted contractor. An Operational Waste Management

Plan (OWMP) will be prepared for the installation, in accordance with Condition 14(vi) of the planning permission Ref: FW19A/0089. The full list of wastes and waste measures are listed in Attachment 8-1 of the application form.

As outlined in Attachment 8-2-1 of the application form, and in accordance with the hierarchy specified in the IED, waste generated at the application site, will in order of priority, be minimised, be prepared for re-use, recycling, recovery or disposal.

8. Energy Efficiency and Resource Use

The operation of the installation involves the consumption of fuel and electricity. Table 8-1 below provides the applicant's estimated quantities of maximum quantities of energy and resources that will be used.

Table 8-1: Energy and resource use at the installation

Resource	Quantity per annum
Electricity (purchased)	543,120 MWh
Total Electricity Generated and Used	4,464 MWh
Total Electricity (used)	547,584 MWh
Diesel (Gas Oil)	3,584 m ³
Water (public supply)	33,151 m ³
Other (rainwater harvesting)	4,052 m ³

The applicant will employ a variety of technology to maximise the efficient use of energy within the installation, including regular preventative maintenance on equipment and efficient lighting systems.

The installation will be operated in accordance with an Energy Efficient Management System (EEMS), which will be compliant with the requirements of ISO50001, as well as the requirements of BAT.

In the application of BAT, Condition 7 of the licence provides for the efficient use of resources and energy in all site operations. It requires an energy audit to be carried out and repeated at intervals as required by the Agency and the recommendations of the audit to be incorporated into the Schedule of Environmental Objectives and Targets as outlined in Condition 2 of the licence.

The Climate Action Plan³ sets out a proposed pathway to meet the emission reduction target for the energy sector through a more rapid build out of renewables (wind and solar power), increased storage and the deployment of zero-emissions gas. The electricity sector has a ceiling of 40 MtCO₂eq. for the first budget period (2021-2025), equating to an average of 8 MtCO₂eq. per annum. With emissions of 9.98 MtCO₂eq. in 2021 and 9.77 MtCO₂eq. in 2022, the electricity sector therefore will need to achieve average annual emissions of circa 6.8 MtCO₂eq. from 2023 to 2025, which is to be largely facilitated by increasing the share of renewable energy generation up to 80% by 2030.

Condition 7 of the RD requires the applicant to carry out a feasibility study on how to decarbonise the activity by identifying opportunities to increase the use of solar, sustainable biofuels, and alternative renewable energy sources, and submit a report to the Agency within six months of the date of grant of the licence.

³ Climate Action Plan 2024, Changing Ireland for the Better.

The Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies, and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and decarbonisation of our economy and society, and the RD has regard to the principles set out in the statement, in particular in relation to decarbonisation and energy efficiency. Condition 7 of the RD would further support National policy to reduce the emissions from the energy sector by requiring the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels and other renewable energy options including energy storage. The Energy Efficiency Directive (EED) 2023/1791/EU mandates that large organisations complete energy audits.

As regards Ireland's commitments at EU and International level, this installation is covered by the EU Emissions Trading System (EU ETS) and will operate under a GHG permit for its own direct emissions of CO₂ from the back-up generators.

9. Prevention of Accidents

A certain amount of accident risk is associated with the licensable activity. Table 9-1 specifies the risks and associated safety measures relevant to this installation.

Table 9-1: Prevention of Accidents & Measures

Potential accidents & measures for prevention/limitation of consequences	
Potential for an accident or hazardous/ emergency situation to arise from activities at the installation.	• Potential for fire, due to large quantities of diesel stored at the installation, leading to potential for emissions to air, water and/or soil and ground water. • Spillages/leaks, due to accidents on-site. • Spillages/leaks of diesel during storage, use or delivery. • Malfunction of the plant including generators etc., leading to the potential for fuel spills, or exceedances of the emission limits. • Failure of the hydrocarbon interceptors or stormwater shut off valves leading to discharges of contaminated storm water.
Preventative/Mitigation measures to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.	• Provision and maintenance of adequate bunding. Testing of the integrity and water tightness of all tanks, bunding structures and containers at least every three years. Bunds will be fitted with leak detection systems and high level alarms. • All diesel storage tanks will be double skinned and contain high/low level gauges connected to an onboard controller and alarm system. The onboard controllers will be connected to the Building Management System and the site will be manned 24/7. • The site emergency response includes procedures for locking down the stormwater network. Shut off valves will divert potentially contaminated water to the attenuation pond. Spill kits and firefighting equipment will be available and maintained at all times. • Fuel delivery, unloading and storage will take place only within designated areas and under Standard Operating Procedures. • Operation and maintenance of plant and equipment will be carried out in line with manufacturer's recommendations.

Potential accidents & measures for prevention/limitation of consequences	
	All surface water from the generator yard, loading dock, and fuel delivery areas will pass through Class 1 Full Retention interceptors prior to entering the surface water drainage system. All surface water from car parking areas will pass through Class 1 By-Pass Interceptors, prior to entering the surface water drainage system. Interceptors will be equipped with high level alarms.
Additional measures provided for in the RD	- Accident prevention and emergency response requirements (Condition 9). - Integrity of tanks, bunding structures, underground pipes to be assessed every three years and maintenance carried out as required (Condition 6). - Storm water discharge points to be monitored (Schedule B). - Firewater retention risk assessment (Condition 3).

The risk of accidents and their consequences, and the preventative and control measures listed in the table above, have been considered in full in the assessments carried out throughout this report.

Condition 9 of the RD requires procedures to be put in place to prevent accidents with a possible impact on the environment, and to respond to emergencies so as to minimise the impact on the environment.

The Health and Safety Authority is the Central Competent Authority for The Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (SI 209/2015, hereafter referred to as the COMAH Regulations 2015). The installation is not a COMAH site as the only substance on the installation which would be controlled under the COMAH Regulations 2015 is diesel. The maximum amount of diesel that would be stored at the installation at any one time is c. 1,065 tonnes. Under the COMAH Regulations 2015 the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. Therefore, the quantity of diesel stored at the site does not exceed the thresholds of the COMAH Regulations 2015.

10. Cessation of Activity

A certain amount of environmental risk is associated with the cessation of any licensable activity (site closure). For this installation, the risks relate to the potential for soil, groundwater or surface water contamination.

The applicant has provided a list of measures to be taken in the event of site closure/cessation of activity. These measures are listed in Attachment 9-2-3 of the application form. Condition 10 of the RD requires the proper closure of the activity with the aim of protecting the environment.

Baseline Report

Where an activity involves the use, production or release of relevant hazardous substances, and having regard to the possibility of soil and groundwater contamination at the site of the installation, the IED requires operators to prepare a baseline report.

A baseline report was submitted with the application (Attachment 4-8-3). The report states the site was historically used for agricultural lands. The southern part of the site was developed in the 1990's, with the construction of two industrial buildings, which were used as call centres. These buildings are currently unoccupied and have been demolished. The northern part of the site has remained undeveloped.

The report refers to soil and groundwater data from a site investigation carried out in 2019. Groundwater samples were compared to the Groundwater Threshold Values in the European Communities Environmental Objectives (Groundwater) Regulations 2010, SI9/2010 and amendment; SI366/2016) and the EPA's Interim Guideline Values: no exceedances were recorded. Soil samples were compared to the commercial threshold end use values of CLEA (Contaminated Land Environmental Agency) soil guideline values and LQM/CIEH 'Suitable 4 Use Levels', together with ATRISKSOIL values. No exceedances were recorded. Slightly elevated concentrations of hydrocarbons were detected in a number of the soil trial pits; however, the report notes these were well below the threshold values and are not considered to be a risk. Based on the findings of the site investigation in conjunction with the natural composition of the clays underlying the site (as recorded during geotechnical and environmental investigations) and the lack of historic development, the report concludes that it is unlikely for there to be source of groundwater contamination at the site.

The aquifer beneath the site, which is part of the Dublin Groundwater Body (IE_EA_G_008), is a locally important bedrock aquifer. The groundwater body is classified as 'good' for the purposes of the WFD, with a risk classification of "under review".

The activity has one relevant hazardous substance, bulk storage of diesel. Diesel storage tanks are double skinned and contain high/low level gauges. The bunded areas will be subject to routine integrity testing and are fitted with leak detection systems and high-level alarms. The delivery and loading/unloading of diesel on site must be carried out under standard operating procedures for materials handling and spills management. Most of the site is hard paved, and spill kits will be available at all times. The stormwater drainage system has attenuation tanks, hydrocarbon interceptors and an attenuation system with a hydrobrake and shut off valves.

All surface water from the generator yard, loading dock, and fuel delivery areas pass through a Class 1 Full Retention interceptor, prior to entering the surface water drainage system. Drainage from car parking areas pass through Class 1 By-Pass interceptors. Shut off valves can divert potentially contaminated water to the attenuation pond, where it can then be held until tested and removed off site if required. Interceptors are fitted with high level alarms to facilitate timely maintenance and clean out operations. Sanitary effluent is collected by and directed through the foul lines for discharge to sewer at SE1. Specialist contractors will remove waste sludge directly from oil separators. Maintenance contractors will remove waste oil, oil filters and waste batteries directly during maintenance operations and change outs. Any other small amounts of hazardous waste arisings on site are stored in designated areas and collected by authorised waste contractors. All waste leaving the site shall be sent for appropriate recovery/disposal.

Considering the quantity of hazardous substances and the measures to be taken to prevent accidents and incidents, the possibility of soil and groundwater contamination from the activity is considered to be low.

It is in the applicant's interest to keep detailed records of operational practice such as inspections, maintenance, incidents, accidents and remediation under the IED. The Agency's Office of Environmental Enforcement may refuse an application for surrender without detailed assessment and remediation proposals. Upon definitive cessation of the activity (and in accordance with Article 22(3) of the IED), the operator shall assess the state of soil and groundwater contamination by relevant hazardous substances used, produced or released by the installation. Where the installation has caused significant pollution of soil or groundwater by relevant hazardous substances, compared to the state established in the baseline report, the operator shall take the necessary measures to address that pollution so as to return the site to that state, or otherwise to take actions aimed at the removal, control, containment or

reduction of hazardous substances, so that the site ceases to pose a significant risk to human health or the environment. For that purpose, the technical feasibility of such measures may be taken into account.

The RD requires soil and groundwater monitoring for relevant hazardous substances in accordance with the requirements of the IED (Condition 6), and contains a number of conditions to reduce the risk to soil and groundwater by preventing discharges to ground, including:

- the provision and maintenance of adequate bunding for all tank, container and drum storage areas (Condition 3),
- the provision of high level liquid alarms (or oil detectors as appropriate) in storage areas from which spillage of environmentally significant materials might occur (Condition 3),
- the regular integrity testing of bunding structures, tanks, underground pipelines and containers installed on site (Condition 6), and
- waste and materials to be stored in designated areas, protected as may be appropriate against spillage and leachate run-off (Condition 8).

11. Fit & Proper Person

Technical Ability

The applicant has provided details of the qualifications, technical knowledge and experience of key personnel. The licence application also includes information on the on-site management structure. It is considered that the applicant has demonstrated the technical knowledge required.

Legal Standing

Neither the applicant nor any relevant person has relevant convictions under the EPA Act, or under any other relevant environmental legislation.

ELRA, CRAMP and Financial Provision

The installation was assessed for the requirements of Environmental Liabilities Risk Assessment (ELRA), Closure, Restoration and Aftercare Management Plan (CRAMP) and Financial Provision (FP), in accordance with Agency guidance. Under this assessment it has been determined that ELRA, CRAMP and FP are not required.

Fit & Proper Conclusion

It is my view that the applicant can be deemed a Fit & Proper Person for the purpose of this application.

12. Submission

There was one submission received in relation to the licence application. The main points raised in the submission are briefly summarised in the table below.

The issues raised in the submission is noted and addressed in this Inspector's Report and the submission was taken into consideration during the preparation of the RD.

Submissions			
1.	Name & Position Mrs. Laura Duffy	Organisation: Environmental Health Service	Date received: 15 March 2021
	Issues raised: 1. The EHS assessed the air emissions impact assessment and is satisfied that there will be no major air emissions during the normal operation of the data storage installation. The main source of air emission from the proposed development will be from the 32 diesel powered back-up generators. The EHS is satisfied with the conclusion in the impact assessment that states, impacts on ambient air quality associated with the standby generators at the proposed development site will be in compliance with the ambient air quality standards which are based on the protection of the environment and human health. 2. The EHS assessed the noise impact assessment submitted to the EPA. Due to the close proximity of the residential properties at both St. Philomena's Park and Ballycoolin Road, it is the opinion of the EHS that additional noise monitoring is carried out at the NSL's identified in the noise impact assessment once the proposed development is operational.		
	Agency response: 1. The Agency notes the points raised in the submission regarding emissions to air from the diesel generators. 2. Noise emissions from the installation are dealt with in detail in the noise section of this report. Condition 6.10.3 requires a noise management plan to be put in place within 6 months of date of grant of the licence.		

13. Consultations

13.1 Cross Office Consultation

I consulted with the Office of Environmental Enforcement (Ann Lyng) in relation to the financial charges.

13.2 Transboundary Consultations

There were no transboundary consultations undertaken, as there were no transboundary impacts identified.

14. Appropriate Assessment

Appendix 2 lists the European Sites assessed, their associated qualifying interests and conservation objectives.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at Rye Water Valley/Carlton SAC (Site Code: 001398), Malahide Estuary SAC (Site Code: 000205), South Dublin Bay SAC (Site Code: 000210), North Dublin Bay SAC (Site Code: 000206), Baldoyle Bay SAC (Site Code: 000199), South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024), Malahide Estuary SPA (Site Code: 004025), North Bull Island SPA (Site Code: 004006) and Baldoyle Bay SPA (Site Code: 004016).

The activity is not directly connected with or necessary to the management of any European

Site and the Agency considered, for the reasons set out below, that it can be excluded, on the basis of objective information, that the activity individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activity was not required.

This determination has been made in light of the following reasons:

- The installation is not located within a European site.
- The activity will be limited to operating for less than 500 hours/year.
- There are no direct process emissions to ground or groundwater from the installation.
- There are no direct process emissions to surface water. The only discharge to water is stormwater runoff from building roofs and hardstanding areas. There is a hydrological connection to the European sites at Dublin Bay. The surface water is discharged through the storm water drainage system to the Abbotstown River (Water Framework Directive Code: IE_EA_09T011000) which ultimately connects to the River Tolka and to Dublin Bay 10km downstream of the installation. Taking into account the nature of these emissions and the distance downstream it is considered that these emissions will not have a significant effect on European Sites at Dublin Bay.
- Emissions to sewer (other than sanitary effluent) consist of residual cooling water from the Indirect Evaporative Cooling system. This residual cooling water is discharged to sewer and ultimately treated in the EPA licensed Ringsend WWTP (Register Number D0034-01), which is designed to provide secondary treatment with a plant capacity of approximately 1,640,000 population equivalent and is currently exceeded at the plant. Major renovations are currently underway at the plant in order to treat the increasing volumes of wastewater arriving at the plant to the required standard, enabling future housing and commercial development. Renovations are due to be completed in 2025. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower; therefore, there is an indirect hydrological connection to the European sites at Dublin Bay. Despite the capacity issues associated with the Ringsend WWTP, the Liffey Estuary Lower and Dublin Bay are currently classified by the EPA as being of 'Unpolluted' water quality status (Coastal Water Quality 2018-2020). According to EPA Maps, the Transitional Waterbody WFD Status 2016-2021 for Liffey Estuary Lower is 'Moderate'. The Coastal Waterbody WFD Status 2016-2021 for Dublin Bay is 'Good'. Taking into account the nature of the discharge to sewer from the installation, it is considered that it will not have a significant effect on European Sites in the vicinity of the WWTP Discharge in Dublin Bay. Treated effluent from the Ringsend WWTP is discharged in accordance with the EPA Waste Water Discharge Licence, reg. no. D0034-01.
- European Sites and their qualifying interests are considered to be outside of the zone of influence of noise emissions arising at the installation with the closest European Site being approximately 10km away (Rye Water Valley/Carton SAC).
- Emissions to air from the installation will consist of emissions from 32-no. diesel powered back-up generators in the installation, each with no. 2 flues combined into a single stack, resulting in a total of 64 emission points. Air dispersion modelling submitted by the applicant demonstrates that emissions from the installation will not cause an exceedance of air quality standards for ecosystems (NO_x and SO₂) at any of the European sites within the zone of influence. In relation to nitrogen deposition, the air dispersion modelling demonstrates the highest predicted process contribution from the installation is at Malahide Estuary SAC (Site Code: 000205) and is 0.2% (Proposed Operations Scenario) and 2% (Cumulative Scenario) of the critical load for the most sensitive qualifying interest habitats: 'Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)' and 'Fixed coastal dunes with herbaceous

vegetation (grey dunes)' at this European site. Therefore, there will be no significant effects on qualifying interest habitats or species in any European site as a result of emissions to air from the installation.

- Given the nature and scale of emissions, it is considered that the activity in combination with other plans or projects will not have a significant effect on European Sites.

15. EPA Charges

The annual enforcement charge recommended in the RD is €5,903, which reflects the anticipated enforcement effort required and the cost of monitoring.

16. Recommendation

The Agency, in considering an application for a licence or the review of a licence, shall have regard to Section 83 of the EPA Act. The Agency shall not grant a licence or revised licence unless it is satisfied that emissions comply with relevant emission limit values and standards prescribed under regulation. In setting such limits and standards, the Agency must ensure they are established based on the stricter of both the limits and controls required under BAT, and those required to comply with any relevant environmental quality standard. The Agency shall perform its functions in a manner consistent with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended.

The RD specifies the necessary measures to provide that the installation shall be operated in accordance with the requirements of Section 83(5) of the EPA Act and has regard to the AA Screening and EIA Screening. The assessment is consistent with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended. The RD gives effect to the requirements of the EPA Act and has regard to submissions made.

This report was prepared with the assistance of David Matthews, Cian O'Rourke and Michelle O'Driscoll.

I recommend that a Proposed Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed



Noelle Crimmins O'Leary

Procedural Note

In the event that no objections are received to the Proposed Determination on the application, a licence will be granted in accordance with Section 87(4) of the EPA Act as soon as may be after the expiration of the appropriate period.

Appendix 1: Site Layout





Figure 2: Site Plan [Source: Drawing No. 3.3 from Licence Application]

Appendix 2: Appropriate Assessment

Table 1: List of European Sites assessed, their associated qualifying interests and conservation objectives.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
001398	Rye Water Valley/Carton SAC	Habitats 7220 Petrifying springs with tufa formation (Cratoneurion)* Species 1014 Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) 1016 Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>)	NPWS (2021) Conservation Objectives: Rye Water Valley/Carton SAC 001398. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
000205	Malahide Estuary SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritima) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*	NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
000210	South Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 2110 Embryonic shifting dunes	NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
000206	North Dublin Bay SAC	Habitats 1140 Mudflats and	NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritima) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks Species 1395 Petalwort (<i>Petalophyllum ralfsii</i>)	and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
000199	Baldoyle Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritima) 1410 Mediterranean salt meadows (Juncetalia maritimi)	NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
004024	South Dublin Bay and River Tolka Estuary SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A137 Ringed	NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		Plover (<i>Charadrius hiaticula</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A143 Knot (<i>Calidris canutus</i>) A144 Sanderling (<i>Calidris alba</i>) A149 Dunlin (<i>Calidris alpina</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A162 Redshank (<i>Tringa totanus</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A192 Roseate Tern (<i>Sterna dougallii</i>) A193 Common Tern (<i>Sterna hirundo</i>) A194 Arctic Tern (<i>Sterna paradisaea</i>) Habitats Wetlands	
004025	Malahide Estuary SPA	Birds A005 Great Crested Grebe (<i>Podiceps cristatus</i>) A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A054 Pintail (<i>Anas acuta</i>) A067 Goldeneye (<i>Bucephala clangula</i>) A069 Red-breasted Merganser (<i>Mergus serrator</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A143 Knot (<i>Calidris</i>	NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		<i>canutus</i>) A149 Dunlin (<i>Calidris alpina</i>) A156 Black-tailed Godwit (<i>Limosa limosa</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A162 Redshank (<i>Tringa totanus</i>) Habitats Wetlands	
004006	North Bull Island SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A052 Teal (<i>Anas crecca</i>) A054 Pintail (<i>Anas acuta</i>) A056 Shoveler (<i>Anas clypeata</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A143 Knot (<i>Calidris canutus</i>) A144 Sanderling (<i>Calidris alba</i>) A149 Dunlin (<i>Calidris alpina</i>) A156 Black-tailed Godwit (<i>Limosa limosa</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A160 Curlew (<i>Numenius arquata</i>) A162 Redshank (<i>Tringa totanus</i>) A169 Turnstone (<i>Arenaria interpres</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		Habitats Wetlands	
004016	Baldoyle Bay SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A137 Ringed Plover (<i>Charadrius hiaticula</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) Habitats Wetlands	NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Appendix 3: Relevant Legislation

The following European instruments are regarded as relevant to this application assessment and have been considered in the drafting of the Recommended Determination.
Industrial Emissions Directive (IED) (2010/75/EU)
Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU)
Habitats Directive (92/43/EEC) & Birds Directive (79/409/EC)
Water Framework Directive [2000/60/EC]
Waste Framework Directive (2008/98/EC)
Groundwater Directive (80/68/EEC) and 2006/118/EC
Medium Combustion Plant Directive (EU) 2015/2193
Air Quality Directives (2008/50/EC and 2004/107/EC)
Energy Efficiency Directive (2023/1791/EU)
Environmental Liability Directive (2004/35/CE)

Appendix 4: Other BREF documents relevant to this assessment

Horizontal BREF	Publication date
Reference Document on the Best Available Techniques on Emissions from Storage	July 2006
Reference Document on the Best Available Techniques for Energy Efficiency	February 2009
Reference Document on the application of Best Available Techniques to Industrial Cooling Systems	December 2001

Appendix 5: Relevant BAT Compliance Conditions

Table 1: BAT Conclusions, specific techniques employed and Condition/Schedule in the RD. BAT requirements not applicable to the site are annotated as N/A.

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
1	Environmental Management System.	Environmental Management System	Condition 2
2	Determine the net electrical efficiency of the combustion unit.	N/A	N/A
3	Monitor key process parameters relevant for emissions to air.	Monitoring of the flu-gas emissions from back-up generator exhausts will be undertaken at least once every five years or when three times the permitted maximum annual operating hours have elapsed. This will include measuring the relevant reference	Schedule B.1

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
		parameters and will be monitored as per the BAT.	
4	Monitor emissions to air with at least the frequency given in BAT 4 and in accordance with EN standards.	N/A - Monitoring of the flue-gas emissions from back-up generator exhausts will be undertaken in accordance with MCP Regulations.	N/A
5	Monitor emissions to water from flue-gas treatment.	N/A - (no flue-gas treatment and no process emission to water)	N/A
6	Ensure optimised combustion and to use an appropriate combination of the techniques given in BAT 6.	Techniques to improve combustion performance have been incorporated into the design of the installation: Fuel blending and mixing – not applicable for the diesel back-up generators. Maintenance of the combustion system – Regular maintenance will be undertaken as part of the installation's planned preventative maintenance programme, which will be developed in conjunction with and included in the EMS. Advance control system – Each engine is, and will, be connected into Building Management System (BMS) which will control the operation of the units to ensure optimal efficiency at all times. Good design of the combustion equipment – All units are new and have been	Condition 2 Condition 3 Condition 6

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
		procured on the basis that they are highly efficient and fit for purpose. Fuel choice – the sulphur content of the diesel fuel used in the generators will not exceed 0.1% by mass.	
7	To reduce emissions of ammonia to air from the use of selective catalytic reduction (SCR) and/or selective non-catalytic reduction (SNCR).	N/A - (SCR, SNCR not used)	N/A
8	To ensure, by appropriate design, operation and maintenance, that the emission abatement systems are used at optimal capacity and availability.	N/A - There is no requirement for additional abatement.	N/A
9	Quality assurance/quality control programmes for all the fuels used.	The licensee must maintain a record of the sulphur content of all gasoil delivered to the site.	Condition 2 Condition 11
10	Implement a management plan (as part of the environmental management system) to reduce emissions to air and/or to water during other than normal operating conditions (OTNOC).	The nature of the back-up generators means that the OTNOC scenario is when there is a power outage, and the generators must run continuously. The generator performance is monitored continuously, this is connected to the BMS and alarm system to alert to any voltage or frequency issues inefficiencies or irregularities. Changeovers and emergency events will be logged. A schedule of preventive maintenance will be in place	Condition 2

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
		which will be developed as part of the EMS.	
11	Monitor emissions to air and/or to water during OTNOC	N/A	N/A.
12	In order to increase the energy efficiency of combustion units operated $\geq 1,500$ h/yr BAT is to use an appropriate combination of the techniques given in BAT 12.	N/A - The back-up generators will not be operated > 1500 h/yr.	N/A.
13	In order to reduce water usage and the volume of contaminated waste water discharged, BAT is to use the technique given below. Water recycling The degree of recycling is limited by the quality requirements of the recipient water stream.	N/A - No wastewater produced from combustion processes	N/A.
14	To prevent the contamination of uncontaminated waste water and to reduce emissions to water, BAT is to segregate waste water streams and to treat them separately.	N/A. No process wastewater will be generated.	N/A
15	To reduce emissions to water from flue-gas treatment.	N/A - No flue gas treatment is proposed.	N/A
16	To reduce the quantity of waste sent for disposal from the combustion process.	N/A - No solid waste is generated by the combustion of gas oil.	N/A
17	To reduce noise emissions, BAT is to use one or a combination of the techniques given below - Operational measures - Low-noise equipment - Noise attenuation - Noise-control equipment	Low noise equipment, the use of noise attenuation where required and the appropriate location of equipment will be applied at the installation in accordance with BAT 17. The RD specifies noise emission	Condition 4 Condition 5 Condition 6 Schedule B.4

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
	Appropriate location of equipment	limits and annual noise surveys. Preventative maintenance will be undertaken at the installation as part of the EMS and the generators and other equipment will be operated by experienced staff. As the installation will operate 24/7 and as such the acceptable night-time noise levels have been applied to the continuous operation of the installation and have been accounted for in the design. As the predicted noise levels under Scenarios B and E, emergency operation of generators, showed an exceedance of the standard evening time (50 dB) and nighttime (45 dB) noise limits at noise sensitive locations, the RD includes a requirement on the applicant to prepare a NMP (Condition 6).	
BAT 28	In order to prevent or reduce NO _x emissions to air while limiting CO emissions to air from the combustion of HFO and/or gas oil in boilers, BAT is to use one or a combination of the techniques in BAT 28.	N/A - No boilers at the site.	N/A
BAT 29	In order to prevent or reduce SO _x , HCl and HF emissions to air from the combustion of HFO and/or gas oil in boilers, BAT is to use one or a	N/A - No boilers at the site.	N/A

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
	combination of the techniques in BAT 29.		
BAT 30	In order to reduce dust and particulate-bound metal emissions to air from the combustion of HFO and/or gas oil in boilers, BAT is to use one or a combination of the techniques in BAT 30.	N/A - No boilers at the site.	N/A
BAT 31	In order to increase the energy efficiency of HFO and/or gas oil combustion in reciprocating engines, BAT is to use an appropriate combination of the techniques given in BAT 12 and BAT 31.	N/A - Not applicable as the units are standalone back-up generators operated less than 1,500 hours per year	N/A
BAT 32	In order to prevent or reduce NO _x emissions to air from the combustion of HFO and/or gas oil in reciprocating engines, BAT is to use one or a combination of the techniques in BAT 32.	N/A - Not applicable as the units are standalone back-up generators operated less than 1,500 hours per year	N/A
BAT 33	In order to prevent or reduce emissions of CO and volatile organic compounds to air from the combustion of HFO and/or gas oil in reciprocating engines, BAT is to use one or both of the techniques in BAT 33.	N/A - An advanced control system is used on all generators to control the combustion efficiency and support the prevention and/or reduction of emissions. Oxidation Catalysts are not applicable. ELVs not applicable as the units are standalone back-up generators operated less than 1,500 hours per year.	N/A
BAT 34	In order to prevent or reduce SO _x , HCl and HF emissions to air from the combustion of HFO and/or gas oil in reciprocating engines, BAT is	N/A – No reciprocating engines.	N/A

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
	to use one or a combination of the techniques in BAT 34.		
BAT 35	In order to prevent or reduce dust and particulate-bound metal emissions from the combustion of HFO and/or gas oil in reciprocating engines, BAT is to use one or a combination of the techniques in BAT 35.	N/A – No reciprocating engines.	N/A
BAT 36	In order to increase the energy efficiency of gas oil combustion in gas turbines, BAT is to use an appropriate combination of the techniques given in BAT 12 and BAT 36.	N/A - No gas turbines	N/A
BAT 37	In order to prevent or reduce NOX emissions to air from the combustion of gas oil in gas turbines, BAT is to use one or a combination of the techniques in BAT 37.	N/A - No gas turbines	N/A
BAT 38	In order to prevent or reduce CO emissions to air from the combustion of gas oil in gas turbines, BAT 38.	N/A - No gas turbines	N/A
BAT 39	In order to prevent or reduce SOX and dust emissions to air from the combustion of gas oil in gas turbines, BAT is to use the technique BAT 39.	N/A - No gas turbines	N/A