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To:
Environment Agency

CC:
AWS
AECOM

Project name:
Data Centre at Thorney Lane Business Park, Iver
Response to Environment Agency Questions.

Project ref:
60753542

From:
Gareth Hodgkiss

Date:
12 May 2026

Air Quality Technical Note

Subject: Response to Environment Agency Questions.
Application reference: EPR/MP3824MG/A001
Operator: AMAZON DATA SERVICES UK LIMITED
Facility: Thorney Lane Data Centre Emergency Back-up Generation Facility, Thorney Lane North, Iver, SL0 9EE

Introduction

This memo serves as our formal response to the questions raised by the Environment Agency (EA) / Environmental Permitting (England and Wales) on 30 April 2026 regarding the application and the accompanying air quality assessment submitted on 02/03/2026. Below, we address each query in detail and provide the requested information.

EA Comment and AECOM Response

1. Ramsar site

A Ramsar site (South West London Waterbodies Ramsar) falls within the screening distance of the installation. This site is not identified or assessed within the submitted air quality assessment. It overlaps a Special Protection Area and SSSI, but it still needs to be considered within your assessment. Please update the air quality assessment to include consideration of potential effects on the Ramsar site. If you have screened it out of requiring further assessment due to relying on assessments for the overlapping sites this needs to be explained in your application report.

South West London Waterbodies Ramsar site lies within the Environment Agency's screening distance and is situated at the same location as the South West London Waterbodies (SPA/SSSI). Modelling results for the Ramsar/SPA/SSSI site are presented in Table 1.1.

Table 1.1 : Predicted NOx Results at South West London Waterbodies Ramsar site

Receptor	Modelling Scenario	Averaging period	AQS (µg/m^3)	PC (µg/m^3)	PC/AQS (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AQS (%)
South West London Waterbodies Ramsar site (502699,175712)	Testing and maintenance	24-hour	75	2.4	3.2	45.4	47.8	63.7
		Annual	30	<0.1	0.1	22.7	21.4	71.4
	Emergency[1]	Annual	30	0.1	0.2	22.7	21.5	71.6

[1] 24-hour NO_X not reported for emergency operation. Emergency operation is not expected to occur for periods of more than an hour.

Note that consultation with the project ecologists at the time of the assessment confirmed that the Ramsar/SPA/SSSI site at South West London Waterbodies is not considered sensitive to nutrient nitrogen deposition or acid deposition. As such, no results are provided for those pollutants in this Technical Note.

2. Local Wildlife Sites

Our screening indicates there are three Local Wildlife Sites located within the relevant screening distance of the installation (Little Britain, London's Canals, and Old Slade Lake); however, these sites have not been assessed within the submitted air quality assessment. Please update the air quality assessment to include an assessment of potential effects on all Local Wildlife Sites that fall within the 2km screening distance.

The Little Britain and London Canals habitats were not included in the air quality assessment that supported the Environmental Permit application because, according to the ecology impact assessment report that accompanied the planning application for the installation, they were designated as Sites of Importance for Nature Conservation (SINC). This is not a designation listed in the *Air emissions risk assessment for your environmental permit* guidance. The air quality assessment that informed the planning application for the installation did include the Little Britain and London Canals SINCs at the request of the project ecologists.

With regards to the Old Slade Lake Local Wildlife Site (LWS), an additional receptor has been added to the dispersion model to represent this LWS and the results are presented in this Technical Note.

The predicted Process Contribution (PC) and Predicted Environmental Concentration (PEC) for the two SINCs and the LWS are provided in Table 2.1 and Table 2.2.

Table 2.1 Predicted NOx Results at Little Britain and London Canals SINCs

Receptor	Modelling Scenario	Averaging period	AQS (µg/m³)	PC (µg/m³)	PC/AQS (%)	AC (µg/m³)	PEC (µg/m³)	PEC/ AQS (%)
Little Britain SINC (504689,180847)	Testing and maintenance	24-hour	75	5.8	7.8	58.2	64.0	32.0
		Annual	30	0.1	0.4	29.1	29.2	97.4
	Emergency[1]	Annual	30	0.4	1.2	29.1	29.5	98.2
London Canals SINC (504756,180718)	Testing and maintenance	24-hour	75	6.5	8.6	58.2	64.7	32.3
		Annual	30	0.1	0.4	29.1	29.2	97.4
	Emergency[1]	Annual	30	0.4	1.3	29.1	29.5	98.3
Old Slade Lake LWS (503900, 178293)	Testing and maintenance	24-hour	75	5.3	7.0	74.2	79.5	105.9
		Annual	30	<0.1	0.1	37.1	37.1	123.8
	Emergency[1]	Annual	30	0.1	0.4	37.1	37.2	124.1

[1] 24-hour NO_X not reported for emergency operation. Emergency operation is not expected to occur for periods of more than an hour.

Table 2.2 Predicted Nitrogen and Acid Deposition Results at Little Britain and London Canals SINCs

Receptor	Modelling Scenario	Pollutant	AQS (µg/m³)	PC (kgN/ ha/yr or keq/ha/yr)	PC/ AQS (%)	AC (kgN/ha/yr or keq/ha/yr)	PEC (kgN/ ha/yr or keq/ha/yr)	PEC/ AQS (%)
Little Britain SINC Broadleaved Woodland Habitat (504689, 180847)	Testing and maintenance	N Dep	10	0.03	0.3	24.9	24.9	249.3
		A Dep	CL Min N: 0.357 CL Max N: 11.13 CL Max S: 10.77	0.002	<0.1	2.0	2.0	18.1
	Emergency	N Dep	10	0.1	1.0	24.9	25.0	250.0
		A Dep	CL Min N: 0.357 CL Max N: 11.13 CL Max S: 10.77	0.007	0.1	2.0	2.0	18.1
	Testing and maintenance	N Dep	Not sensitive to nitrogen deposition or acid deposition[1]					
		A Dep						

Receptor	Modelling Scenario	Pollutant	AQS (µg/m³)	PC (kgN/ ha/yr or keq/ha/yr)	PC/ AQS (%)	AC (kgN/ha/yr or keq/ha/yr)	PEC (kgN/ ha/yr or keq/ha/yr)	PEC/ AQS (%)
London Canals SINC Open Freshwater Habitat (504756, 180718)	Emergency	N Dep						
		A Dep						
Old Slade Lake LWS Potential Fen, Marsh and Swamp Habitat (503900, 178293)	Testing and maintenance	N Dep	15	0.01	0.1	13.4	13.4	89.4
		A Dep	Not sensitive to acid deposition[2]					
	Emergency	N Dep	15	0.04	0.2	13.4	13.4	89.6
		A Dep	Not sensitive to acid deposition[2]					

[1] Consultation with the project ecologists at the time of the assessment confirmed that the London Canals SINC is an open water habitat that is not considered sensitive to nutrient nitrogen deposition or acid deposition.

[2] Consultation with the project ecologists confirmed that the London Old Slade Lake LWS is not considered sensitive to acid deposition.

Table 2.1 and Table 2.2 show that the PC reported at the Little Britain SINC, London Canals SINC, and Old Slade Lake LWS accounts for less than 100% of the relevant EALs. As such, these sites are screened as insignificant in line with the criteria set out in the *Air emissions risk assessment for your environment permit* guidance.

3. Nitrogen monoxide (NO)

Provide an impact assessment for nitrogen monoxide for testing and emergency operating scenarios, taking into account the environmental assessment levels set out in in our guidance on https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#environmental-standards-for-air-emissions. This requirement is also set out in our AERA GOV.uk guidance here: Air emissions risk assessment for your environmental permit - GOV.UK.

The dispersion model has been updated to include the annual mean and 100th percentile of hourly mean nitrogen monoxide (NO) output for testing and maintenance and emergency operating scenarios.

To maintain consistency with the air quality assessment submitted to accompany the Environmental Permit application, the following assumptions have been made:

- That 100% of long-term NO_X emissions are released as NO with 0% conversion into NO_2;
- That 50% of short-term NO_X emissions are released as NO with 50% conversion into NO_2;
- For testing and maintenance, one generator will be operational at any one time with 31 hours of testing per year; and
- For emergency operation, all generators will be operational at the same time for up to 72 hours per year.

A long-term background NO concentration has been calculated using Defra's background pollutant maps, by subtracting the long-term NO_2 background concentration from the long-term NO_X background concentration. The maximum long-term background NO was then used to represent all receptor locations. The short-term NO background concentration was assumed to be double the maximum long-term concentration.

Predicted NO PCs and PECs for the human health sensitive receptors considered in the assessment are provided in Table 3.1 and Table 3.2. The PCs and PECs are compared against the relevant NO EALs set out in the *Air emissions risk assessment for your environmental permit* guidance.

Table 3.1 Predicted NO Concentrations at Human Health Receptors – Testing and Maintenance

Receptor	Averaging period	AQS (µg/m³)	PC (µg/m³)	PC/ AQS (%)	AC (µg/m³)	PEC (µg/m³)	PEC/ AQS (%)
R01	1-hour	4400	49.2	1.1	10.6	59.8	1.4

Receptor	Averaging period	AQS (µg/m^3)	PC (µg/m^3)	PC/ AQS (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AQS (%)
	Annual	310	0.4	0.1	5.3	5.7	1.8
R02	1-hour	4400	48.0	1.1	10.6	58.6	1.3
	Annual	310	0.3	0.1	5.3	5.6	1.8
R03	1-hour	4400	35.7	0.8	10.6	46.3	1.1
	Annual	310	0.3	0.1	5.3	5.6	1.8
R04	1-hour	4400	48.7	1.1	10.6	59.3	1.3
	Annual	310	0.3	0.1	5.3	5.6	1.8
R05	1-hour	4400	23.9	0.5	10.6	34.5	0.8
	Annual	310	0.1	<0.1	5.3	5.4	1.7
R06	1-hour	4400	24.3	0.6	10.6	34.9	0.8
	Annual	310	0.1	<0.1	5.3	5.4	1.7
R07	1-hour	4400	32.8	0.7	10.6	43.4	1.0
	Annual	310	0.2	0.1	5.3	5.5	1.8
R08	1-hour	4400	37.0	0.8	10.6	47.6	1.1
	Annual	310	0.2	0.1	5.3	5.5	1.8
R09	1-hour	4400	25.9	0.6	10.6	36.5	0.8
	Annual	310	0.1	<0.1	5.3	5.4	1.7
R10	1-hour	4400	24.0	0.5	10.6	34.6	0.8
	Annual	310	0.3	0.1	5.3	5.6	1.8
R11	1-hour	4400	29.6	0.7	10.6	40.2	0.9
	Annual	310	0.1	<0.1	5.3	5.4	1.7
R12	1-hour	4400	36.3	0.8	10.6	46.9	1.1
	Annual	310	0.2	0.1	5.3	5.5	1.8
R13	1-hour	4400	28.0	0.6	10.6	38.6	0.9
	Annual	310	0.2	0.1	5.3	5.5	1.8
R14	1-hour	4400	23.7	0.5	10.6	34.3	0.8
	Annual	310	0.2	0.1	5.3	5.5	1.8
R15	1-hour	4400	24.6	0.6	10.6	35.2	0.8
	Annual	310	0.2	0.1	5.3	5.5	1.8
R16	1-hour	4400	59.3	1.3	10.6	69.9	1.6
	Annual	310	0.4	0.1	5.3	5.7	1.8
R17	1-hour	4400	40.9	0.9	10.6	51.5	1.2
	Annual	310	0.2	0.1	5.3	5.5	1.8
R18	1-hour	4400	28.6	0.7	10.6	39.2	0.9
	Annual	310	0.3	0.1	5.3	5.6	1.8
R19	1-hour	4400	26.3	0.6	10.6	36.9	0.8
	Annual	310	0.2	0.1	5.3	5.5	1.8
R20	1-hour	4400	26.1	0.6	10.6	36.7	0.8
	Annual	310	0.2	0.1	5.3	5.5	1.8
R21	1-hour	4400	35.1	0.8	10.6	45.7	1.0
	Annual	310	0.2	0.1	5.3	5.5	1.8
R22	1-hour	4400	31.9	0.7	10.6	42.5	1.0
	Annual	310	0.1	<0.1	5.3	5.4	1.7
R23	1-hour	4400	24.6	0.6	10.6	35.2	0.8
	Annual	310	0.1	<0.1	5.3	5.4	1.7
R24	1-hour	4400	23.7	0.5	10.6	34.3	0.8

Receptor	Averaging period	AQS (µg/m^3)	PC (µg/m^3)	PC/ AQS (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AQS (%)
	Annual	310	0.1	<0.1	5.3	5.4	1.7

Table 3.2 Predicted NO Concentrations at Human Health Receptors – Emergency

Receptor	Averaging period	AQS (µg/m^3)	PC (µg/m^3)	PC/ AQS (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AQS (%)
R01	1-hour	4400	1240.9	28.2	10.6	1251.5	28.4
	Annual	310	1.2	0.4	5.3	6.5	2.1
R02	1-hour	4400	1276.1	29.0	10.6	1286.7	29.2
	Annual	310	1.1	0.4	5.3	6.4	2.1
R03	1-hour	4400	1074.2	24.4	10.6	1084.8	24.7
	Annual	310	1.0	0.3	5.3	6.3	2.0
R04	1-hour	4400	1042	23.7	10.6	1052.6	23.9
	Annual	310	1.0	0.3	5.3	6.3	2.0
R05	1-hour	4400	796.8	18.1	10.6	807.4	18.4
	Annual	310	0.4	0.1	5.3	5.7	1.8
R06	1-hour	4400	804.2	18.3	10.6	814.8	18.5
	Annual	310	0.3	0.1	5.3	5.6	1.8
R07	1-hour	4400	1057.9	24.0	10.6	1068.5	24.3
	Annual	310	0.7	0.2	5.3	6.0	1.9
R08	1-hour	4400	1058.1	24.0	10.6	1068.7	24.3
	Annual	310	0.5	0.2	5.3	5.8	1.9
R09	1-hour	4400	860.1	19.5	10.6	870.7	19.8
	Annual	310	0.5	0.2	5.3	5.8	1.9
R10	1-hour	4400	841.9	19.1	10.6	852.5	19.4
	Annual	310	0.9	0.3	5.3	6.2	2.0
R11	1-hour	4400	964.2	21.9	10.6	974.8	22.2
	Annual	310	0.3	0.1	5.3	5.6	1.8
R12	1-hour	4400	1255.6	28.5	10.6	1266.2	28.8
	Annual	310	0.5	0.2	5.3	5.8	1.9
R13	1-hour	4400	867.3	19.7	10.6	877.9	20.0
	Annual	310	0.6	0.2	5.3	5.9	1.9
R14	1-hour	4400	783.7	17.8	10.6	794.3	18.1
	Annual	310	0.7	0.2	5.3	6.0	1.9
R15	1-hour	4400	827	18.8	10.6	837.6	19.0
	Annual	310	0.7	0.2	5.3	6.0	1.9
R16	1-hour	4400	1178.6	26.8	10.6	1189.2	27.0
	Annual	310	1.2	0.4	5.3	6.5	2.1
R17	1-hour	4400	1321.2	30.0	10.6	1331.8	30.3
	Annual	310	0.6	0.2	5.3	5.9	1.9
R18	1-hour	4400	956.8	21.7	10.6	967.4	22.0
	Annual	310	0.9	0.3	5.3	6.2	2.0
R19	1-hour	4400	905.5	20.6	10.6	916.1	20.8
	Annual	310	0.8	0.3	5.3	6.1	2.0
R20	1-hour	4400	876.1	19.9	10.6	886.7	20.2
	Annual	310	0.8	0.3	5.3	6.1	2.0
R21	1-hour	4400	1115	25.3	10.6	1125.6	25.6

Receptor	Averaging period	AQS (µg/m^3)	PC (µg/m^3)	PC/ AQS (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AQS (%)
	Annual	310	0.5	0.2	5.3	5.8	1.9
R22	1-hour	4400	1116.4	25.4	10.6	1127.0	25.6
	Annual	310	0.5	0.2	5.3	5.8	1.9
R23	1-hour	4400	839.3	19.1	10.6	849.9	19.3
	Annual	310	0.3	0.1	5.3	5.6	1.8
R24	1-hour	4400	794.2	18.1	10.6	804.8	18.3
	Annual	310	0.4	0.1	5.3	5.7	1.8

Table 3.1 shows that the short-term PC to max hourly NO concentrations is less than 10% of the EAL for that pollutant in the testing and maintenance scenario. Table 3.1 also shows that the long-term PC to annual mean NO concentrations is less than 1% of the EAL for that pollutant in the testing and maintenance scenario.

Table 3.2 shows that the long-term PC to annual mean NO concentrations is less than 1% of the EAL for that pollutant in the emergency operating scenario. Table 3.2 also shows that the short-term PC to max hourly NO concentrations is greater than 10% of the EAL for that pollutant during the emergency operating scenario and is also greater than 20% of the relevant EAL minus the short-term background concentration. However, it should be noted that the short-term assessment method assumes that emergency operation could occur on any hour of the year and thus coincide with the worst meteorological hour at each receptor. With the precautionary assumption of up to 72 hours of emergency operation over the 8,760 hours in a calendar year, this is unlikely to occur. Further consideration of short-term NO PEC reported shows that there is very little risk of the EAL for that pollutant being exceeded, with the highest PEC accounting for ~30% of the EAL.

Given the limited PC to short-term and long-term NO concentrations from testing and maintenance, the limited PC to long-term NO concentrations from emergency operation, and the minimal risk of any exceedance of the short-term EAL during emergency operation, it is considered that that the impact of installation on NO is insignificant.

4. Acute exposure (NO_2)

Provide a quantitative assessment of potential human health impacts associated with short-term exposure to nitrogen dioxide (NO_2). The assessment must: be based on the maximum off-site 1-hour NO_2 concentrations (100th percentile) for both testing and emergency operating scenarios, and include a comparison against the relevant US EPA acute exposure guideline levels (AEGLs) for NO_2.

The post-processing of dispersion model outputs has been revisited to include consideration of the short-term 1-hour NO_2 PC and PEC with relevance to the US EPA's Acute Exposure Guideline Levels (AGEL). The PC and PEC to 1-hour NO_2 is reported for both testing and maintenance and emergency operating scenarios.

To maintain consistency with the air quality assessment submitted to accompany the Environmental Permit application, the following assumptions have been made:

- That 50% of short-term NO_X emissions are released as NO with 50% conversion into NO_2;
- Short-term background NO_2 is double the long-term NO_2 background obtained from Defra background maps;
- For testing and maintenance, one generator will be operational at any one time with 31 hours of testing per year; and
- For emergency operation, all generators will be operational at the same time for up to 72 hours per year.

The US EPA AEGL values are published in ppm. These were converted to µg/m^3 for comparison with the dispersion model outputs.

Short-term 1-hour NO_2 modelling results for testing and maintenance scenario are presented in Table 4.1, and for the emergency operating scenario are presented in Table 4.2.

Table 4.1 Predicted hourly 100th Percentile NO_2 Concentrations at Human Health Receptors – Testing and Maintenance

Receptor	AEGL	AEGL (µg/m^3)	PC (µg/m^3)	PC/ AEGL (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AEGL (%)
R01	AEGL-1	941	49.2	5.2	35.6	84.8	9.0
	AEGL-2	22,577	49.2	0.2	35.6	84.8	0.4

Receptor	AEGL	AEGL (µg/m^3)	PC (µg/m^3)	PC/ AEGL (%)	AC (µg/m^3)	PEC (µg/m^3)	PEC/ AEGL (%)
	AEGL-3	37,628	49.2	0.1	35.6	84.8	0.2
	AEGL-1	941	48.0	5.1	35.6	83.6	8.9
R02	AEGL-2	22,577	48.0	0.2	35.6	83.6	0.4
	AEGL-3	37,628	48.0	0.1	35.6	83.6	0.2
	AEGL-1	941	35.7	3.8	35.6	71.3	7.6
R03	AEGL-2	22,577	35.7	0.2	35.6	71.3	0.3
	AEGL-3	37,628	35.7	0.1	35.6	71.3	0.2
	AEGL-1	941	48.7	5.2	35.6	84.3	9.0
R04	AEGL-2	22,577	48.7	0.2	35.6	84.3	0.4
	AEGL-3	37,628	48.7	0.1	35.6	84.3	0.2
	AEGL-1	941	23.9	2.5	35.6	59.5	6.3
R05	AEGL-2	22,577	23.9	0.1	35.6	59.5	0.3
	AEGL-3	37,628	23.9	0.1	35.6	59.5	0.2
	AEGL-1	941	24.3	2.6	35.6	59.9	6.4
R06	AEGL-2	22,577	24.3	0.1	35.6	59.9	0.3
	AEGL-3	37,628	24.3	0.1	35.6	59.9	0.2
	AEGL-1	941	32.8	3.5	35.6	68.4	7.3
R07	AEGL-2	22,577	32.8	0.1	35.6	68.4	0.3
	AEGL-3	37,628	32.8	0.1	35.6	68.4	0.2
	AEGL-1	941	37.0	3.9	35.6	72.6	7.7
R08	AEGL-2	22,577	37.0	0.2	35.6	72.6	0.3
	AEGL-3	37,628	37.0	0.1	35.6	72.6	0.2
	AEGL-1	941	25.9	2.7	35.6	61.5	6.5
R09	AEGL-2	22,577	25.9	0.1	35.6	61.5	0.3
	AEGL-3	37,628	25.9	0.1	35.6	61.5	0.2
	AEGL-1	941	24.0	2.6	35.6	59.6	6.3
R10	AEGL-2	22,577	24.0	0.1	35.6	59.6	0.3
	AEGL-3	37,628	24.0	0.1	35.6	59.6	0.2
	AEGL-1	941	29.6	3.1	35.6	65.2	6.9
R11	AEGL-2	22,577	29.6	0.1	35.6	65.2	0.3
	AEGL-3	37,628	29.6	0.1	35.6	65.2	0.2
	AEGL-1	941	36.3	3.9	35.6	71.9	7.6
R12	AEGL-2	22,577	36.3	0.2	35.6	71.9	0.3
	AEGL-3	37,628	36.3	0.1	35.6	71.9	0.2
	AEGL-1	941	28.0	3.0	35.6	63.6	6.8
R13	AEGL-2	22,577	28.0	0.1	35.6	63.6	0.3
	AEGL-3	37,628	28.0	0.1	35.6	63.6	0.2
	AEGL-1	941	23.7	2.5	35.6	59.3	6.3
R14	AEGL-2	22,577	23.7	0.1	35.6	59.3	0.3
	AEGL-3	37,628	23.7	0.1	35.6	59.3	0.2
	AEGL-1	941	24.6	2.6	35.6	60.2	6.4
R15	AEGL-2	22,577	24.6	0.1	35.6	60.2	0.3
	AEGL-3	37,628	24.6	0.1	35.6	60.2	0.2
	AEGL-1	941	59.3	6.3	35.6	94.9	10.1
R16	AEGL-2	22,577	59.3	0.3	35.6	94.9	0.4
	AEGL-3	37,628	59.3	0.2	35.6	94.9	0.3

Receptor	AEGL	AEGL (µg/m³)	PC (µg/m³)	PC/ AEGL (%)	AC (µg/m³)	PEC (µg/m³)	PEC/ AEGL (%)
R17	AEGL-1	941	40.9	4.4	35.6	76.5	8.1
	AEGL-2	22,577	40.9	0.2	35.6	76.5	0.3
	AEGL-3	37,628	40.9	0.1	35.6	76.5	0.2
R18	AEGL-1	941	28.6	3.0	35.6	64.2	6.8
	AEGL-2	22,577	28.6	0.1	35.6	64.2	0.3
	AEGL-3	37,628	28.6	0.1	35.6	64.2	0.2
R19	AEGL-1	941	26.3	2.8	35.6	61.9	6.6
	AEGL-2	22,577	26.3	0.1	35.6	61.9	0.3
	AEGL-3	37,628	26.3	0.1	35.6	61.9	0.2
R20	AEGL-1	941	26.1	2.8	35.6	61.7	6.6
	AEGL-2	22,577	26.1	0.1	35.6	61.7	0.3
	AEGL-3	37,628	26.1	0.1	35.6	61.7	0.2
R21	AEGL-1	941	35.1	3.7	35.6	70.7	7.5
	AEGL-2	22,577	35.1	0.2	35.6	70.7	0.3
	AEGL-3	37,628	35.1	0.1	35.6	70.7	0.2
R22	AEGL-1	941	31.9	3.4	35.6	67.5	7.2
	AEGL-2	22,577	31.9	0.1	35.6	67.5	0.3
	AEGL-3	37,628	31.9	0.1	35.6	67.5	0.2
R23	AEGL-1	941	24.6	2.6	35.6	60.2	6.4
	AEGL-2	22,577	24.6	0.1	35.6	60.2	0.3
	AEGL-3	37,628	24.6	0.1	35.6	60.2	0.2
R24	AEGL-1	941	23.7	2.5	35.6	59.3	6.3
	AEGL-2	22,577	23.7	0.1	35.6	59.3	0.3
	AEGL-3	37,628	23.7	0.1	35.6	59.3	0.2

Table 2 Predicted hourly 100th Percentile NO_2 Concentrations at Human Health Receptors – Emergency

Receptor	AEGL	AEGL (µg/m³)	PC (µg/m³)	PC/ AEGL (%)	AC (µg/m³)	PEC (µg/m³)	PEC/ AEGL (%)
R01	AEGL-1	941	1240.9	**131.9**	35.6	1276.5	**135.7**
	AEGL-2	22,577	1240.9	5.5	35.6	1276.5	5.7
	AEGL-3	37,628	1240.9	3.3	35.6	1276.5	3.4
R02	AEGL-1	941	1276.1	**135.7**	35.6	1311.7	**139.4**
	AEGL-2	22,577	1276.1	5.7	35.6	1311.7	5.8
	AEGL-3	37,628	1276.1	3.4	35.6	1311.7	3.5
R03	AEGL-1	941	1074.2	**114.2**	35.6	1109.8	**118.0**
	AEGL-2	22,577	1074.2	4.8	35.6	1109.8	4.9
	AEGL-3	37,628	1074.2	2.9	35.6	1109.8	2.9
R04	AEGL-1	941	1042.0	**110.8**	35.6	1077.6	**114.6**
	AEGL-2	22,577	1042.0	4.6	35.6	1077.6	4.8
	AEGL-3	37,628	1042.0	2.8	35.6	1077.6	2.9
R05	AEGL-1	941	796.8	84.7	35.6	832.4	88.5
	AEGL-2	22,577	796.8	3.5	35.6	832.4	3.7
	AEGL-3	37,628	796.8	2.1	35.6	832.4	2.2
R06	AEGL-1	941	804.2	85.5	35.6	839.8	89.3
	AEGL-2	22,577	804.2	3.6	35.6	839.8	3.7
	AEGL-3	37,628	804.2	2.1	35.6	839.8	2.2
R07	AEGL-1	941	1057.9	**112.5**	35.6	1093.5	**116.2**

Receptor	AEGL	AEGL (µg/m³)	PC (µg/m³)	PC/ AEGL (%)	AC (µg/m³)	PEC (µg/m³)	PEC/ AEGL (%)
	AEGL-2	22,577	1057.9	4.7	35.6	1093.5	4.8
	AEGL-3	37,628	1057.9	2.8	35.6	1093.5	2.9
	AEGL-1	941	1058.1	**112.5**	35.6	1093.7	**116.3**
R08	AEGL-2	22,577	1058.1	4.7	35.6	1093.7	4.8
	AEGL-3	37,628	1058.1	2.8	35.6	1093.7	2.9
	AEGL-1	941	860.1	91.4	35.6	895.7	95.2
R09	AEGL-2	22,577	860.1	3.8	35.6	895.7	4.0
	AEGL-3	37,628	860.1	2.3	35.6	895.7	2.4
	AEGL-1	941	841.9	89.5	35.6	877.5	93.3
R10	AEGL-2	22,577	841.9	3.7	35.6	877.5	3.9
	AEGL-3	37,628	841.9	2.2	35.6	877.5	2.3
	AEGL-1	941	964.2	**102.5**	35.6	999.8	**106.3**
R11	AEGL-2	22,577	964.2	4.3	35.6	999.8	4.4
	AEGL-3	37,628	964.2	2.6	35.6	999.8	2.7
	AEGL-1	941	1255.6	**133.5**	35.6	1291.2	**137.3**
R12	AEGL-2	22,577	1255.6	5.6	35.6	1291.2	5.7
	AEGL-3	37,628	1255.6	3.3	35.6	1291.2	3.4
	AEGL-1	941	867.3	92.2	35.6	902.9	96.0
R13	AEGL-2	22,577	867.3	3.8	35.6	902.9	4.0
	AEGL-3	37,628	867.3	2.3	35.6	902.9	2.4
	AEGL-1	941	783.7	83.3	35.6	819.3	87.1
R14	AEGL-2	22,577	783.7	3.5	35.6	819.3	3.6
	AEGL-3	37,628	783.7	2.1	35.6	819.3	2.2
	AEGL-1	941	827.0	87.9	35.6	862.6	91.7
R15	AEGL-2	22,577	827.0	3.7	35.6	862.6	3.8
	AEGL-3	37,628	827.0	2.2	35.6	862.6	2.3
	AEGL-1	941	1178.6	**125.3**	35.6	1214.2	**129.1**
R16	AEGL-2	22,577	1178.6	5.2	35.6	1214.2	5.4
	AEGL-3	37,628	1178.6	3.1	35.6	1214.2	3.2
	AEGL-1	941	1321.2	**140.4**	35.6	1356.8	**144.2**
R17	AEGL-2	22,577	1321.2	5.9	35.6	1356.8	6.0
	AEGL-3	37,628	1321.2	3.5	35.6	1356.8	3.6
	AEGL-1	941	956.8	**101.7**	35.6	992.4	**105.5**
R18	AEGL-2	22,577	956.8	4.2	35.6	992.4	4.4
	AEGL-3	37,628	956.8	2.5	35.6	992.4	2.6
	AEGL-1	941	905.5	96.3	35.6	941.1	100.0
R19	AEGL-2	22,577	905.5	4.0	35.6	941.1	4.2
	AEGL-3	37,628	905.5	2.4	35.6	941.1	2.5
	AEGL-1	941	876.1	93.1	35.6	911.7	96.9
R20	AEGL-2	22,577	876.1	3.9	35.6	911.7	4.0
	AEGL-3	37,628	876.1	2.3	35.6	911.7	2.4
	AEGL-1	941	1115.0	**118.5**	35.6	1150.6	**122.3**
R21	AEGL-2	22,577	1115.0	4.9	35.6	1150.6	5.1
	AEGL-3	37,628	1115.0	3.0	35.6	1150.6	3.1
R22	AEGL-1	941	1116.4	**118.7**	35.6	1152.0	**122.5**
	AEGL-2	22,577	1116.4	4.9	35.6	1152.0	5.1

Receptor	AEGL	AEGL (µg/m³)	PC (µg/m³)	PC/ AEGL (%)	AC (µg/m³)	PEC (µg/m³)	PEC/ AEGL (%)
R23	AEGL-3	37,628	1116.4	3.0	35.6	1152.0	3.1
	AEGL-1	941	839.3	89.2	35.6	874.9	93.0
	AEGL-2	22,577	839.3	3.7	35.6	874.9	3.9
	AEGL-3	37,628	839.3	2.2	35.6	874.9	2.3
R24	AEGL-1	941	794.2	84.4	35.6	829.8	88.2
	AEGL-2	22,577	794.2	3.5	35.6	829.8	3.7
	AEGL-3	37,628	794.2	2.1	35.6	829.8	2.2

Table 4.1 demonstrates that the testing and maintenance of the generators does not cause an issue with the US EPA AEGLs for hour-term 1-hour NO_2.

Table 4.2 shows that during emergency operation, when all generators at the installation are operating in unison, there is an exceedance of AEGL-1 at a number of receptors. The assessment assumes that one of the 72 hours of emergency operation will coincide with the worst of the 8,760 meteorological hours in the calendar year at each receptor. Table 4.2 also shows that there are no exceedances of AEGL-2 or AEGL-3.

5. NO_X Emission Rates

The NOx emission rates for both generators have been calculated using actual volumetric flow rather than normalised volumetric flow. Please confirm the method used to calculate the emission rates and provide revised emission rates based on normalised volumetric flow, where applicable.

At the time of the assessment, the exact generator to be installed at the installation had not been determined. Instead, a list of potential generators was provided, only one of which would be installed. To ensure that the air quality assessment of generator emissions was precautionary, the emissions data provided for each of the generators was reviewed and the worst-case model parameters across the generators, in terms of dispersion, were selected for modelling.

The modelled parameters used to inform the air quality assessment are provided below in Table 5.1.

Table 5.1 Generator Emissions Parameters (100% Load)

Emission Source	Stack Height (m)	Stack Diameter (m)	Mass Flow (kg/s)	Temp (°C)	NO_x Conc. (mg/Nm3)[1]	NO_x Mass Release Rate (g/s)
Emergency Generators	25	0.6	4.903	434	2678.8	6.793
House Generators	25	0.6	1.410	444	2051.1	2.436

[1] Values given at 5% O_2, 0% H_2O, 0ºC

The normalised volumetric flow rate, NO_X emissions concentration and NO_X mass emission rate for the potential generators are provided in Table 5.2.

Table 5.2 Noramlised Volumetric Flow Rate, Emissions Concentration, and Mass Emission Data (100% Load)

Generator	Volumetric Flow @ 5% O_2 (Nm^3/hr)[1]	NO_X Emissions Concentration @ 5% O_2 (mg/m^3)[1]	Volumetric Flow @ 15% O_2 (Nm^3/hr)[2]	NO_X Emissions Concentration @ 15% O_2 (mg/m^3)[2]	Temp. (ºC)	Mass Flow (kg/s)	NO_X Mass Emission Rate (g/s)
Emergency Generators							
CAT C175-20	8,874	2,718	23,916	1009	447	5.255	6.700
CAT 3516E	9,129	2,679	24,602	994	490	4.903	6.793
Cummins QSK95-G5[3]	37,158	2,250	100,138	835	434[3]	No Data	23.225[3]
MTU20V4000G94F	8,661	2,537	23,340	841	453	5.139	6.103

Generator	Volumetric Flow @ 5% O_2 (Nm^3/hr)[1]	NO_X Emissions Concentration @ 5% O_2 (mg/m^3)[1]	Volumetric Flow @ 15% O_2 (Nm^3/hr)[2]	NO_X Emissions Concentration @ 15% O_2 (mg/m^3)[2]	Temp. (ºC)	Mass Flow (kg/s)	NO_X Mass Emission Rate (g/s)
House generators							
CAT 3516B	4,276	2,051	11,524	761	444	2.608	2.436
MTU16V2000G76F	2,718	2,604	7,325	966	503	1.410	1.966

[1] Values given at 5% O_2, 0% H_2O, 0ºC

[2] Values given at 15% O_2, 0% H_2O, 0ºC

[3] Cummins QSK95-G5 not to be considered at the site due to its high NO_X mass emission rate. However, it's lower temperature of emissions gas was used to inform the modelling.

Table 5.1 and Table 5.2 demonstrate that modelling undertaken to inform the Environmental Permit application is precautionary in terms of modelled generator parameters.

6. Generator testing regime

The air quality assessment does not clearly confirm whether the proposed generator testing will be undertaken on an individual (staggered) basis or whether generators will be tested simultaneously. Please confirm details of the testing regime. You may wish to refer to the tables provided in the Environment Agency's data centre air quality guidance (attached) to present this information, although use of these tables is not yet mandatory.

The air quality assessment modelled the testing regime as reported in the air quality assessment submitted with the Environmental Permit. The backup generators will each operate in isolation and at 100% load for the following routine testing and maintenance schedule:

- Biweekly functional testing – 13 hours/year (26 events at 0.5 h).
- Biannual load testing – 8 hours/year (2 events at 4 h).
- General maintenance – 10 hours/year (distributed throughout the year).

7. Generator testing regime

If any additional modelling is undertaken in response to the above questions, please ensure you provide the updated model files.

Modelling files are provided with the response.