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Appendix 11.1 EPUK / IAQM Guidance (2017) Screening Criteria

Appendix 11.1 EPUK / IAQM Guidance (2017) Screening Criteria

Table A11.1.1 IAQM Screening Criteria

The Development Will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in LDV traffic flows on local roads with relevant receptors.	A change of LDV flow of: • >100 AADT within or adjacent to an AQMA; and • >500 AADT elsewhere.
Cause a significant change in HDV flows on local roads with relevant receptors.	A change of HDV flow of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Realign roads i.e., changing the proximity of receptors to traffic lanes.	Where the change is 5 m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle acceleration / deceleration, e.g., traffic lights, or roundabouts.
Introduce or change a bus station.	A change of bus flows of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Have an underground car park with extraction system.	The ventilation extract for the car park will be located within 20 m of a relevant receptor; and The car park will have >100 movements per day (total in and out).

The screening criteria presented is amended from Table 6.2 of the EPUK / IAQM guidance (EPUK / IAQM, 2017). Only the screening criteria relevant to changes in transport (including both traffic and the transport network) are outlined.

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Appendix 11.2 IAQM Dust Guidance (2014) Approach

Appendix 11.2 IAQM Dust Guidance (2014) Approach

Table A11.2.1 Dust Emission Magnitude Classification

Activity	Dust Emission Magnitude		
	Large	**Medium**	**Small**
Demolition	Total building volume of >50,000 m^3, potentially dusty construction material, on-site crushing and screening, demolition activities >20 m above ground	Total building volume of 20,000 – 50,000 m^3, potentially dusty construction material, demolition activities 10 – 20 m above ground level	Total building volume of <20,000 m^3, construction material with low potential for dust release, demolition activities <10 m above ground, demolition during wetter months
Earthworks	Total site area of >10,000 m^2, potentially dusty soil type, >10 heavy earth moving vehicles active at any one time, formation of bunds >8 m in height, total material moved >100,000 tonnes	Total site area of 2,500 - 10,000 m^2, moderately dusty soil type, 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 4 - 8 m in height, total material moved 20,000 - 100,000 tonnes	Total site area of <2,500 m^2, soil type with large grain size, <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <20,000 tonnes. Earthworks during wetter months
Construction	Total building volume >100,000 m^2, on-site concrete batching, sandblasting	Total building volume 25,000 - 100,000 m^2, potentially dusty construction material, on-site concrete batching	Total building volume <25,000 m^2, construction material with low potential for dust release
Track out	>50 HDV outwards movements in any one day, potentially dusty surface material, unpaved road length >100 m	10 - 50 HDV outwards movements in any one day, moderately dusty surface material, unpaved road length 50 - 100 m	<10 HDV outwards movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

Table A11.2.2 Receptor Sensitivity

Receptor Sensitivity	Impact		
	High	**Medium**	**Low**
High	An area where: • Users can reasonably expect enjoyment of a high level of amenity; • The appearance, aesthetics of value of their property would be diminished by soiling; • The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Examples include dwellings, museums and other culturally important collections, medium and long-term car showrooms.	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more per day. Examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	Locations with an international or national designation *and* the designated features may be affected by dust soiling; OR Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain. Indicative examples include a SAC designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	An area where: • Users would expect to enjoy of a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; • The appearance, aesthetics of value of their property could be diminished by soiling; • The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods, as part of the normal pattern of use of the land. Examples include parks and places of work.	Locations where people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more per day. Examples include office and shop workers, but will generally not include workers occupationally exposed to for PM_{10}, as protection is covered by Health and Safety at Work legislation.	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; OR Locations with a national designation where the features may be affected by dust deposition. Indicative example is a SSSI with dust sensitive features.

Low	An area where: • The enjoyment of amenity would not reasonably be expected; • Property would not reasonably be expected to be diminished I appearance, aesthetics or value by soiling; • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks and roads.	Locations where human exposure is transient. Examples include public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Indicative example is a LNR with dust sensitive features.

Table A11.2.3 Sensitivity of an Area to Dust Soiling Effects

Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A11.2.4 Sensitivity of an Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m^3	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 - 32 µg/m^3	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 - 28 µg/m^3	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low	Low
		10 – 100	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low

Medium	>32 µg/m^3	>10	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	28 - 32 µg/m^3	>10	Medium	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	24 - 28 µg/m^3	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

Table A11.2.5 Sensitivity of an Area to Ecological Impacts

Receptor Sensitivity	**Distance from Source (m)**	
	<20	**<50**
High	High Risk	Medium Risk
Medium	Medium Risk	Low Risk
Low	Low Risk	Low Risk

Table A11.2.6 Risk of Dust Impacts Calculation Matrix

Sensitivity of Area		**Dust Emission Magnitude**		
		Large	**Medium**	**Small**
Demolition	High	High Risk	Medium Risk	Medium Risk
	Medium	High Risk	Medium Risk	Low Risk
	Low	Medium Risk	Low Risk	Negligible Risk
Earthworks	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk
Construction	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk
Trackout	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Low Risk	Negligible Risk
	Low	Low Risk	Low Risk	Negligible Risk

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Appendix 11.3 Model Input and Results Processing

Appendix 11.3 Model Input and Results Processing

Table A11.3.1 Summary of Model Inputs

Meteorological Data	2018 hourly meteorological data from Yeovilton station has been used in the model. The wind rose is shown in Figure A11.4.1.
Traffic Data	As provided by Stantec as presented in Table A11.4.4
ADMS	Version 5.0.0.1
Time Varying Emission Factors	Based on Department for Transport statistics. Table TRA0307. Motor vehicle traffic distribution by time of day and day of the week on all roads, Great Britain: 2018.
Latitude	51°
Minimum Monin-Obukhov length	A value of 10 for 'small towns <50,000' was used to represent the Study Area and meteorological station site.
Emission Factor Toolkit (EFT)	V10.1, August 2020.
NO_x to NO_2 Conversion	NO_x to NO_2 calculator version 8.1, August 2020
Background Maps	2018 reference year background maps
Terrain	Elevations not applied as 'flat'

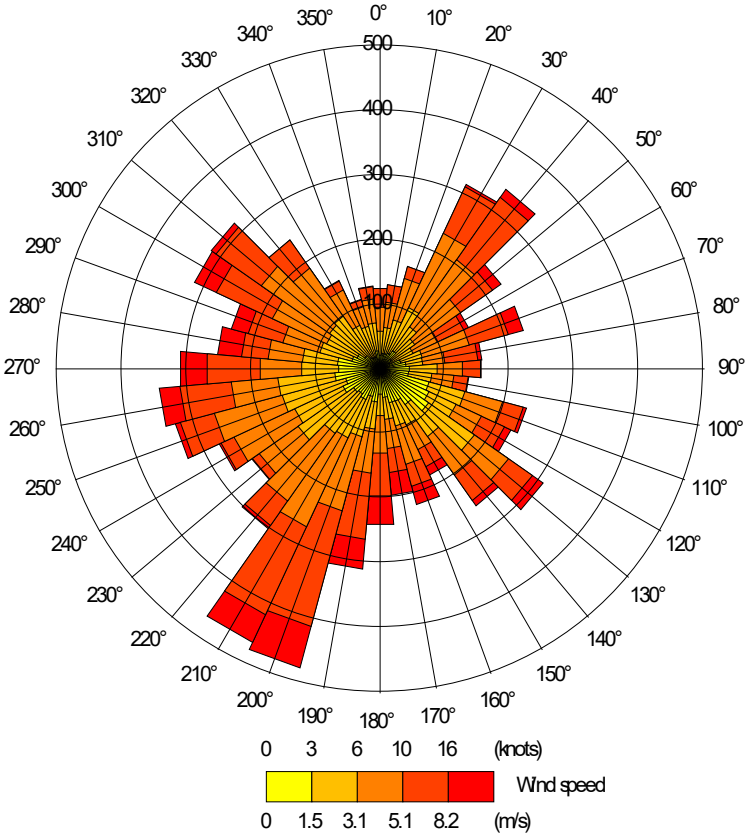

Figure A11.3.1: 2018 Windrose for Yeovilton met station

Plant Exhaust Emissions

The AERMOD model has been applied for the atmospheric dispersion modelling assessment of the exhaust gases from the stacks serving the Proposed Development as summarised in the following sections. The modelling has been undertaken to calculate an emission ceiling for the Proposed Development.

Table A11.3.2 provides the physical emission discharge characteristics for the energy and industrial plant.

Table A11.3.2 Emission Sources – Physical Discharge Characteristics

Parameter	**Flue**		
	Energy Plant 1	**Energy Plant 2**	**Industrial**
Stack height (m)	3m, 10m, 25m	3m, 10m, 25m	10m, 25m
Internal Stack Diameter (m)	0.35	0.35	1
Flue gas velocity (m/s)	15	6	10
Temperature (Degree Kelvin)	423	423	303

The onsite buildings in which the energy plant and industrial plant are located have been represented by a single building with the dimensions 1150m x 590m and 35m height centred on grid reference 333,480, 142,325 taken from the parameter plans.

Table A11.3.3 Traffic Data Used in the Assessment

Link Description	**Speed (kph)**	**2018 Base**		**2032 Future Baseline**		**2032 With Development**	
		AADT	**%HDV**	**AADT**	**%HDV**	**AADT**	**%HDV**
Link Road between Site and Entrance Rbt	48	34	5.6%	928	8.2%	896	7.0%
Link Road between Entrance Rbt and Hillside	48	535	0.0%	925	10.1%	894	8.2%
Link Road between Hillside and A39	48	1748	0.8%	942	8.9%	911	7.4%
Woolavington Road East between Entrance Rbt and Proposed Resi Access	96	2255	4.4%	118	2.5%	118	2.5%
Woolavington Road East between Proposed Resi Access and Woolavington School	96	2485	3.6%	105	2.1%	105	2.1%
Woolavington Road East between Woolavington School and B3141 Crossroads	48	2485	3.6%	105	2.1%	105	2.1%
B3139 Causeway	48	3505	2.8%	116	2.3%	116	2.5%
B3141 Woolavington Hill	48	7007	2.5%	208	2.2%	208	2.1%
Woolavington Road West , west of Entrance Rbt	96	2237	4.9%	129	3.9%	129	4.2%
A39 East of Puriton Hill Link Road Rbt	64	13896	4.7%	821	4.8%	819	4.8%
A39 between Puriton Hill Link Road Rbt and M5 Jct 23	64	15503	7.2%	2205	8.4%	2176	7.8%
M5 Motorway mainline north of Jct 23	112	82432	11.2%	12323	11.2%	12486	11.2%
M5 Motorway mainline south of Jct 23	112	71465	10.4%	9905	10.5%	9714	10.2%
A38 between Jct 23 and Dunball Rbt	80	21295	9.3%	2393	8.6%	2391	8.5%
A38 North of Dunball Rbt	96	9426	5.9%	655	5.8%	655	5.8%
A38 South of Dunball Rbt	80	24708	9.2%	2729	8.7%	2727	8.6%

Model Verification

NO_2

Most NO_2 is produced in the atmosphere by the reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emission of nitrogen oxides (NOx = NO + NO_2). The model has been run to predict the 2018 annual mean road-NOx contribution at the Bristol Road, Dunball diffusion tube (DT33), which is the closest to, and most representative of the proposed development.

The model output of road-NOx has been compared with the 'measured' road-NOx, which was determined from the measured NO_2 concentration using the NOx from NO_2 calculator (DEFRA, 2020d) and the adjusted background NO_2 concentrations from the DEFRA background map (DEFRA, 2020b).

An adjustment factor was determined as follows:

- Measured NO_2: 29.4 µg/m^3
- Measured road-NOx: 29.3 µg/m^3
- Modelled road-NOx: 10.6 µg/m^3
- Road-NOx adjustment factor: 29.3 / 10.6 = **2.8***

*Based on unrounded numbers.

This factor implies that the model is under-predicting the road-NOx contribution. This is a common experience with this and most other models.

PM_{10} and $PM_{2.5}$

SDC do not undertake monitoring of PM_{10} or $PM_{2.5}$ within the study area, therefore the adjustment factor calculated of NO_2 has been applied to the modelled road-PM_{10} and road-$PM_{2.5}$ concentrations.

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Appendix 11.4 Human Health & Ecological Receptor Locations

Appendix 11.4 Human Health and Ecological Receptor Locations

Table A11.4.1 Receptor Location Description

Receptor	Location	Height (m)	X	Y
R1	7 Woolavington Hill	1.5	334749	141459
R2	Woolavington School	1.5	334480	141522
R3	99 Woolavington Road	1.5	333529	141602
R4	97 Woolavington Road	1.5	333006	141660
R5	79 Woolavington Road	1.5	332564	141535
R6	25 Orchard Close	1.5	331628	141346
R7	Rockfield House, Puriton Hill	1.5	332097	141030
P1	Proposed Receptor 1	1.5	332752	141616
P2	Proposed Receptor 2	1.5	333626	141617
P3	Proposed Receptor 3	1.5	334184	141573
E1	Severn SAC 1	0	331348	147230
E2	Severn SAC 2	0	329446	146635
E3	Severn SAC 3	0	329294	145524
E4	Severn SAC 4	0	330311	149019
E5	Severn SAC 5	0	329313	145036
E6	Severn SAC 6	0	329735	141956
E7	Severn SAC 7	0	329358	142332
E8	Severn SAC 8	0	328233	141596
E9	Severn SAC 9	0	326331	142661
E10	Severn SAC 10	0	327884	144362
E11	Severn SAC 11	0	328247	143936
E12	Somerset Levels and Moors SPA 1	0	337449	143950
E13	Somerset Levels and Moors SPA 2	0	337465	143140
E14	Somerset Levels and Moors SPA 3	0	337606	142852
E15	Somerset Levels and Moors SPA 4	0	337503	141371
E16	Somerset Levels and Moors SPA 5	0	339510	140458
E17	Somerset Levels and Moors SPA 6	0	339684	145592
E18	Somerset Levels and Moors SPA 7	0	339792	146615
E19	Somerset Levels and Moors SPA 8	0	339762	143770
E20	Somerset Levels and Moors SPA 9	0	33786	136284
E21	Somerset Levels and Moors SPA 10	0	338575	136685
E22	Somerset Levels and Moors SPA 11	0	339647	136360
E23	Somerset Levels and Moors SPA 12	0	337864	135778
E24	Somerset Levels and Moors SPA 13	0	337990	135151
E25	Somerset Levels and Moors SPA 14	0	337910	134750
E26	Somerset Levels and Moors SPA 15	0	339112	134685
E27	Severn SPA 1	0	331348	147230
E28	Severn SPA 2	0	329719	146419
E29	Severn SPA 3	0	329776	145156
E30	Severn SPA 4	0	328255	143936
E31	Severn SPA 5	0	328470	143245
E32	Severn SPA 6	0	328622	142766
E33	Huntsmill NNR 1	0	333687	143672
E34	Huntsmill NNR 2	0	333721	143662
E35	Huntsmill NNR 3	0	332758	144065
E36	Huntsmill NNR 4	0	331800	144276
E37	Huntsmill NNR 5	0	334582	143553
E38	Huntsmill NNR 6	0	336110	143013
E39	Huntsmill NNR 7	0	336689	143000
E40	Huntsmill NNR 8	0	329859	145158

Receptor	Location	Height (m)	X	Y
E41	Huntsmill NNR 9	0	329867	145543
E42	Huntsmill NNR 10	0	329324	145788

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Appendix 11.5 Human Health and Ecological Receptors Modelling Results

Appendix 11.5 Human Health and Ecological Receptors Modelling Results

Ecological Receptors

Energy Plant

NOx

Table A11.5.1 Predicted NOx Concentrations at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 3m above building height

Emission Rate	5g/s				10g/s				20g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.2	1%	6.7	22%	0.4	1%	6.9	23%	0.9	3%	7.4	25%
E2	0.0	0%	4.3	14%	0.0	0%	4.3	14%	0.0	0%	4.3	14%
E3	0.4	1%	4.7	16%	0.7	2%	5.0	17%	1.4	5%	5.7	19%
E4	0.2	1%	6.0	20%	0.3	1%	6.2	21%	0.6	2%	6.5	22%
E5	0.4	1%	4.7	16%	0.8	3%	5.1	17%	1.5	5%	5.8	19%
E6	0.3	1%	5.2	17%	0.6	2%	5.5	18%	1.1	4%	6.0	20%
E7	0.3	1%	5.1	17%	0.6	2%	5.4	18%	1.2	4%	6.0	20%
E8	0.2	1%	4.7	16%	0.4	1%	4.9	16%	0.7	2%	5.2	17%
E9	0.2	1%	4.3	14%	0.4	1%	4.5	15%	0.7	2%	4.9	16%
E10	0.3	1%	4.3	14%	0.5	2%	4.5	15%	1.1	4%	5.1	17%
E11	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.5	18%
E12	0.3	1%	4.5	15%	0.6	2%	4.8	16%	1.1	4%	5.4	18%
E13	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.5	18%
E14	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.5	18%
E15	0.3	1%	4.7	16%	0.5	2%	4.9	16%	1.0	3%	5.4	18%
E16	0.1	0%	4.5	15%	0.3	1%	4.6	15%	0.6	2%	4.9	16%
E17	0.2	1%	4.3	14%	0.3	1%	4.5	15%	0.6	2%	4.8	16%
E18	0.1	0%	4.4	15%	0.3	1%	4.6	15%	0.6	2%	4.9	16%
E19	0.2	1%	4.4	15%	0.4	1%	4.5	15%	0.7	2%	4.9	16%
E20	0.1	0%	4.4	15%	0.2	1%	4.5	15%	0.4	1%	4.7	16%
E21	0.1	0%	4.3	14%	0.2	1%	4.4	15%	0.5	2%	4.6	15%
E22	0.1	0%	4.2	14%	0.2	1%	4.3	14%	0.4	1%	4.5	15%
E23	0.1	0%	4.3	14%	0.2	1%	4.4	15%	0.4	1%	4.6	15%
E24	0.1	0%	4.3	14%	0.2	1%	4.4	15%	0.3	1%	4.6	15%
E25	0.1	0%	4.4	15%	0.2	1%	4.5	15%	0.3	1%	4.6	15%
E26	0.1	0%	4.2	14%	0.2	1%	4.3	14%	0.3	1%	4.4	15%
E27	0.2	1%	6.7	22%	0.4	1%	6.9	23%	0.9	3%	7.4	25%
E28	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.3	4%	5.6	19%
E29	0.4	1%	4.7	16%	0.8	3%	5.1	17%	1.6	5%	5.9	20%
E30	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.5	18%
E31	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.4	18%
E32	0.3	1%	4.7	16%	0.6	2%	4.9	16%	1.1	4%	5.5	18%
E33	1.2	4%	6.7	22%	2.3	8%	7.8	26%	4.7	16%	10.2	34%
E34	1.2	4%	6.7	22%	2.4	8%	7.9	26%	4.8	16%	10.3	34%
E35	0.7	2%	9.1	30%	1.3	4%	9.7	32%	2.6	9%	11.0	37%
E36	0.7	2%	6.8	23%	1.4	5%	7.5	25%	2.7	9%	8.8	29%
E37	1.0	3%	6.0	20%	2.0	7%	7.1	24%	4.1	14%	9.1	30%
E38	0.5	2%	5.0	17%	1.0	3%	5.5	18%	2.0	7%	6.5	22%
E39	0.4	1%	4.9	16%	0.8	3%	5.3	18%	1.6	5%	6.1	20%
E40	0.4	1%	4.7	16%	0.8	3%	5.1	17%	1.6	5%	6.0	20%
E41	0.4	1%	4.7	16%	0.8	3%	5.1	17%	1.6	5%	5.9	20%

E42	0.3	1%	4.7	16%	0.7	2%	5.0	17%	1.4	5%	5.7	19%

Table A11.5.1 Predicted NOx Concentrations at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 10m above building height

Emission Rate	5g/s				10g/s				20g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.2	1%	6.7	22%	0.4	1%	6.9	23%	0.8	3%	7.3	24%
E2	0.0	0%	4.3	14%	0.0	0%	4.3	14%	0.0	0%	4.3	14%
E3	0.3	1%	4.6	15%	0.6	2%	5.0	17%	1.3	4%	5.6	19%
E4	0.1	0%	6.0	20%	0.3	1%	6.1	20%	0.5	2%	6.4	21%
E5	0.3	1%	4.7	16%	0.7	2%	5.0	17%	1.4	5%	5.7	19%
E6	0.2	1%	5.2	17%	0.5	2%	5.4	18%	1.0	3%	5.9	20%
E7	0.3	1%	5.1	17%	0.5	2%	5.4	18%	1.1	4%	5.9	20%
E8	0.2	1%	4.7	16%	0.3	1%	4.8	16%	0.7	2%	5.1	17%
E9	0.2	1%	4.3	14%	0.3	1%	4.4	15%	0.6	2%	4.7	16%
E10	0.2	1%	4.2	14%	0.5	2%	4.5	15%	1.0	3%	4.9	16%
E11	0.3	1%	4.5	15%	0.5	2%	4.8	16%	1.0	3%	5.3	18%
E12	0.3	1%	4.5	15%	0.5	2%	4.8	16%	1.0	3%	5.3	18%
E13	0.3	1%	4.6	15%	0.6	2%	4.8	16%	1.1	4%	5.4	18%
E14	0.3	1%	4.6	15%	0.5	2%	4.9	16%	1.1	4%	5.4	18%
E15	0.2	1%	4.7	16%	0.5	2%	4.9	16%	0.9	3%	5.4	18%
E16	0.1	0%	4.4	15%	0.3	1%	4.6	15%	0.5	2%	4.8	16%
E17	0.1	0%	4.3	14%	0.3	1%	4.4	15%	0.5	2%	4.7	16%
E18	0.1	0%	4.4	15%	0.3	1%	4.5	15%	0.5	2%	4.8	16%
E19	0.2	1%	4.3	14%	0.3	1%	4.5	15%	0.7	2%	4.8	16%
E20	0.1	0%	4.4	15%	0.2	1%	4.5	15%	0.4	1%	4.7	16%
E21	0.1	0%	4.2	14%	0.2	1%	4.3	14%	0.4	1%	4.5	15%
E22	0.1	0%	4.2	14%	0.2	1%	4.3	14%	0.3	1%	4.4	15%
E23	0.1	0%	4.3	14%	0.2	1%	4.4	15%	0.3	1%	4.6	15%
E24	0.1	0%	4.3	14%	0.1	0%	4.4	15%	0.3	1%	4.5	15%
E25	0.1	0%	4.4	15%	0.1	0%	4.5	15%	0.3	1%	4.6	15%
E26	0.1	0%	4.2	14%	0.1	0%	4.2	14%	0.3	1%	4.4	15%
E27	0.2	1%	6.7	22%	0.4	1%	6.9	23%	0.8	3%	7.3	24%
E28	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.4	18%
E29	0.4	1%	4.7	16%	0.7	2%	5.1	17%	1.5	5%	5.8	19%
E30	0.3	1%	4.5	15%	0.5	2%	4.8	16%	1.0	3%	5.3	18%
E31	0.3	1%	4.5	15%	0.5	2%	4.8	16%	1.0	3%	5.3	18%
E32	0.2	1%	4.6	15%	0.5	2%	4.9	16%	1.0	3%	5.4	18%
E33	1.1	4%	6.6	22%	2.2	7%	7.7	26%	4.4	15%	9.9	33%
E34	1.1	4%	6.6	22%	2.2	7%	7.8	26%	4.5	15%	10.0	33%
E35	0.6	2%	9.0	30%	1.2	4%	9.6	32%	2.4	8%	10.8	36%
E36	0.6	2%	6.7	22%	1.3	4%	7.3	24%	2.5	8%	8.6	29%
E37	0.9	3%	6.0	20%	1.9	6%	6.9	23%	3.8	13%	8.8	29%
E38	0.5	2%	4.9	16%	0.9	3%	5.4	18%	1.9	6%	6.4	21%
E39	0.4	1%	4.8	16%	0.7	2%	5.2	17%	1.5	5%	5.9	20%
E40	0.4	1%	4.7	16%	0.7	2%	5.1	17%	1.5	5%	5.8	19%
E41	0.4	1%	4.7	16%	0.7	2%	5.0	17%	1.4	5%	5.7	19%
E42	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.3	4%	5.6	19%

Table A11.5.3 Predicted NOx Concentrations at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 10m above building height

Emission Rate	5g/s				10g/s				20g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC

E1	0.2	1%	6.7	22%	0.3	1%	6.8	23%	0.6	2%	7.1	24%
E2	0.0	0%	4.3	14%	0.0	0%	4.3	14%	0.0	0%	4.3	14%
E3	0.3	1%	4.6	15%	0.5	2%	4.8	16%	1.0	3%	5.4	18%
E4	0.1	0%	5.9	20%	0.2	1%	6.0	20%	0.4	1%	6.2	21%
E5	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.1	4%	5.4	18%
E6	0.2	1%	5.1	17%	0.4	1%	5.3	18%	0.8	3%	5.7	19%
E7	0.2	1%	5.0	17%	0.4	1%	5.2	17%	0.9	3%	5.7	19%
E8	0.1	0%	4.6	15%	0.3	1%	4.7	16%	0.5	2%	5.0	17%
E9	0.1	0%	4.2	14%	0.2	1%	4.4	15%	0.4	1%	4.6	15%
E10	0.2	1%	4.2	14%	0.4	1%	4.3	14%	0.7	2%	4.7	16%
E11	0.2	1%	4.5	15%	0.4	1%	4.7	16%	0.8	3%	5.1	17%
E12	0.2	1%	4.5	15%	0.4	1%	4.7	16%	0.9	3%	5.1	17%
E13	0.2	1%	4.5	15%	0.5	2%	4.8	16%	1.0	3%	5.2	17%
E14	0.2	1%	4.5	15%	0.5	2%	4.8	16%	0.9	3%	5.2	17%
E15	0.2	1%	4.6	15%	0.4	1%	4.8	16%	0.8	3%	5.2	17%
E16	0.1	0%	4.4	15%	0.2	1%	4.5	15%	0.4	1%	4.7	16%
E17	0.1	0%	4.3	14%	0.2	1%	4.4	15%	0.4	1%	4.6	15%
E18	0.1	0%	4.4	15%	0.2	1%	4.5	15%	0.4	1%	4.7	16%
E19	0.1	0%	4.3	14%	0.3	1%	4.4	15%	0.5	2%	4.7	16%
E20	0.1	0%	4.3	14%	0.1	0%	4.4	15%	0.3	1%	4.6	15%
E21	0.1	0%	4.2	14%	0.2	1%	4.3	14%	0.3	1%	4.4	15%
E22	0.1	0%	4.2	14%	0.1	0%	4.2	14%	0.2	1%	4.3	14%
E23	0.1	0%	4.3	14%	0.1	0%	4.4	15%	0.2	1%	4.5	15%
E24	0.1	0%	4.3	14%	0.1	0%	4.3	14%	0.2	1%	4.4	15%
E25	0.0	0%	4.4	15%	0.1	0%	4.4	15%	0.2	1%	4.5	15%
E26	0.1	0%	4.1	14%	0.1	0%	4.2	14%	0.2	1%	4.3	14%
E27	0.2	1%	6.7	22%	0.3	1%	6.8	23%	0.6	2%	7.1	24%
E28	0.2	1%	4.5	15%	0.5	2%	4.7	16%	0.9	3%	5.2	17%
E29	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.5	18%
E30	0.2	1%	4.5	15%	0.4	1%	4.7	16%	0.8	3%	5.1	17%
E31	0.2	1%	4.5	15%	0.4	1%	4.7	16%	0.8	3%	5.1	17%
E32	0.2	1%	4.6	15%	0.4	1%	4.8	16%	0.8	3%	5.1	17%
E33	1.0	3%	6.5	22%	1.9	6%	7.4	25%	3.8	13%	9.3	31%
E34	1.0	3%	6.5	22%	2.0	7%	7.5	25%	3.9	13%	9.5	32%
E35	0.5	2%	8.9	30%	1.1	4%	9.5	32%	2.1	7%	10.5	35%
E36	0.5	2%	6.6	22%	1.1	4%	7.2	24%	2.2	7%	8.3	28%
E37	0.8	3%	5.9	20%	1.7	6%	6.7	22%	3.3	11%	8.3	28%
E38	0.4	1%	4.9	16%	0.8	3%	5.3	18%	1.7	6%	6.1	20%
E39	0.3	1%	4.8	16%	0.6	2%	5.1	17%	1.3	4%	5.8	19%
E40	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.6	19%
E41	0.3	1%	4.6	15%	0.6	2%	4.9	16%	1.2	4%	5.5	18%
E42	0.3	1%	4.6	15%	0.5	2%	4.8	16%	1.0	3%	5.3	18%

SO_2

Table A11.5.4 Predicted SO_2 Concentrations at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 3m above building height

Emission Rate	2g/s				4g/s				8g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.1	0%	1.3	4%	0.2	1%	1.3	4%	0.4	1%	1.5	5%
E2	0.0	0%	0.0	0%	0.0	0%	0.7	2%	0.0	0%	0.7	2%
E3	0.1	0%	0.7	2%	0.3	1%	1.0	3%	0.6	2%	1.3	4%
E4	0.1	0%	0.3	1%	0.1	0%	1.1	4%	0.3	1%	1.3	4%
E5	0.2	1%	0.8	3%	0.3	1%	1.0	3%	0.6	2%	1.3	4%

E6	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.4	1%	1.3	4%
E7	0.1	0%	0.6	2%	0.2	1%	1.2	4%	0.5	2%	1.4	5%
E8	0.1	0%	0.4	1%	0.1	0%	0.9	3%	0.3	1%	1.0	3%
E9	0.1	0%	0.4	1%	0.1	0%	0.9	3%	0.3	1%	1.0	3%
E10	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%
E11	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.2	4%
E12	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E13	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.3	4%
E14	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.3	4%
E15	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E16	0.1	0%	0.3	1%	0.1	0%	1.0	3%	0.2	1%	1.1	4%
E17	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E18	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E19	0.1	0%	0.4	1%	0.1	0%	0.9	3%	0.3	1%	1.1	4%
E20	0.0	0%	0.2	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E21	0.0	0%	0.2	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E22	0.0	0%	0.2	1%	0.1	0%	0.9	3%	0.1	0%	0.9	3%
E23	0.0	0%	0.2	1%	0.1	0%	0.9	3%	0.2	1%	0.9	3%
E24	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E25	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E26	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E27	0.1	0%	0.4	1%	0.2	1%	1.3	4%	0.4	1%	1.5	5%
E28	0.1	0%	0.6	2%	0.3	1%	1.0	3%	0.5	2%	1.2	4%
E29	0.2	1%	0.8	3%	0.3	1%	1.0	3%	0.6	2%	1.4	5%
E30	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.2	4%
E31	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.2	4%
E32	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%

Table A11.5.5 Predicted SO_2 Concentrations at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 10m above building height

Emission Rate	2g/s				4g/s				8g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.1	0%	1.2	4%	0.2	1%	1.3	4%	0.3	1%	1.5	5%
E2	0.0	0%	0.0	0%	0.0	0%	0.7	2%	0.0	0%	0.7	2%
E3	0.1	0%	0.6	2%	0.3	1%	1.0	3%	0.5	2%	1.2	4%
E4	0.1	0%	0.3	1%	0.1	0%	1.1	4%	0.2	1%	1.2	4%
E5	0.1	0%	0.7	2%	0.3	1%	1.0	3%	0.5	2%	1.3	4%
E6	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E7	0.1	0%	0.5	2%	0.2	1%	1.2	4%	0.4	1%	1.4	5%
E8	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.3	1%	1.0	3%
E9	0.1	0%	0.3	1%	0.1	0%	0.8	3%	0.2	1%	1.0	3%
E10	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.0	3%
E11	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%
E12	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E13	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.2	4%
E14	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E15	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E16	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.2	1%	1.1	4%
E17	0.1	0%	0.3	1%	0.1	0%	0.8	3%	0.2	1%	0.9	3%
E18	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E19	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.3	1%	1.1	4%
E20	0.0	0%	0.2	1%	0.1	0%	0.9	3%	0.1	0%	1.0	3%
E21	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.2	1%	0.9	3%
E22	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E23	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E24	0.0	0%	0.1	0%	0.1	0%	0.8	3%	0.1	0%	0.9	3%

E25	0.0	0%	0.1	0%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E26	0.0	0%	0.1	0%	0.1	0%	0.8	3%	0.1	0%	0.8	3%
E27	0.1	0%	0.4	1%	0.2	1%	1.3	4%	0.3	1%	1.5	5%
E28	0.1	0%	0.6	2%	0.2	1%	0.9	3%	0.5	2%	1.2	4%
E29	0.1	0%	0.7	2%	0.3	1%	1.0	3%	0.6	2%	1.3	4%
E30	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%
E31	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%
E32	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%

Table A11.5.6 Predicted SO_2 Concentrations at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 25m above building height

Emission Rate	2g/s				4g/s				8g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.1	0%	1.2	4%	0.1	0%	1.3	4%	0.2	1%	1.4	5%
E2	0.0	0%	0.0	0%	0.0	0%	0.7	2%	0.0	0%	0.7	2%
E3	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%
E4	0.0	0%	0.2	1%	0.1	0%	1.1	4%	0.2	1%	1.2	4%
E5	0.1	0%	0.6	2%	0.2	1%	0.9	3%	0.4	1%	1.2	4%
E6	0.1	0%	0.4	1%	0.2	1%	1.0	3%	0.3	1%	1.1	4%
E7	0.1	0%	0.4	1%	0.2	1%	1.1	4%	0.3	1%	1.3	4%
E8	0.1	0%	0.3	1%	0.1	0%	0.8	3%	0.2	1%	0.9	3%
E9	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.2	1%	0.9	3%
E10	0.1	0%	0.4	1%	0.1	0%	0.8	3%	0.3	1%	1.0	3%
E11	0.1	0%	0.4	1%	0.2	1%	0.9	3%	0.3	1%	1.0	3%
E12	0.1	0%	0.4	1%	0.2	1%	0.9	3%	0.3	1%	1.1	4%
E13	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E14	0.1	0%	0.5	2%	0.2	1%	1.0	3%	0.4	1%	1.2	4%
E15	0.1	0%	0.4	1%	0.2	1%	1.0	3%	0.3	1%	1.1	4%
E16	0.0	0%	0.2	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E17	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.2	1%	0.9	3%
E18	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.2	1%	0.9	3%
E19	0.1	0%	0.3	1%	0.1	0%	0.9	3%	0.2	1%	1.0	3%
E20	0.0	0%	0.1	0%	0.1	0%	0.9	3%	0.1	0%	0.9	3%
E21	0.0	0%	0.2	1%	0.1	0%	0.8	3%	0.1	0%	0.9	3%
E22	0.0	0%	0.1	0%	0.0	0%	0.8	3%	0.1	0%	0.9	3%
E23	0.0	0%	0.1	0%	0.0	0%	0.8	3%	0.1	0%	0.9	3%
E24	0.0	0%	0.1	0%	0.0	0%	0.8	3%	0.1	0%	0.9	3%
E25	0.0	0%	0.1	0%	0.0	0%	0.8	3%	0.1	0%	0.8	3%
E26	0.0	0%	0.1	0%	0.0	0%	0.8	3%	0.1	0%	0.8	3%
E27	0.1	0%	0.3	1%	0.1	0%	1.3	4%	0.2	1%	1.4	5%
E28	0.1	0%	0.5	2%	0.2	1%	0.9	3%	0.4	1%	1.1	4%
E29	0.1	0%	0.6	2%	0.2	1%	1.0	3%	0.5	2%	1.2	4%
E30	0.1	0%	0.4	1%	0.2	1%	0.9	3%	0.3	1%	1.0	3%
E31	0.1	0%	0.4	1%	0.2	1%	0.9	3%	0.3	1%	1.0	3%
E32	0.1	0%	0.4	1%	0.2	1%	0.9	3%	0.3	1%	1.0	3%

Nitrogen Deposition

Table A11.5.7 Predicted Nitrogen Deposition at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 3m above building height

Emission Rate	NOx 5g/s				NOx 10g/s				NOx 20g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.02	0%	19.4	97%	0.04	0%	19.4	97%	0.09	0%	19.4	97%

E2	0.00	0%	14.0	70%	0.00	0%	14.0	70%	0.00	0%	14.0	70%
E3	0.04	0%	14.0	70%	0.07	0%	14.0	70%	0.14	1%	14.1	71%
E4	0.02	0%	19.4	97%	0.03	0%	19.4	97%	0.06	0%	19.4	97%
E5	0.04	0%	14.0	70%	0.08	0%	14.0	70%	0.15	1%	14.1	71%
E6	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.11	1%	22.0	110 %
E7	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.12	1%	22.0	110 %
E8	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.08	0%	22.0	110 %
E9	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.07	0%	22.0	110 %
E10	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.11	1%	22.0	110 %
E11	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.12	1%	22.0	110 %
E12	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %	0.11	1%	21.1	105 %
E13	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %	0.12	1%	21.1	105 %
E14	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %	0.12	1%	21.1	105 %
E15	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %	0.10	1%	21.1	105 %
E16	0.02	0%	21.0	105 %	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %
E17	0.02	0%	21.0	105 %	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %
E18	0.01	0%	21.0	105 %	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %
E19	0.02	0%	21.0	105 %	0.04	0%	21.0	105 %	0.07	0%	21.0	105 %
E20	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.04	0%	20.2	101 %
E21	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.05	0%	20.2	101 %
E22	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.04	0%	20.2	101 %
E23	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.04	0%	20.2	101 %
E24	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.03	0%	20.2	101 %
E25	0.01	0%	19.8	99%	0.02	0%	19.8	99%	0.03	0%	19.9	99%
E26	0.01	0%	19.8	99%	0.02	0%	19.8	99%	0.03	0%	19.9	99%
E27	0.02	0%	19.4	97%	0.04	0%	19.4	97%	0.09	0%	19.4	97%
E28	0.03	0%	14.0	70%	0.07	0%	14.0	70%	0.13	1%	14.1	70%
E29	0.04	0%	14.0	70%	0.08	0%	14.0	70%	0.16	1%	14.1	71%
E30	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.12	1%	22.0	110 %
E31	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.12	1%	22.0	110 %
E32	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %	0.11	1%	22.0	110 %

Table A11.5.8 Predicted Nitrogen Deposition at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 10m above building height

Emission Rate	**NOx 5g/s**				**NOx 10g/s**				**NOx 20g/s**			
ID	**PC**	**%**	**PEC**	**%**	**PC**	**%**	**PEC**	**%**	**PC**	**%**	**PEC**	**%**

		PC		PEC		PC		PEC		PC		PEC
E1	0.02	0%	19.4	97%	0.04	0%	19.4	97%	0.08	0%	19.4	97%
E2	0.00	0%	14.0	70%	0.00	0%	14.0	70%	0.00	0%	14.0	70%
E3	0.03	0%	14.0	70%	0.06	0%	14.0	70%	0.13	1%	14.1	70%
E4	0.01	0%	19.4	97%	0.03	0%	19.4	97%	0.05	0%	19.4	97%
E5	0.03	0%	14.0	70%	0.07	0%	14.0	70%	0.14	1%	14.1	70%
E6	0.03	0%	22.0	110 %	0.05	0%	22.0	110 %	0.10	1%	22.0	110 %
E7	0.03	0%	22.0	110 %	0.05	0%	22.0	110 %	0.11	1%	22.0	110 %
E8	0.02	0%	21.9	110 %	0.03	0%	22.0	110 %	0.07	0%	22.0	110 %
E9	0.02	0%	21.9	110 %	0.03	0%	22.0	110 %	0.06	0%	22.0	110 %
E10	0.02	0%	22.0	110 %	0.05	0%	22.0	110 %	0.10	0%	22.0	110 %
E11	0.03	0%	22.0	110 %	0.05	0%	22.0	110 %	0.10	1%	22.0	110 %
E12	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %	0.10	1%	21.1	105 %
E13	0.03	0%	21.0	105 %	0.06	0%	21.0	105 %	0.11	1%	21.1	105 %
E14	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %	0.11	1%	21.1	105 %
E15	0.02	0%	21.0	105 %	0.05	0%	21.0	105 %	0.09	0%	21.1	105 %
E16	0.01	0%	21.0	105 %	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %
E17	0.01	0%	21.0	105 %	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %
E18	0.01	0%	21.0	105 %	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %
E19	0.02	0%	21.0	105 %	0.03	0%	21.0	105 %	0.07	0%	21.0	105 %
E20	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.04	0%	20.2	101 %
E21	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.04	0%	20.2	101 %
E22	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.03	0%	20.2	101 %
E23	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.03	0%	20.2	101 %
E24	0.01	0%	20.2	101 %	0.01	0%	20.2	101 %	0.03	0%	20.2	101 %
E25	0.01	0%	19.8	99%	0.01	0%	19.8	99%	0.03	0%	19.8	99%
E26	0.01	0%	19.8	99%	0.01	0%	19.8	99%	0.03	0%	19.8	99%
E27	0.02	0%	19.4	97%	0.04	0%	19.4	97%	0.08	0%	19.4	97%
E28	0.03	0%	14.0	70%	0.06	0%	14.0	70%	0.12	1%	14.1	70%
E29	0.04	0%	14.0	70%	0.07	0%	14.0	70%	0.15	1%	14.1	71%
E30	0.03	0%	22.0	110 %	0.05	0%	22.0	110 %	0.10	1%	22.0	110 %
E31	0.03	0%	22.0	110 %	0.05	0%	22.0	110 %	0.10	1%	22.0	110 %
E32	0.02	0%	22.0	110 %	0.05	0%	22.0	110 %	0.10	0%	22.0	110 %

Table A11.5.9 Predicted Nitrogen Deposition at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 25m above building height

Emission	NOx 5g/s	NOx 10g/s	NOx 20g/s

Rate												
ID	**PC**	**% PC**	**PEC**	**% PEC**	**PC**	**% PC**	**PEC**	**% PEC**	**PC**	**% PC**	**PEC**	**% PEC**
E1	0.02	0%	19.4	97%	0.03	0%	19.4	97%	0.06	0%	19.4	97%
E2	0.00	0%	14.0	70%	0.00	0%	14.0	70%	0.00	0%	14.0	70%
E3	0.03	0%	14.0	70%	0.05	0%	14.0	70%	0.11	1%	14.1	70%
E4	0.01	0%	19.4	97%	0.02	0%	19.4	97%	0.04	0%	19.4	97%
E5	0.03	0%	14.0	70%	0.06	0%	14.0	70%	0.11	1%	14.1	70%
E6	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.08	0%	22.0	110 %
E7	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.09	0%	22.0	110 %
E8	0.01	0%	21.9	110 %	0.03	0%	22.0	110 %	0.05	0%	22.0	110 %
E9	0.01	0%	21.9	110 %	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %
E10	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.07	0%	22.0	110 %
E11	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.08	0%	22.0	110 %
E12	0.02	0%	21.0	105 %	0.04	0%	21.0	105 %	0.09	0%	21.1	105 %
E13	0.02	0%	21.0	105 %	0.05	0%	21.0	105 %	0.10	0%	21.1	105 %
E14	0.02	0%	21.0	105 %	0.05	0%	21.0	105 %	0.09	0%	21.1	105 %
E15	0.02	0%	21.0	105 %	0.04	0%	21.0	105 %	0.08	0%	21.0	105 %
E16	0.01	0%	21.0	105 %	0.02	0%	21.0	105 %	0.04	0%	21.0	105 %
E17	0.01	0%	21.0	105 %	0.02	0%	21.0	105 %	0.04	0%	21.0	105 %
E18	0.01	0%	21.0	105 %	0.02	0%	21.0	105 %	0.04	0%	21.0	105 %
E19	0.01	0%	21.0	105 %	0.03	0%	21.0	105 %	0.05	0%	21.0	105 %
E20	0.01	0%	20.2	101 %	0.01	0%	20.2	101 %	0.03	0%	20.2	101 %
E21	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %	0.03	0%	20.2	101 %
E22	0.01	0%	20.2	101 %	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %
E23	0.01	0%	20.2	101 %	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %
E24	0.01	0%	20.2	101 %	0.01	0%	20.2	101 %	0.02	0%	20.2	101 %
E25	0.00	0%	19.8	99%	0.01	0%	19.8	99%	0.02	0%	19.8	99%
E26	0.01	0%	19.8	99%	0.01	0%	19.8	99%	0.02	0%	19.8	99%
E27	0.02	0%	19.4	97%	0.03	0%	19.4	97%	0.06	0%	19.4	97%
E28	0.02	0%	14.0	70%	0.05	0%	14.0	70%	0.10	0%	14.1	70%
E29	0.03	0%	14.0	70%	0.06	0%	14.0	70%	0.12	1%	14.1	70%
E30	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.08	0%	22.0	110 %
E31	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.08	0%	22.0	110 %
E32	0.02	0%	21.9	110 %	0.04	0%	22.0	110 %	0.08	0%	22.0	110 %

Acid Deposition

Table A11.5.10 Predicted Acid Deposition at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 3m above building height

Emission Rate	NOx 5g/s; SO2 2g/s		NOx 10g/s; SO2 4g/s		NOx 20g/s; SO2 8g/s	
ID	PC	PEC	PC	PEC	PC	PEC
E12	0.015	1.63	0.030	1.65	0.060	1.68
E13	0.017	1.63	0.034	1.65	0.068	1.68
E14	0.016	1.63	0.032	1.65	0.065	1.68
E15	0.014	1.63	0.028	1.64	0.055	1.67
E16	0.008	1.63	0.016	1.63	0.033	1.65
E17	0.008	1.63	0.017	1.63	0.033	1.65
E18	0.008	1.62	0.016	1.63	0.032	1.65
E19	0.010	1.63	0.020	1.64	0.040	1.66
E20	0.006	1.56	0.012	1.57	0.023	1.58
E21	0.006	1.56	0.012	1.57	0.025	1.58
E22	0.005	1.56	0.010	1.57	0.020	1.58
E23	0.005	1.56	0.010	1.57	0.021	1.58
E24	0.005	1.56	0.009	1.57	0.018	1.58
E25	0.004	1.53	0.008	1.54	0.017	1.54
E26	0.005	1.53	0.009	1.54	0.018	1.55

Table A11.5.11 Predicted Acid Deposition at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 10m above building height

Emission Rate	NOx 5g/s; SO2 2g/s		NOx 10g/s; SO2 4g/s		NOx 20g/s; SO2 8g/s	
ID	PC	PEC	PC	PEC	PC	PEC
E12	0.014	1.63	0.028	1.64	0.055	1.67
E13	0.016	1.63	0.031	1.65	0.062	1.68
E14	0.015	1.63	0.030	1.65	0.059	1.68
E15	0.013	1.63	0.025	1.64	0.050	1.67
E16	0.007	1.62	0.014	1.63	0.029	1.65
E17	0.007	1.62	0.015	1.63	0.030	1.65
E18	0.007	1.62	0.014	1.63	0.029	1.65
E19	0.009	1.63	0.018	1.64	0.036	1.65
E20	0.005	1.56	0.010	1.57	0.020	1.58
E21	0.005	1.56	0.011	1.57	0.021	1.58
E22	0.004	1.56	0.009	1.57	0.017	1.57
E23	0.005	1.56	0.009	1.57	0.018	1.58
E24	0.004	1.56	0.008	1.57	0.016	1.57
E25	0.004	1.53	0.007	1.54	0.015	1.54
E26	0.004	1.53	0.008	1.54	0.016	1.54

Table A11.5.12 Predicted Acid Deposition at Ecological Receptors in 2032 from the proposed energy plant with a flue height of 25m above building height

Emission Rate	NOx 5g/s; SO2 2g/s		NOx 10g/s; SO2 4g/s		NOx 20g/s; SO2 8g/s	
ID	PC	PEC	PC	PEC	PC	PEC
E12	0.013	1.63	0.025	1.64	0.048	1.66
E13	0.011	1.63	0.022	1.64	0.053	1.67
E14	0.007	1.62	0.013	1.63	0.050	1.67
E15	0.007	1.62	0.013	1.63	0.042	1.66
E16	0.006	1.62	0.012	1.63	0.023	1.64
E17	0.007	1.62	0.014	1.63	0.024	1.64
E18	0.004	1.62	0.008	1.63	0.023	1.64
E19	0.005	1.62	0.009	1.63	0.028	1.65
E20	0.003	1.56	0.007	1.56	0.015	1.57
E21	0.003	1.56	0.007	1.56	0.017	1.57

E22	0.003	1.56	0.006	1.56	0.013	1.57
E23	0.003	1.56	0.005	1.56	0.013	1.57
E24	0.003	1.56	0.006	1.56	0.012	1.57
E25	0.008	1.54	0.015	1.54	0.011	1.54
E26	0.012	1.54	0.023	1.55	0.012	1.54

Industrial Plant

NOx

Table A11.5.13 Predicted NOx Concentrations at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 10m above building height

Emission Rate	10g/s				20g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.35	1%	6.86	23%	0.70	2%	7.21	24%
E2	0.49	2%	4.77	16%	0.99	3%	5.26	18%
E3	0.59	2%	4.92	16%	1.19	4%	5.51	18%
E4	0.24	1%	6.08	20%	0.47	2%	6.32	21%
E5	0.63	2%	4.95	17%	1.26	4%	5.59	19%
E6	0.48	2%	5.41	18%	0.96	3%	5.89	20%
E7	0.52	2%	5.33	18%	1.03	3%	5.85	19%
E8	0.30	1%	4.78	16%	0.59	2%	5.08	17%
E9	0.26	1%	4.40	15%	0.52	2%	4.66	16%
E10	0.43	1%	4.41	15%	0.85	3%	4.84	16%
E11	0.47	2%	4.75	16%	0.94	3%	5.22	17%
E12	0.48	2%	4.75	16%	0.96	3%	5.23	17%
E13	0.54	2%	4.81	16%	1.09	4%	5.35	18%
E14	0.52	2%	4.84	16%	1.04	3%	5.35	18%
E15	0.44	1%	4.87	16%	0.87	3%	5.31	18%
E16	0.24	1%	4.54	15%	0.48	2%	4.78	16%
E17	0.25	1%	4.41	15%	0.49	2%	4.65	16%
E18	0.24	1%	4.51	15%	0.47	2%	4.75	16%
E19	0.30	1%	4.48	15%	0.59	2%	4.77	16%
E20	0.00	0%	4.28	14%	0.01	0%	4.28	14%
E21	0.17	1%	4.31	14%	0.34	1%	4.49	15%
E22	0.14	0%	4.24	14%	0.28	1%	4.38	15%
E23	0.15	0%	4.38	15%	0.29	1%	4.52	15%
E24	0.13	0%	4.36	15%	0.26	1%	4.49	15%
E25	0.12	0%	4.45	15%	0.24	1%	4.57	15%
E26	0.13	0%	4.22	14%	0.25	1%	4.34	14%
E27	0.35	1%	6.86	23%	0.70	2%	7.21	24%
E28	0.53	2%	4.80	16%	1.06	4%	5.33	18%
E29	0.69	2%	5.01	17%	1.37	5%	5.70	19%
E30	0.47	2%	4.75	16%	0.94	3%	5.22	17%
E31	0.47	2%	4.75	16%	0.94	3%	5.22	17%
E32	0.46	2%	4.83	16%	0.91	3%	5.29	18%
E33	2.03	7%	7.54	25%	4.06	14%	9.57	32%
E34	2.07	7%	7.57	25%	4.13	14%	9.64	32%
E35	1.17	4%	9.57	32%	2.35	8%	10.74	36%
E36	1.15	4%	7.24	24%	2.30	8%	8.39	28%
E37	1.82	6%	6.85	23%	3.65	12%	8.68	29%
E38	0.93	3%	5.39	18%	1.85	6%	6.32	21%
E39	0.72	2%	5.19	17%	1.44	5%	5.90	20%
E40	0.70	2%	5.02	17%	1.40	5%	5.72	19%
E41	0.66	2%	4.98	17%	1.32	4%	5.64	19%
E42	0.58	2%	4.90	16%	1.16	4%	5.48	18%

Table A11.5.14 Predicted NOx Concentrations at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 25m above building height

Emission Rate	10g/s				20g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.28	1%	6.79	23%	0.56	2%	7.06	24%
E2	0.40	1%	4.68	16%	0.80	3%	5.08	17%
E3	0.49	2%	4.81	16%	0.98	3%	5.30	18%
E4	0.18	1%	6.02	20%	0.35	1%	6.20	21%
E5	0.52	2%	4.84	16%	1.04	3%	5.36	18%
E6	0.40	1%	5.33	18%	0.79	3%	5.72	19%
E7	0.42	1%	5.23	17%	0.84	3%	5.65	19%
E8	0.23	1%	4.72	16%	0.46	2%	4.95	16%
E9	0.19	1%	4.33	14%	0.38	1%	4.52	15%
E10	0.33	1%	4.32	14%	0.67	2%	4.65	16%
E11	0.37	1%	4.65	15%	0.74	2%	5.02	17%
E12	0.42	1%	4.69	16%	0.84	3%	5.11	17%
E13	0.47	2%	4.73	16%	0.93	3%	5.20	17%
E14	0.44	1%	4.76	16%	0.88	3%	5.20	17%
E15	0.37	1%	4.80	16%	0.74	2%	5.18	17%
E16	0.19	1%	4.49	15%	0.38	1%	4.68	16%
E17	0.21	1%	4.37	15%	0.41	1%	4.57	15%
E18	0.20	1%	4.47	15%	0.39	1%	4.67	16%
E19	0.24	1%	4.42	15%	0.47	2%	4.65	16%
E20	0.00	0%	4.28	14%	0.01	0%	4.28	14%
E21	0.14	0%	4.28	14%	0.28	1%	4.42	15%
E22	0.11	0%	4.22	14%	0.22	1%	4.33	14%
E23	0.11	0%	4.35	14%	0.22	1%	4.46	15%
E24	0.10	0%	4.33	14%	0.19	1%	4.43	15%
E25	0.09	0%	4.42	15%	0.17	1%	4.51	15%
E26	0.10	0%	4.19	14%	0.19	1%	4.28	14%
E27	0.28	1%	6.79	23%	0.56	2%	7.06	24%
E28	0.43	1%	4.71	16%	0.86	3%	5.14	17%
E29	0.57	2%	4.90	16%	1.15	4%	5.47	18%
E30	0.37	1%	4.65	16%	0.74	2%	5.02	17%
E31	0.37	1%	4.65	15%	0.74	2%	5.02	17%
E32	0.36	1%	4.74	16%	0.72	2%	5.10	17%
E33	1.78	6%	7.29	24%	3.56	12%	9.07	30%
E34	1.81	6%	7.32	24%	3.63	12%	9.13	30%
E35	1.02	3%	9.42	31%	2.05	7%	10.44	35%
E36	1.00	3%	7.09	24%	2.01	7%	8.10	27%
E37	1.61	5%	6.64	22%	3.22	11%	8.24	27%
E38	0.82	3%	5.28	18%	1.63	5%	6.10	20%
E39	0.63	2%	5.10	17%	1.26	4%	5.72	19%
E40	0.59	2%	4.91	16%	1.17	4%	5.49	18%
E41	0.55	2%	4.87	16%	1.10	4%	5.42	18%
E42	0.47	2%	4.80	16%	0.95	3%	5.27	18%

SO_2

Table A11.5.15 Predicted SO_2 Concentrations at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 10m above building height

Emission Rate	5g/s				10g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.17	1%	1.34	7%	0.35	2%	1.52	8%
E2	0.25	1%	0.96	5%	0.49	2%	1.20	6%
E3	0.30	1%	1.02	5%	0.59	3%	1.31	7%
E4	0.12	1%	1.12	6%	0.24	1%	1.24	6%

E5	0.32	2%	1.04	5%	0.63	3%	1.35	7%
E6	0.24	1%	1.05	5%	0.48	2%	1.29	6%
E7	0.26	1%	1.21	6%	0.52	3%	1.47	7%
E8	0.15	1%	0.89	4%	0.30	1%	1.04	5%
E9	0.13	1%	0.85	4%	0.26	1%	0.98	5%
E10	0.21	1%	0.87	4%	0.43	2%	1.09	5%
E11	0.23	1%	0.95	5%	0.47	2%	1.19	6%
E12	0.24	1%	1.01	5%	0.48	2%	1.25	6%
E13	0.27	1%	1.04	5%	0.54	3%	1.31	7%
E14	0.26	1%	1.05	5%	0.52	3%	1.31	7%
E15	0.22	1%	1.05	5%	0.44	2%	1.27	6%
E16	0.12	1%	0.96	5%	0.24	1%	1.08	5%
E17	0.12	1%	0.85	4%	0.25	1%	0.98	5%
E18	0.12	1%	0.88	4%	0.24	1%	1.00	5%
E19	0.15	1%	0.94	5%	0.30	1%	1.09	5%
E20	0.00	0%	0.82	4%	0.00	0%	0.82	4%
E21	0.09	0%	0.86	4%	0.17	1%	0.94	5%
E22	0.07	0%	0.85	4%	0.14	1%	0.92	5%
E23	0.07	0%	0.85	4%	0.15	1%	0.93	5%
E24	0.06	0%	0.84	4%	0.13	1%	0.91	5%
E25	0.06	0%	0.83	4%	0.12	1%	0.89	4%
E26	0.06	0%	0.79	4%	0.13	1%	0.86	4%
E27	0.17	1%	1.34	7%	0.35	2%	1.52	8%
E28	0.26	1%	0.97	5%	0.53	3%	1.24	6%
E29	0.34	1.7%	1.06	5%	0.69	3.4%	1.41	7%
E30	0.24	1%	0.96	5%	0.47	2%	1.19	6%
E31	0.24	1%	0.96	5%	0.47	2%	1.19	6%
E32	0.23	1%	0.96	5%	0.46	2%	1.19	6%

Table A11.5.16 Predicted SO_2 Concentrations at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 25m above building height

Emission Rate	**5g/s**				**10g/s**			
ID	**PC**	**% PC**	**PEC**	**% PEC**	**PC**	**% PC**	**PEC**	**% PEC**
E1	0.14	1%	1.31	7%	0.28	1%	1.45	7%
E2	0.20	1%	0.91	5%	0.40	2%	1.11	6%
E3	0.24	1%	0.96	5%	0.49	2%	1.21	6%
E4	0.09	0%	1.09	5%	0.18	1%	1.18	6%
E5	0.26	1%	0.98	5%	0.52	3%	1.24	6%
E6	0.20	1%	1.01	5%	0.40	2%	1.21	6%
E7	0.21	1%	1.16	6%	0.42	2%	1.37	7%
E8	0.12	1%	0.86	4%	0.23	1%	0.97	5%
E9	0.10	0%	0.82	4%	0.19	1%	0.91	5%
E10	0.17	1%	0.83	4%	0.33	2%	0.99	5%
E11	0.19	1%	0.91	5%	0.37	2%	1.09	5%
E12	0.21	1%	0.98	5%	0.42	2%	1.19	6%
E13	0.23	1%	1.00	5%	0.47	2%	1.24	6%
E14	0.22	1%	1.01	5%	0.44	2%	1.23	6%
E15	0.19	1%	1.02	5%	0.37	2%	1.20	6%
E16	0.10	0%	0.94	5%	0.19	1%	1.03	5%
E17	0.10	1%	0.83	4%	0.21	1%	0.94	5%
E18	0.10	0%	0.86	4%	0.20	1%	0.96	5%
E19	0.12	1%	0.91	5%	0.24	1%	1.03	5%
E20	0.00	0%	0.82	4%	0.00	0%	0.82	4%
E21	0.07	0%	0.84	4%	0.14	1%	0.91	5%
E22	0.06	0%	0.84	4%	0.11	1%	0.89	4%
E23	0.06	0%	0.84	4%	0.11	1%	0.89	4%
E24	0.05	0%	0.83	4%	0.10	0%	0.88	4%
E25	0.04	0%	0.81	4%	0.09	0%	0.86	4%

E26	0.05	0%	0.78	4%	0.10	0%	0.83	4%
E27	0.14	1%	1.31	7%	0.28	1%	1.45	7%
E28	0.22	1%	0.93	5%	0.43	2%	1.14	6%
E29	0.29	1.4%	1.01	5%	0.57	2.9%	1.29	6%
E30	0.19	1%	0.91	5%	0.37	2%	1.09	5%
E31	0.19	1%	0.91	5%	0.37	2%	1.09	5%
E32	0.18	1%	0.91	5%	0.36	2%	1.09	5%

Ammonia

Table A11.5.17 Predicted Ammonia Concentration at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 10m above building height

Emission Rate	0.65g/s			
ID	PC	% PC	PEC	% PEC
E1	0.023	1%	2.963	99%
E2	0.032	1%	1.922	64%
E3	0.039	1%	1.929	64%
E4	0.015	1%	2.955	99%
E5	0.041	1%	1.931	64%
E6	0.031	1%	3.531	118%
E7	0.034	1%	3.534	118%
E8	0.019	1%	3.519	117%
E9	0.017	1%	3.517	117%
E10	0.028	1%	3.528	118%
E11	0.031	1%	3.531	118%
E12	0.031	1%	3.241	108%
E13	0.035	1%	3.245	108%
E14	0.034	1%	3.244	108%
E15	0.028	1%	3.238	108%
E16	0.015	1%	3.225	108%
E17	0.016	1%	3.226	108%
E18	0.015	1%	3.225	108%
E19	0.019	1%	3.229	108%
E20	0.000	0%	2.970	99%
E21	0.011	0%	2.981	99%
E22	0.009	0%	2.979	99%
E23	0.009	0%	2.979	99%
E24	0.008	0%	2.978	99%
E25	0.008	0%	3.038	101%
E26	0.008	0%	3.038	101%
E27	0.023	1%	2.963	99%
E28	0.034	1%	1.924	64%
E29	0.045	1%	1.935	64%
E30	0.031	1%	3.531	118%
E31	0.031	1%	3.531	118%
E32	0.030	1%	3.530	118%

Table A11.5.18 Predicted Ammonia Concentration at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 25m above building height

Emission Rate	0.65/s			
ID	PC	% PC	PEC	% PEC
E1	0.018	1%	2.958	99%
E2	0.026	1%	1.916	64%
E3	0.032	1%	1.922	64%
E4	0.011	0%	2.951	98%
E5	0.034	1%	1.924	64%
E6	0.026	1%	3.526	118%
E7	0.027	1%	3.527	118%

E8	0.015	0%	3.515	117%
E9	0.012	0%	3.512	117%
E10	0.022	1%	3.522	117%
E11	0.024	1%	3.524	117%
E12	0.027	1%	3.237	108%
E13	0.030	1%	3.240	108%
E14	0.029	1%	3.239	108%
E15	0.024	1%	3.234	108%
E16	0.012	0%	3.222	107%
E17	0.013	0%	3.223	107%
E18	0.013	0%	3.223	107%
E19	0.015	1%	3.225	108%
E20	0.000	0%	2.970	99%
E21	0.009	0%	2.979	99%
E22	0.007	0%	2.977	99%
E23	0.007	0%	2.977	99%
E24	0.006	0%	2.976	99%
E25	0.006	0%	3.036	101%
E26	0.006	0%	3.036	101%
E27	0.018	1%	2.958	99%
E28	0.028	1%	1.918	64%
E29	0.037	1%	1.927	64%
E30	0.024	1%	3.524	117%
E31	0.024	1%	3.524	117%
E32	0.023	1%	3.523	117%

Nitrogen Deposition

Table A11.5.19 Predicted Nitrogen Deposition at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 10m above building height

Emission Rate	NOx 10g/s; NH3 0.65g/s				NOx 20g/s; NH3 0.65g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.2	1%	19.5	97%	0.2	1%	19.5	98%
E2	0.2	1%	14.2	71%	0.3	1%	14.2	71%
E3	0.3	1%	14.2	71%	0.3	2%	14.3	71%
E4	0.1	1%	19.4	97%	0.1	1%	19.5	97%
E5	0.3	1%	14.2	71%	0.3	2%	14.3	71%
E6	0.2	1%	22.1	111%	0.3	1%	22.2	111%
E7	0.2	1%	22.2	111%	0.3	1%	22.2	111%
E8	0.1	1%	22.1	110%	0.2	1%	22.1	110%
E9	0.1	1%	22.0	110%	0.1	1%	22.1	110%
E10	0.2	1%	22.1	111%	0.2	1%	22.2	111%
E11	0.2	1%	22.1	111%	0.3	1%	22.2	111%
E12	0.2	1%	21.2	106%	0.3	1%	21.2	106%
E13	0.2	1%	21.2	106%	0.3	1%	21.3	106%
E14	0.2	1%	21.2	106%	0.3	1%	21.3	106%
E15	0.2	1%	21.2	106%	0.2	1%	21.2	106%
E16	0.1	1%	21.1	105%	0.1	1%	21.1	106%
E17	0.1	1%	21.1	105%	0.1	1%	21.1	106%
E18	0.1	1%	21.1	105%	0.1	1%	21.1	105%
E19	0.1	1%	21.1	106%	0.2	1%	21.1	106%
E20	0.0	0%	20.2	101%	0.0	0%	20.2	101%
E21	0.1	0%	20.2	101%	0.1	0%	20.2	101%
E22	0.1	0%	20.2	101%	0.1	0%	20.2	101%
E23	0.1	0%	20.2	101%	0.1	0%	20.2	101%
E24	0.1	0%	20.2	101%	0.1	0%	20.2	101%
E25	0.1	0%	19.9	99%	0.1	0%	19.9	99%
E26	0.1	0%	19.9	99%	0.1	0%	19.9	99%

E27	0.2	1%	19.5	97%	0.2	1%	19.5	98%
E28	0.2	1%	14.2	71%	0.3	1%	14.2	71%
E29	0.3	1.5%	14.3	71%	0.4	1.9%	14.3	72%
E30	0.2	1%	22.1	111%	0.3	1%	22.2	111%
E31	0.2	1%	22.1	111%	0.3	1%	22.2	111%
E32	0.2	1%	22.1	111%	0.2	1%	22.2	111%

Table A11.5.20 Predicted Nitrogen Deposition at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 25m above building height

Emission Rate	NOx 10g/s; NH3 0.65g/s				NOx 20g/s; NH3 0.65g/s			
ID	PC	% PC	PEC	% PEC	PC	% PC	PEC	% PEC
E1	0.1	1%	19.5	97%	0.1	1%	19.5	97%
E2	0.2	1%	14.1	71%	0.2	1%	14.2	71%
E3	0.2	1%	14.2	71%	0.3	1%	14.2	71%
E4	0.1	0%	19.4	97%	0.1	0%	19.4	97%
E5	0.2	1%	14.2	71%	0.3	1%	14.2	71%
E6	0.2	1%	22.1	111%	0.2	1%	22.1	111%
E7	0.2	1%	22.1	111%	0.2	1%	22.2	111%
E8	0.1	1%	22.0	110%	0.1	1%	22.1	110%
E9	0.1	0%	22.0	110%	0.1	1%	22.0	110%
E10	0.1	1%	22.1	110%	0.2	1%	22.1	111%
E11	0.2	1%	22.1	110%	0.2	1%	22.1	111%
E12	0.2	1%	21.2	106%	0.2	1%	21.2	106%
E13	0.2	1%	21.2	106%	0.3	1%	21.2	106%
E14	0.2	1%	21.2	106%	0.2	1%	21.2	106%
E15	0.2	1%	21.1	106%	0.2	1%	21.2	106%
E16	0.1	0%	21.1	105%	0.1	1%	21.1	105%
E17	0.1	0%	21.1	105%	0.1	1%	21.1	105%
E18	0.1	0%	21.1	105%	0.1	1%	21.1	105%
E19	0.1	1%	21.1	105%	0.1	1%	21.1	105%
E20	0.0	0%	20.2	101%	0.0	0%	20.2	101%
E21	0.1	0%	20.2	101%	0.1	0%	20.2	101%
E22	0.0	0%	20.2	101%	0.1	0%	20.2	101%
E23	0.0	0%	20.2	101%	0.1	0%	20.2	101%
E24	0.0	0%	20.2	101%	0.1	0%	20.2	101%
E25	0.0	0%	19.9	99%	0.0	0%	19.9	99%
E26	0.0	0%	19.9	99%	0.1	0%	19.9	99%
E27	0.1	1%	19.5	97%	0.1	1%	19.5	97%
E28	0.2	1%	14.1	71%	0.2	1%	14.2	71%
E29	0.3	1.3%	14.2	71%	0.3	2%	14.3	71%
E30	0.2	1%	22.1	110%	0.2	1%	22.1	111%
E31	0.2	1%	22.1	110%	0.2	1%	22.1	111%
E32	0.2	1%	22.1	110%	0.2	1%	22.1	111%

Acid Deposition

Table A11.5.21 Predicted Acid Deposition at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 3m above building height

Emission Rate	NOx 10g/s; NH3 0.65g/s; SO2 5g/s		NOx 20g/s; NH3 0.65g/s; SO2 10g/s	
ID	PC	PEC	PC	PEC
E12	0.044	1.66	0.076	1.69
E13	0.049	1.67	0.085	1.70
E14	0.047	1.66	0.081	1.70
E15	0.039	1.66	0.068	1.69
E16	0.021	1.64	0.037	1.65
E17	0.022	1.64	0.039	1.66
E18	0.021	1.64	0.037	1.65
E19	0.027	1.64	0.047	1.66

E20	0.000	1.56	0.001	1.56
E21	0.016	1.57	0.027	1.58
E22	0.013	1.57	0.022	1.58
E23	0.013	1.57	0.023	1.58
E24	0.012	1.57	0.020	1.58
E25	0.011	1.54	0.018	1.55
E26	0.011	1.54	0.020	1.55

Table A11.5.22 Predicted Acid Deposition at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 10m above building height

Emission Rate	NOx 10g/s; NH3 0.65g/s; SO2 5g/s		NOx 20g/s; NH3 0.65g/s; SO2 10g/s	
ID	PC	PEC	PC	PEC
E12	0.038	1.65	0.066	1.68
E13	0.042	1.66	0.073	1.69
E14	0.040	1.66	0.069	1.69
E15	0.034	1.65	0.058	1.68
E16	0.017	1.63	0.030	1.65
E17	0.019	1.64	0.032	1.65
E18	0.018	1.63	0.031	1.65
E19	0.021	1.64	0.037	1.65
E20	0.000	1.56	0.001	1.56
E21	0.012	1.57	0.022	1.58
E22	0.010	1.57	0.017	1.57
E23	0.010	1.57	0.018	1.57
E24	0.009	1.57	0.015	1.57
E25	0.008	1.54	0.014	1.54
E26	0.009	1.54	0.015	1.54

Table A11.5.23 Predicted Acid Deposition at Ecological Receptors in 2032 from the proposed industrial plant with a flue height of 25m above building height

Emission Rate	NOx 5g/s; SO2 2g/s		NOx 10g/s; SO2 4g/s		NOx 20g/s; SO2 8g/s	
ID	PC	PEC	PC	PEC	PC	PEC
E12	0.013	1.63	0.025	1.64	0.048	1.66
E13	0.011	1.63	0.022	1.64	0.053	1.67
E14	0.007	1.62	0.013	1.63	0.050	1.67
E15	0.007	1.62	0.013	1.63	0.042	1.66
E16	0.006	1.62	0.012	1.63	0.023	1.64
E17	0.007	1.62	0.014	1.63	0.024	1.64
E18	0.004	1.62	0.008	1.63	0.023	1.64
E19	0.005	1.62	0.009	1.63	0.028	1.65
E20	0.003	1.56	0.007	1.56	0.015	1.57
E21	0.003	1.56	0.007	1.56	0.017	1.57
E22	0.003	1.56	0.006	1.56	0.013	1.57
E23	0.003	1.56	0.005	1.56	0.013	1.57
E24	0.003	1.56	0.006	1.56	0.012	1.57
E25	0.008	1.54	0.015	1.54	0.011	1.54
E26	0.012	1.54	0.023	1.55	0.012	1.54

Human Health Receptors

Energy Plant

Table A11.5.23 Predicted Process Contributions at Human Receptors in 2032 from the proposed energy plant

Emission Rate	NOx 5g/s				NOx 10g/s				NOx 20g/s			
ID	PC	%	PEC	%	PC	%	PEC	%	PC	%	PEC	%

		PC		PEC		PC		PEC		PC		PEC
3m Height												
R1	0.6	1%	5.5	14%	1.1	3%	6.0	15%	2.3	6%	7.2	18%
R2	0.7	2%	5.6	14%	1.4	4%	6.3	16%	2.8	7%	7.7	19%
R3	1.1	3%	5.7	14%	2.2	6%	6.8	17%	4.5	11%	9.0	23%
R4	1.0	3%	5.6	14%	2.1	5%	6.7	17%	4.1	10%	8.7	22%
R5	0.5	1%	6.0	15%	0.9	2%	6.4	16%	1.8	5%	7.3	18%
R6	0.3	1%	8.5	21%	0.5	1%	8.7	22%	1.1	3%	9.2	23%
R7	0.2	1%	5.7	14%	0.5	1%	6.0	15%	1.0	2%	6.5	16%
P1	0.6	2%	6.1	15%	1.2	3%	6.7	17%	2.4	6%	7.9	20%
P2	1.2	3%	5.8	15%	2.5	6%	7.0	18%	4.9	12%	9.5	24%
P3	0.9	2%	5.8	14%	1.8	4%	6.7	17%	3.6	9%	8.5	21%
10m Height												
R1	0.5	1%	5.4	14%	1.1	3%	6.0	15%	2.1	5%	7.0	18%
R2	0.7	2%	5.6	14%	1.3	3%	6.2	16%	2.6	7%	7.5	19%
R3	1.0	3%	5.6	14%	2.1	5%	6.7	17%	4.1	10%	8.7	22%
R4	1.0	2%	5.6	14%	1.9	5%	6.5	16%	3.9	10%	8.5	21%
R5	0.4	1%	5.9	15%	0.8	2%	6.4	16%	1.7	4%	7.2	18%
R6	0.2	1%	8.4	21%	0.5	1%	8.7	22%	1.0	2%	9.2	23%
R7	0.2	1%	5.7	14%	0.4	1%	5.9	15%	0.9	2%	6.4	16%
P1	0.6	1%	6.1	15%	1.1	3%	6.6	17%	2.2	6%	7.8	19%
P2	1.2	3%	5.7	14%	2.3	6%	6.9	17%	4.6	12%	9.2	23%
P3	0.8	2%	5.7	14%	1.7	4%	6.6	16%	3.3	8%	8.2	21%
25m Height												
R1	0.5	1%	5.4	13%	0.9	2%	5.8	15%	1.9	5%	6.8	17%
R2	0.6	1%	5.5	14%	1.2	3%	6.1	15%	2.3	6%	7.2	18%
R3	0.9	2%	5.5	14%	1.8	5%	6.4	16%	3.6	9%	8.2	20%
R4	0.9	2%	5.4	14%	1.7	4%	6.3	16%	3.4	9%	8.0	20%
R5	0.4	1%	5.9	15%	0.7	2%	6.2	16%	1.5	4%	7.0	17%
R6	0.2	1%	8.4	21%	0.4	1%	8.6	22%	0.8	2%	9.0	23%
R7	0.2	0%	5.7	14%	0.4	1%	5.9	15%	0.8	2%	6.3	16%
P1	0.5	1%	6.0	15%	1.0	2%	6.5	16%	2.0	5%	7.5	19%
P2	1.0	3%	5.6	14%	2.0	5%	6.6	17%	4.1	10%	8.7	22%
P3	0.7	2%	5.6	14%	1.5	4%	6.4	16%	2.9	7%	7.8	20%

Industrial Plant

NO_2

Table A11.5.24: Predicted NO_2 Process Contributions at Human Receptors in 2032 from the proposed industrial plant

Emission Rate	NOx 10g/s		NOx 20g/s		NOx 30g/s	
ID	PC	% PC	PC	% PC	PC	% PC
Flue Height	10m Height					
R1	1.00	2.5%	2.01	5.0%	3.01	7.5%
R2	1.22	3.0%	0.61	1.5%	3.65	9.1%
R3	2.24	5.6%	1.12	2.8%	6.72	16.8%
R4	1.83	4.6%	0.92	2.3%	5.50	13.7%
R5	0.88	2.2%	0.44	1.1%	2.63	6.6%
R6	0.47	1.2%	0.23	0.6%	1.40	3.5%
R7	0.45	1.1%	0.22	0.6%	1.34	3.3%
P1	1.14	2.8%	0.57	1.4%	3.41	8.5%

P2	2.65	6.6%	1.32	3.3%	7.94	19.8%
P3	1.45	3.6%	0.73	1.8%	4.36	10.9%
Flue Height	**25m Height**					
R1	0.89	2.2%	1.77	4.4%	2.66	6.6%
R2	1.07	2.7%	2.14	5.4%	3.21	8.0%
R3	2.01	5.0%	4.02	10.1%	6.04	15.1%
R4	1.62	4.0%	3.23	8.1%	4.85	12.1%
R5	0.77	1.9%	1.53	3.8%	2.30	5.7%
R6	0.41	1.0%	0.81	2.0%	1.22	3.1%
R7	0.39	1.0%	0.78	1.9%	1.17	2.9%
P1	0.99	2.5%	1.98	4.9%	2.97	7.4%
P2	2.39	6.0%	4.79	12.0%	7.18	17.9%
P3	1.27	3.2%	2.55	6.4%	3.82	9.5%

PM_{10}

Table A11.5.25: Predicted PM_{10} Process Contributions at Human Receptors in 2032 from the proposed industrial plant

Emission Rate	**PM_{10} 5g/s**		**PM_{10} 10g/s**		**PM_{10} 20g/s**	
ID	**PC**	**% PC**	**PC**	**% PC**	**PC**	**% PC**
Flue Height	**10m Height**					
R1	0.72	1.8%	1.43	3.6%	2.87	7.2%
R2	0.87	2.2%	1.74	4.3%	3.48	8.7%
R3	1.60	4.0%	3.20	8.0%	6.40	16.0%
R4	1.31	3.3%	2.62	6.5%	5.23	13.1%
R5	0.63	1.6%	1.25	3.1%	2.51	6.3%
R6	0.33	0.8%	0.66	1.7%	1.33	3.3%
R7	0.32	0.8%	0.64	1.6%	1.27	3.2%
P1	0.81	2.0%	1.63	4.1%	3.25	8.1%
P2	1.89	4.7%	3.78	9.4%	7.56	18.9%
P3	1.04	2.6%	2.08	5.2%	4.16	10.4%
Flue Height	**25m Height**					
R1	0.63	1.6%	1.26	3.2%	2.53	6.3%
R2	0.76	1.9%	1.53	3.8%	3.06	7.6%
R3	1.44	3.6%	2.87	7.2%	5.75	14.4%
R4	1.15	2.9%	2.31	5.8%	4.62	11.5%
R5	0.55	1.4%	1.09	2.7%	2.19	5.5%
R6	0.29	0.7%	0.58	1.5%	1.16	2.9%
R7	0.28	0.7%	0.56	1.4%	1.11	2.8%
P1	0.71	1.8%	1.41	3.5%	2.82	7.1%
P2	1.71	4.3%	3.42	8.5%	6.84	17.1%
P3	0.91	2.3%	1.82	4.5%	3.64	9.1%

$PM_{2.5}$

Table A11.5.26: Predicted $PM_{2.5}$ Process Contributions at Human Receptors in 2032 from the proposed industrial plant

Emission Rate	**$PM_{2.5}$ 2g/s**		**$PM_{2.5}$ 5g/s**		**$PM_{2.5}$ 10g/s**	
ID	**PC**	**% PC**	**PC**	**% PC**	**PC**	**% PC**
Flue Height	**10m Height**					
R1	0.29	1.4%	0.72	3.6%	1.43	7.2%
R2	0.35	1.7%	0.87	4.3%	1.74	8.7%

R3	0.64	3.2%	1.60	8.0%	3.20	16.0%
R4	0.52	2.6%	1.31	6.5%	2.62	13.1%
R5	0.25	1.3%	0.63	3.1%	1.25	6.3%
R6	0.13	0.7%	0.33	1.7%	0.66	3.3%
R7	0.13	0.6%	0.32	1.6%	0.64	3.2%
P1	0.33	1.6%	0.81	4.1%	1.63	8.1%
P2	0.76	3.8%	1.89	9.4%	3.78	18.9%
P3	0.42	2.1%	1.04	5.2%	2.08	10.4%
Flue Height	**25m Height**					
R1	0.25	1.3%	0.63	3.2%	1.26	6.3%
R2	0.31	1.5%	0.76	3.8%	1.53	7.6%
R3	0.57	2.9%	1.44	7.2%	2.87	14.4%
R4	0.46	2.3%	1.15	5.8%	2.31	11.5%
R5	0.22	1.1%	0.55	2.7%	1.09	5.5%
R6	0.12	0.6%	0.29	1.5%	0.58	2.9%
R7	0.11	0.6%	0.28	1.4%	0.56	2.8%
P1	0.28	1.4%	0.71	3.5%	1.41	7.1%
P2	0.68	3.4%	1.71	8.5%	3.42	17.1%
P3	0.36	1.8%	0.91	4.5%	1.82	9.1%

Benzene

Table A11.5.27: Predicted Benzene Process Contributions at Human Receptors in 2032 from the proposed industrial plant

Emission Rate	**Benzene 1g/s**		**Benzene 2g/s**		**Benzene 3g/s**	
ID	**PC**	**% PC**	**PC**	**% PC**	**PC**	**% PC**
Flue Height	**10m Height**					
R1	0.14	2.9%	0.29	5.7%	0.43	8.6%
R2	0.17	3.5%	0.35	7.0%	0.52	10.4%
R3	0.32	6.4%	0.64	12.8%	0.96	19.2%
R4	0.26	5.2%	0.52	10.5%	0.79	15.7%
R5	0.13	2.5%	0.25	5.0%	0.38	7.5%
R6	0.07	1.3%	0.13	2.7%	0.20	4.0%
R7	0.06	1.3%	0.13	2.5%	0.19	3.8%
P1	0.16	3.3%	0.33	6.5%	0.49	9.8%
P2	0.38	7.6%	0.76	15.1%	1.13	22.7%
P3	0.21	4.2%	0.42	8.3%	0.62	12.5%
Flue Height	**25m Height**					
R1	0.13	2.5%	0.25	5.1%	0.38	7.6%
R2	0.15	3.1%	0.31	6.1%	0.46	9.2%
R3	0.29	5.7%	0.57	11.5%	0.86	17.2%
R4	0.23	4.6%	0.46	9.2%	0.69	13.8%
R5	0.11	2.2%	0.22	4.4%	0.33	6.6%
R6	0.06	1.2%	0.12	2.3%	0.17	3.5%
R7	0.06	1.1%	0.11	2.2%	0.17	3.3%
P1	0.14	2.8%	0.28	5.6%	0.42	8.5%
P2	0.34	6.8%	0.68	13.7%	1.03	20.5%
P3	0.18	3.6%	0.36	7.3%	0.55	10.9%

Gravity

Smart Campus

Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 11.6 Glossary

Appendix 11.6 Glossary

Abbreviations	Meaning
AADT	Annual Average Daily Traffic
APIS	Air Pollution Information System
AQAP	Air Quality Action Plan
AQR	Air Quality (England) (Amendment) Regulations
AQMA	Air Quality Management Area
DEFRA	Department for Environment, Food and Rural Affairs
Diffusion Tube	A passive sampler used for collecting NO_2 in the air
EEA	European Environment Agency
EFT	Emission Factor Toolkit
EPUK	Environmental Protection UK
EU	European Union
FDCEMP	Framework Demolition and Construction Environmental Management Plan
HDV	Heavy Duty Vehicle; a vehicle with a gross vehicle weight greater than 3.5 tonnes. Includes Heavy Goods Vehicles and buses
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle; a vehicle with a gross vehicle weight equal to or less than 3.5 tonnes. Includes Light Duty Vehicles, cars and motorbikes
LPA	Local Planning Authority
NAQO	National Air Quality Objective as set out in the Air Quality Strategy and the Air Quality Regulations
NE	Natural England
NO_2	Nitrogen Dioxide
NO_x	Oxides of nitrogen generally considered to be nitric oxide and NO_2. Its main source is from combustion of fossil fuels, including petrol and diesel used in road vehicles
NPPF	National Planning Policy Framework
PM_{10} / $PM_{2.5}$	Small airborne particles less than 10/2.5 µm in diameter
Receptor	A location where the effects of pollution may occur
SAC	Special Area of Conservation
SDC	Sedgemoor District Council
SPA	Special Protection Area
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
ULEV	Ultra-low Emission Vehicle
UNECE	United Nations Economic Commission for Europe