

APPENDIX 1

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Subject:	Central Somers Town – Emergency Generators – Maintenance Hours Results				

1. Modelling Results

1.1 Scenario 1

One generator running five hours every Monday morning for the whole year between 9 am and 2 pm, equating to an annual operation of 260 hours.

Table 1-1: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 1 Maintenance Operations of FCI Emergency Generators at Brill Tower

Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m ³	99.8 %ile NO _x Process Contribution	99.8 %ile NO ₂ Process Contribution	99.8 %ile Total NO ₂ µg / m ³	No Hours NO ₂ > 200 µg / m ³
Plot 7 NE A15	50.5	300	114	40	126	0
Plot 7 NE A16	53.6	404	151	53	139	11
Plot 7 NE A17	56.7	678	174	61	147	13
Plot 7 NE C15	50.5	430	167	59	145	12
Plot 7 NE C16	53.6	545	218	76	162	15
Plot 7 NE C17	56.7	959	231	81	167	17
Plot 7 NE C18	59.8	1346	324	113	199	18
Plot 7 NE C19	63.0	1550	298	104	190	16
Plot 7 NE C20	66.3	1385	243	85	171	16
Plot 7 NE C21	69.5	1391	220	77	163	16
Plot 7 SE A15	50.5	457	153	53	139	6
Plot 7 SE A16	53.6	669	337	118	204	18
Plot 7 SE A17	56.7	1119	334	117	203	18
Plot 7 SE A18	59.8	1458	312	109	195	17
Plot 7 SE A19	63.0	1472	286	100	186	16
Plot 7 SE C15	50.5	394	156	54	140	4

Table 1-1: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 1 Maintenance Operations of FCI Emergency Generators at Brill Tower

Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m ³	99.8 %ile NO _x Process Contribution	99.8 %ile NO ₂ Process Contribution	99.8 %ile Total NO ₂ µg / m ³	No Hours NO ₂ > 200 µg / m ³
Plot 7 SE C16	53.6	533	232	81	167	13
Plot 7 SE C17	56.7	669	350	123	209	18
Plot 7 SE C18	59.8	935	396	139	225	23
Plot 7 SE C19	63.0	1343	400	140	226	22
Plot 7 SE C20	66.3	1453	336	118	204	19
Plot 7 SE C21	69.5	1184	318	111	197	18
Plot 7 SW A15	50.5	337	144	51	137	3
Plot 7 SW A16	53.6	451	205	72	158	12
Plot 7 SW A17	56.7	581	266	93	179	15
Plot 7 NW B15	50.5	275	128	45	131	0
Plot 7 NW B16	53.6	386	147	52	138	3
Plot 7 NW B17	56.7	583	155	54	140	7
Bold: Air Quality Objective 200 µg/m ³ exceeded more than 18 times a year Background assumed as twice the annual mean of 43 µg/m ³						

1.2 Scenario 2

One generator running five hours every Thursday afternoon for the whole year between 12 am and 5 pm, equating to an annual operation of 260 hours.

Table 1-2: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 2 Maintenance Operations of FCI Emergency Generators at Brill Tower

Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m ³	99.8 %ile NO _x Process Contribution	99.8 %ile NO ₂ Process Contribution	99.8 %ile Total NO ₂ µg / m ³	No Hours NO ₂ > 200 µg / m ³
Plot 7 NE A1	7.1	37	26	9	95	0
Plot 7 NE A2	10.2	37	26	9	95	0
Plot 7 NE A3	13.3	37	26	9	95	0
Plot 7 NE A4	16.4	37	26	9	95	0
Plot 7 NE A5	19.5	37	26	9	95	0

Table 1-2: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 2 Maintenance Operations of FCI Emergency Generators at Brill Tower

Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m ³	99.8 %ile NO _x Process Contribution	99.8 %ile NO ₂ Process Contribution	99.8 %ile Total NO ₂ µg / m ³	No Hours NO ₂ > 200 µg / m ³
Plot 7 NE A6	22.6	37	26	9	95	0
Plot 7 NE A15	50.5	351	168	59	145	2
Plot 7 NE A16	53.6	507	237	83	169	12
Plot 7 NE A17	56.7	720	290	101	187	15
Plot 7 NE C15	50.5	473	200	70	156	7
Plot 7 NE C16	53.6	712	291	102	188	15
Plot 7 NE C17	56.7	1055	376	131	217	20
Plot 7 NE C18	59.8	1480	408	143	229	24
Plot 7 NE C19	63.0	1603	423	148	234	25
Plot 7 NE C20	66.3	1286	391	137	223	24
Plot 7 NE C21	69.5	1119	325	114	200	19
Plot 7 SE A15	50.5	455	252	88	174	8
Plot 7 SE A16	53.6	720	352	123	209	20
Plot 7 SE A17	56.7	1069	450	157	243	21
Plot 7 SE A18	59.8	1493	459	161	247	23
Plot 7 SE A19	63.0	1610	460	161	247	22
Plot 7 SE C15	50.5	401	219	77	163	7
Plot 7 SE C16	53.6	611	273	95	181	16
Plot 7 SE C17	56.7	976	319	112	198	19
Plot 7 SE C18	59.8	1603	348	122	208	20
Plot 7 SE C19	63.0	1733	312	109	195	17
Plot 7 SE C20	66.3	1192	267	94	180	14
Plot 7 SE C21	69.5	1062	246	86	172	12
Plot 7 SW A15	50.5	349	193	67	153	3
Plot 7 SW A16	53.6	505	233	82	168	12
Plot 7 SW A17	56.7	761	268	94	180	12
Plot 7 NW B15	50.5	318	144	50	136	1
Plot 7 NW B16	53.6	431	167	59	145	7

Table 1-2: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 2 Maintenance Operations of FCI Emergency Generators at Brill Tower						
Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m³	99.8 %ile NO_x Process Contribution	99.8 %ile NO₂ Process Contribution	99.8 %ile Total NO₂ µg / m³	No Hours NO₂ > 200 µg / m³
Plot 7 NW B17	56.7	600	206	72	158	13
Bold: Air Quality Objective 200 µg/m ³ exceeded more than 18 times a year Background assumed as twice the annual mean of 43 µg/m ³						

1.3 Scenario 3

One generator running from 09:00 to 13:00 for the first four consecutive days in every month, and from 09:00 to 14:00 on the fifth day of every month, equating to an annual operation of 252 hours.

Table 1-3: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 3 Maintenance Operations of FCI Emergency Generators at Brill Tower						
Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m³	99.8 %ile NO_x Process Contribution	99.8 %ile NO₂ Process Contribution	99.8 %ile Total NO₂ µg / m³	No Hours NO₂ > 200 µg / m³
Plot 7 NE A15	50.5	328	231	81	167	4
Plot 7 NE A16	53.6	451	295	103	189	16
Plot 7 NE A17	56.7	606	366	128	214	25
Plot 7 NE C15	50.5	452	317	111	197	18
Plot 7 NE C16	53.6	659	462	162	248	35
Plot 7 NE C17	56.7	906	537	188	274	50
Plot 7 NE C18	59.8	1220	581	203	289	60
Plot 7 NE C19	63.0	1344	599	210	296	69
Plot 7 NE C20	66.3	1188	575	201	287	66
Plot 7 NE C21	69.5	1250	517	181	267	59
Plot 7 SE A15	50.5	466	320	112	198	19
Plot 7 SE A16	53.6	692	499	175	261	39
Plot 7 SE A17	56.7	912	623	218	304	53
Plot 7 SE A18	59.8	1230	631	221	307	62
Plot 7 SE A19	63.0	1694	628	220	306	65
Plot 7 SE C15	50.5	360	268	94	180	2

Table 1-3: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 3 Maintenance Operations of FCI Emergency Generators at Brill Tower						
Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m³	99.8 %ile NO_x Process Contribution	99.8 %ile NO₂ Process Contribution	99.8 %ile Total NO₂ µg / m³	No Hours NO₂ > 200 µg / m³
Plot 7 SE C16	53.6	480	356	124	210	27
Plot 7 SE C17	56.7	680	421	147	233	32
Plot 7 SE C18	59.8	835	460	161	247	48
Plot 7 SE C19	63.0	1041	459	161	247	47
Plot 7 SE C20	66.3	1160	442	155	241	48
Plot 7 SE C21	69.5	1229	407	142	228	40
Plot 7 SW A15	50.5	313	236	83	169	0
Plot 7 SW A16	53.6	411	307	107	193	13
Plot 7 SW A17	56.7	566	346	121	207	28
Plot 7 NW B15	50.5	299	218	76	162	0
Plot 7 NW B16	53.6	405	295	103	189	13
Plot 7 NW B17	56.7	545	345	121	207	21
Bold: Air Quality Objective 200 µg/m ³ exceeded more than 18 times a year Background assumed as twice the annual mean of 43 µg/m ³						

1.4 Scenario 4

One generator running from 9 am to 1 pm Monday to Thursday in the third week of every month, and from 9 am to 2 pm on Friday of the third week of every month, equating to an annual operation of 252 hours.

Table 1-4: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 4 Maintenance Operations of FCI Emergency Generators at Brill Tower						
Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m³	99.8 %ile NO_x Process Contribution	99.8 %ile NO₂ Process Contribution	99.8 %ile Total NO₂ µg / m³	No Hours NO₂ > 200 µg / m³
Plot 7 NE A15	50.5	330	212	74	160	6
Plot 7 NE A16	53.6	444	267	94	180	14
Plot 7 NE A17	56.7	652	300	105	191	17
Plot 7 NE C15	50.5	452	308	108	194	17
Plot 7 NE C16	53.6	652	429	150	236	39

Table 1-4: Predicted 99.8th Percentile 1 Hour NO₂ Concentrations from Scenario 4 Maintenance Operations of FCI Emergency Generators at Brill Tower

Receptor	Height m	Max 1 Hour Nox Process Contribution µg / m ³	99.8 %ile NO _x Process Contribution	99.8 %ile NO ₂ Process Contribution	99.8 %ile Total NO ₂ µg / m ³	No Hours NO ₂ > 200 µg / m ³
Plot 7 NE C17	56.7	955	482	169	255	41
Plot 7 NE C18	59.8	1389	477	167	253	44
Plot 7 NE C19	63.0	1702	466	163	249	43
Plot 7 NE C20	66.3	1608	437	153	239	36
Plot 7 NE C21	69.5	1485	362	127	213	21
Plot 7 SE A15	50.5	470	315	110	196	18
Plot 7 SE A16	53.6	683	460	161	247	25
Plot 7 SE A17	56.7	994	543	190	276	27
Plot 7 SE A18	59.8	1448	613	215	301	31
Plot 7 SE A19	63.0	1786	517	181	267	29
Plot 7 SE C15	50.5	412	164	57	143	4
Plot 7 SE C16	53.6	591	222	78	164	12
Plot 7 SE C17	56.7	772	279	98	184	16
Plot 7 SE C18	59.8	1081	339	119	205	20
Plot 7 SE C19	63.0	1503	357	125	211	24
Plot 7 SE C20	66.3	1491	336	118	204	20
Plot 7 SE C21	69.5	1184	311	109	195	17
Plot 7 SW A15	50.5	351	147	51	137	2
Plot 7 SW A16	53.6	497	194	68	154	7
Plot 7 SW A17	56.7	637	233	82	168	14
Plot 7 NW B15	50.5	302	206	72	158	0
Plot 7 NW B16	53.6	399	284	99	185	12
Plot 7 NW B17	56.7	545	303	106	192	17

Bold: Air Quality Objective 200 µg/m³ exceeded more than 18 times a year
Background assumed as twice the annual mean of 43 µg/m³