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Tees CCPP Project

The Tees Combined Cycle Power Plant Project
Land at the Wilton International Site, Teesside

Volume 2 - Annex F2

Regulations – 6(1)(b) and 8(1)

Applicant: Sembcorp Utilities UK
Date: November 2017

Annex F2

Operational Noise Assumptions and Predictions

F1 ***OPERATIONAL NOISE ASSUMPTIONS***

F1.1 The assumed inputs to the operational noise model are shown below in *Table F2.1*.

Table F2.1 Operational Noise Model Inputs (Two Trains)

Name	Source type	X m	Y m	Z m	Surface m ²	Lw dB(A)	Emission spectrum dB(A)							
							63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Admin LS1	Area	456304	520191	3	426	76.7	46	57	67	71	72	69	67	59
Admin LS2	Area	456331	520203	3	427	76.7	46	57	67	71	72	69	67	59
Admin Roof	Area	456318	520197	6	2136	83.3	53	64	73	77	79	75	73	65
Admin SS1	Area	456303	520229	3	180	73.1	43	53	63	67	69	65	63	55
Admin SS2	Area	456332	520165	3	180	73.1	43	53	63	67	69	65	63	55
Boiler 1 LS1	Area	456427	520397	2.5	18	84.5	76	76	77	71	72	72	76	79
Boiler 1 LS2	Area	456430	520398	2.5	18	84.5	76	76	77	71	72	72	76	79
Boiler 1 Roof	Area	456428	520397	5	11	87.4	79	79	80	74	75	74	79	82
Boiler 1 SS1	Area	456428	520399	2.5	16	83.9	75	75	76	70	71	71	75	78
Boiler 1 SS2	Area	456429	520396	2.5	15	83.9	75	75	76	70	71	71	75	78
Boiler 2 LS1	Area	456515	520437	2.5	18	84.5	76	76	77	71	72	72	76	79
Boiler 2 LS2	Area	456518	520438	2.5	18	84.5	76	76	77	71	72	72	76	79
Boiler 2 Roof	Area	456517	520438	5	11	87.4	79	79	80	74	75	74	79	82
Boiler 2 SS1	Area	456516	520439	2.5	16	83.9	75	75	76	70	71	71	75	78
Boiler 2 SS2	Area	456517	520436	2.5	15	83.9	75	75	76	70	71	71	75	78
Cooling Tower Air Intake 1LS	Area	456477	520474	3	703	95.4	79	87	87	81	82	87	89	89
Cooling Tower Air Intake 1LS	Area	456470	520489	3	704	95.4	79	87	87	81	82	87	89	89
Cooling Tower Air Intake 1SS	Area	456393	520445	3	64	85.4	69	77	77	71	72	77	79	79
Cooling Tower Air Intake 1SS	Area	456554	520517	3	64	85.4	69	77	77	71	72	77	79	79
Cooling Tower Air Intake 2LS	Area	456661	520532	3	703	95.4	79	87	87	81	82	87	89	89
Cooling Tower Air Intake 2LS	Area	456654	520547	3	704	95.4	79	87	87	81	82	87	89	89
Cooling Tower Air Intake 2SS	Area	456577	520503	3	64	85.4	69	77	77	71	72	77	79	79
Cooling Tower Air Intake 2SS	Area	456738	520576	3	64	85.4	69	77	77	71	72	77	79	79
Cooling Tower Fan Outlet 1 Roof	Area	456472	520481	23	1727	101	85	93	92	87	88	92	95	95
Cooling Tower Fan Outlet 2 Roof	Area	456656	520539	23	1727	101	85	93	92	87	88	92	95	95
Cooling Tower Make-up Water Treatment Pl	Point	456382	520437	2		84.2	67	73	77	79	78	74	70	64
Cooling Tower Make-up Water Treatment Pl	Point	456566	520495	2		84.2	67	73	77	79	78	74	70	64

Name	Source type	X m	Y m	Z m	Surface m ²	Lw dB(A)	Emission spectrum dB(A)							
							63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Cooling Water Pump 1	Point	456384	520432	2		92.9	66	78	81	86	89	86	81	77
Cooling Water Pump 2	Point	456568	520490	2		92.9	66	78	81	86	89	86	81	77
CT Biocide Dosing Container 1	Point	456380	520441	2		89.1	59	75	78	83	85	80	77	73
CT Biocide Dosing Container 2	Point	456564	520499	2		89.1	59	75	78	83	85	80	77	73
CT Fuel Gas Reducing Station	Point	456583	520530	2		102.9	84	91	97	98	97	92	90	82
Fuel Gas Preheating Metering & Filtering	Point	456416	520314	1		86.9	64	78	78	78	78	78	82	70
Fuel Gas Preheating Metering & Filtering	Point	456504	520354	1		86.9	64	78	78	78	78	78	82	70
Gas Turbine Filter Roof	Area	456456	520324	26.8	37	89	85	74	70	72	85	76	71	67
Gas Turbine Filter Roof	Area	456544	520364	26.8	37	89	85	74	70	72	85	76	71	67
Gas Turbine Filter Side1E	Area	456459	520326	21.4	64	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side1N	Area	456455	520327	21.4	67	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side1S	Area	456457	520322	21.4	67	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side1W	Area	456453	520323	21.4	64	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side2E	Area	456547	520366	21.4	64	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side2N	Area	456543	520367	21.4	67	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side2S	Area	456546	520362	21.4	67	88.4	84	73	70	72	84	76	70	66
Gas Turbine Filter Side2W	Area	456541	520363	21.4	64	88.4	84	73	70	72	84	76	70	66
GT Building 1 Roof	Area	456479	520319	30.1	1925	85.6	76	82	80	73	76	66	53	41
GT Building 1ELS	Area	456493	520325	15.05	1898	88.2	76	85	83	74	78	69	52	42
GT Building 1NSS	Area	456466	520348	15.05	919	85	73	82	80	71	74	66	48	38
GT Building 1SSS	Area	456492	520290	15.05	919	85	73	82	80	71	74	66	48	38
GT Building 1WLS	Area	456465	520313	15.05	1898	88.2	76	85	83	74	78	69	52	42
GT Building 2 Roof	Area	456567	520359	30.1	1925	85.6	76	82	80	73	76	66	53	41
GT Building 2ELS	Area	456581	520366	15.05	1898	88.2	76	85	83	74	78	69	52	42
GT Building 2NSS	Area	456554	520388	15.05	919	85	73	82	80	71	74	66	48	38
GT Building 2SSS	Area	456580	520331	15.05	919	85	73	82	80	71	74	66	48	38
GT Building 2WLS	Area	456554	520353	15.05	1898	88.2	76	85	83	74	78	69	52	42
HRSG ELS	Area	456454	520391	22.8	1847	100.1	92	96	96	86	85	77	62	59
HRSG ELS	Area	456543	520431	22.8	1847	100.1	92	96	96	86	85	77	62	59
HRSG NSS1	Area	456437	520405	22.8	875	96.8	88	93	92	83	82	74	59	55
HRSG NSS1	Area	456526	520445	22.8	875	96.8	88	93	92	83	82	74	59	55
HRSG NSS2	Area	456429	520390	22.8	326	92.5	84	89	88	78	78	70	55	51

Name	Source type	X m	Y m	Z m	Surface m ²	Lw dB(A)	Emission spectrum dB(A)							
							63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
HRSG NSS2	Area	456518	520430	22.8	326	92.5	84	89	88	78	78	70	55	51
HRSG Roof	Area	456443	520384	45.6	997	95.1	89	91	90	82	81	70	61	55
HRSG Roof	Area	456532	520425	45.6	997	95.1	89	91	90	82	81	70	61	55
HRSG SSS	Area	456451	520367	22.8	1203	98.2	90	95	94	84	83	75	61	57
HRSG SSS	Area	456539	520407	22.8	1203	98.2	90	95	94	84	83	75	61	57
HRSG Stack 11UHx / Option	Point	456437	520398	60		97.6	85	84	88	91	92	91	85	77
HRSG Stack 11UHx / Option 2	Point	456525	520438	60		97.6	85	84	88	91	92	91	85	77
HRSG WLS1	Area	456431	520396	22.8	475	94.2	86	90	90	80	79	71	56	53
HRSG WLS1	Area	456519	520437	22.8	475	94.2	86	90	90	80	79	71	56	53
HRSG WLS2	Area	456432	520375	22.8	1375	93.8	85	90	89	80	79	71	56	52
HRSG WLS2	Area	456521	520415	22.8	1375	98.8	90	95	94	85	84	76	61	57
MTCE CCR LS1	Area	456340	520322	3	367	73.9	43	54	64	68	70	66	64	56
MTCE CCR LS2	Area	456354	520289	3	368	73.9	43	54	64	68	70	66	64	56
MTCE CCR Roof	Area	456347	520306	6	2220	83.4	53	64	73	77	79	75	73	66
MTCE CCR SS1	Area	456319	520293	3	217	76.1	46	56	66	70	72	68	66	58
MTCE CCR SS2	Area	456375	520318	3	218	76.1	46	56	66	70	72	68	66	58
Power Control Centers 1 Roof	Area	456451	520281	5.5	132	86.1	67	73	80	82	79	74	67	58
Power Control Centers 1ELS	Area	456456	520283	2.75	72	83.4	65	70	78	80	76	71	65	56
Power Control Centers 1NSS	Area	456448	520287	2.75	55	80.4	62	67	75	77	73	68	62	53
Power Control Centers 1SSS	Area	456454	520275	2.75	56	80.4	62	67	75	77	73	68	62	53
Power Control Centers 1WLS	Area	456447	520279	2.75	72	83.4	65	70	78	80	76	71	65	56
Power Control Centers 2 Roof	Area	456539	520321	5.5	132	86.1	67	73	80	82	79	74	67	58
Power Control Centers 2ELS	Area	456544	520323	2.75	72	83.4	65	70	78	80	76	71	65	56
Power Control Centers 2NSS	Area	456537	520327	2.75	55	80.4	62	67	75	77	73	68	62	53
Power Control Centers 2SSS	Area	456542	520315	2.75	56	80.4	62	67	75	77	73	68	62	53
Power Control Centers 2WLS	Area	456535	520319	2.75	72	83.4	65	70	78	80	76	71	65	56
Transformer 1A	Point	456416	520377	4		103.3	89	97	98	99	91	87	83	74
Transformer 1B	Point	456418	520371	4		103.3	89	97	98	99	91	87	83	74
Transformer 2A	Point	456504	520417	4		103.3	89	97	98	99	91	87	83	74
Transformer 2B	Point	456507	520411	4		103.3	89	97	98	99	91	87	83	74
Unit 10 Start Up System 1	Point	456445	520279	3		101.4	68	88	93	93	94	95	94	90
Unit 10 Start Up System 2	Point	456534	520320	3		101.4	68	88	93	93	94	95	94	90

F1.2 *Figure F2.1* shows the predicted operational noise contours for Scenario 2 of the Project, where initially only one power train of 850 MWe will be used. *Figure F2.2* shows the predicted noise contours for Scenario 1 or Scenario 2 of the Project, when two power trains (1700 MWe) will be operational. This effectively allows for both operational scenarios (in terms of plant capacity to be tested and is precautionary).

F1.3 Although the phasing envisaged under Scenario 2 will result in one 850 MWe plant having been built and five years after commercial operation construction commencing on the second 850 MWe plant, operational noise and construction noise are assessed in different ways, and it is not appropriate to combine the construction and operational noise levels. Therefore, the combination of operation noise and construction noise has not been included in this assessment.

Figure F2.1 Operational Noise Contours - One Train

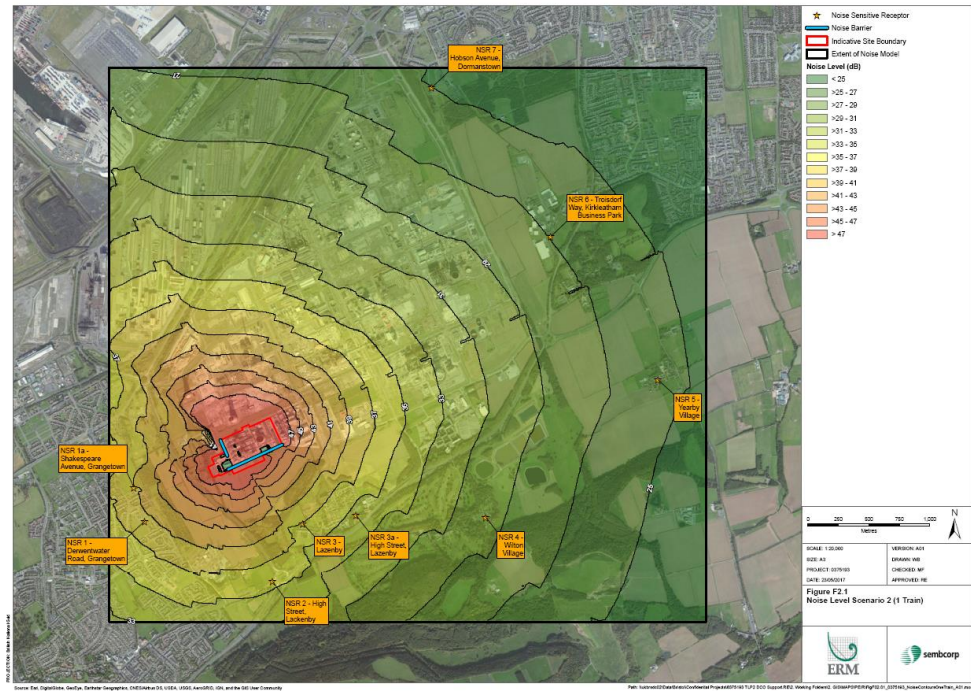


Figure F2.2 Operational Noise Contours - Both Trains

