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Tees CCPP Project

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

Volume 2 - Annex F1

Regulations – 6(1)(b) and 8(1)

Applicant: Sembcorp Utilities UK
Date: November 2017

Annex F1

Baseline Noise Levels

F1.1 A series of surveys were agreed with Redcar and Cleveland Borough Council (RCBC) and were conducted by GT Acoustics and Sembcorp. The results are reported in *Chapter 8* of the main Preliminary Environmental Information Report (PEIR). The scope of the survey is described below.

- Static continuous monitoring was required on the western most boundary of the Project site for two weeks (at NML 8) to infer/calculate the potential impact on Grangetown at NML 1 (Derwentwater Road) and NML 1a (Shakespeare Avenue) in *Figure 8.1* in the main PEIR. This approach was required due to difficulties in setting up unattended equipment at Grangetown to measure directly.

F1.2 A minimum of three 30 minute attended readings were required in Grangetown around Shakespeare Avenue (NML 1a in *Figure 8.1* in the main PEIR) between midnight and 3:30 am under calm weather conditions during the same period that the continuous monitor was in operation ⁽¹⁾.

- 15 minute measurements at seven receptor locations as mentioned in the Environmental Permit (XP3839XV) for the Wilton International site (NML 1, 2, 3a, 4, 5, 6, and 7 in *Figure 8.1* in the main PEIR) were required. Three rounds were conducted by the Sembcorp Analytical Team.

It was also agreed that the long-term noise monitoring at Lazenby should be used to inform the assessment.

F1.3 *Section E2* of this *Annex* provides the full results of the noise measurements conducted by the Sembcorp Analytical Team (and described in the third bullet point above).

F1.4 *Section E3* of this *Annex* provides more details of the continuous noise measurements that are undertaken by GT Acoustics at Lazenby (NML 3).

(1) Five measurements were made by GT Acoustics at this location to capture different wind directions.

F1.5 Attended noise measurements were recorded by technicians from the Sembcorp Analytical Team using equipment supplied by GT Acoustics. The measurements were made over a minimum period of 15 minutes and are reported in *Table F2.*

Table F2.1 Background Noise Levels (LA90) dB Free-field

NSR/ NML	Location	Date	Time	Wind Speed m/s	Wind Direction	L _{A90}
1	Derwentwater Road, Grangetown	31/3/2017	00:07:41	4	S	35.5
		07/04/2017	00:29:51	2	SW	39.1
		13/04/2017	00:04:16	2	SW	42.4
2	High Street Lackenby	31/3/2017	00:32:07	4	S	36.9
		07/04/2017	00:55:16	2	SW	41.7
		13/04/2017	00:34:57	2	SW	44.5
3a	High Street Lazenby	31/3/2017	00:55:25	4	S	34.1
		07/04/2017	01:22:11	2	SW	43.1 (a)
		13/04/2017	00:58:39	2	SW	39.5
4	Wilton Village	31/3/2017	01:23:44	4	S	30.6
		07/04/2017	01:46:34	2	S	41.1
		13/04/2017	01:19:49	3	S	43.7
5	Yearby Village	31/3/2017	01:52:28	4	S	36
		07/04/2017	02:12:36	2	S	43.1 ^(b)
		13/04/2017	01:47:00	2	S	46.2 (c)
6	Kirkleatham Business Park	31/3/2017	02:22:16	4	S	45.1 ^(d)
		07/04/2017	02:47:59	2	S	45.4 ^(e)
		13/04/2017	02:08:13	3	S	41.4
7	Hobson Avenue Dormanstown	31/3/2017	02:53:58	4	S	42.7 ^(f)
		07/04/2017	03:13:27	2	S	42.8
		13/04/2017	02:30:05	3	S	37.8
a) two cars came into and back out of estate adjacent to sound monitor b) JV06 flare has been lit at all points up to and including Yearby. c) Car alarm going off in distance d) Wind turbine and flagpole rope slapping on pole e) Flare not lit at JV06 f) Regular metallic banging.						

F1.6 This section discusses the noise measurements that have been recorded at Lazenby (NML 3) where noise is continuously monitored by GT Acoustics at a free-field location. The continuous noise monitoring data from GT Acoustics for night-time periods 0000 to 0330 hours are shown below in *Figure E3.1* and *Figure F3.2* ⁽¹⁾ for 2106 and part of 2017 respectively.

Figure F3.1 *Lazenby Noise Monitoring Results (2016)*

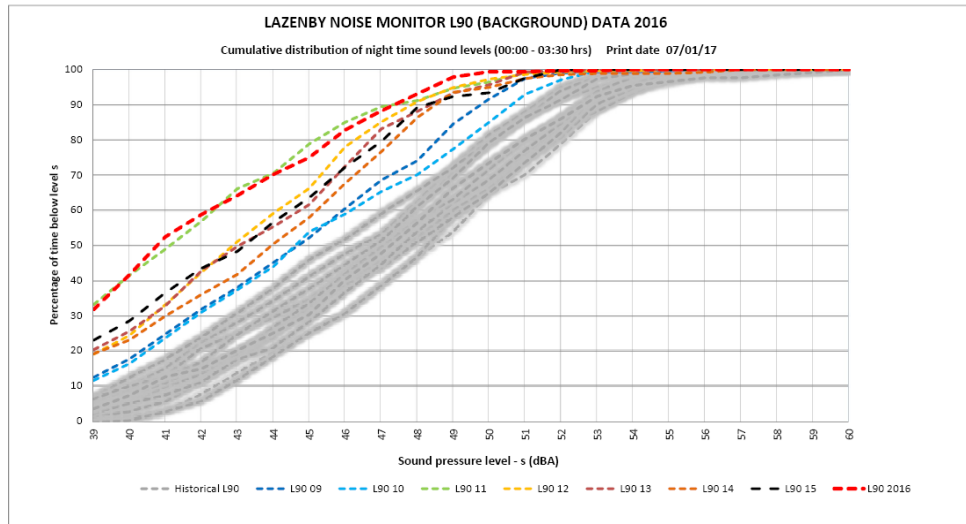
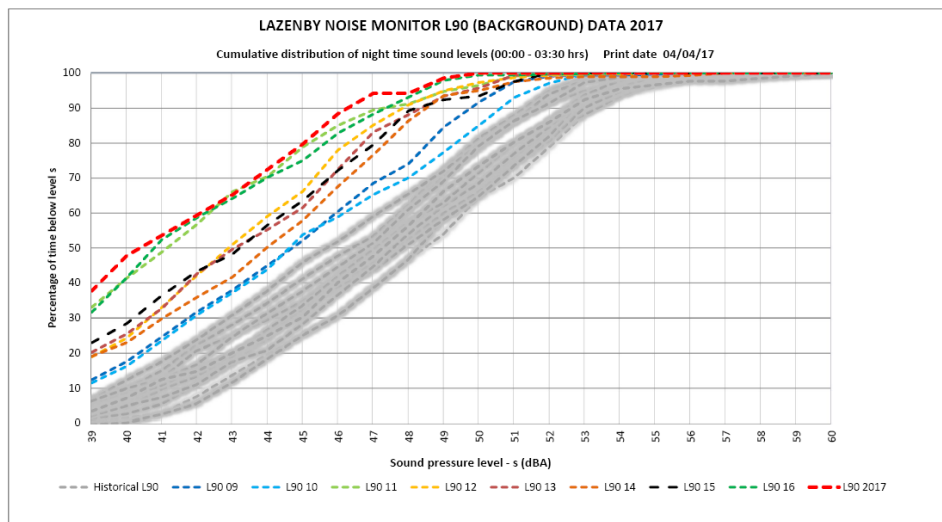


Figure E3.2 *Lazenby Noise Monitoring Results (2017)*

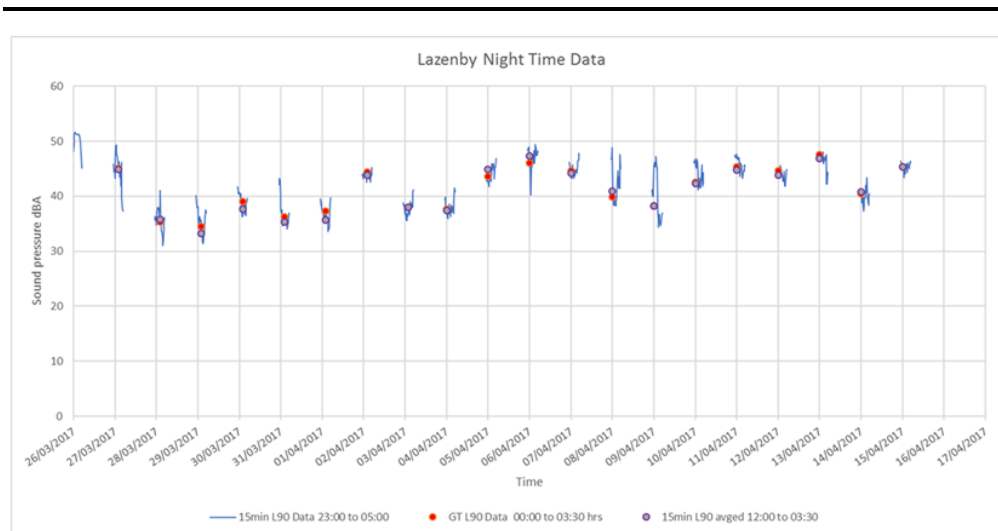


(1) <http://gtac.pcenvironmental.co.uk>

F1.7 Historically the background noise at night has been accepted as about 46 dB L_{A90} , whereas currently the background noise is approximately 41 dB based on data from 2016 and further reinforced by the data collected 2017 (ongoing). This is based on the 50th percentile of the samples.

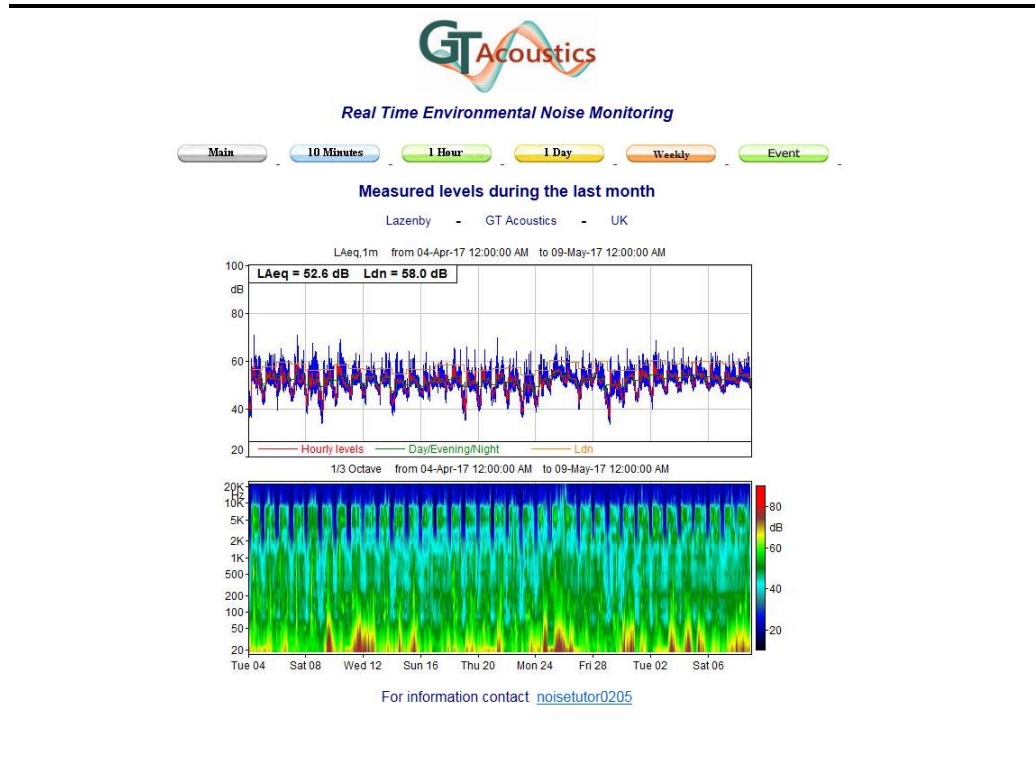
F1.8 The Lazenby monitor records 1 minute samples which are statistically treated to give a 90th percentile values for night-time periods 0000 to 0330 hours. Whilst this is not strictly the same method as would be measured on a sound level meter directly (where shorter samples are statistically analysed to give the L_{A90}) it is the established method of measuring noise from the Wilton International site at Lazenby. In order to confirm the difference that might occur in results, a comparison has been carried out using a second noise meter set up to record 15 minute samples at the Lazenby monitoring location. These 15 minute samples are shown in *Figure F3.3* in blue and the average of the 15 minute samples between the night-time periods 000 to 0330 hours (shown in purple). These results show very close agreement, and the approach using the Lazenby monitoring results has been agreed with RCBC and is regarded as robust.

Figure F3.3 *Comparison of L_{A90} and L_{A90} Based on 1 Minute Samples at Lazenby*



F1.9 The construction noise assessment in the PEIR assumes that noise levels during the day are low (i.e. below 65 dB L_{Aeq} at the façade of a building) which implies that a stringent approach should be taken and a daytime criterion of 65 dB L_{Aeq} should be used following the guidance in BS 5228. The monitoring at Lazenby shows that this conservative approach is suitable for this site based on the noise at this location. The hourly free-field values for a period are plotted in *Figure F3.4* and can be seen to be below 60 dB L_{Aeq} which would be below a façade level of 63 dB L_{Aeq} .

Figure F3.4 Daily Variation in LAeq, 1 minute Noise Levels at Lazenby



F1.10 The detailed records of wind direction at the Project site were analysed, and have been reported in *Table F4.1*.

Table F4.1 *Historic Wind Analysis (2012 to 2016)*

Direction of Wind	
Directions when Grangetown is Up Wind	Percentage
SE	4.4%
SSE	1.9%
S	31.4%
SSW	19.0%
SW	9.9%
WSW	0.5%
W	4.9%
WNW	1.2%
NW	3.7%
Directions when Grangetown is Down Wind	
NNW	1.8%
N	5.7%
NNE	2.5%
NE	7.6%
ENE	0.5%
E	4.5%
ESE	0.5%

F1.11 The results of the same analysis are presented graphically in *Figure F4.2*.

Figure F4.2 *Wind Distribution*

