

# Supplemental Acoustic Audit of Durham York Energy Centre Operations

Environmental Compliance Approval No. 7306-8FDKNX

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Prepared for

**Covanta Durham York Renewable Energy L.P.**

Prepared by

  
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**VALCOUSTICS**  
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## Environmental Compliance Approval No. 7306-8FDKNX

### 1.0 INTRODUCTION

Valcoustics Canada Ltd. (VCL) has been retained by Covanta Durham York Renewable Energy L.P. (Covanta) to conduct an Acoustic Audit of actual noise emissions due from the operations of the Durham York Energy Centre (DYEC) located in the Municipality of Clarington, Ontario. This Acoustic Audit Report (Audit) is required as per condition 7.(5)(a) and (b) of the Environmental Compliance Approval (ECA) No. 7306-8FDKNX, issued June 28, 2011 and amended on August 12, 2014 and October 24, 2014. This ECA condition states that the Owner:

- (a) shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Acoustic Audit measurements shall be carried out in accordance with the procedures in Publication NPC-103 (Reference 1) and in accordance to the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director;
- (b) shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of Publication NPC-233 (Reference 2) and the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director, to the District Manager and the Director, not later than three (3) months after the commencement of operation of the Facility.

Relevant sections of the ECA are included as Appendix A.

An initial Acoustic Assessment Report (AAR) was completed by Golder Associates, dated March 2011 (Reference 3) as part of the supporting documentation prepared to obtain an ECA. Golder also subsequently prepared a "Noise Monitoring and Reporting Plan (NMRP)", dated September 2011 (Reference 4). The NMRP was prepared in accordance with the requirements set forth by the EA Notice of Approval to Proceed, Section 19 for the DYEC. The NMRP established a noise monitoring protocol to demonstrate that the DYEC complies with limits set up

in Ministry of the Environment and Climate Change (MOE) NPC-205 "Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (urban)", dated October 1995 (Reference 5). This Audit also fulfils the monitoring and compliance requirements established by the NMRP.

As noted above and required by ECA section 7 (5) (b), an initial acoustic audit report was submitted to the MOE within three (3) months after the Commencement Date of Operation (February 9, 2015). As noted by the underlying requirements cited here, noise monitoring is to occur during "Peak Facility Activity" such as when the facility is operating at 100% maximum continuous rating (MCR) and generating electricity. The DYEC operated in a shakedown mode and was not fully operational during the initial continuous noise data collection period of April 6<sup>th</sup> through April 16, 2015 utilized for the initial acoustic audit. Intermittent turbine operation (electric generation) only began on April 15<sup>th</sup>.

Peak Facility Activity began to be continuously achieved on September 5<sup>th</sup>, 2015 when the turbine was put out into service and the DYEC boilers were at or above 100% of MCR. As proposed to the MOE by email of April 28, 2015 to Philip Dunn and Sandra Thomas, supplemental noise data collection was repeated from October 5, 2015 to October 15, 2015 to identify any potential acoustic impacts and to more fully demonstrate compliance with the conditions of the ECA. This supplemental acoustic data collection period occurred coincident with Acceptance Testing Work required for the DYEC to demonstrate the ability to attain commercial operation. The DYEC operated at between 100% and 105% of MCR with the turbine online generating electricity during the entire supplemental acoustic data collection period.

Sound level measurements and observations were made by VCL staff during both the initial and supplemental post-operational data collection periods at locations representing the existing noise sensitive receptors (residential dwellings) closest to the facility corresponding to those used in the AAR and also identified in the NMRP. Acoustic data collected from both post-operational periods are presented in this Supplement Acoustic Audit report.

## **1.1 SUMMARY**

The receptor based and up-close measurements and subjective observations indicate compliance with the sound level limits in MOE Publication NPC-205 as well as the newly released NPC-300 (Reference 6). Therefore, this acoustic audit continues to conclude compliance with the requirements of ECA No. 7306-8FDKNX, Provision 7.(5). In addition, the facility has implemented the noise mitigation requirements as outlined in the March 2011 AAR prepared by Golder Associates.

## **2.0 SITE AND SURROUNDING AREA DESCRIPTION**

The Facility accepts Municipal Solid Waste (MSW) from the Regions of Durham and York. The sources of waste are post-diversion residual waste collected at curbside as well as any residual waste materials collected at public drop-off centres and transfer stations. The only institutional, commercial, and industrial (IC&I) waste managed at the Facility includes residual waste where the Regions' have waste management procedures in place.

The maximum MSW processing rate for the facility established by the ECA is 140,000 tonnes/year of waste. The Facility operates on a continuous basis; 24 hours/day, 7 days/week, 365 days/year. Waste may be delivered 6 days per week between 0700 to 1900 hours. The MSW receiving

schedule may be adjusted depending on demand and facility needs within the established hours indicated in the ECA (i.e., waste can only be received from Monday to Saturday – excluding statutory holidays, between 0700 and 1900 hours – ECA's Condition 4(1)(b)). Note that currently, the facility typically only accepts MSW deliveries on Saturdays during holiday weekends or as waste needs require.

The Facility consists of two thermal treatment trains, each equipped with independently operated boilers/furnaces and air pollution control equipment. The treated exhaust gases are vented to a common 87.6 m stack and released into the atmosphere.

MSW is only accepted from approved haulers that have a valid waste licence except for municipal or exempt vehicles as per Section 16(2) (a) of Regulation 347 General – Waste Management, made under the Environmental Protection Act, R.S.O. 1990. All incoming waste vehicles must proceed to a weigh scale to allow the vehicle weight, waste type and source to be recorded by the scale operator. A maximum of 7,350 cubic metres of waste storage is provided in the storage pit with waste stored above and below the tipping floor level.

Equipment interfacing with the external environment at the Facility that were considered potential noise sources within the AAR include: HVAC units, roof ventilation units, a closed-loop cooling water cooler, a transformer, silo filling using truck mounted blowers, a silo vent dust collector, the main exhaust stack, on-site truck and front end loader traffic, an air cooled condenser, process louvres, bay doors, emergency generator and diesel fire water pumps. On-site trucking (including MSW, reagent delivery, ash/metal pickup) and periodic testing of the emergency generator and diesel fire water pumps will be limited to daytime business (0700 to 1900) hours only.

Table 1 presents general information about the Facility relevant to this Audit report.

**TABLE 1 – FACILITY DESCRIPTION**

Facility	Durham – York Energy Centre
Location:	1835 Energy Drive, Courtice, Ontario, L1E 2R2 Clarington Energy Business Park, Clarington, Ontario
Main Activities/ Equipment Used:	Thermal Treatment of Solid Waste
Production:	140,000 tonnes per year at MCR 218 tonne/day at 13 MJ/kg per train.

The location of the Facility is presented Figure 1. A site plan of the facility is included in Figures 2a and 2b.

Currently, the surrounding area is primarily industrial. The lands are designated as Business Park (south of Highway 401) and Light Industrial (north of Highway 401) within the Official Plan, the DYEC which is located within the Clarington Energy Business Park was created to intensify the industrial uses in the surrounding vacant lands. Only one residential dwelling will remain within the Clarington Energy Business Park moving forward, that being POR002.

The surrounding area also includes:

- the Canadian National Railways (CN) Belleville Subdivision and the Courtice Water Pollution Control Plant to the south;
- vacant and existing industrial lands, farm land and Darlington Provincial Park to the west;
- the newly constructed Energy Drive, vacant industrial lands and Highway 401 to the north;
- existing industrial lands, farm land, park lands and the Darlington Nuclear Facility to the east.

### **3.0 SUMMARY OF NOISE MITIGATION MEASURES**

The majority of activities associated with the facility occur within the building. As per the AAR, the following noise mitigation measures have been implemented:

- The emergency generator, located outside just west of the Tipping Floor (see Figure 2a), has been fitted with an acoustic enclosure, complete with air intake/discharge silencers and engine exhaust muffler.
- The fire water pumps are housed in a building near the south east corner of the site and are fitted with exhaust mufflers.
- Protocol for the facility ensures that the weekly testing of the emergency generator and fire water pumps only occurs during business (0700 to 1900) hours, is not done concurrently and is of 30 minutes duration each.

### **4.0 SOURCE/RECEPTOR VERIFICATION**

#### **4.1 NOISE ASSESSMENT RECEPTORS**

The AAR assessed the noise impact of the facility at three receptor locations. Audit measurements were also completed in the vicinity of these receptors :

- **POR001:** The two-storey dwelling at this location has been demolished as part of the Energy Drive construction. However, a POR to the west has been maintained to be consistent with the AAR. The POR is a two-storey farmhouse approximately 1100 m from the property line west of the facility. This POR has been designated as POR001rev.
- **POR002:** Two-storey dwelling approximately 690 m from the property line east of the facility.
- **POR003:** One-storey dwelling approximately 870 m from the property line north of the facility.

VCL collected long-term (one week) sound level measurements before DYEC startup (November 13 to 24, 2014) and during DYEC operations (April 6 to 16, 2015 and October 5 to 15, 2015) at all three measurement locations representative of the POR's. These are designated as M001, M002a/b and M003, see Figure 1. With the exception of M003, the sound measurement

locations are significantly closer to DYEC than the corresponding POR's. The noise monitors logged acoustic data every hour for the duration of each monitoring period. As required by the NMRP, data is presented to include hourly  $L_{eq}$  and  $L_{90}$  sound levels.

To date, DYEC has not received any noise complaints from nearby residential properties since becoming operational.

## 4.2 NOISE SOURCES

Noise sources within the facility are consistent with those considered in the AAR and include HVAC units, roof ventilation units, closed loop cooling water cooler, the switch yard, reagent silo filling and dust collector vents, main exhaust stack, front end loader movements, air cooled condenser, the tipping hall (through the bay doors and louvres), louvres for the boiler, air pollution control and turbine process, the grizzly building and the residue building, emergency generator and the fire water pumps.

There are a few minor differences in operations than those outlined in the AAR, however, they have minimal influence on the resulting noise impact:

- the emergency generator is 300 kW not 250 kW;
- all truck movements occur off of Courtice Road; and
- the average number of trucks delivering MSW will be 20 per day and picking up residual material (ash, metal) will be six per day. During a worst case hour, a total of seven trucks would be expected on-site. See Appendix B for truck logs from DYEC for both post-operational monitoring periods.

The facility consists of a number of discrete noise sources. However, at a distance, sound from the facility is continuous with little to no fluctuation based on activities occurring on-site (i.e., emergency generator testing). Emergency generator testing occurred on April 6, 2015 and October 8, 2015 and fire water pump testing occurred on April 10, 2015 and October 11, 2015.

## 5.0 NOISE GUIDELINES

### 5.1 SOUND LIMITS

The ECA references the MOE noise guidelines contained in MOE Publication NPC-205 as the supporting AAR and the underlying EA and NMRP were all conducted to demonstrate compliance with this guideline. See Appendix C. It should be noted that these provincial guidelines have subsequently been updated by Publication NPC-300, "*Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning*". Nevertheless, the acoustic audit will demonstrate compliance to NPC-205, in conformance with MOE discussions, the ECA and all supporting documentation. Note that, in this circumstance, a facility in compliance with NPC-205 will also comply with NPC-300.

Sound measurements and subjective observations indicate that the area should be considered Class 1 – i.e., an area where the background sound level is dominated by "urban hum". However, to be conservative and consistent with the AAR, the area was assessed as Class 2. Class 2 is only applicable where the background sound level is dominated by the activities of people, usually road traffic, during the daytime and the natural environment in the evening and nighttime. The sound

level limits are established by the ambient due to road traffic or the minimum sound level limits as follows:

**TABLE 2 – APPLICABLE SOUND LEVEL LIMITS  $L_{eq\ 1hr}$  (dBA)**

Point of Reception (POR)	Daytime (0700 to 1900 hours)	Evening (1900 to 2300 hours)	Nighttime (2300 to 0700 hours)
POR001rev	50	45	45
POR002	50	45	45
POR003	50	45	45

Based on the pre-operational sound measurements and to remain consistent with the AAR, the above minimum sound level limits are applicable.

## 6.0 SOUND LEVEL MEASUREMENTS

Pre and post-operational sound level measurements were completed on-site and off-site of the facility. The pre-operational measurements were made November 13 to 24, 2014 and the post-operational measurements were made April 6 to 16, 2015 and October 5 to 15, 2015.

As per the NMRP, noise measurements are to occur during Peak Facility Activity such as when the facility is operating at 100% maximum continuous rating (MCR) and generating electricity. The DYEC boilers operated at approximately 75% of MCR during the first three days of noise monitoring and began to continuously operate at full thermal load as measured by steam production levels since April 10<sup>th</sup>.

Even though 100% MCR was not achieved for the April 6 to 16, 2015 acoustic test period, there were other noise sources associated with commissioning which significantly contributed to the acoustic performance of the facility. Intermittent turbine operation began on April 15<sup>th</sup>, producing up to 5 megawatts of electricity, which represents approximately 25% of full load. As a result, the vast majority of DYEC operation during the initial data collection period required bypassing generated steam to the external air cooled condensers and reducing steam pressure through a letdown station. In Covanta's opinion, this mode of operation represents an operational mode which generates more noise external to the DYEC site than the example of "Peak Facility Activity" identified in the Noise Monitoring and Reporting Plan when both the DYEC thermal load (as measured by steam generation) and electrical load (as measured by electrical generation rate) are at 100%.

The turbine is located within the Turbine Building to minimize the propagation of noise to offsite receptors. In comparison, however, operation of the external air cooled condensers in turbine bypass mode likely contributes more significantly to off-site noise. The process of pressure reduction and thermal attemporation creates a large amount of turbulence in the steam duct. The noise created by this turbulence contributes to higher acoustic levels during bypass operations. Turbine bypass operation while currently the predominant mode of operation, reflects a mode of operation that is normally only expected once every 5 years by the DYEC when turbine overhaul maintenance is conducted once commercial operation is initiated.

The October 5 to 15, 2015 acoustic test period was completed during full load operation (between 100% and 105% MCR) of the boiler during which steam generation ranged between 66K kg/hr and 69K kg/hr from both boilers with the turbine in full operation generating electricity. As a result, Peak Facility Activity was achieved on every day of the supplemental acoustic test period.

All sound measurements were made in accordance with MOE Publication NPC-103 "Procedures". Hourly weather data was obtained from the Region of Durham for their weather station located at the Courtice Water Pollution Plant. See Appendix D. Where wind speeds exceeded 20 kph, the sound data was disregarded for that time period.

The requirements of the September 2011 Golder Associates NMRP were also followed. The off-site receptor based measurements were done for at least two locations for more than a week on a continuous basis.

## 7.0 ACOUSTICAL INSTRUMENTATION

Sound level measurements at all locations were made using Norsonic Nor140 sound level meters (SLM's). The SLM's were calibrated using a RION NC-74 acoustical calibrator. The measuring microphone was equipped with a wind screen. For the sound measurements at a 4.5 m height, the microphone was affixed to a pole and an extension cable used.

## 8.0 RESULTS

Hourly  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  statistical descriptors have been plotted for each monitoring date at each location. See Appendices E, F and G.  $L_{eq}$  is the energy equivalent continuous sound level; meaning the constant time averaged sound level over the time period in question.  $L_{90}$  is the sound level exceeded 90% of the time over the time period in question.  $L_{10}$  is the sound level exceeded 10% of the time over the time period in question.

The maximum and minimum hourly  $L_{90}$  values have been presented in tabular format. See Tables 3, 4 and 5. Since noise from the DYEC is steady and continuous at a distance off site, the overall  $L_{90}$  statistical descriptor is a fair representation of the  $L_{eq}$  from DYEC only. The  $L_{90}$  excludes transient sound of short duration, such as train pass-bys, people noise or aeroplanes but will still include some contribution from other steady noise sources in the area (i.e., Highway 401).

Sound measurements were done at locations M001, M002a/b and M003. M002a was used for the November 2014 measurements where the monitor was located within the Copart storage yard at a height of 1.5 m. Note that this location was well screened from most noise sources in the vicinity by the property line fence. The April 2015 and October 2015 measurements were done at M002b which is further west, just outside of the Copart fence at a height of 4.5 m. This better corresponds to the two-storey dwelling at POR002. Note that when comparing M002a and M002b, reduced ground effect and screening from the Copart fence account for a 6 to 7 dBA difference.

Sound from the DYEC facility is continuous. Even during short term and transient activities, such as truck movements or fire water pump testing, the off-site sound levels remain continuous as these activities were not discernable. There are also numerous other noise sources in the vicinity including Highway 401, the CN Belleville Subdivision, the Courtice Water Pollution Control Plant, the Darlington Nuclear Facility, other smaller industrial uses in the area as well as the sounds of

nature and people. Since noise from DYEC is steady and continuous, the  $L_{90}$  statistical descriptor best represents its noise impact as it excludes transient activities (such as train pass-bys). It is important to note however, that other steady sounds such as Highway 401, the Darlington Nuclear Facility and the Courtice Water Pollution Control Plant will all influence the  $L_{90}$ .

Subjectively, the DYEC facility was not audible in the vicinity of POR001rev, POR002 and POR003 in April 2015 or October 2015. Observations were made during the daytime period (0700 to 1200 hours) on numerous occasions as well as during the nighttime between 0400 to 0600 hours. Even at night, during lulls in road traffic on Highway 401 (the dominant noise source at all locations), the DYEC was not audible.

At POR003, which is the same geographical location as measurement location M003, there was a slight but not perceptible increase (0 to 3 dBA) in the average maximum and minimum hourly  $L_{90}$  values from pre-operational (November 2014) conditions to post-operational (April 2015) conditions. However, since the DYEC facility was not audible at this location, even during the nighttime when the ambient was at its lowest, this increase is not attributable to noise from DYEC. In addition, at POR003 the pre-operational (November 2014) sound levels are similar or lower than the post-operational (October 2015) sound levels, thus confirming that the increase is not attributable to noise from DYEC.

When a noise source is inaudible over the ambient, it is contributing little to no sound energy to the overall sound levels and thus is expected to be at least 10 dBA lower. Therefore at POR003, it can be assumed that the noise contribution from DYEC would be at least 10 dBA lower than the average minimum (October 2015)  $L_{90}$  sound levels of 48/49 dBA during the day/night. The resulting sound levels of 38/39 dBA day/night are well within the applicable sound level limits.

Since DYEC is also not audible at POR001 and POR002, it is expected that at these locations, the sound contribution from DYEC would be at least 10 dBA lower than the average minimum (October 2015)  $L_{90}$  sound levels measured at M001 and M002b. The average minimum  $L_{90}$  sound levels are 46/47 dBA at M001 and 52/49 dBA at M002a during the day/night. Thus, sound levels from DYEC are well within the sound level limits. This is a conservative assessment since the measurement locations are closer to DYEC and any additional distance attenuation has not been accounted for.

## 9.0 YEARLY NOISE MONITORING

Compliance with the September 2011 NMRP requires an annual noise monitoring program review in order to demonstrate that DYEC continues to comply with the limits set out in NPC-205. All additional monitoring must occur during Peak Facility Activity. Now that DYEC is regularly operating at 100% MCR and generating electricity which represents Peak Facility Activity, the supplemental acoustic monitoring measurements taken in October 2015 represents the initial monitoring period. Going forward, acoustic measurements will be repeated on a yearly basis, in late summer/early fall when weather conditions are preferable or as directed by the Director of the MOE.

## 10.0 CONCLUSIONS

The sound emissions from the DYEC were not audible during the April 2015 or October 2015 post-operational measurement period and are considered to be within the sound level limits stated

in the MOE publication NPC-205. Thus it is concluded that the facility is in compliance with NPC-205 and NPC-300. Submittal of this Supplemental Acoustic Audit demonstrates compliance with MOE ECA No. 7306-8FDKNX.

The noise mitigation measures required by the March 2011 AAR have been adequately implemented.

Yearly sound monitoring during late summer/early fall will continue, now that DYEC is at Peak Facility Activity in order to confirm continued compliance.

## **11.0 REFERENCES**

1. “Procedures”, Ontario Ministry of the Environment, Publication NPC-103, August 1978.
2. “Information to be Submitted for Approval of Stationary Sources of Sound”, Ontario Ministry of the Environment, Publication NPC-233, October 1995.
3. “Acoustic Assessment Report, Durham York Energy Centre”, Golder Associates, March 2011.
4. “Noise Monitoring and Reporting Plan, Durham York Energy Centre”, Golder Associates, September 2011.
5. “Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)”, Ontario Ministry of the Environment, Publication NPC-205, October 1995.
6. “Environmental Noise Guideline – Stationary and Transportation Sources, Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, August 2013.
7. “Acoustic Audit of Durham York Energy Centre Operations, Environmental Compliance Approval No. 7306-8FDKNX”, Valcoustics Canada Ltd., Project: 114-318, May 8, 2015.

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**TABLE 3**

**SUMMARY OF PRE-OPERATIONAL SOUND MEASUREMENTS (HOURLY L<sub>90</sub>)**

Monitoring Date	M001 <sup>(1)</sup>				M002a <sup>(1)</sup>				M003 <sup>(1)</sup>			
	Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>		Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>		Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
Thursday, November 13, 2014	52	49	–	–	49	45	–	–	60	57	–	–
Friday, November 14, 2014	55	51	52	46	52	47	50	43	59	48	58	51
Saturday, November 15, 2014	52	46	51	44	46	40	47	40	58	52	54	46
Sunday, November 16, 2014	49	41	45	37	44	33	42	33	59	49	52	46
Monday, November 17, 2014	54	42	49	37	51	38	49	32	60	49	51	43
Friday, November 21, 2014	54	45	53	47	52	39	51	46	58	45	54	46
Sunday, November 23, 2014	52	41	50	43	51	42	47	41	60	52	54	45
<i>Average for Pre-operational Monitoring Period</i>	53	45	50	42	49	41	48	39	59	50	54	46

**Notes:**

- (1) See Figure 1.
- (2) Day/Evening – 0700 to 2300 hours.
- (3) Night – 2300 to 0700 hours.

**TABLE 4**  
**COMPARISON OF PRE-OPERATIONAL AND POST-OPERATIONAL**  
**SOUND MEASUREMENTS (HOURLY L<sub>90</sub>)**  
**APRIL 2015**

Monitoring Date	M001 <sup>(1)</sup>				M002b <sup>(1)</sup>				M003 <sup>(1)</sup>			
	Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>		Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>		Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
Monday, April 6, 2015	52	46	–	–	54	49	–	–	59	53	–	–
Tuesday, April 7, 2015	52	46	43	48	54	48	55	51	57	53	54	45
Saturday, April 11, 2015	54	50	–	–	56	51	–	–	58	53	–	–
Sunday, April 12, 2015	51	46	49	42	54	49	53	50	57	49	55	45
Monday, April 13, 2015	55	46	53	47	58	50	55	48	61	51	58	49
Tuesday, April 14, 2015	56	49	53	45	58	50	56	52	63	48	65	52
Wednesday, April 15, 2015	58	46	58	48	59	51	61	52	58	48	51	47
Thursday, April 16, 2015	–	–	52	47	–	–	57	50	–	–	58	48
<i>Average for Post-operational (April 2015) Monitoring Period</i>	54	47	53	46	56	50	56	51	59	51	57	48
<i>Average for Pre-operational (November 2014) Monitoring Period</i>	53	45	50	42	49	41	48	39	59	50	54	46

**Notes:**

- (1) See Figure 1.
- (2) Day/Evening – 0700 to 2300 hours.
- (3) Night – 2300 to 0700 hours.

**TABLE 5**  
**COMPARISON OF PRE-OPERATIONAL AND POST-OPERATIONAL**  
**SOUND MEASUREMENTS (HOURLY L<sub>90</sub>)**  
**OCTOBER 2015**

Monitoring Date	M001 <sup>(1)</sup>				M002b <sup>(1)</sup>				M003 <sup>(1)</sup>			
	Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>		Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>		Day/Evening <sup>(2)</sup>		Night <sup>(3)</sup>	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
Monday, October 5, 2015	49	37	–	–	54	45	–	–	50	43	–	–
Tuesday, October 6, 2015	54	46	52	44	56	50	52	43	54	48	53	48
Wednesday, October 7, 2015	54	46	55	47	59	50	57	52	54	47	56	49
Thursday, October 8, 2015	54	47	55	51	58	55	54	47	55	48	55	51
Friday, October 9, 2015	56	49	55	46	60	52	58	50	56	50	54	48
Saturday, October 10, 2015	57	40	57	51	57	50	57	49	57	42	57	51
Sunday, October 11, 2015	54	48	51	47	59	53	54	49	61	50	58	53
Monday, October 12, 2015	47	40	46	42	58	51	55	48	47	44	49	47
Tuesday, October 13, 2015	54	50	48	42	61	56	57	51	58	52	48	45
Wednesday, October 14, 2015	55	52	54	47	57	53	55	52	56	51	54	50
Thursday, October 15, 2015	52	51	52	48	61	60	61	53	54	53	53	50
<i>Average for Post-operational (October 2015) Monitoring Period</i>	53	46	53	47	58	52	56	49	54	48	54	49
<i>Average for Pre-operational (November 2014) Monitoring Period</i>	53	45	50	42	49	41	48	39	59	50	54	46

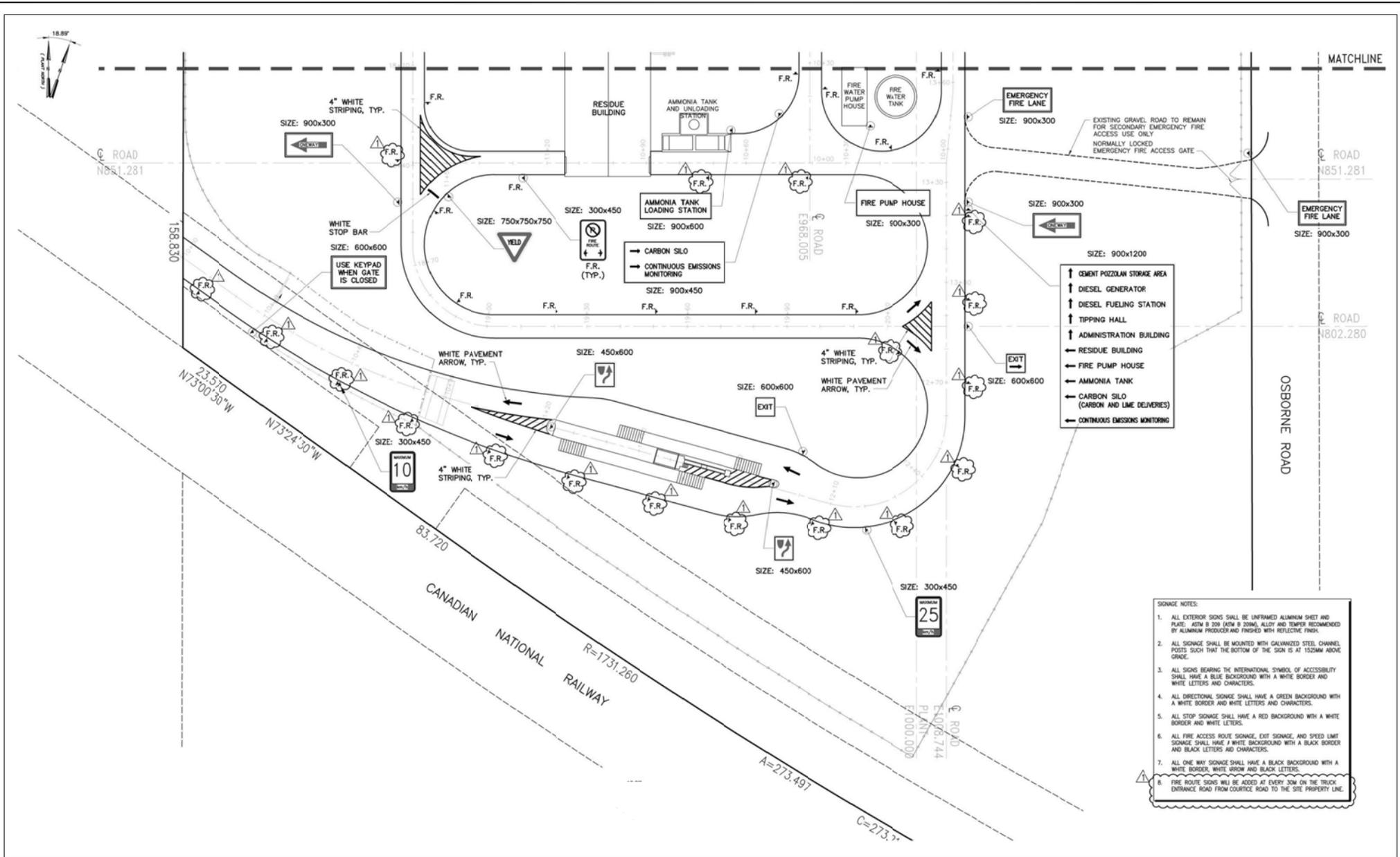
Notes:

- (1) See Figure 1.
- (2) Day/Evening – 0700 to 2300 hours.
- (3) Night – 2300 to 0700 hours.



Title <b>Area Plan with Points of Reception and Measurement Locations</b>		Date <b>2015-05-01</b>	Figure <b>1</b>
Project Name <b>DYEC - Acoustic Audit</b>		Project No. <b>114-318</b>	





- SIGNAGE NOTES:**
1. ALL EXTERIOR SIGNS SHALL BE UNFRAMED ALUMINUM SHEET AND PLATE: ASTM B 209 (ASTM B 209M), ALLOY AND TEMPER RECOMMENDED BY ALUMINUM PRODUCER AND FINISHED WITH REFLECTIVE FINISH.
  2. ALL SIGNAGE SHALL BE MOUNTED WITH GALVANIZED STEEL CHANNEL POSTS SUCH THAT THE BOTTOM OF THE SIGN IS AT 1525MM ABOVE GRADE.
  3. ALL SIGNS BEARING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL HAVE A BLUE BACKGROUND WITH A WHITE BORDER AND WHITE LETTERS AND CHARACTERS.
  4. ALL DIRECTIONAL SIGNAGE SHALL HAVE A GREEN BACKGROUND WITH A WHITE BORDER AND WHITE LETTERS AND CHARACTERS.
  5. ALL STOP SIGNAGE SHALL HAVE A RED BACKGROUND WITH A WHITE BORDER AND WHITE LETTERS.
  6. ALL FIRE ACCESS ROUTE SIGNAGE, EXIT SIGNAGE, AND SPEED LIMIT SIGNAGE SHALL HAVE A WHITE BACKGROUND WITH A BLACK BORDER AND BLACK LETTERS AND CHARACTERS.
  7. ALL ONE WAY SIGNAGE SHALL HAVE A BLACK BACKGROUND WITH A WHITE BORDER, WHITE ARROW AND BLACK LETTERS.
  8. FIRE ROUTE SIGNS WILL BE ADDED AT EVERY 30M ON THE TRUCK ENTRANCE ROAD FROM COURTYARD ROAD TO THE SITE PROPERTY LINE.

No.	Revision/Issue	Date

  
**VALCOUSTICS**  
*Canada Ltd.*

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 Richmond Hill, Ontario  
 Canada L4B 1B9  
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**Title**  
 Site Plan - South

**Project Name**  
 DYEC - Acoustic Audit

**Project No.**  
 114-318

**Scale**  
 N.T.S.

**Date**  
 2015-05-01

**Figure**  
 2b

# **APPENDIX A**

## **ENVIRONMENTAL COMPLIANCE APPROVAL NO. 7306-8FDKNX**

**CERTIFICATE OF APPROVAL  
MULTI-MEDIA  
Number 7306-8FDKNX  
Issue Date: June 28, 2011**

The Regional Municipality of Durham  
605 Rossland Rd E 5th Floor  
Whitby, Ontario  
L1N 6A3

and

The Regional Municipality of York  
17250 Yonge Street  
Newmarket, Ontario  
L3Y 6Z1

and

Covanta Durham York Renewable Energy Limited Partnership  
445 South Street  
Morristown, New Jersey  
United States of America  
07960

Site Location: Durham York Energy Centre  
72 Osbourne Road  
Lot 27, Concession Broken Front, Part 1  
Clarington Municipality, Regional Municipality of Durham

*You have applied in accordance with Sections 9 and 27 of the Environmental Protection Act and Section 53 of the Ontario Water Resources Act for approval of:*

A thermal treatment facility to be used for the receipt and manual and/or mechanical sorting of solid non-hazardous post-diversion municipal waste (Waste), temporary storage and thermal treatment of the Waste, abatement of the emissions from the processes and activities undertaken at the Site, handling, screening, sorting and/or conditioning of the residual wastes and management of the wastewater and the non-contact stormwater generated at the Site. The Facility's maximum Waste thermal treatment rate is 140,000 tonnes per year of Waste, the nominal electricity generation rate is 20 Megawatts and the nominal steam generation rate 72,000 kilograms per hour of steam.

The facility consists of the following major processes and support units:

- (1) two (2) identical combustion trains, each having a nominal capacity of 218 tonnes of Waste per day venting into the atmosphere via a common exhaust stack, having an exit diameter of 1.71 metres, extending 87.6 metres above grade.

Each combustion train is an independent process train and it consists of the following main components:

- (a) a stoker grate steam Boiler, having a design heat input of 118 Gigajoules per hour, equipped with a natural gas fired auxiliary Low NOx burner, having a nominal heat input of 59.5 Gigajoules per hour; and
- (b) the following air pollution control equipment:
  - (i) a Selective Non Catalytic Reduction System (SNCR System) with ammonia injection for NOx control;
  - (ii) an activated carbon injection system, to reduce mercury and dioxins in flue gas;
  - (iii) a dry recirculation lime injection scrubber to control acid gases;
  - (iv) a pulse jet type baghouse to control particulate emissions;
- (2) one (1) steam turbine generator set having a rated capacity of 20 Megawatts;
- (3) waste and reagent storage as described in Condition 2.:
- (4) fly ash conditioning system including two (2) surge bins, two (2) pugmills and seven (7) curing/storage bunkers;
- (5) bottom ash sorting system including conveyors, screens, a rotary drum magnet and an eddy separator;
- (6) one (1) emergency diesel generator, rated at 250 Kilowatts;
- (7) natural gas-fired combustion equipment for comfort heating;
- (8) a wastewater management system for collection, recirculation and reuse of the process water; and
- (9) a stormwater management facility for collection, transmission and discharge of non-contact runoff at the Site, as described in the attached Schedule "G",

Note: Use of the site for any other type of waste is not approved under this Certificate, and requires obtaining a separate approval amending this Certificate.

*For the purpose of this Provisional Certificate of Approval and the terms and conditions specified below, the following definitions apply:*

**"Acoustic Assessment Report"** means the report, prepared in accordance with *Publication NPC-233* by Paul Nijadlik / Golder Associates Ltd. and dated March 2011 submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility;

**"Acoustic Assessment Summary Table"** means a table summarizing the results of the Acoustic Assessment Report;

**"Acoustic Audit"** means an investigative procedure consisting of measurements of all noise emissions due to the operation of the Facility, assessed in comparison to the Performance Limits for the Facility regarding noise emissions, completed in accordance with the procedures set in the Ministry's *Publication NPC-103* and reported in accordance with the Ministry's *Publication NPC-233*;

**"Acoustic Audit Report"** means a report presenting the results of an Acoustic Audit, prepared in accordance with the Ministry's *Publication NPC-233*;

**"Acoustical Consultant"** means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;

**"Air Standards Manager"** means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this Certificate;

**"APC Building"** means the building at the Site where the APC Equipment and the reagent indoor storage tanks are located;

**"APC Equipment"** means all the air pollution control equipment at the Facility, including the SNCR System, the activated carbon injection system, the dry recirculation lime injection scrubber and the pulse jet type baghouse to control emissions from the combustion chamber of the Boilers, the dust collectors to control emissions from the Residue Building and the dust collectors to control emissions from the reagent storage silos;

**"Boiler Building"** means the building at the Site where the Boilers, turbine generator and the air cooled condenser(s) are located;

**"Boilers"** means the two (2) steam boilers firing the approved Waste described in this Certificate;

**"Bulky Unprocessable Items"** means the incoming Waste received at the Site that cannot be processed in the Equipment;

"**CEM Systems**" means the continuous monitoring and recording systems used to measure and record the temperature and the emissions from the Boilers as specified in the attached Schedule "F";

"**Certificate**" means this entire provisional Certificate of Approval, issued in accordance with Sections 39 and 9 of the *EPA* and Section 53 of the *OWRA*, and includes any schedules attached to it, the application and the supporting documentation listed in the attached Schedule "A";

"**40 CFR 60**" means title 40, part 60 under the Code of Federal Regulations (Air Programs, U.S. Environmental Protection Agency), revised as of July 1, 1990, published by the Office of the Federal Register, National Archives and Records, Administration in the United States of America;

"**Complaint**" means a complaint received either by the Owner or the District Manager that has been confirmed by staff of the Ministry and the cause of which is attributed to the Owner's activities at the Facility;

"**Commencement Date of Operation**" means the date when the approved Waste is first received at the Site;

"**Compound of Concern**" means a contaminant that, based on generally available information, may be emitted to the atmosphere in a quantity from any source at the Facility that is significant either in comparison to the relevant Ministry Point of Impingement Limit or if a Ministry Point of Impingement Limit is not available for the compound then, based on generally available toxicological information, the compound has the potential to cause an adverse effect as defined by the *EPA* at a Point of Impingement;

"**Controlled Shutdown**" means an immediate cut-off of all waste into the Boilers, while maintaining the operation of the combustion chamber and the APC Equipment within the Performance Requirements;

"**Description Section**" means the section on page one of the Certificate describing the Owner's operations and the Equipment located at the Facility and specifying the Facility Production Limit for the Facility;

"**Dioxins and Furans**" means polychlorinated dibenzo-dioxins and polychlorinated dibenzofurans;

"**Director**" means any person appointed in writing by the Minister of the Environment pursuant to section 5 of the *EPA* and pursuant to section 5 of the *OWRA* as a Director for the purposes of Part V of the *EPA*, section 9 of the *EPA* and section 53 of the *OWRA*;

"**District Manager**" means the District Manager of the York Durham District Office of the Ministry;

"**Emergency Shutdown**" means an immediate cut-off of all waste feed into the Boilers, followed by an accelerated extinction of all combustion in the Boilers, while maintaining the combustion temperature within the Performance Requirements, except when unreasonable;

"**Emission Summary Table**" means the table prepared in accordance with *O. Reg. 419/05* and the Procedure Document listing the appropriate Point of Impingement concentrations of each Compound of Concern from the Facility and providing comparison to the corresponding Ministry Point of Impingement Limit;

"**EAA**" means the Environmental Assessment Act, R.S.O. 1990, c. E.18, as amended;

"**EA Approval**" means the Notice of Approval to Proceed with the Undertaking signed by the Minister of the Environment on November 3, 2010, EA File No. 04-EA-02-08;

"**EPA**" means the Environmental Protection Act, R.S.O. 1990, c. E.19, as amended;

"**Equipment**" means equipment or processes associated with the thermal treatment of the approved Waste described in this Certificate and in the Supporting Documentation referred to herein and any other equipment or processes handling wastes and reagents;

"**ESDM Report**" means the Emission Summary and Dispersion Modelling Report prepared in accordance with the Procedure Document by Golder Associates and dated March 2011 submitted in support of the application, and includes any amendments to the ESDM Report listed in the attached Schedule "A" and all subsequent up-dated ESDM Reports as applicable;

"**Facility**" means the entire operation associated with thermal treatment of Waste located on the property where the Equipment is located;

"**Facility Production Limit**" means the production limit placed on the main product(s) or raw materials used by the Facility that represents the design capacity of the Facility and assists in the definition of the operations approved by the Director;

"**Grizzly Building**" means the building at the Site where the bottom ash is screened and where the oversized constituents of the bottom ash (grizzly overs) are temporarily stored prior to transport for subsequent storage in the Residue Building;

"**Independent Acoustical Consultant**" means an Acoustical Consultant who is not representing the Owner and was not involved in preparing the Acoustic Assessment Report or the design/implementation of Noise Control Measures for the Facility and/or Equipment. The Independent Acoustical Consultant shall not be retained by the Acoustical Consultant involved in the noise impact assessment or the design/implementation of Noise Control Measures for the Facility and/or Equipment;

"**I-TEF**" means International Toxic Equivalency Factor derived for each dioxin and furan congener by comparing its toxicity to the toxicity of 2,3,7,8 tetrachloro dibenzo-p-dioxin, as recommended by the North Atlantic Treaty Organization Committee on Challenges to Modern Society (NATO CCMS) in 1989 and adopted by Canada in 1990;

"**I-TEQ**" means International Toxic Equivalent of dioxins and furans calculated using the I-TEFs, as recommended by the NATO CCMS in 1989 and adopted by Canada in 1990;

"**Manager**" means the Manager, Technology Standards Section, Standards Development Branch, who has been appointed under Section 5 of the *EPA* for the purposes of Section 11(1)2 of the *O. Reg. 419/05*, or any other person who represents and carries out the duties of the Manager,

Technology Standards Section, Standards Development Branch, as those duties relate to the conditions of this Certificate;

"**Ministry**" means the ministry of the government of Ontario responsible for the *EPA* and the *OWRA* and includes all officials, employees or other persons acting on its behalf or the Ontario Ministry of the Environment;

"**Municipality**" means the Municipality of Clarington;

"**NMA**" means the *Nutrient Management Act*, 2002, S.O. 2002, c. 4, as amended;

"**Noise Control Measures**" means measures to reduce the noise emission from the Facility and/or Equipment including, but not limited to silencers, acoustic louvers, enclosures, absorptive treatment, plenums and barriers;

"**LDR**" means the Lands Disposal Restrictions referred to in sections 74 through 85 of the *O. Reg. 347*, which prohibit the disposal of hazardous wastes on land until they have been treated to meet the treatment standards under the *O. Reg. 347*;

"**Leachate Toxicity Criteria**" means the concentrations of any of the contaminants listed in Schedule 4 at a concentration equal to or in excess of the concentration specified for that contaminant in Schedule 4 using the Toxicity Characteristic Leaching Procedure, defined in the *O. Reg. 347*;

"**O. Reg. 419/05**" means the *Ontario Regulation 419/05*, Air Pollution – Local Air Quality enacted under the *EPA*, as amended;

"**O. Reg. 347**" means the *Ontario Regulation 347*, R.R.O 1990 (General –Waste Management) enacted under the *EPA*, as amended;

"**OWRA**" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;

"**Owner**" means any person that is responsible for the establishment and operation of the Site being approved by this Certificate, and it includes The Regional Municipality of Durham, The Regional Municipality of York, and Covanta Durham York Renewable Energy Limited Partnership (operator), their successors and assignees;

"**PA**" means the *Pesticides Act*, R.S.O. 1990, c.P. 11, as amended;

"**Performance Requirements**" means the performance requirements and emission limits specified in the section of this Certificate entitled "Performance Requirements";

"**Point of Impingement**" means any point outside the Facility in the natural environment and as defined by s.2 of the *O. Reg. 419/05*;

"**Point of Reception**" means the Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232*, as applicable;

"**Pre-test Information**" means the information outlined in Section 1.1 of the Source Testing Code;

**"Procedure Document"** means the Ministry's document entitled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005, as amended;

**"Professional Engineer"** means a Professional Engineer as defined within the *Professional Engineers Act*, R.S.O. 1990, c. P.28, as amended;

**"Provincial Officer"** means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of the *PA* or Section 4 of the *NMA* or Section 8 of the *SDWA*;

**"Publication NPC-103"** means the Ministry's Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, dated August 1978, published by the Ministry, as amended;

**"Publication NPC-205"** means the Ministry's Publication NPC-205, entitled "Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", dated October, 1995, as amended;

**"Publication NPC-207"** means the Ministry's draft technical publication entitled "Impulse Vibration in Residential Buildings", dated November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, dated August 1978, published by the Ministry, as amended;

**"Publication NPC-232"** means the Ministry's Publication NPC-232, entitled "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", dated October, 1995, as amended;

**"Publication NPC-233"** means the Ministry's Publication NPC-233, entitled "Information to be Submitted for Approval of Stationary Sources of Sound", dated October, 1995, as amended;

**"Rejected Waste"** means either municipal waste which cannot be processed at the Facility or waste which the Site is not approved to accept. Rejected Waste includes but is not limited to the Bulky Unprocessable Items and the Unacceptable Waste;

**"Regional Director"** means the Regional Director of the Central Region of the Ministry;

**"Regions"** means The Regional Municipality of Durham and The Regional Municipality of York;

**"Report EPS 1/PG/7"** means the Environment Canada Report EPS 1/PG/7, entitled "Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Generation", dated September, 1993, as amended;

**"Residual Waste"** means waste resulting from the Waste processing activities at the Site. Residual Waste is limited to the recovered ferrous metals, the recovered non-ferrous metals, the bottom ash (consisting of the ash fines and the grizzly overs) and the fly ash (untreated and following conditioning);

**"Residue Building"** means the building at the Site where the bottom ash and the fly ash are processed, temporarily stored and loaded in transport vehicles for off-site disposal;

"**Schedules**" means the following schedules "A", "B", "C", "D", "F" and "G", attached to the Certificate and forming part of the Certificate;

"**SDWA**" means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, as amended;

"**Sensitive Receptor**" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:

- (a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.);
- (b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.);
- (c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.); and
- (d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings);

"**Site**" means the property where the Owner has located and operates the Facility and the Works and located at 72 Osbourne Road, 27, Concession Broken Front, Part 1 in the Municipality of Clarington, Regional Municipality of Durham;

"**Source Testing**" means monitoring, sampling and testing to measure emissions resulting from operating the Facility under conditions which yield the worst case emissions within the approved operating range of the Facility;

"**Source Testing Code**" means the Ministry's document entitled "Source Testing Code, Version 2, Report No. ARB-66-80", dated November 1980, as amended;

"**Stack**" means the stack that discharges emissions from the Boilers after those emissions have been controlled by the associated APC Equipment;

"**Substantial Completion**" has the same meaning as "substantial performance" in the *Construction Lien Act* R.S.O. 1990, c.C-30, as amended;

"**Supporting Documentation**" means the documents listed in the attached Schedule "A" of this Certificate which forms part of this Certificate;

"**Test Contaminants**" means the contaminants set out in the attached Schedule "D";

"**Tipping Building**" means the building at the Site where the incoming Waste is received, sorted and temporarily stored;

"**Total Power Failure**" means the loss of the external power supply and concurrent loss of all in-plant power generation;

"**Trained Personnel**" means one or more Site personnel trained in accordance with the requirements of Condition 9.;

"**Waste**" means municipal solid waste as defined in the *O. Reg. 347* and limited to the approved waste set out in Condition No. 2.(2);

"**Waste Processing Rate** means the mass of Waste fed into one of the Boilers;

"**Works**" means the sewage works described in the Owner's application, this Certificate and in the Supporting Documentation referred to herein, to the extent approved by this Certificate;

"**Unacceptable Waste**" means the incoming Waste received at the Site that does not meet the incoming Waste quality criteria set out in this Certificate, is of hazardous nature and requires caution when handling; and

"**Undiluted Gases**" means the flue gas stream which contains oxygen, carbon monoxide, total hydrocarbons and all contaminants in the same concentrations as they exist in the flue gas stream emerging from an individual piece of equipment, such as the combustion chamber of one Boiler or one baghouse, and into which gas stream no ambient air and/or no other gas stream originating from another piece of equipment, except for dilution air introduced within the CEM Systems, has been introduced.

*You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:*

## **GENERAL PROVISIONS**

### **1. GENERAL**

#### **Compliance**

- (1) The Owner shall ensure compliance with all the conditions of this Certificate and shall ensure that any person authorized to carry out work on or operate any aspect of the Site, including the Works, is notified of this Certificate and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Certificate.

#### **Build in Accordance**

- (3) (a) Except as otherwise provided by this Certificate, the Site shall be designed, developed, built, operated, monitored, inspected and maintained in accordance with the following applications:
  - (i) Applications for a Certificate of Approval (Air) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of

Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the Supporting Documentation listed in the attached Schedule "A".

- (ii) Applications for a Provisional Certificate of Approval (Waste Disposal Site) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the Supporting Documentation listed in the attached Schedule "A".
  - (iii) Applications for a Certificate of Approval of Municipal and Private Sewage Works dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the Supporting Documentation listed in the attached Schedule "A".
- (b) (i) Any design optimization or modification that is inconsistent with the conceptual design set out in the Supporting Documentation in Schedule "A" shall be clearly identified, along with an explanation of the reasons for the change and submitted to the Director for approval.
  - (ii) If a change to the conceptual design is submitted to the Director for approval, no construction of the Site shall commence prior to the Director approving, in writing, the final conceptual design of the Site.

#### **As-built Drawings**

- (4) (a) Within ninety (90) days of the completion of the initial successful Source Testing program, a set of as-built drawings showing the Facility and the Works and bearing the stamp of a Professional Engineer, shall be prepared and retained at the Site.
- (b) These drawings shall be kept up-to-date through revisions undertaken from time to time and a copy shall be retained at the location of the Site or at the operational office of the Owner for the operational life of the Site.
- (c) Notwithstanding provisions of Condition 1.(4)(b), an amendment to this Certificate shall be sought for changes to the as-built drawings, requiring approval.
- (d) The as-built drawings shall be made available to Ministry staff upon request.

## **Interpretation**

- (5) Where there is a conflict between a provision of any document, including the application referred to in this Certificate and the conditions of this Certificate, the conditions in this Certificate shall take precedence.
- (6) Where there is a conflict between the applications and a provision in any documents listed in Schedule "A", the applications shall take precedence, unless it is clear that the purpose of the document was to amend the applications and that the Ministry approved the amendment.
- (7) Where there is a conflict between any two documents listed in Schedule "A", other than the applications, the document bearing the most recent date shall take precedence.
- (8) The requirements of this Certificate are severable. If any requirement of this Certificate, or the application of any requirement of this Certificate to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected thereby.

## **Other Legal Obligations**

- (9) The issuance of, and compliance with the conditions of this Certificate does not:
  - (a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
  - (b) limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner to furnish any further information related to compliance with this Certificate.

## **Adverse Effects**

- (10) The Site shall be constructed, operated and maintained in a manner which ensures the health and safety of all persons and prevents adverse effects on the natural environment or on any persons.
- (11) The Owner shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the approved operations at the Site, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- (12) Despite the Owner or any other person fulfilling any obligations imposed by this Certificate, the person remains responsible for any contravention of any other condition of this Certificate or any applicable statute, regulation, or other legal requirement resulting from any act or emission that caused the adverse effect to the natural environment or impairment of water quality.

- (13) If at any time odours, pests, litter, dust, noise or other such negative effects are generated at this Site and cause an adverse effect, the Owner shall take immediate appropriate remedial action that may be necessary to alleviate the adverse effect, including suspension of all waste management activities if necessary.

### **Change of Ownership**

- (14) The Owner shall notify the Director in writing, and forward a copy of the notification to the District Manager, within thirty (30) days of the occurrence of any changes:
- (a) the ownership of the Site;
  - (b) the operator of the Site;
  - (c) the address of the Owner;
  - (d) the partners, where the Owner is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B.17, as amended, shall be included in the notification;
  - (e) the name of the corporation where the Owner is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39, as amended, shall be included in the notification.
- (15) No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance. In the event of any change in ownership of the Site, other than change to a successor municipality, the Owner shall notify the successor of and provide the successor with a copy of this Certificate, and the Owner shall provide a copy of the notification to the District Manager and the Director.

### **Inspections by the Ministry**

- (16) No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the *OWRA*, the *EPA*, the *PA*, the *SDWA* or the *NMA* of any place to which this Certificate relates, and without limiting the foregoing:
- (a) to enter upon the premises where the approved processing is undertaken, or the location where the records required by the conditions of this Certificate are kept;
  - (b) to have access to, inspect, and copy any records required to be kept by the conditions of this Certificate;
  - (c) to inspect the Site, related equipment and appurtenances;
  - (d) to inspect the practices, procedures, or operations required by the conditions of this Certificate;
  - (e) to conduct interviews with staff, contractors, agents and assignees of the Owner; and
  - (f) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Certificate or the *EPA*, the *OWRA*, the *PA*, the *SDWA* or the *NMA*.

## **Information**

- (17) Any information requested by the Ministry, concerning the operation of the Site and its operation under this Certificate, including but not limited to any records required to be kept by this Certificate, manuals, plans, records, data, procedures and supporting documentation shall be provided to the Ministry, in a timely manner, upon request.
- (18) The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Certificate or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:
  - (a) an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Certificate or any statute, regulation or other legal requirement; or
  - (b) acceptance by the Ministry of the information's completeness or accuracy.
- (19) The Owner shall ensure that a copy of this Certificate, in its entirety and including all its Notices of Amendment and the Supporting Documentation listed in Schedule "A" are retained at the Site at all times.

## **2. SERVICE AREA, APPROVED WASTE TYPES, RATES and STORAGE**

- (1) The service area for the Site is the area within the jurisdictional boundaries of The Regional Municipality of Durham and The Regional Municipality of York.
- (2) The operation of this Site is limited to:
  - (a) receipt, temporary storage, transfer and processing, including thermal treatment, of solid non-hazardous waste remaining after Waste Diversion required by the EA Approval, limited to Waste from the following sources:
    - (i) domestic waste and Industrial Commercial and Institutional waste from the Regions' curbside collection and/or from the Regions' waste management facilities; and
    - (ii) waste generated on-Site through activities not relating to the handling and processing of Waste (ie. office, lunch room, etc.);
  - (b) collection and management of the stormwater run-off generated at the Site.
- (3) The following Unacceptable Waste is prohibited from being accepted at the Site:
  - (a) hazardous waste, as defined in the *O. Reg. 347*;
  - (b) wastes which have been source-separated for the purposes of diversion;

- (c) international waste generated outside of Canada, but collected within the jurisdictional boundaries of The Regional Municipality of Durham and The Regional Municipality of York.
- (4) Waste Receipt Rate:
  - (a) The maximum daily amount of Waste that is approved to be accepted at the Site shall not exceed 1,520 tonnes per day.

(5) Storage Restrictions:

Solids:

- (a) A maximum of 7,350 cubic metres shall be stored inside the Waste pit within the Tipping Building as shown in the Supporting Documentation.
- (b) Rejected Waste, limited to the Bulky Unprocessable Items removed from the incoming Waste in the Tipping Building shall be stored:
  - (i) in two (2) roll-off bins having a maximum total storage capacity of 30 cubic metres, located within the confines of the Tipping Building; and/or
  - (ii) in the appropriate dedicated bunkers, located within the confines of the Residue Building and described in Conditions 2.(5)(c), 2.(5)(d) and 2.(5)(d), below.
- (c) A maximum of approximately 77 tonnes or 106 cubic metres of the Residual Waste, limited to the recovered ferrous metals, shall be stored in one (1) dedicated bunker, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of seven (7) days.
- (d) A maximum of approximately 120 tonnes or 100 cubic metres of the Residual Waste, limited to the recovered non-ferrous metals, shall be stored in one (1) dedicated bunker, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of seven (7) days.
- (e) A maximum of 630 tonnes of the Residual Waste, limited to bottom ash shall be stored in two (2) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of seven (7) days.
- (f) A maximum of 700 tonnes of the Residual Waste, limited to the fly ash shall be stored in seven (7) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of thirty six (36) days.

- (g) A maximum of 85 cubic metres of activated carbon for the carbon injection system shall be stored in one (1) outdoor tank, located adjacent to the APC Building.
- (h) A maximum of 150 cubic metres of lime for the dry scrubber shall be stored in one (1) or more indoor tank(s), located within the confines of the APC Building.
- (i) If required, recirculated residue shall be stored in one (1) or more indoor tank(s), located within the confines of the APC Building.
- (j) A maximum of 35 tonnes or 25 cubic metres of cement for fly ash conditioning shall be stored in one (1) outdoor silo, located adjacent to the Residue Building.
- (k) A maximum of 25 tonnes or 45 cubic metres of pozzolan for fly ash conditioning shall be stored in one (1) outdoor silo, located adjacent to the Residue Building.

Liquids:

- (l) (i) A maximum of 36 cubic metres or 40 tonnes of aqueous ammonia for the SNCR System shall be stored in one (1) outdoor tank, located adjacent to the APC Building.
  - (ii) The Owner shall ensure that the aqueous ammonia storage tank is equipped with a liquid level monitoring device designed to provide a visual and an auditory alarm when the high level setpoint is reached.
  - (iii) The aqueous ammonia storage tank spill containment area and the loading area shall be designed in accordance with the requirements in the Ministry's document entitled "*Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities*" dated May 2007, as amended.
- (6) No outdoor storage of waste, including storage in vehicles, is approved under this Certificate.
  - (7) The Owner shall ensure that storage of all wastes is undertaken in a manner that does not cause an adverse effect or a hazard to the environment or any person.
  - (8) (a) Waste received at the Site shall be processed within four (4) days from its receipt at the Site.
  - (b) Emergency Waste storage duration extension:
    - (i) The Owner may store the incoming Waste inside the tipping pit within the confines of the Tipping Building for up-to seven (7) days from its receipt at the Site, on an emergency basis only.

- (ii) Within twenty four (24) hours from the start of the emergency storage of the incoming Waste, the Owner shall notify, in writing, the District Manager that the incoming Waste is being stored longer than four (4) days.
  - (iii) Should there be public complaints about the extended incoming Waste storage, the Owner, in consultation with the District Manager, shall determine the cause of the complaints, propose appropriate abatement measures, including but not be limited to the removal and off-site disposal of the Waste contained in the tipping pit, and implement the said measures upon receiving written concurrence from the District Manager within the time frame acceptable to the District Manager.
- (9) In the event that Waste cannot be processed at the Site and the Site is at its approved storage capacity, the Owner shall cease accepting additional Waste. Receipt of additional Waste may be resumed once such receipt complies with the waste storage limitations approved in this Certificate.

3. **SIGNS and SITE SECURITY**

- (1) Prior to receipt of Waste at the Site, the Owner shall ensure that a sign is posted at the entrance to the Site. The sign shall be visible from the main road leading to the Site. The following information shall be included on the sign:
  - (a) name of the Owner;
  - (b) this Certificate number;
  - (c) hours during which the Site is open;
  - (d) waste types that are approved to be accepted at the Site;
  - (e) Owner's telephone number to which complaints may be directed;
  - (f) Owner's twenty-four hour emergency telephone number (if different from above);
  - (g) a warning against unauthorized access; and
  - (h) a warning against dumping at the Site.
- (2) The Owner shall ensure that appropriate and visible signs are posted at the Site clearly identifying the wastes and the process reagents and stating warnings about the nature and any possible hazards of the wastes and the reagents.
- (3) The Owner shall ensure that appropriate and visible signs are posted at the Site to prohibit smoking, open flames or sources of ignition from being allowed near any flammable materials storage areas.
- (4) The Owner shall install and maintain appropriate and visible signs at the Site to direct vehicles to the Waste receiving and Residual Waste removal areas and to the reagent unloading areas.
- (5) The Owner shall post appropriate and visible signs along the traffic route providing clear directions to the Site.

- (6) The Owner shall ensure that the Site is fenced in and that all entrances are secured by lockable gates to restrict access only to authorized personnel when the Site is not open.
- (7) The Owner shall ensure that access to the Site, with the exception of the area designated as a Public Information Centre, is regulated and that no unauthorized persons are permitted at the Site without the Trained Personnel escort.
- (8) The Owner shall ensure that the Site is operated in a safe and secure manner, and that Waste, the Residual Waste and the Unacceptable Waste are properly handled, packaged or contained and stored so as not to pose any threat to the general public and the Site personnel.

#### 4. **SITE OPERATIONS**

##### (1) **Operating hours:**

- (a) The Site is approved to operate twenty-four (24) hours per day three hundred and sixty-five (365) days per year.
- (b) Notwithstanding Condition 4.(1)(a), Waste shall only be received at the Site and the Residual Waste shall only be transferred from the Site between 7:00 a.m. and 7:00 p.m. Monday to Saturday. No receipt of the Waste or transfer of the Residual Waste shall be undertaken on statutory holidays.
- (c) Emergency Receipt of Waste:
  - (i) The Owner may receive Waste at the Site outside of the operating hours specified in Condition 4.(1)(b), above, on an emergency basis only.
  - (ii) Within twenty four (24) hours from the receipt of Waste outside of the approved receiving hours, the Owner shall notify, in writing, the District Manager that Waste was received outside of the approved receiving hours.
  - (iii) Should there be complaints about Waste shipments outside of the approved hours, the Owner, in consultation with the District Manager, shall determine the cause of the complaint, propose appropriate abatement measures and implement the said measures upon receiving written concurrence from the District Manager within the time frame acceptable to the District Manager.

##### (2) **Incoming Waste receipt:**

- (a) At the weigh scale, the Trained Personnel shall:
  - (i) inspect the required documentation prior to acceptance of the incoming Waste at the Site; and

- (ii) inspect the incoming Waste with radiation detection equipment.
  - (b) In the Tipping Building, the Trained Personnel shall:
    - (i) visually inspect all incoming Waste being unloaded into the Waste pit; and
    - (ii) once per hour, or as accepted by the District Manager, unload the incoming Waste on the tipping floor for a manual visual inspection and sorting of the incoming Waste.
  - (c) The Owner shall only accept the incoming Waste that is delivered in vehicles that have been approved by the Ministry.
  - (d) The Owner shall ensure that all unloading of incoming Waste at the Site takes place entirely within the confines of the Tipping Building.
- (3) **Unacceptable Waste handling:**
  - (a) In the event that waste that is not approved under this Certificate is inadvertently accepted at the Site, the Owner shall ensure that the Unacceptable Waste:
    - (i) is stored in a way that ensures that no adverse effects result from its storage;
    - (ii) is segregated from all other waste;
    - (iii) is handled and removed from the Site in accordance with the *O. Reg. 347* and the *EPA*; and
    - (iv) is removed from the Site within (4) days of its receipt or as acceptable to the District Manager.
  - (b) The Owner shall ensure that all loading of the Unacceptable Waste into transport vehicles is carried out entirely within the confines of the Tipping Building.
- (4) **Waste Sorting:**
  - (a) The Trained Personnel shall remove the Bulky Unprocessable Items and Unacceptable Waste from the incoming Waste prior to charging of the Waste to the Boilers.
  - (b) All sorting of the incoming Waste at the Site shall be undertaken indoors, within the confines of the Tipping Building and/or the Refuse Building.
- (5) **Residual Waste Handling and Disposal:**
  - (a) (i) Except for transportation of the Residual Waste between the Grizzly Building and the Residue Building, the Owner shall ensure that all

handling of the bottom ash and its segregated constituents, and of the fly ash, is undertaken within the confines of enclosed conveyors and enclosed buildings.

- (ii) The Owner shall ensure that all loading of the Residual Waste into vehicles for its transport from the Site is carried out entirely within the confines of the Residue Building.
- (b) (i) Different constituents of the Residual Waste shall not be comingled prior to the required compliance testing, unless all Residual Waste is to be disposed of at a Waste Disposal Site that is approved to accept hazardous waste.
- (ii) The Owner shall ensure that the equipment used in handling of the hazardous wastes or that came in direct contact with the hazardous wastes is not used to handle other wastes.
- (iii) On an emergency basis, the Owner may use equipment used to handle the hazardous wastes to handle other wastes provided that prior to such use the equipment has been thoroughly cleaned first.
- (c) (i) Only haulers approved by the Ministry shall be used to transport the Residual Waste from the Site.
- (ii) The Residual Waste shall be transported from the Site in appropriately covered vehicles that will not allow fugitive dust emissions to be emitted into the natural environment during the said transport.
- d) Residual Waste generated at the Site shall be disposed of shall only be disposed of at an approved waste disposal site in accordance with the requirements in the *EPA* and the *O. Reg. 347* or at a location with the appropriate jurisdictional approval or a license, if required.
- (e) Should the Residual Waste limited to the conditioned fly ash and/or the bottom ash be deemed a hazardous waste, the ash shall be disposed of at an approved waste disposal site in accordance with the Land Disposal Restrictions requirements in the *EPA* and the *O. Reg. 347* or at a location with the appropriate jurisdictional approval or a license, if required.

**(6) Wastewater Management**

- (a) The Owner shall ensure that all wastewater generated at the Site is contained within enclosed buildings, tanks, pipes and conveyors at the Site and the approved outdoor Wastewater Settling Basin.
- (b) The Owner shall ensure that all wastewater generated at the Site is collected in leak-proof and sufficiently designed wastewater storage facilities:

- (i) Wastewater Holding Tank, to collect the continuous reject water flow from the Boiler make-up water treatment system and the Boiler blowdown, having an approximate holding capacity of 100 cubic metres, located within the confines of the Boiler Building and venting to the atmosphere; and
  - (ii) Wastewater Settling Basin, to collect the wastewater from the floor drains in the buildings at the Site, except for the Tipping Building and the Residue Building, the ash discharger overflow and drain water, the Boiler and turbine-generator washdown water and the APC Equipment area washdown water, having an approximate holding capacity of 38 cubic metres, located outdoors, open to the atmosphere and equipped with a filter basket and an oil skimmer board.
- (c) The wastewater pumps shall be located in the area designed in accordance with the Supporting Documentation to ensure that any potential leaks or drips are contained and directed to the Wastewater Settling Basin.
- (d) (i) The wastewater level in the Wastewater Holding Tank shall be monitored and controlled to ensure that the wastewater inflow to the Tank does not cause the Tank overflow.
- (ii) The wastewater level in the Wastewater Settling Basin shall be monitored and controlled to ensure that the atmospheric precipitation does not cause an overflow from the Basin.
- (e) The Owner shall regularly empty, and clean as necessary, all sumps, wastewater storage/holding areas and equipment that are used to contain, collect and handling the wastewater generated at the Site.
- (f) Should the Owner find it necessary to remove the wastewater from the Site, the wastewater shall only be disposed of at a Ministry-approved site in accordance with the site's certificate of approval or be discharged to the sanitary sewer in accordance with the agreement with the municipality accepting the discharge.
- (g) The floors of the Tipping Building and the Residue Building shall be sufficiently sloped to facilitate the flow of the wastewater generated from the floor cleaning activities and from the truck washdown towards the designated wastewater collection area.
- (h) The Owner shall ensure that the Wastewater Settling Basin is regularly cleaned out and that it does not become a source of odour emissions.
- (7) All activities approved under this Certificate shall only be carried out by appropriately Trained Personnel.

5. **EQUIPMENT and SITE INSPECTIONS and MAINTENANCE**

**Operation and Maintenance**

- (1) Prior to the receipt of the Waste at the Site, the Owner shall prepare and update as necessary, an Operation and Maintenance Manual for all the Equipment, the APC Equipment, the CEM Systems, the Works and any other equipment associated with managing of the Waste and with the control of environmental impacts from the Facility. The Manual shall be prepared in accordance with the written manufacturer's and/or supplier's specifications and good engineering practice.

As a minimum, the Operation and Maintenance Manual shall specify:

- (a) operation procedures of the Equipment, the APC Equipment, the CEM Systems, the Works, and any other equipment associated with managing of the Waste and with the control of environmental impacts from the Facility, in accordance with manufacturers' recommendations and good engineering practices to achieve compliance with this Certificate, the *EPA*, the *OWRA* and their Regulations;
  - (b) calibration procedures for the CEM Systems as required by this Certificate;
  - (c) procedures for start-up and shutdown, including Controlled Shutdown and Emergency Shutdown;
  - (d) quality assurance procedures for the operation and calibration of the CEM Systems in accordance with *40 CFR 60*, Appendix F or *Report EPS 1/PG/7*, as appropriate;
  - (e) Waste receiving and screening procedures;
  - (f) Waste, Rejected Waste and Residual Waste handling procedures;
  - (g) testing and monitoring procedures as required by this Certificate;
  - (h) maintenance and preventative maintenance procedures as required by this Certificate;
  - (i) Facility inspection, including frequency of inspections, procedures;
  - (j) procedure for handling complaints as required by this Certificate.
  - (k) contingency measures to resolve upset conditions and/or minimize the environmental impacts from the Facility;
  - (l) emergency response procedures, including procedures for dealing with power failure, fire, explosion, spills and any other potential emergencies;
  - (m) procedures for record keeping activities as required by this Certificate;
  - (n) description of the responsibilities of the Site personnel and the personnel training protocols; and
  - (o) a list of personnel positions responsible for operation and maintenance, including supervisory personnel and personnel responsible for handling of the emergency situations, recording and reporting pursuant to the requirements of this Certificate, along with the training and experience required for the positions and a description of the responsibilities.
- (2) A copy of this Operations and Maintenance Manual shall be kept at the Site, be accessible to the Site personnel at all times and be updated, as required. The Operations and Maintenance Manual shall be available for inspection by a Provincial Officer upon request.

- (3) The Owner shall implement the operation, maintenance, preventative maintenance and calibration procedures set out in the Operations and Maintenance Manual required by this Certificate.

### **Critical Spare Parts**

- (4)
  - (a) The Owner shall prepare a list of critical spare parts, update this list annually or more frequently, if necessary, to ensure that this list is maintained up-to-date and shall be available for inspection by a Provincial Officer upon request.
  - (b) The Owner shall ensure that the critical spare parts are available at the Site at all times or are immediately available from an off-Site supplier.

### **Inspections**

- (5) Prior to receipt of the Waste at the Site, the Owner shall prepare a comprehensive written inspection program which includes inspections of all aspects of the Site's operations including, but not limited to the following:
  - (a) buildings and the indoor waste storage facilities and presence of dust and odour and leaks in or near any openings, such as doorways, window, vent, louver or any other opening;
  - (b) outdoor Residual Waste transport equipment, and the presence of dust and leaks at or near transfer points or the equipment seams;
  - (c) the Equipment, the APC Equipment, the CEM Systems, the Works and any other equipment associated with managing of the Waste and with the control of environmental impacts from the Facility;
  - (d) spill containment areas, loading areas and the conditions around the Wastewater Settling Basin;
  - (e) security fencing, gates, barriers and signs;
  - (f) off-site nuisance impacts such as odour, dust, litter, etc.
  - (g) presence of stormwater pooling at the Site; and
  - (h) condition of the on-Site roads for presence of leaks and drips from the waste delivery trucks or excessive dust emissions.
- (6) The inspections, except for the inspection of the Works, are to be undertaken daily by the Trained Personnel in accordance with the inspection program to ensure that the Facility is maintained in good working order at all times and that no off-Site impacts are occurring. Any deficiencies detected during these regular inspections must be promptly corrected.

### **Inspections and Maintenance of the Works**

- (7) The Owner shall inspect the Works at least once a year and, if necessary, clean and maintain the Works to prevent the excessive build-up of sediments and/or vegetation.

## 6. PERFORMANCE REQUIREMENTS

- (1) The Owner shall, ensure that the Facility/Equipment is designed and operated in such a manner as to ensure that the following Performance Requirements are met:
  - (a) the maximum 10-minute average concentration of odour at the most impacted Sensitive Receptor, resulting from the operation of the Facility/Equipment, calculated in accordance with the procedures outlined in the attached Schedule "B", shall not exceed 1 odour unit;
  - (b) the noise emissions from the Facility shall comply with the limits set out in Ministry *Publication NPC-205*;
  - (c) the vibration emissions from the Facility shall comply with the limits set out in Ministry *Publication NPC-207*.
- (2) The Owner shall ensure that the Boilers and the associated APC Equipment and the CEM Systems are designed and operated in such a manner as to ensure that the following Performance Requirements are met:
  - (a)
    - (i) The temperature in the combustion zone of each Boiler shall reach a minimum of 1000 degrees Celsius ( $^{\circ}\text{C}$ ) for one second, prior to introduction of the Waste into the combustion chamber of the Boiler during the start-up, and thereafter maintained during the entire thermal treatment cycle and subsequent shutdown until all Waste combustion is completed.
    - (ii) Compliance with the minimum temperature requirement shall be demonstrated by direct measurement at the location where the combustion gases have achieved the residence time of one second at a minimum temperature of  $1000^{\circ}\text{C}$  (the Target Location) or by correlation of the required temperature of  $1000^{\circ}\text{C}$  for one second to the temperature measured downstream of the Target Location as proven by a method acceptable to the Director.
  - (b) The concentration of residual oxygen in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler, as measured and recorded by the CEM System, shall not be less than 6 percent by volume on a dry basis.
  - (c)
    - (i) The operational target for the concentration of carbon monoxide in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler is 40 milligrams per dry cubic metre, as a 4-hour rolling average, normalized to 11 percent oxygen at a reference temperature of  $25^{\circ}\text{C}$  and a reference pressure of 101.3 kilopascals, as measured and recorded by the CEM System, for the period from and including initial commissioning of the facility to twelve months following the completion of the first Source Testing program.

- (ii) The 4-hour average concentration of carbon monoxide in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler, as measured and recorded by the CEM System, shall not be more than 40 milligrams per dry cubic metre, normalized to 11 percent oxygen at a reference temperature of 25°C and a reference pressure of 101.3 kilopascals, after the first twelve months following the completion of the first Source Testing program.
  - (d) The emissions from the Boilers after those emissions have been controlled by the associated APC Equipment for discharge into the atmosphere via the Stack shall comply with the emission concentration limits listed in the attached Schedule "C", as measured by a CEM System or by Source Testing as applicable.
  - (e) The Boilers shall include combustion air control systems, which are capable of automatically adjusting the distribution and the quantity of combustion air, in such a manner that changes in the Waste Processing Rate and/or Waste composition or irregularities in the loading and/or combustion shall not adversely affect the performance of the Boilers.
  - (f) The Boilers shall provide and maintain a high degree of gas turbulence and mixing in the combustion chamber.
  - (g) The Boilers shall achieve the temperature, oxygen availability and turbulence requirements over the complete range of operating parameters, including feed rate, feed characteristics, combustion air, flue gas flow rate and heat losses.
  - (h) The inlet temperature into each baghouse of the APC Equipment of the Boilers shall not be less than 120°C and not more than 185°C.
- (3) The Owner shall install and maintain visual and audible alarm systems to alert the Facility/Equipment operators of any potential deviation from the above Performance Requirements for parameters that are continuously monitored by applicable CEM Systems and shall forthwith take all reasonable actions to bring the Equipment/Facility into compliance with all Performance Conditions.
- (4) In the event that the CEM Systems indicate that emissions from the Boilers and the Stack exceed any Performance Requirements in the attached Schedule "C" for a continuous three (3) hour period, the Owner shall forthwith cut-off all Waste feed into the affected Boiler and initiate an Emergency Shutdown, while maintaining a temperature of 1000°C, as practicable, in the combustion zone of the Boiler.

### **Residual Waste Compliance Criteria**

- (5) (a) The Residual Waste generated at the Site and destined for a non-hazardous waste disposal site in Ontario shall not meet any of the criteria from the definition of "hazardous waste" set out in the *O. Reg. 347*.

(b) The Residual Waste that meets any of the criteria from the definition of "hazardous waste" set out in the *O. Reg. 347* shall be handled and disposed of in accordance with the LDR requirements set out in the *EPA* and the *O. Reg. 347*.

(6) The Residual Waste, limited to the bottom ash, destined for a non-hazardous waste disposal site shall meet the definition of "incinerator ash" set out in the *O. Reg. 347*.

## 7. **TESTING, MONITORING and AUDITING**

### **Source Testing**

(1) The Owner shall perform annual Source Testing in accordance with the procedures and schedule outlined in the attached Schedule "E", to determine the rate of emission of the Test Contaminants from the Stack. The first Source Testing program shall be conducted not later than six (6) months after the Commencement Date of Operation of the Facility/Equipment and subsequent Source Testing program shall be conducted once (1) every calendar year thereafter.

### **Continuous Monitoring**

(2) The Owner shall select, test and install appropriate CEM Systems and continuous recording devices in accordance with the requirements outlined in the attached Schedule "F" to conduct and maintain a program to continuously monitor, as a minimum, the following parameters prior to commencement of operation of the Boilers:

- (a) the temperature at one (1) second downstream of the combustion zone of each Boiler where most of the combustion has been completed and the combustion temperature is fully developed;
- (b) the inlet temperature of the gases into each baghouse of the APC Equipment of each Boiler;
- (c) the concentration of carbon monoxide, oxygen and organic matter (as methane) in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler;
- (d) the opacity and moisture content of the flue gas and the concentration of oxygen, nitrogen oxides, sulphur dioxide, hydrogen chloride, hydrogen fluoride and ammonia in the Undiluted Gases leaving the baghouse of the APC Equipment of each Boiler.

### **Long-Term Sampling for Dioxins and Furans**

(3) (a) The Owner shall develop, install, maintain and update as necessary a long-term sampling system, with a minimum monthly sampling frequency, to measure the concentration of Dioxins and Furans in the Undiluted Gases leaving the APC Equipment associated with each Boiler. The performance of

this sampling system will be evaluated during the annual Source Testing programs in accordance with the principles outlined by 40 CFR 60, Appendix B, Specification 4.

- (b) The Owner shall evaluate the performance of the long-term sampling system in determining Dioxins and Furans emission trends and/or fluctuations as well as demonstrating the ongoing performance of the APC Equipment associated with the Boilers.

### **Ambient Air Monitoring**

- (4) (a) The Regions shall develop and implement the Ambient Air Monitoring and Reporting Plan, in accordance with the requirements set out in the EA Approval and as determined to be acceptable by the Regional Director.
- (b) The Regions shall report the results of the Ambient Air Monitoring program to the Regional Director in accordance with the Ambient Air Monitoring and Reporting Plan and in accordance with the requirements of Condition 14.
- (c) The Regions shall post the Ambient Air Monitoring and Reporting Plan and the results of the Ambient Air Monitoring program on the Owner's web site for the Facility in accordance with the requirements of the EA Approval and Condition 15.

### **Noise Monitoring - Acoustic Audit**

- (5) The Owner:
  - (a) shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Acoustic Audit measurements shall be carried out in accordance with the procedures in *Publication NPC-103* and in accordance to the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director;
  - (b) shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of *Publication NPC-233* and the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director, to the District Manager and the Director, not later than three (3) months after the commencement of operation of the Facility.
- (6) The Director:
  - (a) may not accept the results of the Acoustic Audit if the requirements of *Publication NPC-233* or the approved Noise Monitoring and Reporting Plan were not followed;

- (b) may require the Owner to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

### **Residual Waste Testing**

- (7)
  - (a) A minimum of six (6) months prior to the Commencement Date of Operation, the Owner shall submit to the Director for approval, a Testing Protocol for testing of the bottom ash for compliance with the criteria set out in the "incinerator ash" definition from the *O. Reg. 347* and for testing of the Residual Waste for compliance with the criteria set out in this Certificate.
  - (b) As a minimum, the Testing Protocol shall comply with the Ministry's regulatory requirements for sampling and testing of waste, including the requirements set out in the Ministry's document entitled "Principles of Sampling and Analysis of Waste for TCLP under Ontario Regulation 347", dated February 2002, as amended.
  - (c) The Testing Protocol shall include the rationale for the proposed methods and the following:
    - (i) a sampling protocol, including the proposed number of samples to be taken and their locations, to ensure that representative sample(s) are being tested for compliance with this Certificate;
    - (ii) sample(s) handling and preserving procedures;
    - (iii) analytical protocol for the applicable contaminants to ensure that appropriate analytical method(s) are being used for compliance testing required by this Certificate; and
    - (iv) a testing protocol for the bottom ash during the Site commissioning period.
  - (d) The Owner shall implement the Testing Protocol on the Commencement Date of Operation.
- (8) For handling of the bottom ash as a solid non-hazardous waste, the Owner shall follow the following schedule for compliance testing:
  - (a) for the Site commissioning period, the bottom ash shall be tested in accordance with the Testing Protocol approved by the Director;
  - (b) for the period following the Site commissioning period, the bottom ash shall be tested for the content of the combustible materials on an annual basis, until the compliance testing results indicate that the bottom ash meets the "incinerator ash" definition from the *O. Reg. 347* for three (3) consecutive years, following which a triennial compliance testing event may be carried out;

- (c) should any annual or triennial compliance testing event indicate that the bottom ash does not meet the “incinerator ash” definition, prior to each of the next three (3) shipments from the Site, compliance testing of each of the three (3) shipments shall be carried out. Once three (3) consecutive tests re-establish compliance with the “incinerator ash” definition from the *O. Reg. 347* and that the bottom ash does not exceed the Leachate Toxicity Criteria, the compliance testing schedule set out in Condition 7.(8)(b) may be resumed; and
  - (d) should the results of any compliance testing of the bottom ash indicate that the concentrations of the leachate toxic contaminants in the bottom ash equal to or exceed the Leachate Toxicity Criteria, the bottom ash shall be handled as a hazardous waste. Once three (3) consecutive tests re-establish that the bottom ash does not exceed the Leachate Toxicity Criteria, the bottom ash compliance testing schedule set out in Condition 7.(8)(b) may be resumed.
- (9) (a) For handling of the bottom ash as a hazardous waste and for handling of the fly ash, prior to final disposal at a hazardous waste landfill site in Ontario, the Owner shall undertake any sampling and testing that would be required to comply with the LDR requirements set out in the *EPA* and the *O. Reg. 347*.
- (b) The Owner shall follow the following schedule for compliance testing:
- (i) prior to each of the first three (3) shipments of the ash from the Site, the ash shall be tested so that for the compliance with the LDR requirements can be demonstrated;
  - (ii) following the three (3) initial compliance testing events, the ash shall be tested on an annual basis, until the compliance testing results indicate that the ash meets the LDR requirements during the three (3) consecutive years, following which a triennial compliance testing may be carried out; and
  - (iii) should any annual or triennial compliance testing event indicate that the ash does not meet the LDR requirements, prior to next three (3) shipments from the Site, compliance testing of each of the three (3) shipments shall be carried out. Once three (3) consecutive tests re-establish compliance with the LDR requirements, the compliance testing schedule set out in Condition 7.(9)(b)(ii) may be resumed.

**Soil Testing:**

- (10) (a) Within one hundred and twenty (120) days from the date of this Certificate, the Regions shall undertake the soil testing in accordance with the Soil Testing Plan required by this Certificate.
- (b) The soil testing shall be repeated every three (3) years or as agreed upon in writing by the Regional Director.

## **Disposal of Residual Waste**

- (11) The Owners shall ensure that no portion of the Residual Waste undergoing compliance testing is transferred from the Site until the results of the compliance testing required by this Certificate demonstrate compliance with the relevant Ministry's requirements.
- (12) Bottom ash that is not a hazardous waste, as defined in the *O. Reg. 347*, may be disposed of at an approved non-hazardous waste landfill site or at a site approved to accept such waste by an appropriate government agency of equivalent jurisdiction.
- (13) Residual Waste shall be treated to comply with the LDR requirements set out in the *EPA* and the *O. Reg. 347* prior to disposal of at an approved hazardous waste landfill site or at a site approved to accept such waste by an appropriate government agency of equivalent jurisdiction.

## **Groundwater and Surface Water Monitoring**

- (14) (a) The Regions shall develop and implement the Groundwater and Surface Water Monitoring Plan, in accordance with the requirements set out in the EA Approval and as determined to be acceptable to the Regional Director.
- (b) The Regions shall report the results of the Groundwater and Surface Water Monitoring program to the Regional Director and to the Director in accordance with the schedule set out in the EA Approval and in accordance with the requirements of Condition 14.
- (c) The Regions shall post the Groundwater and Surface Water Monitoring Plan and the results of the Groundwater and Surface Water Monitoring program on the Owner's web site for the Facility in accordance with the requirements of the EA Approval and Condition 15.

## **8. NUISANCE IMPACT CONTROL and HOUSEKEEPING**

### **Odour Management**

- (1) (a) The Owner shall maintain a negative air pressure atmosphere in the Tipping Building at all times to contain any potential odours within the confines of the Tipping Building.
  - (b) (i) Once per year, or as required by the District Manager, the Owner shall undertake a test to measure the worse case scenario negative air pressure atmosphere throughout the Tipping Building, while the activities approved in this Certificate are carried out in the Tipping Building.
  - (ii) Notwithstanding the requirements set out in Condition 8.(1)(b)(i), the Owner shall install sufficient instrumentation to measure the air flow

into the Boilers and demonstrate that adequate air flow is maintained to maintain a negative air pressure atmosphere throughout the Tipping Building.

- (c) In the event that adequate negative air pressure cannot be maintained, the Owner shall implement any necessary additional odour containment and control measures, including, but not necessarily limited to, those in the required Contingency and Emergency Response Plan.
- (2) The Owner shall ensure that the entrance and exit doors into the Tipping Building, the Residue Building and the Grizzly Building are kept closed at all times except to permit the entry or exit of the respective waste transport vehicles and waste handling equipment into and out of these Buildings.
- (3) The Owner shall ensure that, at all times, the air from the Tipping Building, the Residue Building, the Grizzly Building and from the Equipment is exhausted through an appropriate and fully functional APC Equipment approved by this Certificate.
- (4) The Owner shall undertake appropriate housekeeping activities, including regular cleaning of the tipping floor to control potential sources of fugitive odour emissions.
- (5) The Owner shall ensure that no Waste handling equipment or empty storage containers are stored outside, unless they have been washed to prevent fugitive odour emissions.
- (6) The Owner shall regularly clean all equipment and storage areas that are used to handle, process and store waste at the Site, including the surfaces of the outdoor spill containment areas, as required.
- (7)
  - (i) Prior to the receipt of Waste at the Site, the Owner shall provide documentation which outlines the testing carried out by a licensed structural engineer to confirm the effectiveness of the containment in the buildings, conveyors and tanks and silos at the Site.
  - (ii) The testing shall be carried out and repeated as directed by the District Manager in accordance with the test protocol prepared in consultation with and approved by the District Manager.
  - (iii) These tests shall be repeated as directed or agreed by the District Manager.
- (8) The Owner shall prepare and implement an Odour Management and Mitigation Plan in accordance with the requirements set out in the EA Approval and as determined to be acceptable to the Regional Director.
- (9) (a) In addition to the requirements set out in the EA Approval, the Odour Management and Mitigation Plan shall include the following:

- (i) identification of all potential sources of odourous emissions;
  - (ii) description of the preventative and control measures to minimize odourous emissions from the identified sources;
  - (iii) procedures for the implementation of the Odour Management and Mitigation Plan;
  - (iv) inspection and maintenance procedures to ensure effective implementation of the Odour Management and Mitigation Plan; and
  - (v) procedures for verification and recording the progress of the implementation of the Odour Management and Mitigation Plan.
- (b) The Owner shall continue to submit an updated Odour Management and Mitigation Plan until such time as the Regional Director notifies the Owner in writing that further submissions are no longer required.

### **Vehicles and Traffic**

- (10) (a) The Owner shall ensure that all vehicles transporting waste to and from the Site are not leaking or dripping waste when arriving at or leaving the Site.
- (b) Should the Owner become aware that the truck(s) delivering waste to the Site have leaked wastewater on the municipal roadways, the Owner shall immediately report the violation to the owner of the vehicle(s) and to the District Manager.
- (c) The Owner shall ensure that the exterior of all vehicles delivering Waste to the Site or hauling waste from the Site is washed prior to the trucks' departure from the Site, if necessary.
- (d) Any necessary truck washing shall occur only in the designated wash down area of the Tipping Building or the Residue Building.
- (11) The Owner shall ensure that there is no queuing or parking of vehicles that are waiting to enter the Site on any roadway that is not a distinct part of the Site.

### **Litter**

- (12) The Owner shall:
- (a) take all practical steps to prevent the escape of litter from the Site;
  - (b) pick up litter around the Site on a daily basis, or more frequently if necessary; and
  - (c) if necessary, erect litter fences around the areas causing a litter problem.

### **Dust**

- (13) The Owner shall ensure that all on-site roads and operations/yard areas are regularly swept/washed to prevent dust impacts off-Site.

## **Vermin and Vectors**

(14) The Owner shall:

- (a) implement necessary housekeeping procedures to eliminate sources and potential sources of attraction for vermin and vectors; and
- (b) hire a qualified, licensed pest control professional to design and implement a pest control plan for the Site. The pest control plan shall remain in place, and be updated from time to time as necessary, until the Site has been closed and this Certificate has been revoked.

## **Visual Screening**

(15) The Owner shall provide visual screening for the Site in accordance with the documentation included in the attached Schedule "A".

## **9. STAFF TRAINING**

- (1) (a) The Owner shall ensure that all operators of the Site are trained with respect to the following, as per the specific job requirements of each individual operator:
  - (i) terms and conditions of this Certificate and the requirements of the EA Approval;
  - (ii) operation and management of the Site, or area(s) within the Site, as per the specific job requirements of each individual operator, and which may include procedures for receiving, screening and identifying Waste, refusal, handling, processing and temporarily storing wastes, operation of the Equipment, the APC Equipment, the CEM System and the Works;
  - (iii) testing, monitoring and operating requirements;
  - (iv) maintenance and inspection procedures;
  - (v) recording procedures;
  - (vi) nuisance impact control and housekeeping procedures;
  - (vii) procedures for recording and responding to public complaints;
  - (viii) an outline of the responsibilities of Site personnel including roles and responsibilities during emergency situations;
  - (ix) the Contingency and Emergency Response Plan including exit locations and evacuation routing, and location of relevant equipment available for emergency situations;
  - (x) environmental, and occupational health and safety concerns pertaining to the wastes to be handled;
  - (xi) emergency first-aid information; and
  - (xii) relevant waste management legislation and regulations, including the *EPA*, the *OWRA*, the *O. Reg. 347*, the *O. Reg. 419/05* and the Ministry guidelines affecting thermal treatment facilities.
- (2) The Owner shall ensure that all personnel are trained in the requirements of this Certificate relevant to the employee's position:

- (a) upon commencing employment at the Site in a particular position;
- (b) whenever items listed in Condition 9.(1) are changed or updated; and
- (c) during the planned refresher training.

10. **COMPLAINTS / ODOUR-CONTAMINANT EMISSIONS RESPONSE PROCEDURE**

- (1) The Owner or a designated representative of the Owner shall be available to receive public complaints caused by the operations at the Site twenty-four (24) hours per day, seven (7) days per week.
- (2) If at any time, the Owner or the Ministry receives a complaint or the Owner or the Provincial Officer detects an emission of odour or any contaminant, (Emission Event), from the Site, in addition to the requirements set out in the EA approval, the Owner shall record all relevant information in the computerized tracking system and shall respond to the complaint/Emission Event according to the following procedure:

Step 1: Record of Complaint/Emission Event

- (a) (i) The Owner shall record each complaint/Emission Event and each record shall include the following:
  - (A) name, address and the telephone number of the complainant, if known;
  - (B) time and date of the complaint/Emission Event;
  - (C) details of the complaint; and
- (ii) After the complaint/Emission Event has been recorded in the tracking system, the Owner shall immediately report to the District Manager by phone or e-mail during office hours and to the Ministry's Spills Actions Centre at 1-800-268-6060 after office hours on the receipt of the complaint or occurrence of the Emission Event.

Step 2: Investigation and Handling of Complaint/Emission Event

- (b) The Owner shall immediately initiate investigation of the complaint/Emission Event. As a minimum, the investigation shall include the following:
  - (i) determination of the activities being undertaken at the Site at the time of the complaint/Emission Event;
  - (ii) meteorological conditions including, but not limited to the ambient temperature, approximate wind speed and its direction.
  - (iii) determination if the complaint is attributed to activities being undertaken at the Site and if so, the possible cause(s) of the complaint/Emission Event; and

- (iv) determination of the remedial action(s) to address the cause(s) of the Complaint/Emission Event, and the schedule for the implementation of the necessary remedial action(s).
  - (c) The Owner shall respond to the complainant, if known, and the response shall include the results of the investigation of the Complaint, the action(s) taken or planned to be taken to address the cause(s) of the Complaint, and if any follow-up response(s) will be provided.
  - (d) Upon completed investigation of the Complaint/Emission event, the Owner shall, within three (3) business days, submit a report to the District Manager on the Complaint, on the action(s) taken or planned to be taken to address the cause(s) of the Complaint and on all proposed action(s) to prevent recurrence of the Complaint/Emission Event in the future.
- (3) If, in the opinion of the District Manager, failure of the APC Equipment and/or any other process or equipment upset or malfunction results in off-site Complaint/Emission Event, confirmed by the Owner or a Provincial Officer of the Ministry, the Owner shall, immediately upon notification from the District Manager, implement any necessary additional control measures, including, but not necessarily limited to, those in the Contingency and Emergency Response Plan required by this Certificate.
- (4) If the District Manager deems the additional control measures taken as per condition 10.(3) to be unsuitable, insufficient or ineffective, the District Manager may direct the Owner, in writing, to take further measures to address the noted failure, upset or malfunction including pursuant to section 39 of the *EPA* requiring a reduction in the receipt of Waste, cessation of the receipt of Waste, removal and off-site disposal of Waste from the Tipping Building as well as making repairs or modifications to equipment or processes.

11. **CONTINGENCY and EMERGENCY RESPONSE PLAN**

- (1) (a) The Owner shall develop and implement a Contingency and Emergency Response Plan in accordance with the requirements set out in the EA Approval.
- (b) Notwithstanding the requirements set out in the EA Approval, the Contingency and Emergency Response Plan shall be prepared in consultation with the District Manager or designate, the local Municipality and the Fire Department.
- (2) In addition to the requirements set out in the EA Approval, the Contingency and Emergency Response Plan, as a minimum, shall include the following:
  - (a) the Site plan clearly showing the equipment layout and all storage areas for wastes and reagents;

- (b) a list of Site personnel responsible for the implementation of the contingency measures and various emergency response tasks and their training requirements;
- (c) a list of equipment and materials required for the implementation of the contingency measures and the emergency situation response;
- (d) maintenance and testing program for equipment required for the implementation of the contingency measures and the emergency situation response;
- (e) procedures to be undertaken as part of the implementation of the contingency measures and the emergency situation response;
- (f) names and telephone numbers of waste management companies available for emergency response;
- (g) notification protocol, with names and telephone numbers of persons to be contacted, including the Owner, the Site personnel, the Ministry of the Environment Spills Action Centre and the York Durham District, the local Fire and Police Departments, the local Municipality, the local Medical Officer of Health, and the Ministry of Labour;
- (h) procedures and actions to be taken should the incoming Waste not meet the applicable quality criteria specified in this Certificate;
- (i) procedures and actions to be taken should the outgoing Residual Waste fail to meet the criteria specified in this Certificate;
- (j) procedures and actions to be taken should the current disposal options for the outgoing Residual Waste become unavailable;
- (k) design of the contingency measure, procedures and actions should the emissions from the Site, including the fugitive odour/dust emissions, cause occurrences of public Complaints;
- (l) procedures and actions to be taken should the Owner be unable to maintain the negative pressure in the Tipping Building;
- (m) procedures and actions to be taken should the occurrence of Complaints require the Owner to suspend the waste processing activities at the Site; and
- (n) identification and risk assessment of all reasonably foreseeable incidents that may result in a discharge into the natural environment of any contaminant in an amount, concentration or level in excess of that prescribed by the Regulations and/or imposed by this Certificate, including but not limited to:
  - (i) a breakdown of the Facility/Equipment or part of the Facility/Equipment, including the APC Equipment and the CEM Systems associated with the Boilers;
  - (ii) CEM Systems indicate that the Boilers and associated APC Equipment have been out of compliance with the Performance Requirements;
  - (iii) any change in process parameters which may result in non compliance with the Performance Requirements;
  - (iv) power failure resulting in the use of the Emergency Diesel Generator or Total Power Failure; and
  - (v) description of the preventative and control measures to minimize the occurrence or impacts of the above incidents; and
  - (vi) procedures for corrective measures and timelines to take to address the above incidents in a timely manner to effectively prevent or minimize the discharge of any contaminant into the natural environment and continue to maintain compliance with the *EPA* , the Regulations and

this Certificate, including procedures for Waste Processing Rate reduction, waste feed cut-off, Controlled Shutdown or Emergency Shutdown of the Boilers as applicable.

- (3) The Owner shall submit the finalized Contingency and Emergency Response Plan to the Director a minimum of one hundred and twenty (120) days prior to the Commencement Date of Operation, for approval.
- (4) An up-to-date version of the Contingency and Emergency Response Plan shall be kept at the Site at all times, in a central location available to all staff, and it shall be available for inspection by a Provincial Officer upon request.
- (5) The Owner shall ensure that the names and telephone numbers of the persons to be contacted in the event of an emergency situation are kept up-to-date, and that these numbers are prominently displayed at the Site and at all times available to all staff and emergency response personnel.
- (6) The Contingency and Emergency Response Plan shall be reviewed on a regular basis and updated, as necessary. The revised version of the Contingency and Emergency Response Plan shall be submitted to the local Municipality and the Fire Department for comments and to the District Manager for comments and concurrence.
- (7) The Owner shall implement the recommendations of the updated Contingency and Emergency Response Plan, immediately upon receipt of the written concurrence from the District Manager.

## 12. **EMERGENCY SITUATION RESPONSE and REPORTING**

- (1) The Owner shall immediately take all measures necessary to contain and clean up any spill or leak which may result from the operation at this Site and manage any emergency situation in accordance with the Contingency and Emergency Response Plan.
- (2) The Owner shall ensure that the equipment and materials listed in the Contingency and Emergency Response Plan are immediately available at the Site, are in a good state of repair, and fully operational at all times.
- (3) The Owner shall ensure that all Site personnel responsible for the emergency situation response are fully trained in the use of the equipment and related materials, and in the procedures to be employed in the event of an emergency.
- (4) All Spills as defined in the *EPA* shall be immediately reported to the **Ministry's Spills Action Centre at 1-800-268-6060** and shall be recorded in the log book as to the nature of the emergency situation, and the action taken for clean-up, correction and prevention of future occurrences.

13. **SUBMISSIONS to the REGIONAL DIRECTOR or DISTRICT MANAGER**

- (1) The Owner shall notify the District Manager in writing, at least six (60) days prior to the scheduled date for the first receipt of Waste at the Site, as to whether or not the construction of the Facility has been carried out in accordance with this Certificate to a point of Substantial Completion.
- (2) (a) The Owner shall forthwith notify the District Manager and the Spills Action Centre by telephone, when any of the following incidents occur that may result in a discharge into the natural environment of any contaminant in an amount, concentration or level in excess of that prescribed by the Regulations and/or imposed by this Certificate:
  - (i) CEM Systems indicate that the Boilers and associated APC Equipment have been out of compliance with the Performance Requirements triggering a Waste Processing Rate Reduction, Waste Feed cut-off, Controlled Shutdown or Emergency Shutdown as specified in the Emergency Response and Contingency Plan;
  - (ii) failure of the APC Equipment associated with the Boilers; and
  - (iii) power failure resulting in the use of the emergency diesel generator or Total Power Failure;
- (b) In addition to fulfilling the notification requirements from the *EPA*, the Owner shall prepare and submit a written report to the District Manager with respect to any of the above said occurrences, within five (5) calendar days of the occurrence, in the following format:
  - (i) date of the occurrence;
  - (ii) general description of the occurrence;
  - (iii) duration of the occurrence;
  - (iv) effect of the occurrence on the emissions from the Facility;
  - (v) measures taken to alleviate the effect of the occurrence on the emissions from the Facility; and
  - (vi) measures taken to prevent the occurrence of the same or similar occurrence in the future.
- (3) Should a Spill, as defined in the *EPA*, occur at the Site, in addition to fulfilling the requirements from the *EPA* and applicable regulations, the Owner shall submit to the District Manager a written report within three (3) calendar days outlining the nature of the Spill, remedial measure taken and the measures taken to prevent future occurrences at the Site.
- (4) (a) Within ninety (90) days from the date of this Certificate, the Regions shall prepare and submit to the District Manager for concurrence, a Soil Testing Plan to monitor the impact of the Site operations at the locations where the ambient air monitoring is proposed by the Owner in accordance with the requirements set out in the EA Approval.

- (b) (i) This Plan shall ensure that representative samples of the soil to be tested are collected in sufficient numbers and that the samples are properly preserved and tested so that reliable data on the soil characteristics is collected.
- (ii) As a minimum, the Plan shall include testing for cadmium, lead, chromium, nickel, cobalt, copper, molybdenum, selenium, zinc and mercury, Dioxins and Furans.
- (iii) This Plan shall comply with the Ministry's regulatory requirements for sampling and testing of soil and it shall include the rationale for the proposed methods.
- (iv) This Plan be kept at the Site at all times and be available for inspection by a Provincial Officer upon request.

14. **RECORDS KEEPING**

- (1) Any information requested by the Ministry concerning the Facility and its operation under this Certificate, including, but not limited to, any records required to be kept by this Certificate, shall be provided to the Ministry, upon request, in a timely manner.
- (2) The Owner shall retain, for a minimum of seven (7) years from the date of their creation, except as noted below, all reports, records and information described in this Certificate.

**Daily Activities**

- (3) The Owner shall maintain an on-Site written or digital record of activities undertaken at the Site. All measurements shall be recorded in consistent metric units of measurement. As a minimum, the record shall include the following:
  - (a) date of record and the name and signature of the person completing the report;
  - (b) quantity and source of the incoming Waste received at the Site;
  - (c) records of the estimated quantity of Waste thermally treated in the Boilers;
  - (d) quantity of the Unacceptable Waste received at the Site by the end of the approved Waste receipt period and the type(s) of the Unacceptable Waste received;
  - (e) quantity and type of the Residual Waste shipped from the Site, including any required outgoing Residual Waste characterization results;
  - (f) destination and/or receiving site(s) for the Residual Waste shipped from the Site;
  - (g) quantity and type of any Rejected Waste accepted at the Site;
  - (h) destination and/or receiving site(s) for the Rejected Waste shipped from the Site;
  - (i) housekeeping activities, including litter collection and washing/cleaning activities, etc.
  - (j) amount of electricity produced;

- (k) amount of excess electricity exported to the electrical grid.

### **Monitoring and Testing Records**

- (4) The Owner shall maintain an on-Site written or digital record of activities undertaken at the Site. All measurements shall be recorded in consistent metric units of measurement. As a minimum, the record shall include the following:
  - (a) day and time of the activity;
  - (b) all original records produced by the recording devices associated with the CEM Systems;
  - (c) a summary of daily records of readings of the CEM Systems, including:
    - (i) the daily minimum and maximum 4-hour average readings for carbon monoxide;
    - (ii) the daily minimum and maximum one hour average readings for oxygen;
    - (iii) the daily minimum and maximum 10-minute average readings for organic matter;
    - (iv) the daily minimum and maximum 24-hour average readings for sulphur dioxide;
    - (v) the daily minimum and maximum 24-hour average readings for nitrogen oxides;
    - (vi) the daily minimum and maximum 24-hour average readings for hydrogen chloride;
    - (vii) the daily minimum and maximum 6-minute average and 2-hour average opacity readings; and
    - (viii) the daily minimum and maximum one-hour average readings for temperature measurements.
  - (d) records of all excursions from the applicable Performance Requirements as measured by the CEM Systems, duration of the excursions, reasons for the excursions and corrective measures taken to eliminate the excursions;
  - (e) all records produced during any Acoustic Audit;
  - (f) all records produced during any Source Testing;
  - (g) all records produced by the long term sampling program for Dioxins and Furans required by this Certificate;
  - (h) all records produced during the Residual Waste compliance testing;
  - (i) all records produced during the Soil Testing;
  - (j) all records produced during the Groundwater and Surface Water Monitoring required by this Certificate;
  - (k) all records produced during the Ambient Air Monitoring required by this Certificate;
  - (l) all records associated with radiation monitoring of the incoming Waste, including but not limited to:
    - (i) transaction number;
    - (ii) hauler;
    - (iii) vehicle ID;
    - (iv) alarm level;
    - (v) maximum CPS;
    - (vi) uSv/hr;

- (vii) comment;
  - (viii) background CPS;
  - (ix) driver time in and out; and
  - (x) name of the Trainer Personnel that carried out the monitoring.
- (m) results of the containment testing carried out in the buildings, conveyors, tanks and silos, as required;
- (n) results the negative pressure in the Tipping Building carried out, as required.

### **Inspections/Maintenance/Repairs**

- (5) The Owner shall maintain an on-Site written or digital record of inspections and maintenance as required by this Certificate. As a minimum, the record shall include the following:
- (a) the name and signature of the Trained Personnel that conducted the inspection;
  - (b) the date and time of the inspection;
  - (c) the list of any deficiencies discovered, including the need for a maintenance or repair activity;
  - (d) the recommendations for remedial action;
  - (e) the date, time and description of actions (repair or maintenance) undertaken;
  - (f) the name and signature of the Trained Personnel who undertook the remedial action; and
  - (g) an estimate of the quantity of any materials removed during cleaning of the Works.

### **Emergency Situations**

- (6) The Owner shall maintain an on-Site written or digital record of the emergency situations. As a minimum, the record shall include the following:
- (a) the type of an emergency situation;
  - (b) description of how the emergency situation was handled;
  - (c) the type and amount of material spilled, if applicable;
  - (d) a description of how the material was cleaned up and stored, if generated; and
  - (e) the location and time of final disposal, if applicable; and
  - (f) description of the preventative and control measures undertaken to minimize the potential for re-occurrence of the emergency situation in the future.

### **Complaints Response Records**

- (7) The Owner shall establish and maintain a written or digital record of complaints received and the responses made as required by this Certificate.

### **Training**

- (8) The Owner shall maintain an on-Site written or digital record of training as required by this Certificate. As a minimum, the record shall include the following:

- (a) date of training;
- (b) name and signature of person who has been trained; and
- (c) description of the training provided.

## **Reports**

- (9) The Owner shall keep at the Site the following reports required by this Certificate:
  - (a) the ESDM Report
  - (b) the Acoustic Assessment Report;
  - (c) the Annual Report; and
  - (d) the Third Party Audit.

## 15. **REPORTING**

### **Annual Report**

- (1) By March 31st following the end of each operating year, the Owner shall prepare and submit to the District Manager and to the Advisory Committee, an Annual Report summarizing the operation of the Site covering the previous calendar year. This Annual Report shall include, as a minimum, the following information:
  - (a) a summary of the quality and the quantity of the Wastes accepted at the Site, including the maximum amount of the Waste received annually and daily and the sources of the Waste;
  - (b) a summary of the quality and the quantity of the Residual Waste shipped from the Site, including the analytical data required to characterize the Residual Waste, the off-Site destinations for the Residual Waste and its subsequent use, if known;
  - (c) estimated material balance for each month documenting the maximum amount of wastes stored at the Site;
  - (d) annual water usage;
  - (e) annual amount of the electricity produced and the annual amount of the electricity exported to the electrical grid;
  - (f) summaries and conclusions from the records required by Conditions 14.(3) through 14.(8) of this Certificate;
  - (g) the Emission Summary Table and the Acoustic Assessment Summary Table for the Facility as of December 31 from the previous calendar year;
  - (h) a summary of dates, duration and reasons for any environmental and operational problems, Boilers downtime, APC Equipment and CEM System malfunctions that may have negatively impacted the quality of the environment or any incidents triggered by the Emergency Response and

Contingency Plan and corrective measures taken to eliminate the environmental impacts of the incidents;

- (i) a summary of the dates, duration and reasons for all excursions from the applicable Performance Requirements as measured by the CEM Systems or as reported by the annual Source Testing, reasons for the excursions and corrective measures taken to eliminate the excursions;
- (j) results of the evaluation of the performance of the long-term sampling system in determining the Dioxins and Furans emission trends and/or fluctuations for the year reported on as well as demonstrating the ongoing performance of the APC Equipment associated with the Boilers;
- (k) dates of all environmental complaints relating to the Site together with cause of the Complaints and actions taken to prevent future Complaints and/or events that could lead to future Complaints;
- (l) any environmental and operational problems that could have negatively impacted the environment, discovered as a result of daily inspections or otherwise and any mitigative actions taken;
- (m) a summary of any emergency situations that have occurred at the Site and how they were handled;
- (n) the results and an interpretive analysis of the results of the groundwater and surface water, including an assessment of the need to amend the monitoring programs;
- (o) summaries of the Advisory Committee meetings, including the issues raised by the public and their current status;
- (p) any recommendations to improve the environmental and process performance of the Site in the future;
- (q) statement of compliance with this Certificate, including compliance with the *O. Reg. 419/05* and all air emission limits based on the results of source testing, continuous monitoring and engineering calculations, as may be appropriate; and
- (r) interpretation of the results and comparison to the results from previous Annual Reports to demonstrate the Facility's impact on the environment.

### **Third Party Audit**

- (2) (a) The Regions shall ensure that an independent technical review of the operations at the Site is undertaken in accordance with the requirements of the EA Approval.
- (b) In addition to the Third Party Audit requirements set out in the EA approval, the Third Party Audit shall include the following:

- (i) a review of the data from the monitoring and testing required by this Certificate;
  - (ii) a review of all complaints received about the operation of the Facility;
  - (iii) any recommendations for improving the operation of the Facility received from the Advisory Committee; and
  - (iv) a recommendation of any improvements that could be made to ensure that the operation of the Facility is optimized and is protective of the health and safety of people and the environment.
- (3) The Regions shall submit a Written Audit Report on the results of the independent technical review to the Regional Director in accordance with the Audit Plan and retain a copy at the Site.

### **Soil Testing Report**

- (4) Within one (1) month of completion of each Soil Testing event, the Regions shall submit to the District Manager a Soil Testing Report, which includes the details on the sampling/testing procedures, the results of the testing and a comparison with the results obtained during the previous Soil Testing.

## **16. PUBLIC ACCESS TO DOCUMENTATION**

- (1) The Owner shall, at all times, maintain documentation that describes the current operations of the Facility. The Owner shall post the documentation at the website for the undertaking and during regular business hours, the Owner shall make the following documents available for inspection at the Site by any interested member of the public, upon submission to the Ministry for review:
- (a) a current ESDM Report that demonstrates compliance with the Performance Limits for the Facility regarding all Compounds of Concern;
  - (b) a current Acoustic Assessment Report that demonstrates compliance with the Performance Limits for the Facility regarding noise emissions;
  - (c) the most recent Annual Report;
  - (d) the most current Third Party Audit Report;
  - (e) Odour Management and Mitigation Plan, prepared in accordance with the requirements of the EA Approval;
  - (f) Noise Monitoring and Reporting Plan, prepared in accordance with the requirements of the EA Approval; and
  - (g) Groundwater and Surface Water Monitoring and Reporting Plan, prepared in accordance with the requirements of the EA Approval.

- (2) The Owner shall ensure that necessary hardware and software are provided at a location available to the public, to provide on-line real-time reporting of the operating parameter data for the Facility, including acceptable operating limits, stack emissions, and all other parameters for which continuous monitoring is required and that continuous records of the same be kept and made available to the public.

17. **ADVISORY COMMITTEE**

- (1) The Regions shall establish an Advisory Committee in accordance with the requirements set out in the EA Approval.

18. **CLOSURE of the SITE**

- (1) A minimum of nine (9) months prior to closure of the Site, the Owner shall submit, for approval by the Director, a written Closure Plan for the Site. This Plan shall include, as a minimum, a description of the work that will be done to facilitate closure of the Site and a schedule for completion of that work.
- (2) Within ten (10) days after closure of the Site, the Owner shall notify the Director and the District Manager, in writing, that the Site is closed and that the approved Closure Plan has been implemented.

## SCHEDULE "A"

### **Supporting Documentation**

- (1) Applications for a Certificate of Approval (Air) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the following supporting documentation:
  - (a) Emission Summary and Dispersion Modelling Report, dated March 2011, prepared by Golder Associates;
  - (b) Acoustic Assessment Report prepared by Golder Associates Ltd., dated March 2011 and signed by Paul Niejadlik.
  
- (2) Applications for a Provisional Certificate of Approval (Waste Disposal Site) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the following supporting documentation:
  - (a) Attachment #1 containing the "Design and Operations Report", dated March 2011, prepared by Golder Associates Ltd.;
  - (b) Attachment #3 containing the "Public Consultation Report", dated March 2011, prepared by Golder Associates Ltd.;
  - (c) Attachment #4 containing the Host Community Agreement
  - (d) Attachment #5 containing the proof of legal name for Covanta Durham York Renewable Energy Limited Partnership; and
  - (e) A letter May 24, 2011 from Anthony Ciccone, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, providing additional technical information on the proposal and attaching a report entitled "Amendment #1 Durham York Energy Centre Design and Operations Report", dated May 2011;
  
- (3) Applications for a Certificate of Approval of Municipal and Private Sewage Works dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of Durham and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the following supporting documentation:

- (a) "Surface Water and Groundwater Technical Study Report" dated July 2009, prepared by Jacques Whitford, Markham, Ontario (CD Report).
- (b) "Stormwater Design Model Output" prepared by Sigma Energy, dated March 2001 (CD Report).
- (c) Clearance letter from Central Lake Ontario Conservation date February 22, 2011.
- (d) A letter dated March 23, 2011, from Brian Bahor, Covanta Energy Corporation, to Stefanos Habtom, Ontario Ministry of the Environment, providing additional technical design information on the proposed stormwater management ponds.

## SCHEDULE "B"

### **Procedure to calculate and record the 10-minute average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor**

- (a) Calculate and record one-hour average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor, employing CALPUFF atmospheric dispersion model or the dispersion model acceptable to the Director that employs at least five (5) years of hourly local meteorological data and that can provide results reported as individual one-hour average odour concentrations.
- (b) Convert and record each of the one-hour average concentrations predicted over the five (5) years of hourly local meteorological data at the Point of Impingement and at the most impacted Sensitive Receptor to 10-minute average concentrations using the One-hour Average to 10-Minute Average Conversion described below; and
- (c) Record and present the 10-Minute Average concentrations predicted to occur over a five (5) year period at the Point of Impingement and at the most impacted Sensitive Receptor in a histogram. The histogram shall identify all predicted 10-minute average odour concentration occurrences in terms of frequency, identifying the number of occurrences over the entire range of predicted odour concentration in increments of not more than 1/10 of one odour unit. The maximum 10-minute average concentration of odour at the Sensitive Receptor will be considered to be the maximum odour concentration at the most impacted Sensitive Receptor that occurs and is represented in the histogram, disregarding outlying data points on the histogram as agreed to by the Director.

#### **One-hour Average To 10-minute Average Conversion**

1. Use the following formula to convert and record one-hour average concentrations predicted by the CALPUFF atmospheric dispersion model or by the dispersion model acceptable to the Director to 10-minute average concentrations:

$$\mathbf{X_{10min} = X_{60min} * 1.65}$$

where X<sub>10min</sub> = 10-minute average concentration  
X<sub>60min</sub> = one-hour average concentration

**SCHEDULE "C"**

**PERFORMANCE REQUIREMENTS**  
**In-Stack Emission Limits**

<b>Parameter</b>	<b>In-Stack Emission Limit</b>	<b>Verification of Compliance</b>
Total Suspended Particulate Matter (filterable particulate measured in accordance with the Ontario Source Testing Code)	9 mg/Rm3	Results from compliance Source Testing
cadmium	7 µg/Rm3	Results from compliance Source Testing
lead	50 µg/Rm3	Results from compliance Source Testing
mercury	15 µg/Rm3	Results from compliance Source Testing
dioxins and furans	60 pg/Rm3	Results from compliance Source Testing; results expressed as I-TEQ
hydrochloric acid (HCl)	9 mg/Rm3	Calculated as the rolling arithmetic average of 24 hours of data measured by a CEM System that provides data at least once every 15 minutes
sulphur dioxide (SO2)	35 mg/Rm3	Calculated as the rolling arithmetic average of 24 hours of data measured by a CEM System that provides data at least once every 15 minutes
nitrogen oxides (NOx)	121 mg/ Rm3	Calculated as the rolling arithmetic average of 24 hours of data measured by a CEM System that provides data at least once every 15 minutes
organic matter (undiluted, expressed as equivalent methane)	50 ppmv (33 mg/ Rm3)	Results from compliance source testing
carbon monoxide	35 ppmv (40 mg/Rm3)	Calculated as the rolling arithmetic average of four (4) hours of data measured by a CEM System that provides data at least once every fifteen minutes, in accordance with condition 6 (2) (c)
opacity	10 percent	Calculated as the rolling arithmetic average of six (6) minutes of data measured by a CEM System that provides data at least once every minute
	5 percent	Calculated as the rolling arithmetic average of two (2) hours of data measured by a CEM System that provides data at least once every

mg/Rm3- milligrams per reference cubic metre;

pg/Rm3 - picograms per reference cubic metre

ppmdv parts per million by dry volume,

µg/Rm3 - micrograms per reference cubic metre

R- reference conditions - 25 degrees Celsius, 101.3 kilopascals, dry basis, 11% oxygen

**SCHEDULE "D"**

**TEST CONTAMINANTS**

Hydrogen Chloride  
Hydrogen Fluoride  
Oxides of Nitrogen expressed as Nitrogen Dioxide  
Sulphur Dioxide  
Total Hydrocarbons, expressed as methane on wet basis  
Carbon Dioxide  
Total Suspended Particulate Matter (< 44 microns)  
Total PM-10 including condensables  
Total PM-2.5 including condensables

**Metals**

Antimony  
Arsenic  
Barium  
Beryllium  
Cadmium  
Chromium  
Cobalt  
Copper  
Lead  
Mercury  
Molybdenum  
Nickel  
Selenium  
Silver  
Thallium  
Vanadium  
Zinc

**Schedule "D" - Cont'd**

Chlorobenzenes	Chlorophenols
Monochlorobenzene (MCB)	2-monochlorophenol (2-MCP)
1,2-Dichlorobenzene (1,2-DCB)	3-monochlorophenol (3-MCP)
1,3-Dichlorobenzene (1,3-DCB)	4-monochlorophenol (4-MCP)
1,4-Dichlorobenzene (1,4-DCB)	2,3-dichlorophenol (2,3-DCP)
1,2,3-Trichlorobenzene (1,2,3-TCB)	2,4-dichlorophenol (2,4-DCP)
1,2,4-Trichlorobenzene (1,2,4-TCB)	2,5-dichlorophenol (2,5-DCP)
1,3,5-Trichlorobenzene (1,3,5-TCB)	2,6-dichlorophenol (2,6-DCP)
1,2,3,4-Tetrachlorobenzene (1,2,3,4-TeCB)	3,4-dichlorophenol (3,4-DCP)
1,2,3,5-Tetrachlorobenzene (1,2,3,5-TeCB)	3,5-dichlorophenol (3,5-DCP)
1,2,4,5-Tetrachlorobenzene (1,2,4,5-TeCB)	2,3,4-trichlorophenol (2,3,4-T3CP)
Pentachlorobenzene (PeCB)	2,3,5-trichlorophenol (2,3,5-T3CP)
Hexachlorobenzene (HxCB)	2,3,6-trichlorophenol (2,3,6-T3CP)
	2,4,5-trichlorophenol (2,4,5-T3CP)
	2,4,6-trichlorophenol (2,4,6-T3CP)
	3,4,5-trichlorophenol (3,4,5-T3CP)
	2,3,4,5-tetrachlorophenol (2,3,4,5-T4CP)
	2,3,4,6-tetrachlorophenol (2,3,4,6-T4CP)
	2,3,5,6-tetrachlorophenol (2,3,5,6-T4CP)
	Pentachlorophenol (PeCP)

**Schedule "D" - Cont'd**

Co-Planar PCBs (Dioxin-like PCBs)	Volatile Organic Matter
PCB-077 (3,3',4,4'-TCB)	Acetaldehyde
PCB-081 (3,4,4',5-TCB)	Acetone
PCB-105 (2,3,3',4,4'-PeCB)	Acrolein
PCB-114 (2,3,4,4',5-PeCB)	Benzene
PCB-118 (2,3',4,4',5-PeCB)	Bromodichloromethane
PCB-123 (2',3,4,4',5-PeCB)	Bromoform
PCB-126 (3,3',4,4',5-PeCB)	Bromomethane
PCB-156 (2,3,3',4,4',5-HxCB)	Butadiene, 1,3 -
PCB-157 (2,3,3',4,4',5'-HxCB)	Butanone, 2 -
PCB-167 (2,3',4,4',5,5'-HxCB)	Carbon Tetrachloride
PCB-169 (3,3',4,4',5,5'-HxCB)	Chloroform
PCB-189 (2,3,3',4,4',5,5'-HpCB)	Cumene
	Dibromochloromethane
	Dichlorodifluoromethane
	Dichloroethane, 1,2 -
	Dichloroethene, Trans - 1,2
	Dichloroethene, 1,1 -
	Dichloropropane, 1,2 -
	Ethylbenzene
	Ethylene Dibromide
	Formaldehyde
	Mesitylene
	Methylene Chloride
	Styrene
	Tetrachloroethene
	Toluene
	Trichloroethane, 1,1,1 -
	Trichloroethene
	Trichloroethylene, 1,1,2 -
	Trichlorotrifluoroethane
	Trichlorofluoromethane
	Xylenes, M-, P- and O-
	Vinyl Chloride

**Schedule "D" - Cont'd**

Polycyclic Organic Matter	Dioxin/Furan Isomers
Acenaphthylene	
Acenaphthene	2,3,7,8-Tetrachlorodibenzo-p-dioxin
Anthracene	1,2,3,7,8-Pentachlorodibenzo-p-dioxin
Benzo(a)anthracene	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin
Benzo(b)fluoranthene	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin
Benzo(k)fluoranthene	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin
Benzo(a)fluorene	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin
Benzo(b)fluorene	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin
Benzo(ghi)perylene	
Benzo(a)pyrene	2,3,7,8-Tetrachlorodibenzofuran
Benzo(e)pyrene	2,3,4,7,8-Pentachlorodibenzofuran
Biphenyl	1,2,3,7,8-Pentachlorodibenzofuran
2-Chloronaphthalene	1,2,3,4,7,8-Hexachlorodibenzofuran
Chrysene	1,2,3,6,7,8-Hexachlorodibenzofuran
Coronene	1,2,3,7,8,9-Hexachlorodibenzofuran
Dibenzo(a,c)anthracene	2,3,4,6,7,8-Hexachlorodibenzofuran
Dibenzo(a,h)anthracene	1,2,3,4,6,7,8-Heptachlorodibenzofuran
Dibenzo(a,e)pyrene	1,2,3,4,7,8,9-Heptachlorodibenzofuran
9,10-Dimethylanthracene	1,2,3,4,6,7,8,9-Octachlorodibenzofuran
7,12-Dimethylbenzo(a)anthracene	
Fluoranthene	
Fluorene	
Indeno(1,2,3-cd)pyrene	
2-Methylanthracene	
3-Methylcholanthrene	
1-Methylnaphthalene	
2-Methylnaphthalene	
1-Methylphenanthrene	
9-Methylphenanthrene	
Naphthalene	
Perylene	
Phenanthrene	
Picene	
Pyrene	
Tetralin	
M-terphenyl	
O-terphenyl	
P-terphenyl	
Triphenylene	

## SCHEDULE "E"

### SOURCE TESTING PROCEDURES

1. The Owner shall submit, to the Manager a test protocol including the Pre-Test Information required by the Source Testing Code, at least two (2) months prior to the scheduled Source Testing date.
2.
  - (1) For the purpose of the Source Testing program, the Owner is temporarily permitted to operate the Boilers at a residual oxygen concentration below the performance limit outlined in Condition 6.(2)(b) during the period of the Source Testing. The Owner shall ensure that the concentration of residual oxygen in the Undiluted Gases leaving the combustion zone of the Boilers, as measured and recorded by the CEM System, shall not be less than 5 percent by volume on a dry basis, during this Source Testing program.
  - (2) If the Source Testing results demonstrate that compliance with the Performance Requirements can be maintained at a residual oxygen concentration below the performance limit outlined in Condition 6.(2)(b), the Owner may apply to the Director for approval to alter the required residual oxygen concentration.
3. The Owner shall finalize the test protocol in consultation with the Manager.
4. The Owner shall not commence the Source Testing until the Manager has accepted the test protocol.
5. The Owner shall complete the first Source Testing not later than six (6) months after Commencement of Operation of the Facility/Equipment.
6. The Owner shall conduct subsequent Source Testing at least once (1) every calendar year thereafter.
7. The Owner shall notify the District Manager and the Manager in writing of the location, date and time of any impending Source Testing required by this Certificate, at least fifteen (15) days prior to the Source Testing.
8. The Owner shall submit a report on the Source Testing programs to the District Manager and the Manager not later than three (3) months after completing each Source Testing program. The report shall be in the format described in the Source Testing Code, and shall also include, but not be limited to:
  - (1) an executive summary;
  - (2) records of operating conditions; including process description, records of waste composition and feed rate during the Source Testing;
  - (3) all records produced by the CEM Equipment;
  - (4) procedures followed during the Source Testing and any deviation from the proposed test protocol and the reasons therefore;
  - (5) the results of the analyses of the stack emissions;

- (6) a summary table that compares the Source Testing results, the monitoring data and the records of operating conditions during the Source Testing to the requirements imposed by the *EPA*, the Regulation and/or the Performance Requirements;
  - (7) the results of dispersion calculations in accordance with the *O. Reg. 419/05*, indicating the maximum concentration of the Test Contaminants, at the Point of Impingement.
  - (8) an updated site wide emission source inventory to assess the aggregate point of impingement concentrations of the Test Contaminants.
9. The Owner shall ensure that the Source Testing Report is made available and easily accessible for review by the public at the Facility, immediately after the document is submitted to the Ministry.
10. The Director may not accept the results of the Source Testing if:
- (1) the Source Testing Code or the requirements of the Manager were not followed;  
or
  - (2) the Owner did not notify the District Manager and the Manager of the Source Testing; or
  - (3) the Owner failed to provide a complete report on the Source Testing.
11. If the Director does not accept the results of the Source Testing, the Director may require re-testing.

## SCHEDULE "F"

**PARAMETER:**

Temperature

**LOCATION:**

The sample point for the Continuous Temperature Monitor shall be located at a point where the temperature in the combustion zone of the Boilers has reached at least 1000°C for a period of not less than one second. Compliance shall be proven by direct measurement or/and a correlation between the measured temperature and the intended target proven by a method acceptable to the Director.

**PERFORMANCE:**

The Continuous Temperature Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	SPECIFICATION
1) Type:	“K”, “J” or other type or alternative measurement device with equivalent measurement accuracy and suitable to the temperature range being measured
2) Accuracy:	± 1.5 percent of the minimum gas temperature

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor without a significant loss of accuracy and with a time resolution of 1 minutes or better. Temperature readings for record keeping and reporting purposes shall be kept as one-hour average values.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.

**PARAMETER:**

Carbon Monoxide

**INSTALLATION:**

The Continuous Carbon Monoxide Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of carbon monoxide in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler, and shall meet the following installation specifications.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Range (parts per million, ppm):	0 to $\geq$ 100 ppm
2) Calibration Gas Ports:	close to the sample point

**PERFORMANCE:**

The Continuous Carbon Monoxide Monitor shall meet the following minimum performance specifications for the following parameters.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2) Relative Accuracy:	$\leq$ 10 percent of the mean value of the reference method test data or $\pm$ 5 ppm whichever is greater
3) Calibration Error:	$\leq$ 2.5 percent of actual concentration
4) System Bias:	$\leq$ 4 percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	$\leq$ 5 percent of span value
7) Span Calibration Drift (24-hour):	$\leq$ 5 percent of span value
8) Response Time (90 percent response to a step change):	$\leq$ 180 seconds
9) Operational Test Period:	$\geq$ 168 hours without corrective maintenance

**CALIBRATION:**

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter.

**PARAMETER:**

Oxygen

**INSTALLATION:**

The Continuous Oxygen Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of oxygen in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler and in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Range (percentage):	0 - 20 or 0 - 25
2) Calibration Gas Ports:	close to the sample point

**PERFORMANCE:**

The Continuous Oxygen Monitor shall meet the following minimum performance specifications for the following parameters.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Span Value (percentage):	2 times the average normal concentration of the source
2) Relative Accuracy:	≤10 percent of the mean value of the reference method test data
3) Calibration Error:	0.25 percent O <sub>2</sub>
4) System Bias:	≤ 4 percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	≤ 0.5 percent O <sub>2</sub>
7) Span Calibration Drift (24-hour):	≤ 0.5 percent O <sub>2</sub>
8) Response Time (90 percent response to a step change):	≤ 90 seconds
9) Operational Test Period:	≥ 168 hours without corrective maintenance

**CALIBRATION:**

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better. Oxygen concentration readings for record keeping and reporting purposes shall be kept as one-hour average values.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

**PARAMETER:**

Hydrogen Chloride

**INSTALLATION:**

The Continuous Hydrogen Chloride Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of hydrogen chloride in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Range (parts per million, ppm):	0 to $\geq 100$ ppm
2) Calibration Gas Ports:	close to the sample point

**PERFORMANCE:**

The Continuous Hydrogen Chloride Monitor shall meet the following minimum performance specifications for the following parameters.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2) Relative Accuracy:	$\leq 20$ percent of the mean value of the reference method test data or $\pm 5$ ppm whichever is greater
3) Calibration Error:	$\leq 2$ percent of actual concentration
4) System Bias:	$\leq 4$ percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	$\leq 5$ percent of span value
7) Span Calibration Drift (24-hour):	$\leq 5$ percent of span value
8) Response Time (90 percent response to a step change):	$\leq 240$ seconds
9) Operational Test Period:	$\geq 168$ hours without corrective maintenance

**CALIBRATION:**

The monitor shall be calibrated daily at the sample point, to ensure that it meets the drift limits specified above, during the periods of the operation of the . The results of all calibrations shall be recorded at the time of calibration.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 5 minutes or better.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

**PARAMETER:**

Nitrogen Oxides

**INSTALLATION:**

The Continuous Nitrogen Oxide Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of nitrogen oxides in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Analyzer Operating Range (parts per million, ppm):	0 to $\geq 200$ ppm
2) Calibration Gas Ports:	close to the sample point

**PERFORMANCE:**

The Continuous Nitrogen Oxides Monitor shall meet the following minimum performance specifications for the following parameters.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2) Relative Accuracy:	$\leq 10$ percent of the mean value of the reference method test data
3) Calibration Error:	$\leq 2$ percent of actual concentration
4) System Bias:	$\leq 4$ percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	$\leq 2.5$ percent of span value
7) Span Calibration Drift (24-hour):	$\leq 2.5$ percent of span value
8) Response Time (90 percent response to a step change):	$\leq 240$ seconds
9) Operational Test Period:	$\geq 168$ hours without corrective maintenance

**CALIBRATION:**

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

**PARAMETER:**

Sulphur Dioxide

**INSTALLATION:**

The Continuous Sulphur Dioxide Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of sulphur dioxide in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

**PARAMETERS**

- 1. Range (parts per million, ppm):
- 2. Calibration Gas Ports:

**SPECIFICATION**

0 to  $\geq 100$  ppm  
 close to the sample point

**PERFORMANCE:**

The Continuous Sulphur Dioxide Monitor shall meet the following minimum performance specifications for the following parameters.

**PARAMETERS**

- 1. Span Value (nearest ppm equivalent):
- 2. Relative Accuracy:
- 3. Calibration Error:
- 4. System Bias:

**SPECIFICATION**

2 times the average normal concentration of the source  
 $\leq 10$  percent of the mean value of the reference method test data  
 $\leq 2$  percent of actual concentration  
 $\leq 4$  percent of the mean value of the reference method test data  
 all system components checked  
 $\leq 2.5$  percent of span value  
 $\leq 2.5$  percent of span value  
 $\leq 200$  seconds  
 $\geq 168$  hours without corrective maintenance

- 5. Procedure for Zero and Span Calibration Check:
- 6. Zero Calibration Drift (24-hour):
- 7. Span Calibration Drift (24-hour):
- 8. Response Time (90 percent response to a step change):
- 9. Operational Test Period:

**CALIBRATION:**

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter.

**PARAMETER:**

Total Hydrocarbons

**INSTALLATION:**

The Total Hydrocarbons Monitor shall be installed at an accessible location where the measurements are representative of the concentrations of Organic Matter (as methane) in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler and shall meet the following installation specifications.

**PARAMETERS**

**SPECIFICATION**

- |    |                                 |   |
|----|---------------------------------|---|
| 1. | Detector Type:                  | Flame Ionization                                    |
| 2. | Oven Temperature:               | 160°C minimum                                       |
| 3. | Flame Temperature:              | 1800 °C minimum at the corona of the hydrogen flame |
| 4. | Range (parts per million, ppm): | 0 to ≥200 ppm                                       |
| 5. | Calibration Gas:                | propane in air or nitrogen                          |
| 6. | Calibration Gas Ports:          | close to the sample point                           |

**PERFORMANCE:**

The Continuous Total Hydrocarbons Monitor shall meet the following minimum performance specifications for the following parameters.

**PARAMETERS**

**SPECIFICATION**

- |     |   |  |
|-----|---|--|
| 1.  | Span Value (nearest ppm equivalent):                  | 2 times the average normal concentration of the source   |
| 2.  | Relative Accuracy:                                    | ≤ 10 percent of the mean value of the reference method test data or ± 5 ppm whichever is greater |
| 3.  | System Bias:  | ≤ 4 percent of the mean value of the reference method test data                                  |
| 4.  | Noise:  | ≤ 1 percent of span value on most sensitive range  |
| 5.  | Repeatability:  | ≤ 1 percent of span value  |
| 6.  | Linearity (response with propane in air):             | ≤ 3 percent of span value over all ranges  |
| 7.  | Calibration Error:                                    | ≤ 2 percent of actual concentration  |
| 8.  | Procedure for Zero and Span Calibration Check:        | all system components checked on all ranges  |
| 9.  | Zero Calibration Drift (24-hours):                    | ≤ 2.5 percent of span value on all ranges  |
| 10. | Span Calibration Drift (24-hours):                    | ≤ 2.5 percent of span value  |
| 11. | Response Time (90 percent response to a step change): | ≤ 60 seconds   |
| 12. | Operational Test Period:                              | ≥ 168 hours without corrective maintenance   |

**CALIBRATION:**

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better. Measurements of concentrations of organic matter (as methane) shall be kept as 10 minute average values for record keeping and reporting purposes.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

**PARAMETER:** Opacity

**INSTALLATION:** The Continuous Opacity Monitor shall be installed at an accessible location where the measurements are representative of the actual opacity of the Undiluted Gases leaving the APC Equipment associated with each Boiler and shall meet the following design and installation specifications.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Wavelength at Peak Spectral Response (nanometres, nm):	500 - 600
2) Wavelength at Mean Spectral Response (nm):	500 - 600
3) Detector Angle of View:	≤ 5 degrees
4) Angle of Projection:	≤ 5 degrees
5) Range (percent of opacity):	0 -100

**PERFORMANCE:**

The Continuous Opacity Monitor shall meet the following minimum performance specifications for the following parameters.

<b>PARAMETERS</b>	<b>SPECIFICATION</b>
1) Span Value (percent opacity):	2 times the average normal opacity of the source
2) Calibration Error:	≤3 percent opacity
3) Attenuator Calibration:	≤2 percent opacity
4) Response Time (95 percent response to a step change):	≤ 10 seconds
5) Schedule for Zero and Calibration Checks:	daily minimum
6) Procedure for Zero and Calibration Checks:	all system components checked
7) Zero Calibration Drift (24-hours):	≤ 2 percent opacity
8) Span Calibration Drift (24-hours):	≤ 2 percent opacity
9) Conditioning Test Period:	≥ 168 hours without corrective maintenance
10) Operational Test Period:	≥ 168 hours without corrective maintenance

**CALIBRATION:**

The monitor shall be calibrated, to ensure that it meets the drift limits specified above, during the periods of the operation of the Equipment. The results of all calibrations shall be recorded at the time of calibration.

**DATA RECORDER:**

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 30 seconds or better.

**RELIABILITY:**

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter.

**PARAMETER:**

**Moisture, Hydrogen Fluoride and Ammonia**

**Selection and Installation**

The Owner shall select and install a CEM System, to measure moisture content of the stack gases, the concentration of hydrogen fluoride and ammonia in the Undiluted Gases leaving the APC Equipment associated with each Boiler, as follows:

- a) Design and Performance Specifications shall be in accordance with 40 CFR 60, Appendix B, Specification 4.
- b) The Owner shall select the probe locations in compliance with 40 CFR 60, Appendix B, Specification 2.

**Test Procedures**

The Owner shall verify compliance with the Design and Performance Specifications in accordance with 40 CFR 60, Appendix B, Specification 4, with the reference method for the relative accuracy test being Method 4. of the Source Testing Code.

In furtherance of, but without limiting the generality of the foregoing, the mean difference between the calibration gas value and the analyzer response value at each of the four test concentrations shall be less than 5 percent of the measurement range.

## SCHEDULE "G"

A stormwater management facility to service a 10.0 ha drainage area of the Durham York Energy Centre located on the west side of Osbourne Road and north of the CN Rail, Lot 27, Concession Broken Front, Part, Municipality of Clarington, Regional Municipality of Durham, designed to provide quality and quantity control of stormwater run-off by attenuating runoff from storm events up to 1:100 years return frequency to or below the pre-development levels, consisting of:

### **East Stormwater Management Pond ( East SWM Pond)**

A stormwater management facility to service a 5.7 ha drainage area comprising of the eastern part of the Durham York Energy Centre consisting of the following:

- one (1) approximately 128 m long drainage ditch collecting stormwater runoff from the north eastern part of the site, having an average horizontal slope of 1.56%, depth of 0.5 m, bottom width of 1.0 m, and side slopes of 2.5H:1V, discharging to storm sewers described below;
- one (1) approximately 199 m long drainage ditch collecting stormwater runoff from the eastern part of the site, having an average horizontal slope of 2.77%, depth of 0.5 m, bottom width of 1.0 m, and side slopes of 2.5H:1V, discharging to storm sewers described below;
- approximately fourteen (14) catch basins/maintenance holes and a total of 466.8 m long 450 mm diameter and 34.6 m of 600 mm diameter corrugated PE stormwater sewers conveying stormwater runoff collected from the north and north eastern part of the site, discharging to a forebay of a wet extended detention stormwater management pond described below;
- one (1) forebay with approximate bottom dimensions of 11.0 m wide and 34.8 m long and depth of 1.0 m, equipped with 600 mm diameter corrugated HDPE inlet pipe, a rip-rap covered inlet structure, and a forebay berm with top elevation of 95.0 m masl, discharging to a wet extended detention pond described below;
- one (1) wet extended detention stormwater management pond located at the south east part of the site, with approximate bottom dimensions of 21.0 m wide and 71.4 m long and a maximum depth of 2.7 m at 96.70 m masl elevation, having side slopes of 3H:1V and 5H:1V near the outlet structure, providing a permanent pool storage capacity of 1,008 m<sup>3</sup> at elevation 95.0 m masl, an active storage capacity of 3,099 m<sup>3</sup> at 96.70 m masl elevation, and total storage capacity of 4,107 m<sup>3</sup>, equipped with an outlet structure consisting of a 150 mm diameter reverse slope inlet pipe with a gate valve and a 450 mm diameter perforated pipe riser fitted with 75 mm diameter orifice plate, a 75 mm diameter maintenance discharge pipe with a gate valve, and an emergency overflow structure at elevation 97.0 m masl, discharging through a 450 mm diameter outlet pipe to existing swale along the northern side of the CN Rail line to Tooley Creek and eventually to Lake Ontario;

## **West Stormwater Management Pond ( West SWM Pond)**

A stormwater management facility to service a 4.3 ha drainage area comprising of the western part of the Durham York Energy Centre consisting of the following:

- one (1) approximately 296 m long drainage ditch collecting stormwater runoff from the north western part of the site, having an average horizontal slope of 1.0%, depth of 0.5 m, bottom width of 1.0 m, and side slopes of 2.5H:1V, discharging to storm sewers described below;
- approximately five (5) catch basins/maintenance holes and a total of 272.2 m long 450 mm diameter corrugated PE stormwater sewers conveying stormwater runoff collected from the western part of the site, discharging to a forebay of a wet extended detention stormwater management pond described below;
- one (1) forebay with approximate bottom dimensions of 13.0 m wide and 26.0 m long and depth of 1.0 m, equipped with 450 mm diameter corrugated HDPE inlet pipe, a rip-rap covered inlet structure, and a forebay berm with top elevation of 95.0 m masl, discharging to a wet extended detention pond described below;
- one (1) wet extended detention stormwater management pond located at the south western part of the site, with approximate bottom dimensions of 13.0 m wide and 58.0 m long and a maximum depth of 2.5 m at 96.5 m masl elevation, having side slopes of 3H:1V and 5H:1V near the outlet structure, providing a permanent storage capacity of 623 m<sup>3</sup> at elevation 95.0 m masl, an active storage capacity of 2,054 m<sup>3</sup> at 96.50 m masl elevation, and total storage capacity of 2,677 m<sup>3</sup>, equipped with an outlet structure consisting of a 150 mm diameter reverse slope inlet pipe with a gate valve and a 450 mm diameter perforated pipe riser fitted with 75 mm diameter orifice plate, a 75 mm diameter maintenance discharge pipe with a gate valve, and an emergency overflow structure at elevation 96.80 m masl, discharging through a 450 mm diameter outlet pipe to existing swale along the northern side of the CN Rail line to Tooley Creek and eventually to Lake Ontario;

including all associated controls and appurtenances.

*The reasons for the imposition of these terms and conditions are as follows:*

## **GENERAL**

Conditions 1.(1), (2), (5), (6), (7), (8), (9), (10), (11), (12), (13), (17), (18) and (19) are included to clarify the legal rights and responsibilities of the Owner.

Conditions Nos.1.(3) and (4) are included to ensure that the Site is operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

Condition No. 1.(14) is included to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

Condition No.1.(15) is included to restrict potential transfer or encumbrance of the Site without the notification to the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Certificate.

Condition No. 1.(16) is included to ensure that the appropriate Ministry staff has ready access to the operations of the Site which are approved under this Certificate. The Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the *EPA*, the *OWRA*, the *PA*, the *NMA* and the *SDWA*.

## **SERVICE AREA, APPROVED WASTE TYPES, RATES and STORAGE**

Condition No. 2. is included to specify the approved waste receipt rates, the approved waste types and the service area from which waste may be accepted at the Site based on the Owner's application and supporting documentation. Condition No. 2. is also included to specify the maximum amount of waste that is approved to be stored at the Site.

## **SIGNS and SITE SECURITY**

Condition No. 3. is included to ensure that the Site's users, operators and the public are fully aware of important information and restrictions related to the operation of the Site. Condition No. 3. is also included to ensure that the Site is sufficiently secured, supervised and operated by properly trained personnel and to ensure controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site personnel is on duty.

## **SITE OPERATIONS**

Condition No. 4. is included to outline the operational requirements for the Facility to ensure that the said operation does not result in an adverse effect or a hazard to the natural environment or any person.

### **EQUIPMENT and SITE INSPECTIONS and MAINTENANCE**

Condition No. 5. is included to require the Site to be maintained and inspected thoroughly on a regular basis to ensure that the operations at the Site are undertaken in a manner which does not result in an adverse effect or a hazard to the health and safety of the environment or any person.

### **PERFORMANCE REQUIREMENTS**

Condition No. 6 is included to set out the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.

### **TESTING, MONITORING and AUDITING**

Condition No. 7. is to require the Owner to gather accurate information on the operation of the Facility so that the environmental impact and subsequent compliance with the *EPA*, the *OWRA*, their Regulations and this Certificate can be verified.

### **NUISANCE IMPACT CONTROL and HOUSEKEEPING**

Condition No. 8. is included to ensure that the Site is operated and maintained in an environmentally acceptable manner which does not result in a negative impact on the natural environment or any person. Condition No. 8 is also included to specify odour control measures to minimize a potential for odour emissions from the Site.

### **STAFF TRAINING**

Condition No. 9. is included to ensure that staff are properly trained in the operation of the equipment and instrumentation used at the Site, in the emergency response procedures and on the requirements and restrictions related to the Site operations under this Certificate.

### **COMPLAINTS RECORDING PROCEDURE**

Condition No.10. is included to require the Owner to respond to any environmental complaints resulting from the Facility appropriately and in a timely manner and that appropriate actions are taken to prevent any further incidents that may cause complaints in the future.

### **CONTINGENCY and EMERGENCY RESPONSE PLAN and EMERGENCY SITUATIONS RESPONSE AND REPORTING**

Conditions Nos.11. and 12. are included to ensure that the Owner is prepared and properly equipped to take immediate action in the event of an emergency situation.

### **SUBMISSIONS to the REGIONAL DIRECTOR or DISTRICT MANAGER**

Condition No. 13. is included to set out the requirements for the submissions to the District Manager and the Regional Director regarding the operation of the Facility and the activities required by this Certificate.

### **RECORDS KEEPING**

Condition No.14. is included to ensure that detailed records of Site activities, inspections, monitoring and upsets are recorded and maintained for inspection and information purposes.

### **REPORTING**

Condition No.15. is to ensure that regular review of site, operations and monitoring is carried out and findings documented by a third party for determining whether or not the Site is being operated in compliance with this Certificate of Approval, the EPA and its regulations and whether or not any changes should be considered.

### **PUBLIC ACCESS to DOCUMENTATION**

Condition No.16. is included to ensure that the public has access to information on the operation of the Site in order to participate in the activities of the Advisory Committee in a meaningful and effective way.

### **ADVISORY COMMITTEE**

Condition No.17. is included to require the Owner to establish a forum for the exchange of information and public dialogue on activities carried out at the Site and to ensure that the local residents are properly informed of the activities at the Site and that their concerns can be heard and acted upon , as necessary. Open communication with the public and local authorities is important in helping to maintain high standards for the operation of the Site and protection of the natural environment. Condition 16. is also included to ensure that the requirements of the EA Approval are fulfilled.

### **CLOSURE of the SITE**

Condition No.18. is included to ensure that the final closure of the Site is completed in accordance with Ministry's standards.

*In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, and in accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter O.40, as amended, you may by written Notice served upon me, the Environmental Review Tribunal, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act and Section 101 of the*

*Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:*

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, 15th Floor  
Toronto, Ontario  
M5G 1E5

AND

The Director  
Section 9 and 39, *Environmental Protection Act*  
Section 53, *Ontario Water Resources Act*  
Ministry of the Environment  
2 St. Clair Avenue West, Floor 12A  
Toronto, Ontario  
M4V 1L5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*The above noted site is approved under Section 9 and Section 27 of the Environmental Protection Act and Section 53 of the Ontario Water Resources Act.*

DATED AT TORONTO this 28<sup>th</sup> day of June, 2011



Signature  
Ian Parrott, P .Eng.  
Director  
Section 9, *EPA*  
Section 39, *EPA*  
Section 53, *OWRA*

MW,QN,SH/

c: District Manager, MOE York-Durham  
Regional Director, MOE Central Region



Ministry of the Environment  
Ministère de l'Environnement

**CERTIFICATE OF APPROVAL**  
**MULTI-MEDIA**  
**Number 7306-8FDKNX**  
**Issue Date: June 28, 2011**

The Regional Municipality of Durham  
605 Rossland Rd E 5th Floor  
Whitby, Ontario  
L1N 6A3

and

The Regional Municipality of York  
17250 Yonge Street  
Newmarket, Ontario  
L3Y 6Z1

and

Covanta Durham York Renewable Energy Limited Partnership  
445 South Street  
Morristown, New Jersey  
United States of America  
07960

Site Location: Durham York Energy Centre  
72 Osbourne Road  
Lot 27, Concession Broken Front, Part 1  
Clarington Municipality, Regional Municipality of Durham

*You have applied in accordance with Sections 9 and 27 of the Environmental Protection Act and Section 53 of the Ontario Water Resources Act for approval of:*

A thermal treatment facility to be used for the receipt and manual and/or mechanical sorting of solid non-hazardous post-diversion municipal waste (Waste), temporary storage and thermal treatment of the Waste, abatement of the emissions from the processes and activities undertaken at the Site, handling, screening, sorting and/or conditioning of the residual wastes and management of the wastewater and the non-contact stormwater generated at the Site. The Facility's maximum Waste thermal treatment rate is 140,000 tonnes per year of Waste, the nominal electricity generation rate is 20 Megawatts and the nominal steam generation rate 72,000 kilograms per hour of steam.

The facility consists of the following major processes and support units:

- (1) two (2) identical combustion trains, each having a nominal capacity of 218 tonnes of Waste per day venting into the atmosphere via a common exhaust stack, having an exit diameter of 1.71 metres, extending 87.6 metres above grade.

Each combustion train is an independent process train and it consists of the following main components:

- (a) a stoker grate steam Boiler, having a design heat input of 118 Gigajoules per hour, equipped with a natural gas fired auxiliary Low NO<sub>x</sub> burner, having a nominal heat input of 59.5 Gigajoules per hour; and
- (b) the following air pollution control equipment:
  - (i) a Selective Non Catalytic Reduction System (SNCR System) with ammonia injection for NO<sub>x</sub> control;
  - (ii) an activated carbon injection system, to reduce mercury and dioxins in flue gas;
  - (iii) a dry recirculation lime injection scrubber to control acid gases;
  - (iv) a pulse jet type baghouse to control particulate emissions;
- (2) one (1) steam turbine generator set having a rated capacity of 20 Megawatts;
- (3) waste and reagent storage as described in Condition 2.:
- (4) fly ash conditioning system including two (2) surge bins, two (2) pugmills and seven (7) curing/storage bunkers;
- (5) bottom ash sorting system including conveyors, screens, a rotary drum magnet and an eddy separator;
- (6) one (1) emergency diesel generator, rated at 250 Kilowatts;
- (7) natural gas-fired combustion equipment for comfort heating;
- (8) a wastewater management system for collection, recirculation and reuse of the process water; and
- (9) a stormwater management facility for collection, transmission and discharge of non-contact runoff at the Site, as described in the attached Schedule "G",

Note: Use of the site for any other type of waste is not approved under this Certificate, and requires obtaining a separate approval amending this Certificate.

*For the purpose of this Provisional Certificate of Approval and the terms and conditions specified below, the following definitions apply:*

**"Acoustic Assessment Report"** means the report, prepared in accordance with *Publication NPC-233* by Paul Nijadlik / Golder Associates Ltd. and dated March 2011 submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility;

**"Acoustic Assessment Summary Table"** means a table summarizing the results of the Acoustic Assessment Report;

**"Acoustic Audit"** means an investigative procedure consisting of measurements of all noise emissions due to the operation of the Facility, assessed in comparison to the Performance Limits for the Facility regarding noise emissions, completed in accordance with the procedures set in the Ministry's *Publication NPC-103* and reported in accordance with the Ministry's *Publication NPC-233*;

**"Acoustic Audit Report"** means a report presenting the results of an Acoustic Audit, prepared in accordance with the Ministry's *Publication NPC-233*;

**"Acoustical Consultant"** means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;

**"Air Standards Manager"** means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this Certificate;

**"APC Building"** means the building at the Site where the APC Equipment and the reagent indoor storage tanks are located;

**"APC Equipment"** means all the air pollution control equipment at the Facility, including the SNCR System, the activated carbon injection system, the dry recirculation lime injection scrubber and the pulse jet type baghouse to control emissions from the combustion chamber of the Boilers, the dust collectors to control emissions from the Residue Building and the dust collectors to control emissions from the reagent storage silos;

**"Boiler Building"** means the building at the Site where the Boilers, turbine generator and the air cooled condenser(s) are located;

**"Boilers"** means the two (2) steam boilers firing the approved Waste described in this Certificate;

**"Bulky Unprocessable Items"** means the incoming Waste received at the Site that cannot be processed in the Equipment;

"**CEM Systems**" means the continuous monitoring and recording systems used to measure and record the temperature and the emissions from the Boilers as specified in the attached Schedule "F";

"**Certificate**" means this entire provisional Certificate of Approval, issued in accordance with Sections 39 and 9 of the *EPA* and Section 53 of the *OWRA*, and includes any schedules attached to it, the application and the supporting documentation listed in the attached Schedule "A";

"**40 CFR 60**" means title 40, part 60 under the Code of Federal Regulations (Air Programs, U.S. Environmental Protection Agency), revised as of July 1, 1990, published by the Office of the Federal Register, National Archives and Records, Administration in the United States of America;

"**Complaint**" means a complaint received either by the Owner or the District Manager that has been confirmed by staff of the Ministry and the cause of which is attributed to the Owner's activities at the Facility;

"**Commencement Date of Operation**" means the date when the approved Waste is first received at the Site;

"**Compound of Concern**" means a contaminant that, based on generally available information, may be emitted to the atmosphere in a quantity from any source at the Facility that is significant either in comparison to the relevant Ministry Point of Impingement Limit or if a Ministry Point of Impingement Limit is not available for the compound then, based on generally available toxicological information, the compound has the potential to cause an adverse effect as defined by the *EPA* at a Point of Impingement;

"**Controlled Shutdown**" means an immediate cut-off of all waste into the Boilers, while maintaining the operation of the combustion chamber and the APC Equipment within the Performance Requirements;

"**Description Section**" means the section on page one of the Certificate describing the Owner's operations and the Equipment located at the Facility and specifying the Facility Production Limit for the Facility;

"**Dioxins and Furans**" means polychlorinated dibenzo-dioxins and polychlorinated dibenzofurans;

"**Director**" means any person appointed in writing by the Minister of the Environment pursuant to section 5 of the *EPA* and pursuant to section 5 of the *OWRA* as a Director for the purposes of Part V of the *EPA*, section 9 of the *EPA* and section 53 of the *OWRA*;

"**District Manager**" means the District Manager of the York Durham District Office of the Ministry;

"**Emergency Shutdown**" means an immediate cut-off of all waste feed into the Boilers, followed by an accelerated extinction of all combustion in the Boilers, while maintaining the combustion temperature within the Performance Requirements, except when unreasonable;

"**Emission Summary Table**" means the table prepared in accordance with *O. Reg. 419/05* and the Procedure Document listing the appropriate Point of Impingement concentrations of each Compound of Concern from the Facility and providing comparison to the corresponding Ministry Point of Impingement Limit;

"**EAA**" means the Environmental Assessment Act, R.S.O. 1990, c. E.18, as amended;

"**EA Approval**" means the Notice of Approval to Proceed with the Undertaking signed by the Minister of the Environment on November 3, 2010, EA File No. 04-EA-02-08;

"**EPA**" means the Environmental Protection Act, R.S.O. 1990, c. E.19, as amended;

"**Equipment**" means equipment or processes associated with the thermal treatment of the approved Waste described in this Certificate and in the Supporting Documentation referred to herein and any other equipment or processes handling wastes and reagents;

"**ESDM Report**" means the Emission Summary and Dispersion Modelling Report prepared in accordance with the Procedure Document by Golder Associates and dated March 2011 submitted in support of the application, and includes any amendments to the ESDM Report listed in the attached Schedule "A" and all subsequent up-dated ESDM Reports as applicable;

"**Facility**" means the entire operation associated with thermal treatment of Waste located on the property where the Equipment is located;

"**Facility Production Limit**" means the production limit placed on the main product(s) or raw materials used by the Facility that represents the design capacity of the Facility and assists in the definition of the operations approved by the Director;

"**Grizzly Building**" means the building at the Site where the bottom ash is screened and where the oversized constituents of the bottom ash (grizzly overs) are temporarily stored prior to transport for subsequent storage in the Residue Building;

"**Independent Acoustical Consultant**" means an Acoustical Consultant who is not representing the Owner and was not involved in preparing the Acoustic Assessment Report or the design/implementation of Noise Control Measures for the Facility and/or Equipment. The Independent Acoustical Consultant shall not be retained by the Acoustical Consultant involved in the noise impact assessment or the design/implementation of Noise Control Measures for the Facility and/or Equipment;

"**I-TEF**" means International Toxic Equivalency Factor derived for each dioxin and furan congener by comparing its toxicity to the toxicity of 2,3,7,8 tetrachloro dibenzo-p-dioxin, as recommended by the North Atlantic Treaty Organization Committee on Challenges to Modern Society (NATO CCMS) in 1989 and adopted by Canada in 1990;

"**I-TEQ**" means International Toxic Equivalent of dioxins and furans calculated using the I-TEFs, as recommended by the NATO CCMS in 1989 and adopted by Canada in 1990;

"**Manager**" means the Manager, Technology Standards Section, Standards Development Branch, who has been appointed under Section 5 of the *EPA* for the purposes of Section 11(1)2 of the *O. Reg. 419/05*, or any other person who represents and carries out the duties of the Manager,

Technology Standards Section, Standards Development Branch, as those duties relate to the conditions of this Certificate;

"**Ministry**" means the ministry of the government of Ontario responsible for the *EPA* and the *OWRA* and includes all officials, employees or other persons acting on its behalf or the Ontario Ministry of the Environment;

"**Municipality**" means the Municipality of Clarington;

"**NMA**" means the *Nutrient Management Act*, 2002, S.O. 2002, c. 4, as amended;

"**Noise Control Measures**" means measures to reduce the noise emission from the Facility and/or Equipment including, but not limited to silencers, acoustic louvers, enclosures, absorptive treatment, plenums and barriers;

"**LDR**" means the Lands Disposal Restrictions referred to in sections 74 through 85 of the *O. Reg. 347*, which prohibit the disposal of hazardous wastes on land until they have been treated to meet the treatment standards under the *O. Reg. 347*;

"**Leachate Toxicity Criteria**" means the concentrations of any of the contaminants listed in Schedule 4 at a concentration equal to or in excess of the concentration specified for that contaminant in Schedule 4 using the Toxicity Characteristic Leaching Procedure, defined in the *O. Reg. 347*;

"**O. Reg. 419/05**" means the *Ontario Regulation 419/05*, Air Pollution – Local Air Quality enacted under the *EPA*, as amended;

"**O. Reg. 347**" means the *Ontario Regulation 347*, R.R.O 1990 (General –Waste Management) enacted under the *EPA*, as amended;

"**OWRA**" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;

"**Owner**" means any person that is responsible for the establishment and operation of the Site being approved by this Certificate, and it includes The Regional Municipality of Durham, The Regional Municipality of York, and Covanta Durham York Renewable Energy Limited Partnership (operator), their successors and assignees;

"**PA**" means the *Pesticides Act*, R.S.O. 1990, c.P. 11, as amended;

"**Performance Requirements**" means the performance requirements and emission limits specified in the section of this Certificate entitled "Performance Requirements";

"**Point of Impingement**" means any point outside the Facility in the natural environment and as defined by s.2 of the *O. Reg. 419/05*;

"**Point of Reception**" means the Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232*, as applicable;

"**Pre-test Information**" means the information outlined in Section 1.1 of the Source Testing Code;

**"Procedure Document"** means the Ministry's document entitled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005, as amended;

**"Professional Engineer"** means a Professional Engineer as defined within the *Professional Engineers Act*, R.S.O. 1990, c. P.28, as amended;

**"Provincial Officer"** means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of the *PA* or Section 4 of the *NMA* or Section 8 of the *SDWA*;

**"Publication NPC-103"** means the Ministry's Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, dated August 1978, published by the Ministry, as amended;

**"Publication NPC-205"** means the Ministry's Publication NPC-205, entitled "Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", dated October, 1995, as amended;

**"Publication NPC-207"** means the Ministry's draft technical publication entitled "Impulse Vibration in Residential Buildings", dated November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, dated August 1978, published by the Ministry, as amended;

**"Publication NPC-232"** means the Ministry's Publication NPC-232, entitled "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", dated October, 1995, as amended;

**"Publication NPC-233"** means the Ministry's Publication NPC-233, entitled "Information to be Submitted for Approval of Stationary Sources of Sound", dated October, 1995, as amended;

**"Rejected Waste"** means either municipal waste which cannot be processed at the Facility or waste which the Site is not approved to accept. Rejected Waste includes but is not limited to the Bulky Unprocessable Items and the Unacceptable Waste;

**"Regional Director"** means the Regional Director of the Central Region of the Ministry;

**"Regions"** means The Regional Municipality of Durham and The Regional Municipality of York;

**"Report EPS 1/PG/7"** means the Environment Canada Report EPS 1/PG/7, entitled "Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Generation", dated September, 1993, as amended;

**"Residual Waste"** means waste resulting from the Waste processing activities at the Site. Residual Waste is limited to the recovered ferrous metals, the recovered non-ferrous metals, the bottom ash (consisting of the ash fines and the grizzly overs) and the fly ash (untreated and following conditioning);

**"Residue Building"** means the building at the Site where the bottom ash and the fly ash are processed, temporarily stored and loaded in transport vehicles for off-site disposal;

"**Schedules**" means the following schedules "A", "B", "C", "D", "F" and "G", attached to the Certificate and forming part of the Certificate;

"**SDWA**" means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, as amended;

"**Sensitive Receptor**" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:

- (a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.);
- (b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.);
- (c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.); and
- (d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings);

"**Site**" means the property where the Owner has located and operates the Facility and the Works and located at 72 Osbourne Road, 27, Concession Broken Front, Part 1 in the Municipality of Clarington, Regional Municipality of Durham;

"**Source Testing**" means monitoring, sampling and testing to measure emissions resulting from operating the Facility under conditions which yield the worst case emissions within the approved operating range of the Facility;

"**Source Testing Code**" means the Ministry's document entitled "Source Testing Code, Version 2, Report No. ARB-66-80", dated November 1980, as amended;

"**Stack**" means the stack that discharges emissions from the Boilers after those emissions have been controlled by the associated APC Equipment;

"**Substantial Completion**" has the same meaning as "substantial performance" in the *Construction Lien Act* R.S.O. 1990, c.C-30, as amended;

"**Supporting Documentation**" means the documents listed in the attached Schedule "A" of this Certificate which forms part of this Certificate;

"**Test Contaminants**" means the contaminants set out in the attached Schedule "D";

"**Tipping Building**" means the building at the Site where the incoming Waste is received, sorted and temporarily stored;

"**Total Power Failure**" means the loss of the external power supply and concurrent loss of all in-plant power generation;

"**Trained Personnel**" means one or more Site personnel trained in accordance with the requirements of Condition 9.;

"**Waste**" means municipal solid waste as defined in the *O. Reg. 347* and limited to the approved waste set out in Condition No. 2.(2);

"**Waste Processing Rate** means the mass of Waste fed into one of the Boilers;

"**Works**" means the sewage works described in the Owner's application, this Certificate and in the Supporting Documentation referred to herein, to the extent approved by this Certificate;

"**Unacceptable Waste**" means the incoming Waste received at the Site that does not meet the incoming Waste quality criteria set out in this Certificate, is of hazardous nature and requires caution when handling; and

"**Undiluted Gases**" means the flue gas stream which contains oxygen, carbon monoxide, total hydrocarbons and all contaminants in the same concentrations as they exist in the flue gas stream emerging from an individual piece of equipment, such as the combustion chamber of one Boiler or one baghouse, and into which gas stream no ambient air and/or no other gas stream originating from another piece of equipment, except for dilution air introduced within the CEM Systems, has been introduced.

*You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:*

## **GENERAL PROVISIONS**

### **1. GENERAL**

#### **Compliance**

- (1) The Owner shall ensure compliance with all the conditions of this Certificate and shall ensure that any person authorized to carry out work on or operate any aspect of the Site, including the Works, is notified of this Certificate and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Certificate.

#### **Build in Accordance**

- (3) (a) Except as otherwise provided by this Certificate, the Site shall be designed, developed, built, operated, monitored, inspected and maintained in accordance with the following applications:
  - (i) Applications for a Certificate of Approval (Air) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of

(b) The Residual Waste that meets any of the criteria from the definition of "hazardous waste" set out in the *O. Reg. 347* shall be handled and disposed of in accordance with the LDR requirements set out in the *EPA* and the *O. Reg. 347*.

(6) The Residual Waste, limited to the bottom ash, destined for a non-hazardous waste disposal site shall meet the definition of "incinerator ash" set out in the *O. Reg. 347*.

## 7. **TESTING, MONITORING and AUDITING**

### **Source Testing**

(1) The Owner shall perform annual Source Testing in accordance with the procedures and schedule outlined in the attached Schedule "E", to determine the rate of emission of the Test Contaminants from the Stack. The first Source Testing program shall be conducted not later than six (6) months after the Commencement Date of Operation of the Facility/Equipment and subsequent Source Testing program shall be conducted once (1) every calendar year thereafter.

### **Continuous Monitoring**

- (2) The Owner shall select, test and install appropriate CEM Systems and continuous recording devices in accordance with the requirements outlined in the attached Schedule "F" to conduct and maintain a program to continuously monitor, as a minimum, the following parameters prior to commencement of operation of the Boilers:
- (a) the temperature at one (1) second downstream of the combustion zone of each Boiler where most of the combustion has been completed and the combustion temperature is fully developed;
  - (b) the inlet temperature of the gases into each baghouse of the APC Equipment of each Boiler;
  - (c) the concentration of carbon monoxide, oxygen and organic matter (as methane) in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler;
  - (d) the opacity and moisture content of the flue gas and the concentration of oxygen, nitrogen oxides, sulphur dioxide, hydrogen chloride, hydrogen fluoride and ammonia in the Undiluted Gases leaving the baghouse of the APC Equipment of each Boiler.

### **Long-Term Sampling for Dioxins and Furans**

- (3) (a) The Owner shall develop, install, maintain and update as necessary a long-term sampling system, with a minimum monthly sampling frequency, to measure the concentration of Dioxins and Furans in the Undiluted Gases leaving the APC Equipment associated with each Boiler. The performance of

this sampling system will be evaluated during the annual Source Testing programs in accordance with the principles outlined by 40 CFR 60, Appendix B, Specification 4.

- (b) The Owner shall evaluate the performance of the long-term sampling system in determining Dioxins and Furans emission trends and/or fluctuations as well as demonstrating the ongoing performance of the APC Equipment associated with the Boilers.

### **Ambient Air Monitoring**

- (4) (a) The Regions shall develop and implement the Ambient Air Monitoring and Reporting Plan, in accordance with the requirements set out in the EA Approval and as determined to be acceptable by the Regional Director.
- (b) The Regions shall report the results of the Ambient Air Monitoring program to the Regional Director in accordance with the Ambient Air Monitoring and Reporting Plan and in accordance with the requirements of Condition 14.
- (c) The Regions shall post the Ambient Air Monitoring and Reporting Plan and the results of the Ambient Air Monitoring program on the Owner's web site for the Facility in accordance with the requirements of the EA Approval and Condition 15.

### **Noise Monitoring - Acoustic Audit**

- (5) The Owner:
  - (a) shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Acoustic Audit measurements shall be carried out in accordance with the procedures in *Publication NPC-103* and in accordance to the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director;
  - (b) shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of *Publication NPC-233* and the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director, to the District Manager and the Director, not later than three (3) months after the commencement of operation of the Facility.
- (6) The Director:
  - (a) may not accept the results of the Acoustic Audit if the requirements of *Publication NPC-233* or the approved Noise Monitoring and Reporting Plan were not followed;

- (b) may require the Owner to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

### **Residual Waste Testing**

- (7)
  - (a) A minimum of six (6) months prior to the Commencement Date of Operation, the Owner shall submit to the Director for approval, a Testing Protocol for testing of the bottom ash for compliance with the criteria set out in the "incinerator ash" definition from the *O. Reg. 347* and for testing of the Residual Waste for compliance with the criteria set out in this Certificate.
  - (b) As a minimum, the Testing Protocol shall comply with the Ministry's regulatory requirements for sampling and testing of waste, including the requirements set out in the Ministry's document entitled "Principles of Sampling and Analysis of Waste for TCLP under Ontario Regulation 347", dated February 2002, as amended.
  - (c) The Testing Protocol shall include the rationale for the proposed methods and the following:
    - (i) a sampling protocol, including the proposed number of samples to be taken and their locations, to ensure that representative sample(s) are being tested for compliance with this Certificate;
    - (ii) sample(s) handling and preserving procedures;
    - (iii) analytical protocol for the applicable contaminants to ensure that appropriate analytical method(s) are being used for compliance testing required by this Certificate; and
    - (iv) a testing protocol for the bottom ash during the Site commissioning period.
  - (d) The Owner shall implement the Testing Protocol on the Commencement Date of Operation.
- (8) For handling of the bottom ash as a solid non-hazardous waste, the Owner shall follow the following schedule for compliance testing:
  - (a) for the Site commissioning period, the bottom ash shall be tested in accordance with the Testing Protocol approved by the Director;
  - (b) for the period following the Site commissioning period, the bottom ash shall be tested for the content of the combustible materials on an annual basis, until the compliance testing results indicate that the bottom ash meets the "incinerator ash" definition from the *O. Reg. 347* for three (3) consecutive years, following which a triennial compliance testing event may be carried out;

**APPENDIX B**

**DYEC TRUCK LOGS**  
**APRIL 2015 AND OCTOBER 2015**

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 04/06/2015 through 04/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
10630	4/6/2015	14149	004 - Ash Customer	07:01:31 / 07:19:21	17.90
10631	4/6/2015	1552	004 - Ash Customer	07:02:46 / 07:41:42	38.96
10632	4/6/2015	1550	004 - Ash Customer	07:04:13 / 08:04:47	60.34
10633	4/6/2015	80230	001 - Regional Municipality of Durham	07:50:33 / 08:17:14	26.81
10634	4/6/2015	15175	002 - Regional Municipality of York	08:30:20 / 09:01:31	31.11
10635	4/6/2015	80186	001 - Regional Municipality of Durham	08:55:32 / 09:30:30	34.98
10636	4/6/2015	80194	001 - Regional Municipality of Durham	08:49:23 / 09:31:57	42.34
10637	4/6/2015	15172	004 - Ash Customer	09:27:19 / 10:03:29	36.10
10638	4/6/2015	1574	003 - Reagents	07:06:39 / 10:15:31	188.92
10639	4/6/2015	80230	001 - Regional Municipality of Durham	09:57:01 / 10:28:17	31.16
10640	4/6/2015	80194	001 - Regional Municipality of Durham	11:14:44 / 11:51:26	36.82
10641	4/6/2015	80186	001 - Regional Municipality of Durham	11:26:30 / 12:21:30	55.00
10642	4/6/2015	14149	004 - Ash Customer	11:49:14 / 12:25:41	36.27
10643	4/6/2015	15175	002 - Regional Municipality of York	11:57:02 / 12:45:55	48.53
10644	4/6/2015	80230	001 - Regional Municipality of Durham	12:07:28 / 13:06:40	59.12
10645	4/6/2015	15172	004 - Ash Customer	15:07:06 / 15:37:28	30.22
10646	4/6/2015	15175	002 - Regional Municipality of York	16:13:37 / 16:44:19	30.82
10647	4/7/2015	14149	004 - Ash Customer	07:01:04 / 07:21:03	19.99
10648	4/7/2015	1550	004 - Ash Customer	07:02:42 / 07:44:34	41.92
10649	4/7/2015	0182	002 - Regional Municipality of York	08:25:16 / 09:03:24	38.08
10650	4/7/2015	80194	001 - Regional Municipality of Durham	08:44:29 / 09:34:03	49.74
10651	4/7/2015	15172	004 - Ash Customer	09:41:24 / 09:56:00	14.76
10652	4/7/2015	80186	001 - Regional Municipality of Durham	10:00:48 / 10:37:03	36.55
10653	4/7/2015	80230	001 - Regional Municipality of Durham	10:15:00 / 10:57:02	42.02
10654	4/7/2015	80194	001 - Regional Municipality of Durham	10:52:50 / 11:28:31	35.81
10655	4/7/2015	80171	001 - Regional Municipality of Durham	10:57:48 / 11:56:48	59.00
10656	4/7/2015	15175	002 - Regional Municipality of York	11:45:57 / 12:20:47	34.90
10657	4/7/2015	84	07 - Gerdau	11:16:17 / 12:29:17	73.00
10658	4/7/2015	80186	001 - Regional Municipality of Durham	12:00:48 / 12:44:31	43.83
10659	4/7/2015	14149	004 - Ash Customer	12:33:08 / 12:52:44	19.36
10660	4/7/2015	80230	001 - Regional Municipality of Durham	12:27:59 / 13:11:52	43.93
10661	4/7/2015	0182	002 - Regional Municipality of York	12:10:49 / 13:14:08	63.59
10662	4/7/2015	80194	001 - Regional Municipality of Durham	12:50:03 / 13:40:49	50.46
10663	4/7/2015	80171	001 - Regional Municipality of Durham	13:51:13 / 14:22:48	31.35
10664	4/7/2015	15172	004 - Ash Customer	14:29:17 / 14:48:51	19.34
10665	4/7/2015	80186	001 - Regional Municipality of Durham	14:12:56 / 14:52:11	39.55
10666	4/7/2015	80230	001 - Regional Municipality of Durham	15:13:22 / 15:40:43	27.21
10667	4/7/2015	80194	001 - Regional Municipality of Durham	15:23:06 / 16:11:19	48.13
10668	4/7/2015	15175	002 - Regional Municipality of York	16:12:31 / 16:45:19	32.88

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 04/06/2015 through 04/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

Printer ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
10669	4/7/2015	80171	001 - Regional Municipality of Durham	16:55:05 / 17:26:50	31.45
10670	4/7/2015	80230	001 - Regional Municipality of Durham	17:34:46 / 18:06:49	32.03
10671	4/8/2015	14149	004 - Ash Customer	07:02:11 / 07:19:39	17.28
10672	4/8/2015	1552	004 - Ash Customer	07:03:55 / 07:48:16	44.61
10673	4/8/2015	80230	001 - Regional Municipality of Durham	07:58:11 / 08:26:16	28.05
10674	4/8/2015	80194	001 - Regional Municipality of Durham	08:03:09 / 08:57:58	54.49
10675	4/8/2015	80186	001 - Regional Municipality of Durham	08:47:14 / 09:29:09	41.95
10676	4/8/2015	80225	001 - Regional Municipality of Durham	09:20:21 / 10:01:05	40.84
10677	4/8/2015	15172	004 - Ash Customer	10:02:04 / 10:21:41	19.37
10678	4/8/2015	0182	002 - Regional Municipality of York	09:43:49 / 10:25:59	42.10
10679	4/8/2015	80230	001 - Regional Municipality of Durham	10:03:54 / 10:48:58	45.04
10680	4/8/2015	80194	001 - Regional Municipality of Durham	10:29:19 / 11:19:41	50.22
10681	4/8/2015	80186	001 - Regional Municipality of Durham	11:19:25 / 11:56:19	36.94
10682	4/8/2015	80225	001 - Regional Municipality of Durham	11:59:59 / 12:47:02	47.43
10683	4/8/2015	80230	001 - Regional Municipality of Durham	12:23:16 / 13:09:13	45.97
10684	4/8/2015	80194	001 - Regional Municipality of Durham	12:52:35 / 13:37:42	45.07
10685	4/8/2015	0182	002 - Regional Municipality of York	13:48:16 / 14:16:29	28.13
10686	4/8/2015	80186	001 - Regional Municipality of Durham	13:51:31 / 14:52:00	60.69
10687	4/8/2015	80225	001 - Regional Municipality of Durham	14:38:12 / 15:44:25	66.13
10688	4/8/2015	0176	002 - Regional Municipality of York	14:32:25 / 15:47:35	75.10
10689	4/8/2015	80194	001 - Regional Municipality of Durham	15:01:15 / 16:46:14	104.99
10690	4/8/2015	80230	001 - Regional Municipality of Durham	15:10:00 / 17:43:24	153.24
10691	4/8/2015	80186	001 - Regional Municipality of Durham	17:27:53 / 18:30:30	62.77
10692	4/8/2015	15172	002 - Regional Municipality of York	15:37:44 / 18:31:56	174.12
10693	4/9/2015	14149	004 - Ash Customer	07:00:00 / 07:21:23	21.23
10694	4/9/2015	80225	001 - Regional Municipality of Durham	08:00:33 / 08:44:34	44.01
10695	4/9/2015	80230	001 - Regional Municipality of Durham	08:05:20 / 09:03:56	58.36
10696	4/9/2015	0182	002 - Regional Municipality of York	08:46:14 / 09:27:09	40.95
10697	4/9/2015	80186	001 - Regional Municipality of Durham	08:53:27 / 09:52:13	58.86
10698	4/9/2015	80194	001 - Regional Municipality of Durham	08:58:06 / 10:28:06	90.00
10699	4/9/2015	15172	004 - Ash Customer	09:56:07 / 10:32:53	36.46
10700	4/9/2015	80225	001 - Regional Municipality of Durham	10:32:45 / 11:15:38	42.93
10701	4/9/2015	80230	001 - Regional Municipality of Durham	10:46:01 / 11:40:47	54.46
10702	4/9/2015	80186	001 - Regional Municipality of Durham	11:50:22 / 12:32:25	42.03
10703	4/9/2015	14149	004 - Ash Customer	12:46:08 / 13:18:44	32.36
10704	4/9/2015	80194	001 - Regional Municipality of Durham	11:51:59 / 13:25:59	94.00
10705	4/9/2015	80225	001 - Regional Municipality of Durham	12:36:05 / 14:11:33	95.28
10706	4/9/2015	0182	002 - Regional Municipality of York	12:25:48 / 14:13:11	107.63
10707	4/9/2015	80230	001 - Regional Municipality of Durham	13:23:28 / 14:49:36	86.08

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 04/06/2015 through 04/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
10708	4/9/2015	0176	002 - Regional Municipality of York	12:54:07 / 14:51:49	117.42
10709	4/9/2015	80186	001 - Regional Municipality of Durham	14:32:06 / 15:21:22	49.16
10710	4/9/2015	80194	001 - Regional Municipality of Durham	14:50:59 / 15:51:15	60.56
10711	4/9/2015	15172	004 - Ash Customer	15:20:36 / 15:53:02	32.66
10712	4/9/2015	80230	001 - Regional Municipality of Durham	16:35:23 / 17:01:27	26.04
10713	4/9/2015	80186	001 - Regional Municipality of Durham	16:48:21 / 17:33:43	45.22
10714	4/9/2015	80194	001 - Regional Municipality of Durham	17:06:10 / 18:06:44	60.34
10715	4/10/2015	14150	004 - Ash Customer	07:00:33 / 07:28:18	27.85
10716	4/10/2015	80230	001 - Regional Municipality of Durham	07:24:19 / 08:03:18	38.99
10717	4/10/2015	80194	001 - Regional Municipality of Durham	07:26:58 / 08:44:05	77.47
10718	4/10/2015	80227	001 - Regional Municipality of Durham	08:20:02 / 09:26:20	66.18
10719	4/10/2015	80186	001 - Regional Municipality of Durham	08:07:26 / 09:27:58	80.32
10720	4/10/2015	0182	002 - Regional Municipality of York	08:36:03 / 10:10:57	94.54
10721	4/10/2015	15172	004 - Ash Customer	10:01:31 / 10:27:34	26.03
10722	4/10/2015	80230	001 - Regional Municipality of Durham	09:47:33 / 10:36:03	48.70
10723	4/10/2015	98	21 - stark iron & metal	10:34:43 / 11:05:37	30.94
10724	4/10/2015	80194	001 - Regional Municipality of Durham	10:40:56 / 11:25:16	44.60
10725	4/10/2015	80227	001 - Regional Municipality of Durham	11:03:19 / 11:59:02	55.83
10726	4/10/2015	80186	001 - Regional Municipality of Durham	11:27:51 / 12:29:44	61.93
10727	4/10/2015	168	09 - Triple M Metal	12:17:23 / 12:48:56	31.33
10728	4/10/2015	80230	001 - Regional Municipality of Durham	12:11:54 / 12:57:41	45.87
10729	4/10/2015	0176	002 - Regional Municipality of York	12:04:49 / 12:59:22	54.73
10730	4/10/2015	14150	004 - Ash Customer	12:39:16 / 13:23:41	44.25
10731	4/10/2015	0182	002 - Regional Municipality of York	12:40:56 / 13:26:42	45.86
10732	4/10/2015	80194	001 - Regional Municipality of Durham	12:45:44 / 13:58:46	73.02
10733	4/10/2015	80227	001 - Regional Municipality of Durham	13:28:34 / 14:40:41	72.07
10734	4/10/2015	80186	001 - Regional Municipality of Durham	14:20:21 / 15:09:52	49.31
10735	4/10/2015	0182	002 - Regional Municipality of York	14:35:57 / 15:46:45	70.88
10736	4/10/2015	80230	001 - Regional Municipality of Durham	14:33:53 / 15:48:15	74.62
10737	4/10/2015	80194	001 - Regional Municipality of Durham	15:19:13 / 16:18:58	59.45
10738	4/10/2015	80227	001 - Regional Municipality of Durham	16:04:49 / 17:00:47	55.98
10739	4/10/2015	0176	002 - Regional Municipality of York	17:32:52 / 18:08:26	35.74
10740	4/10/2015	14149	004 - Ash Customer	18:15:39 / 18:38:14	22.75
10741	4/13/2015	14150	004 - Ash Customer	07:01:49 / 07:16:36	14.87
10742	4/13/2015	1552	004 - Ash Customer	07:04:28 / 07:39:57	35.29
10743	4/13/2015	1550	004 - Ash Customer	07:07:12 / 08:11:19	64.07
10744	4/13/2015	80186	001 - Regional Municipality of Durham	08:29:08 / 09:01:14	32.06
10745	4/13/2015	80194	001 - Regional Municipality of Durham	08:41:33 / 09:31:48	50.15
10746	4/13/2015	80225	001 - Regional Municipality of Durham	09:58:08 / 10:45:24	47.16

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 04/06/2015 through 04/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
10747	4/13/2015	14149	004 - Ash Customer	10:54:00 / 11:19:20	25.20
10748	4/13/2015	80194	001 - Regional Municipality of Durham	11:11:07 / 11:52:03	40.96
10749	4/13/2015	0176	002 - Regional Municipality of York	11:33:56 / 12:23:52	49.96
10750	4/13/2015	80186	001 - Regional Municipality of Durham	11:30:15 / 12:25:14	54.99
10751	4/13/2015	14150	004 - Ash Customer	12:09:26 / 12:28:24	18.98
10752	4/13/2015	571	003 - Reagents	10:27:14 / 12:45:32	138.18
10753	4/13/2015	80225	001 - Regional Municipality of Durham	12:39:56 / 13:19:33	39.77
10755	4/13/2015	28	07 - Gerdau	13:06:35 / 13:36:05	29.70
10756	4/13/2015	80194	001 - Regional Municipality of Durham	13:25:19 / 14:00:00	34.81
10757	4/13/2015	80186	001 - Regional Municipality of Durham	14:33:48 / 15:02:44	28.96
10758	4/13/2015	80225	001 - Regional Municipality of Durham	15:12:56 / 15:52:43	39.87
10759	4/13/2015	0176	002 - Regional Municipality of York	15:15:33 / 16:23:07	67.74
10760	4/13/2015	28	07 - Gerdau	16:14:34 / 16:55:00	40.66
10761	4/13/2015	15172	004 - Ash Customer	17:46:39 / 18:20:21	33.82
10762	4/14/2015	14150	004 - Ash Customer	07:02:45 / 07:22:37	19.92
10763	4/14/2015	0182	002 - Regional Municipality of York	07:01:07 / 07:34:11	33.04
10764	4/14/2015	80194	001 - Regional Municipality of Durham	07:22:14 / 08:04:16	42.02
10765	4/14/2015	80230	001 - Regional Municipality of Durham	07:19:01 / 08:05:33	46.32
10766	4/14/2015	80225	001 - Regional Municipality of Durham	08:08:04 / 08:42:09	34.05
10767	4/14/2015	08123	002 - Regional Municipality of York	09:16:25 / 09:50:39	34.14
10768	4/14/2015	80194	001 - Regional Municipality of Durham	09:35:42 / 10:22:46	47.04
10769	4/14/2015	80230	001 - Regional Municipality of Durham	09:54:26 / 10:42:18	47.92
10770	4/14/2015	15172	004 - Ash Customer	10:25:43 / 10:45:04	19.61
10771	4/14/2015	80225	001 - Regional Municipality of Durham	10:22:08 / 11:20:43	58.35
10772	4/14/2015	80186	001 - Regional Municipality of Durham	10:12:50 / 11:22:01	69.51
10773	4/14/2015	80194	001 - Regional Municipality of Durham	11:46:08 / 12:23:32	37.24
10774	4/14/2015	0182	002 - Regional Municipality of York	12:08:34 / 12:49:51	41.17
10775	4/14/2015	14150	004 - Ash Customer	12:45:11 / 13:05:06	19.95
10776	4/14/2015	80230	001 - Regional Municipality of Durham	12:14:21 / 13:12:24	58.03
10777	4/14/2015	80225	001 - Regional Municipality of Durham	13:05:15 / 13:44:46	39.31
10778	4/14/2015	80186	001 - Regional Municipality of Durham	13:18:55 / 14:11:23	52.68
10779	4/14/2015	80194	001 - Regional Municipality of Durham	13:50:31 / 14:38:18	47.87
10780	4/14/2015	80230	001 - Regional Municipality of Durham	14:49:09 / 15:19:36	30.27
10781	4/14/2015	80194	001 - Regional Municipality of Durham	16:07:00 / 16:39:33	32.33
10782	4/14/2015	15172	004 - Ash Customer	16:16:36 / 16:43:29	26.93
10783	4/14/2015	80225	001 - Regional Municipality of Durham	16:11:07 / 17:21:25	70.18
10784	4/14/2015	80186	001 - Regional Municipality of Durham	17:13:30 / 17:50:56	37.26
10785	4/15/2015	0182	002 - Regional Municipality of York	07:01:43 / 07:32:04	30.61
10786	4/15/2015	80194	001 - Regional Municipality of Durham	07:22:04 / 08:04:04	42.00

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 04/06/2015 through 04/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
10787	4/15/2015	80230	001 - Regional Municipality of Durham	07:17:22 / 08:05:19	47.97
10788	4/15/2015	80186	001 - Regional Municipality of Durham	07:51:36 / 08:29:37	38.01
10789	4/15/2015	80225	001 - Regional Municipality of Durham	08:21:25 / 09:12:01	50.76
10790	4/15/2015	0067	002 - Regional Municipality of York	09:36:12 / 10:13:00	36.88
10791	4/15/2015	15172	004 - Ash Customer	09:57:23 / 10:26:50	29.27
10792	4/15/2015	14150	004 - Ash Customer	10:03:31 / 10:43:47	40.16
10793	4/15/2015	80230	001 - Regional Municipality of Durham	10:01:24 / 10:50:56	49.32
10794	4/15/2015	80194	001 - Regional Municipality of Durham	09:50:33 / 10:52:05	61.72
10795	4/15/2015	80186	001 - Regional Municipality of Durham	10:49:08 / 11:20:26	31.18
10796	4/15/2015	0182	002 - Regional Municipality of York	11:40:42 / 12:08:33	27.91
10797	4/15/2015	80225	001 - Regional Municipality of Durham	11:47:54 / 12:42:29	54.75
10798	4/15/2015	80230	001 - Regional Municipality of Durham	12:26:19 / 13:09:21	43.02
10799	4/15/2015	80194	001 - Regional Municipality of Durham	12:38:54 / 13:37:12	58.58
10800	4/15/2015	80186	001 - Regional Municipality of Durham	13:22:43 / 14:29:01	66.58
10801	4/15/2015	15172	004 - Ash Customer	15:03:50 / 15:22:48	18.98
10802	4/15/2015	80225	001 - Regional Municipality of Durham	14:17:02 / 15:48:34	91.32
10803	4/15/2015	14150	004 - Ash Customer	15:37:37 / 16:15:50	38.13
10804	4/15/2015	0182	002 - Regional Municipality of York	14:47:51 / 16:31:13	103.62
10805	4/15/2015	80194	001 - Regional Municipality of Durham	15:34:16 / 17:04:16	90.00
10806	4/15/2015	80230	001 - Regional Municipality of Durham	14:58:39 / 17:05:26	126.87
10807	4/15/2015	80186	001 - Regional Municipality of Durham	17:12:12 / 17:52:24	40.12
10808	4/15/2015	80225	001 - Regional Municipality of Durham	18:14:36 / 18:52:54	38.18

**Report Grand Totals**

<b>Average Cycle</b>	<b>49.40</b>
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*178 tickets and 178 transactions***End of Report**

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 10/05/2015 through 10/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
13056	10/5/2015	14149	004 - Walker Environmental	06:59:31 / 07:17:37	18.06
13057	10/5/2015	80225	001 - Regional Municipality of Durham	07:00:24 / 07:56:03	55.79
13058	10/5/2015	80172	001 - Regional Municipality of Durham	07:22:57 / 08:22:11	59.54
13059	10/5/2015	007	07 - Gerdau	08:42:37 / 08:59:28	16.91
13060	10/5/2015	80272	001 - Regional Municipality of Durham	08:45:27 / 09:19:45	34.18
13061	10/5/2015	1554	004 - Walker Environmental	08:52:07 / 09:22:35	30.28
13062	10/5/2015	357	07 - Gerdau	09:37:24 / 10:20:33	43.09
13064	10/5/2015	80230	001 - Regional Municipality of Durham	10:10:32 / 10:41:30	30.98
13065	10/5/2015	0265	002 - Regional Municipality of York	10:06:16 / 10:42:30	36.14
13066	10/5/2015	742	003 - Reagents	08:06:02 / 10:58:25	172.23
13067	10/5/2015	15172	004 - Walker Environmental	10:34:15 / 11:07:09	32.94
13069	10/5/2015	80227	001 - Regional Municipality of Durham	10:16:08 / 11:10:17	54.09
13070	10/5/2015	80225	001 - Regional Municipality of Durham	10:59:37 / 11:59:56	60.19
13071	10/5/2015	80172	001 - Regional Municipality of Durham	10:49:37 / 12:01:13	71.76
13072	10/5/2015	15175	002 - Regional Municipality of York	11:45:08 / 12:29:38	44.30
13073	10/5/2015	80230	001 - Regional Municipality of Durham	12:58:52 / 13:29:02	30.50
13074	10/5/2015	14149	004 - Walker Environmental	13:16:35 / 13:31:26	14.91
13075	10/5/2015	80172	001 - Regional Municipality of Durham	13:59:31 / 14:26:37	27.06
13076	10/5/2015	80227	001 - Regional Municipality of Durham	14:06:28 / 14:56:37	50.09
13077	10/5/2015	0265	002 - Regional Municipality of York	14:01:53 / 14:58:39	56.86
13078	10/5/2015	80230	001 - Regional Municipality of Durham	15:11:55 / 15:35:18	23.63
13079	10/5/2015	15175	002 - Regional Municipality of York	15:49:03 / 16:20:29	31.26
13080	10/5/2015	80172	001 - Regional Municipality of Durham	15:53:20 / 16:48:24	55.04
13081	10/5/2015	80227	001 - Regional Municipality of Durham	16:36:13 / 17:22:18	46.05
13082	10/5/2015	425	004 - Walker Environmental	17:32:02 / 17:51:34	19.32
13083	10/6/2015	14149	004 - Walker Environmental	06:55:37 / 07:13:24	17.87
13084	10/6/2015	1554	004 - Walker Environmental	07:04:28 / 07:29:00	24.72
13085	10/6/2015	103	003 - Reagents	07:38:48 / 07:40:05	1.57
13086	10/6/2015	80174	001 - Regional Municipality of Durham	07:17:00 / 08:06:58	49.58
13087	10/6/2015	80172	001 - Regional Municipality of Durham	08:42:02 / 09:10:20	28.18
13088	10/6/2015	80227	001 - Regional Municipality of Durham	09:09:37 / 09:40:38	31.01
13089	10/6/2015	0265	002 - Regional Municipality of York	09:35:21 / 10:16:23	41.02
13090	10/6/2015	80230	001 - Regional Municipality of Durham	10:10:18 / 10:42:33	32.15
13091	10/6/2015	80172	001 - Regional Municipality of Durham	11:06:51 / 11:39:33	32.82
13092	10/6/2015	557	004 - Walker Environmental	11:38:15 / 12:07:20	29.05
13093	10/6/2015	80225	001 - Regional Municipality of Durham	11:48:08 / 12:20:08	32.00
13094	10/6/2015	80227	001 - Regional Municipality of Durham	12:01:02 / 12:51:34	50.32
13095	10/6/2015	14149	004 - Walker Environmental	12:39:06 / 13:12:28	33.22
13096	10/6/2015	80230	001 - Regional Municipality of Durham	12:38:18 / 13:14:03	35.85

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 10/05/2015 through 10/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

or ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
13097	10/6/2015	15175	002 - Regional Municipality of York	13:24:52 / 13:56:16	31.64
13098	10/6/2015	80172	001 - Regional Municipality of Durham	13:31:22 / 14:16:14	44.92
13099	10/6/2015	80225	001 - Regional Municipality of Durham	14:25:04 / 15:00:14	35.10
13100	10/6/2015	80227	001 - Regional Municipality of Durham	14:53:14 / 15:25:24	32.10
13101	10/6/2015	80230	001 - Regional Municipality of Durham	15:41:29 / 16:06:34	25.05
13102	10/6/2015	007	07 - Gerdau	15:53:05 / 16:19:11	26.06
13103	10/6/2015	80172	001 - Regional Municipality of Durham	15:57:55 / 16:43:44	45.89
13105	10/6/2015	80225	001 - Regional Municipality of Durham	17:08:09 / 17:54:15	46.06
13106	10/6/2015	80227	001 - Regional Municipality of Durham	17:00:54 / 17:55:33	54.79
13107	10/6/2015	15175	002 - Regional Municipality of York	17:09:07 / 18:21:12	72.05
13108	10/7/2015	0550	004 - Walker Environmental	06:36:41 / 07:23:05	46.64
13109	10/7/2015	802	004 - Walker Environmental	06:34:50 / 07:39:15	64.65
13110	10/7/2015	14149	004 - Walker Environmental	06:39:19 / 07:55:20	76.01
13111	10/7/2015	80172	001 - Regional Municipality of Durham	09:30:34 / 10:01:22	30.88
13112	10/7/2015	0265	002 - Regional Municipality of York	09:42:16 / 10:33:03	50.87
13113	10/7/2015	80227	001 - Regional Municipality of Durham	09:41:08 / 10:34:19	53.11
13114	10/7/2015	80230	001 - Regional Municipality of Durham	10:35:01 / 11:06:31	31.30
13115	10/7/2015	80225	001 - Regional Municipality of Durham	10:13:24 / 11:07:43	54.19
13116	10/7/2015	80172	001 - Regional Municipality of Durham	11:19:08 / 11:50:09	31.01
13117	10/7/2015	0176	002 - Regional Municipality of York	11:50:42 / 12:20:41	29.99
13118	10/7/2015	80227	001 - Regional Municipality of Durham	12:05:25 / 12:44:07	38.82
13119	10/7/2015	80230	001 - Regional Municipality of Durham	12:35:05 / 12:59:53	24.48
13120	10/7/2015	80172	001 - Regional Municipality of Durham	13:19:04 / 14:01:31	42.27
13121	10/7/2015	0265	002 - Regional Municipality of York	14:01:59 / 14:32:36	30.77
13122	10/7/2015	80225	001 - Regional Municipality of Durham	13:50:26 / 14:33:53	43.27
13123	10/7/2015	80230	001 - Regional Municipality of Durham	14:33:49 / 14:54:55	21.06
13124	10/7/2015	80227	001 - Regional Municipality of Durham	14:37:12 / 15:25:49	48.37
13125	10/7/2015	0176	002 - Regional Municipality of York	16:09:45 / 16:37:34	27.89
13126	10/7/2015	80225	001 - Regional Municipality of Durham	16:35:41 / 17:10:54	35.13
13127	10/7/2015	80172	001 - Regional Municipality of Durham	16:13:06 / 17:12:10	59.04
13128	10/7/2015	007	07 - Gerdau	16:40:10 / 17:34:32	54.22
13129	10/7/2015	80230	001 - Regional Municipality of Durham	17:12:20 / 17:38:39	26.19
13130	10/8/2015	14149	004 - Walker Environmental	06:59:13 / 07:21:20	22.07
13131	10/8/2015	451	004 - Walker Environmental	06:48:06 / 07:38:51	50.45
13132	10/8/2015	158392	002 - Regional Municipality of York	07:03:43 / 07:51:46	48.03
13133	10/8/2015	158499	002 - Regional Municipality of York	07:16:27 / 08:13:50	57.23
13134	10/8/2015	574	003 - Reagents	06:38:36 / 09:04:14	145.78
13135	10/8/2015	80230	001 - Regional Municipality of Durham	08:57:55 / 09:21:54	23.99
13136	10/8/2015	15175	002 - Regional Municipality of York	08:54:18 / 09:26:03	31.85

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 10/05/2015 through 10/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
13137	10/8/2015	80227	001 - Regional Municipality of Durham	09:09:15 / 09:46:45	37.30
13138	10/8/2015	80172	001 - Regional Municipality of Durham	09:37:38 / 10:30:59	53.21
13139	10/8/2015	80225	001 - Regional Municipality of Durham	09:50:36 / 10:32:24	41.88
13140	10/8/2015	0176	002 - Regional Municipality of York	11:06:09 / 11:30:33	24.24
13141	10/6/2015	15172	002 - Regional Municipality of York	16:29:11 / 17:24:16	55.05
13142	10/8/2015	80227	001 - Regional Municipality of Durham	11:07:54 / 11:59:56	52.02
13143	10/8/2015	80230	001 - Regional Municipality of Durham	11:07:17 / 12:01:11	53.94
13144	10/8/2015	812	004 - Walker Environmental	11:30:33 / 12:02:52	32.19
13145	10/8/2015	158392	002 - Regional Municipality of York	11:26:13 / 12:28:41	62.28
13146	10/8/2015	158499	002 - Regional Municipality of York	11:58:13 / 12:50:37	52.24
13147	10/8/2015	14149	004 - Walker Environmental	12:42:32 / 13:04:26	21.94
13148	10/8/2015	80172	001 - Regional Municipality of Durham	12:20:29 / 13:18:15	57.86
13149	10/8/2015	158448	002 - Regional Municipality of York	13:09:01 / 13:49:06	40.05
13150	10/8/2015	80225	001 - Regional Municipality of Durham	12:29:11 / 13:51:54	82.43
13151	10/8/2015	80227	001 - Regional Municipality of Durham	13:13:47 / 14:24:29	70.82
13152	10/8/2015	80230	001 - Regional Municipality of Durham	13:50:15 / 14:54:39	64.24
13153	10/8/2015	15175	002 - Regional Municipality of York	13:22:45 / 14:55:57	93.12
13154	10/8/2015	80218	001 - Regional Municipality of Durham	14:28:51 / 15:24:48	55.97
13155	10/8/2015	80172	001 - Regional Municipality of Durham	14:58:59 / 15:50:25	51.66
13156	10/8/2015	007	07 - Gerdau	15:52:33 / 16:31:14	38.81
13157	10/8/2015	0265	002 - Regional Municipality of York	15:26:13 / 16:33:21	67.08
13158	10/8/2015	80227	001 - Regional Municipality of Durham	16:11:30 / 17:00:55	49.25
13159	10/8/2015	80172	001 - Regional Municipality of Durham	17:21:42 / 17:50:47	29.05
13160	10/8/2015	1570	003 - Reagents	16:17:07 / 18:18:54	121.47
13161	10/9/2015	14149	004 - Walker Environmental	07:00:03 / 07:19:53	19.50
13162	10/9/2015	80225	001 - Regional Municipality of Durham	07:01:10 / 07:27:57	26.47
13163	10/9/2015	80230	001 - Regional Municipality of Durham	07:02:32 / 07:47:37	45.05
13164	10/9/2015	80172	001 - Regional Municipality of Durham	08:15:53 / 08:46:32	30.79
13165	10/9/2015	15175	002 - Regional Municipality of York	08:42:08 / 09:17:16	35.08
13166	10/9/2015	80225	001 - Regional Municipality of Durham	09:01:07 / 09:44:37	43.30
13167	10/9/2015	80227	001 - Regional Municipality of Durham	08:49:12 / 09:46:17	57.05
13168	10/9/2015	80230	001 - Regional Municipality of Durham	09:22:22 / 10:05:12	42.90
13169	10/9/2015	80172	001 - Regional Municipality of Durham	10:17:20 / 10:46:03	28.83
13170	10/9/2015	527	004 - Walker Environmental	10:35:22 / 11:35:30	60.08
13171	10/9/2015	15172	002 - Regional Municipality of York	11:31:04 / 12:09:37	38.33
13172	10/9/2015	158450	002 - Regional Municipality of York	11:26:52 / 12:11:00	44.48
13173	10/9/2015	80227	001 - Regional Municipality of Durham	11:32:34 / 12:33:10	60.76
13174	10/9/2015	14149	004 - Walker Environmental	12:14:00 / 12:37:17	23.17
13175	10/9/2015	80230	001 - Regional Municipality of Durham	12:00:37 / 12:56:49	56.12

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 10/05/2015 through 10/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
13176	10/9/2015	80225	001 - Regional Municipality of Durham	11:45:10 / 13:02:22	77.12
13177	10/9/2015	158419	002 - Regional Municipality of York	12:29:36 / 13:53:20	83.84
13178	10/9/2015	158414	002 - Regional Municipality of York	12:25:38 / 13:54:51	89.13
13179	10/9/2015	80172	001 - Regional Municipality of Durham	12:32:14 / 14:25:33	113.19
13180	10/9/2015	67	07 - Gerdau	10:04:37 / 14:32:03	267.66
13181	10/9/2015	558	003 - Reagents	12:47:47 / 14:44:16	116.69
13182	10/9/2015	80227	001 - Regional Municipality of Durham	14:05:28 / 15:04:20	58.92
13183	10/9/2015	15175	002 - Regional Municipality of York	13:07:10 / 15:05:56	118.46
13184	10/9/2015	80230	001 - Regional Municipality of Durham	14:53:30 / 15:25:09	31.79
13185	10/9/2015	15172	002 - Regional Municipality of York	15:02:59 / 15:55:15	52.56
13186	10/9/2015	007	07 - Gerdau	15:32:55 / 16:35:03	62.48
13187	10/9/2015	80225	001 - Regional Municipality of Durham	16:01:35 / 16:38:57	37.22
13188	10/9/2015	158450	002 - Regional Municipality of York	15:42:21 / 16:40:14	57.93
13189	10/13/2015	14149	004 - Walker Environmental	06:58:55 / 07:12:30	13.75
13190	10/10/2015	15172	004 - Walker Environmental	07:15:40 / 07:18:01	2.61
13191	10/10/2015	527	004 - Walker Environmental	07:19:38 / 07:20:15	0.77
13192	10/10/2015	428	004 - Walker Environmental	07:21:48 / 07:22:27	0.79
13193	10/10/2015	432	004 - Walker Environmental	07:24:00 / 07:24:36	0.36
13194	10/10/2015	8598	004 - Walker Environmental	07:28:09 / 07:28:43	0.34
13195	10/13/2015	555	004 - Walker Environmental	07:01:33 / 07:30:36	29.03
13196	10/10/2015	101	004 - Walker Environmental	07:33:01 / 07:33:30	0.29
13197	10/13/2015	524	004 - Walker Environmental	07:03:59 / 07:53:49	49.90
13198	10/13/2015	80174	001 - Regional Municipality of Durham	07:25:56 / 07:58:54	32.98
13199	10/13/2015	416	004 - Walker Environmental	07:05:37 / 08:04:14	58.77
13200	10/13/2015	80272	001 - Regional Municipality of Durham	08:39:46 / 09:06:12	26.66
13201	10/13/2015	80230	001 - Regional Municipality of Durham	08:37:52 / 09:07:21	29.69
13202	10/13/2015	80172	001 - Regional Municipality of Durham	09:24:46 / 09:58:07	33.61
13203	10/13/2015	80227	001 - Regional Municipality of Durham	09:54:40 / 10:29:52	35.12
13204	10/13/2015	15172	004 - Walker Environmental	10:13:23 / 10:31:14	17.91
13205	10/13/2015	80174	001 - Regional Municipality of Durham	09:49:54 / 10:33:23	43.69
13206	10/13/2015	80230	001 - Regional Municipality of Durham	10:40:43 / 11:09:58	29.15
13207	10/13/2015	80172	001 - Regional Municipality of Durham	11:20:48 / 11:53:26	32.78
13208	10/13/2015	527	004 - Walker Environmental	11:23:31 / 11:55:11	31.80
13209	10/13/2015	15175	002 - Regional Municipality of York	12:08:01 / 12:30:37	22.36
13210	10/13/2015	80225	001 - Regional Municipality of Durham	12:01:34 / 12:32:18	30.84
13211	10/13/2015	80227	001 - Regional Municipality of Durham	12:11:43 / 12:56:38	44.95
13212	10/13/2015	14149	004 - Walker Environmental	12:45:52 / 13:04:19	18.67
13213	10/13/2015	80230	001 - Regional Municipality of Durham	12:37:24 / 13:14:58	37.34
13214	10/13/2015	80172	001 - Regional Municipality of Durham	13:11:46 / 13:46:14	34.68

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 10/05/2015 through 10/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
13215	10/13/2015	0176	002 - Regional Municipality of York	14:10:07 / 14:37:11	27.04
13216	10/13/2015	80227	001 - Regional Municipality of Durham	14:23:16 / 15:05:05	41.89
13217	10/13/2015	80225	001 - Regional Municipality of Durham	14:21:23 / 15:06:18	44.95
13218	10/13/2015	80172	001 - Regional Municipality of Durham	15:00:37 / 15:30:42	30.05
13219	10/13/2015	15175	002 - Regional Municipality of York	15:02:12 / 15:55:22	53.10
13220	10/13/2015	15172	004 - Walker Environmental	15:55:59 / 16:23:20	27.61
13221	10/13/2015	80225	001 - Regional Municipality of Durham	17:15:47 / 17:50:57	35.10
13222	10/14/2015	14149	004 - Walker Environmental	06:57:34 / 07:18:27	20.93
13223	10/14/2015	80172	001 - Regional Municipality of Durham	07:01:32 / 07:34:43	33.11
13224	10/14/2015	80174	001 - Regional Municipality of Durham	07:02:58 / 08:01:57	58.99
13225	10/14/2015	80230	001 - Regional Municipality of Durham	08:09:29 / 08:30:45	21.16
13226	10/14/2015	0265	002 - Regional Municipality of York	07:43:02 / 08:32:06	49.04
13227	10/14/2015	506	003 - Reagents	23:11:53 / 02:58:43	-1,213.10
13228	10/14/2015	80172	001 - Regional Municipality of Durham	09:04:51 / 09:37:10	32.59
13229	10/14/2015	80174	001 - Regional Municipality of Durham	09:47:31 / 10:17:05	29.74
13230	10/14/2015	15172	004 - Walker Environmental	10:22:51 / 10:42:17	19.66
13231	10/14/2015	80230	001 - Regional Municipality of Durham	10:15:16 / 10:46:02	30.86
13232	10/14/2015	80225	001 - Regional Municipality of Durham	10:00:31 / 10:49:33	49.02
13233	10/14/2015	11	004 - Walker Environmental	11:04:28 / 11:34:40	30.12
13234	10/14/2015	80172	001 - Regional Municipality of Durham	11:02:29 / 11:36:33	34.04
13235	10/14/2015	507	004 - Walker Environmental	11:26:27 / 11:48:30	22.03
13236	10/14/2015	561	003 - Reagents	09:02:48 / 11:56:07	173.59
13237	10/14/2015	0265	002 - Regional Municipality of York	11:49:51 / 12:24:59	35.08
13238	10/14/2015	80230	001 - Regional Municipality of Durham	12:27:58 / 12:54:01	26.43
13239	10/14/2015	14149	004 - Walker Environmental	12:37:40 / 12:55:09	17.69
13240	10/14/2015	15175	002 - Regional Municipality of York	12:40:37 / 13:14:12	33.75
13241	10/14/2015	80225	001 - Regional Municipality of Durham	12:50:12 / 13:50:39	60.27
13242	10/14/2015	0176	002 - Regional Municipality of York	12:43:53 / 13:53:55	70.02
13243	10/14/2015	357	07 - Gerdau	13:17:33 / 14:18:40	61.07
13244	10/14/2015	80172	001 - Regional Municipality of Durham	13:01:22 / 14:19:48	78.26
13245	10/14/2015	80227	001 - Regional Municipality of Durham	14:09:31 / 14:44:22	34.91
13246	10/14/2015	80230	001 - Regional Municipality of Durham	14:44:32 / 15:11:14	26.82
13247	10/14/2015	80225	001 - Regional Municipality of Durham	15:55:00 / 16:22:55	27.55
13248	10/14/2015	80172	001 - Regional Municipality of Durham	15:52:07 / 16:24:12	32.05
13249	10/14/2015	15172	004 - Walker Environmental	15:49:35 / 16:34:49	45.14
13250	10/14/2015	15175	002 - Regional Municipality of York	16:43:04 / 17:11:09	28.05
13251	10/14/2015	80227	001 - Regional Municipality of Durham	16:41:26 / 17:12:34	31.08
13252	10/15/2015	14149	004 - Walker Environmental	06:51:31 / 07:17:27	25.96
13253	10/15/2015	416	004 - Walker Environmental	06:55:55 / 07:31:12	35.57

**Covanta Durham York Renewable Energy, LP**  
**Truck Cycle Time Report**

Customer: All  
 Site ID: 99

Transactions from 10/05/2015 through 10/15/2015  
 Inbound and Outbound Tickets  
 Third Party and Intercompany Customers

r ID: AHUXTER

Ticket	Date	Truck	Customer	Time In / Out	Time Cycle (Minutes)
13254	10/15/2015	494	004 - Walker Environmental	07:20:59 / 07:44:41	23.82
13255	10/15/2015	0265	002 - Regional Municipality of York	07:22:28 / 07:47:37	25.09
13256	10/15/2015	007	07 - Gerdau	08:09:24 / 08:25:54	16.30
13257	10/15/2015	80230	001 - Regional Municipality of Durham	08:24:33 / 08:51:30	26.97
13258	10/15/2015	105	003 - Reagents	07:19:16 / 09:11:10	111.94
13259	10/15/2015	80172	001 - Regional Municipality of Durham	08:34:48 / 09:20:48	46.00
13260	10/15/2015	80225	001 - Regional Municipality of Durham	09:04:04 / 09:47:47	43.43
13261	10/15/2015	80227	001 - Regional Municipality of Durham	09:23:05 / 10:11:05	48.00
13262	10/15/2015	80172	001 - Regional Municipality of Durham	10:50:16 / 11:20:38	30.22
13263	10/15/2015	15172	004 - Walker Environmental	11:08:54 / 11:25:10	16.56
13264	10/15/2015	0265	002 - Regional Municipality of York	11:17:27 / 11:48:57	31.30
13265	10/15/2015	80230	001 - Regional Municipality of Durham	10:57:45 / 11:50:02	52.57
13266	10/15/2015	80225	001 - Regional Municipality of Durham	11:41:44 / 12:17:03	35.59
13267	10/15/2015	15175	002 - Regional Municipality of York	12:10:34 / 12:43:44	33.10
13268	10/15/2015	80227	001 - Regional Municipality of Durham	11:53:48 / 12:45:08	51.60
13269	10/15/2015	14149	004 - Walker Environmental	12:49:47 / 13:10:32	20.85
13270	10/15/2015	80172	001 - Regional Municipality of Durham	12:45:42 / 13:12:55	27.13
13271	10/15/2015	80230	001 - Regional Municipality of Durham	13:25:26 / 13:49:20	23.94
13272	10/15/2015	80227	001 - Regional Municipality of Durham	14:09:35 / 14:42:37	33.02
13273	10/15/2015	80225	001 - Regional Municipality of Durham	14:36:57 / 15:14:08	37.51
13274	10/15/2015	357	07 - Gerdau	15:36:57 / 16:22:27	45.70
13275	10/15/2015	15175	002 - Regional Municipality of York	16:06:16 / 16:37:08	30.92
13276	10/15/2015	80230	001 - Regional Municipality of Durham	16:15:37 / 17:16:57	61.20
13277	10/15/2015	80227	001 - Regional Municipality of Durham	16:14:38 / 17:18:10	63.72
13278	10/15/2015	15172	004 - Walker Environmental	17:20:26 / 17:46:11	25.85
13279	10/15/2015	1570	003 - Reagents	16:08:39 / 18:00:48	112.09

**Report Grand Totals**

221 tickets and 221 transactions

Average Cycle

**38.05****End of Report**

# **APPENDIX C**

## **ENVIRONMENTAL NOISE GUIDELINES**

## APPENDIX C

### ENVIRONMENTAL NOISE GUIDELINES

#### MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MOE)

Reference: MOE Publication NPC-205, October 1995: "Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (URBAN)".

For sound from a stationary source, including Quasi-Steady Impulsive Sound but not including other impulsive sound, the sound level limit expressed in terms of the One Hour Equivalent Sound level ( $L_{eq}$ ) is the background One Hour Equivalent Sound Level ( $L_{eq}$ ) typically caused by road traffic as obtained pursuant to Section 6 for that point of reception.

No restrictions apply to a stationary source resulting in a One hour Equivalent Sound Level ( $L_{eq}$ ) lower than the minimum values for that time period specified in Table 205-1.

TABLE 205-1

#### MINIMUM VALUES OF ONE HOUR $L_{eq}$ OR $L_{LM}$ BY TIME OF DAY

Time of Day	One Hour $L_{eq}$ (dBA) or $L_{LM}$ (dBAI)	
	Class 1 Area	Class 2 Area
0700 - 1900 hours	50	50
1900 - 2300 hours	47	45
2300 - 0700 hours	45	45

For impulsive sound from a metal working operation (such as from a punch press) the applicable sound level limit is 60 dBAI, if the stationary source were operating before January 1, 1980, and otherwise is 50 dBAI. The sound level limits are expressed in terms of the Logarithmic Mean Impulse Sound Level ( $L_{LM}$ ).

# **APPENDIX D**

## **WEATHER DATA**

**November 2014, April 2015 and October 2015**

```

;
; Intellution Historical Data Report
; Generated 09/12/2014 11:22:51 AM
; Start Time: 01/11/14 00:00:00
; Duration: 30:00:00:00
; Interval: 00:10:00
; Historical Input Data path: D:\FIX\HTRDATA
; Retrieval modes: (S)a (A)verage (H)igh (L)ow (R)aw
;

```

Date	Time	CCSCADA0	CCSCADA0	CCSCADA0:CC-DG-ZIT-0001-ZI.F_CV (A)
01/11/2014	01:00:00	20.35294	4.606637	185.9443
01/11/2014	02:00:00	20.64931	4.358097	189.7958
01/11/2014	03:00:00	20.48648	4.106907	188.3227
01/11/2014	04:00:00	17.75387	3.814847	192.4016
01/11/2014	05:00:00	18.6198	4.254857	186.1671
01/11/2014	06:00:00	17.06799	4.315113	187.7986
01/11/2014	07:00:00	16.05514	4.218565	176.1691
01/11/2014	08:00:00	13.96501	3.90187	175.6934
01/11/2014	09:00:00	17.19374	3.639966	176.5133
01/11/2014	10:00:00	17.29782	3.582278	173.4382
01/11/2014	11:00:00	17.73271	4.077265	179.7411
01/11/2014	12:00:00	26.04626	4.569018	177.6602
01/11/2014	13:00:00	24.57835	5.218154	178.6215
01/11/2014	14:00:00	24.53021	5.364685	168.8788
01/11/2014	15:00:00	23.30179	5.368971	167.8092
01/11/2014	16:00:00	21.2906	5.744845	177.547
01/11/2014	17:00:00	23.19455	5.385744	169.7036
01/11/2014	18:00:00	20.94643	5.225196	165.114
01/11/2014	19:00:00	18.08367	4.938372	164.8346
01/11/2014	20:00:00	19.67281	4.767743	168.6896
01/11/2014	21:00:00	22.83796	4.694766	166.8018
01/11/2014	22:00:00	21.80368	4.425044	164.0294
01/11/2014	23:00:00	23.17592	4.28019	164.048
02/11/2014	01:00:00	23.24268	3.096745	162.6566
02/11/2014	02:00:00	22.82338	1.928275	162.3579
02/11/2014	03:00:00	21.46353	1.492696	161.9832
02/11/2014	04:00:00	18.89428	1.277935	165.7903
02/11/2014	05:00:00	21.39649	0.920439	167.1031
02/11/2014	06:00:00	18.41095	0.863615	169.4234
02/11/2014	07:00:00	16.73128	0.383318	162.7256
02/11/2014	08:00:00	14.68468	1.194307	164.4932
02/11/2014	09:00:00	18.67844	2.944901	164.3188
02/11/2014	10:00:00	17.72505	4.130914	162.9947
02/11/2014	11:00:00	24.3076	5.227243	145.9268
02/11/2014	12:00:00	25.33016	6.161219	152.7651
02/11/2014	13:00:00	22.13803	7.354381	140.206
02/11/2014	14:00:00	19.80794	7.998971	142.9074

02/11/2014	15:00:00	13.79148	8.775031	114.6395
02/11/2014	16:00:00	15.68859	8.758944	108.9972
02/11/2014	17:00:00	10.7264	7.871732	102.8983
02/11/2014	18:00:00	9.473549	6.868369	113.9445
02/11/2014	19:00:00	9.416481	6.291326	104.8013
02/11/2014	20:00:00	8.894317	6.564487	89.15154
02/11/2014	21:00:00	7.54473	6.966707	89.62313
02/11/2014	22:00:00	12.42719	6.6069	87.21377
02/11/2014	23:00:00	15.96007	5.940065	91.12131
03/11/2014	01:00:00	5.95923	4.924895	83.89348
03/11/2014	02:00:00	7.740717	5.306931	91.53653
03/11/2014	03:00:00	5.640244	5.953043	87.5289
03/11/2014	04:00:00	10.23945	6.623809	89.73421
03/11/2014	05:00:00	8.623448	7.611791	84.31196
03/11/2014	06:00:00	6.445618	7.930612	73.82595
03/11/2014	07:00:00	5.877699	8.390932	73.74487
03/11/2014	08:00:00	7.054233	9.027854	69.95783
03/11/2014	09:00:00	6.886829	9.25423	66.32572
03/11/2014	10:00:00	12.16463	9.284336	59.13454
03/11/2014	11:00:00	9.963571	9.419024	59.16381
03/11/2014	12:00:00	9.391504	10.182	54.8314
03/11/2014	13:00:00	4.944643	11.25477	68.06175
03/11/2014	14:00:00	12.12658	12.34012	71.81902
03/11/2014	15:00:00	8.043382	11.30932	62.81555
03/11/2014	16:00:00	25.23454	11.48727	45.55687
03/11/2014	17:00:00	6.079325	10.81671	72.95979
03/11/2014	18:00:00	7.113496	11.39014	84.62537
03/11/2014	19:00:00	5.964084	11.44629	68.34039
03/11/2014	20:00:00	14.94478	11.90858	82.42835
03/11/2014	21:00:00	8.131051	11.70774	74.30453
03/11/2014	22:00:00	2.410329	11.23938	63.04747
03/11/2014	23:00:00	0.349847	11.07447	53.81398
04/11/2014	01:00:00	3.520613	11.15081	37.43436
04/11/2014	02:00:00	4.801317	11.65018	58.15932
04/11/2014	03:00:00	0.26884	11.71835	42.71651
04/11/2014	04:00:00	1.538154	12.39077	311.9488
04/11/2014	05:00:00	3.365808	12.75329	44.0918
04/11/2014	06:00:00	5.135545	12.30701	39.37557
04/11/2014	07:00:00	4.331135	12.23577	55.293
04/11/2014	08:00:00	14.97224	12.05741	36.22409
04/11/2014	09:00:00	19.1489	12.31815	31.65159
04/11/2014	10:00:00	12.73649	12.41412	24.93498
04/11/2014	11:00:00	16.2767	12.41715	35.28637
04/11/2014	12:00:00	21.29393	12.50681	45.0965
04/11/2014	13:00:00	13.73671	12.29436	51.07328
04/11/2014	14:00:00	13.99521	12.23052	48.51156
04/11/2014	15:00:00	5.794614	11.76651	71.77115

04/11/2014	16:00:00	10.1052	11.36734	71.2459
04/11/2014	17:00:00	15.49302	10.82739	67.38667
04/11/2014	18:00:00	8.507463	10.55634	65.59334
04/11/2014	19:00:00	9.02078	10.5448	67.82909
04/11/2014	20:00:00	8.382913	10.8098	60.09786
04/11/2014	21:00:00	18.7314	11.03193	50.29341
04/11/2014	22:00:00	26.41904	11.19946	45.95894
04/11/2014	23:00:00	9.654666	10.86933	70.59509
05/11/2014	01:00:00	13.08709	11.56066	84.86723
05/11/2014	02:00:00	20.24411	10.44157	93.55698
05/11/2014	03:00:00	16.66852	9.173142	90.89386
05/11/2014	04:00:00	15.99733	8.649754	79.3195
05/11/2014	05:00:00	9.257592	8.385559	64.34892
05/11/2014	06:00:00	15.12963	8.615282	58.03041
05/11/2014	07:00:00	14.74686	8.836122	58.2423
05/11/2014	08:00:00	14.66151	8.730927	61.27135
05/11/2014	09:00:00	15.56674	8.97357	60.29863
05/11/2014	10:00:00	14.43734	9.308121	58.44499
05/11/2014	11:00:00	24.24999	9.184813	49.76839
05/11/2014	12:00:00	13.46148	9.927642	58.23524
05/11/2014	13:00:00	9.84607	9.946063	63.07991
05/11/2014	14:00:00	7.326012	10.1159	69.73853
05/11/2014	15:00:00	9.344902	10.57405	92.64211
05/11/2014	16:00:00	14.8918	10.07106	115.0239
05/11/2014	17:00:00	8.180812	9.767601	116.3291
05/11/2014	18:00:00	6.356793	9.430088	120.8286
05/11/2014	19:00:00	5.362186	9.362563	133.5434
05/11/2014	20:00:00	4.261071	9.206738	130.8821
05/11/2014	21:00:00	3.992387	9.160558	215.2561
05/11/2014	22:00:00	7.740576	8.490484	45.18141
05/11/2014	23:00:00	4.24936	8.742679	321.4954
06/11/2014	01:00:00	1.868731	8.47583	241.5562
06/11/2014	02:00:00	3.145973	7.422898	224.1728
06/11/2014	03:00:00	8.300058	8.65828	320.2562
06/11/2014	04:00:00	7.231562	6.800218	203.7896
06/11/2014	05:00:00	7.411254	7.258546	218.7908
06/11/2014	06:00:00	9.985812	7.634726	240.1675
06/11/2014	07:00:00	8.534559	7.894383	238.201
06/11/2014	08:00:00	8.711465	8.501349	226.4237
06/11/2014	09:00:00	10.91274	9.295651	252.8746
06/11/2014	10:00:00	17.39565	10.04228	259.9067
06/11/2014	11:00:00	14.97268	10.37966	268.0147
06/11/2014	12:00:00	14.21907	10.44494	263.0869
06/11/2014	13:00:00	12.55273	9.808294	282.8254
06/11/2014	14:00:00	11.15402	9.92354	270.0569
06/11/2014	15:00:00	9.457497	9.702707	278.6711
06/11/2014	16:00:00	6.544126	9.65553	249.1278

06/11/2014	17:00:00	10.85863	8.949028	220.4189
06/11/2014	18:00:00	7.358103	8.370501	199.5778
06/11/2014	19:00:00	12.58552	7.958013	221.2089
06/11/2014	20:00:00	10.23175	7.57445	242.5023
06/11/2014	21:00:00	10.2695	7.052426	224.7412
06/11/2014	22:00:00	6.384261	6.693939	195.0064
06/11/2014	23:00:00	5.969747	6.31761	199.1354
07/11/2014	01:00:00	7.286511	5.801649	165.6618
07/11/2014	02:00:00	8.343657	5.763664	155.4705
07/11/2014	03:00:00	7.178552	5.446442	141.5462
07/11/2014	04:00:00	17.42172	4.048399	145.0112
07/11/2014	05:00:00	17.80559	3.807854	154.1312
07/11/2014	06:00:00	19.37033	3.558236	150.6703
07/11/2014	07:00:00	23.46484	3.420661	148.5976
07/11/2014	08:00:00	19.33269	3.349196	150.1419
07/11/2014	09:00:00	25.57424	3.512435	147.2313
07/11/2014	10:00:00	21.29006	3.750276	151.5324
07/11/2014	11:00:00	23.63709	3.819691	143.9191
07/11/2014	12:00:00	21.36334	3.619991	144.5707
07/11/2014	13:00:00	18.37696	3.564743	148.9174
07/11/2014	14:00:00	21.00487	4.001841	143.8948
07/11/2014	15:00:00	22.7551	3.705943	147.355
07/11/2014	16:00:00	15.44758	3.560042	140.4482
07/11/2014	17:00:00	9.846378	3.350452	135.9838
07/11/2014	18:00:00	6.021627	3.136761	127.9742
07/11/2014	19:00:00	6.389333	3.134558	103.4989
07/11/2014	20:00:00	4.661485	3.052884	100.6581
07/11/2014	21:00:00	8.992978	2.447196	96.94954
07/11/2014	22:00:00	6.940957	2.433071	107.4395
07/11/2014	23:00:00	3.019534	2.46389	164.9243
08/11/2014	01:00:00	3.685011	1.440073	144.4978
08/11/2014	02:00:00	1.691636	1.460264	145.232
08/11/2014	03:00:00	3.237161	1.629344	160.9483
08/11/2014	04:00:00	3.278665	2.13606	182.6994
08/11/2014	05:00:00	4.139385	2.510628	232.5332
08/11/2014	06:00:00	5.926574	3.019361	261.4909
08/11/2014	07:00:00	20.25339	5.627251	278.8642
08/11/2014	08:00:00	18.23136	5.886715	332.9834
08/11/2014	09:00:00	19.12355	6.633268	332.773
08/11/2014	10:00:00	23.90733	6.22211	27.39902
08/11/2014	11:00:00	30.38906	6.15049	25.37084
08/11/2014	12:00:00	18.99431	6.521533	163.4138
08/11/2014	13:00:00	27.61994	6.941993	211.1535
08/11/2014	14:00:00	20.1213	6.955542	33.18657
08/11/2014	15:00:00	21.57614	7.686321	17.59493
08/11/2014	16:00:00	24.65454	7.464746	40.29891
08/11/2014	17:00:00	25.77321	8.239744	26.50409

08/11/2014	18:00:00	32.42125	7.888348	47.13651
08/11/2014	19:00:00	10.13962	7.193818	63.0289
08/11/2014	20:00:00	9.611364	7.053432	61.90426
08/11/2014	21:00:00	12.78497	7.420601	74.62843
08/11/2014	22:00:00	12.9902	6.885077	92.52998
08/11/2014	23:00:00	19.3463	6.123302	104.6468
09/11/2014	01:00:00	12.74955	4.394402	109.1024
09/11/2014	02:00:00	12.28113	4.464424	97.60657
09/11/2014	03:00:00	10.54373	4.691356	82.19215
09/11/2014	04:00:00	14.54505	4.075738	85.18211
09/11/2014	05:00:00	11.90003	4.371896	83.95802
09/11/2014	06:00:00	13.00172	4.287254	85.50555
09/11/2014	07:00:00	10.09027	4.241594	79.9679
09/11/2014	08:00:00	7.90473	4.237528	81.94309
09/11/2014	09:00:00	10.62677	4.722013	54.9659
09/11/2014	10:00:00	10.51514	4.839235	52.19009
09/11/2014	11:00:00	18.12134	5.155024	43.45937
09/11/2014	12:00:00	20.11437	5.157171	44.76493
09/11/2014	13:00:00	16.87305	5.508473	46.33499
09/11/2014	14:00:00	16.63498	6.094849	46.73953
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09/11/2014	17:00:00	9.132052	7.292106	27.52084
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09/11/2014	19:00:00	23.21159	8.596169	45.68857
09/11/2014	20:00:00	8.583948	8.119682	59.66011
09/11/2014	21:00:00	4.716974	8.131197	63.77459
09/11/2014	22:00:00	5.470146	8.148177	65.89594
09/11/2014	23:00:00	10.89284	8.705307	75.58312
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11/11/2014	01:00:00	16.64451	11.76186	264.5773
11/11/2014	02:00:00	16.47603	11.15918	261.6187
11/11/2014	03:00:00	17.69643	11.07368	261.8492
11/11/2014	04:00:00	13.65206	11.48797	270.1258
11/11/2014	05:00:00	9.57614	11.18302	268.9593
11/11/2014	06:00:00	6.546348	9.955894	238.7239
11/11/2014	07:00:00	11.52275	9.920586	251.9023
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11/11/2014	09:00:00	5.282055	13.58744	296.7503
11/11/2014	10:00:00	3.468797	13.78512	194.9659
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11/11/2014	13:00:00	8.641529	13.59247	267.6149
11/11/2014	14:00:00	8.422555	14.78555	335.5596
11/11/2014	15:00:00	5.182468	15.23993	320.4828
11/11/2014	16:00:00	3.599948	16.50869	317.4821
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11/11/2014	19:00:00	5.62585	14.97705	253.6965
11/11/2014	20:00:00	4.274786	16.13825	288.0816
11/11/2014	21:00:00	11.00768	15.67196	288.3404
11/11/2014	22:00:00	6.544498	14.92898	143.3419
11/11/2014	23:00:00	9.066496	13.08928	25.26274
12/11/2014	01:00:00	7.404383	10.93205	54.01575
12/11/2014	02:00:00	15.66192	11.79211	87.37653
12/11/2014	03:00:00	17.3106	10.81271	86.6123
12/11/2014	04:00:00	24.45137	8.938412	88.68929
12/11/2014	05:00:00	23.03636	8.092373	90.29557
12/11/2014	06:00:00	19.47156	7.740385	79.84262
12/11/2014	07:00:00	21.55521	6.595715	85.78162
12/11/2014	08:00:00	23.56071	6.041256	85.72916
12/11/2014	09:00:00	23.5233	5.801713	92.28465
12/11/2014	10:00:00	21.48105	5.508553	77.72787
12/11/2014	11:00:00	19.31787	5.386137	87.85878
12/11/2014	12:00:00	18.43565	5.100554	81.6896
12/11/2014	13:00:00	13.58055	5.350658	76.00188
12/11/2014	14:00:00	19.09761	5.87752	79.7281
12/11/2014	15:00:00	15.65974	5.785518	73.54151
12/11/2014	16:00:00	19.04329	5.26554	82.21007
12/11/2014	17:00:00	15.91761	4.905604	85.18585
12/11/2014	18:00:00	17.60298	4.555829	98.49647
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12/11/2014	22:00:00	14.88104	4.265051	83.36543
12/11/2014	23:00:00	14.35717	4.32692	78.75794
13/11/2014	01:00:00	13.3807	3.860064	78.262
13/11/2014	02:00:00	12.41366	4.033168	77.87843
13/11/2014	03:00:00	12.6804	4.147715	69.97247
13/11/2014	04:00:00	11.24811	4.069987	75.12711
13/11/2014	05:00:00	12.25791	4.042371	72.14399
13/11/2014	06:00:00	11.64958	3.867262	69.84848
13/11/2014	07:00:00	10.18077	3.567204	70.86314
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13/11/2014	09:00:00	12.74606	3.520367	83.57585
13/11/2014	10:00:00	16.55687	3.607562	88.94207
13/11/2014	11:00:00	8.461515	4.061955	72.94392
13/11/2014	12:00:00	12.2225	3.430576	56.84409
13/11/2014	13:00:00	11.123	3.286916	60.64699
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13/11/2014	18:00:00	7.987353	3.274344	90.50717
13/11/2014	19:00:00	10.96173	3.003865	79.2536
13/11/2014	20:00:00	13.09137	2.133698	85.83047
13/11/2014	21:00:00	14.24297	1.605003	90.27546
13/11/2014	22:00:00	13.20186	1.025048	87.94422
13/11/2014	23:00:00	11.49214	0.605585	83.10429
14/11/2014	01:00:00	11.03059	0.318454	91.58666
14/11/2014	02:00:00	10.69941	0.452199	80.97312
14/11/2014	03:00:00	10.56886	0.479181	85.39794
14/11/2014	04:00:00	13.88371	0.738459	86.24282
14/11/2014	05:00:00	9.740949	0.248931	93.63189
14/11/2014	06:00:00	4.681582	-7.88E-01	123.6241
14/11/2014	07:00:00	8.838199	-8.20E-01	108.0033
14/11/2014	08:00:00	8.797875	-5.77E-01	110.5507
14/11/2014	09:00:00	10.46112	1.195143	113.0448
14/11/2014	10:00:00	15.81942	1.795621	130.5451
14/11/2014	11:00:00	18.60618	2.382133	125.1915
14/11/2014	12:00:00	14.3608	2.85566	129.2875
14/11/2014	13:00:00	15.75396	2.574149	137.0584
14/11/2014	14:00:00	13.76424	2.38891	146.0795
14/11/2014	15:00:00	16.19245	2.717726	110.5534
14/11/2014	16:00:00	20.98344	2.133149	116.1449
14/11/2014	17:00:00	13.41647	1.60852	127.1059
14/11/2014	18:00:00	10.6081	1.042113	115.7636
14/11/2014	19:00:00	8.793265	0.875508	115.1787
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14/11/2014	23:00:00	3.614177	0.265353	104.9893
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15/11/2014	03:00:00	2.971904	-8.03E-01	121.1464
15/11/2014	04:00:00	4.321002	-1.12E+00	188.3937
15/11/2014	05:00:00	1.244542	-9.57E-01	171.494
15/11/2014	06:00:00	3.128019	-9.63E-01	147.9423
15/11/2014	07:00:00	7.046322	-4.95E-01	162.0528
15/11/2014	08:00:00	4.887843	-7.01E-01	117.3883
15/11/2014	09:00:00	4.483256	0.912092	93.16631
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15/11/2014	11:00:00	7.799866	3.840773	62.5279
15/11/2014	12:00:00	9.990409	4.305117	57.04123
15/11/2014	13:00:00	18.33948	4.452846	50.4811
15/11/2014	14:00:00	17.92593	3.95131	54.46089
15/11/2014	15:00:00	22.09147	3.997077	54.04896
15/11/2014	16:00:00	17.25105	3.527245	57.06262
15/11/2014	17:00:00	15.4347	2.63589	81.7901
15/11/2014	18:00:00	16.39138	2.378487	97.52271
15/11/2014	19:00:00	8.48526	2.151562	88.60364
15/11/2014	20:00:00	10.30792	2.373029	81.93501
15/11/2014	21:00:00	11.3306	2.200624	99.91428
15/11/2014	22:00:00	6.607756	2.000823	102.5771
15/11/2014	23:00:00	10.07681	2.515086	89.70363
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16/11/2014	02:00:00	8.023592	3.127516	57.9321
16/11/2014	03:00:00	6.106164	2.927323	68.872
16/11/2014	04:00:00	11.60502	3.438432	51.84265
16/11/2014	05:00:00	12.90456	2.635012	45.30055
16/11/2014	06:00:00	8.09928	2.795297	60.39257
16/11/2014	07:00:00	18.21948	2.533113	43.16525
16/11/2014	08:00:00	17.97785	2.029553	29.83024
16/11/2014	09:00:00	15.51392	1.801829	53.07901
16/11/2014	10:00:00	9.767531	1.747616	76.50119
16/11/2014	11:00:00	10.09836	2.172066	57.5672
16/11/2014	12:00:00	12.27567	2.222996	58.84922
16/11/2014	13:00:00	8.190302	2.223867	66.29562
16/11/2014	14:00:00	12.83278	2.156612	47.45614
16/11/2014	15:00:00	9.310487	2.60273	54.58469
16/11/2014	16:00:00	10.65933	2.504049	54.83974
16/11/2014	17:00:00	13.94087	2.738073	51.63664
16/11/2014	18:00:00	8.73273	2.375783	79.67265
16/11/2014	19:00:00	5.555439	2.87592	63.22592
16/11/2014	20:00:00	10.10154	2.688683	45.47671
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17/11/2014	02:00:00	8.118671	1.61133	232.074
17/11/2014	03:00:00	11.99291	1.328052	217.0313
17/11/2014	04:00:00	12.34213	1.397952	219.0104
17/11/2014	05:00:00	11.13073	1.731007	224.6875
17/11/2014	06:00:00	15.1554	1.793946	220.6096
17/11/2014	07:00:00	11.69769	2.205639	218.2037
17/11/2014	08:00:00	10.97305	2.469897	228.816
17/11/2014	09:00:00	10.10846	2.357412	245.2813
17/11/2014	10:00:00	7.718656	2.81199	221.9694
17/11/2014	11:00:00	2.849679	3.212335	254.2184
17/11/2014	12:00:00	1.76965	3.506727	274.866
17/11/2014	13:00:00	1.123835	3.234728	236.6791
17/11/2014	14:00:00	0.853065	3.150866	108.775
17/11/2014	15:00:00	5.172272	3.053825	84.87131
17/11/2014	16:00:00	10.18614	3.220175	82.51675
17/11/2014	17:00:00	10.66191	3.318384	84.19759
17/11/2014	18:00:00	13.72447	3.486295	73.46249
17/11/2014	19:00:00	13.52087	3.433074	76.92753
17/11/2014	20:00:00	19.47968	2.1497	93.3942
17/11/2014	21:00:00	26.4993	1.293544	86.68213
17/11/2014	22:00:00	24.99349	-9.51E-02	87.4103
17/11/2014	23:00:00	22.81363	-8.98E-01	83.63692
18/11/2014	01:00:00	19.13711	-1.94E+00	74.5279
18/11/2014	02:00:00	22.43212	-2.86E+00	85.97202
18/11/2014	03:00:00	20.99621	-3.57E+00	83.19324
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18/11/2014	05:00:00	24.03471	-3.49E+00	70.32852
18/11/2014	06:00:00	24.17333	-3.75E+00	73.00602
18/11/2014	07:00:00	24.06899	-4.19E+00	73.07051
18/11/2014	08:00:00	23.96311	-3.91E+00	70.36679
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18/11/2014	19:00:00	23.61786	-1.38E+00	71.85505
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19/11/2014	01:00:00	23.65936	-2.86E+00	81.64181
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19/11/2014	03:00:00	20.21421	-3.65E+00	78.43046
19/11/2014	04:00:00	19.75619	-4.14E+00	82.54588
19/11/2014	05:00:00	17.80007	-4.22E+00	86.07349
19/11/2014	06:00:00	14.05816	-4.77E+00	88.25181
19/11/2014	07:00:00	17.30476	-4.73E+00	91.30826
19/11/2014	08:00:00	10.04812	-4.91E+00	102.0167
19/11/2014	09:00:00	10.97432	-3.56E+00	84.28181
19/11/2014	10:00:00	15.72024	-2.16E+00	72.5824
19/11/2014	11:00:00	20.60163	-2.03E+00	52.52625
19/11/2014	12:00:00	24.79026	-1.97E+00	48.07046
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20/11/2014	19:00:00	16.0134	-2.52E+00	85.99744
20/11/2014	20:00:00	15.51277	-3.05E+00	94.28802
20/11/2014	21:00:00	14.60547	-3.57E+00	95.89091
20/11/2014	22:00:00	15.53221	-3.99E+00	96.30682
20/11/2014	23:00:00	15.73896	-4.25E+00	97.70219

21/11/2014	01:00:00	13.5112	-4.16E+00	89.10166
21/11/2014	02:00:00	12.84807	-4.25E+00	90.81845
21/11/2014	03:00:00	9.928988	-5.41E+00	109.3477
21/11/2014	04:00:00	10.34522	-5.98E+00	124.7665
21/11/2014	05:00:00	9.044691	-5.31E+00	141.9914
21/11/2014	06:00:00	9.51667	-5.92E+00	135.7932
21/11/2014	07:00:00	6.156258	-6.70E+00	138.6238
21/11/2014	08:00:00	4.985645	-6.42E+00	115.3146
21/11/2014	09:00:00	8.923159	-5.10E+00	139.7145
21/11/2014	10:00:00	8.419306	-3.57E+00	133.3033
21/11/2014	11:00:00	7.726875	-2.12E+00	104.8083
21/11/2014	12:00:00	6.760288	-1.30E+00	62.14517
21/11/2014	13:00:00	7.508785	-5.75E-01	56.28129
21/11/2014	14:00:00	11.73394	-1.17E-01	84.01529
21/11/2014	15:00:00	15.64271	0.180635	91.3035
21/11/2014	16:00:00	17.22539	-1.01E-01	86.70332
21/11/2014	17:00:00	19.61039	-4.11E-01	87.96896
21/11/2014	18:00:00	17.25707	-1.49E+00	91.44656
21/11/2014	19:00:00	16.42435	-2.12E+00	89.60087
21/11/2014	20:00:00	16.88635	-2.30E+00	86.85459
21/11/2014	21:00:00	15.90034	-2.58E+00	93.25871
21/11/2014	22:00:00	10.13178	-3.17E+00	95.65707
21/11/2014	23:00:00	16.11247	-2.61E+00	90.66441
22/11/2014	01:00:00	9.823598	-2.07E+00	94.98087
22/11/2014	02:00:00	22.30604	0.861546	54.2939
22/11/2014	03:00:00	32.46081	1.43854	51.3927
22/11/2014	04:00:00	27.01937	2.304706	55.7583
22/11/2014	05:00:00	34.06393	2.709294	51.07934
22/11/2014	06:00:00	26.54929	3.040492	50.43937
22/11/2014	07:00:00	31.70868	3.276099	46.57125
22/11/2014	08:00:00	29.80472	3.790968	45.57875
22/11/2014	09:00:00	29.04631	4.198818	48.07017
22/11/2014	10:00:00	29.69286	4.842688	41.00637
22/11/2014	11:00:00	23.44032	5.455574	49.33039
22/11/2014	12:00:00	36.74953	5.674401	44.63746
22/11/2014	13:00:00	18.28997	5.38919	58.79852
22/11/2014	14:00:00	20.93756	5.64513	57.90768
22/11/2014	15:00:00	22.96507	6.01561	55.93508
22/11/2014	16:00:00	23.23177	6.296427	53.56784
22/11/2014	17:00:00	21.1517	6.809248	54.14483
22/11/2014	18:00:00	10.31017	6.998062	60.67483
22/11/2014	19:00:00	13.58546	7.151762	56.88821
22/11/2014	20:00:00	9.211028	7.002492	72.9857
22/11/2014	21:00:00	7.112186	6.874961	71.19412
22/11/2014	22:00:00	7.793407	6.983937	65.76783
22/11/2014	23:00:00	7.043638	6.710896	69.53014
23/11/2014	01:00:00	7.3251	7.195324	73.42668

23/11/2014	02:00:00	7.519278	6.953216	61.74318
23/11/2014	03:00:00	8.030411	7.077353	78.7826
23/11/2014	04:00:00	5.418612	7.772924	76.53403
23/11/2014	05:00:00	4.434176	7.064568	65.17159
23/11/2014	06:00:00	6.684215	7.170996	39.37778
23/11/2014	07:00:00	2.515392	7.154381	86.52115
23/11/2014	08:00:00	3.696633	7.050935	39.31388
23/11/2014	09:00:00	2.828297	7.449394	296.0593
23/11/2014	10:00:00	3.308007	8.231354	285.9919
23/11/2014	11:00:00	3.881076	8.822209	92.31812
23/11/2014	12:00:00	8.523311	8.18335	39.52777
23/11/2014	13:00:00	4.4877	7.838587	42.60081
23/11/2014	14:00:00	7.932353	8.258863	322.6677
23/11/2014	15:00:00	5.115641	8.498353	301.2059
23/11/2014	16:00:00	10.1123	8.727268	259.9286
23/11/2014	17:00:00	16.43248	9.036216	289.8738
23/11/2014	18:00:00	19.02905	9.023518	288.3628
23/11/2014	19:00:00	16.36328	9.920022	272.2031
23/11/2014	20:00:00	18.75061	9.20267	259.3981
23/11/2014	21:00:00	21.59669	10.4878	257.6481
23/11/2014	22:00:00	23.47229	10.16882	263.3462
23/11/2014	23:00:00	24.12458	9.646705	262.2785
24/11/2014	01:00:00	25.40056	9.293618	261.4487
24/11/2014	02:00:00	23.7617	8.628644	259.0171
24/11/2014	03:00:00	35.06314	9.945542	264.8352
24/11/2014	04:00:00	31.33784	9.362256	267.2281
24/11/2014	05:00:00	24.5792	10.01238	266.3197
24/11/2014	06:00:00	20.93648	10.69282	284.1922
24/11/2014	07:00:00	32.21953	11.8983	334.8204
24/11/2014	08:00:00	32.0373	12.34047	30.35418
24/11/2014	09:00:00	32.29747	12.36398	16.16733
24/11/2014	10:00:00	25.07948	11.90885	11.66556
24/11/2014	11:00:00	25.54396	12.13595	49.99592
24/11/2014	12:00:00	20.29655	12.00167	67.61697
24/11/2014	13:00:00	19.00343	12.40579	109.3351
24/11/2014	14:00:00	42.93694	13.58444	41.2383
24/11/2014	15:00:00	34.98769	11.32617	28.61232
24/11/2014	16:00:00	40.59182	11.6805	26.22692
24/11/2014	17:00:00	48.4191	12.47519	43.38787
24/11/2014	18:00:00	50.082	10.1733	50.89237
24/11/2014	19:00:00	33.80607	8.733239	54.39658
24/11/2014	20:00:00	27.70412	8.451659	59.41366
24/11/2014	21:00:00	27.60329	8.181779	55.15231
24/11/2014	22:00:00	21.96078	8.151087	59.05371
24/11/2014	23:00:00	21.35988	7.654503	61.5629
25/11/2014	01:00:00	27.35421	5.351476	59.028
25/11/2014	02:00:00	18.86798	5.204977	62.2506

25/11/2014	03:00:00	32.38087	4.946159	52.80143
25/11/2014	04:00:00	19.8104	4.888017	66.12907
25/11/2014	05:00:00	21.19497	4.609268	60.67992
25/11/2014	06:00:00	22.66968	4.533065	59.60058
25/11/2014	07:00:00	16.91251	4.403805	71.57595
25/11/2014	08:00:00	24.22558	4.294651	59.49477
25/11/2014	09:00:00	17.68599	4.185497	61.479
25/11/2014	10:00:00	16.51952	5.901362	64.78958
25/11/2014	11:00:00	19.16729	5.784332	59.42566
25/11/2014	12:00:00	24.4826	5.511527	57.10466
25/11/2014	13:00:00	14.91924	5.012653	65.89979
25/11/2014	14:00:00	15.68147	4.732586	70.01865
25/11/2014	15:00:00	14.94219	4.81739	68.47961
25/11/2014	16:00:00	17.48918	4.655143	73.9873
25/11/2014	17:00:00	18.83173	4.329402	74.48856
25/11/2014	18:00:00	15.40541	4.500887	64.06837
25/11/2014	19:00:00	15.54829	4.651762	69.08977
25/11/2014	20:00:00	15.05204	4.511275	70.13269
25/11/2014	21:00:00	18.74609	4.360571	77.51914
25/11/2014	22:00:00	14.15492	4.471509	72.82072
25/11/2014	23:00:00	7.233154	3.891732	109.565
26/11/2014	01:00:00	7.48978	3.535401	93.67106
26/11/2014	02:00:00	6.803757	3.236626	111.1318
26/11/2014	03:00:00	2.611107	2.882398	140.2297
26/11/2014	04:00:00	4.264025	3.238759	70.87312
26/11/2014	05:00:00	2.445464	3.592274	82.92768
26/11/2014	06:00:00	3.912205	3.294606	174.6455
26/11/2014	07:00:00	5.649119	3.011014	205.3294
26/11/2014	08:00:00	6.8763	2.629362	211.1203
26/11/2014	09:00:00	7.317061	3.155567	209.822
26/11/2014	10:00:00	10.62521	3.29517	215.2378
26/11/2014	11:00:00	9.615872	3.524976	233.9158
26/11/2014	12:00:00	11.26894	3.62873	262.325
26/11/2014	13:00:00	12.57722	3.715368	268.6061
26/11/2014	14:00:00	10.27762	3.842821	259.987
26/11/2014	15:00:00	9.638011	3.629514	236.6996
26/11/2014	16:00:00	9.954684	3.495805	225.5858
26/11/2014	17:00:00	8.33351	3.144923	224.2549
26/11/2014	18:00:00	6.382695	2.867616	247.648
26/11/2014	19:00:00	5.868042	2.839664	229.5121
26/11/2014	20:00:00	3.751132	2.672659	247.5624
26/11/2014	21:00:00	1.241279	2.669263	230.0737
26/11/2014	22:00:00	9.318808	1.98129	240.8323
26/11/2014	23:00:00	10.41787	1.259992	227.2061
27/11/2014	01:00:00	11.81068	-3.37E-01	215.064
27/11/2014	02:00:00	9.279024	-8.04E-01	197.0207
27/11/2014	03:00:00	5.734683	-1.24E+00	152.483

27/11/2014	04:00:00	6.381076	-1.62E+00	182.9697
27/11/2014	05:00:00	7.700819	-2.01E+00	179.1407
27/11/2014	06:00:00	8.3674	-2.35E+00	204.4008
27/11/2014	07:00:00	10.46236	-1.93E+00	204.9475
27/11/2014	08:00:00	3.406797	-1.46E+00	131.1734
27/11/2014	09:00:00	5.53818	-9.41E-01	184.8854
27/11/2014	10:00:00	1.770947	3.38E-02	161.3592
27/11/2014	11:00:00	5.050611	0.3804	35.24908
27/11/2014	12:00:00	5.059548	0.690318	49.69088
27/11/2014	13:00:00	6.882784	1.239017	81.35346
27/11/2014	14:00:00	12.18879	2.204662	106.4471
27/11/2014	15:00:00	9.468965	2.929841	134.3773
27/11/2014	16:00:00	12.91236	2.082903	138.0235
27/11/2014	17:00:00	11.2345	1.741845	137.6406
27/11/2014	18:00:00	11.78955	1.477201	159.9697
27/11/2014	19:00:00	11.22483	1.304302	147.9925
27/11/2014	20:00:00	14.16765	0.662409	145.2582
27/11/2014	21:00:00	12.00935	0.285151	149.1672
27/11/2014	22:00:00	9.534495	0.331217	146.8663
27/11/2014	23:00:00	7.386868	-1.74E-01	127.8575
28/11/2014	01:00:00	14.69477	-6.54E-01	108.9537
28/11/2014	02:00:00	12.77187	-1.41E+00	109.7871
28/11/2014	03:00:00	14.27137	-1.87E+00	98.17653
28/11/2014	04:00:00	11.2178	-2.25E+00	90.86612
28/11/2014	05:00:00	12.61641	-2.75E+00	90.2064
28/11/2014	06:00:00	15.76577	-3.25E+00	95.71359
28/11/2014	07:00:00	17.52863	-3.54E+00	93.90138
28/11/2014	08:00:00	18.27222	-3.56E+00	99.92725
28/11/2014	09:00:00	20.49646	-3.09E+00	106.8494
28/11/2014	10:00:00	19.06781	-2.34E+00	101.4024
28/11/2014	11:00:00	17.18984	-1.57E+00	108.9662
28/11/2014	12:00:00	15.71875	-1.37E+00	108.9876
28/11/2014	13:00:00	14.37563	-7.17E-01	112.9031
28/11/2014	14:00:00	18.67515	-8.47E-01	86.92296
28/11/2014	15:00:00	11.2152	-7.36E-01	100.7638
28/11/2014	16:00:00	10.23891	-8.32E-01	94.636
28/11/2014	17:00:00	7.243338	-1.06E+00	119.7504
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28/11/2014	19:00:00	9.148695	-1.12E+00	107.8
28/11/2014	20:00:00	9.932212	-1.08E+00	106.032
28/11/2014	21:00:00	7.915376	-1.14E+00	114.5896
28/11/2014	22:00:00	7.155385	-1.27E+00	116.3253
28/11/2014	23:00:00	7.133324	-1.28E+00	121.0473
29/11/2014	01:00:00	2.069039	-1.32E+00	169.2514
29/11/2014	02:00:00	2.486171	-1.04E+00	214.05
29/11/2014	03:00:00	6.707676	-1.19E+00	208.9155
29/11/2014	04:00:00	8.80725	-8.42E-01	232.9438

29/11/2014	05:00:00	12.53676	0.992081	322.1231
29/11/2014	06:00:00	17.46027	1.456868	330.1178
29/11/2014	07:00:00	21.04346	1.699302	332.0161
29/11/2014	08:00:00	19.62368	2.086248	329.3351
29/11/2014	09:00:00	19.73743	2.28863	322.7746
29/11/2014	10:00:00	17.35017	2.450763	319.7926
29/11/2014	11:00:00	15.9103	2.916571	314.1761
29/11/2014	12:00:00	19.15938	3.276977	322.0932
29/11/2014	13:00:00	17.76367	3.592666	327.0191
29/11/2014	14:00:00	15.83173	4.126826	298.7072
29/11/2014	15:00:00	18.54017	4.798513	293.1211
29/11/2014	16:00:00	21.55997	5.580901	288.1179
29/11/2014	17:00:00	26.03888	6.030228	301.9907
29/11/2014	18:00:00	26.58249	6.198417	308.3893
29/11/2014	19:00:00	23.93839	6.402884	299.9494
29/11/2014	20:00:00	21.0672	6.359286	299.432
29/11/2014	21:00:00	19.26268	6.634774	290.291
29/11/2014	22:00:00	16.0879	6.821291	285.3885
29/11/2014	23:00:00	15.85137	7.068664	285.7901
30/11/2014	01:00:00	14.58808	8.384468	330.6424
30/11/2014	02:00:00	11.9092	9.063653	278.7758
30/11/2014	03:00:00	4.514192	9.102642	73.54493
30/11/2014	04:00:00	3.937296	9.252953	137.4266
30/11/2014	05:00:00	5.23092	9.448173	176.7865
30/11/2014	06:00:00	3.486929	9.418801	265.3903
30/11/2014	07:00:00	6.219863	8.874568	316.7402
30/11/2014	08:00:00	16.57199	10.67417	13.39935
30/11/2014	09:00:00	5.054643	10.61488	35.73983
30/11/2014	10:00:00	6.410137	10.48484	28.23662
30/11/2014	11:00:00	4.973779	10.13994	48.79238
30/11/2014	12:00:00	7.36844	10.49461	51.54596
30/11/2014	13:00:00	11.32068	10.61806	53.26639
30/11/2014	14:00:00	23.88234	11.11655	39.54811
30/11/2014	15:00:00	10.0818	11.05015	70.1642
30/11/2014	16:00:00	7.380075	10.52518	71.19666
30/11/2014	17:00:00	10.57054	10.63154	81.52672
30/11/2014	18:00:00	8.240114	11.1245	75.29903
30/11/2014	19:00:00	7.653382	10.41403	76.3352
30/11/2014	20:00:00	19.61073	9.153316	162.4876
30/11/2014	21:00:00	18.51342	8.671871	153.5953
30/11/2014	22:00:00	12.68642	8.482821	148.232
30/11/2014	23:00:00	17.58901	7.827516	140.5135

Intellution Historical Data Report  
 Generated 16/04/2015 2:32:15 PM  
 ; Start Time: 06/04/15 00:00:00  
 ; Duration: 16:00:00:00  
 ; Interval: 01:00:00

Original Input Data path: D:\FIX\HTRDATA  
 ; Retrieval modes: (S)ample (A)verage (H)igh (L)ow (R)aw

Date	Time	CCSCADA0:CC-DG-SIT-0001- SI.F_CV (A)	CCSCADA0:CC-DG-TIT-0001- TI.F_CV (A)	CCSCADA0:CC-DG-ZIT-0001- ZI.F_CV (A)
04/06/2015	00:00:00	0.9109585	2.258976	184.8037
04/06/2015	01:00:00	2.016382	2.283228	223.367
04/06/2015	02:00:00	4.125687	1.977681	212.5214
04/06/2015	03:00:00	7.020215	1.686894	204.1646
04/06/2015	04:00:00	6.047745	1.970579	201.1944
04/06/2015	05:00:00	9.053244	2.054504	217.906
04/06/2015	06:00:00	6.753315	2.365563	248.0127
04/06/2015	07:00:00	8.64731	2.555885	245.2782
04/06/2015	08:00:00	12.32499	2.97931	244.073
04/06/2015	09:00:00	13.50235	3.940824	254.4922
04/06/2015	10:00:00	19.27892	5.241064	246.9128
04/06/2015	11:00:00	17.91699	7.179348	244.619
04/06/2015	12:00:00	16.8942	6.816029	291.488
04/06/2015	13:00:00	17.33518	5.907088	296.1431
04/06/2015	14:00:00	18.63416	5.81456	290.4156
04/06/2015	15:00:00	18.50856	6.777465	284.3508
04/06/2015	16:00:00	21.20693	6.229869	288.6023
04/06/2015	17:00:00	19.03199	6.352346	285.0261
04/06/2015	18:00:00	18.51815	6.338094	282.9745
04/06/2015	19:00:00	16.27591	5.963213	284.3761
04/06/2015	20:00:00	8.873185	5.5934	269.7818
04/06/2015	21:00:00	11.06575	5.562418	241.6241
04/06/2015	22:00:00	11.18974	4.916456	238.9629
04/06/2015	23:00:00	12.14786	4.614252	233.9729
04/07/2015	00:00:00	9.47574	4.154175	241.5499
04/07/2015	01:00:00	8.59103	3.751967	244.4792
04/07/2015	02:00:00	8.054059	3.430539	215.4683
04/07/2015	03:00:00	5.464309	3.257773	202.275
04/07/2015	04:00:00	7.384411	3.532673	223.6287
04/07/2015	05:00:00	12.70071	3.810512	234.1677
04/07/2015	06:00:00	15.8712	4.102474	235.6733
04/07/2015	07:00:00	13.89284	4.334327	242.3184
04/07/2015	08:00:00	15.01263	4.702027	244.2598
04/07/2015	09:00:00	17.09612	5.116109	243.8546
04/07/2015	10:00:00	15.48243	5.636202	258.1979
04/07/2015	11:00:00	15.15845	5.772971	286.7376
04/07/2015	12:00:00	16.37376	5.750731	294.6743
04/07/2015	13:00:00	16.38886	6.329443	288.8443
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;
; Intellution Historical Data Report
; Generated 26/10/2015 8:46:41 AM
; Start Time: 05/10/15 00:00:00
; Duration: 11:00:00:00
; Interval: 01:00:00
; Historical Input Data path: D:\FIX\HTRDATA
; Retrieval m (A)verage (H)igh (L)ow (R)aw
;

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Date	Time	CCSCADA0	CCSCADA0	CCSCADA0
		:CC-DG- SIT-0001- SI.F_CV (A)	:CC-DG- TIT-0001- TI.F_CV (A)	:CC-DG- ZIT-0001- ZI.F_CV (A)
		Wind Speed Km/h	Temp °C	Wind Direction
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10/05/2015	05:00:00	7.051733	14.07631	192.4992
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10/05/2015	08:00:00	7.068897	14.07987	198.3474
10/05/2015	09:00:00	6.719878	14.41826	191.091
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10/05/2015	15:00:00	6.61527	16.50618	316.9671
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10/07/2015	14:00:00	9.67254	18.42231	51.18959
10/07/2015	15:00:00	10.96502	18.74722	51.98693
10/07/2015	16:00:00	4.406584	18.87296	63.59035
10/07/2015	17:00:00	9.275108	19.76467	116.7259
10/07/2015	18:00:00	12.17758	18.97766	151.0245
10/07/2015	19:00:00	11.26341	17.21391	147.9791
10/07/2015	20:00:00	8.92471	15.99309	137.1692
10/07/2015	21:00:00	6.009888	15.22938	122.2209
10/07/2015	22:00:00	6.78238	14.57598	132.5349
10/07/2015	23:00:00	8.571555	13.46159	166.387
10/08/2015	00:00:00	9.628812	12.54041	177.4548
10/08/2015	01:00:00	11.01449	11.72139	186.3088
10/08/2015	02:00:00	10.5095	11.48946	194.4641
10/08/2015	03:00:00	11.04058	11.35686	197.7984
10/08/2015	04:00:00	13.36335	11.44966	206.6049
10/08/2015	05:00:00	13.30501	10.8255	209.4904
10/08/2015	06:00:00	12.49747	10.47047	210.663
10/08/2015	07:00:00	11.79347	9.929683	212.9521
10/08/2015	08:00:00	14.11942	10.81875	232.553
10/08/2015	09:00:00	15.40562	12.02682	249.6409
10/08/2015	10:00:00	18.68696	13.12044	269.3379
10/08/2015	11:00:00	18.5357	13.94104	274.5583
10/08/2015	12:00:00	17.64995	14.24772	282.7521
10/08/2015	13:00:00	17.74225	14.47766	283.9034
10/08/2015	14:00:00	19.27642	14.71204	291.0451
10/08/2015	15:00:00	17.09008	14.98036	287.035
10/08/2015	16:00:00	18.22601	15.43247	280.1779
10/08/2015	17:00:00	18.03012	15.46816	280.9047
10/08/2015	18:00:00	14.7153	15.52511	273.069
10/08/2015	19:00:00	18.54912	15.61685	277.7085
10/08/2015	20:00:00	20.91187	15.4094	284.627
10/08/2015	21:00:00	22.6657	15.17466	284.2407
10/08/2015	22:00:00	21.48668	14.83464	283.9126
10/08/2015	23:00:00	24.69333	13.98447	280.9625
10/09/2015	00:00:00	24.20585	13.41935	276.9692
10/09/2015	01:00:00	19.76339	13.12671	261.7267

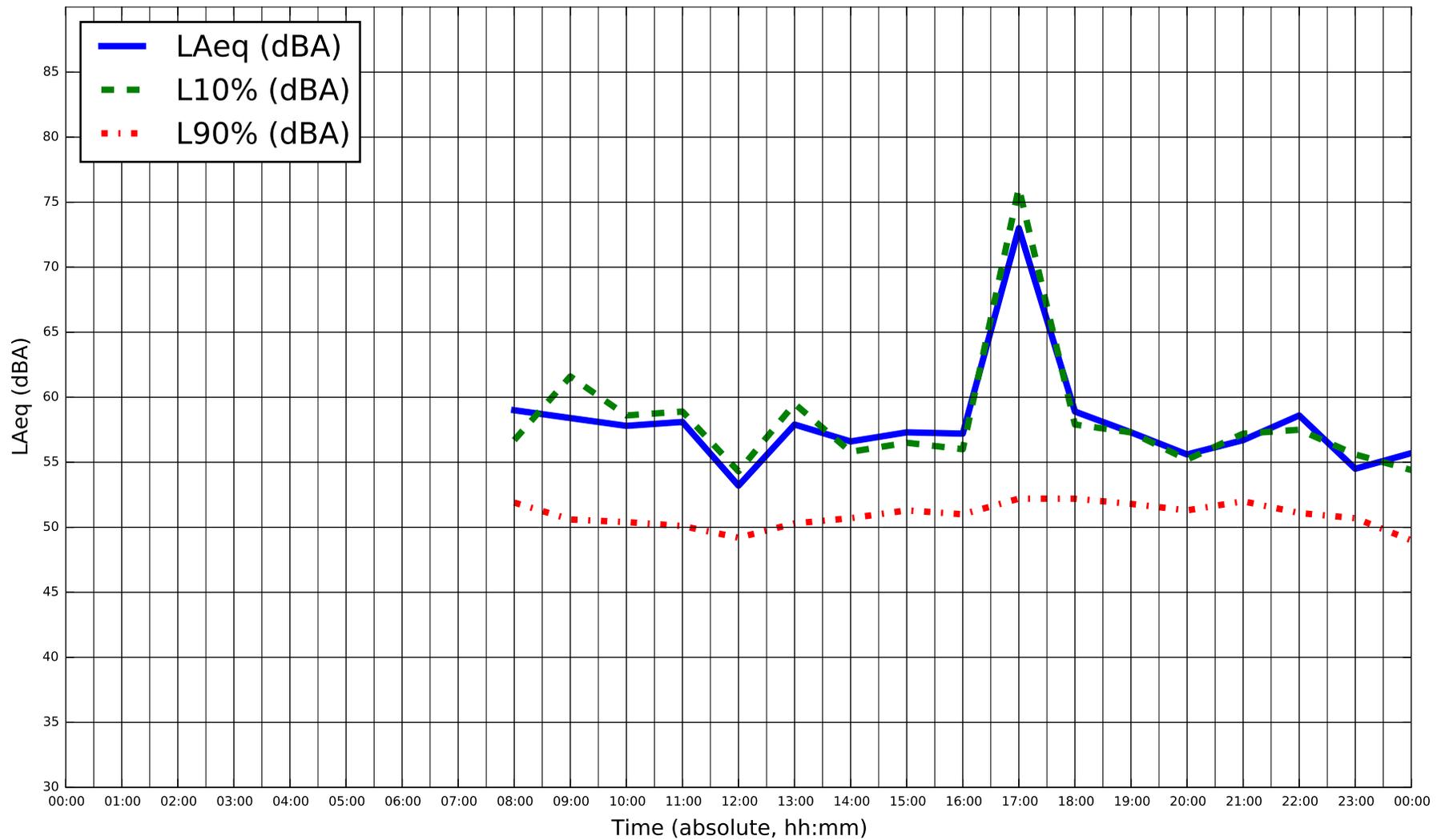
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10/09/2015	04:00:00	8.174145	13.47625	228.443
10/09/2015	05:00:00	6.065161	13.27146	194.7105
10/09/2015	06:00:00	4.23391	13.27395	166.465
10/09/2015	07:00:00	3.426172	13.58825	147.6902
10/09/2015	08:00:00	4.297364	14.0877	132.5969
10/09/2015	09:00:00	5.721334	15.15241	113.3188
10/09/2015	10:00:00	4.361591	16.11705	66.66708
10/09/2015	11:00:00	8.608867	17.698	80.88804
10/09/2015	12:00:00	17.29858	17.25063	113.1869
10/09/2015	13:00:00	20.5395	15.96657	116.1367
10/09/2015	14:00:00	21.09484	14.46997	120.7852
10/09/2015	15:00:00	20.13443	13.9165	132.7753
10/09/2015	16:00:00	20.48857	14.38056	142.2553
10/09/2015	17:00:00	19.71967	14.85564	147.6359
10/09/2015	18:00:00	17.41285	14.26066	150.5634
10/09/2015	19:00:00	6.598773	13.23313	130.0654
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10/09/2015	21:00:00	6.421545	11.68529	105.2799
10/09/2015	22:00:00	6.186164	11.06369	105.2759
10/09/2015	23:00:00	6.606722	9.924804	117.473
10/10/2015	00:00:00	7.011558	9.347772	127.361
10/10/2015	01:00:00	6.382059	9.023638	149.0939
10/10/2015	02:00:00	8.672195	9.330139	168.4752
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10/10/2015	04:00:00	8.958935	8.055728	167.2116
10/10/2015	05:00:00	10.68158	7.294749	173.5913
10/10/2015	06:00:00	11.25091	7.153022	186.5051
10/10/2015	07:00:00	7.132441	7.079684	176.258
10/10/2015	08:00:00	8.050846	8.023389	196.0755
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10/10/2015	10:00:00	6.286515	11.47127	297.0525
10/10/2015	11:00:00	6.784015	12.24749	304.7766
10/10/2015	12:00:00	7.108965	12.9831	200.5754
10/10/2015	13:00:00	10.0864	13.16278	101.3955
10/10/2015	14:00:00	12.4133	13.3168	70.45775
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10/10/2015	17:00:00	8.903977	14.7219	286.0884
10/10/2015	18:00:00	10.55071	15.03167	255.2439
10/10/2015	19:00:00	21.87754	15.87772	68.3645
10/10/2015	20:00:00	26.32805	16.44203	38.97493
10/10/2015	21:00:00	30.11638	16.59948	41.70655
10/10/2015	22:00:00	21.46616	16.58444	56.76627
10/10/2015	23:00:00	15.39612	16.32261	62.14382
10/11/2015	00:00:00	15.39228	16.31813	63.02616
10/11/2015	01:00:00	14.35293	16.27244	63.22363
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10/11/2015	03:00:00	12.31733	16.56663	63.56883
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10/11/2015	07:00:00	18.69101	16.44176	56.29956
10/11/2015	08:00:00	17.22157	16.83315	62.08965
10/11/2015	09:00:00	15.31297	17.14344	64.50208
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10/11/2015	13:00:00	16.702	18.72643	51.86487
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10/11/2015	18:00:00	29.78936	19.13475	38.07037
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10/11/2015	20:00:00	12.42882	18.88	59.16052
10/11/2015	21:00:00	7.195661	18.48104	68.37756
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10/12/2015	00:00:00	6.117817	18.33737	61.16462
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10/12/2015	04:00:00	11.77746	18.01416	53.22321
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10/12/2015	07:00:00	7.413362	17.23756	50.14783
10/12/2015	08:00:00	7.853354	17.92074	57.43042
10/12/2015	09:00:00	7.91492	18.14095	56.94248
10/12/2015	10:00:00	7.681265	18.36114	41.31005
10/12/2015	11:00:00	9.805067	18.54453	48.50898
10/12/2015	12:00:00	8.862105	19.02115	175.5211
10/12/2015	13:00:00	11.35547	19.29425	299.4114
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13/10/2015	05:00:00	19.483	18.01372	24.92021
13/10/2015	06:00:00	23.72658	18.5059	34.97164
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13/10/2015	15:00:00	19.93368	16.3628	55.6614
13/10/2015	16:00:00	21.32757	16.20624	53.71538
13/10/2015	17:00:00	14.63829	16.01888	57.98508
13/10/2015	18:00:00	13.61239	15.82351	60.40063
13/10/2015	19:00:00	10.2472	15.37837	71.84795
13/10/2015	20:00:00	11.35638	15.48526	72.478
13/10/2015	21:00:00	14.6624	15.9439	85.69257

13/10/2015	22:00:00	13.08413	15.73807	84.52821
13/10/2015	23:00:00	13.17414	15.19731	84.59612
14/10/2015	00:00:00	16.15531	14.80379	89.78033
14/10/2015	01:00:00	12.6068	14.22578	86.23718
14/10/2015	02:00:00	15.94425	13.7143	94.74271
14/10/2015	03:00:00	16.00739	13.10951	101.6043
14/10/2015	04:00:00	14.65216	12.63783	113.717
14/10/2015	05:00:00	15.9506	12.10506	123.8588
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14/10/2015	07:00:00	11.37945	10.6922	117.4398
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14/10/2015	11:00:00	16.5899	12.00917	136.3593
14/10/2015	12:00:00	16.01048	12.20371	125.5632
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14/10/2015	15:00:00	13.26829	13.04716	100.647
14/10/2015	16:00:00	12.68526	13.48487	115.0996
14/10/2015	17:00:00	11.69148	13.56268	128.6642
14/10/2015	18:00:00	13.77055	12.54892	141.5224
14/10/2015	19:00:00	10.16472	11.47903	130.8707
14/10/2015	20:00:00	8.30215	10.51109	121.5165
14/10/2015	21:00:00	13.28931	10.39812	99.06598
14/10/2015	22:00:00	10.90183	10.37235	89.71512
14/10/2015	23:00:00	8.650694	9.935655	86.50632
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15/10/2015	01:00:00	6.603486	8.076717	125.0366
15/10/2015	02:00:00	7.377585	7.692581	125.7063
15/10/2015	03:00:00	8.076735	7.739023	124.2278
15/10/2015	04:00:00	6.665776	8.181725	125.8058
15/10/2015	05:00:00	6.376804	9.062546	114.6073
15/10/2015	06:00:00	8.549188	10.52509	75.86061
15/10/2015	07:00:00	8.11974	11.20902	68.723
15/10/2015	08:00:00	11.37381	11.2823	58.89603
15/10/2015	09:00:00	10.1461	11.85037	70.21024
15/10/2015	10:00:00	8.332285	12.07261	68.769
15/10/2015	11:00:00	12.06857	12.65996	56.51253
15/10/2015	12:00:00	10.27187	13.51619	56.73473
15/10/2015	13:00:00	8.304333	14.48007	62.43975
15/10/2015	14:00:00	12.5846	14.92333	52.43502
15/10/2015	15:00:00	16.4417	15.33175	48.39328
15/10/2015	16:00:00	12.37052	15.40246	70.91925
15/10/2015	17:00:00	13.04508	14.19603	71.41793
15/10/2015	18:00:00	16.49842	12.9718	82.96953
15/10/2015	19:00:00	12.83695	12.57308	102.7292
15/10/2015	20:00:00	9.951951	12.52051	82.06683
15/10/2015	21:00:00	12.60497	12.17138	76.21712
15/10/2015	22:00:00	13.70079	11.09146	84.94308
15/10/2015	23:00:00	13.20294	11.58943	93.37621
16/10/2015	00:00:00	11.42708	11.33499	106.5979

# **APPENDIX E**

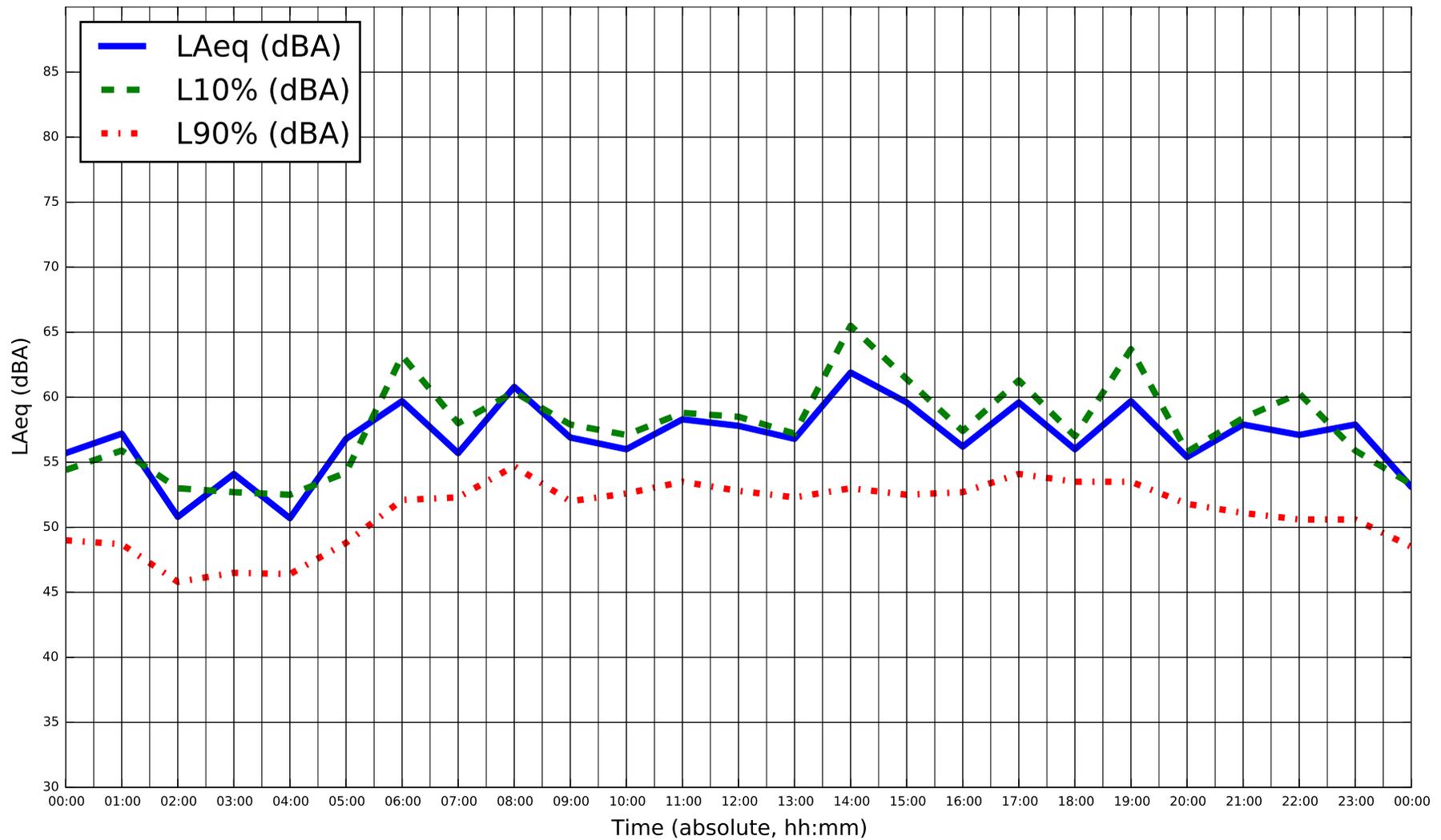
## **NOVEMBER 2014 PRE-OPERATIONAL SOUND MEASUREMENT RESULTS**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday Nov 13, 2014**  
 Project Num.  
**114-318-100**

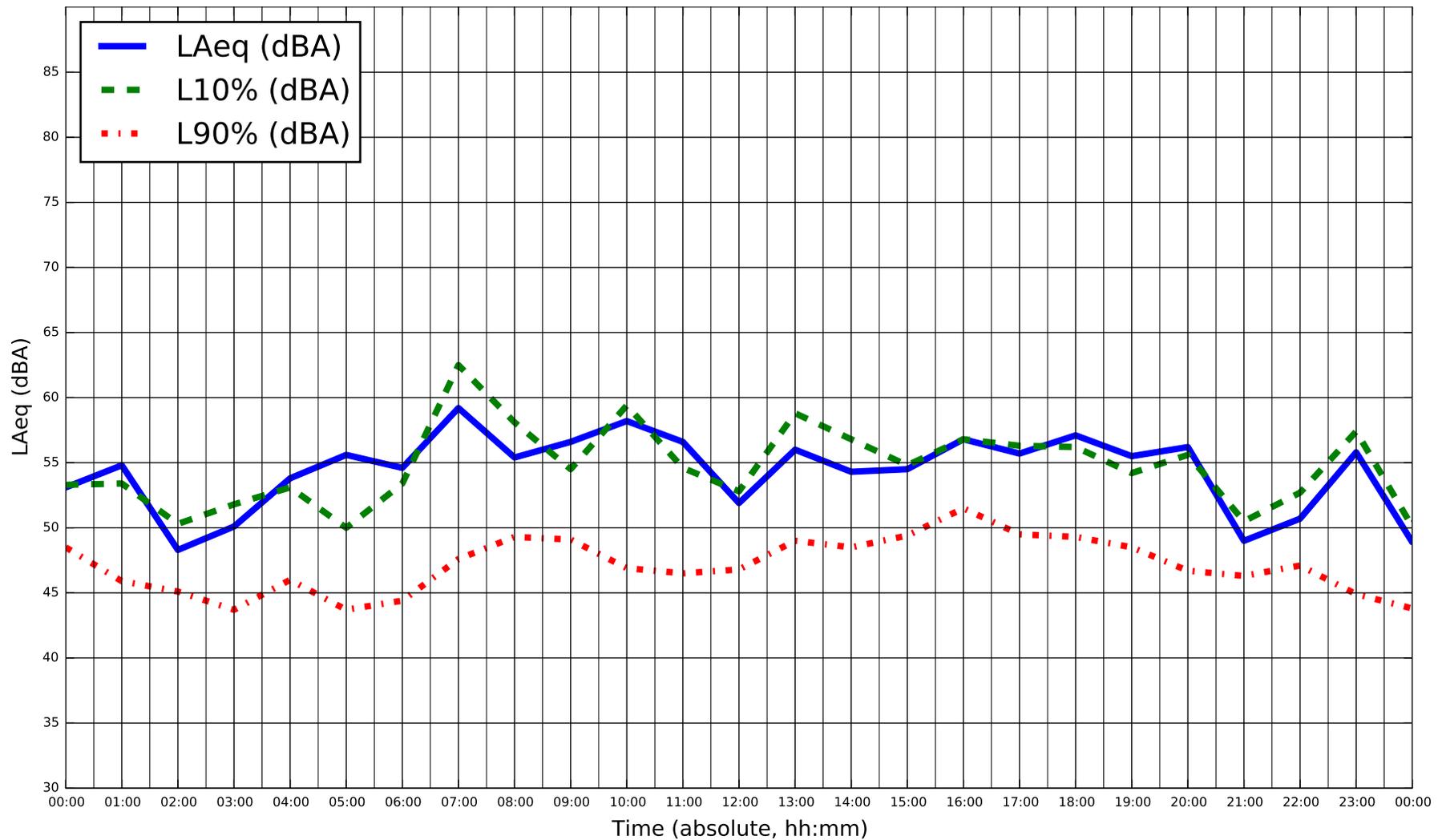
Figure  
**E-1**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Friday Nov 14, 2014**  
 Project Num.  
**114-318-100**

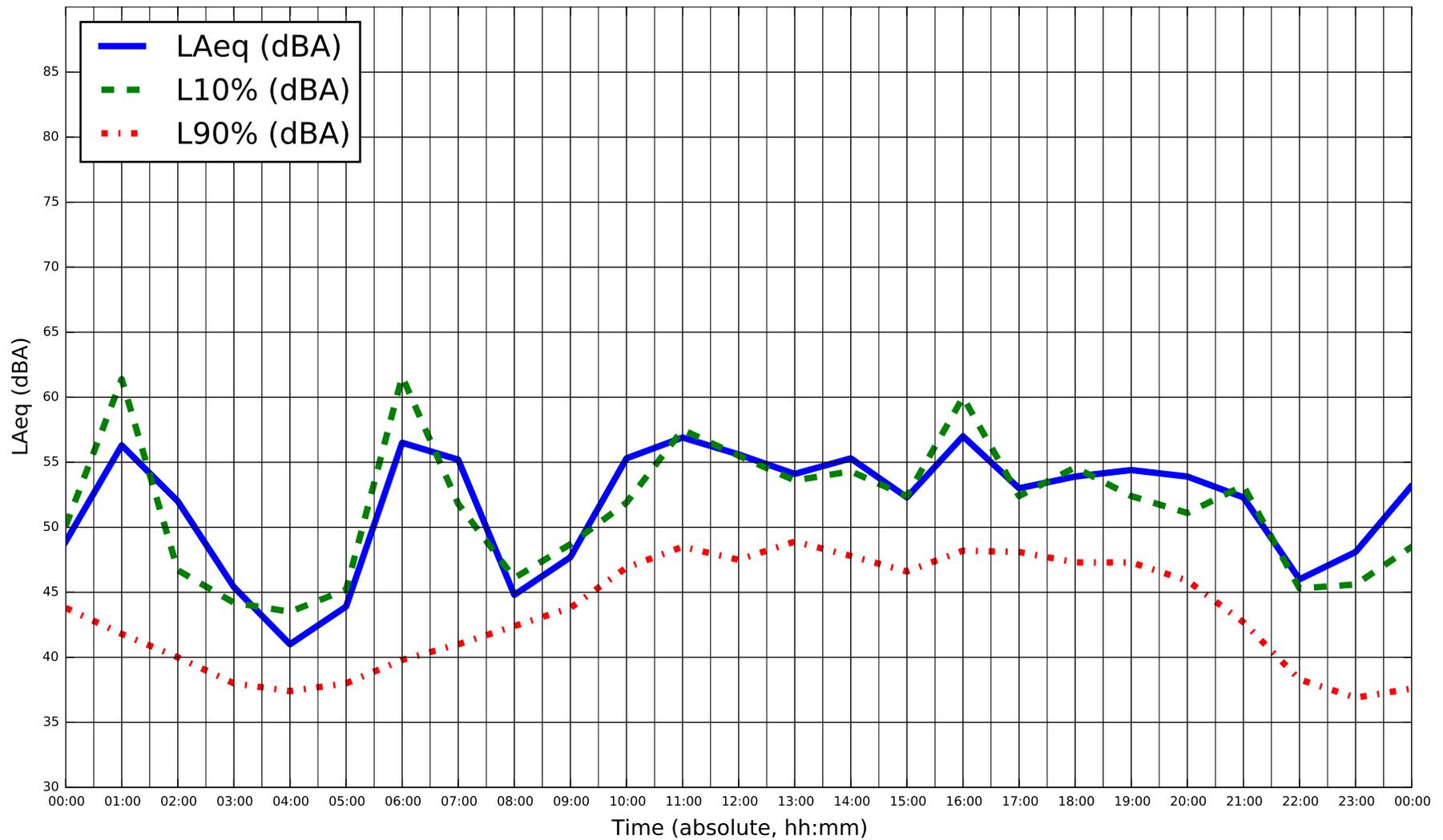
Figure  
**E-2**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday Nov 15, 2014**  
 Project Num.  
**114-318-100**

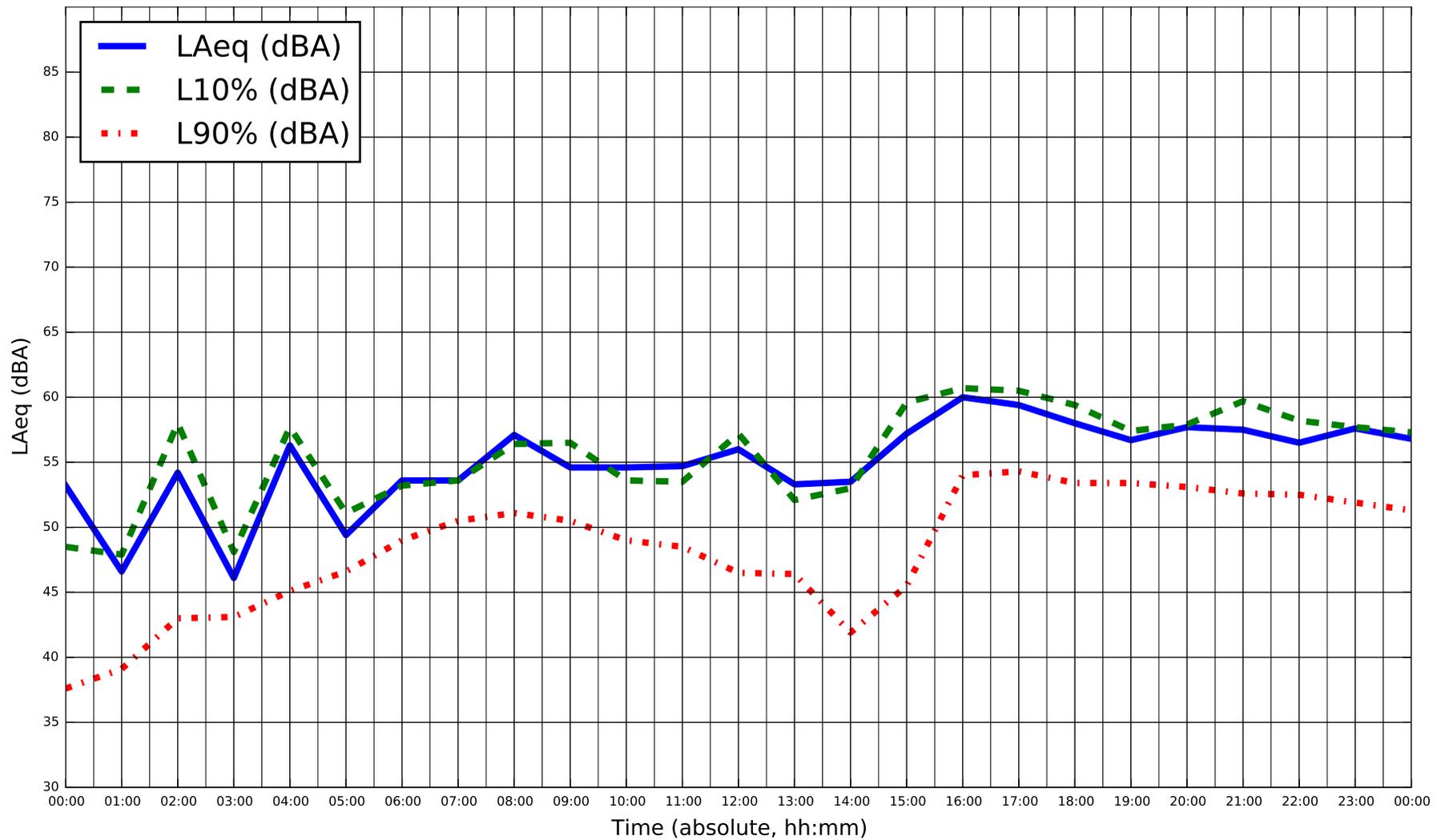
Figure  
**E-3**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday Nov 16, 2014**  
 Project Num.  
**114-318-100**

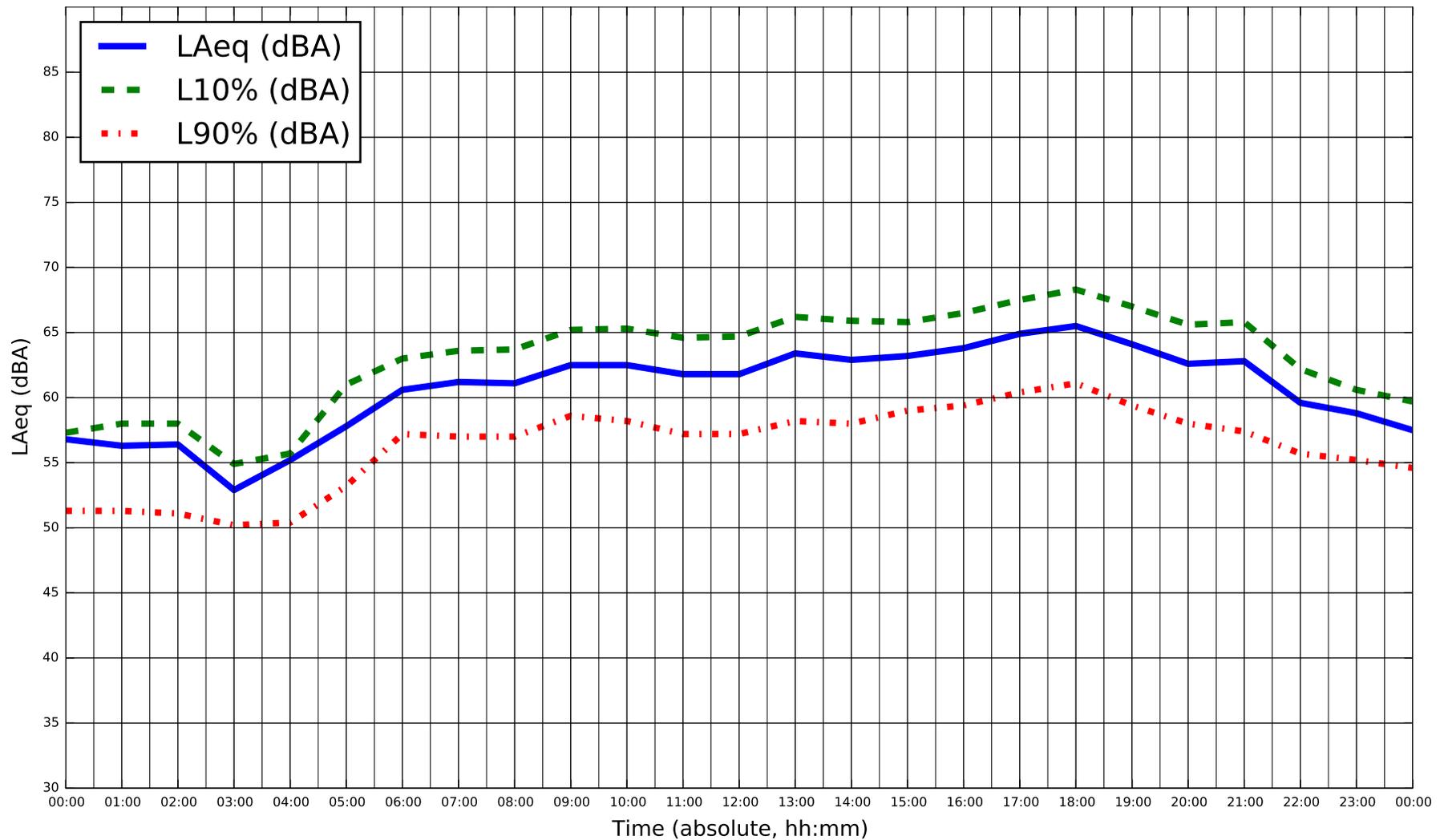
Figure  
**E-4**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

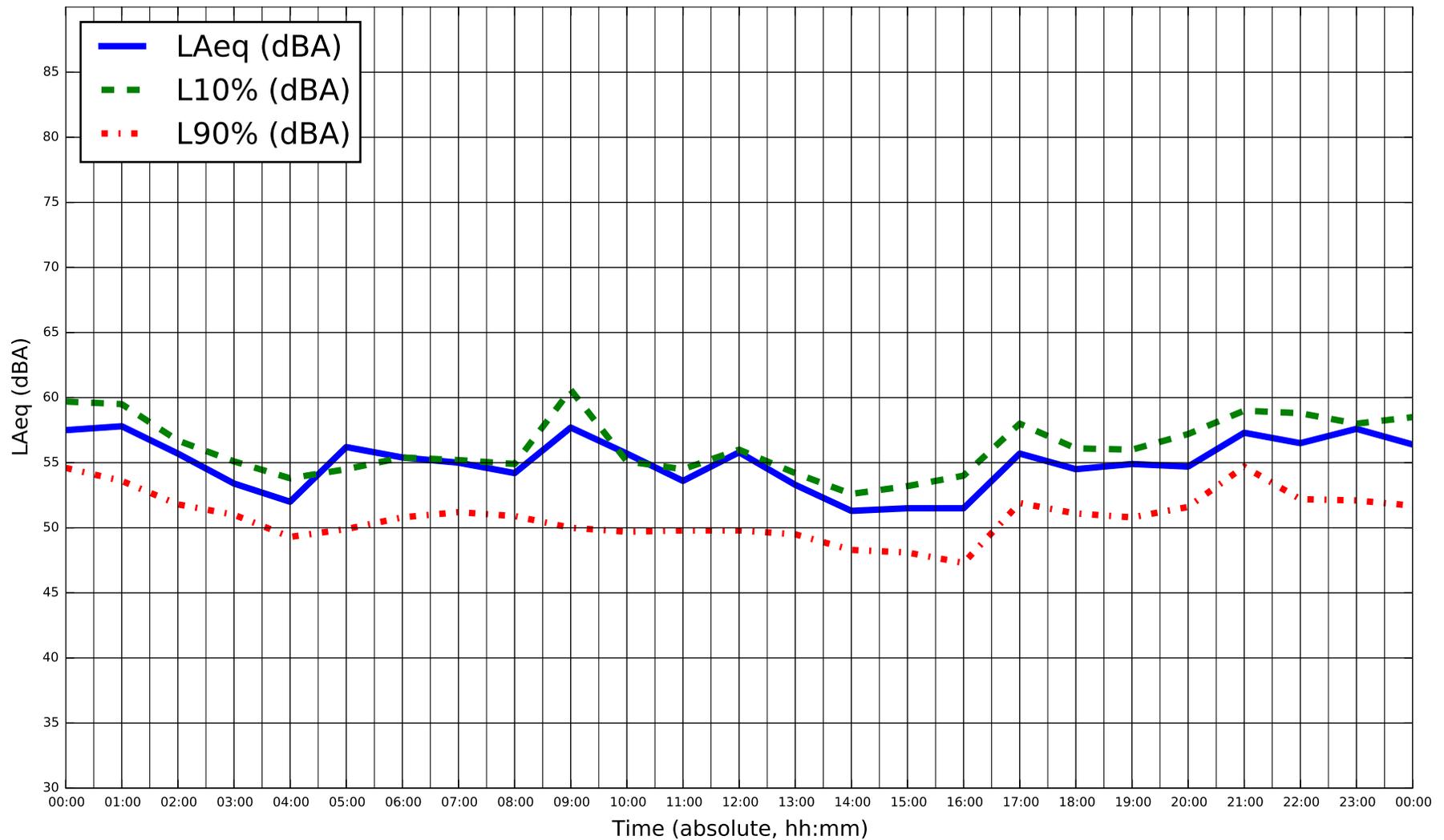
Measurement Date  
**Monday Nov 17, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-5**



\* Sustained winds over 20 km/hr during monitoring on Nov 18, 2014

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Ambient Sound Measurements - Location M001	Tuesday Nov 18, 2014	E-6
	DYEC - Acoustic Audit	114-318-100	



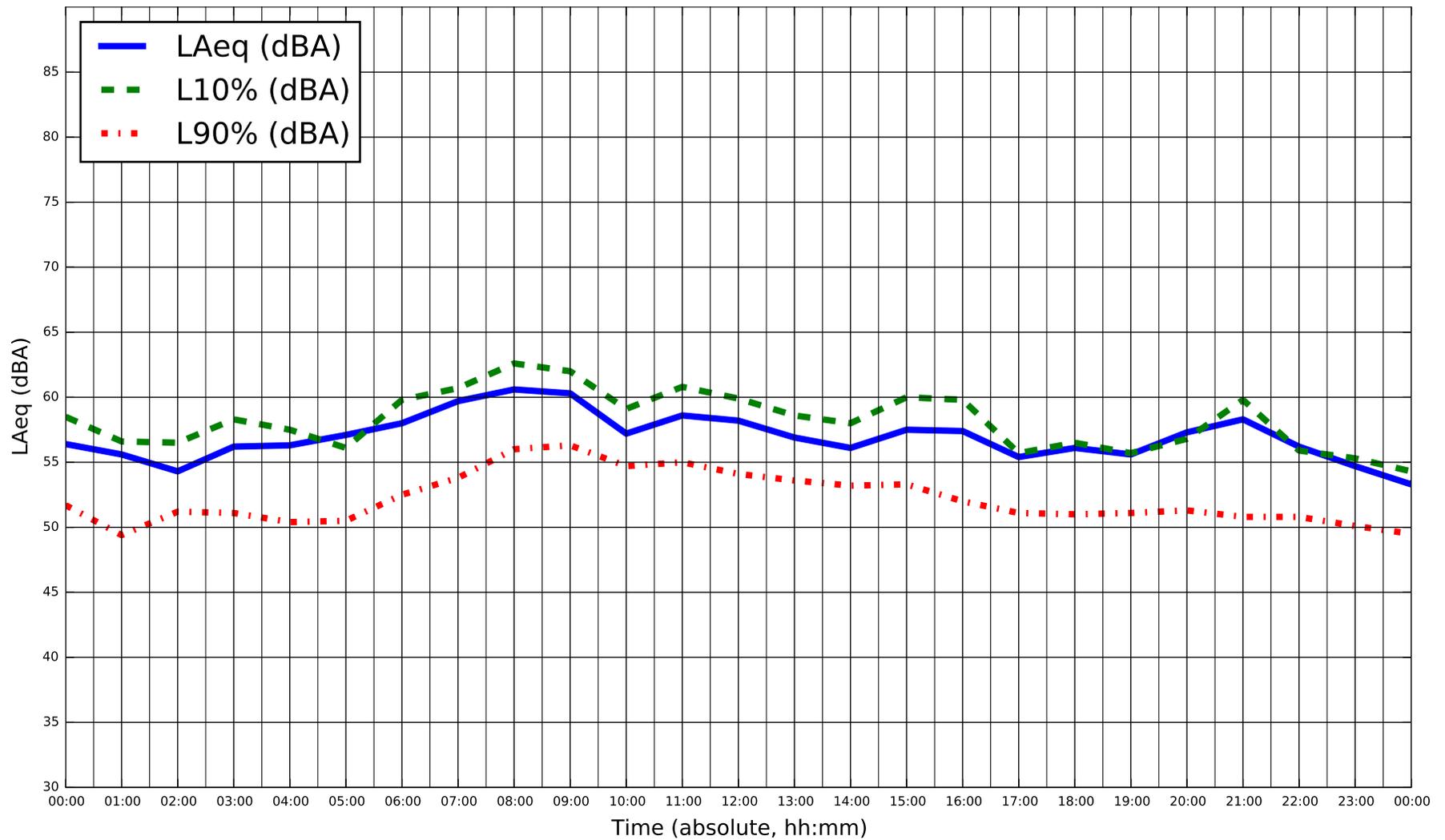
\* Sustained winds over 20 km/hr during monitoring on Nov 19, 2014



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday Nov 19, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-7**



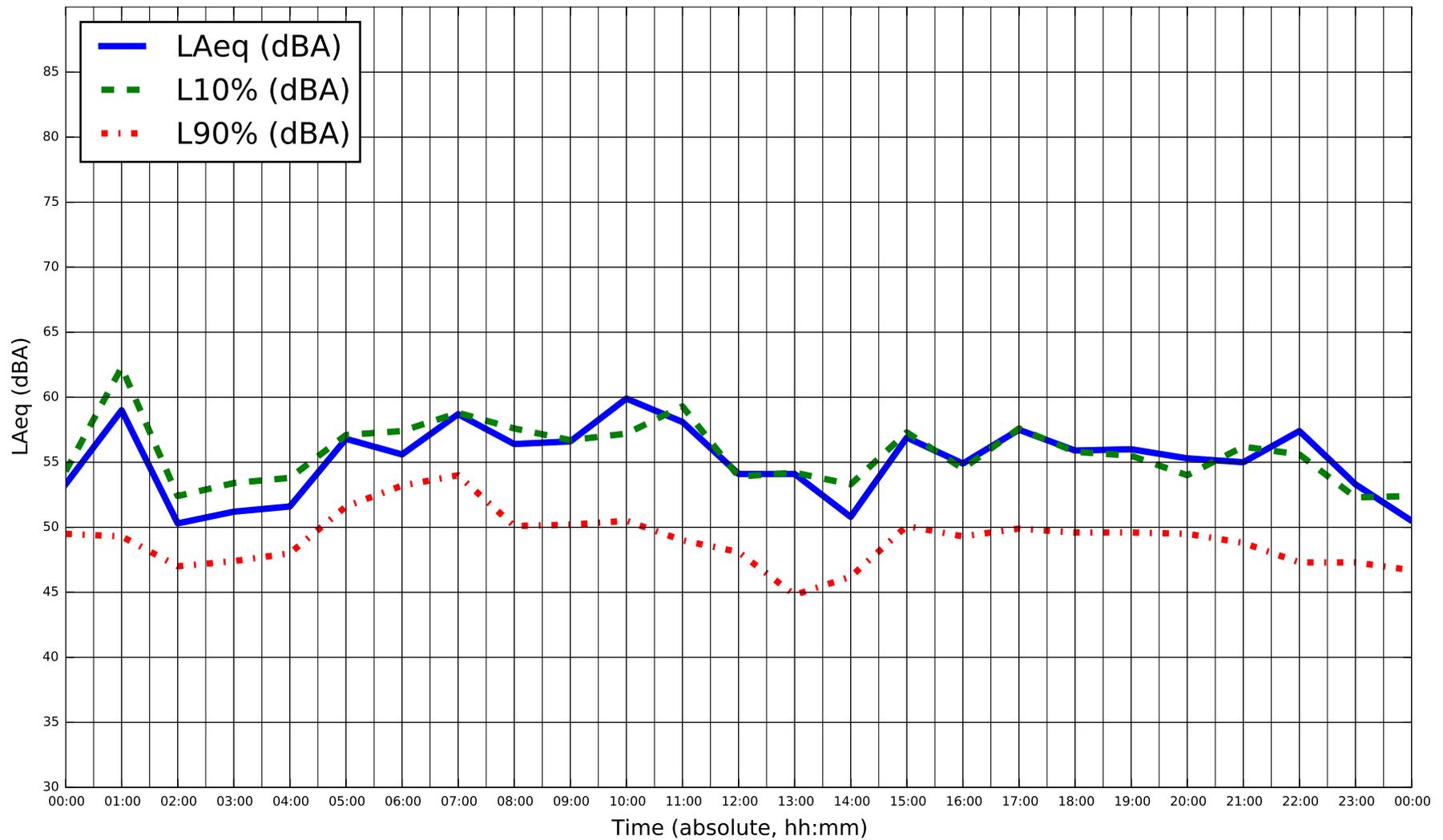
\* Sustained winds over 20 km/hr during monitoring on Nov 20, 2014



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday Nov 20, 2014**  
 Project Num.  
**114-318-100**

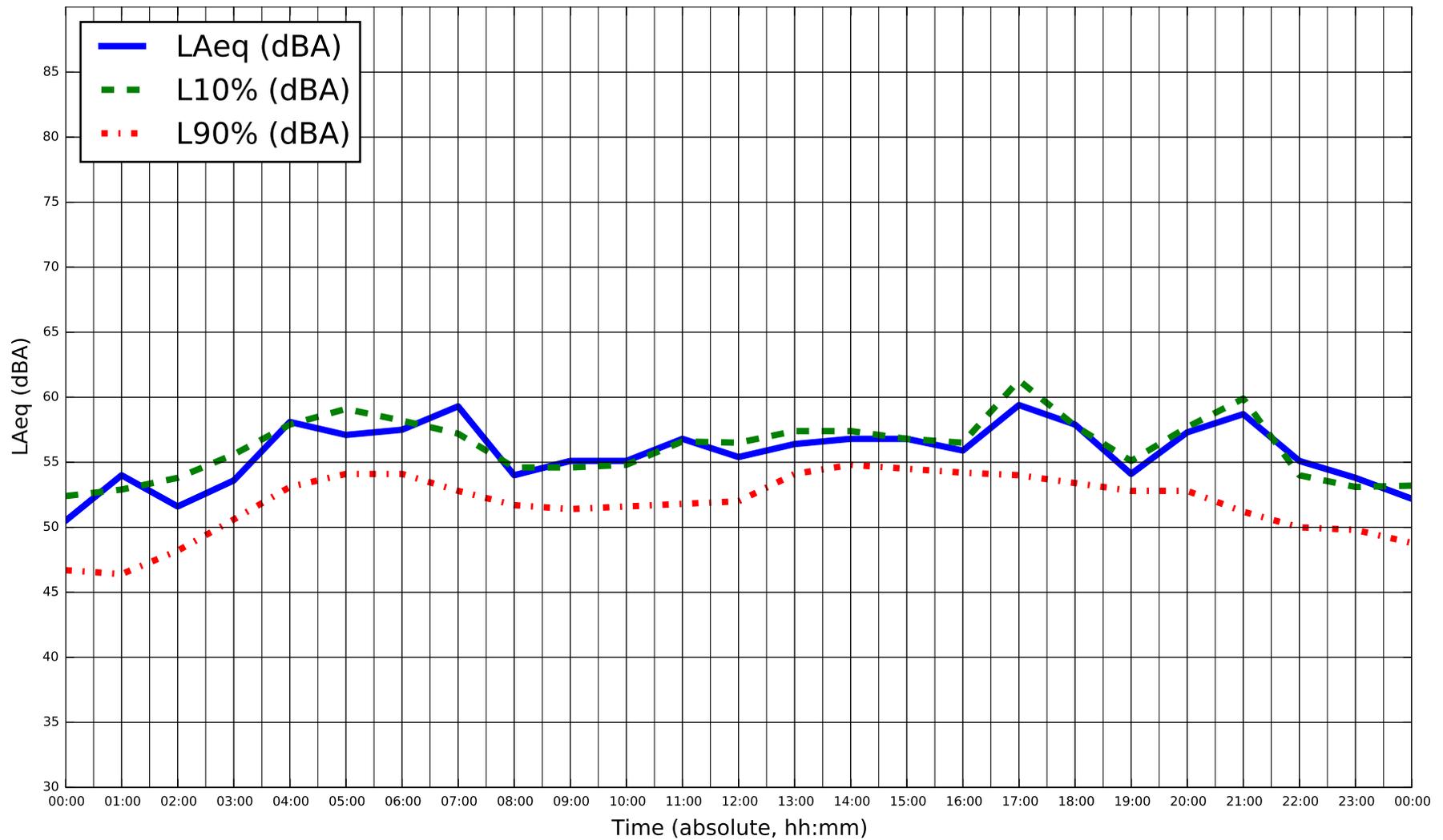
Figure  
**E-8**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Friday Nov 21, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-9**



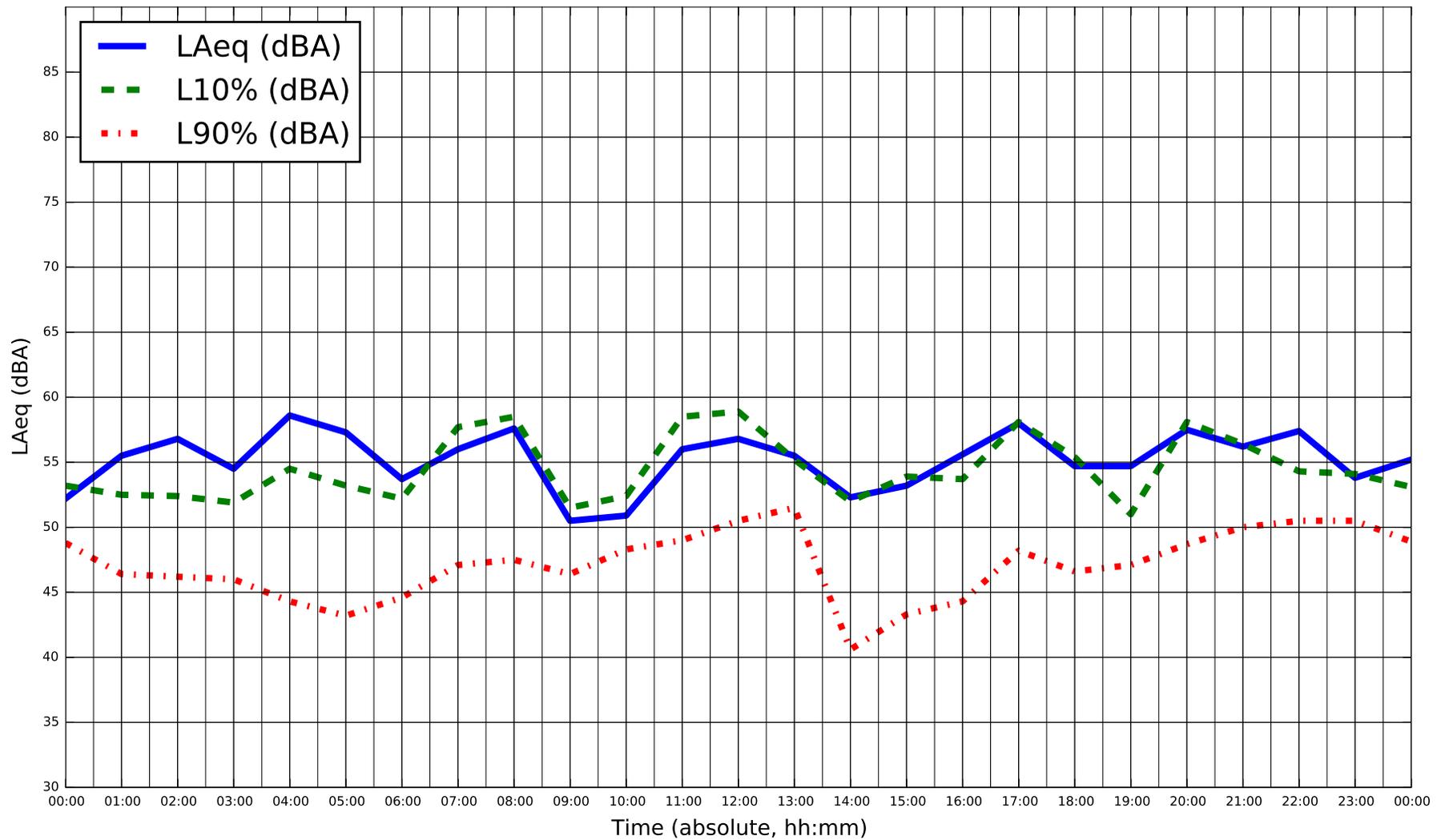
\* Sustained winds over 20 km/hr during monitoring on Nov 22, 2014



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday Nov 22, 2014**  
 Project Num.  
**114-318-100**

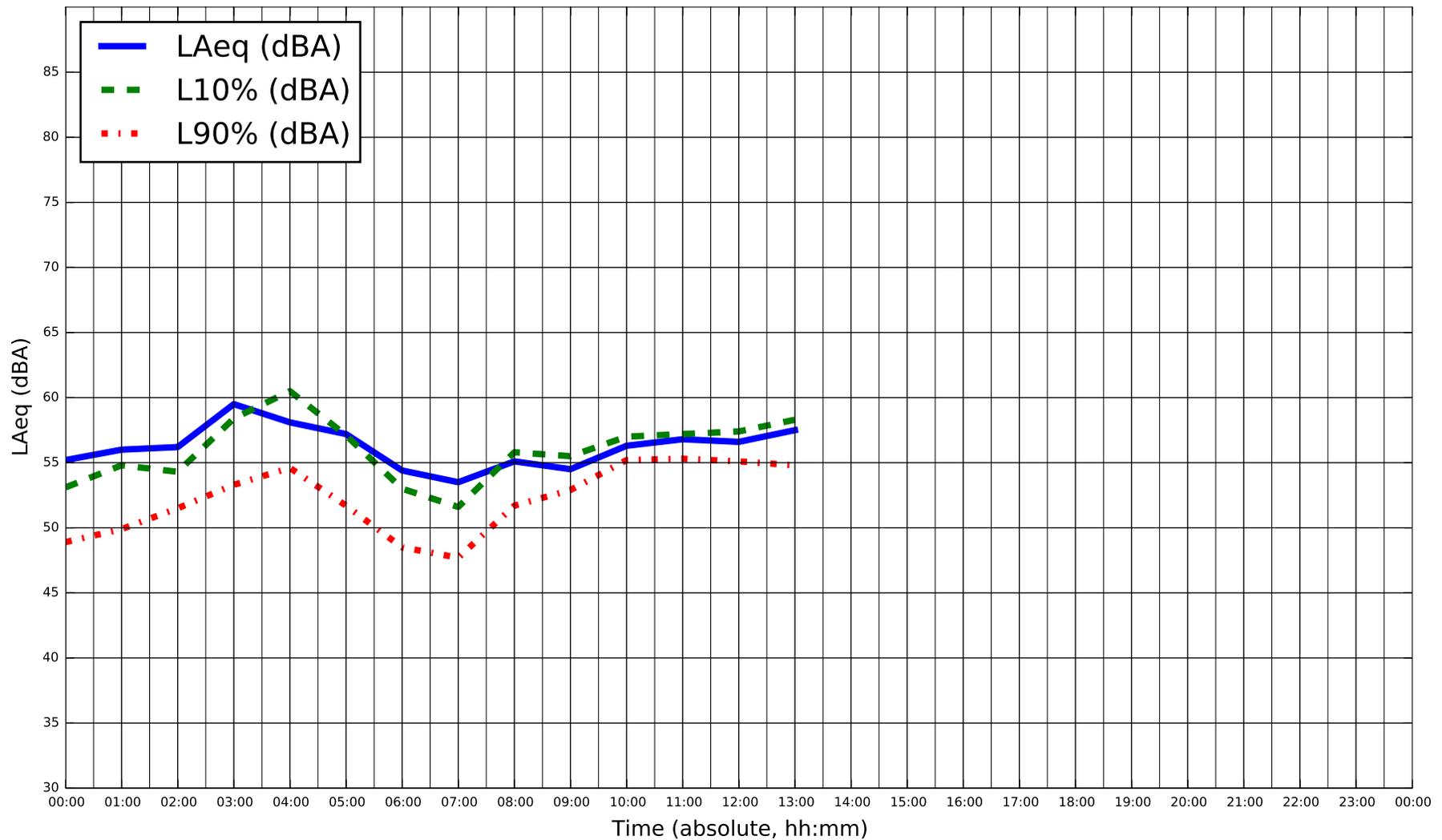
Figure  
**E-10**



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday Nov 23, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-11**



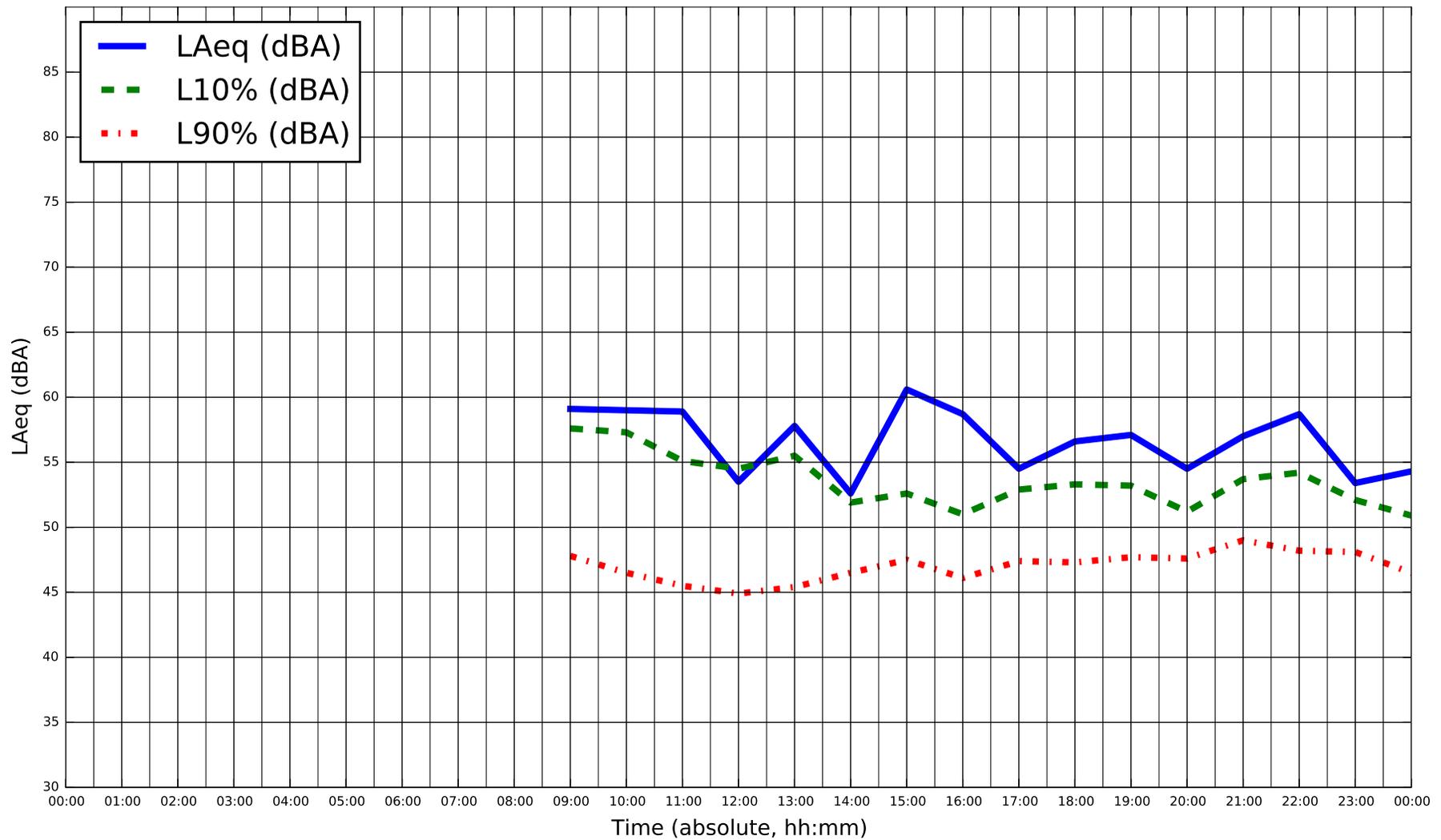
\* Sustained winds over 20 km/hr during monitoring on Nov 24, 2014



Title  
**Ambient Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday Nov 24, 2014**  
 Project Num.  
**114-318-100**

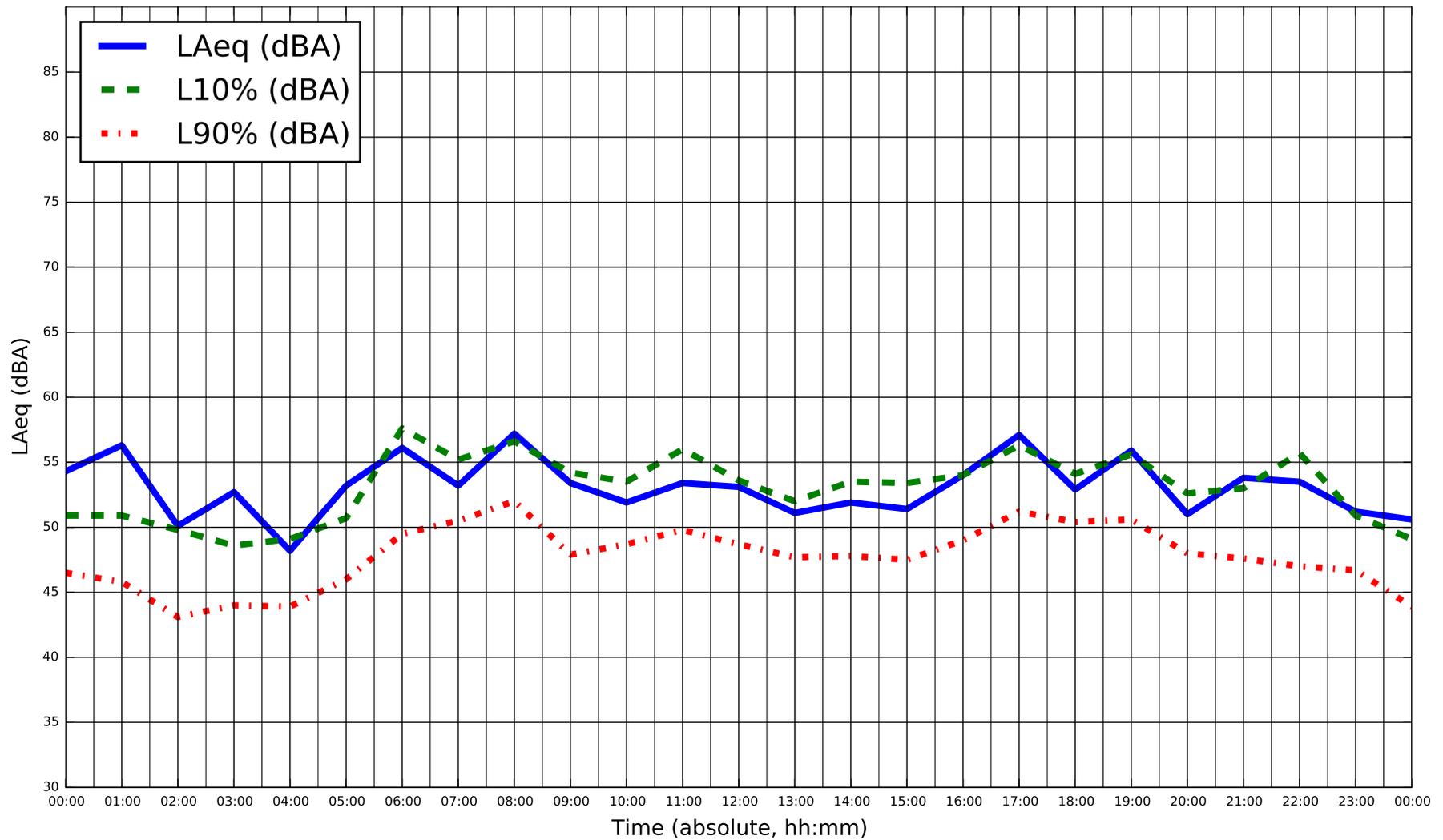
Figure  
**E-12**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday Nov 13, 2014**  
 Project Num.  
**114-318-100**

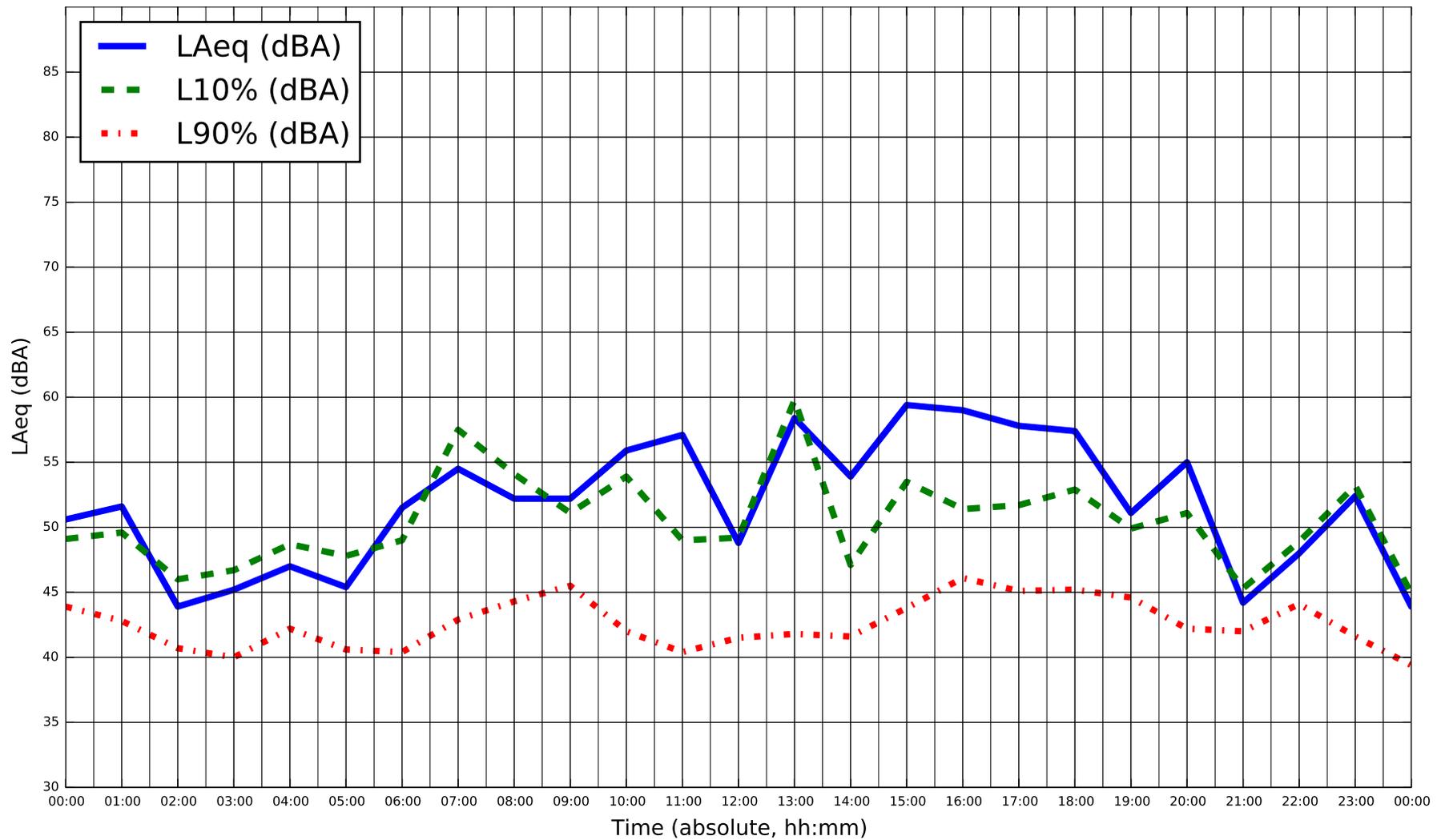
Figure  
**E-13**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Friday Nov 14, 2014**  
 Project Num.  
**114-318-100**

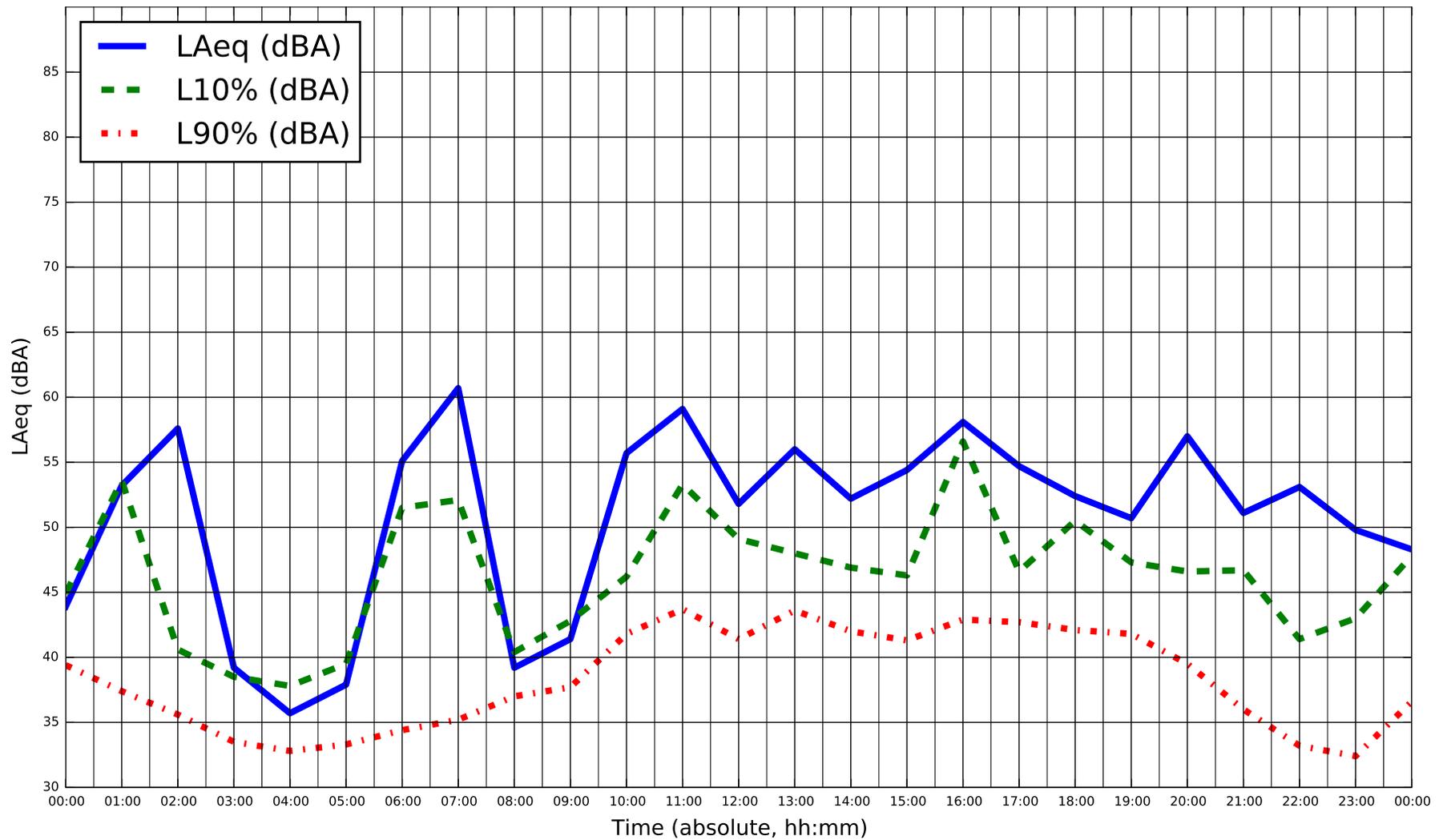
Figure  
**E-14**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday Nov 15, 2014**  
 Project Num.  
**114-318-100**

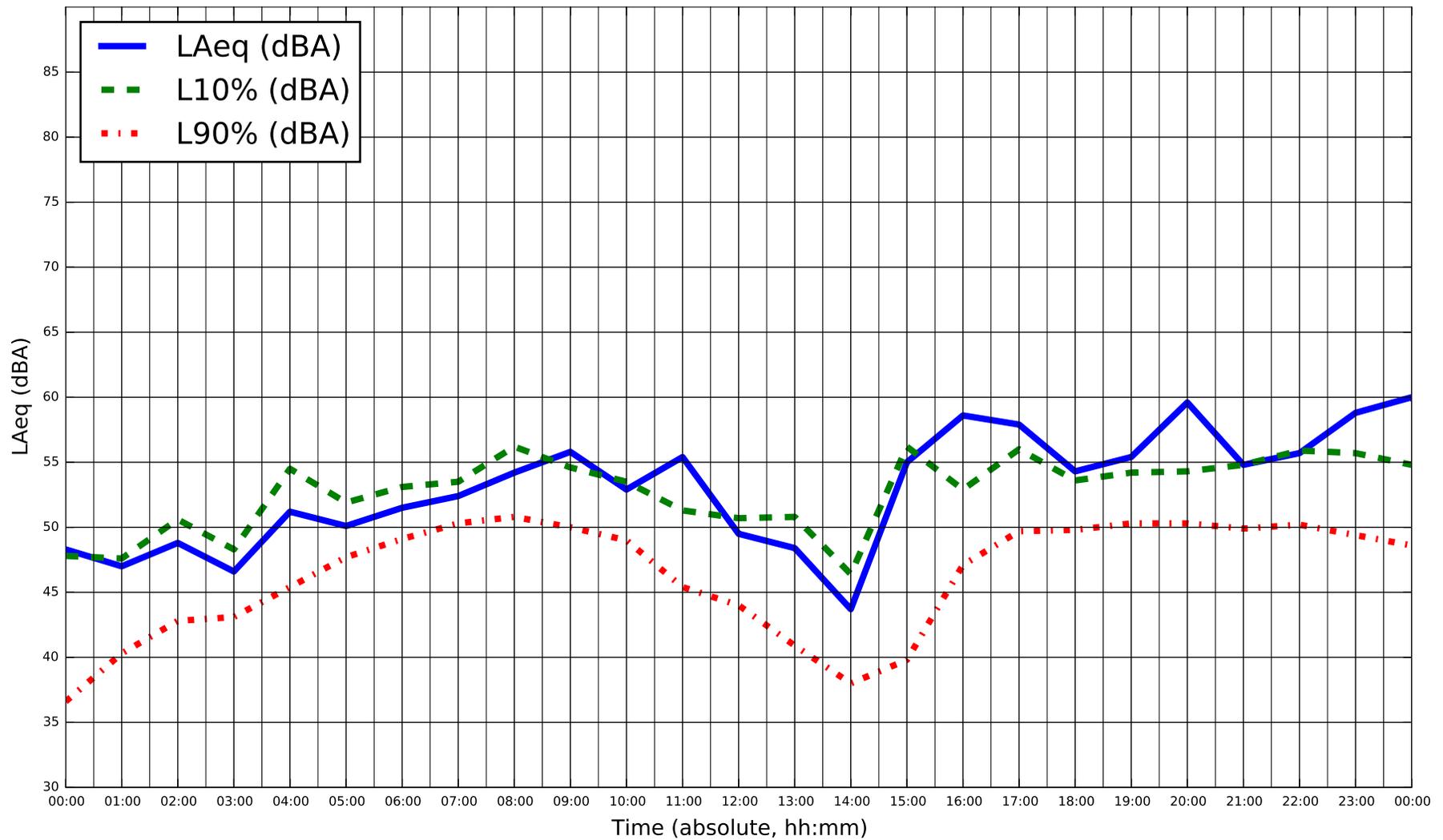
Figure  
**E-15**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday Nov 16, 2014**  
 Project Num.  
**114-318-100**

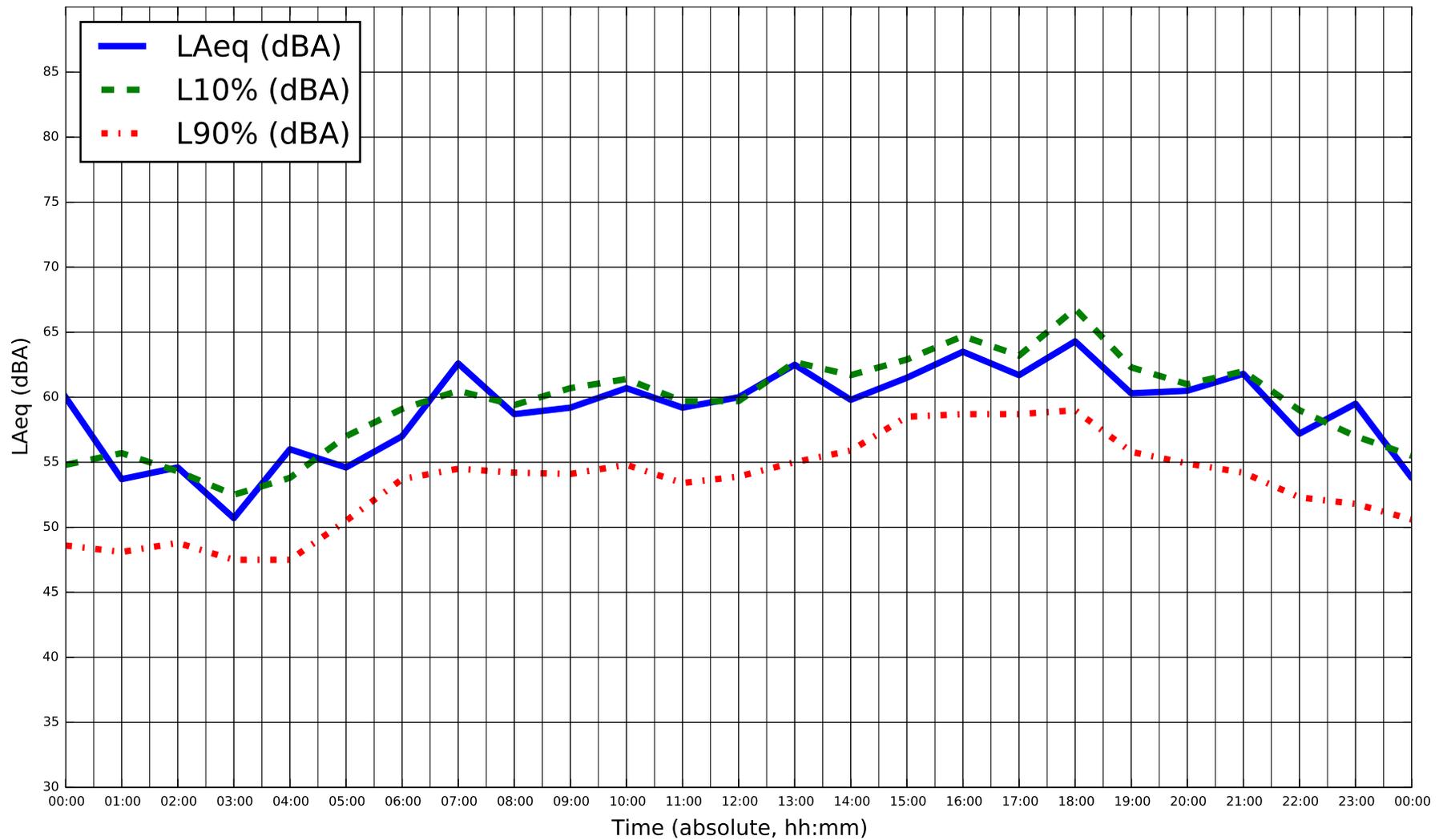
Figure  
**E-16**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday Nov 17, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-17**



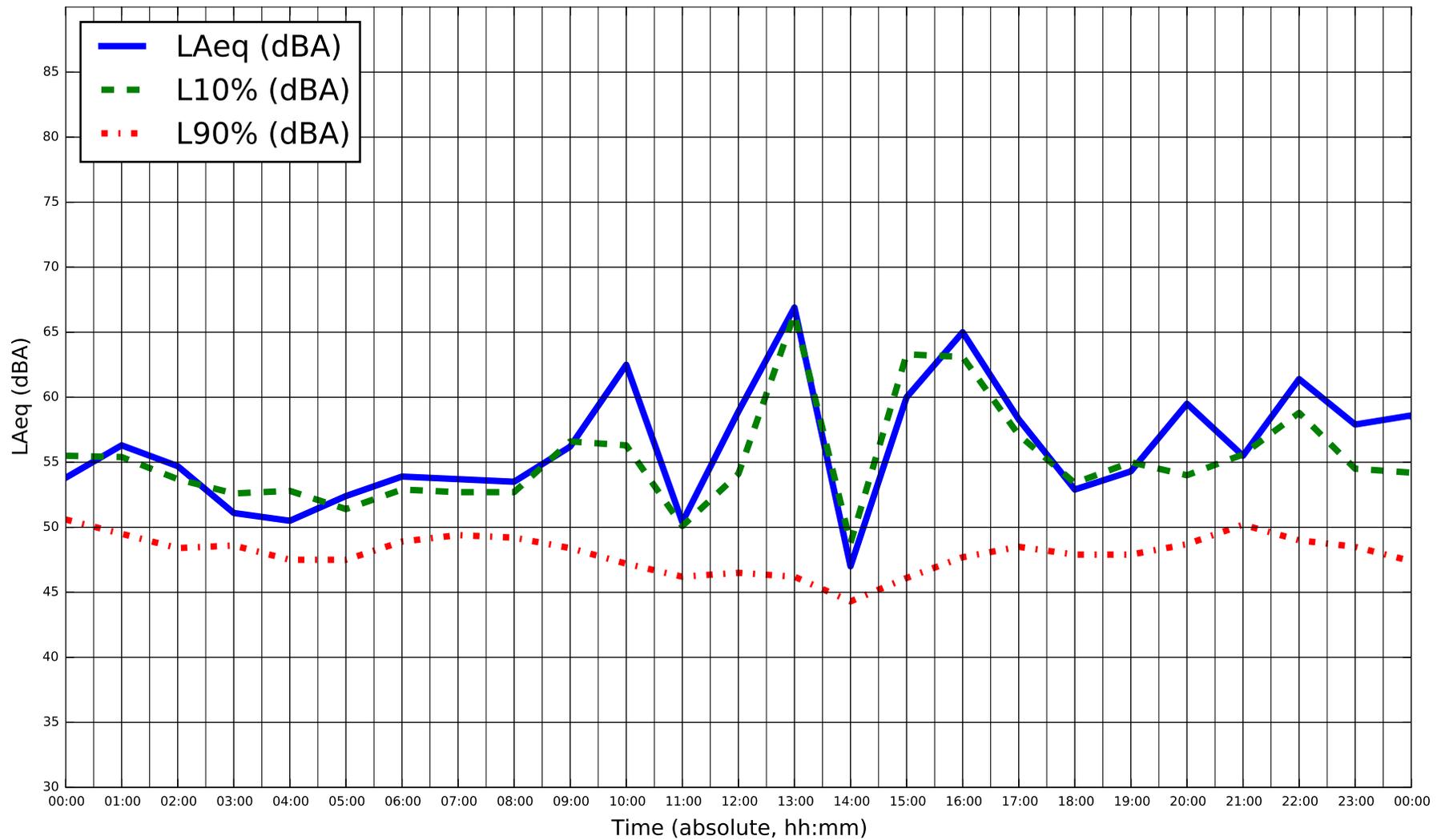
\* Sustained winds over 20 km/hr during monitoring on Nov 18, 2014



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday Nov 18, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-18**



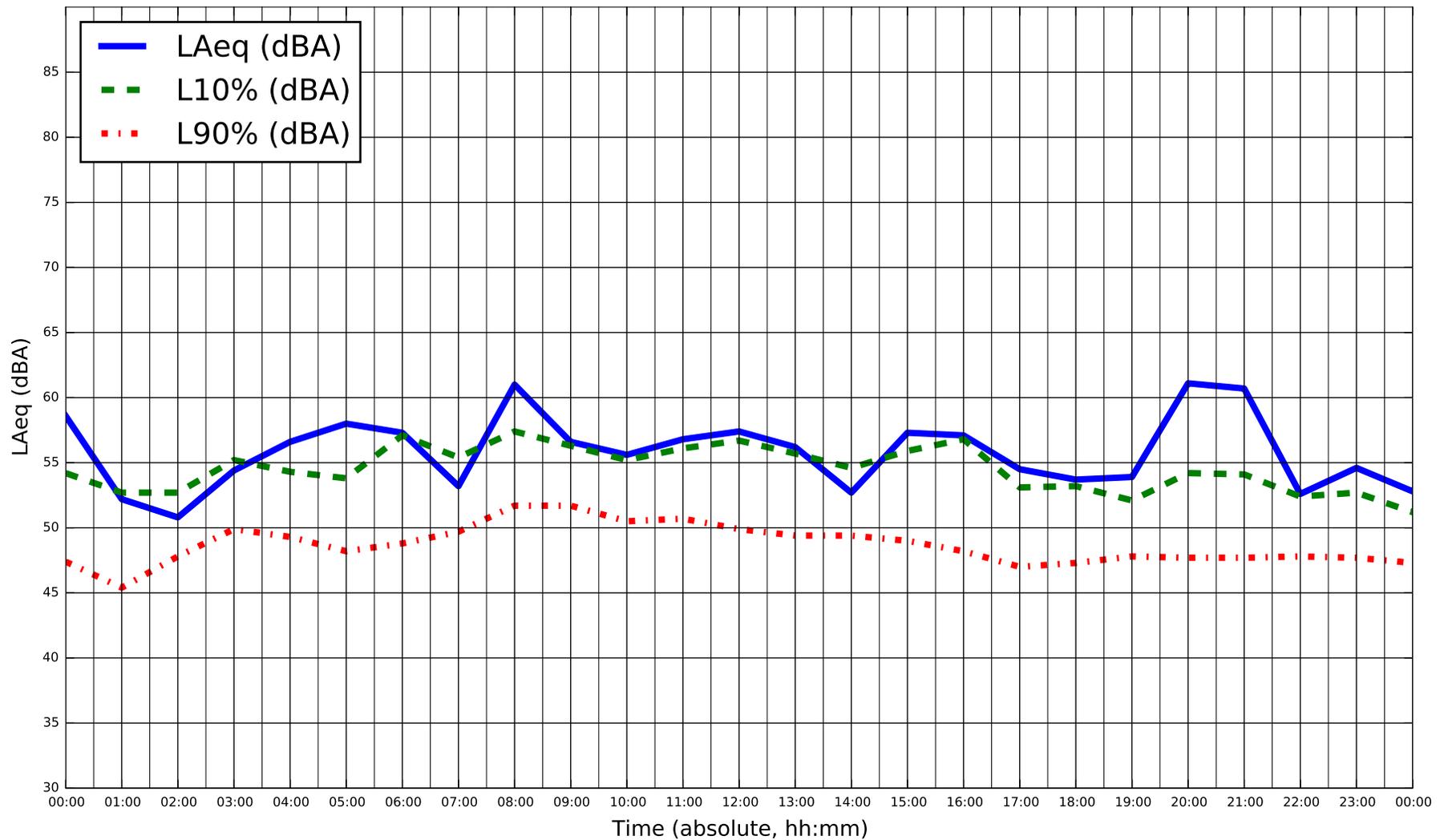
\* Sustained winds over 20 km/hr during monitoring on Nov 19, 2014



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday Nov 19, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-19**



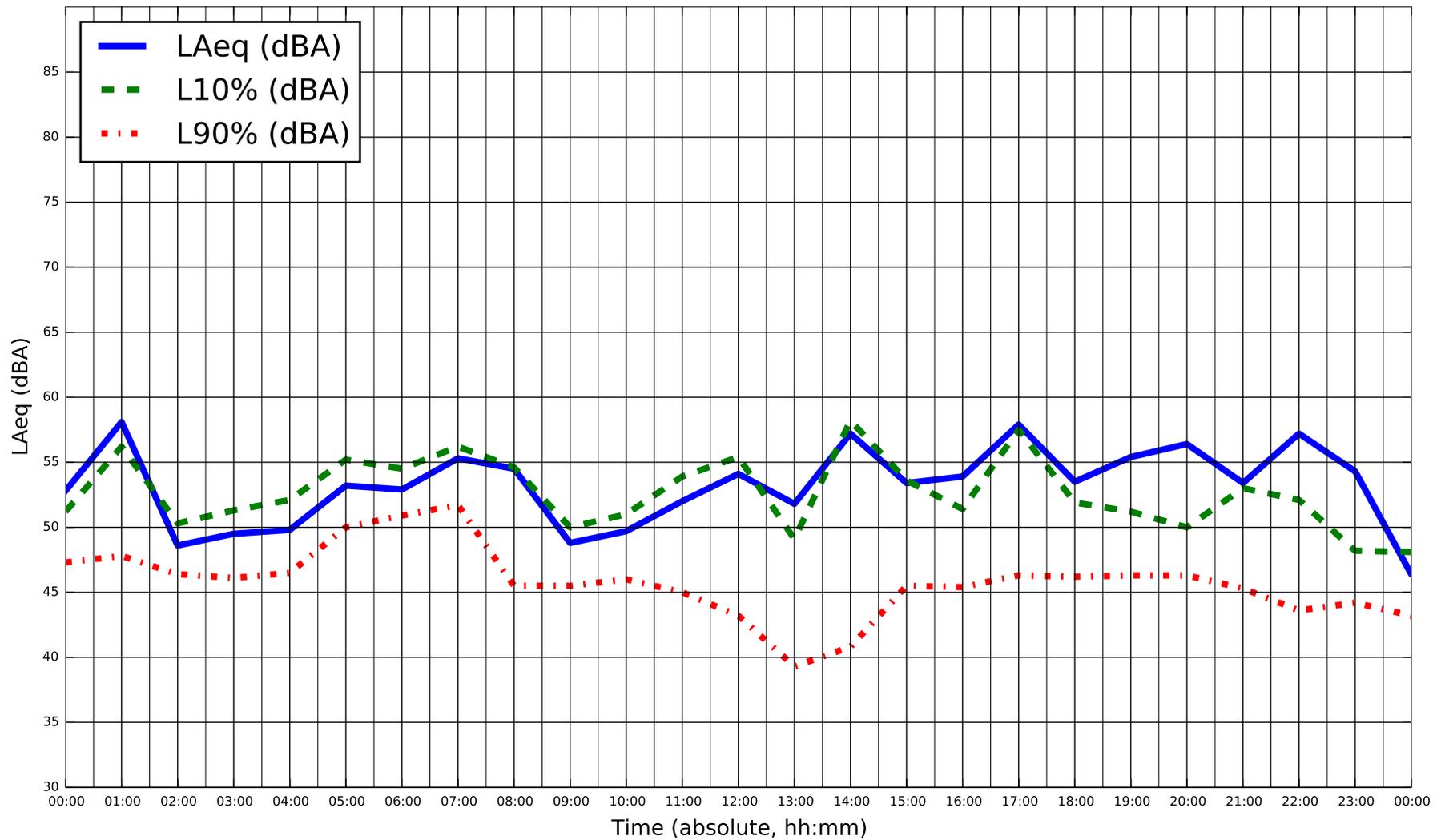
\* Sustained winds over 20 km/hr during monitoring on Nov 20, 2014



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday Nov 20, 2014**  
 Project Num.  
**114-318-100**

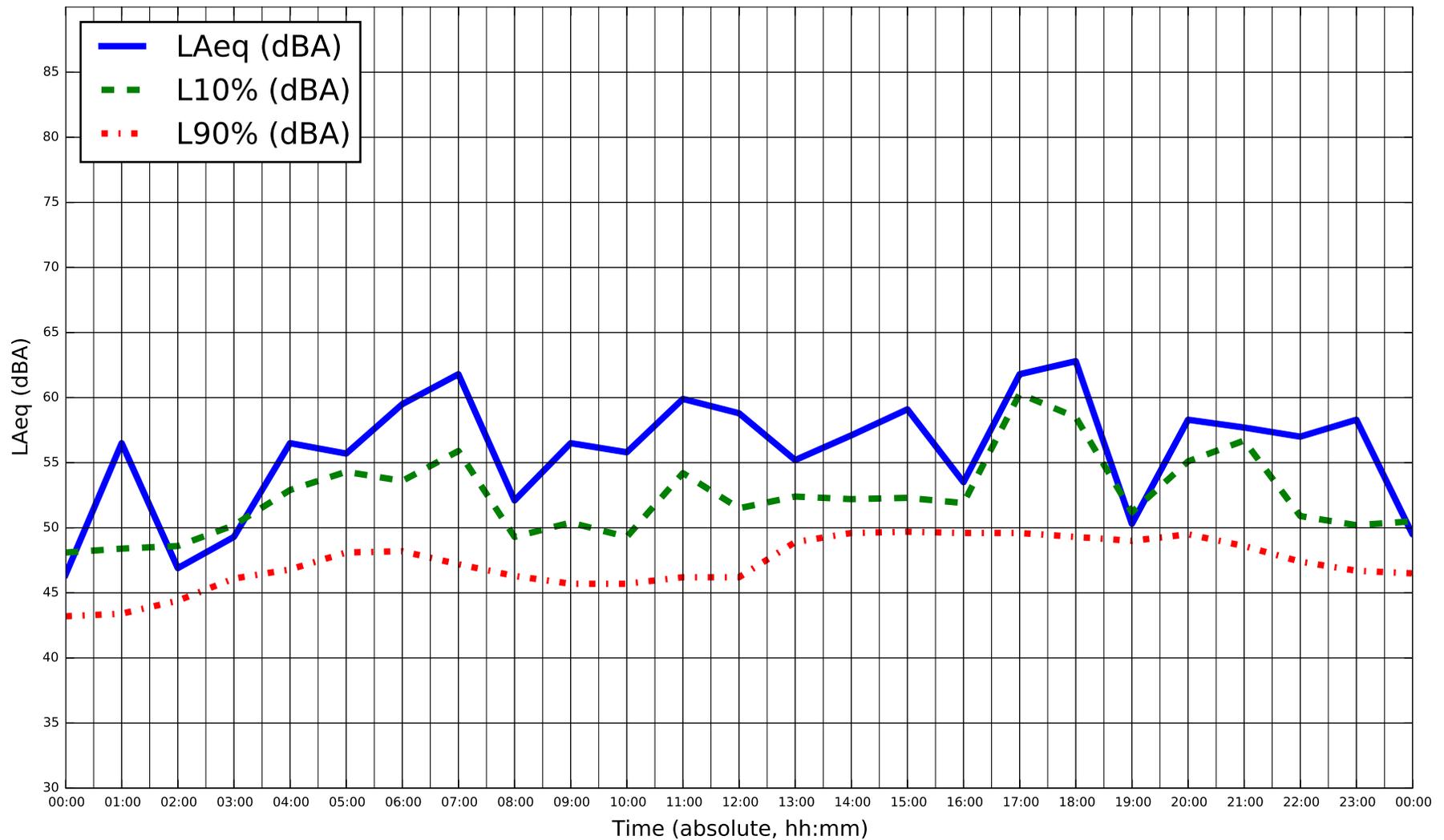
Figure  
**E-20**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Friday Nov 21, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-21**



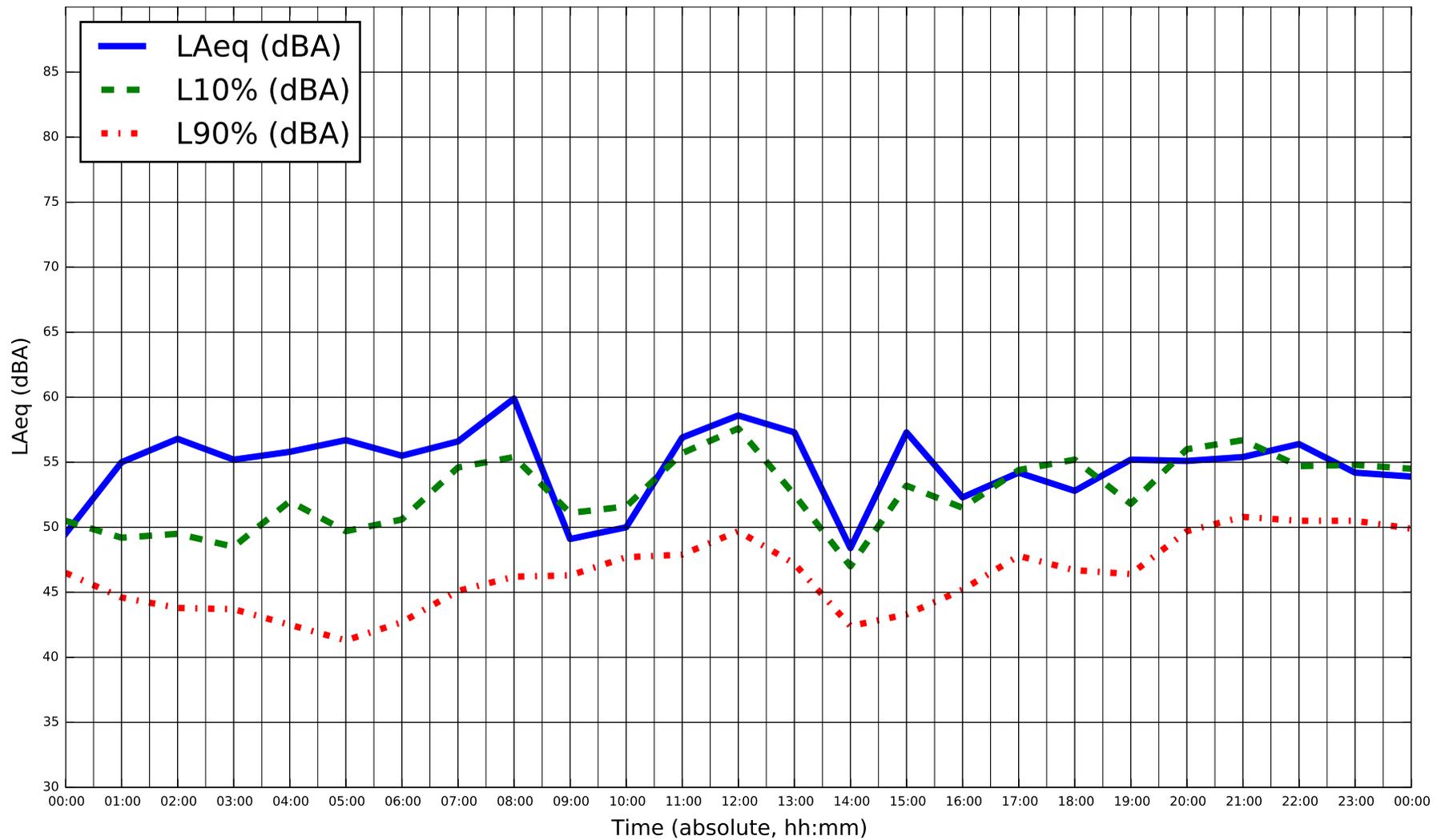
\* Sustained winds over 20 km/hr during monitoring on Nov 22, 2014



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday Nov 22, 2014**  
 Project Num.  
**114-318-100**

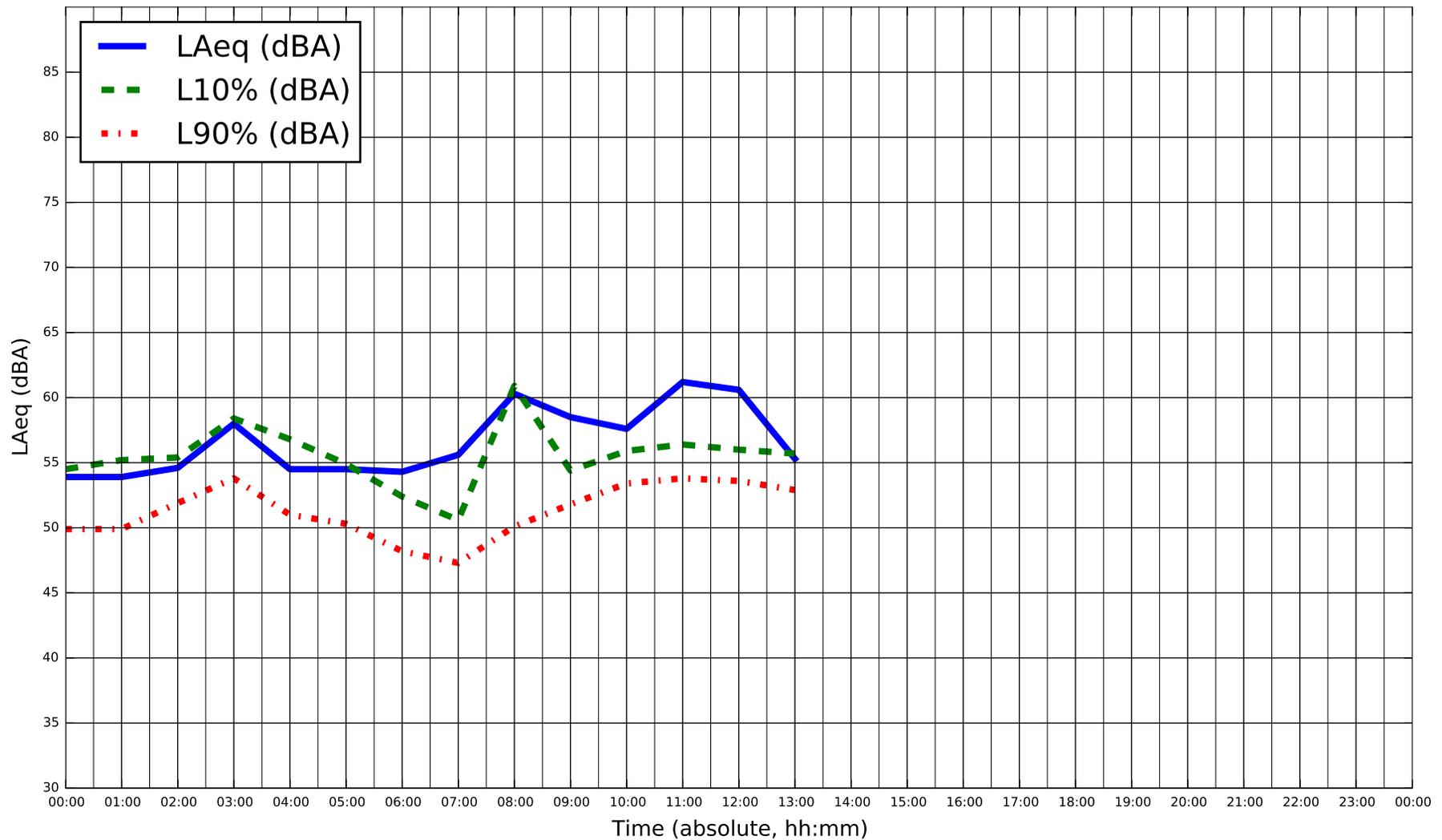
Figure  
**E-22**



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday Nov 23, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-23**



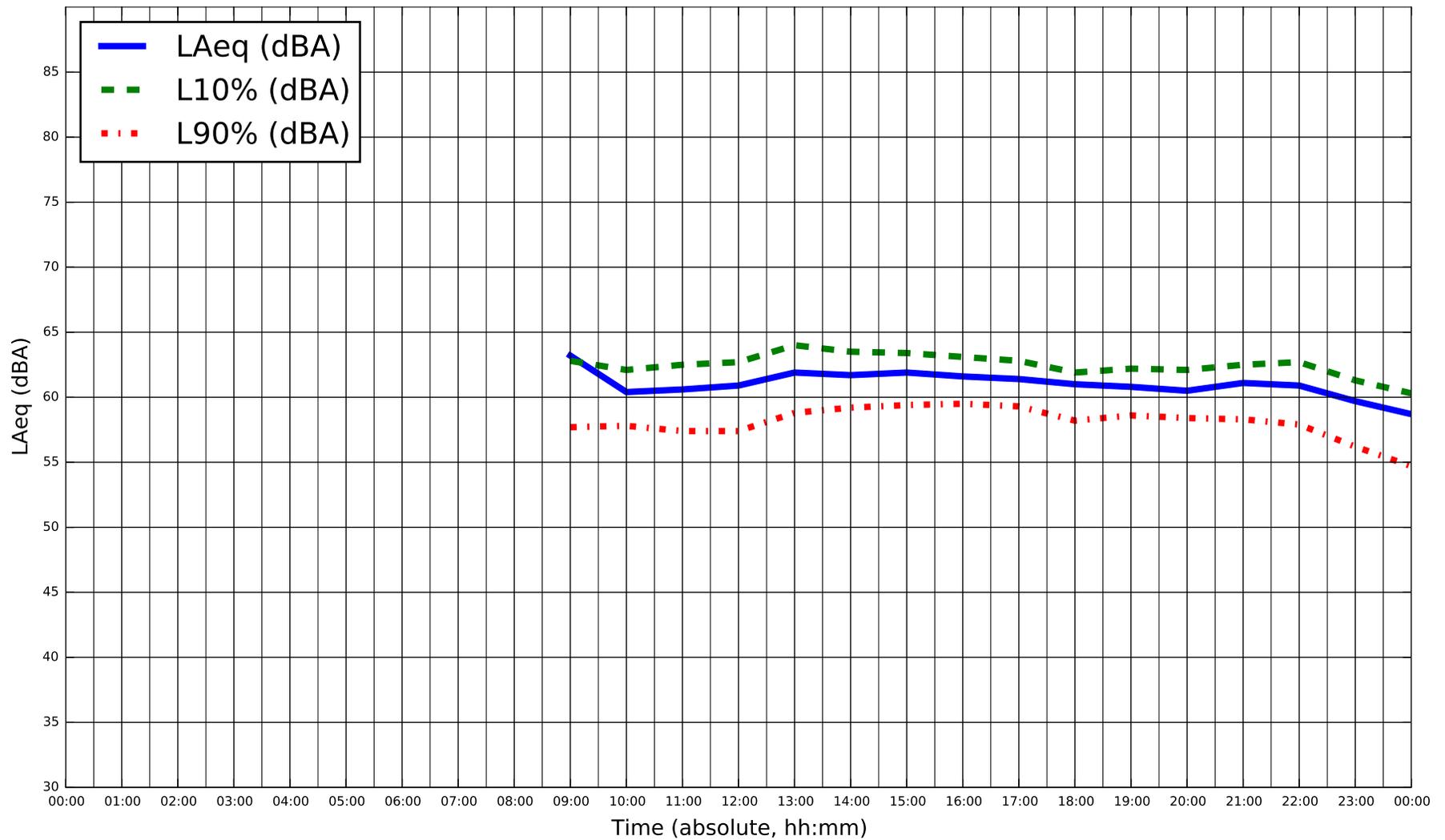
\* Sustained winds over 20 km/hr during monitoring on Nov 24, 2014



Title  
**Ambient Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday Nov 24, 2014**  
 Project Num.  
**114-318-100**

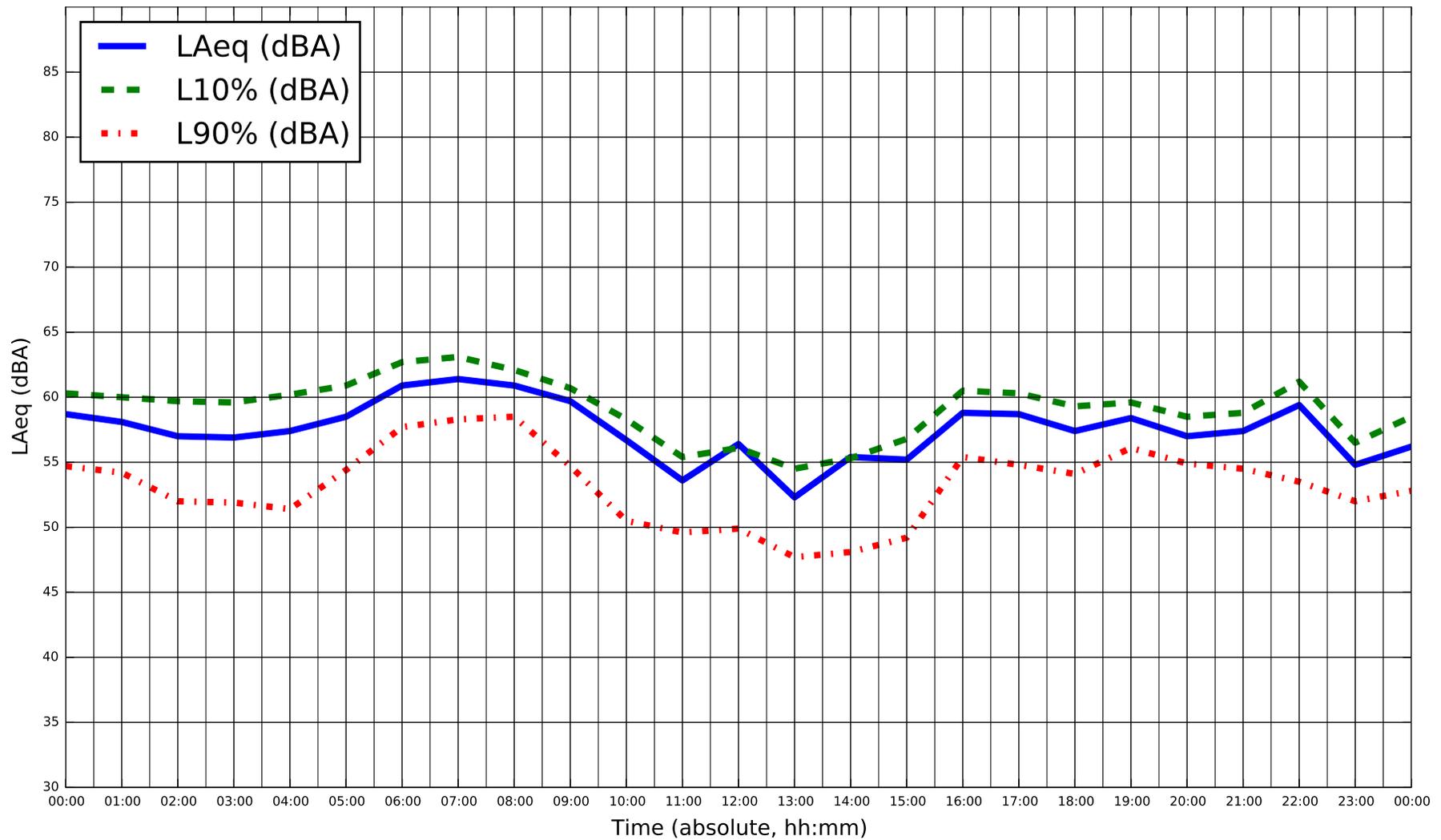
Figure  
**E-24**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday Nov 13, 2014**  
 Project Num.  
**114-318-100**

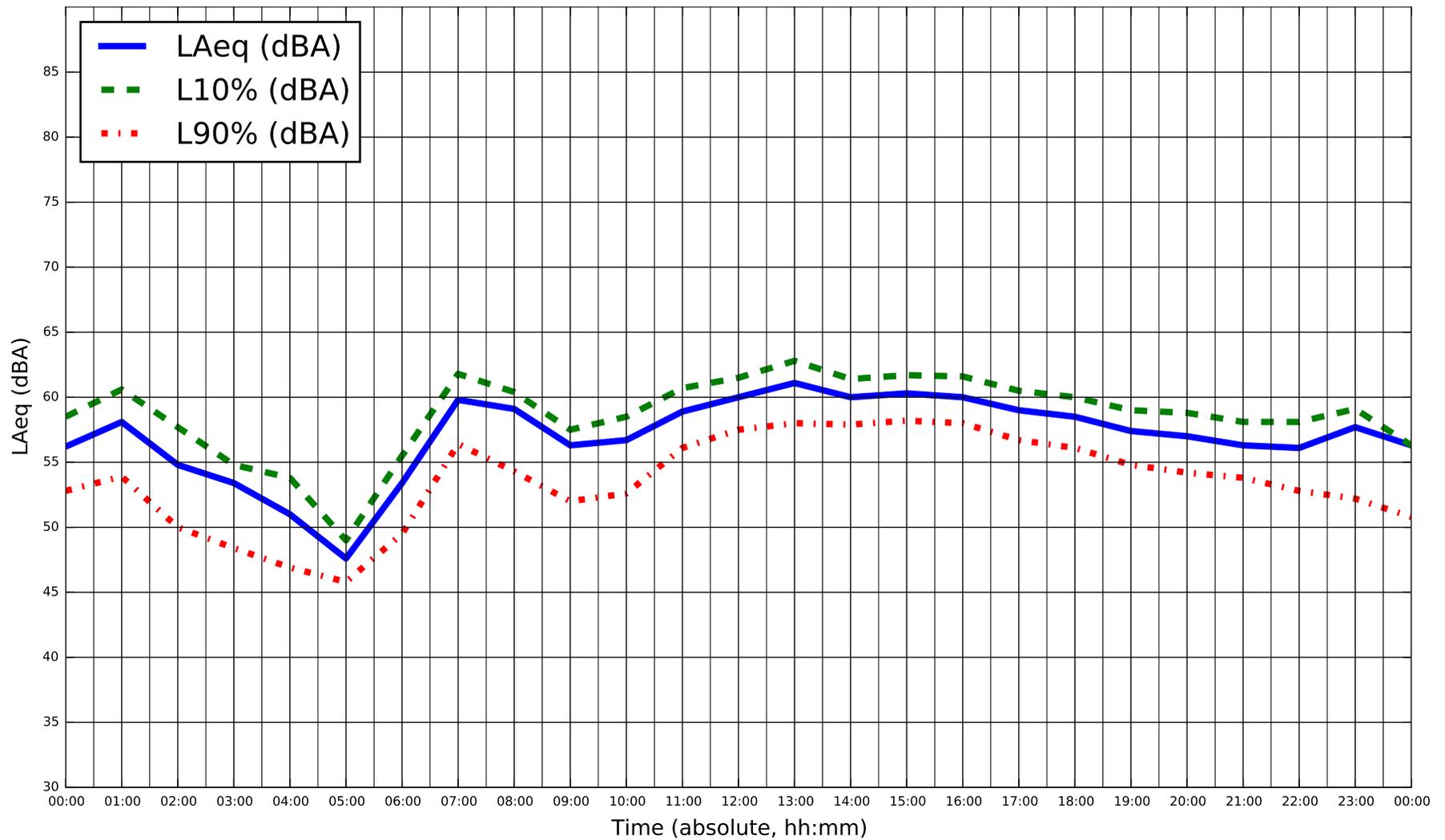
Figure  
**E-25**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Friday Nov 14, 2014**  
 Project Num.  
**114-318-100**

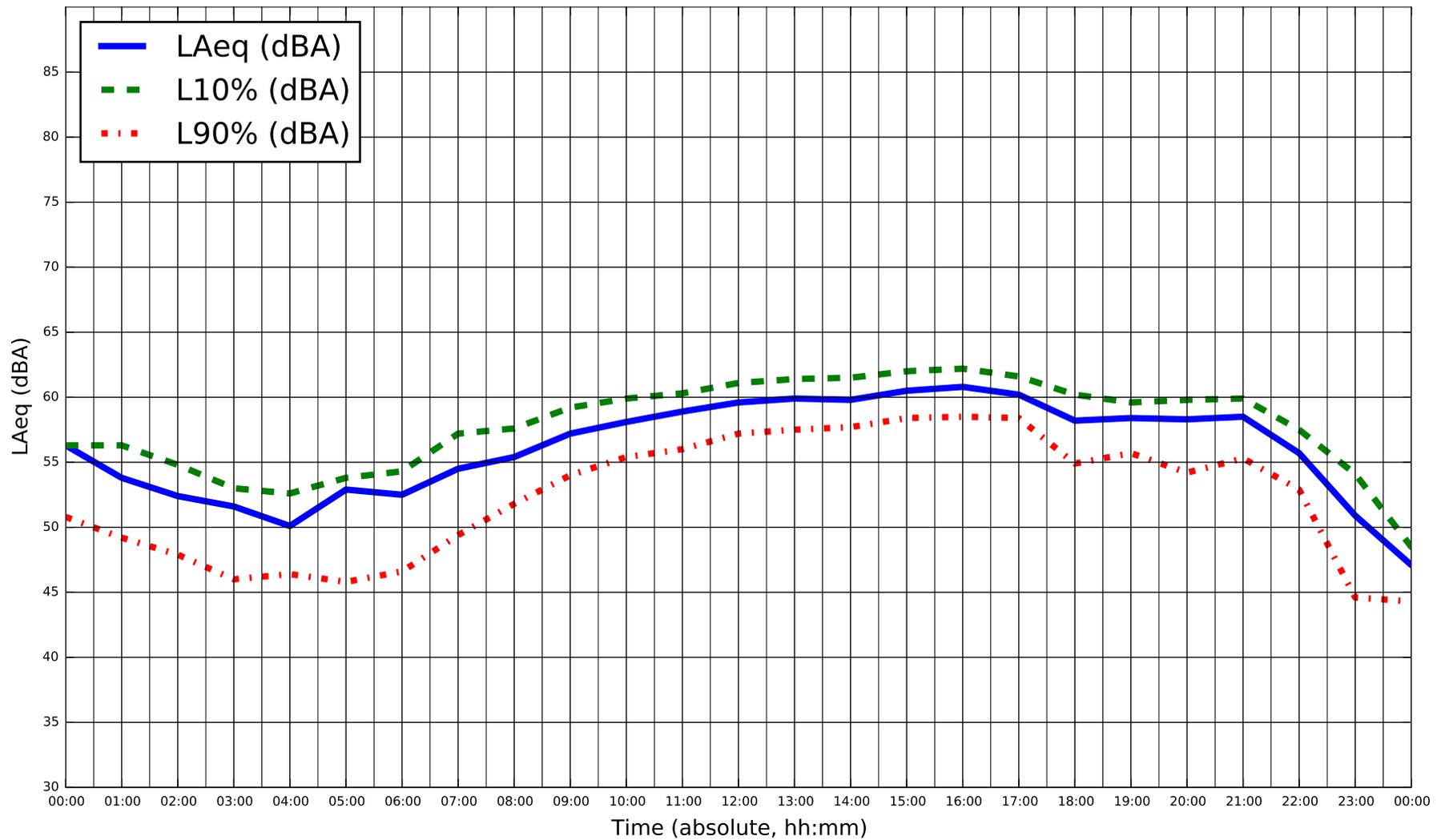
Figure  
**E-26**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday Nov 15, 2014**  
 Project Num.  
**114-318-100**

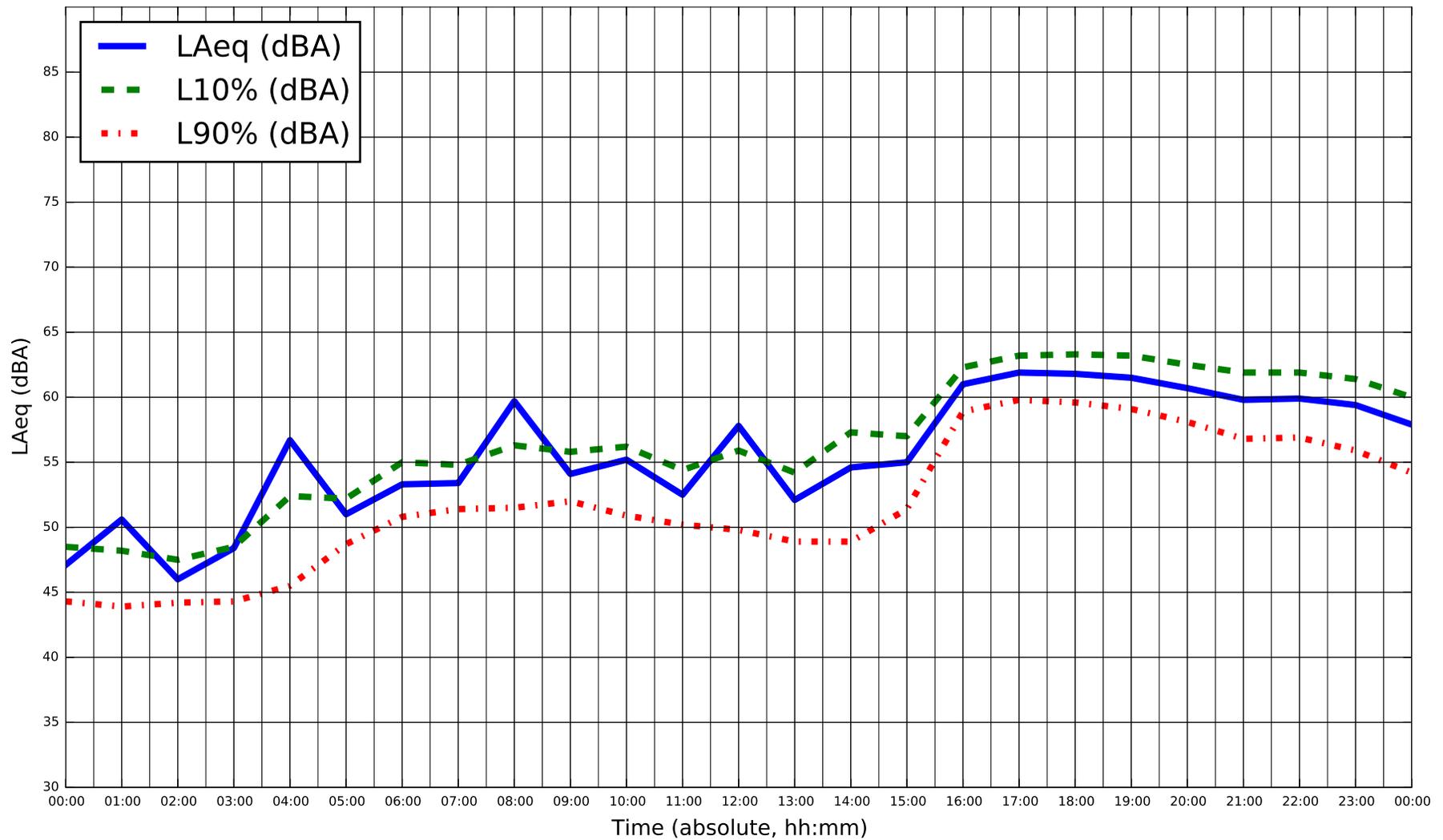
Figure  
**E-27**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday Nov 16, 2014**  
 Project Num.  
**114-318-100**

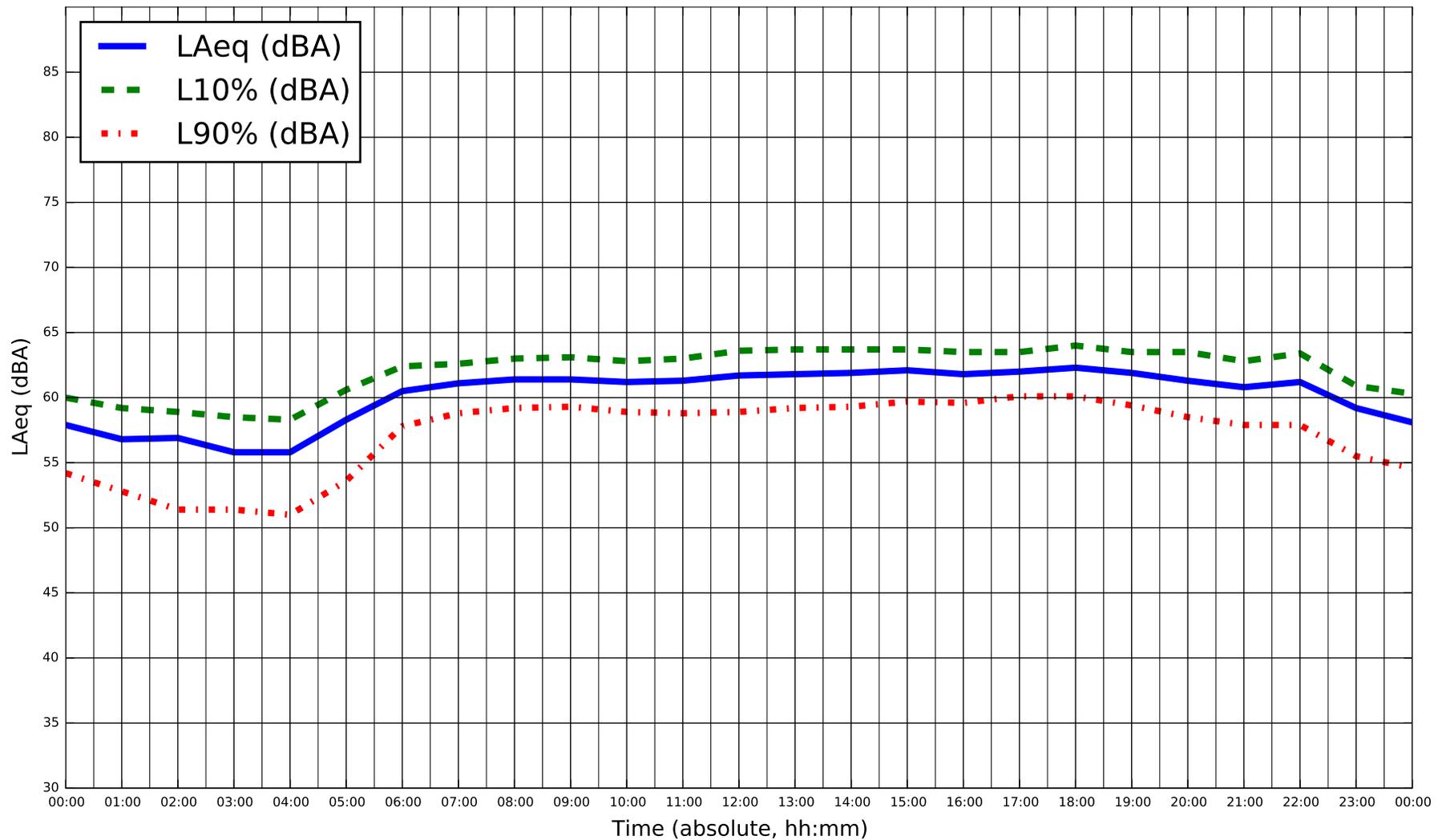
Figure  
**E-28**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday Nov 17, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-29**



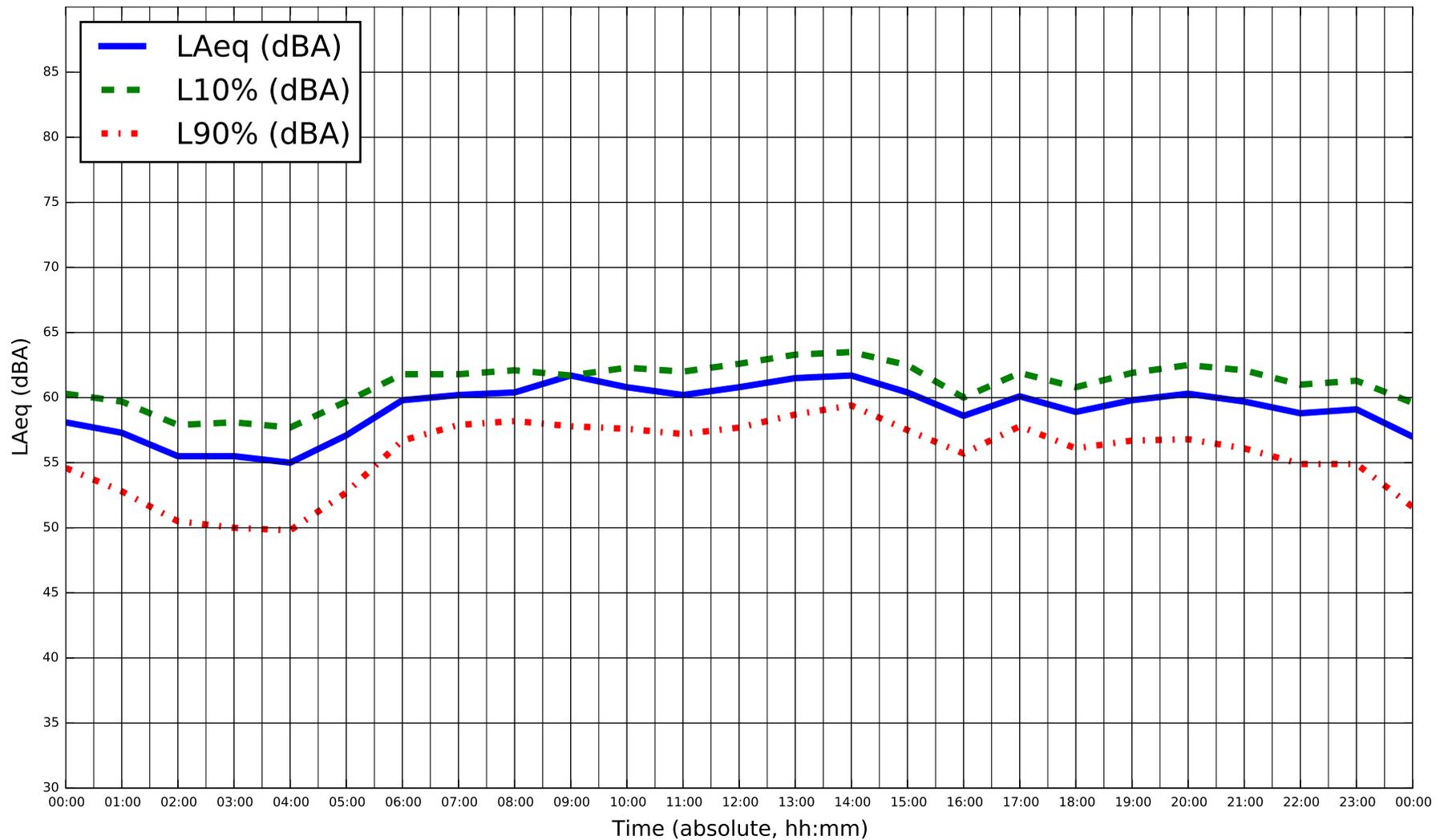
\* Sustained winds over 20 km/hr during monitoring on Nov 18, 2014



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday Nov 18, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-30**



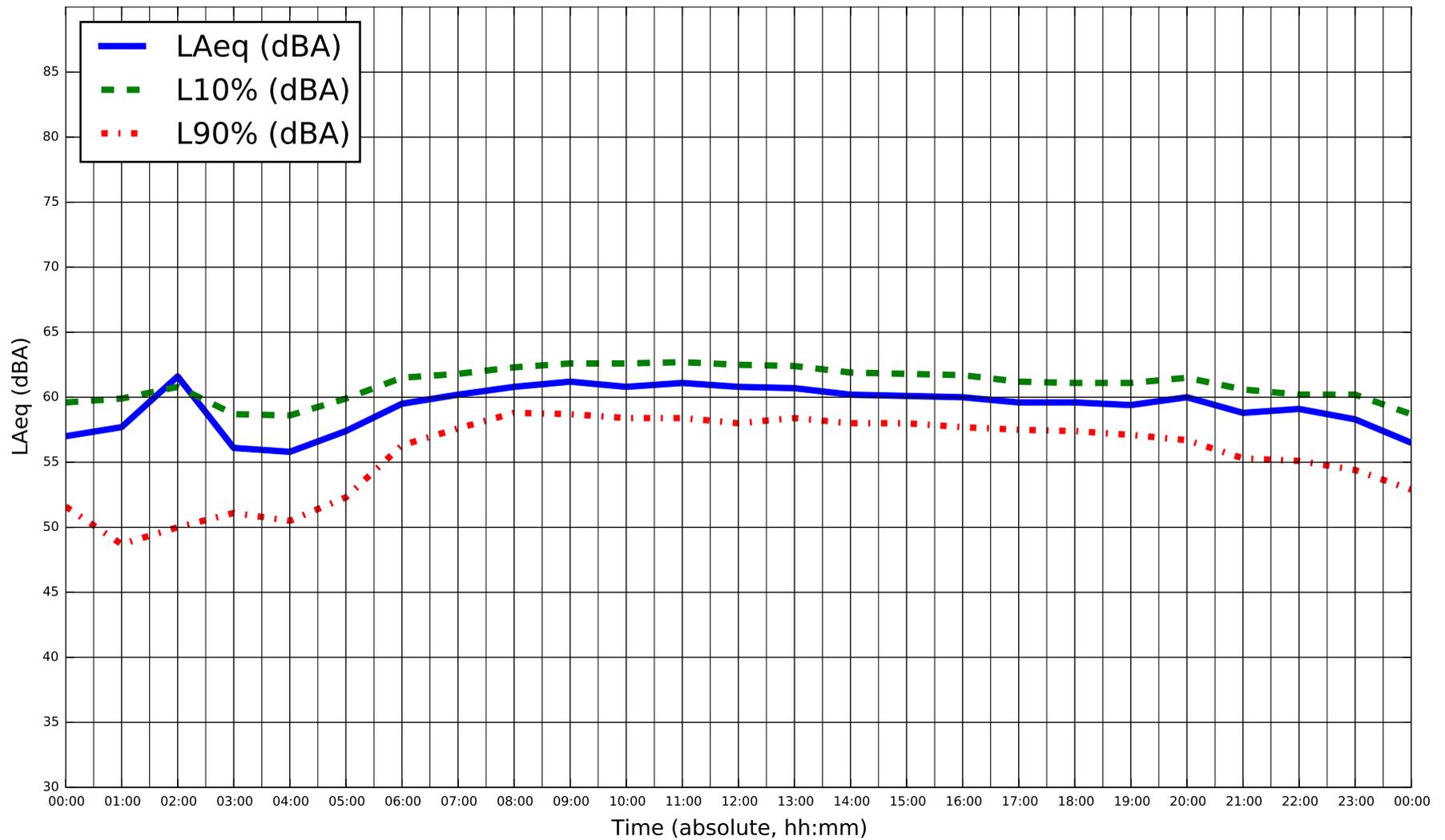
\* Sustained winds over 20 km/hr during monitoring on Nov 19, 2014



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday Nov 19, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-31**



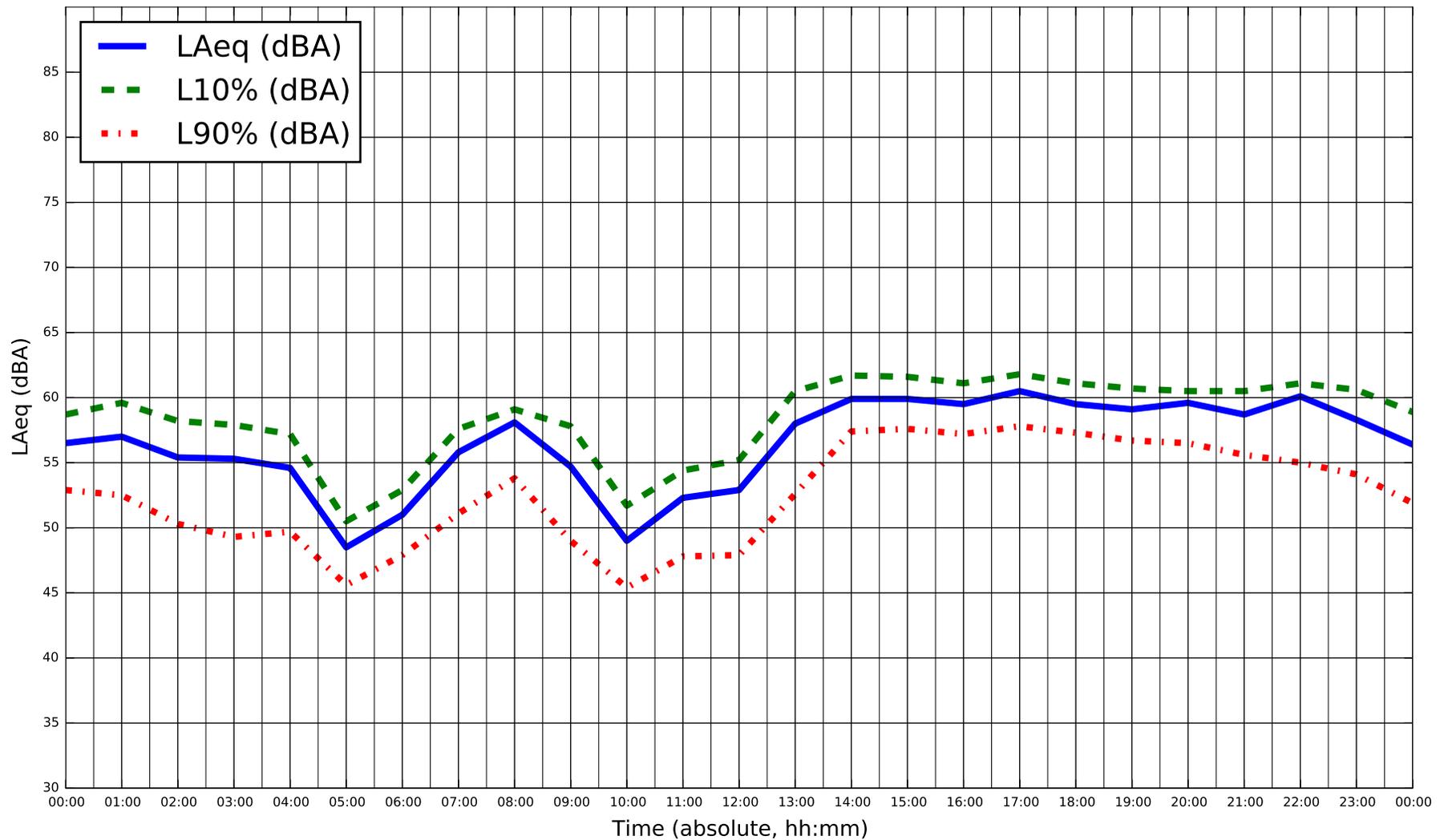
\* Sustained winds over 20 km/hr during monitoring on Nov 20, 2014



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday Nov 20, 2014**  
 Project Num.  
**114-318-100**

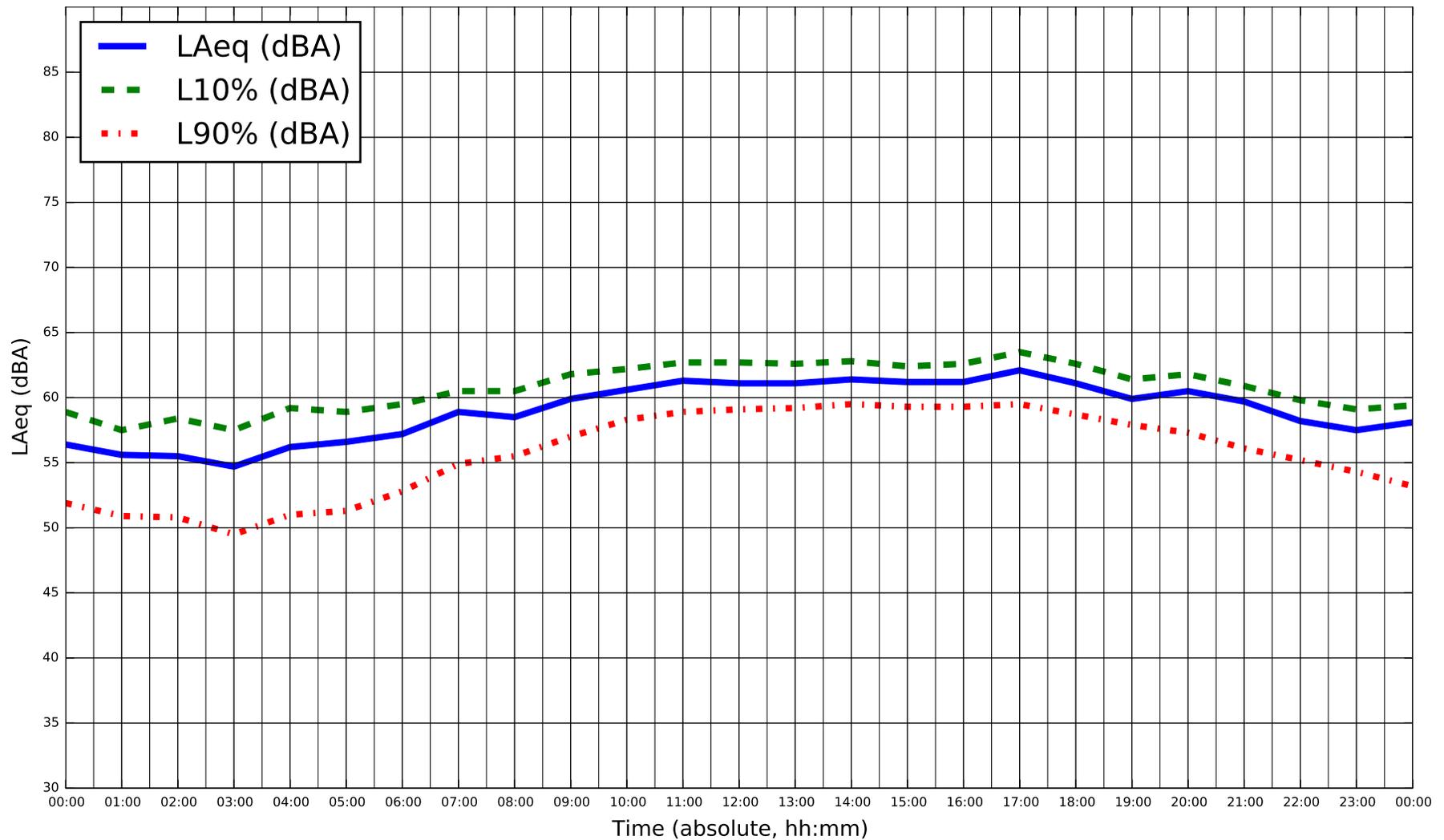
Figure  
**E-32**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Friday Nov 21, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-33**



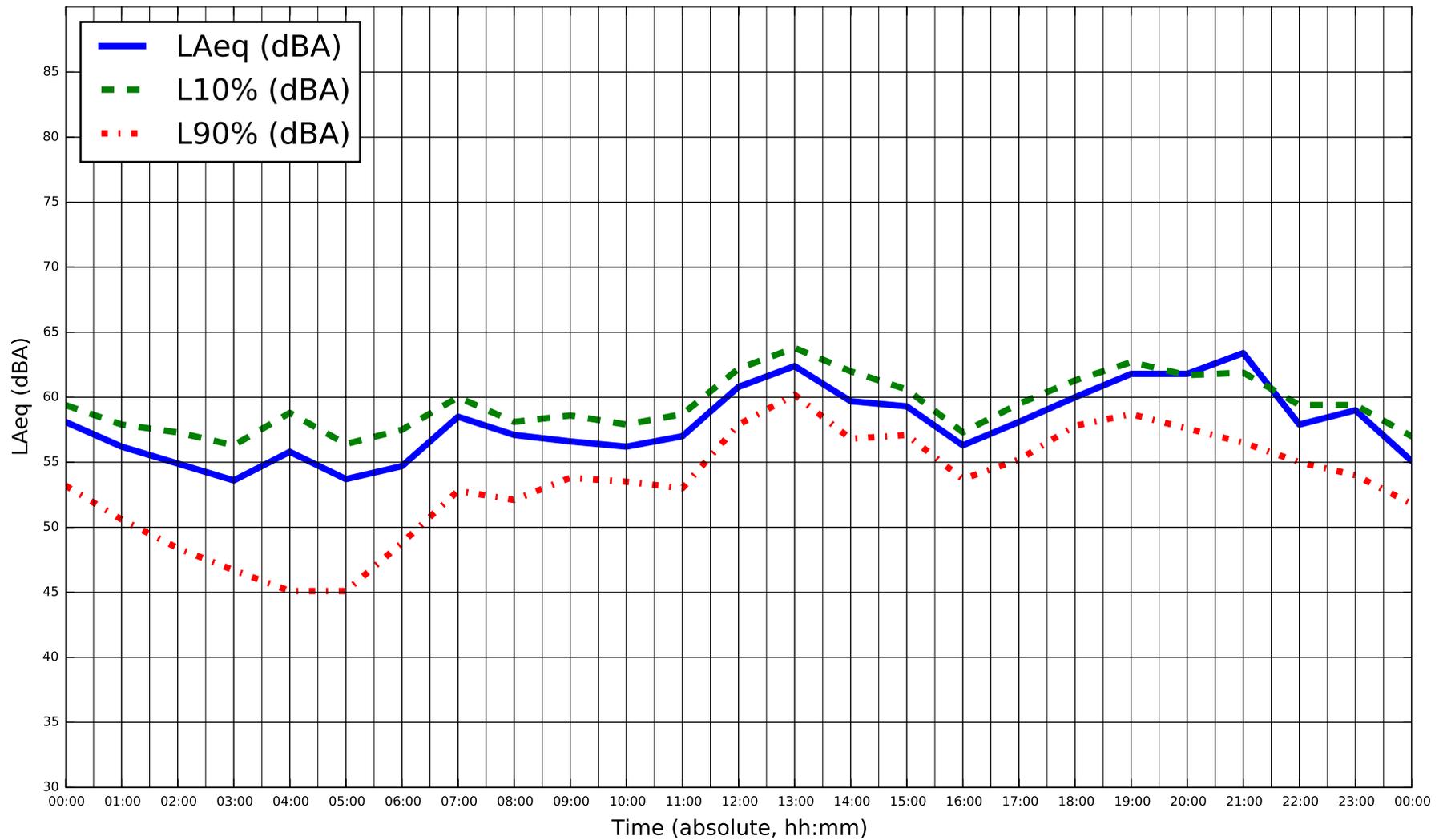
\* Sustained winds over 20 km/hr during monitoring on Nov 22, 2014



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday Nov 22, 2014**  
 Project Num.  
**114-318-100**

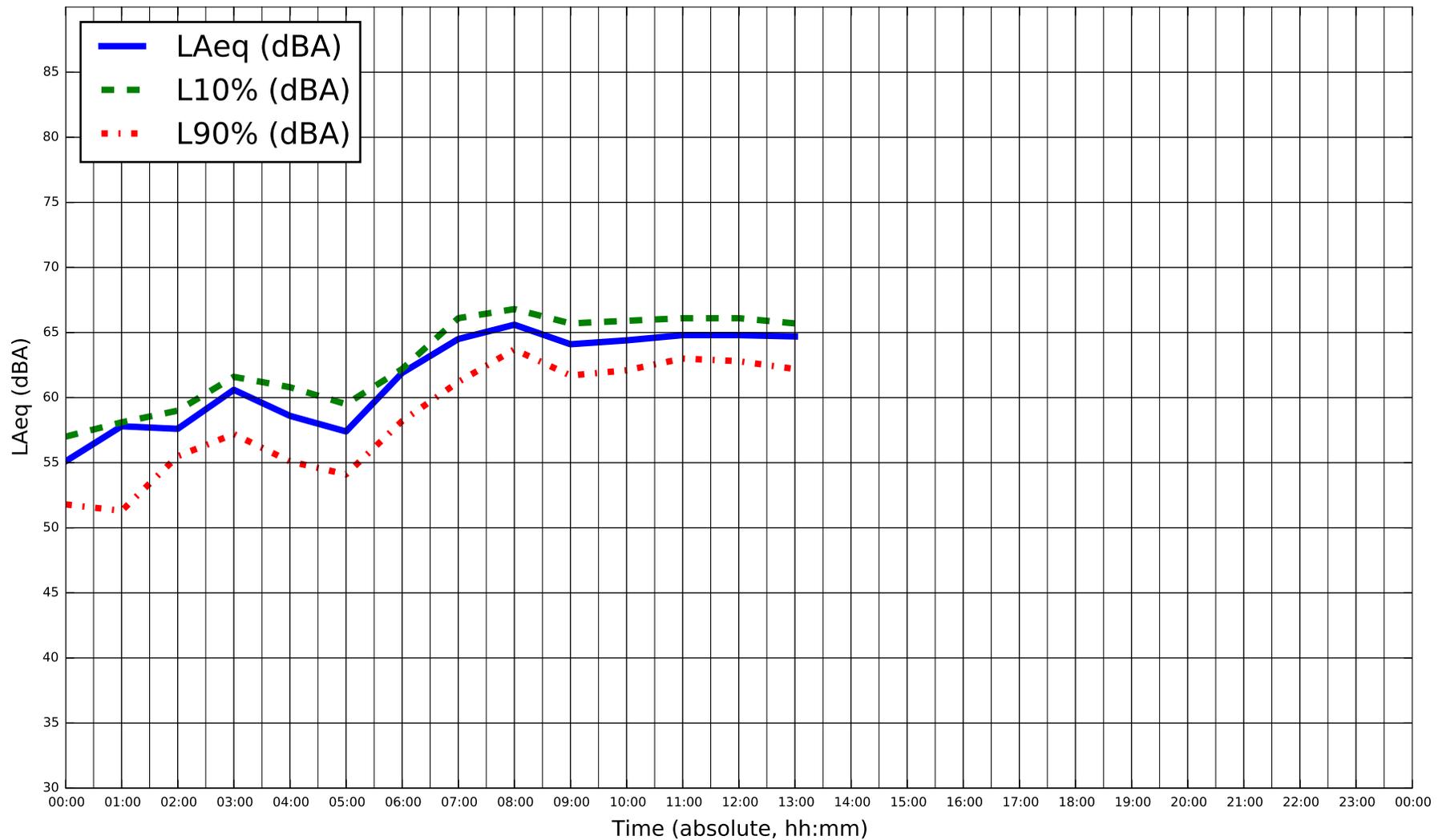
Figure  
**E-34**



Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday Nov 23, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-35**



\* Sustained winds over 20 km/hr during monitoring on Nov 24, 2014



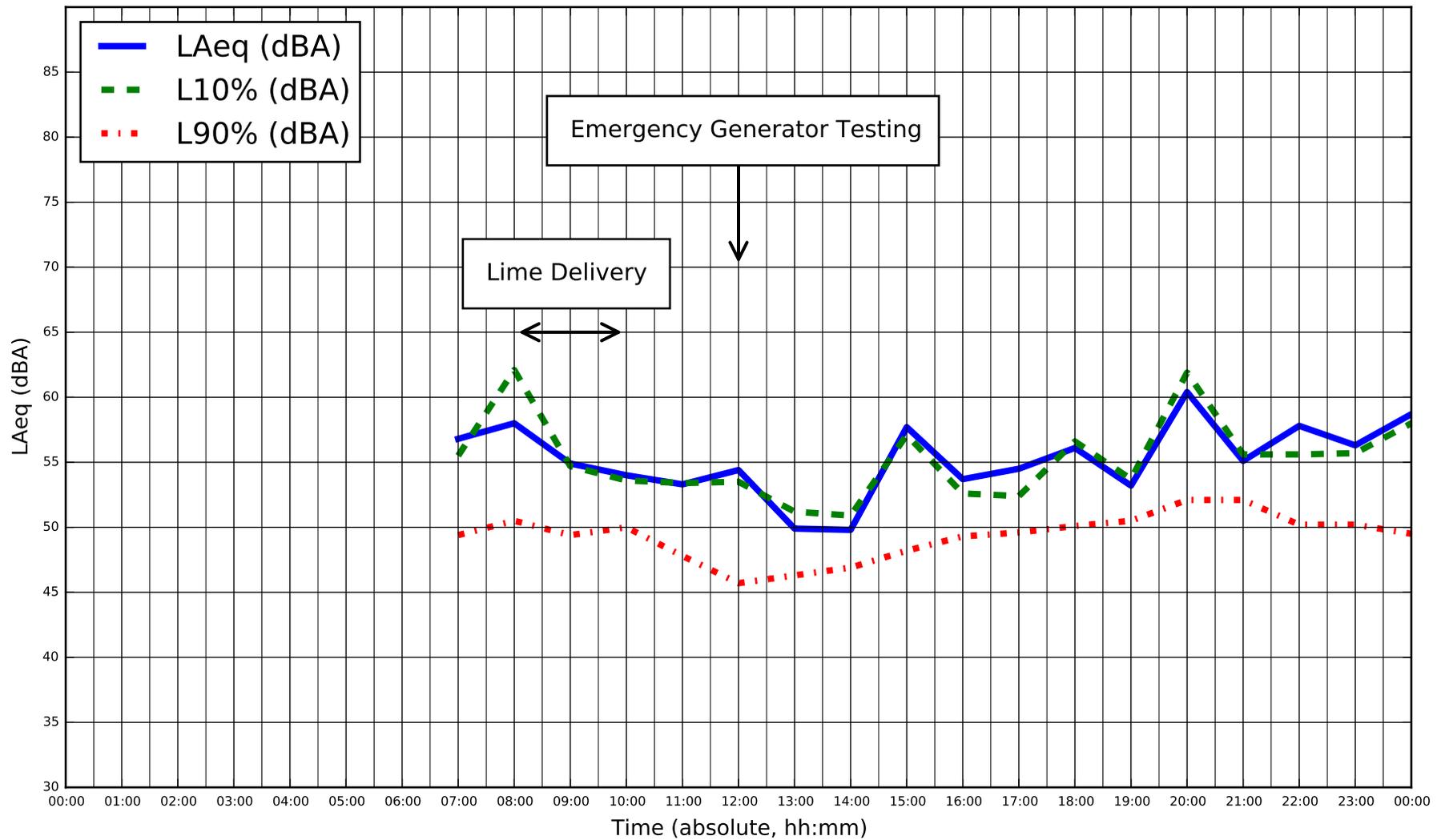
Title  
**Ambient Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday Nov 24, 2014**  
 Project Num.  
**114-318-100**

Figure  
**E-36**

# **APPENDIX F**

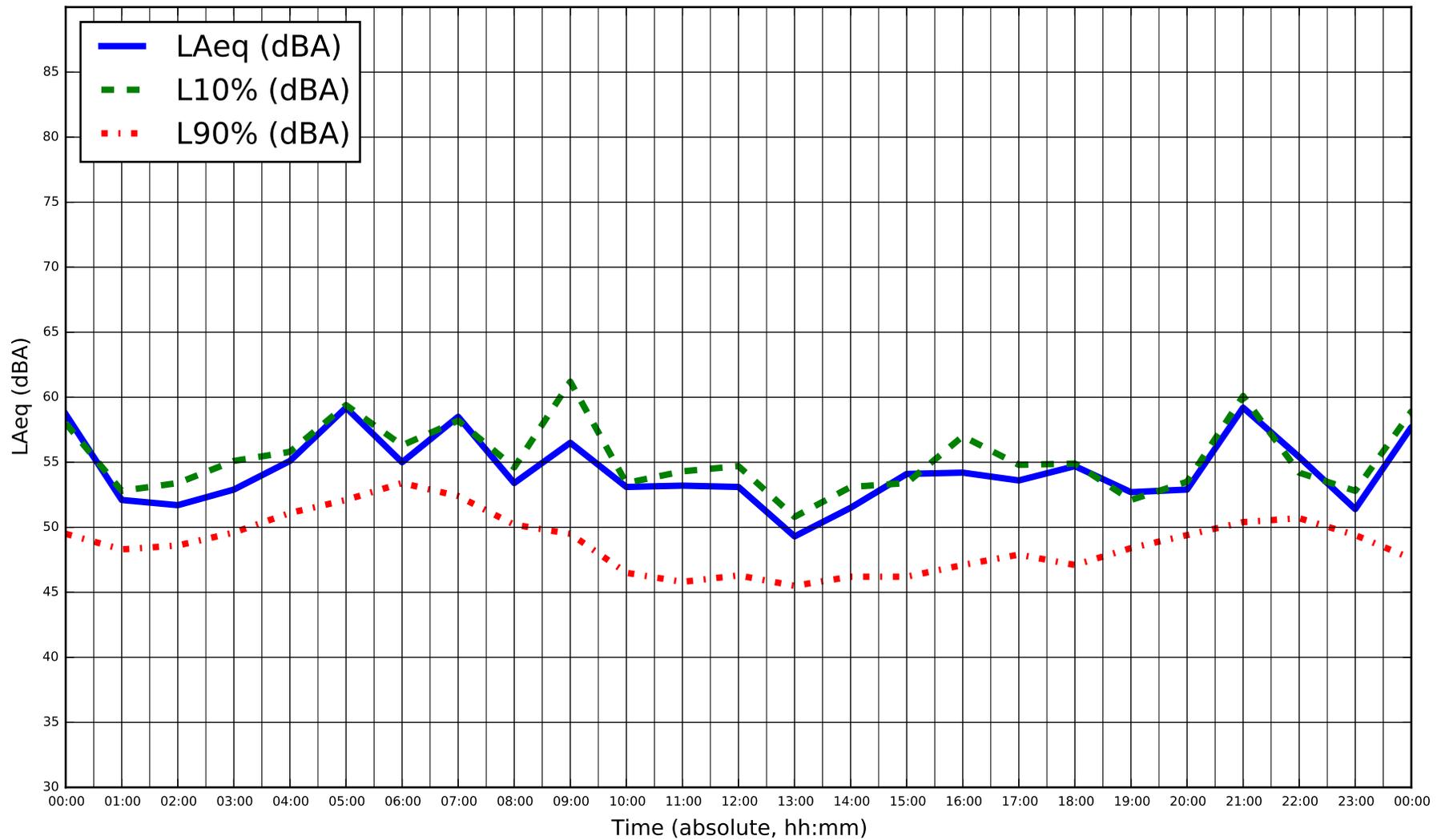
## **APRIL 2015 POST-OPERATIONAL SOUND MEASUREMENT RESULTS**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday April 6, 2015**  
 Project Num.  
**114-318-100**

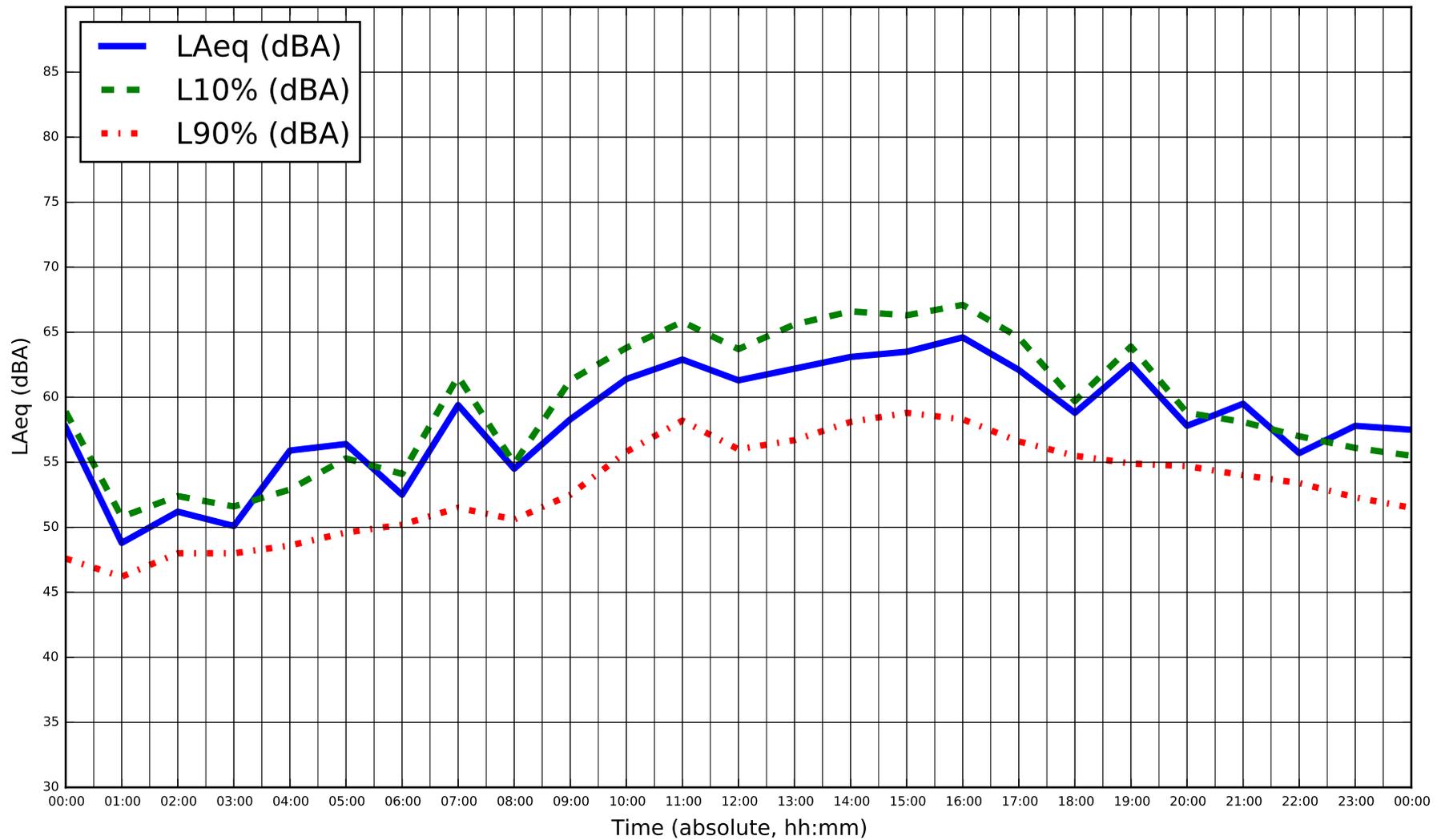
Figure  
**F-1**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

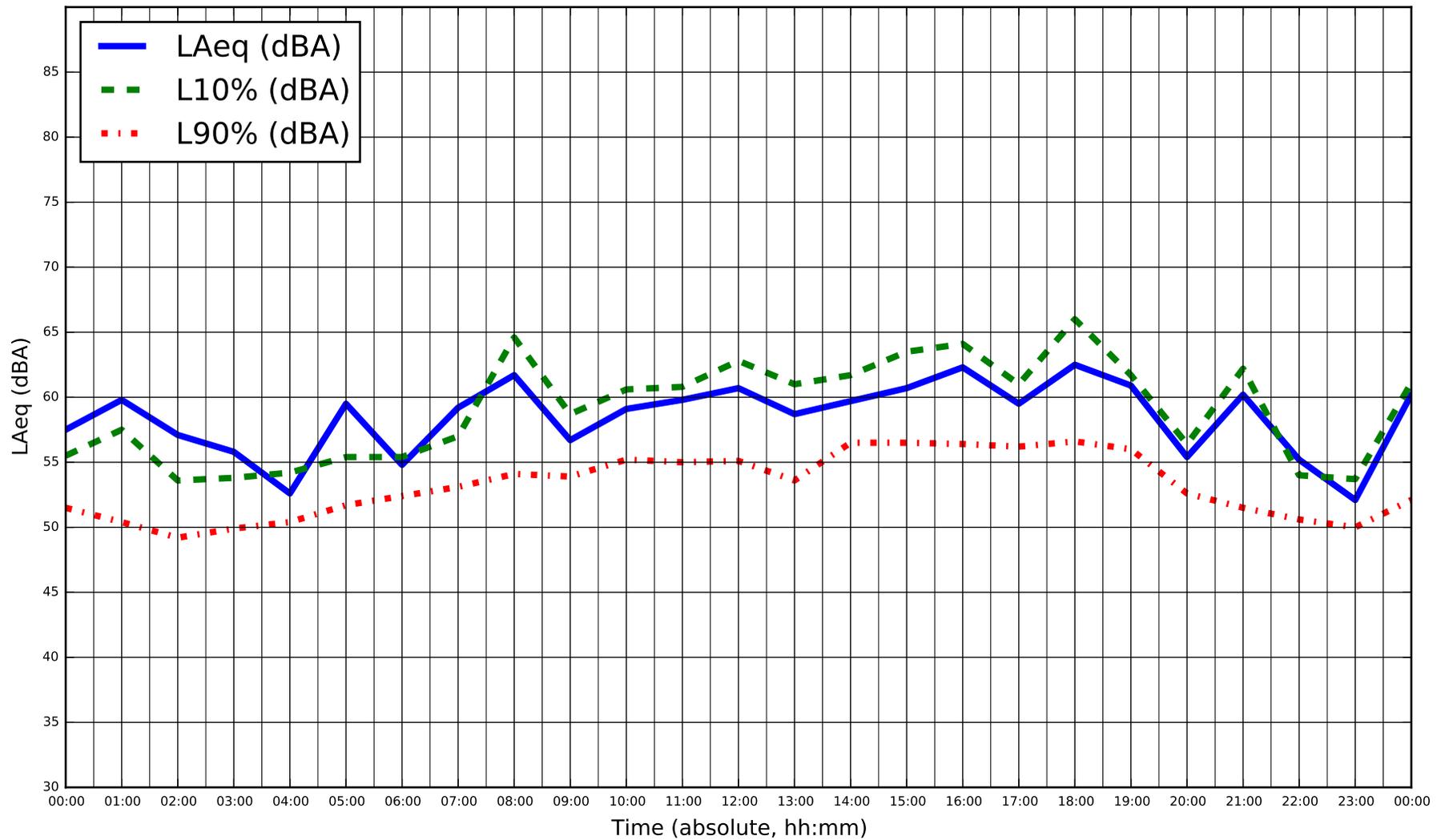
Measurement Date  
**Tuesday April 7, 2015**  
 Project Num.  
**114-318-100**

Figure  
**F-2**



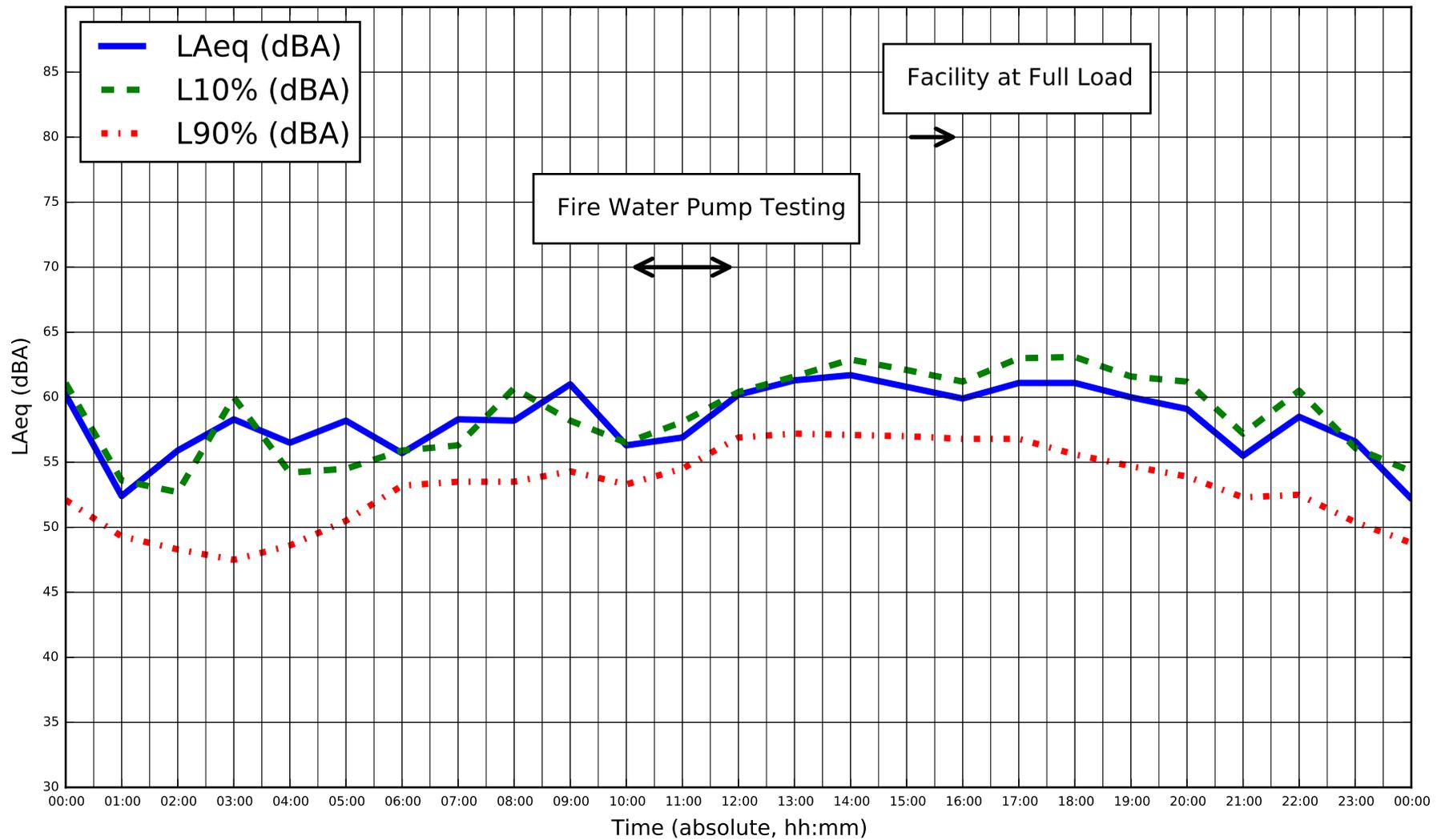
\* Sustained winds over 20 km/hr during monitoring, on April 8, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M001	Wednesday April 8, 2015	F-3
	DYEC - Acoustic Audit	114-318-100	



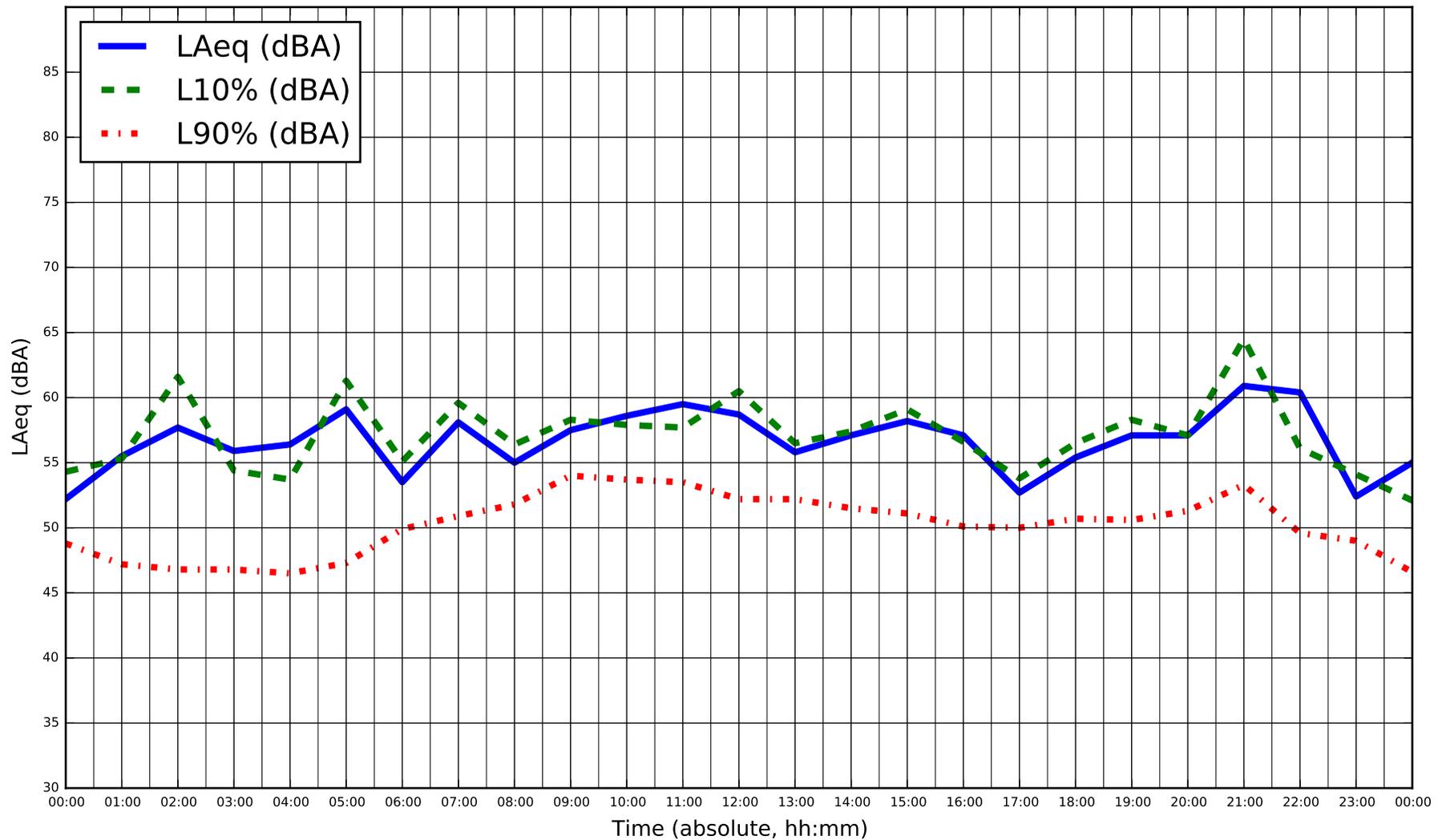
\* Sustained winds over 20 km/hr during monitoring, on April 9, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M001	Thursday April 9, 2015	F-4
	DYEC - Acoustic Audit	114-318-100	



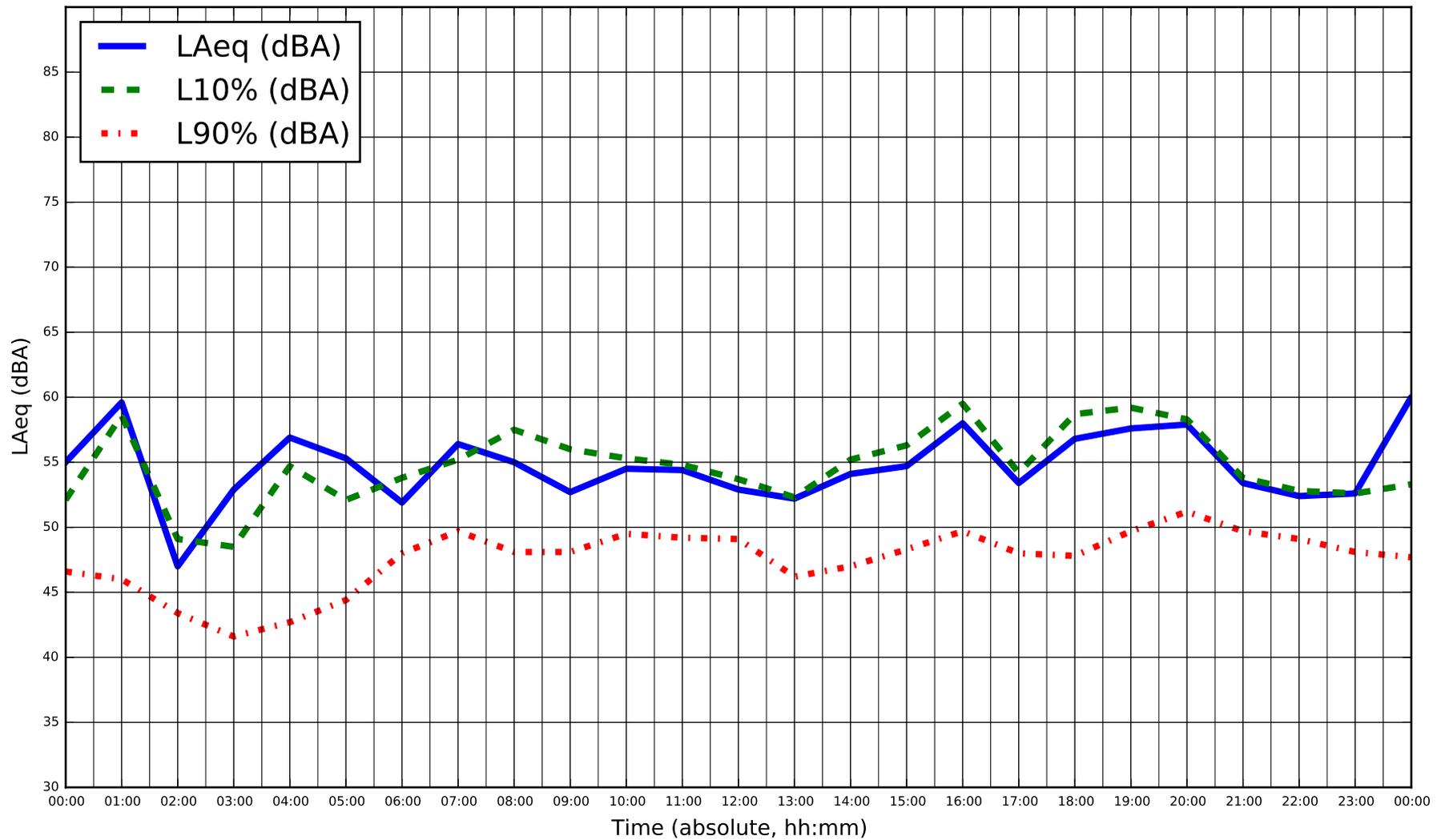
\* Sustained winds over 20 km/hr during monitoring, on April 10, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M001	Friday April 10, 2015	F-5
	DYEC - Acoustic Audit	114-318-100	



\* Sustained winds over 20 km/hr during monitoring on April 11, 2015 (00:00 to 07:00 hrs only)

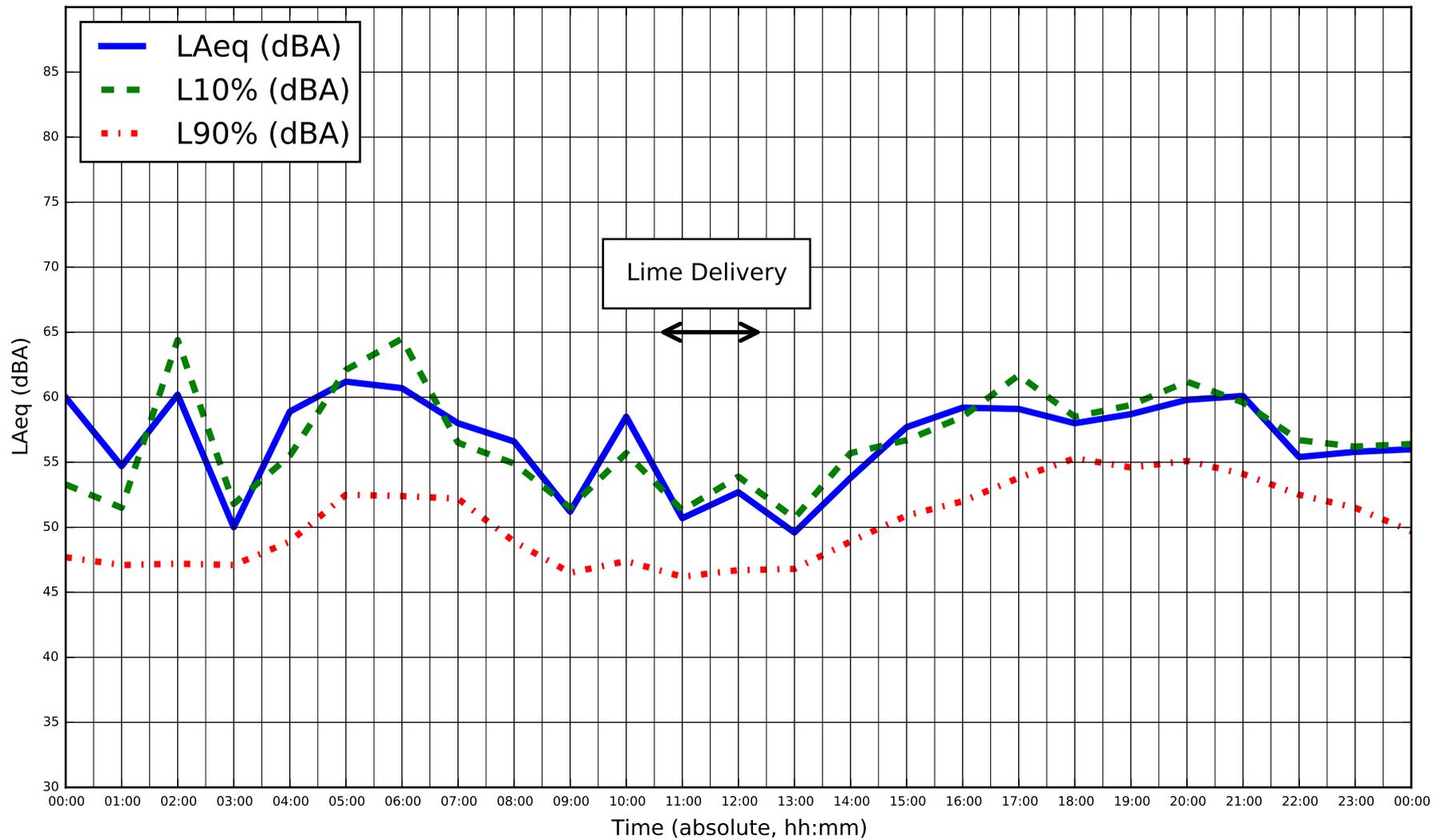
	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M001	Saturday April 11, 2015	F-6
	DYEC - Acoustic Audit	114-318-100	



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday April 12, 2015**  
 Project Num.  
**114-318-100**

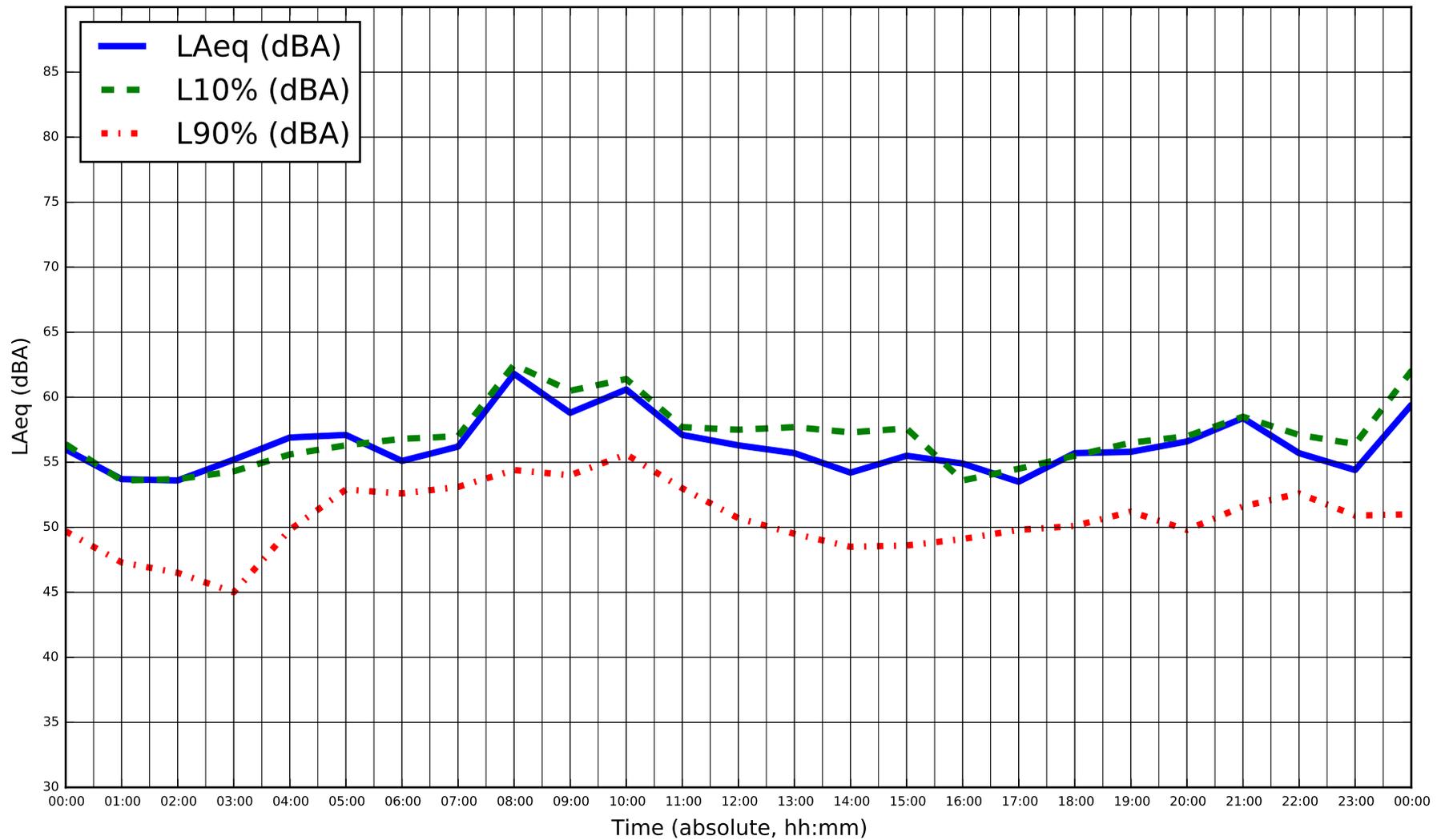
Figure  
**F-7**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday April 13, 2015**  
 Project Num.  
**114-318-100**

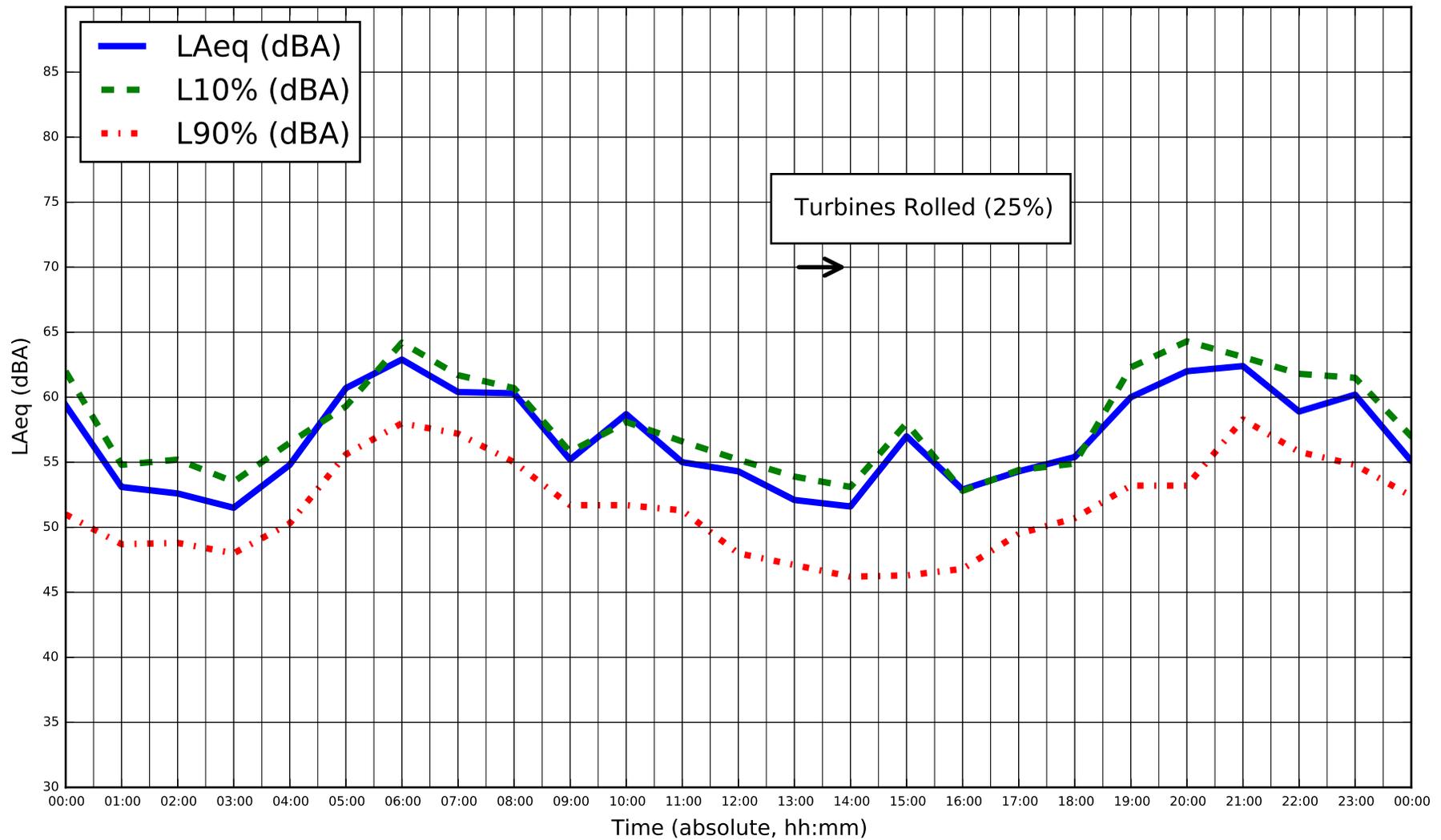
Figure  
**F-8**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday April 14, 2015**  
 Project Num.  
**114-318-100**

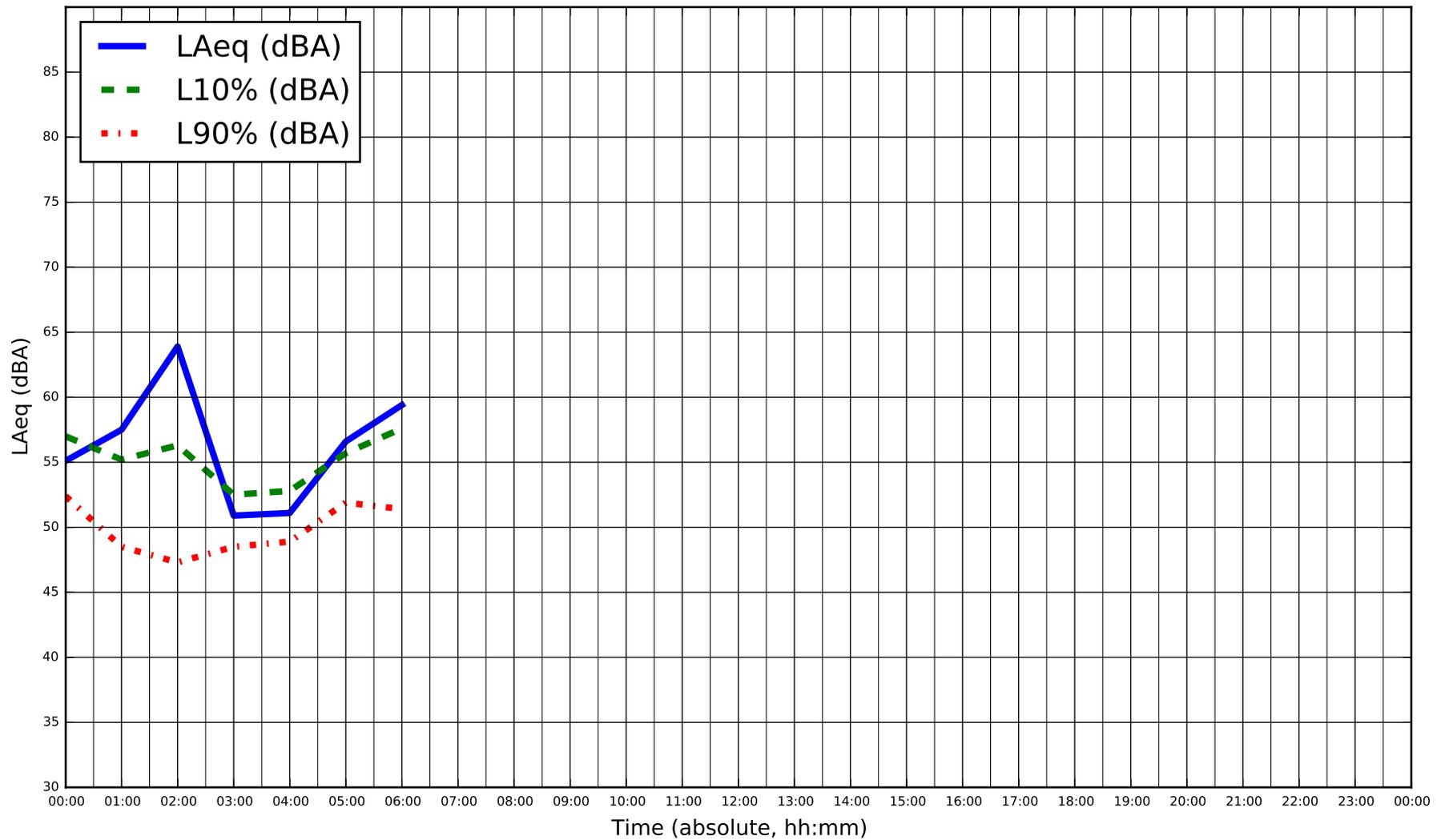
Figure  
**F-9**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday April 15, 2015**  
 Project Num.  
**114-318-100**

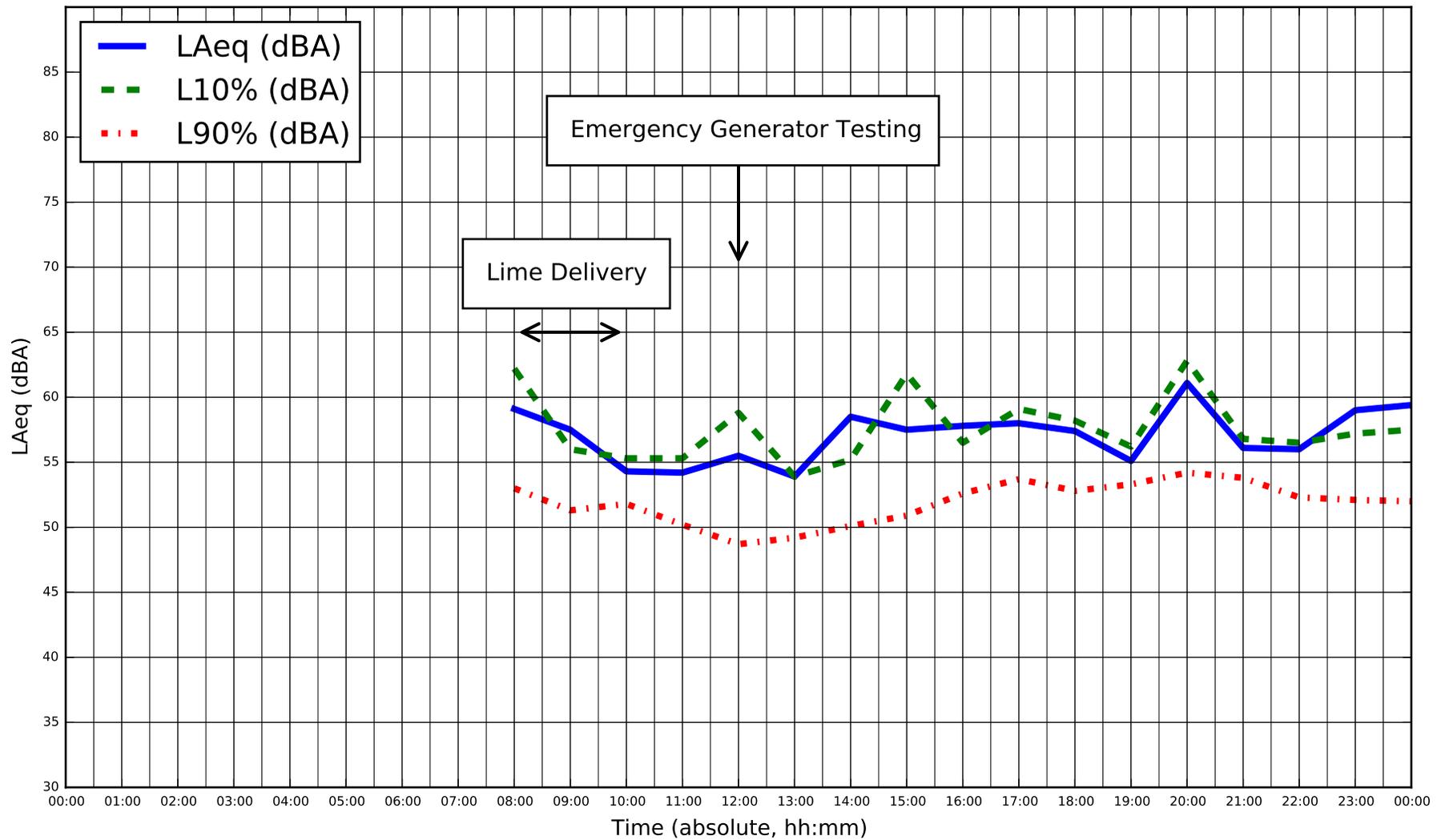
Figure  
**F-10**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday April 16, 2015**  
 Project Num.  
**114-318-100**

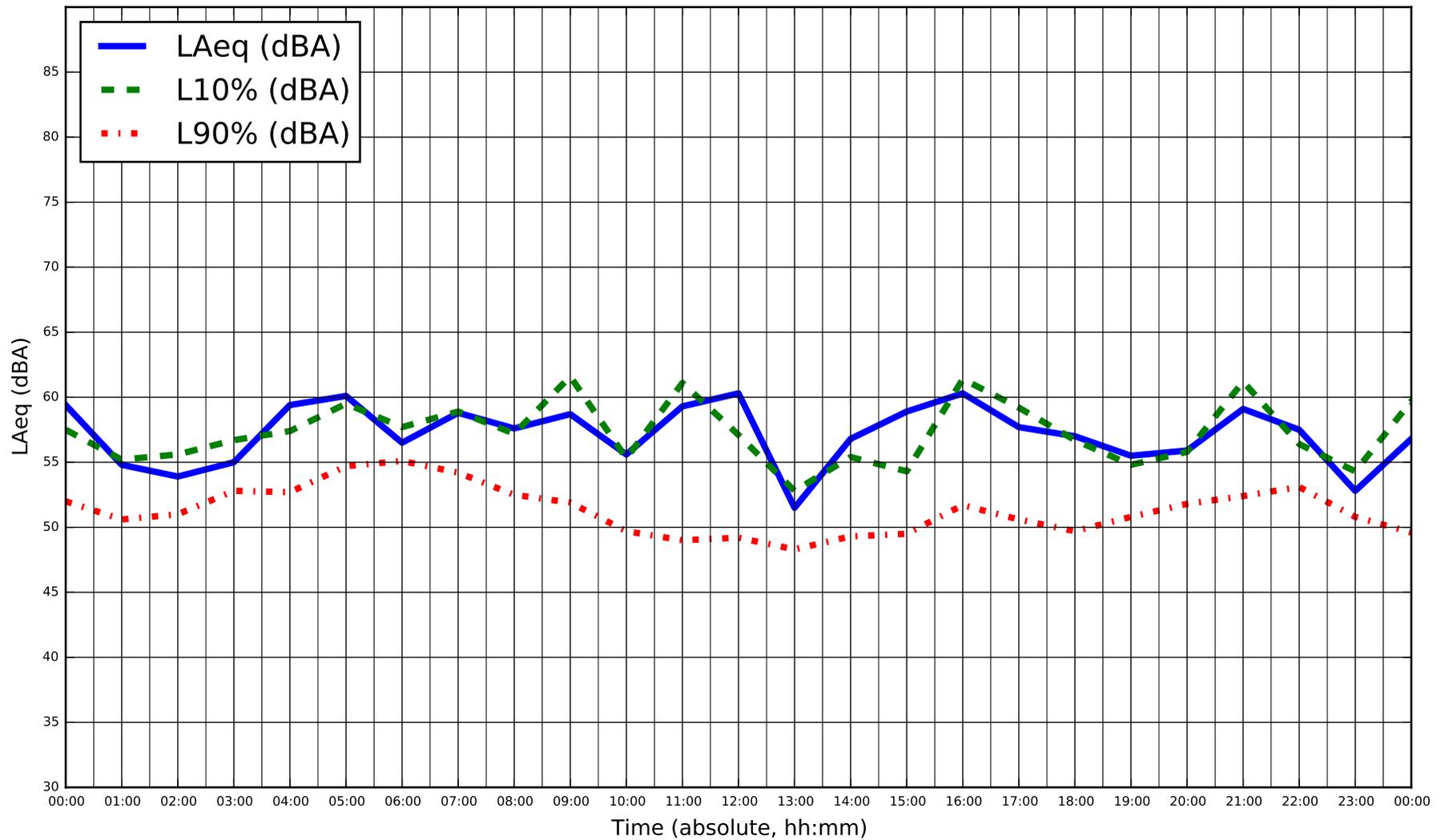
Figure  
**F-11**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday April 6, 2015**  
 Project Num.  
**114-318-100**

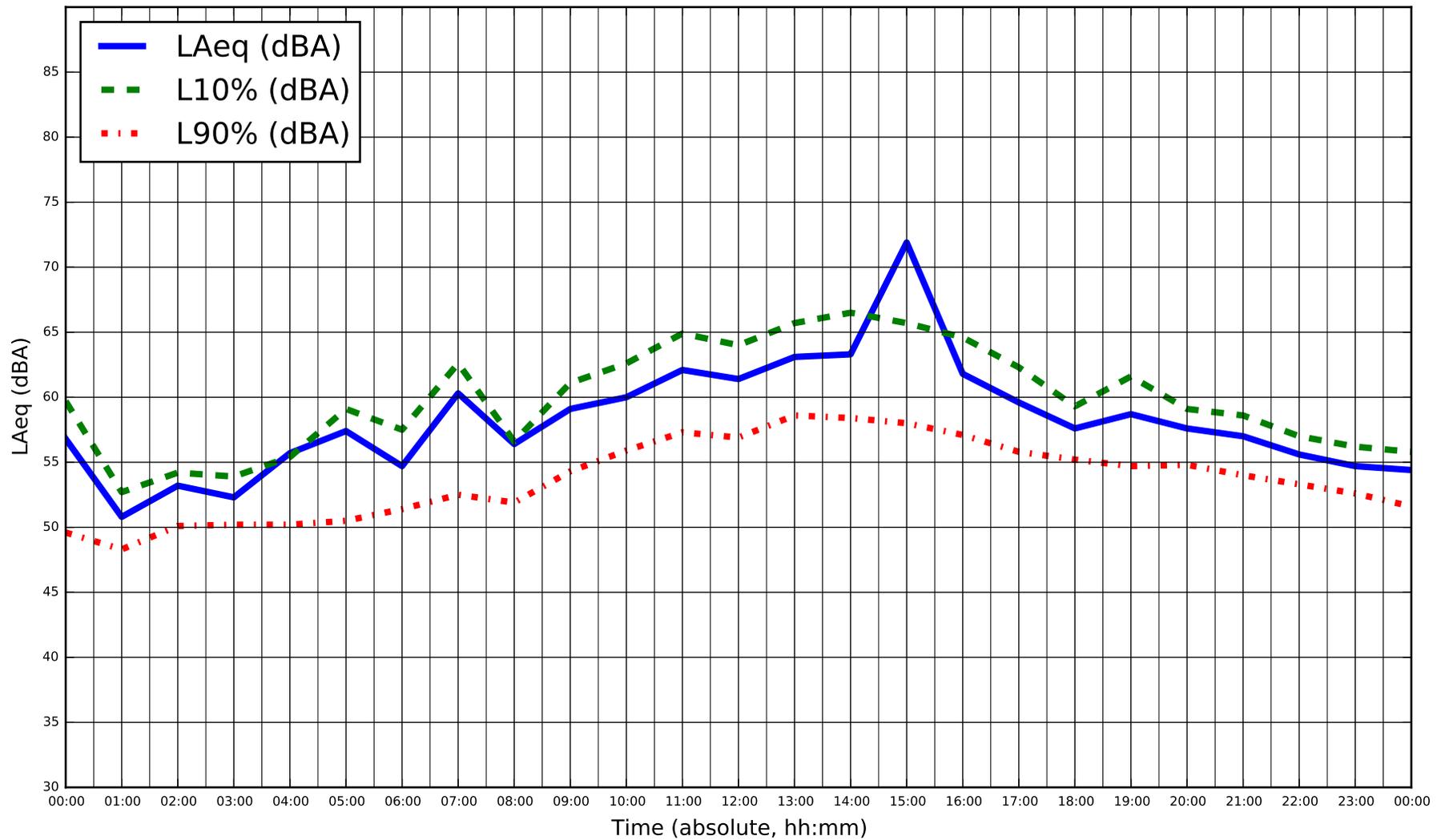
Figure  
**F-12**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

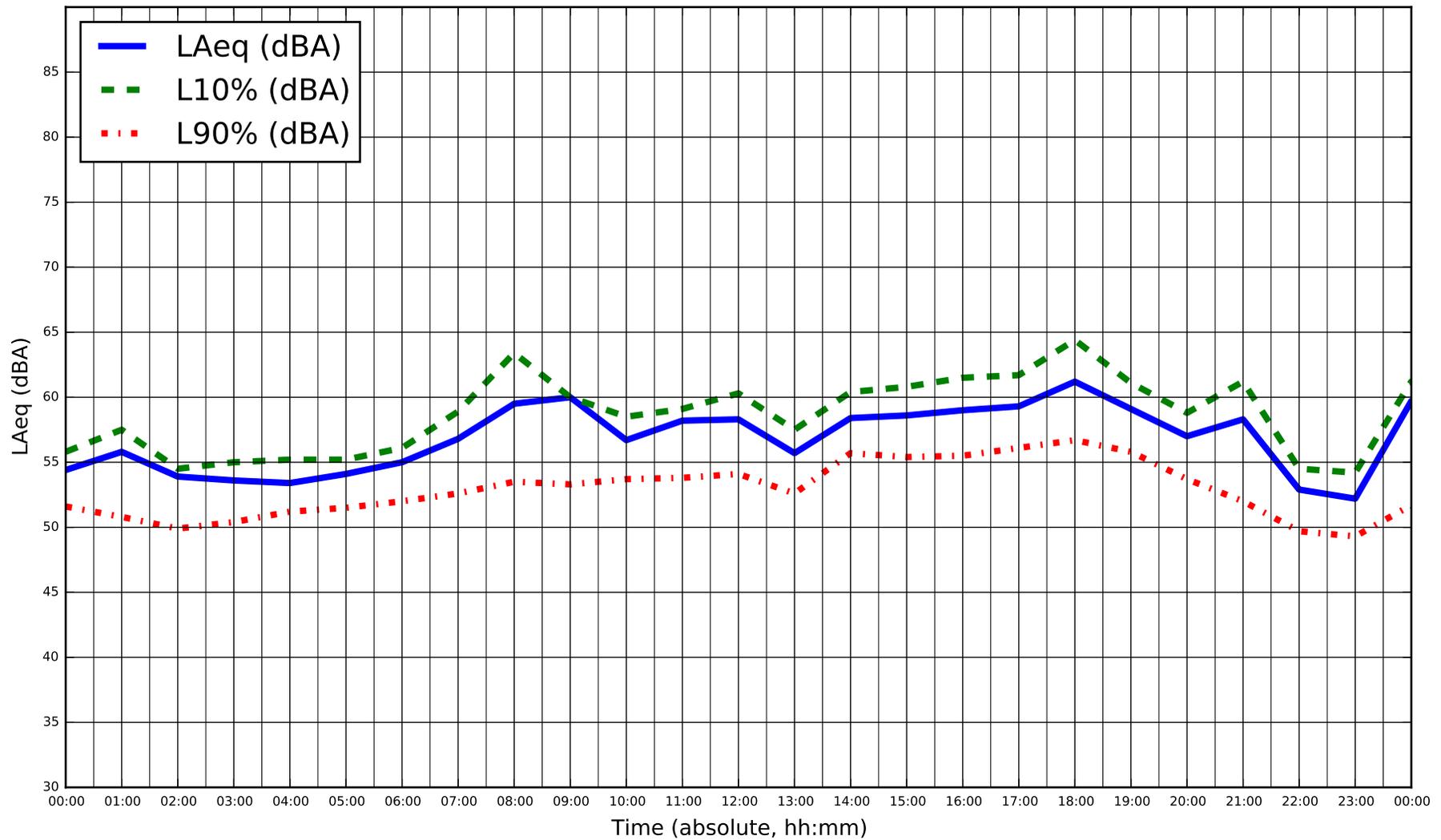
Measurement Date  
**Tuesday April 7, 2015**  
 Project Num.  
**114-318-100**

Figure  
**F-13**



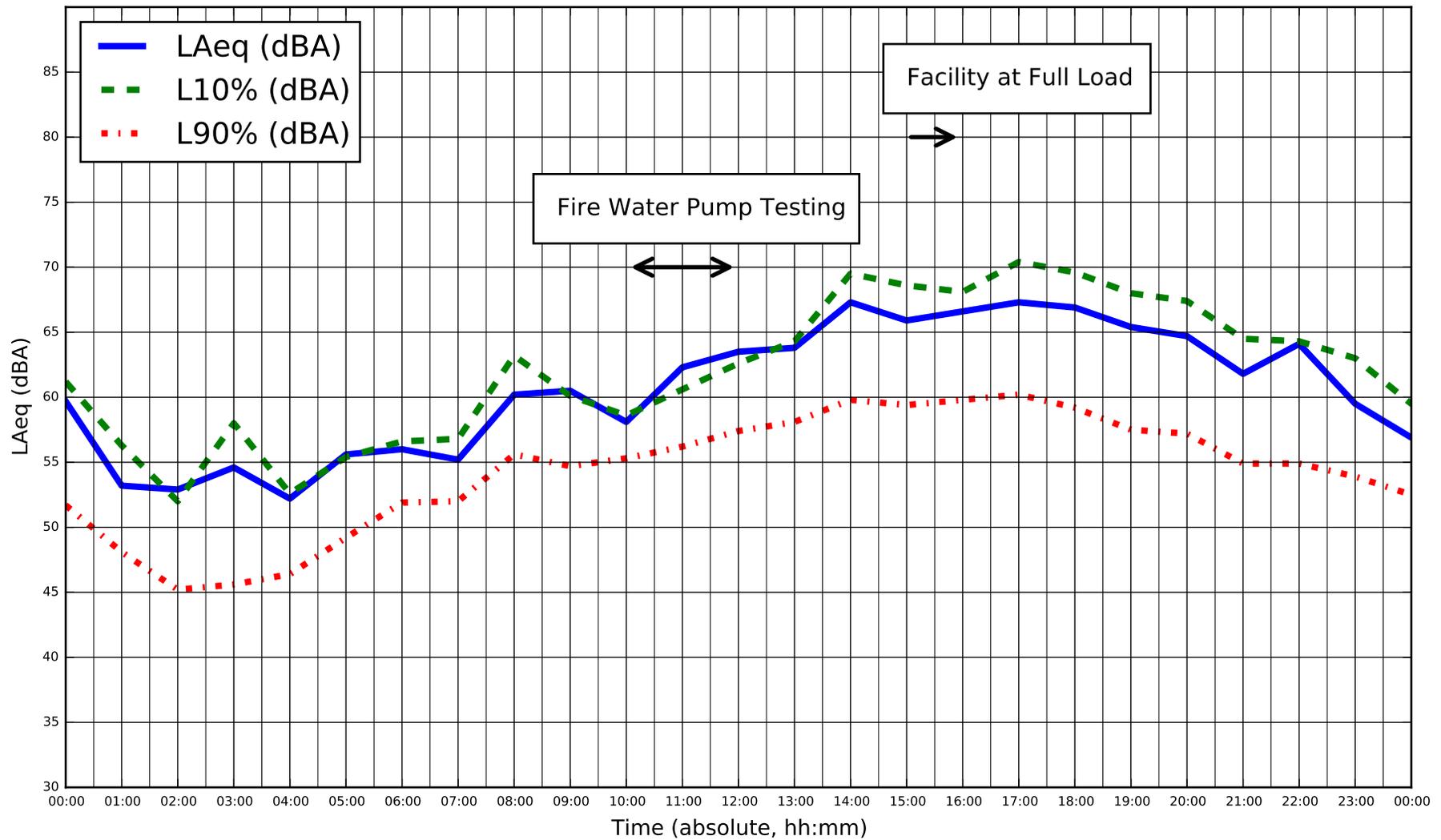
\* Sustained winds over 20 km/hr during monitoring, on April 8, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M002	Wednesday April 8, 2015	F-14
	DYEC - Acoustic Audit	114-318-100	



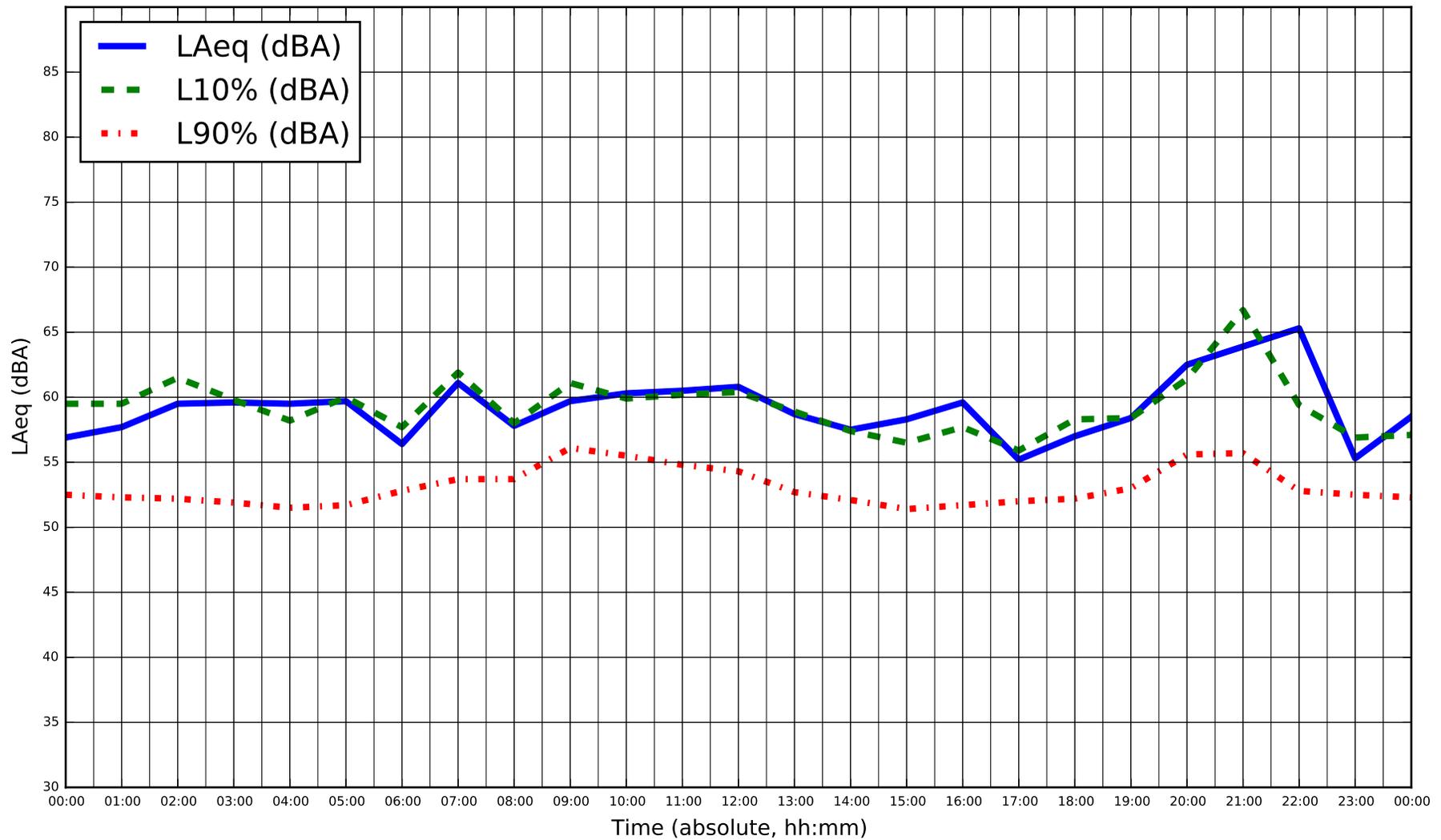
\* Sustained winds over 20 km/hr during monitoring, on April 9, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M002	Thursday April 9, 2015	F-15
	DYEC - Acoustic Audit	114-318-100	



\* Sustained winds over 20 km/hr during monitoring, on April 10, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M002	Friday April 10, 2015	F-16
	DYEC - Acoustic Audit	114-318-100	



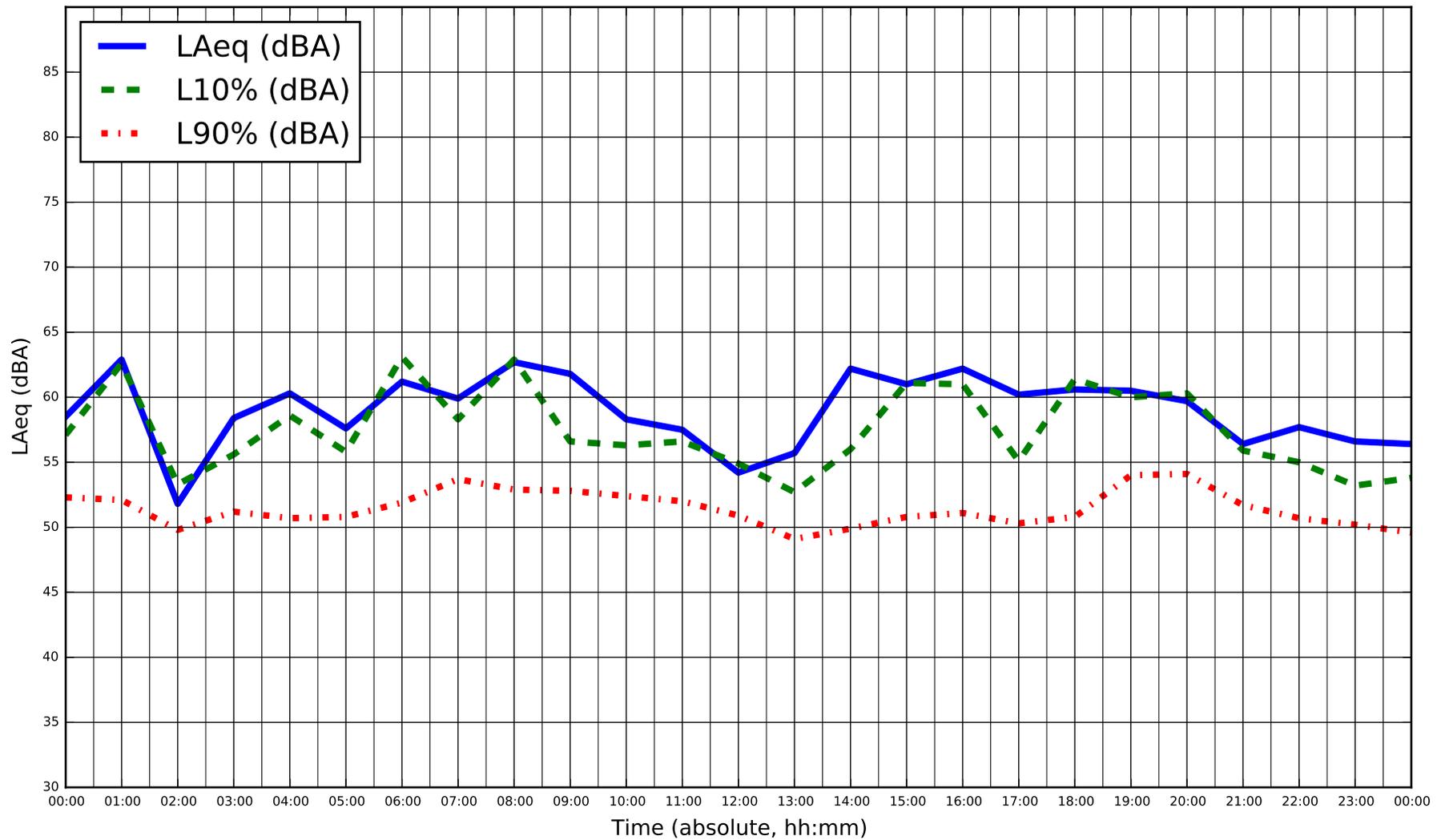
\* Sustained winds over 20 km/hr during monitoring on April 11, 2015 (00:00 to 07:00 hrs only)



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday April 11, 2015**  
 Project Num.  
**114-318-100**

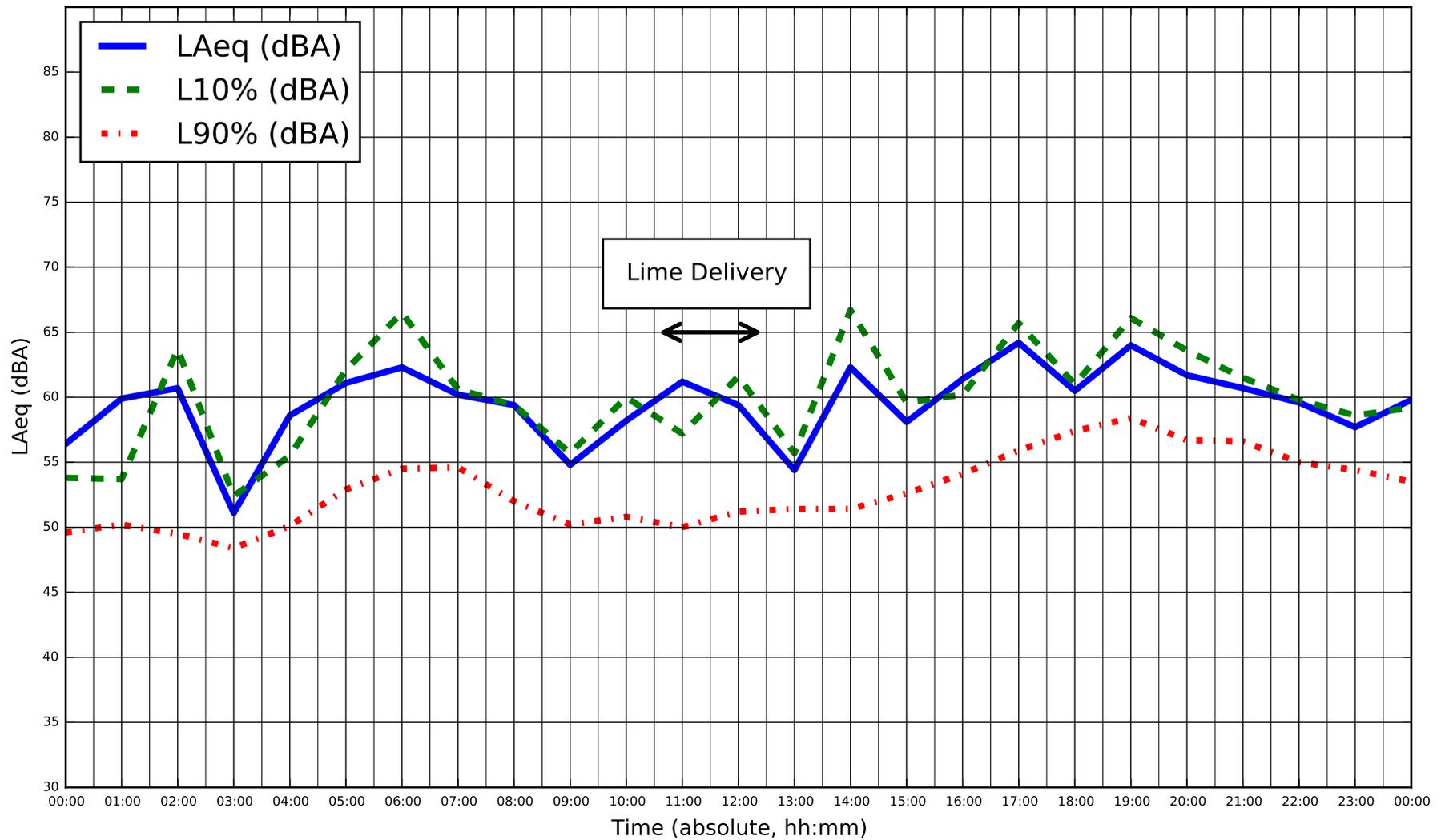
Figure  
**F-17**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday April 12, 2015**  
 Project Num.  
**114-318-100**

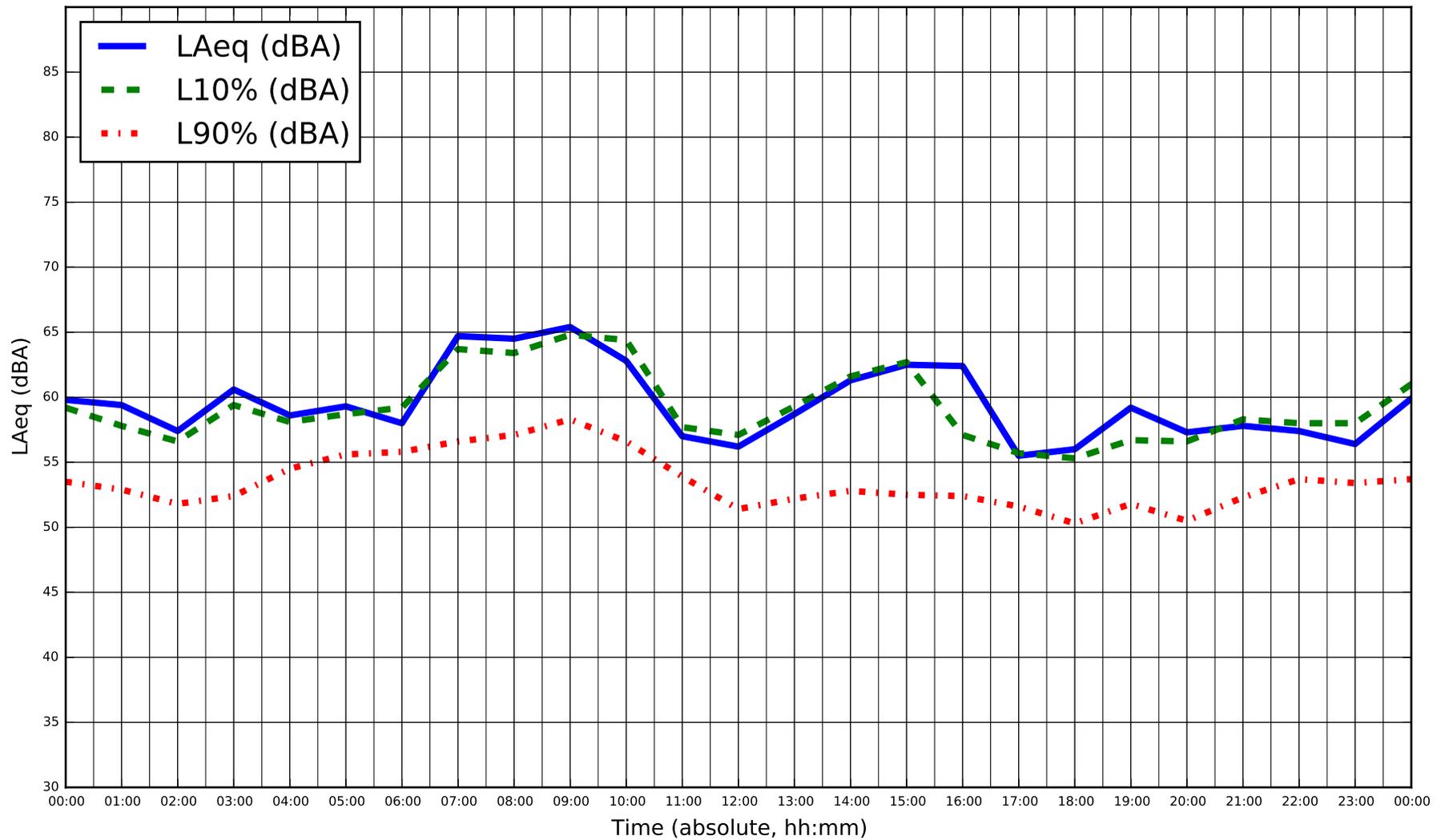
Figure  
**F-18**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday April 13, 2015**  
 Project Num.  
**114-318-100**

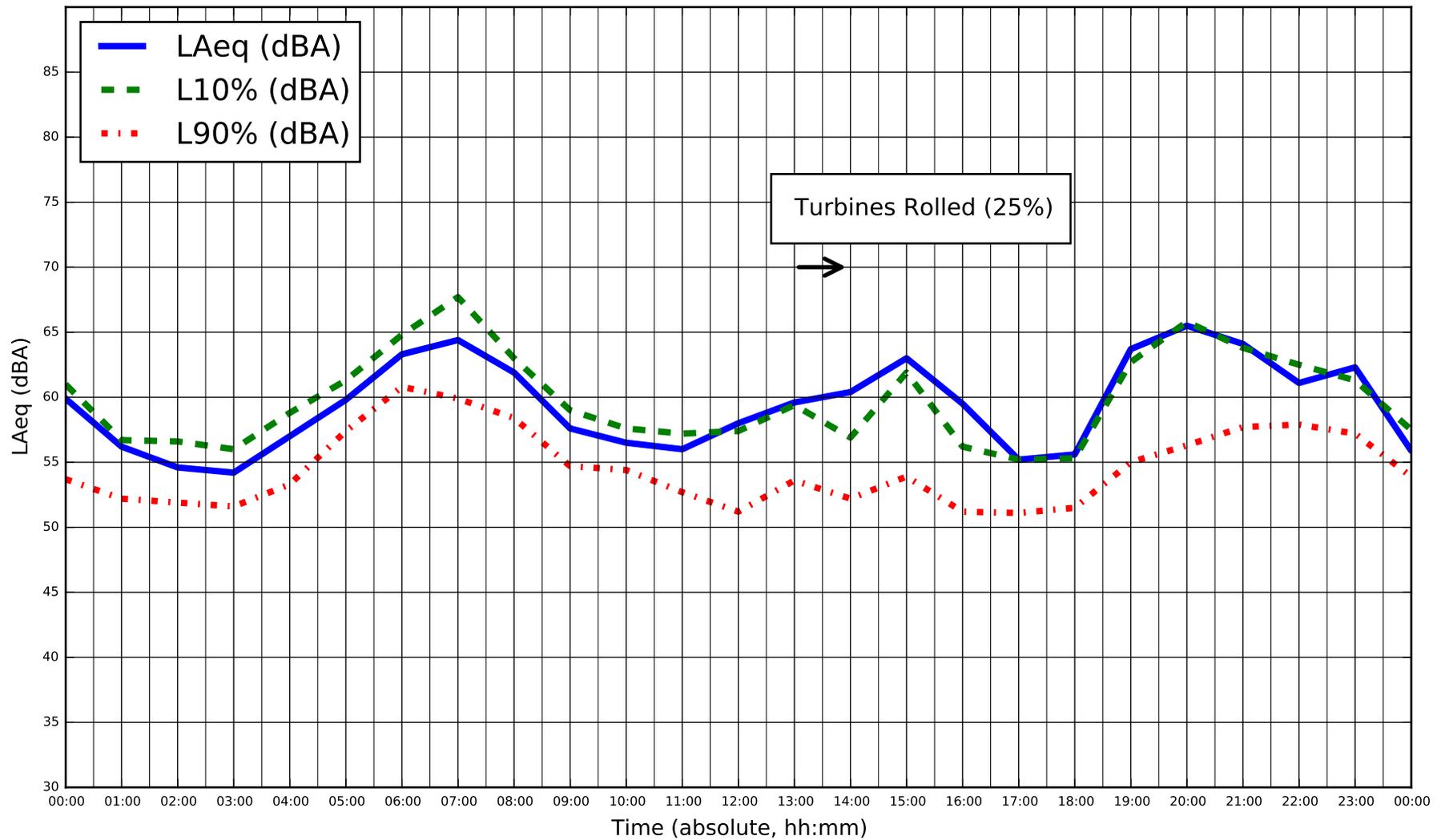
Figure  
**F-19**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday April 14, 2015**  
 Project Num.  
**114-318-100**

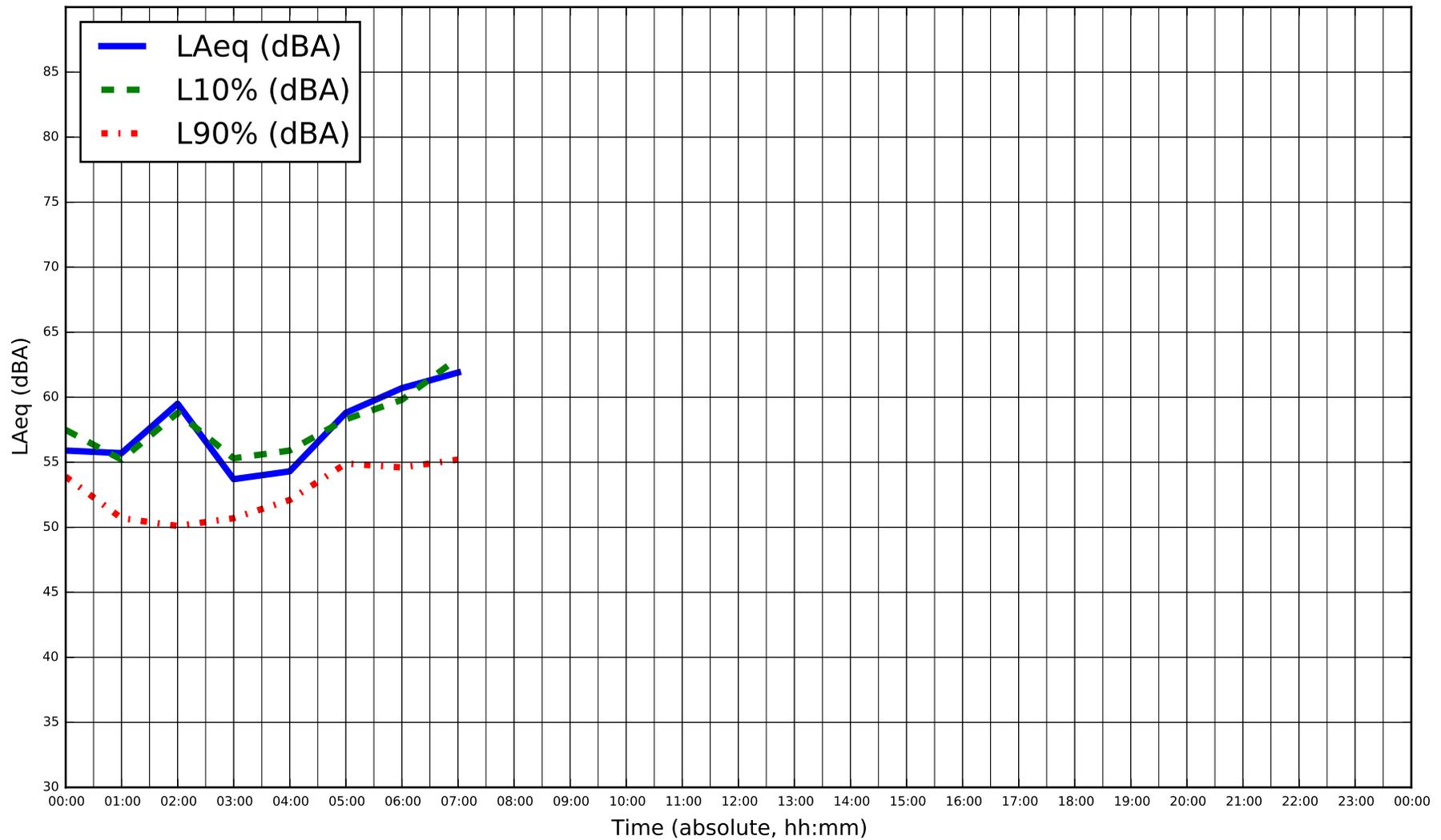
Figure  
**F-20**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday April 15, 2015**  
 Project Num.  
**114-318-100**

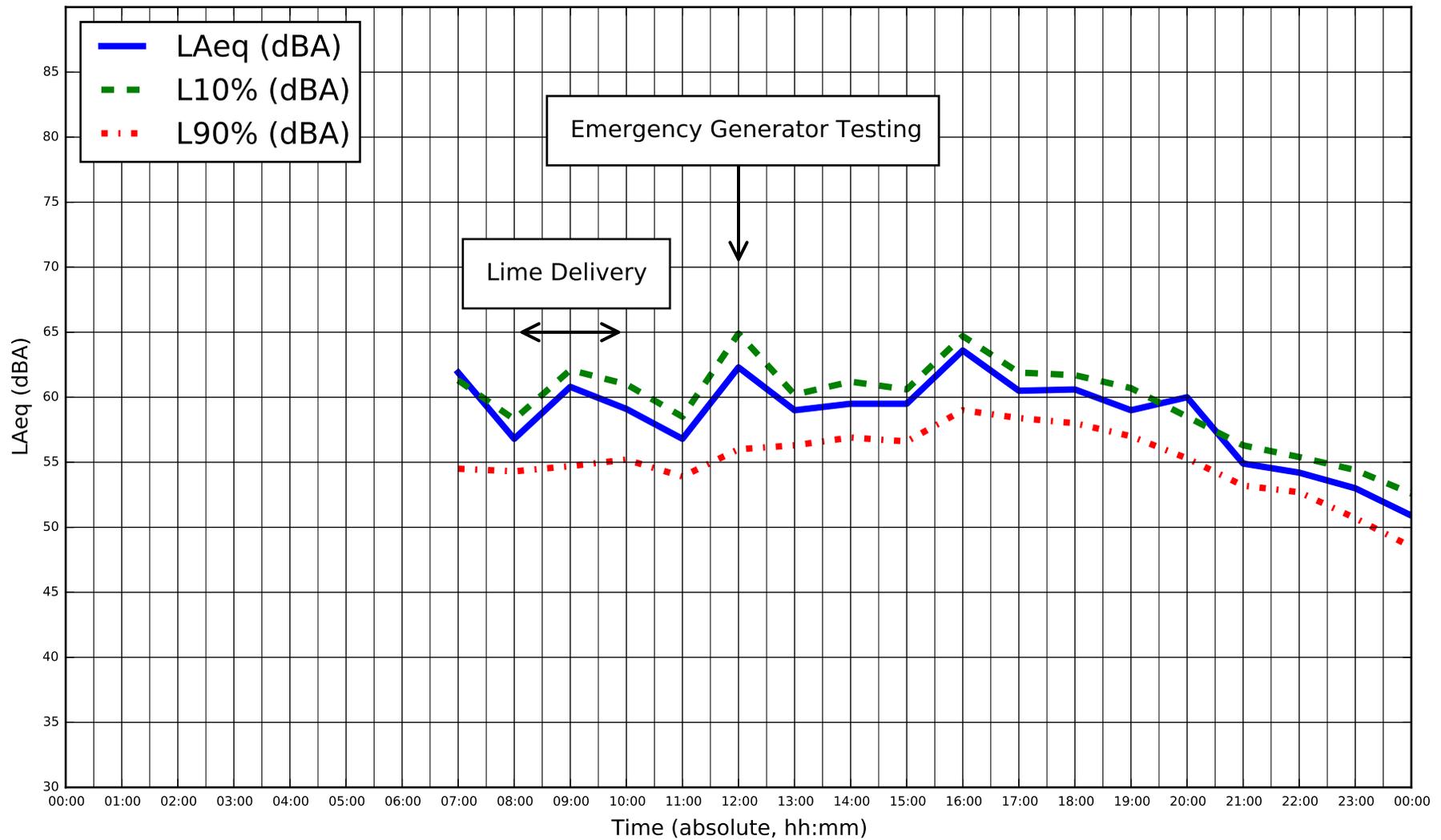
Figure  
**F-21**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday April 16, 2015**  
 Project Num.  
**114-318-100**

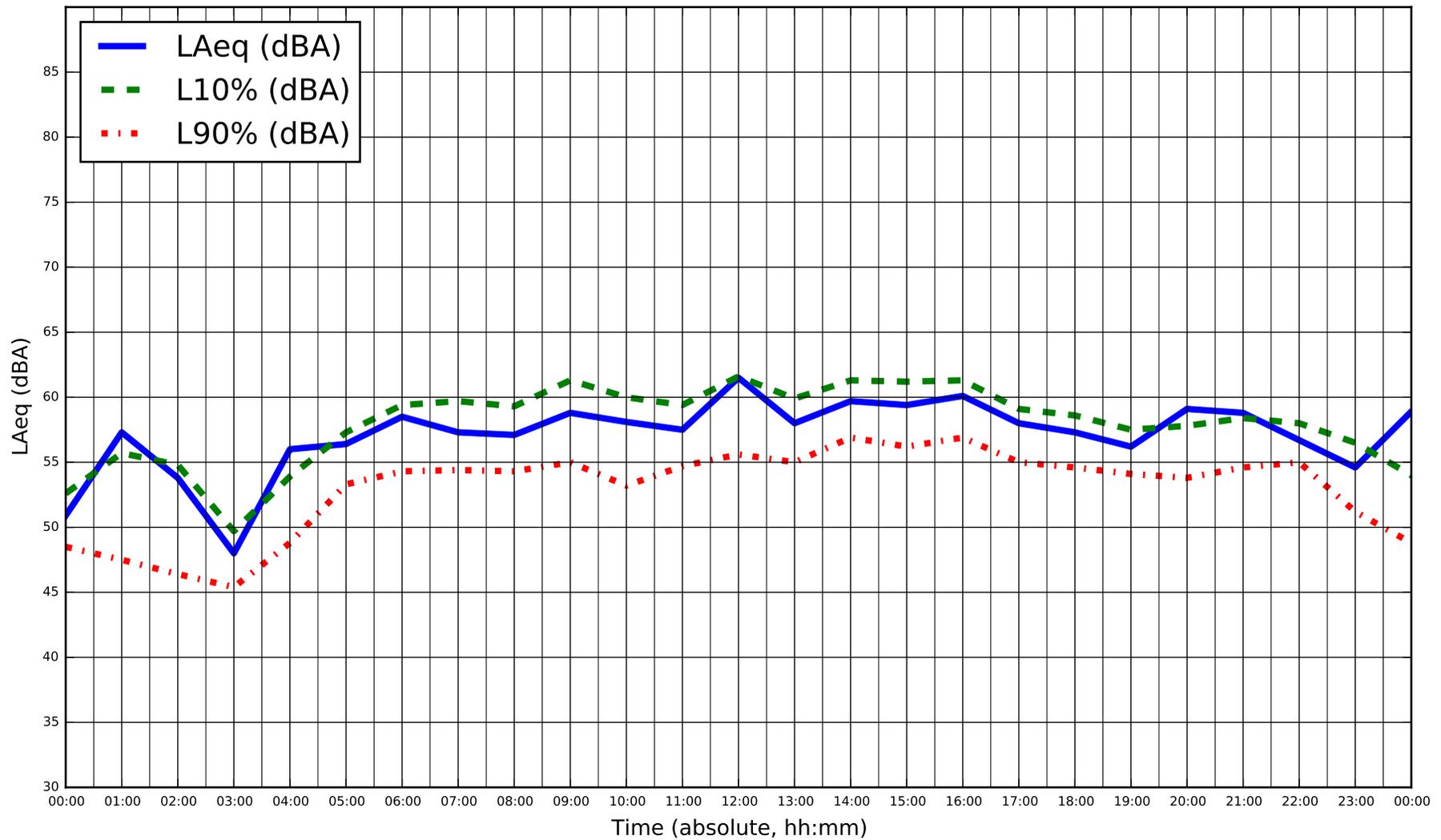
Figure  
**F-22**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday April 6, 2015**  
 Project Num.  
**114-318-100**

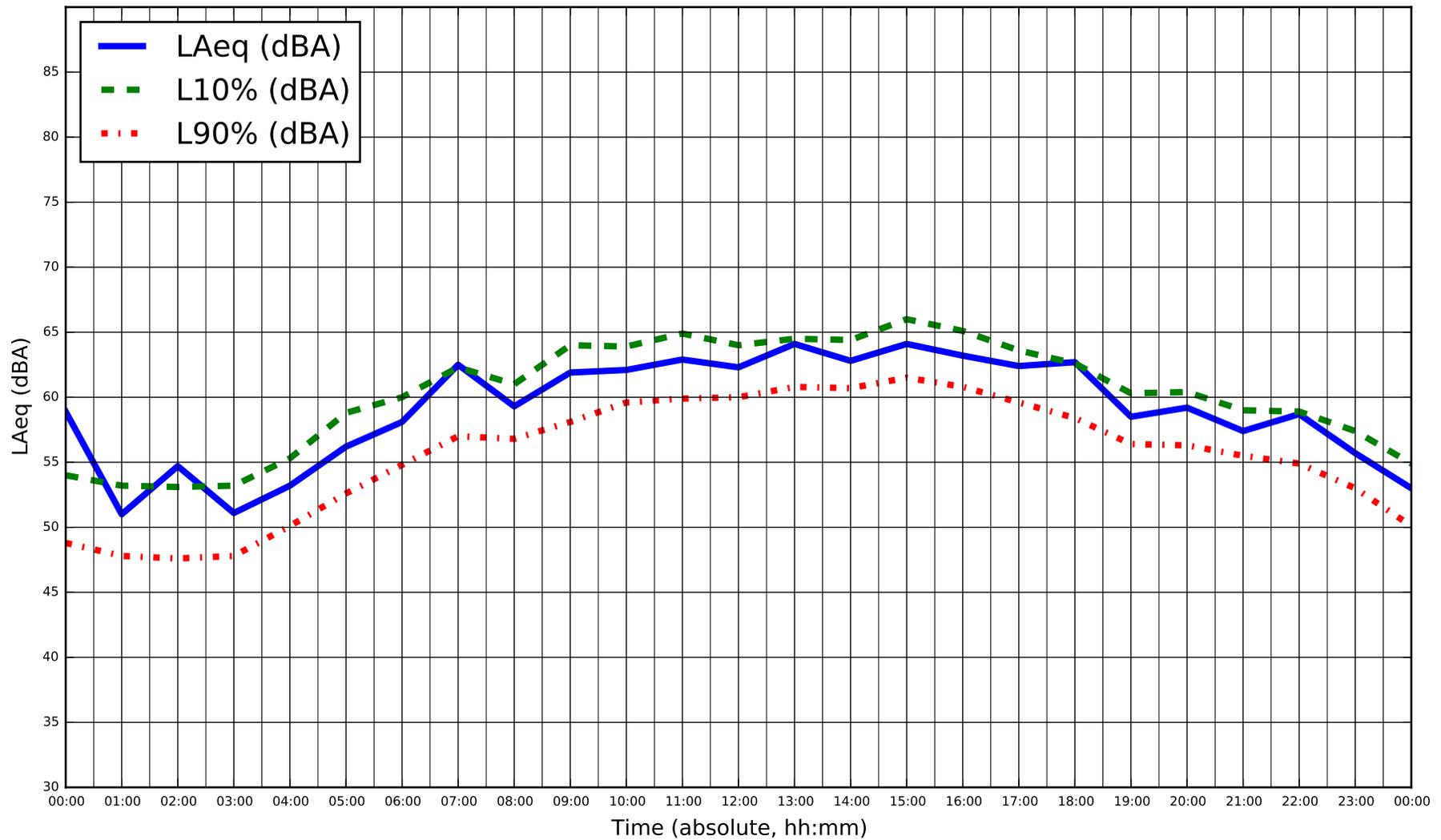
Figure  
**F-23**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

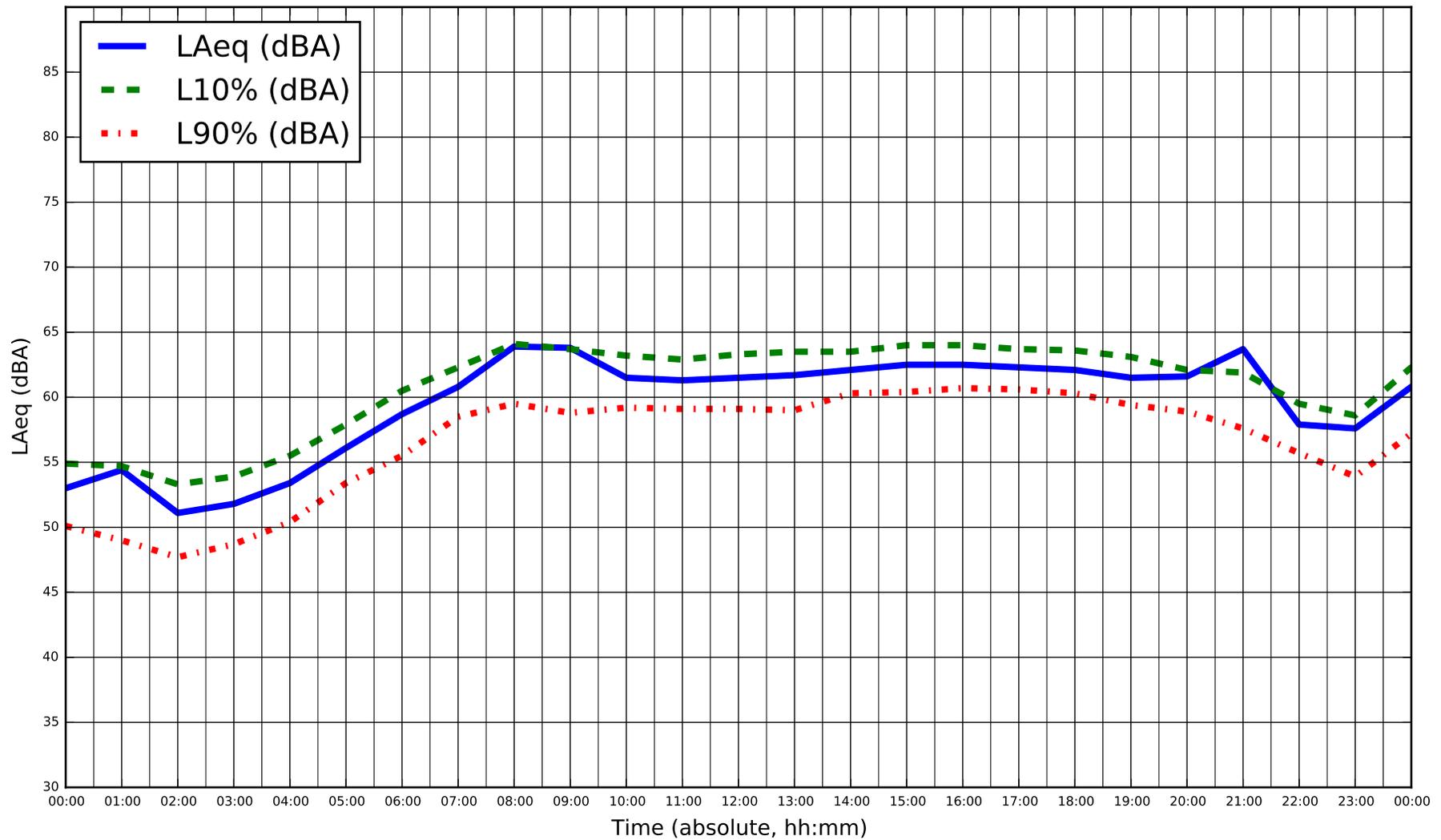
Measurement Date  
**Tuesday April 7, 2015**  
 Project Num.  
**114-318-100**

Figure  
**F-24**



\* Sustained winds over 20 km/hr during monitoring, on April 8, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M003	Wednesday April 8, 2015	F-25
	DYEC - Acoustic Audit	114-318-100	



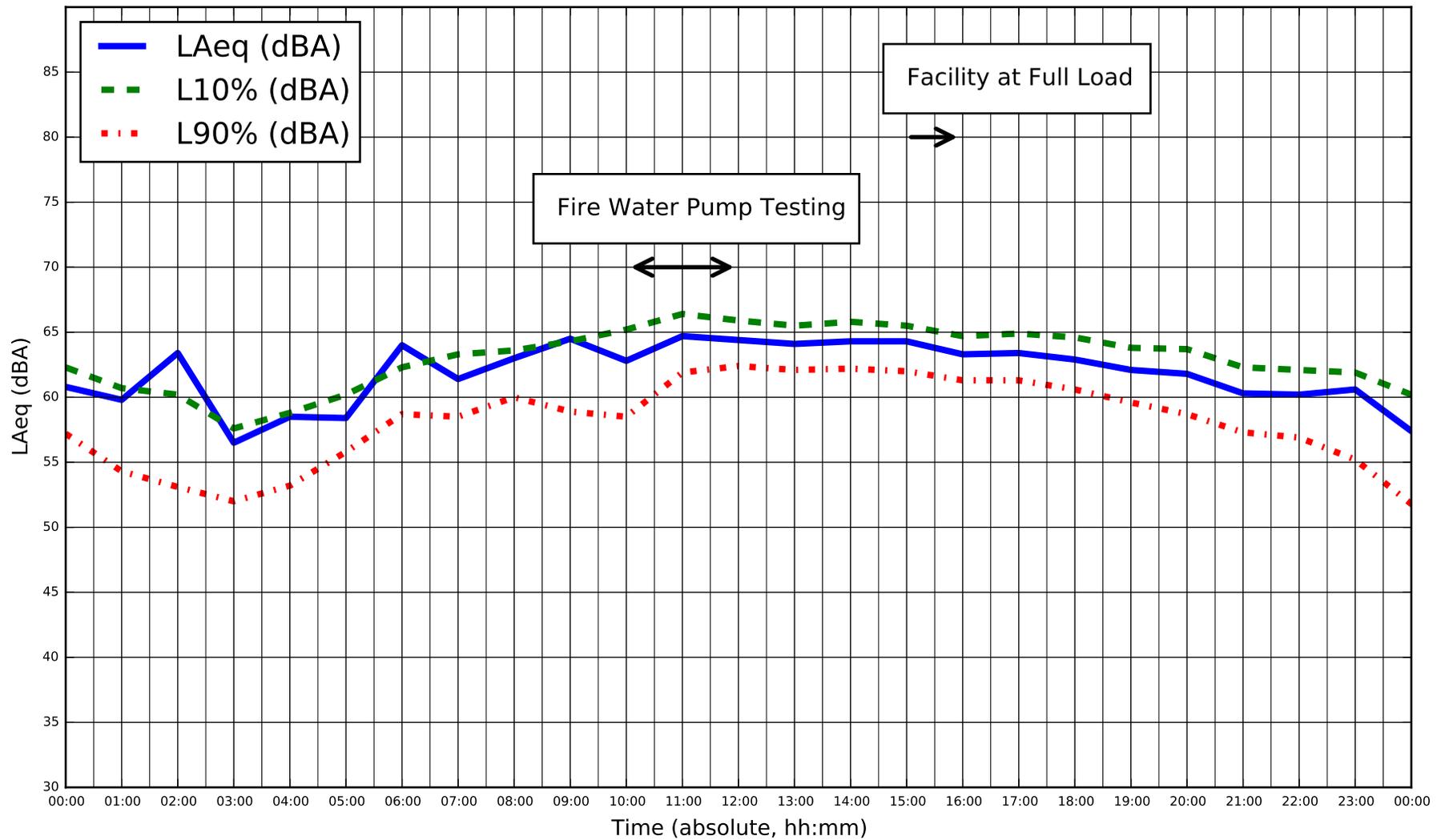
\* Sustained winds over 20 km/hr during monitoring, on April 9, 2015



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

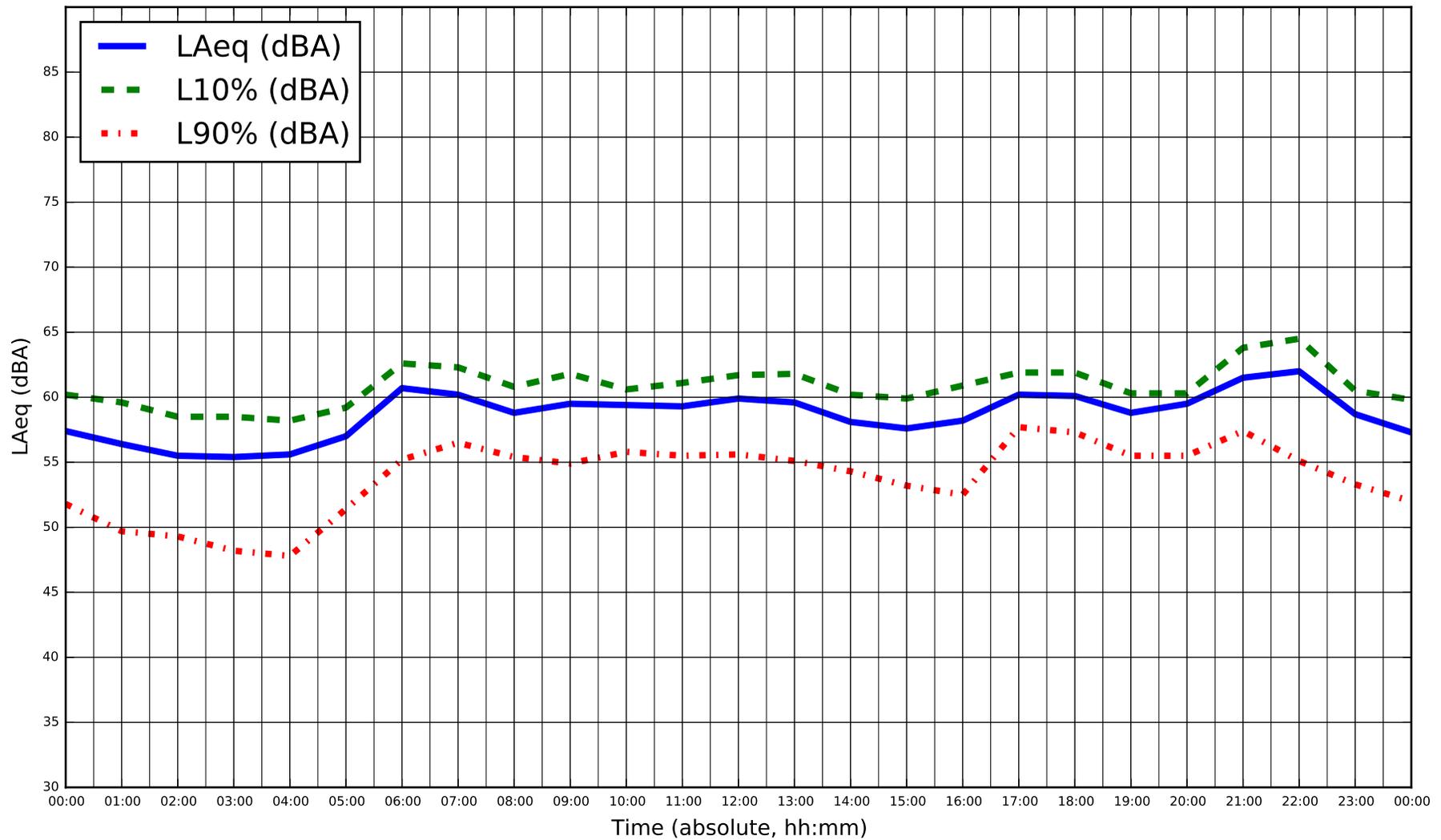
Measurement Date  
**Thursday April 9, 2015**  
 Project Num.  
**114-318-100**

Figure  
**F-26**



\* Sustained winds over 20 km/hr during monitoring, on April 10, 2015

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M003	Friday April 10, 2015	F-27
	DYEC - Acoustic Audit	114-318-100	



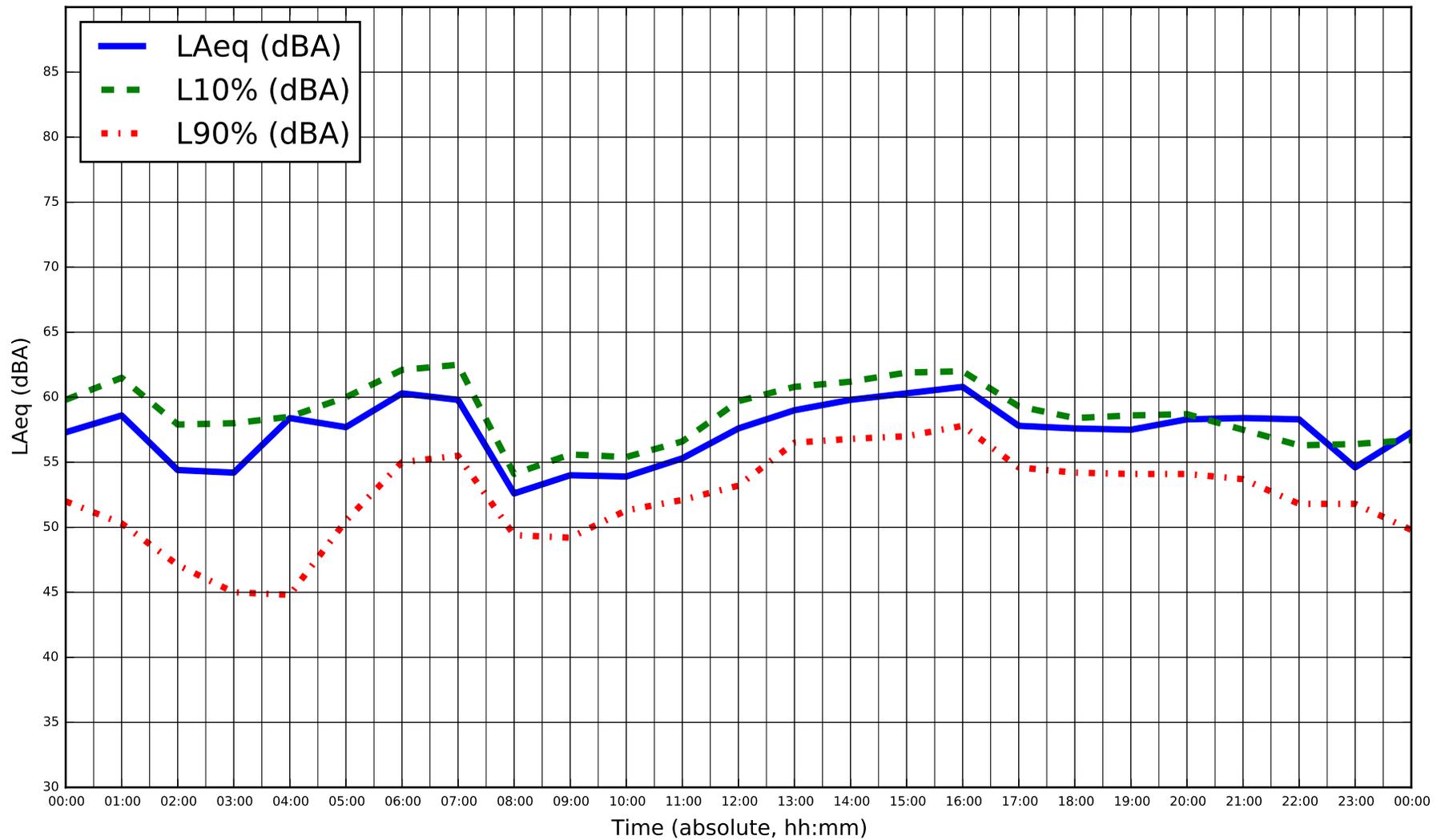
\* Sustained winds over 20 km/hr during monitoring on April 11, 2015 (00:00 to 07:00 hrs only)



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Saturday April 11, 2015**  
 Project Num.  
**114-318-100**

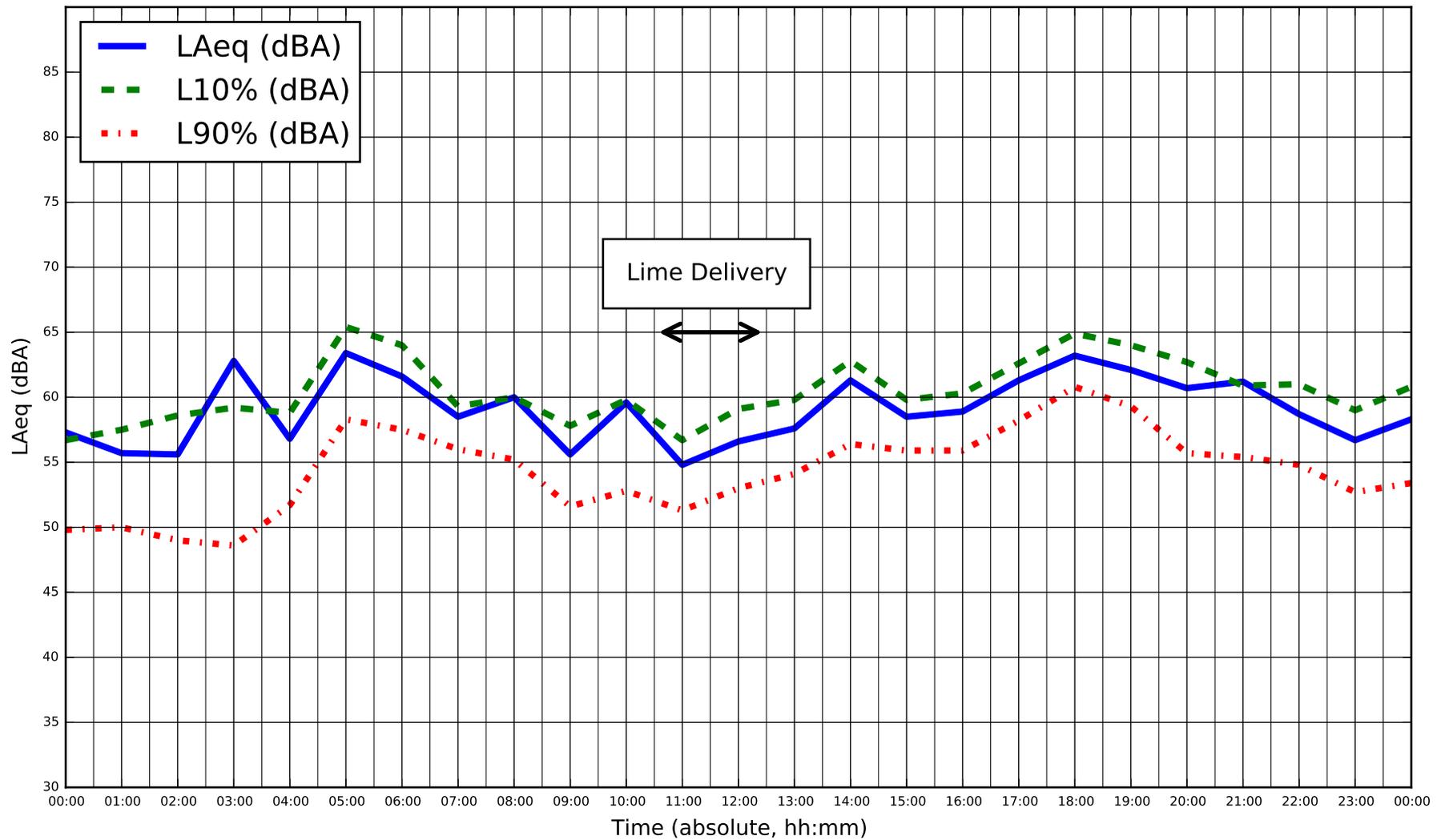
Figure  
**F-28**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday April 12, 2015**  
 Project Num.  
**114-318-100**

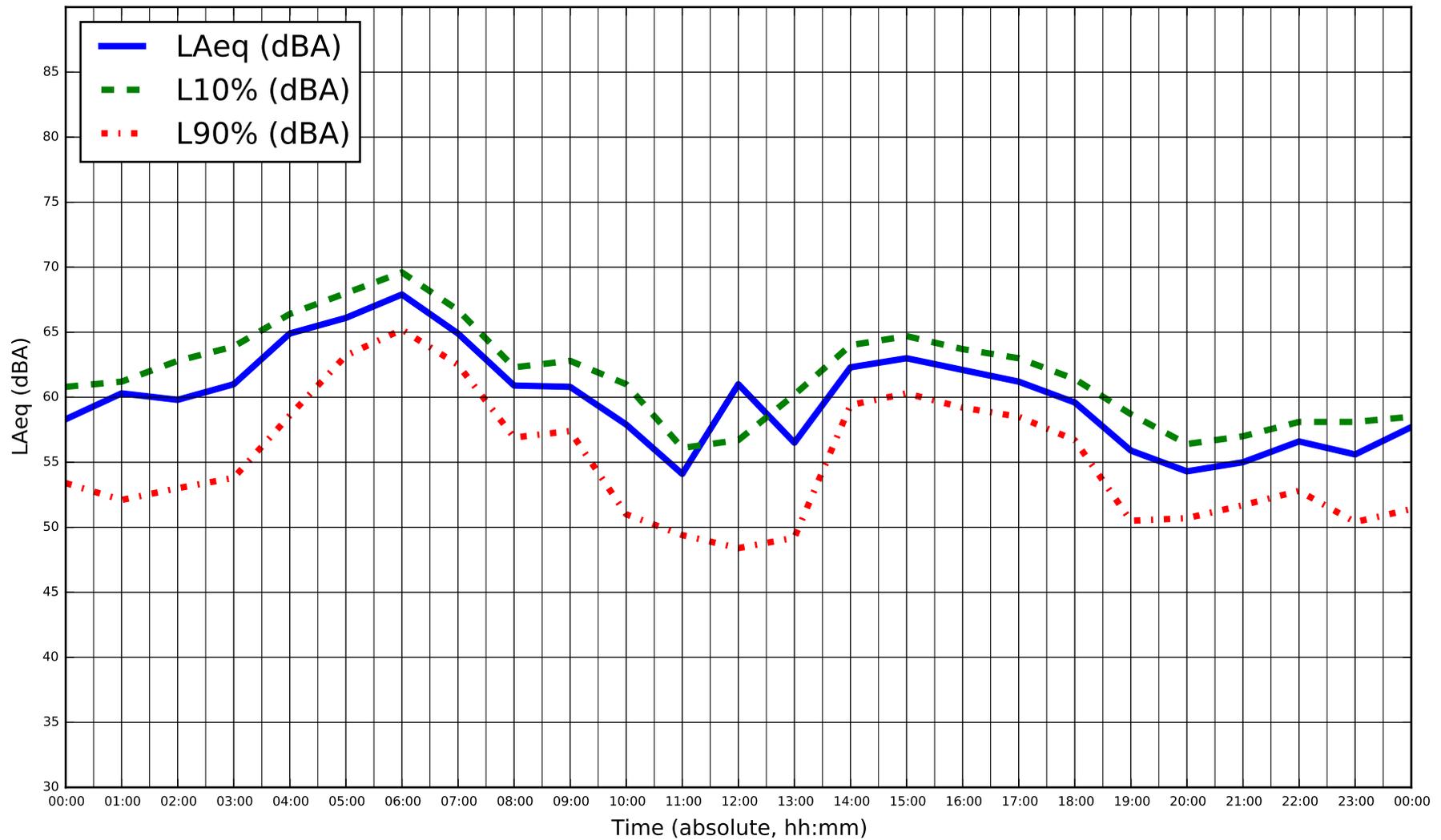
Figure  
**F-29**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday April 13, 2015**  
 Project Num.  
**114-318-100**

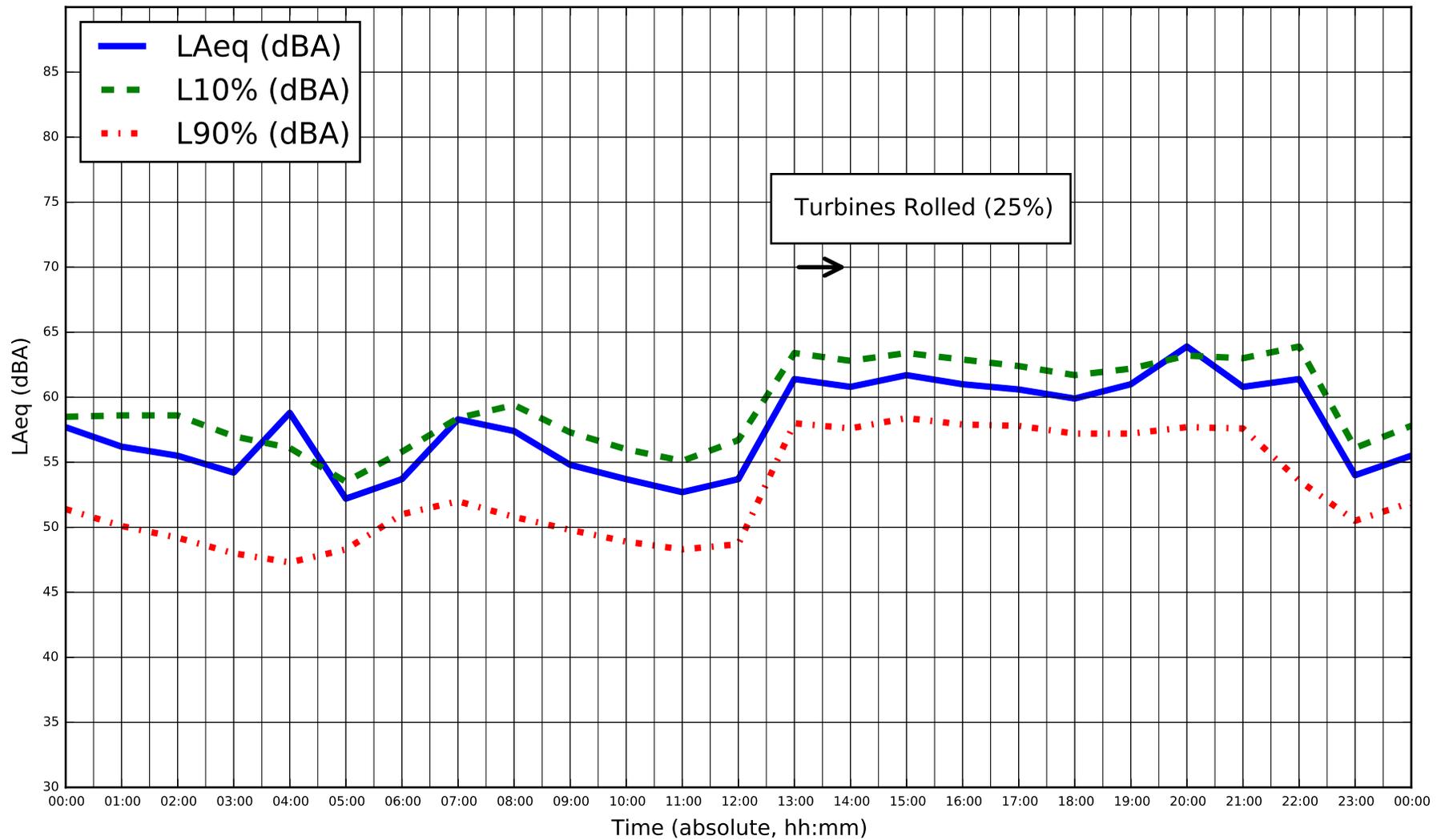
Figure  
**F-30**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday April 14, 2015**  
 Project Num.  
**114-318-100**

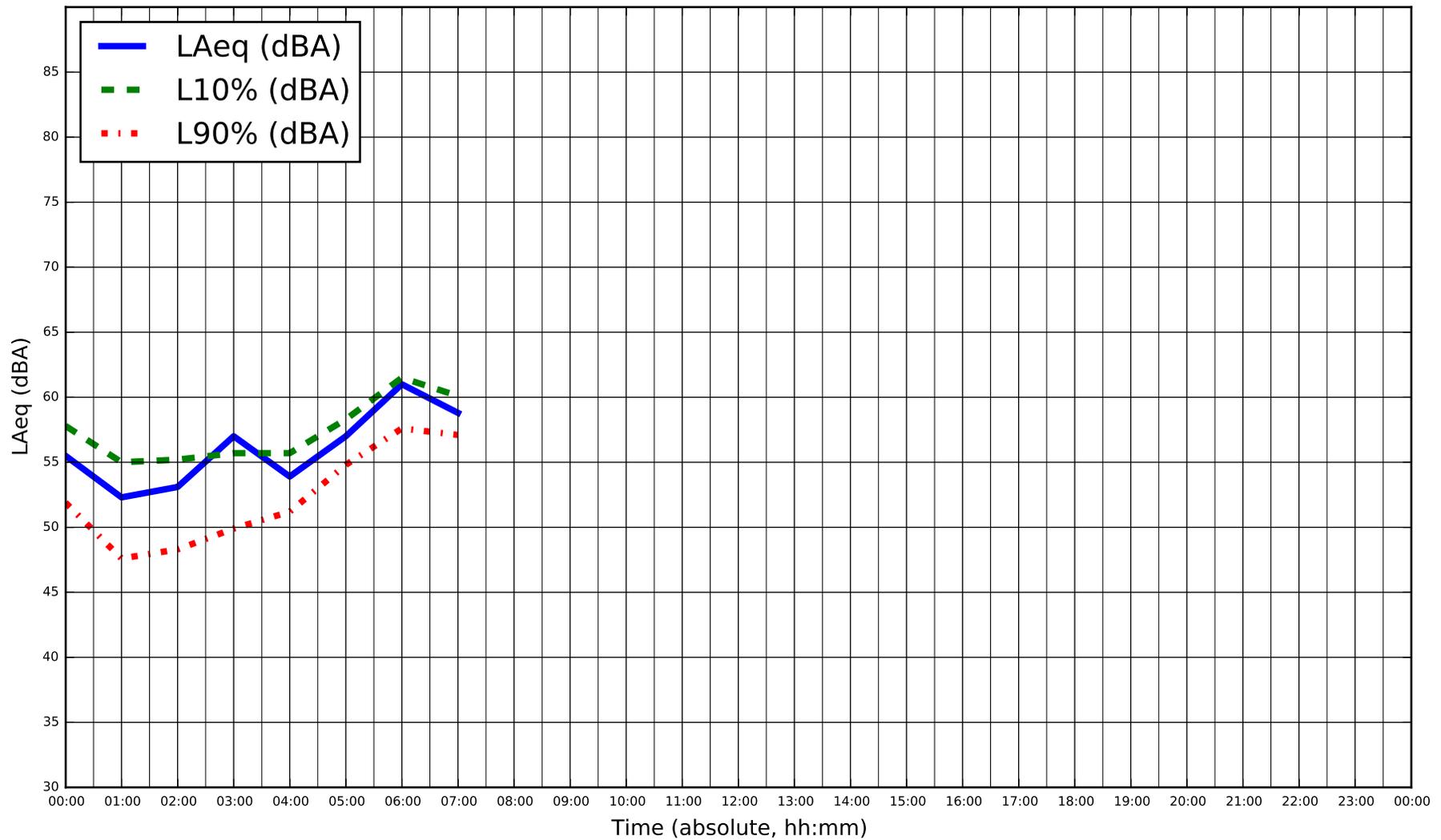
Figure  
**F-31**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday April 15, 2015**  
 Project Num.  
**114-318-100**

Figure  
**F-32**



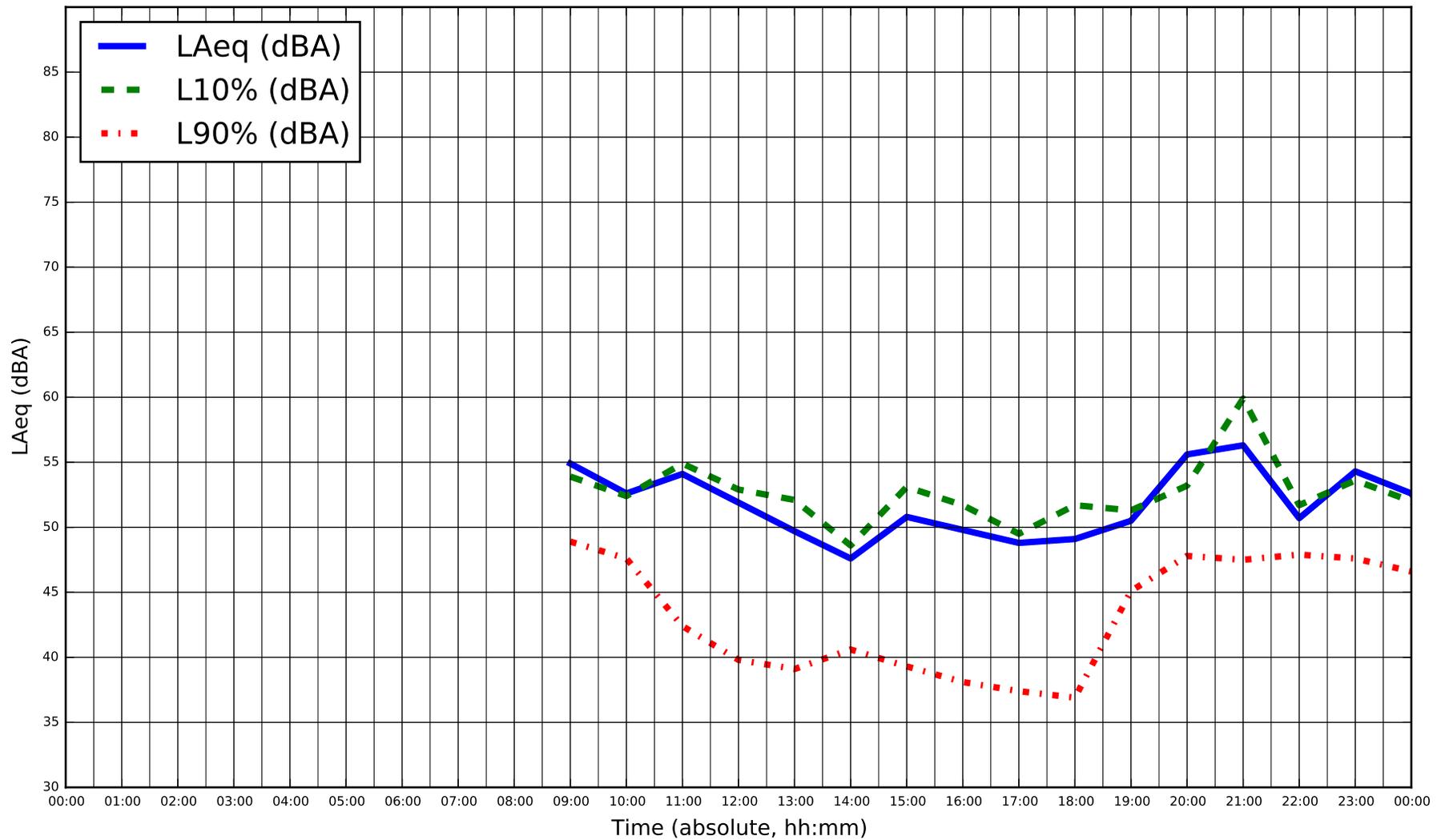
Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday April 16, 2015**  
 Project Num.  
**114-318-100**

Figure  
**F-33**

# **APPENDIX G**

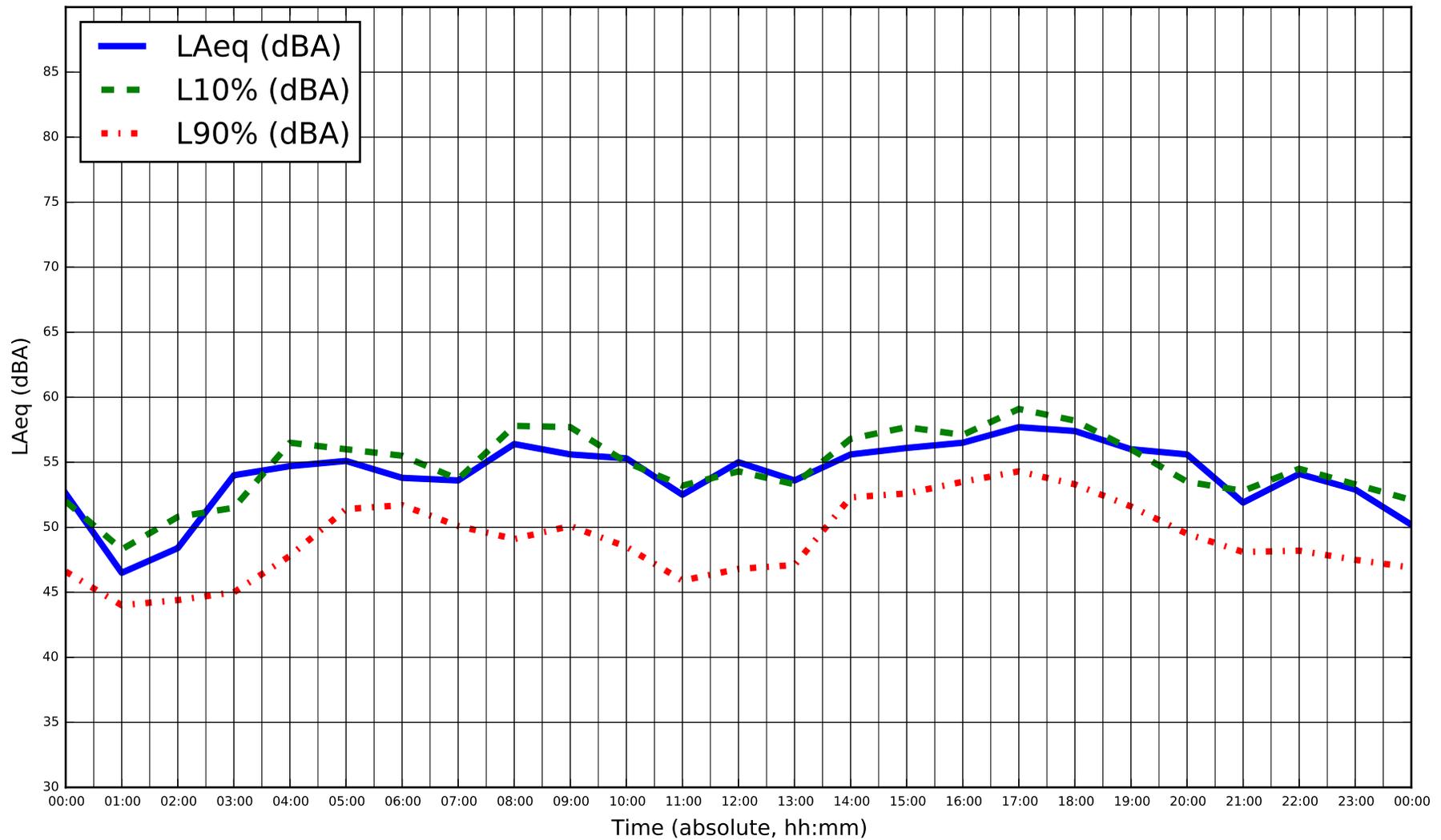
## **OCTOBER 2015 POST-OPERATIONAL SOUND MEASUREMENT RESULTS**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday October 5, 2015**  
 Project Num.  
**114-318-100**

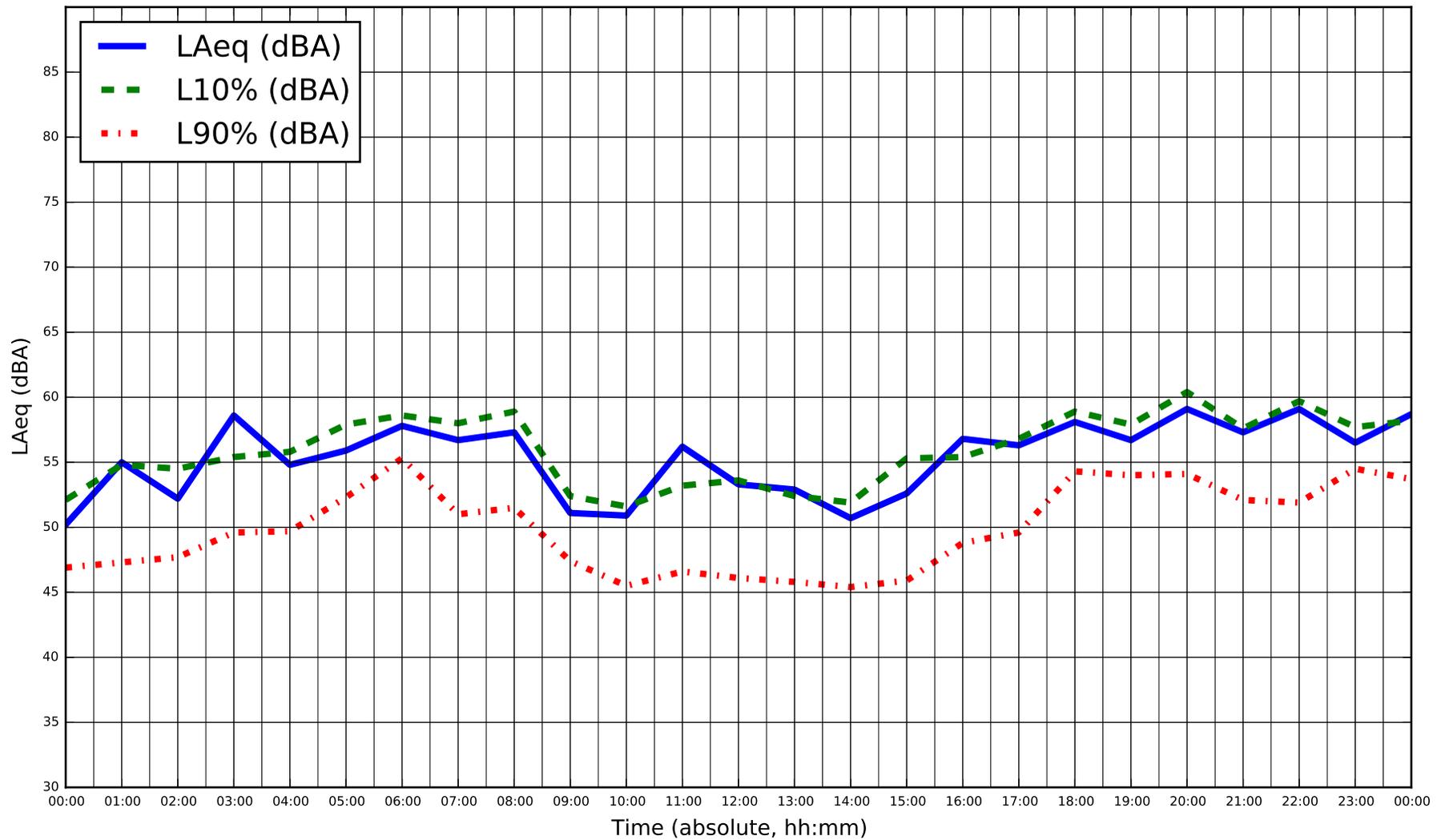
Figure  
**G-1**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday October 6, 2015**  
 Project Num.  
**114-318-100**

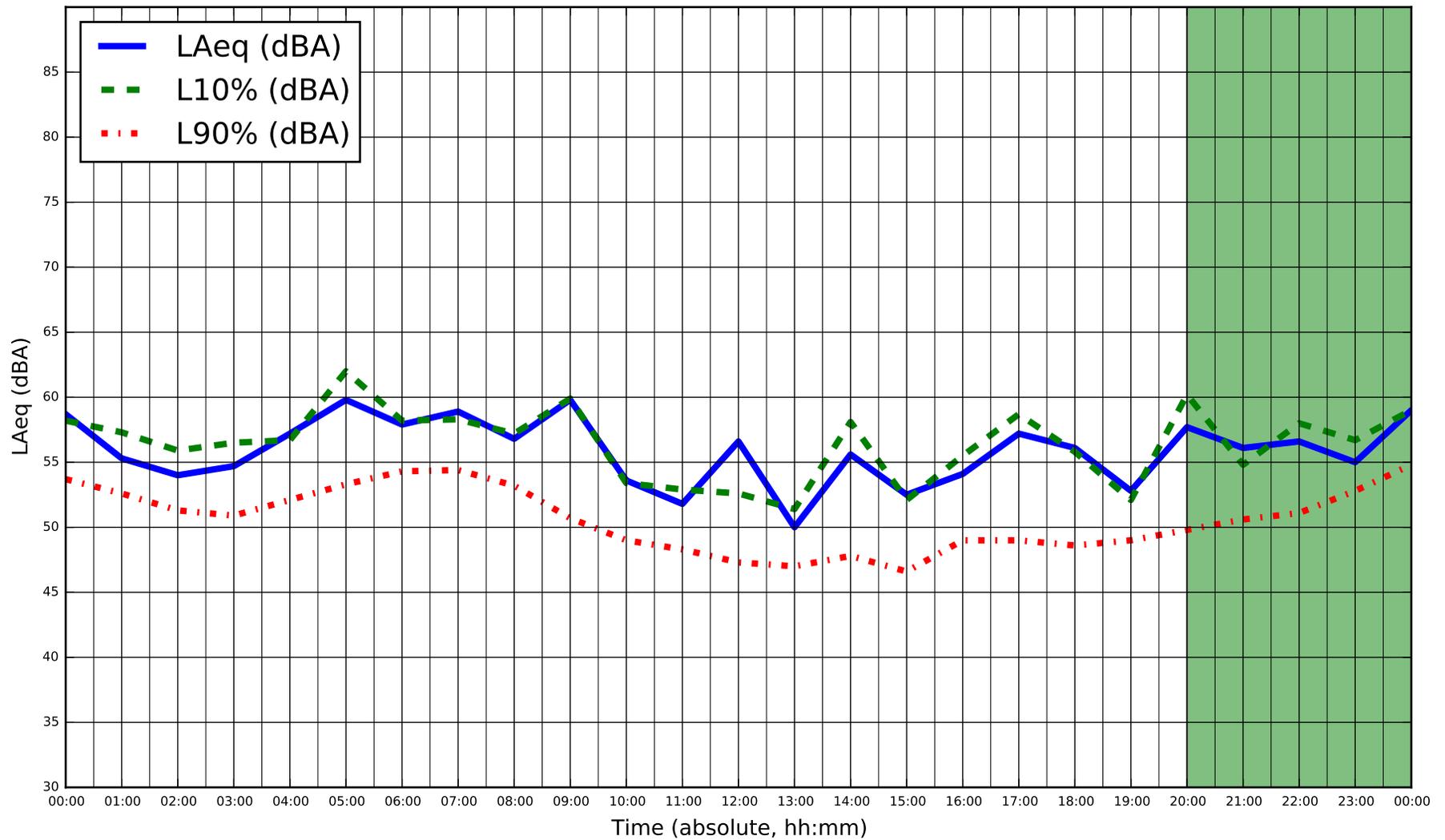
Figure  
**G-2**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

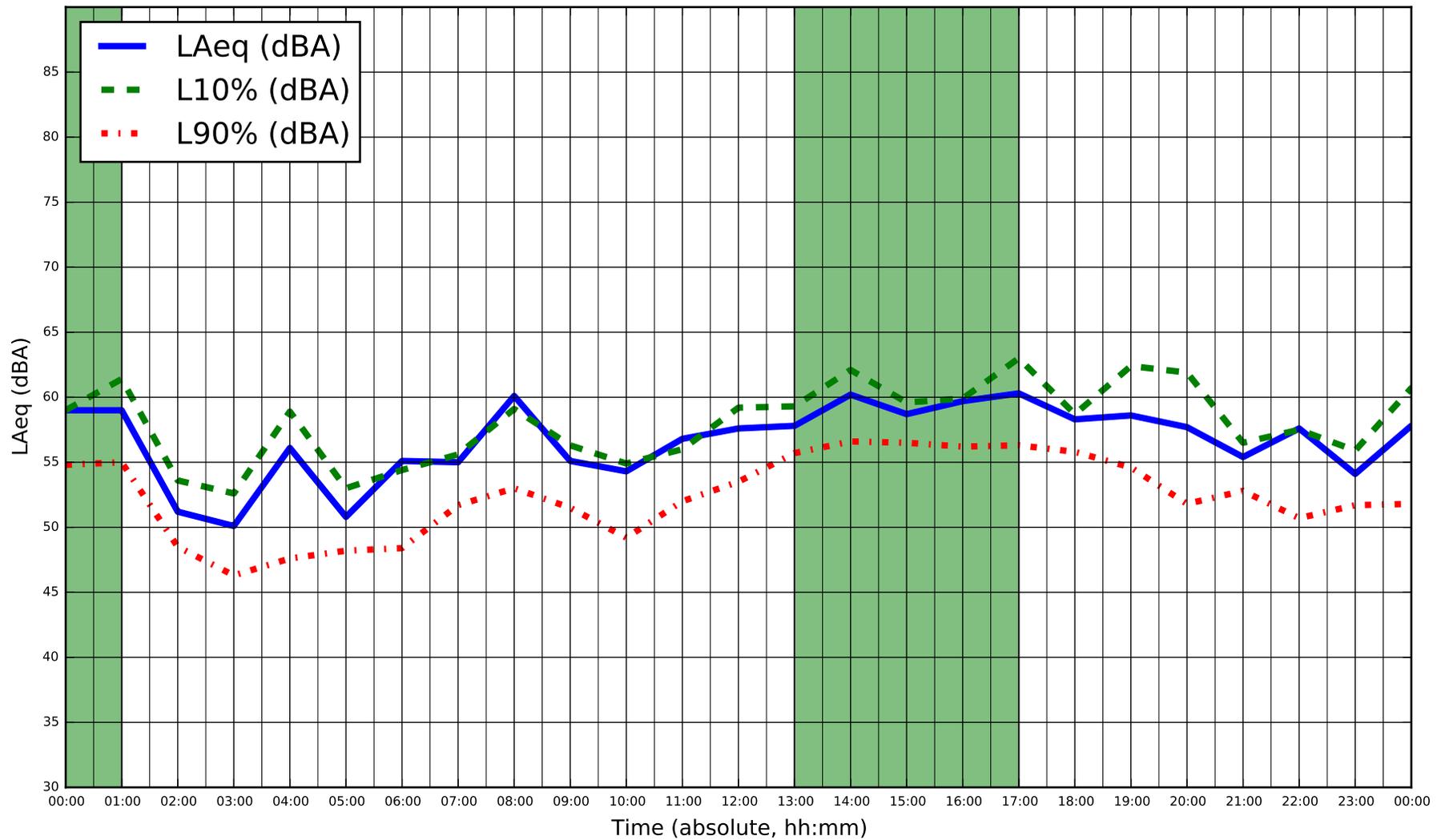
Measurement Date  
**Wednesday October 7, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-3**



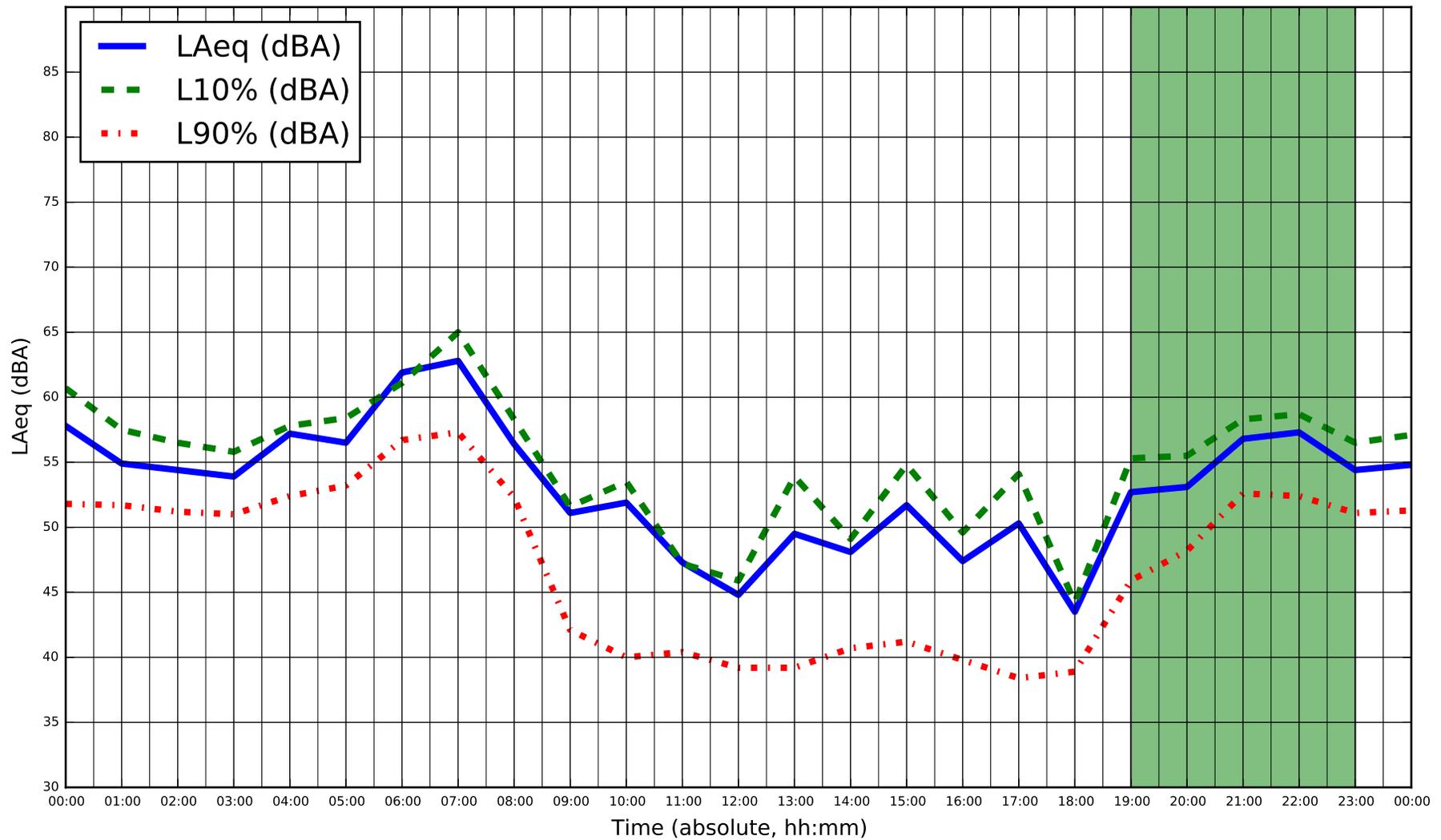
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title <b>Sound Measurements - Location M001</b>	Measurement Date Thursday October 8, 2015	Figure <b>G-4</b>
	Project Name <b>DYEC - Acoustic Audit</b>	Project Num. <b>114-318-100</b>	



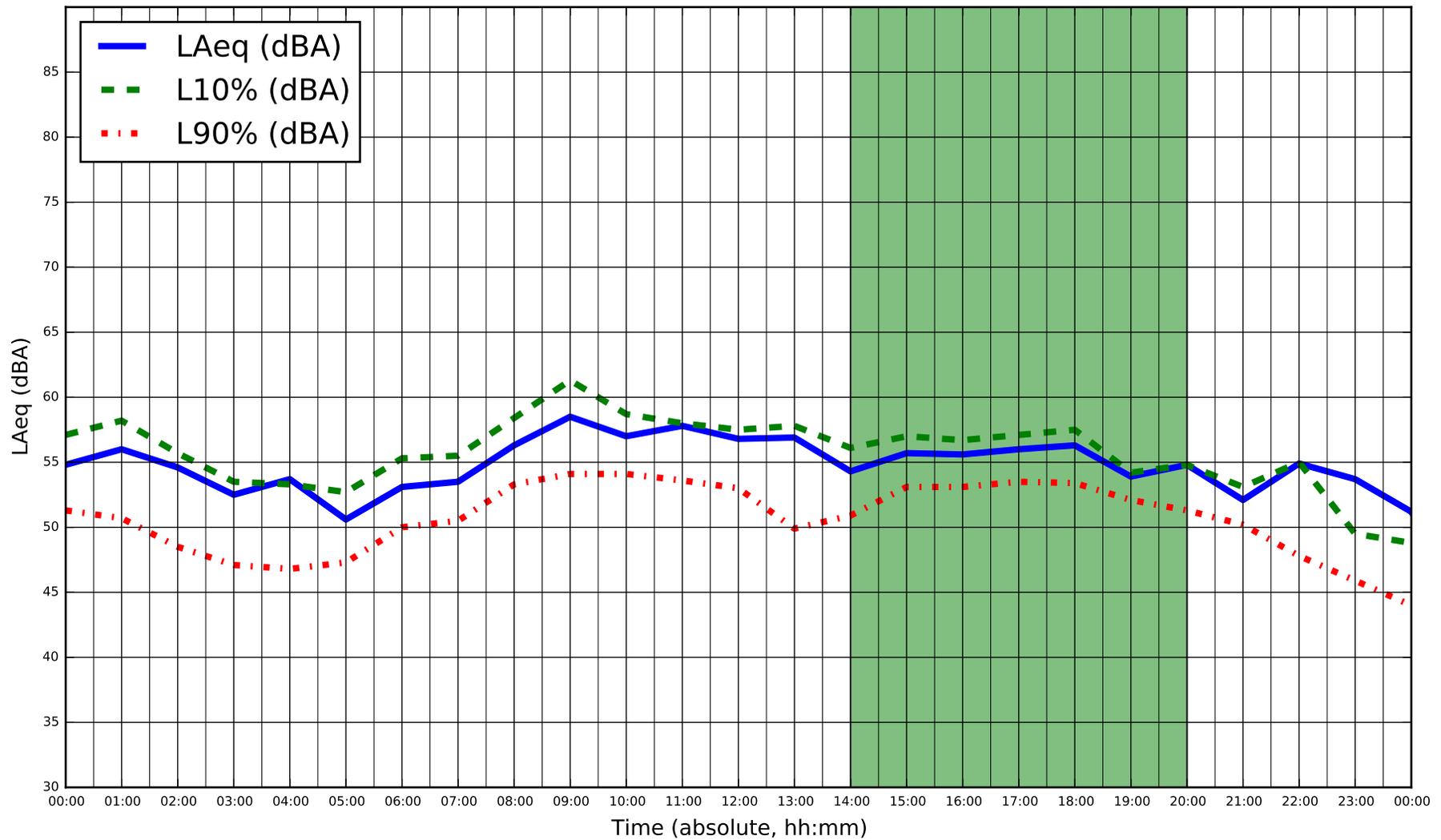
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M001	Friday October 9, 2015	G-5
	DYEC - Acoustic Audit	114-318-100	



\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M001	Saturday October 10, 2015	G-6
	DYEC - Acoustic Audit	114-318-100	



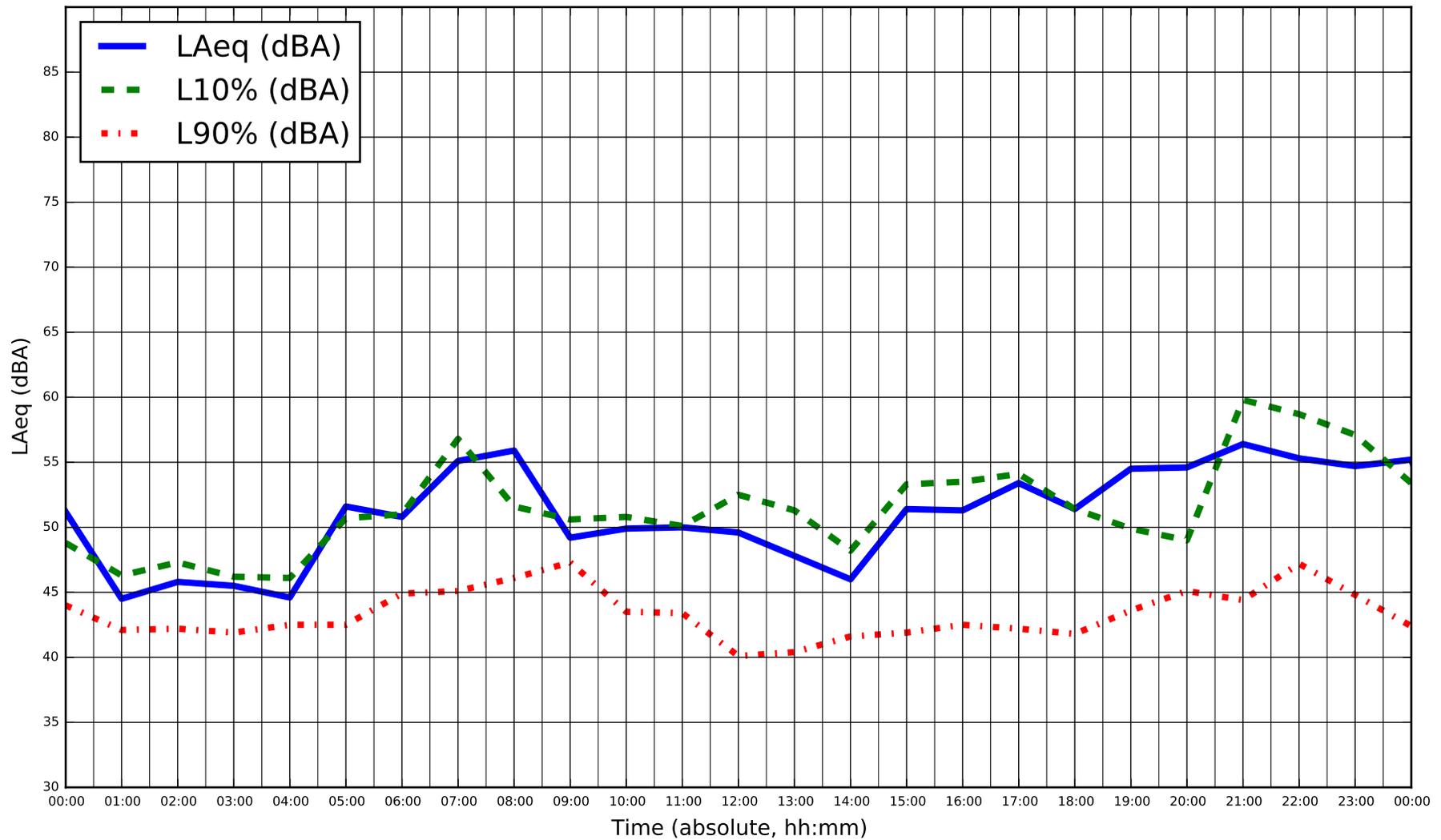
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Sunday October 11, 2015**  
 Project Num.  
**114-318-100**

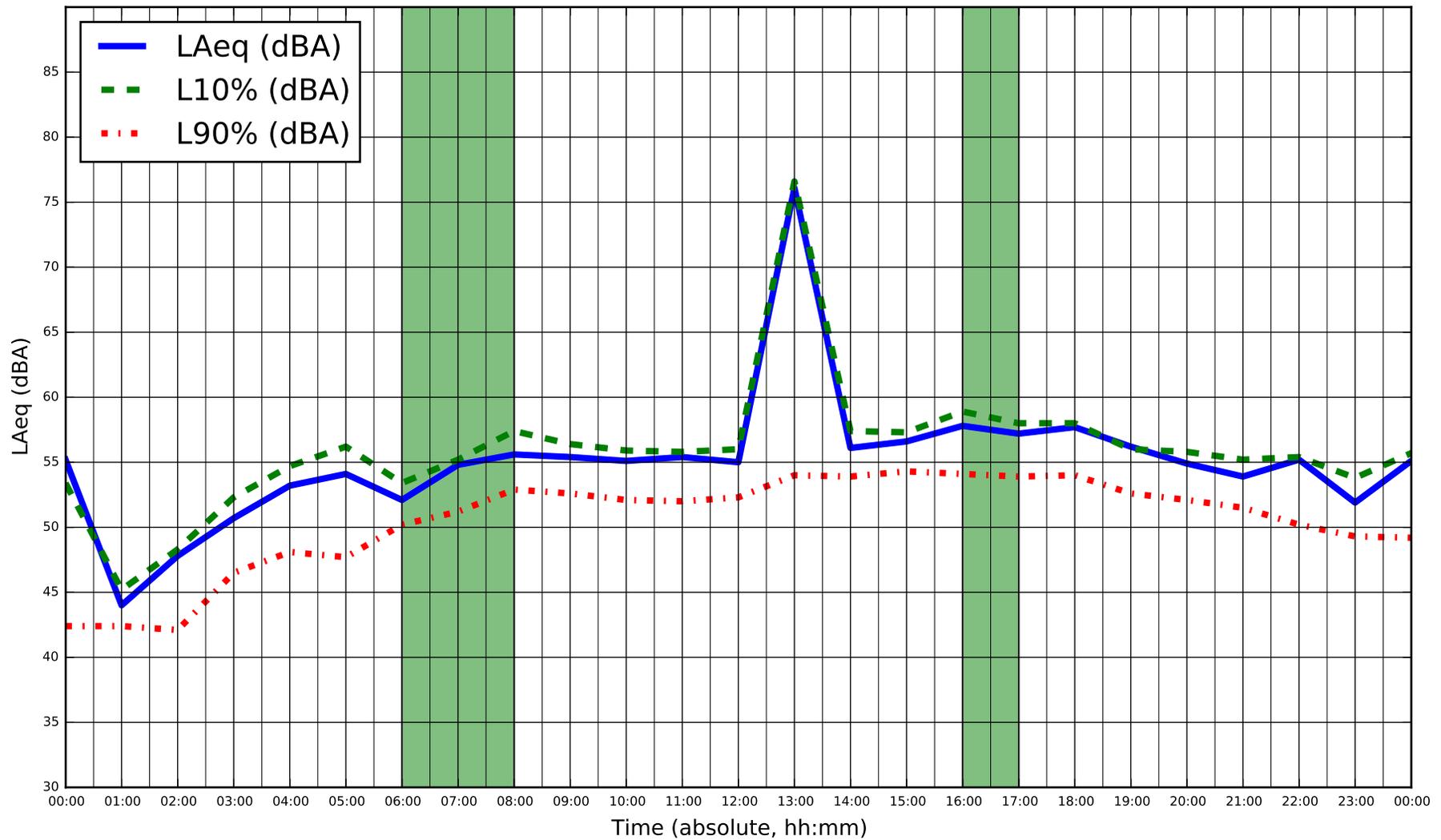
Figure  
**G-7**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday October 12, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-8**



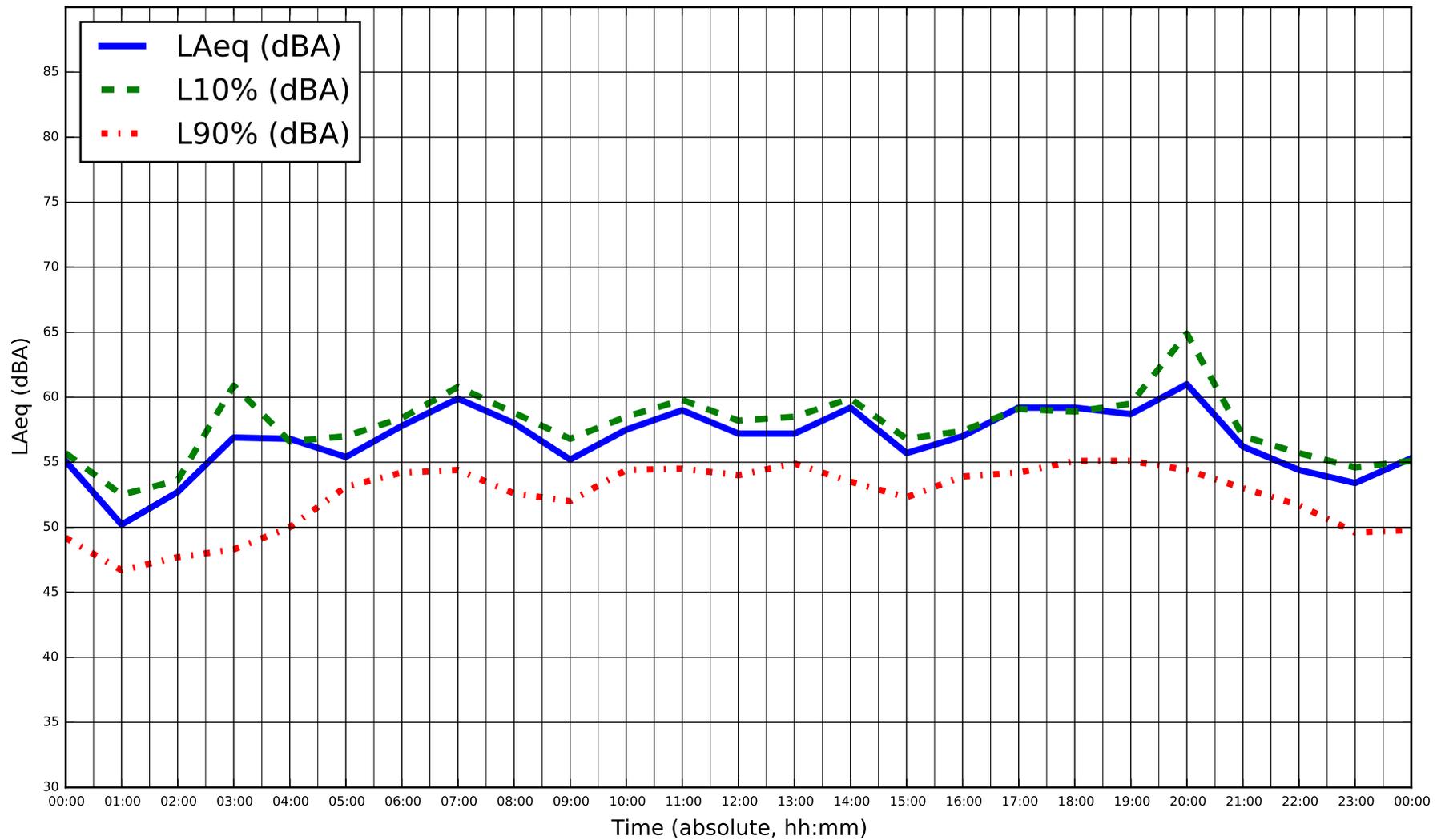
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday October 13, 2015**  
 Project Num.  
**114-318-100**

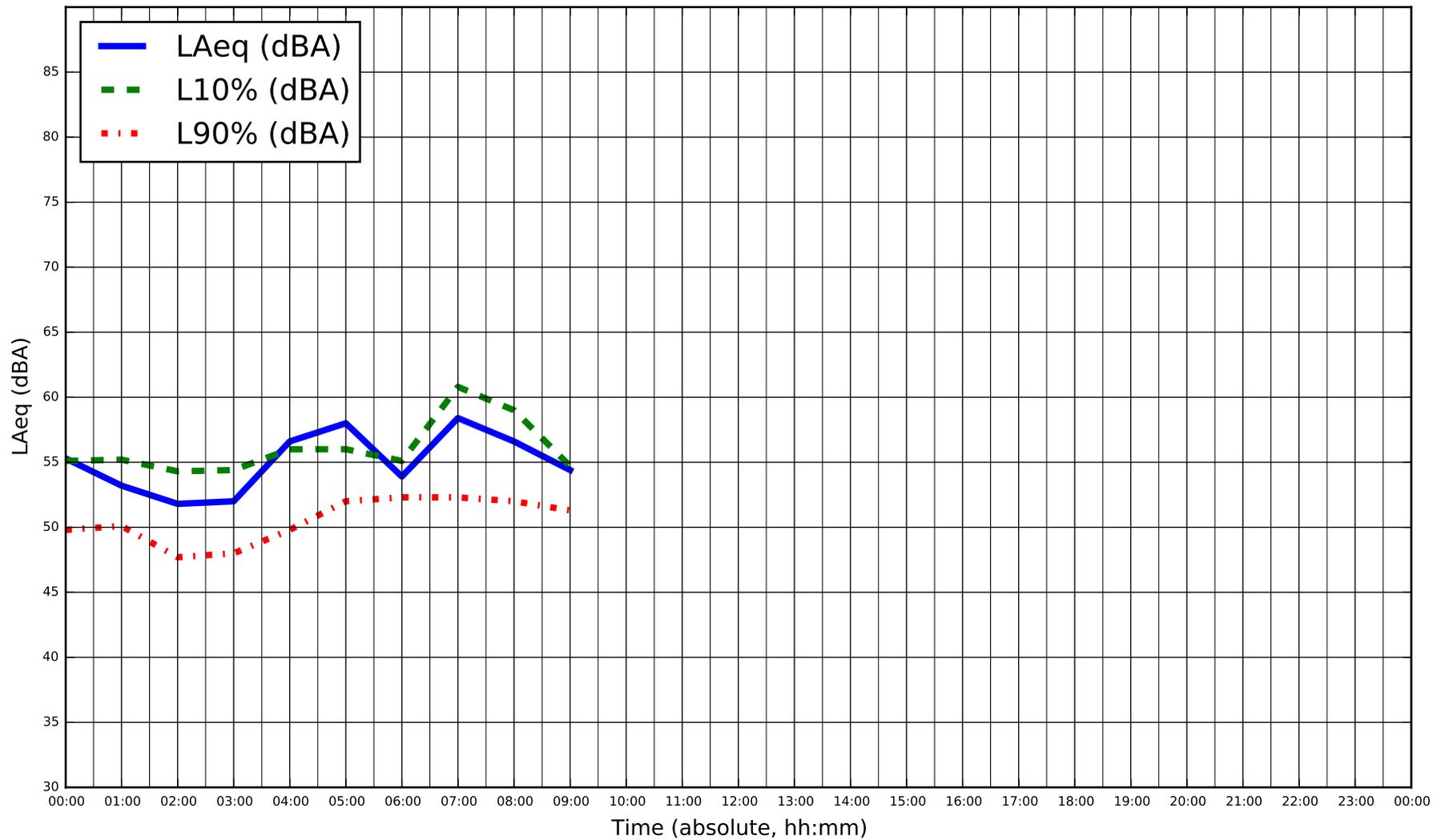
Figure  
**G-9**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday October 14, 2015**  
 Project Num.  
**114-318-100**

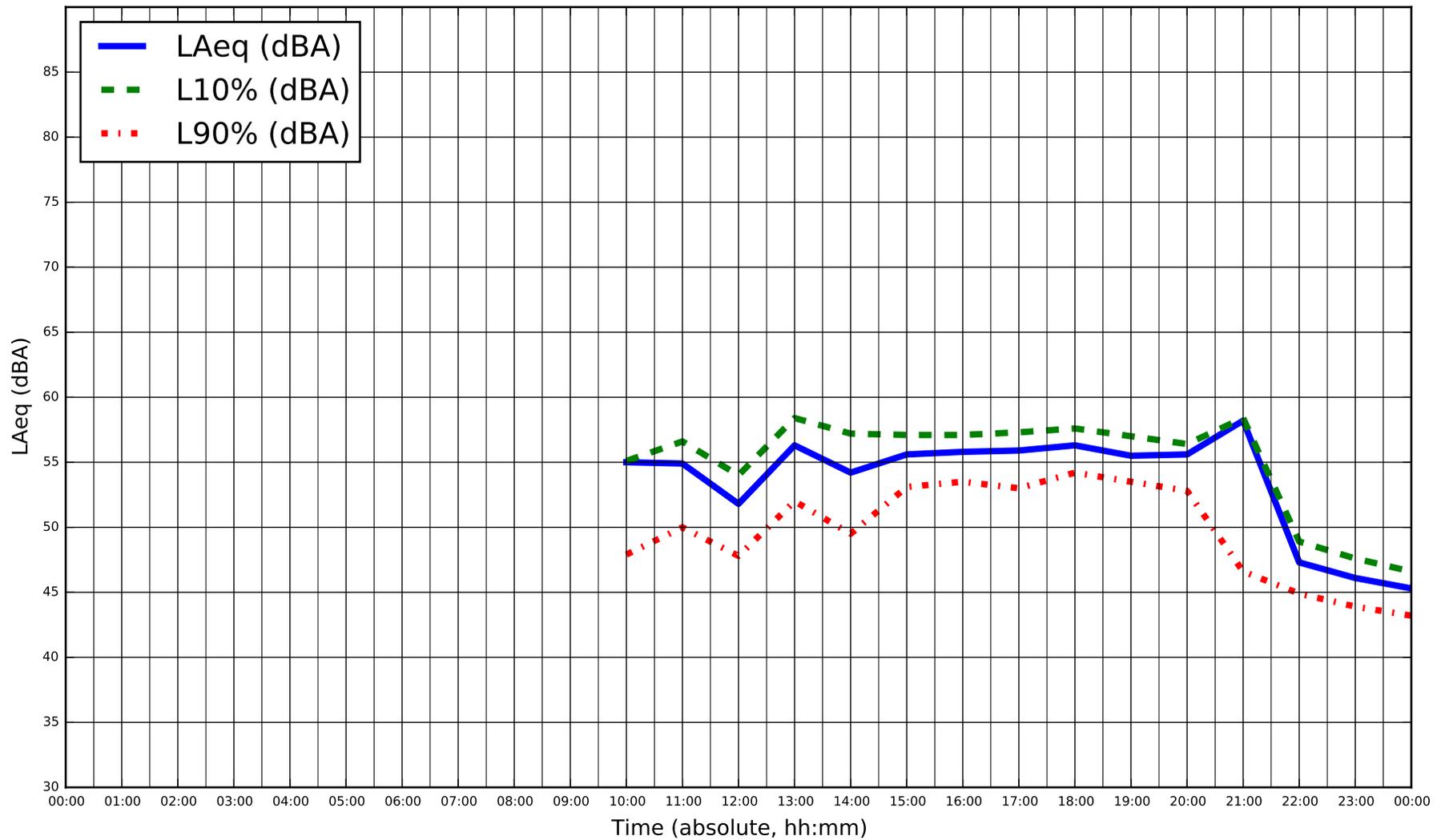
Figure  
**G-10**



Title  
**Sound Measurements - Location M001**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday October 15, 2015**  
 Project Num.  
**114-318-100**

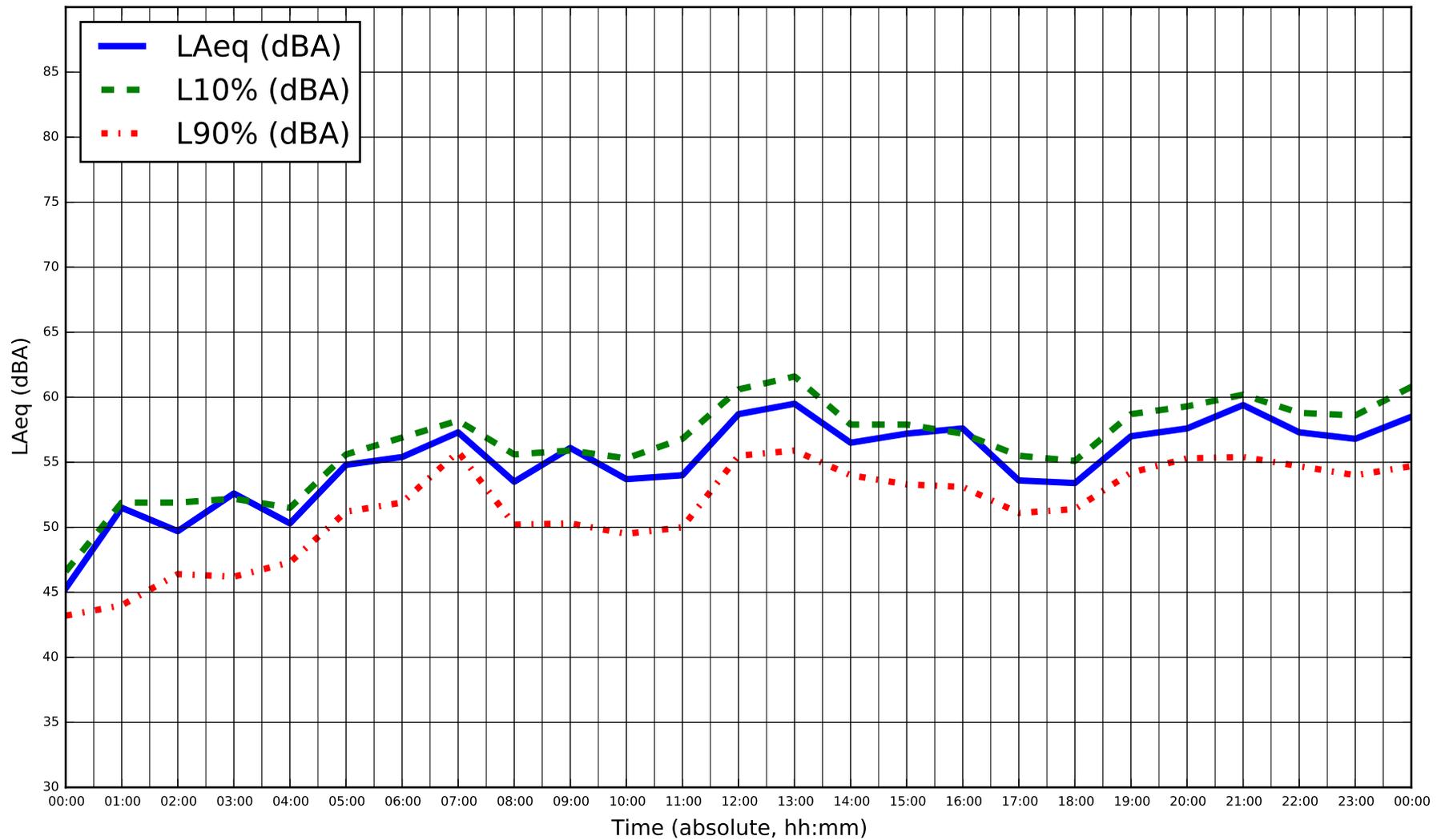
Figure  
**G-11**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday October 5, 2015**  
 Project Num.  
**114-318-100**

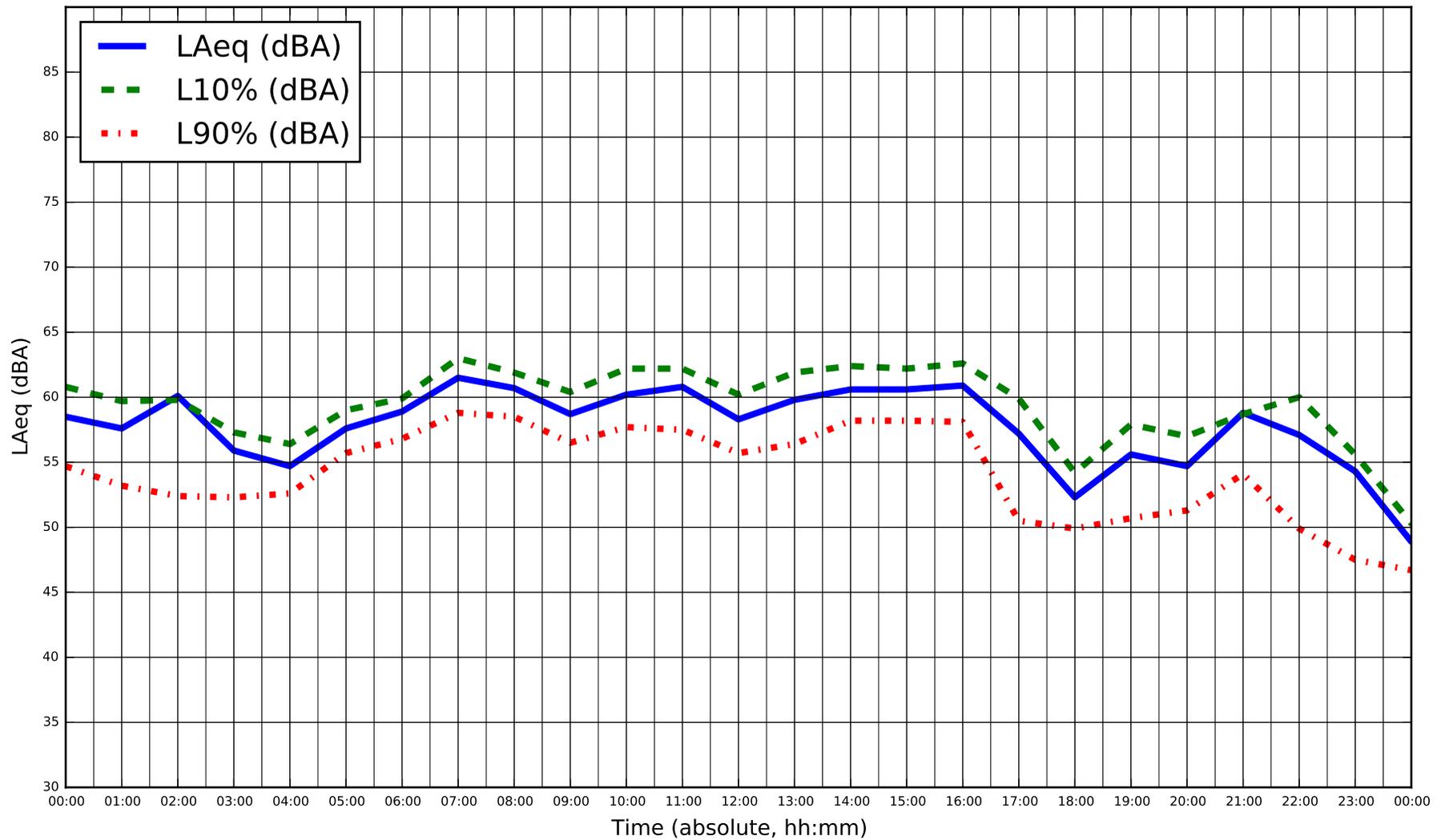
Figure  
**G-12**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday October 6, 2015**  
 Project Num.  
**114-318-100**

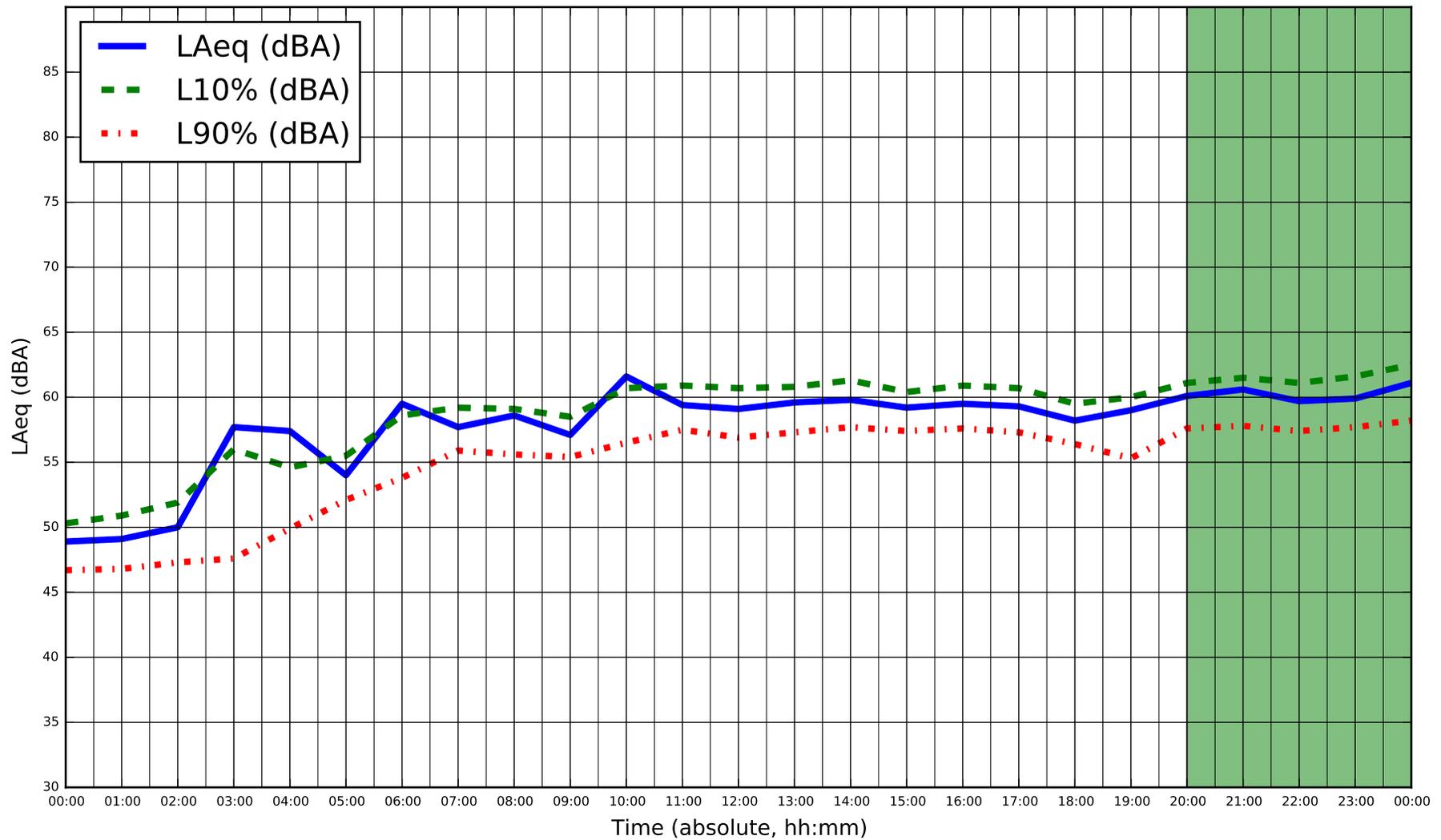
Figure  
**G-13**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

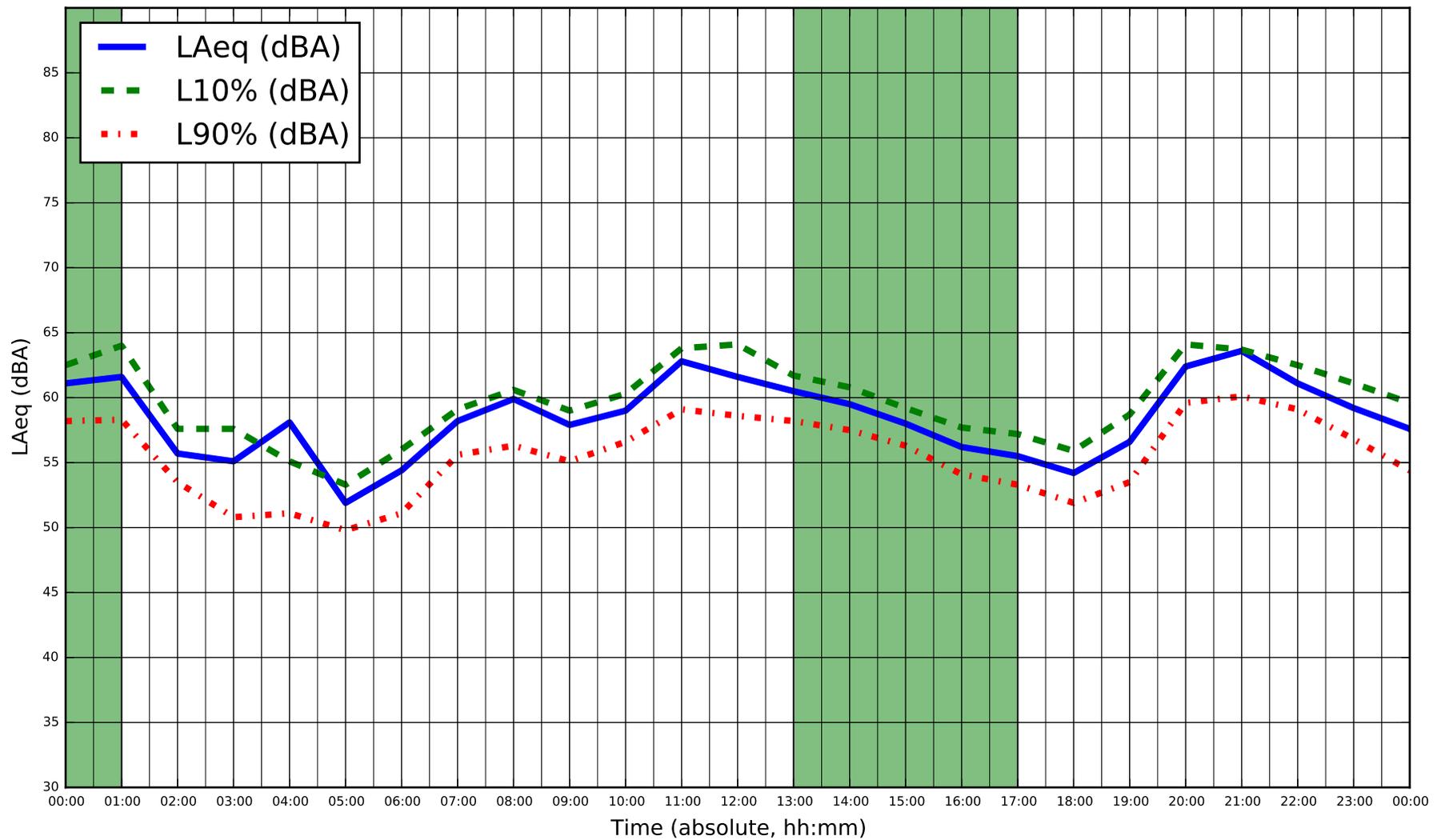
Measurement Date  
**Wednesday October 7, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-14**



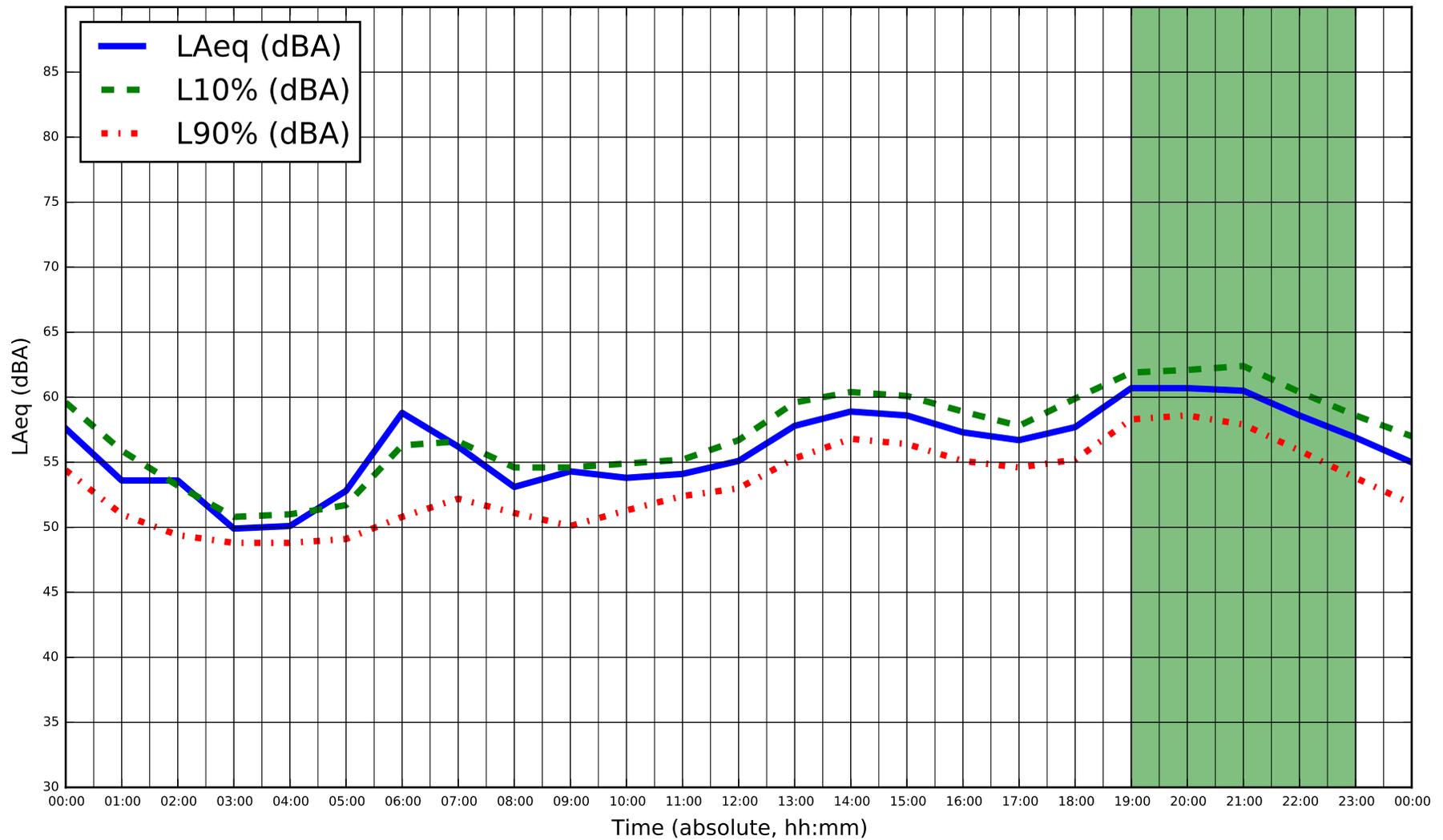
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M002	Thursday October 8, 2015	<b>G-15</b>
	DYEC - Acoustic Audit	114-318-100	



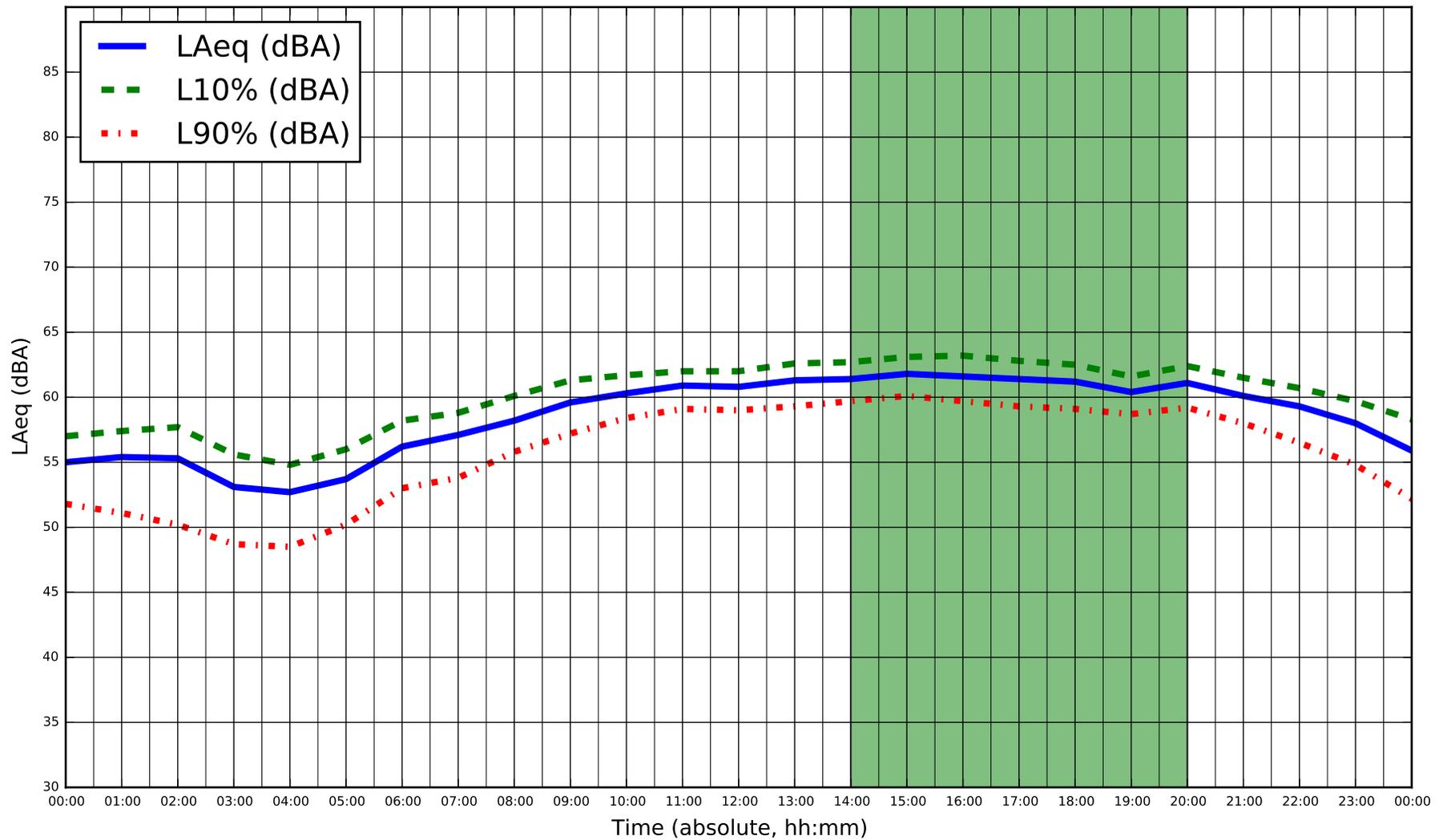
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title <b>Sound Measurements - Location M002</b>	Measurement Date Friday October 9, 2015	Figure <b>G-16</b>
	Project Name <b>DYEC - Acoustic Audit</b>	Project Num. <b>114-318-100</b>	



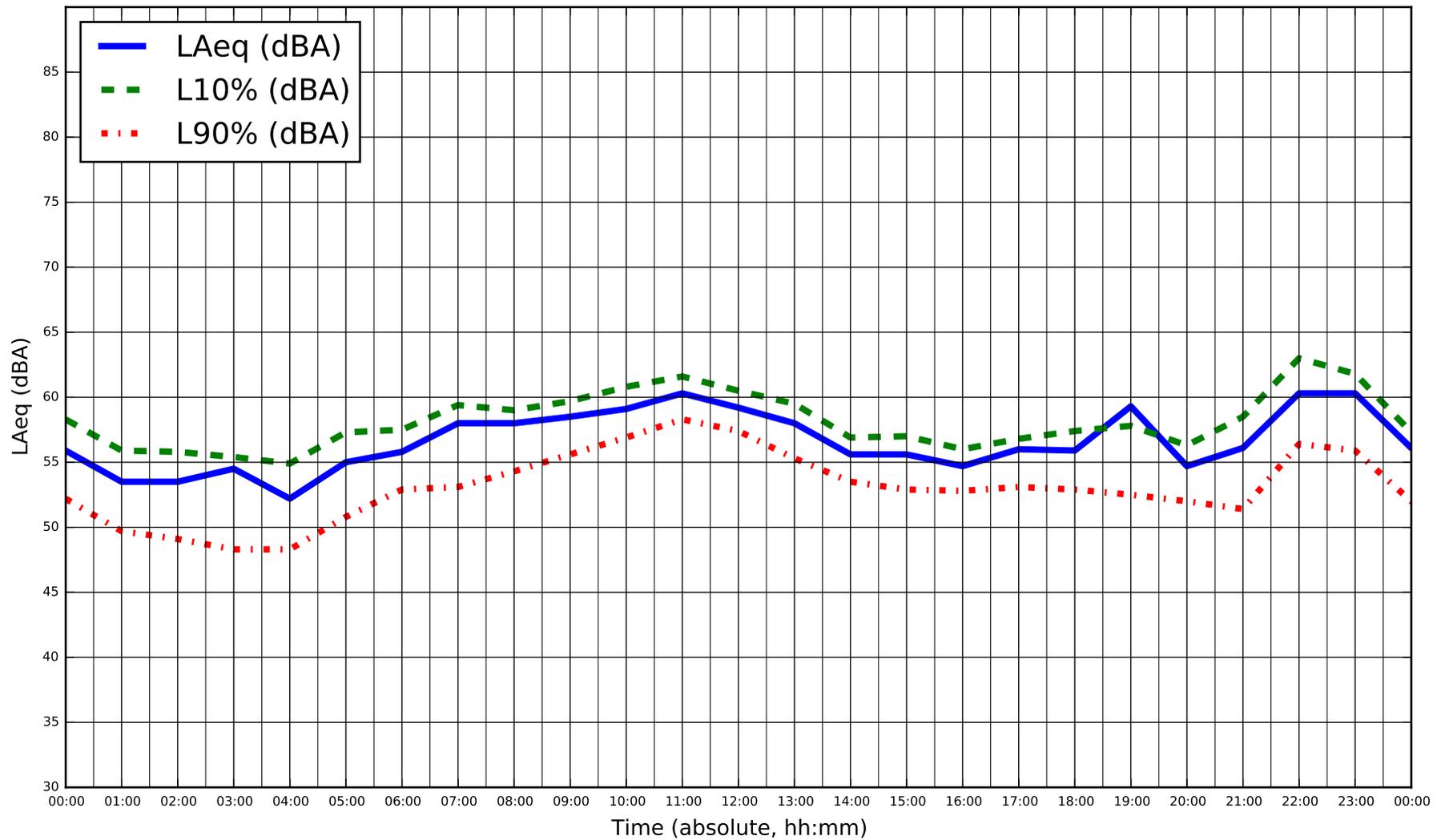
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title <b>Sound Measurements - Location M002</b>	Measurement Date <b>Saturday October 10, 2015</b>	Figure <b>G-17</b>
	Project Name <b>DYEC - Acoustic Audit</b>	Project Num. <b>114-318-100</b>	



\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

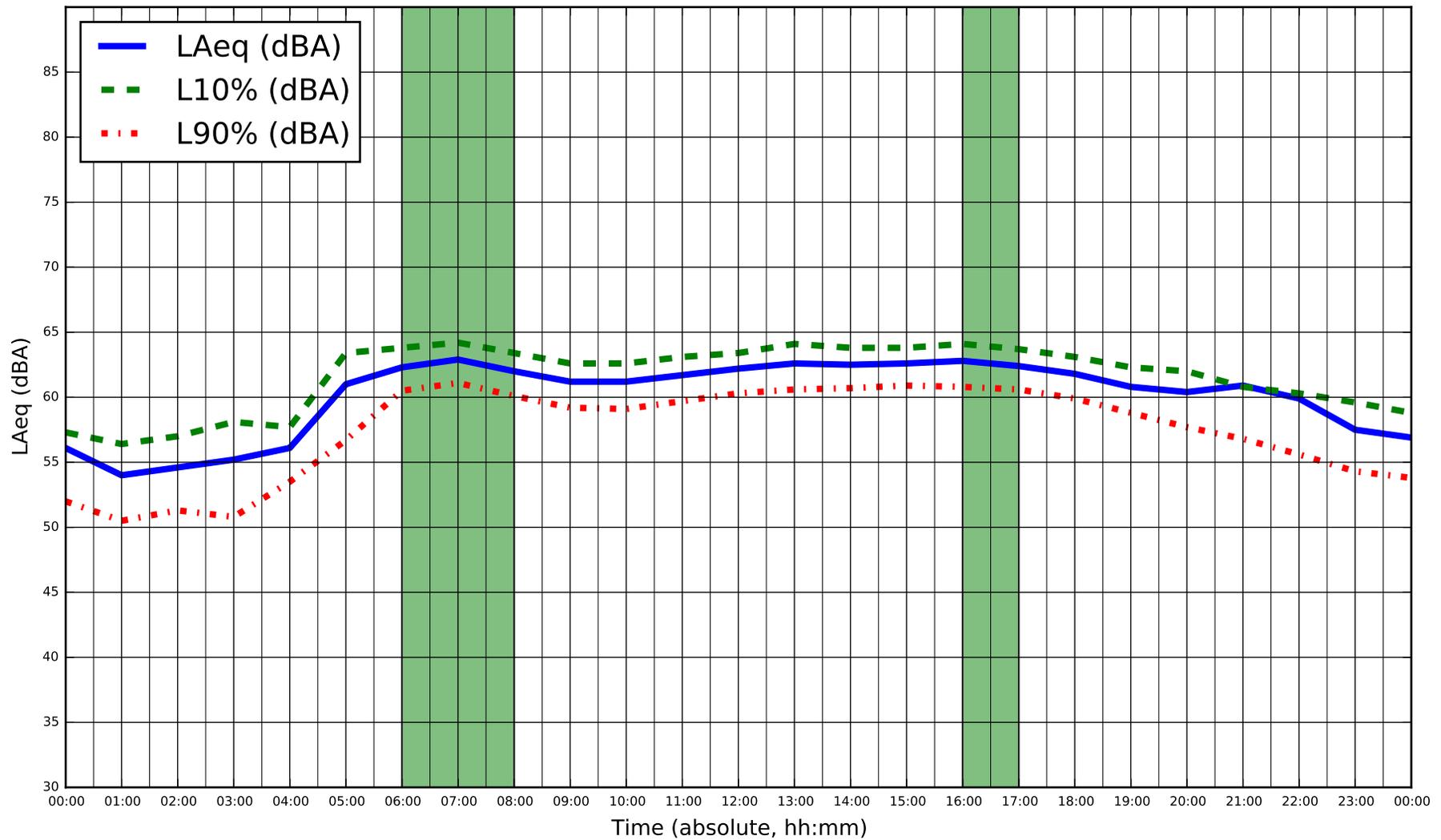
	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M002	Sunday October 11, 2015	<b>G-18</b>
	DYEC - Acoustic Audit	114-318-100	



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

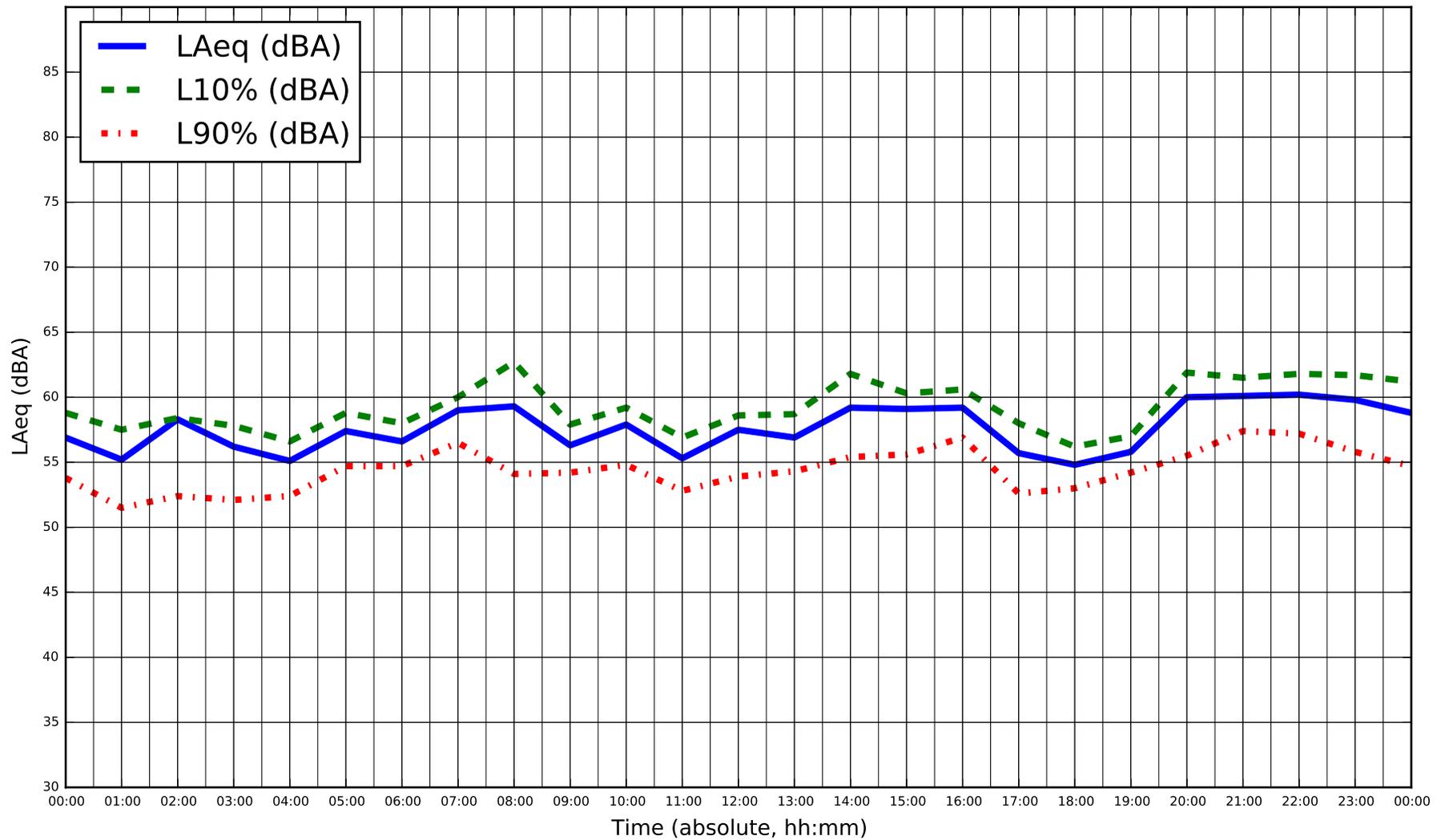
Measurement Date  
**Monday October 12, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-19**



\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

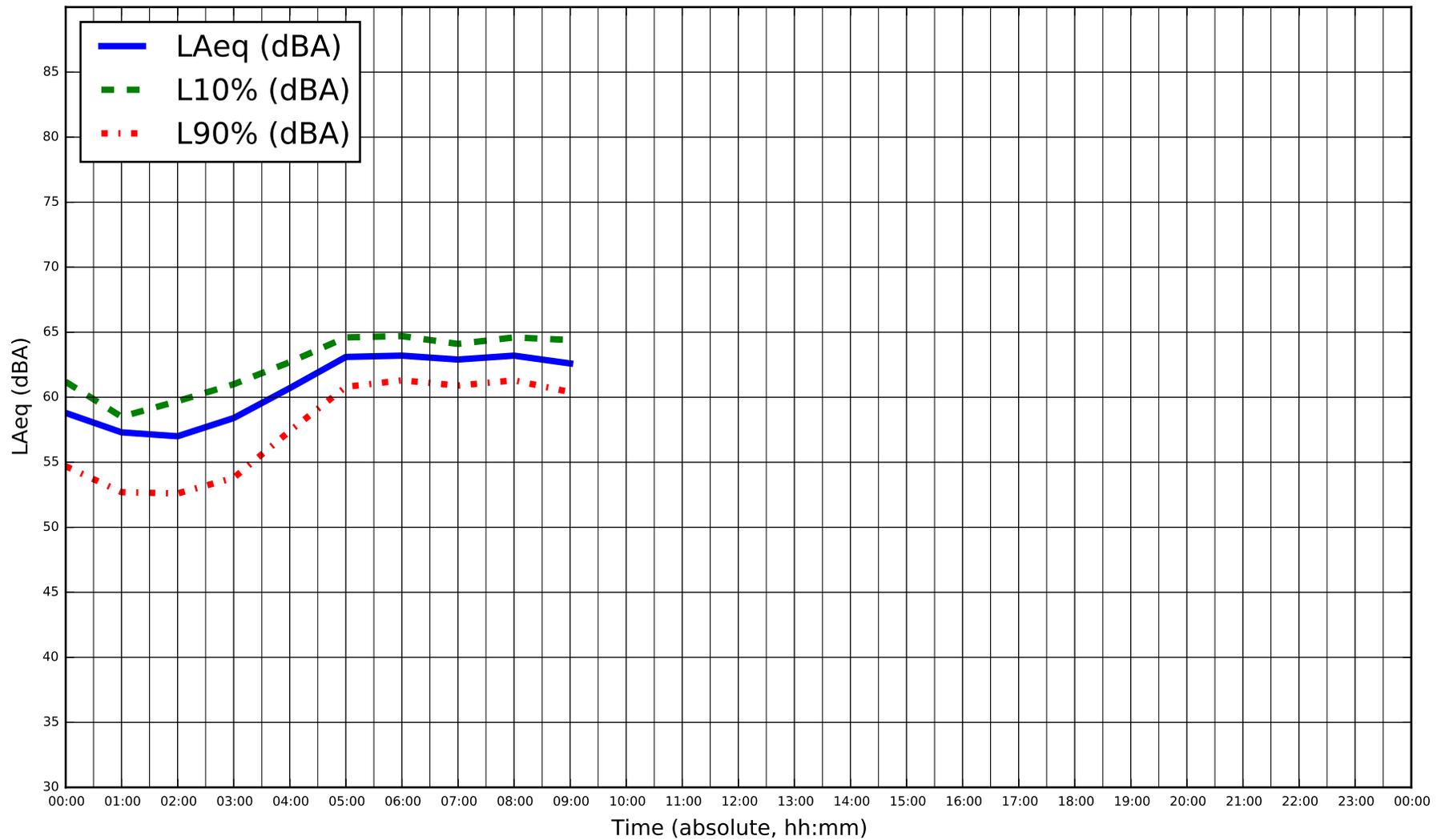
	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M002	Tuesday October 13, 2015	G-20
	DYEC - Acoustic Audit	114-318-100	



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday October 14, 2015**  
 Project Num.  
**114-318-100**

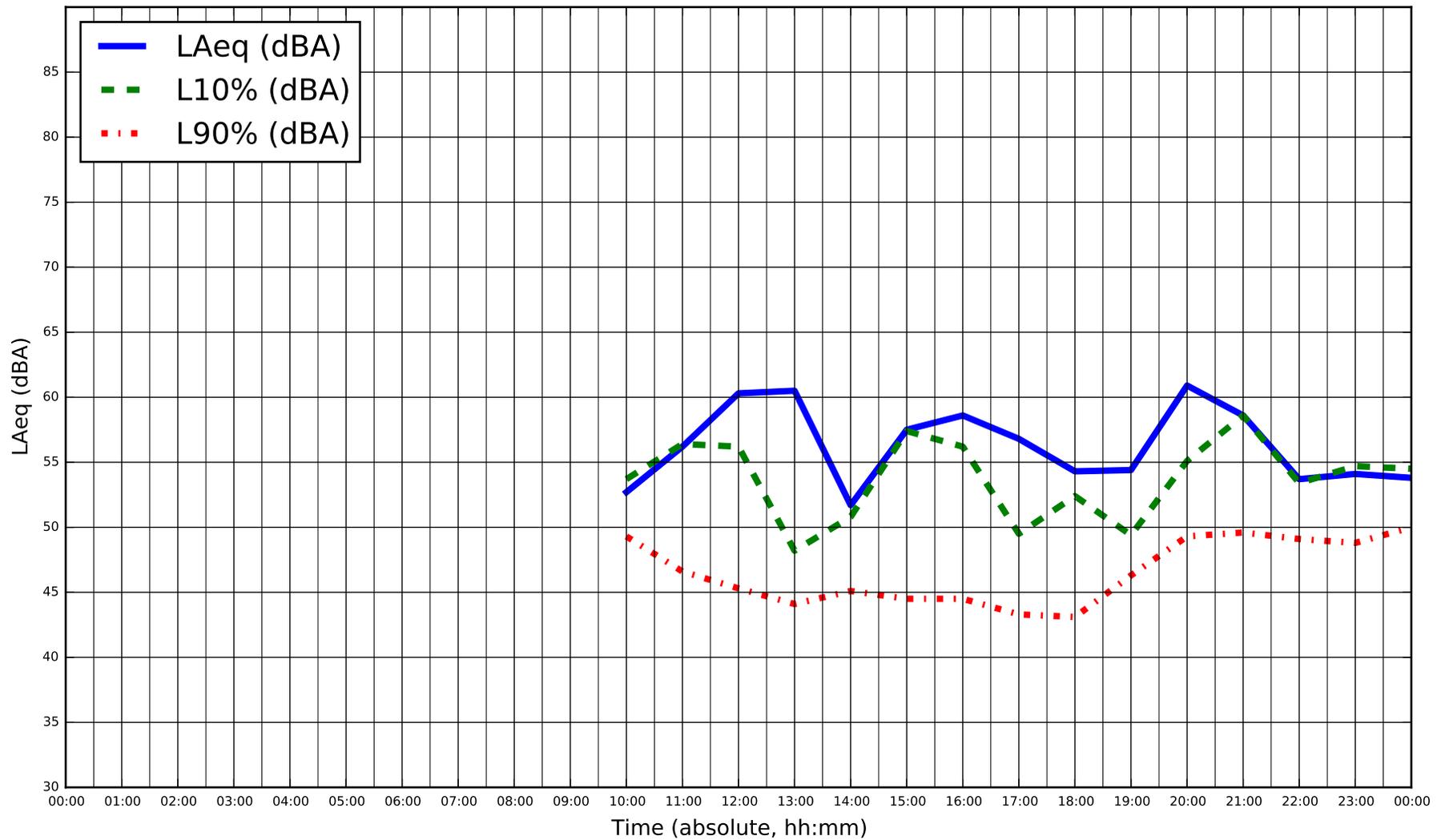
Figure  
**G-21**



Title  
**Sound Measurements - Location M002**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday October 15, 2015**  
 Project Num.  
**114-318-100**

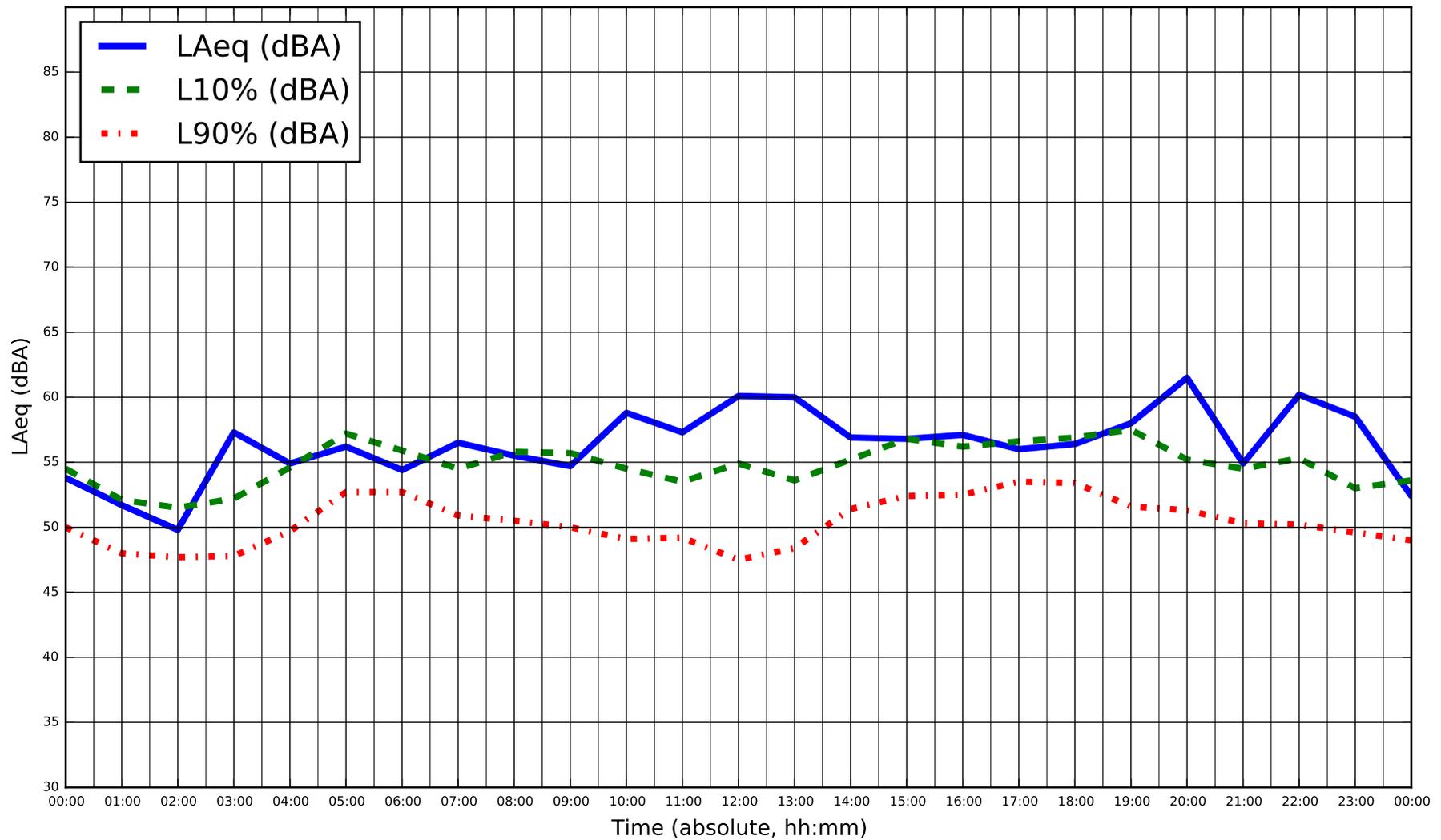
Figure  
**G-22**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday October 5, 2015**  
 Project Num.  
**114-318-100**

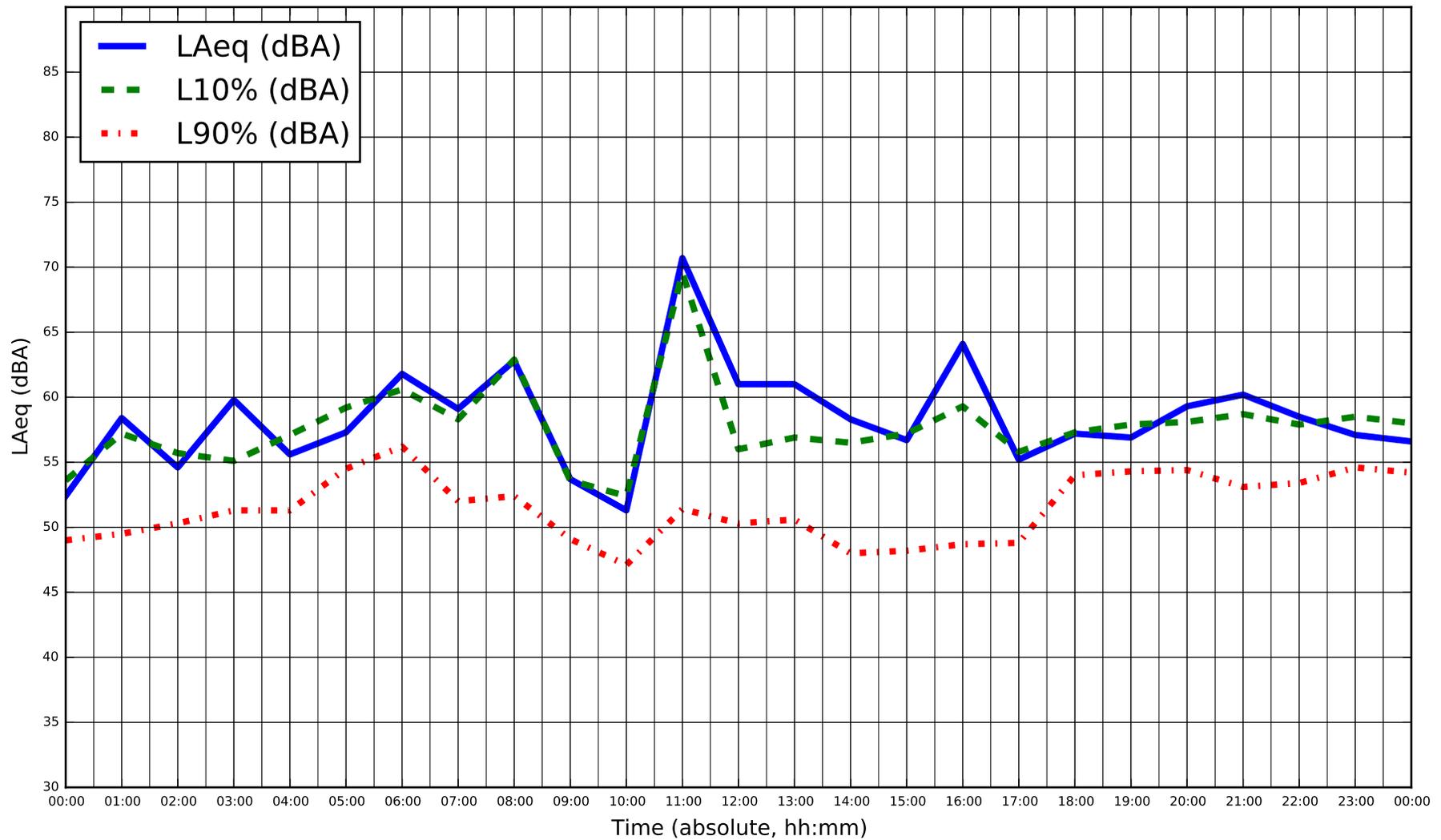
Figure  
**G-23**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday October 6, 2015**  
 Project Num.  
**114-318-100**

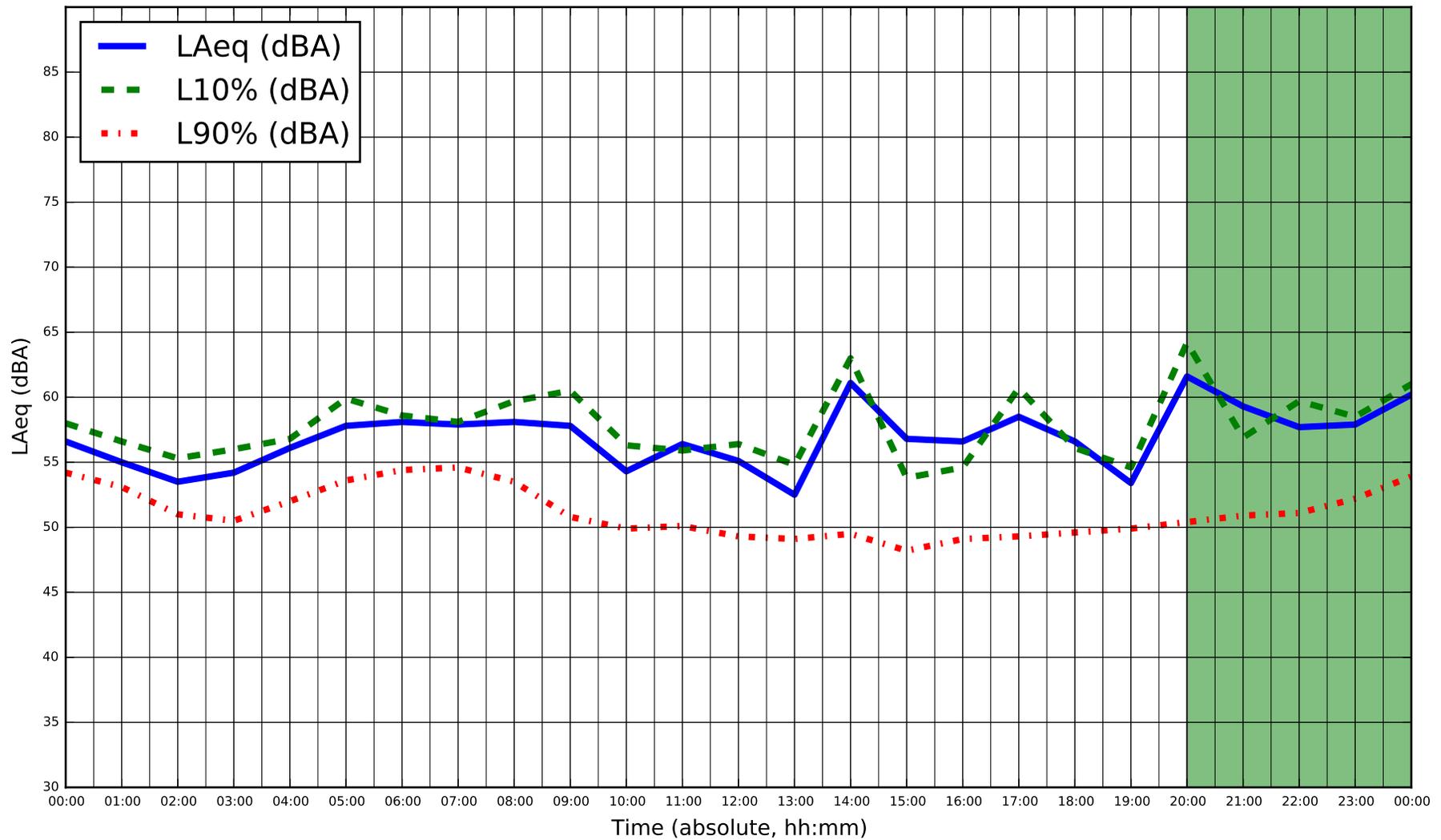
Figure  
**G-24**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

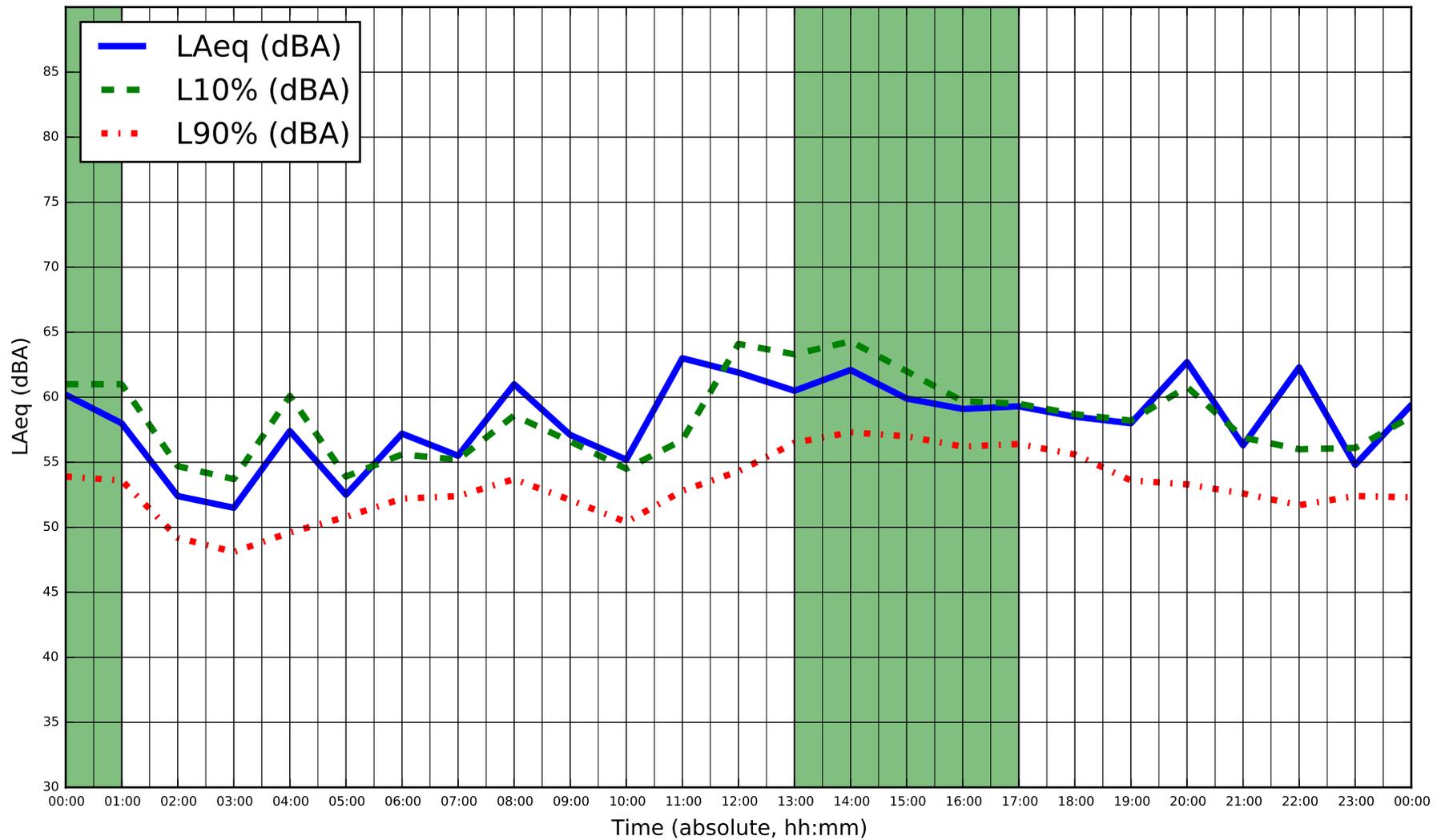
Measurement Date  
**Wednesday October 7, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-25**



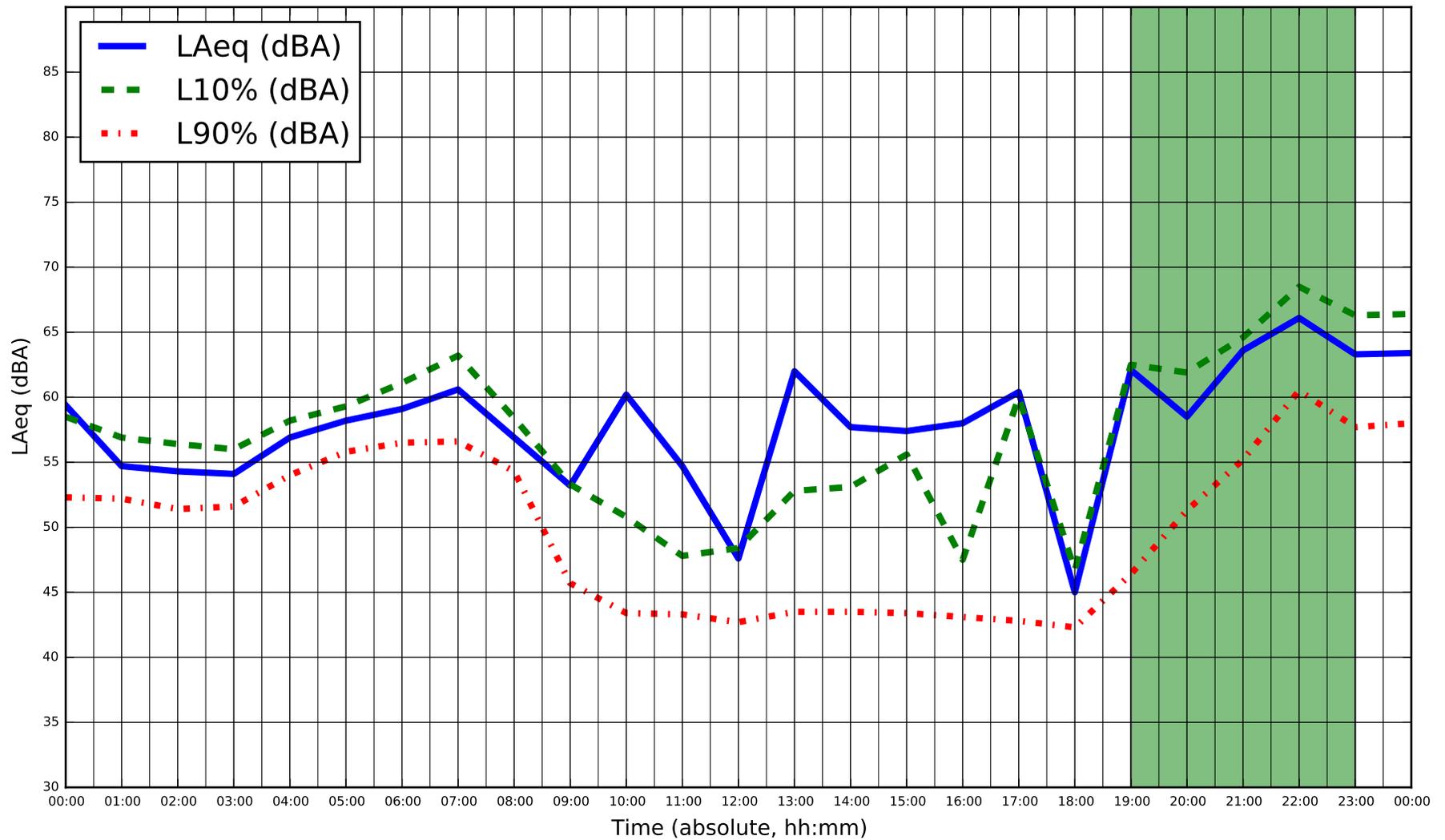
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title <b>Sound Measurements - Location M003</b>	Measurement Date Thursday October 8, 2015	Figure <b>G-26</b>
	Project Name <b>DYEC - Acoustic Audit</b>	Project Num. <b>114-318-100</b>	



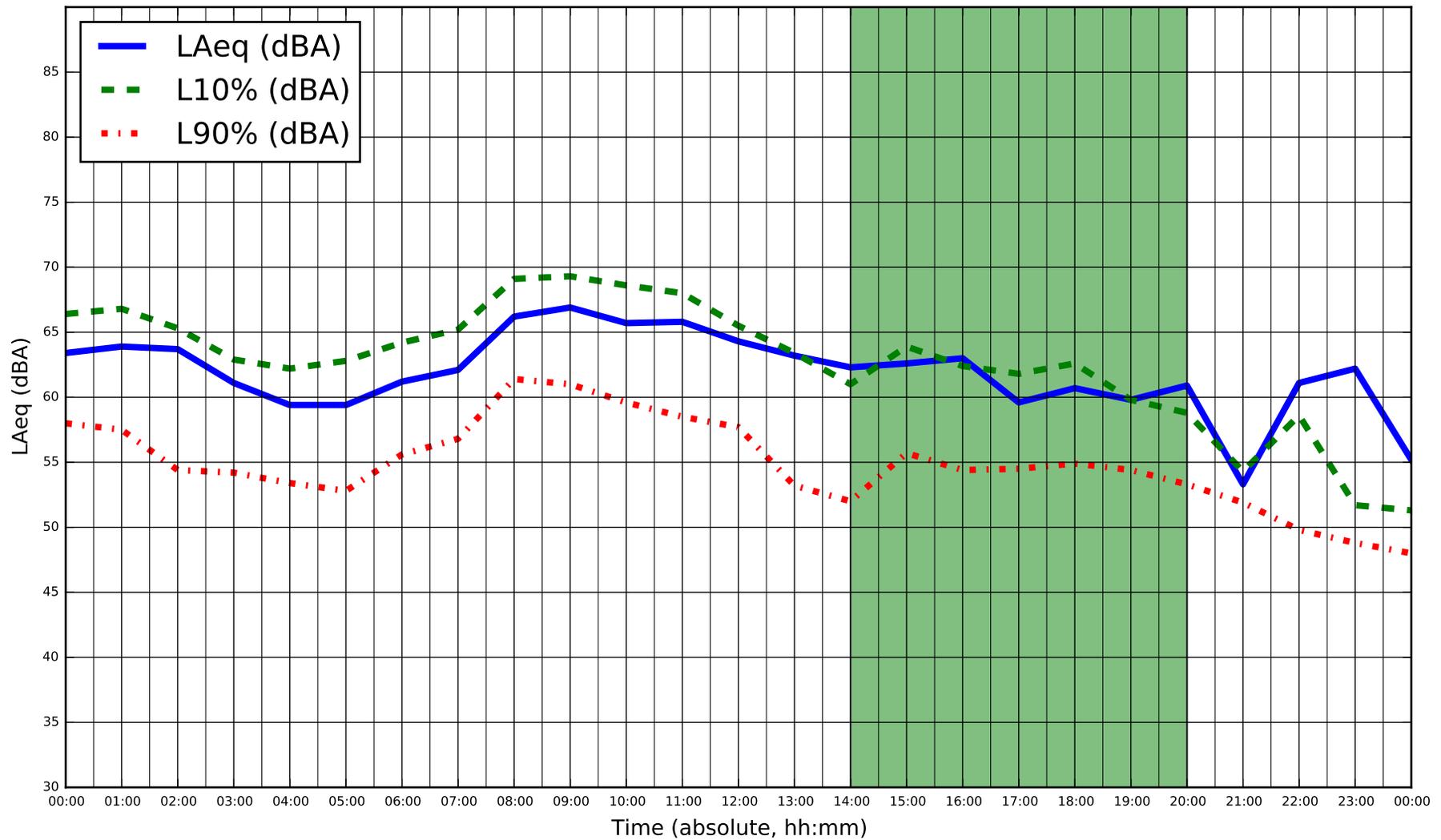
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M003	Friday October 9, 2015	G-27
	DYEC - Acoustic Audit	114-318-100	



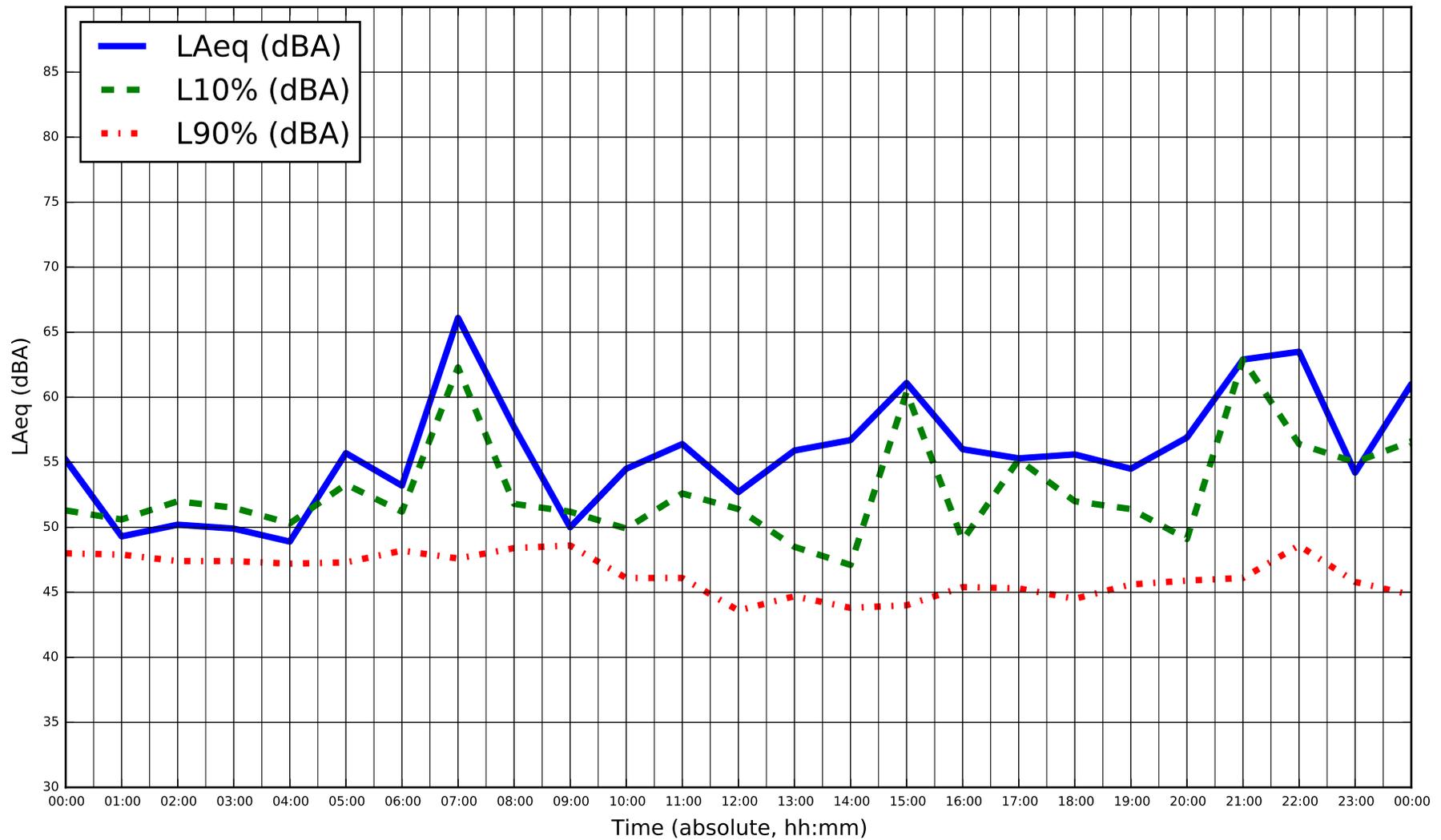
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

	Title	Measurement Date	Figure
	Project Name	Project Num.	
	Sound Measurements - Location M003	Saturday October 10, 2015	G-28
	DYEC - Acoustic Audit	114-318-100	



\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring

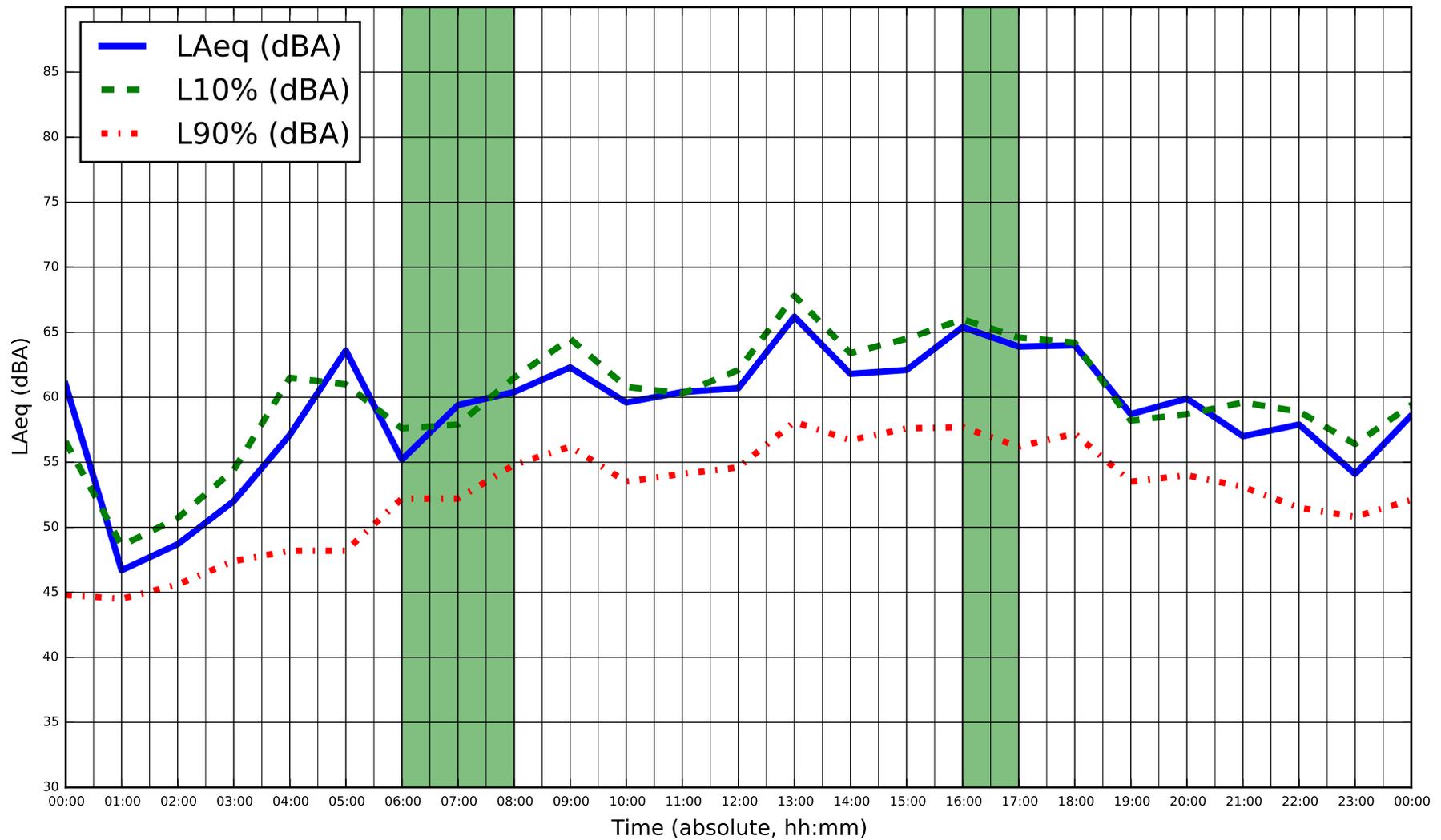
	Title	Measurement Date	Figure
	Sound Measurements - Location M003	Sunday October 11, 2015	
	Project Name	Project Num.	G-29
	DYEC - Acoustic Audit	114-318-100	



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Monday October 12, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-30**



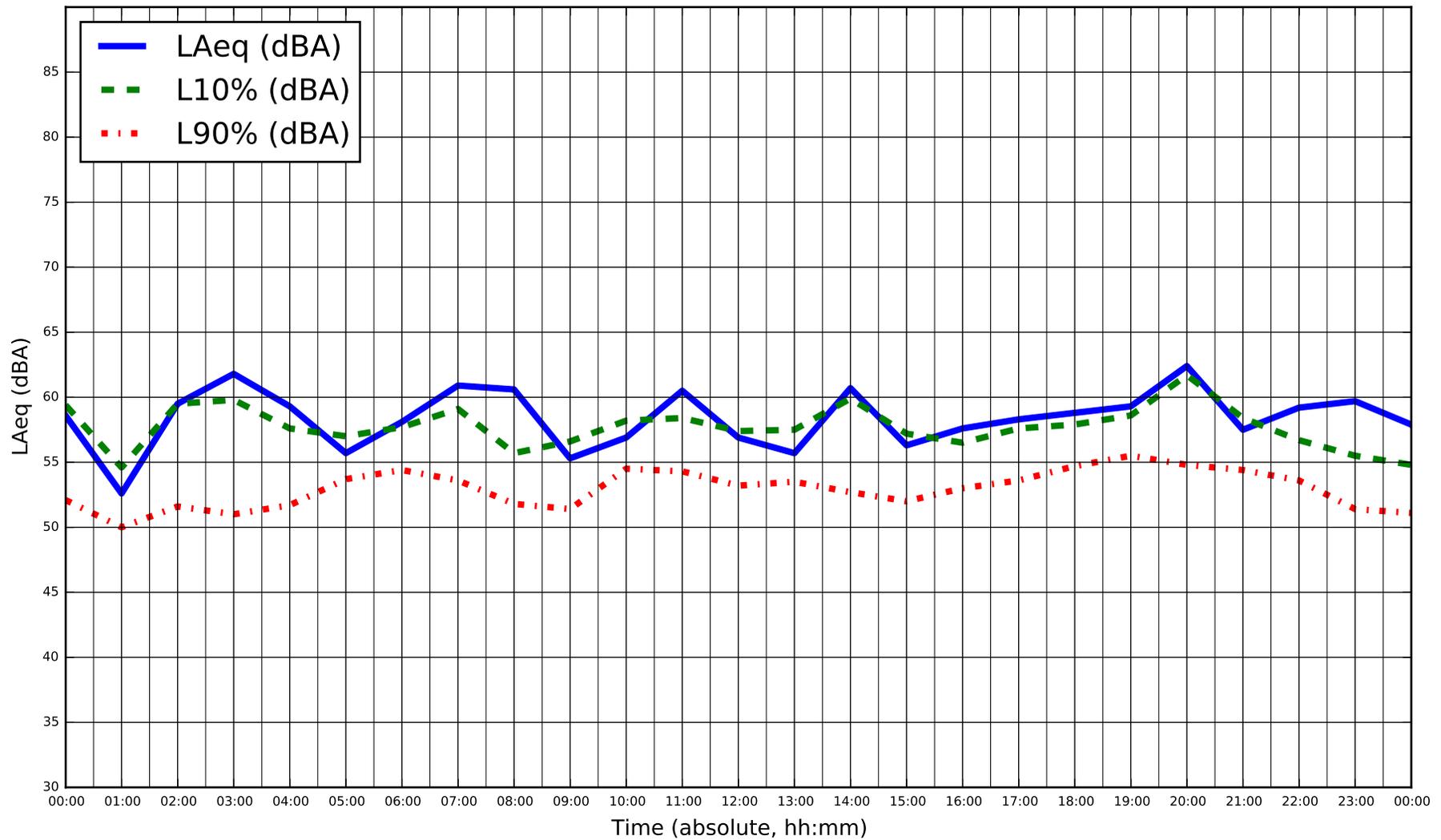
\* Highlighted hours indicate sustained winds over 20 km/hr during monitoring



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Tuesday October 13, 2015**  
 Project Num.  
**114-318-100**

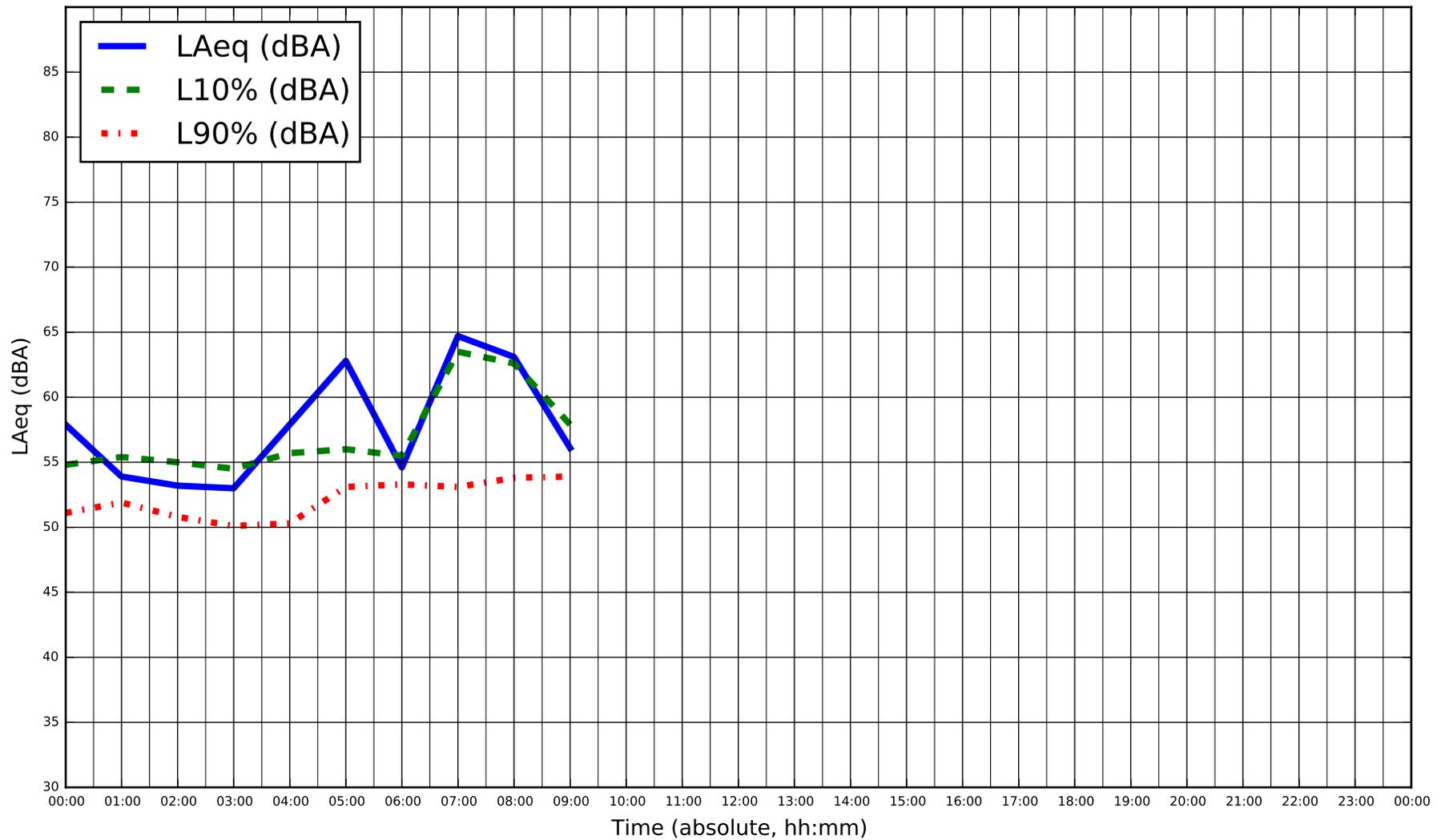
Figure  
**G-31**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Wednesday October 14, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-32**



Title  
**Sound Measurements - Location M003**  
 Project Name  
**DYEC - Acoustic Audit**

Measurement Date  
**Thursday October 15, 2015**  
 Project Num.  
**114-318-100**

Figure  
**G-33**