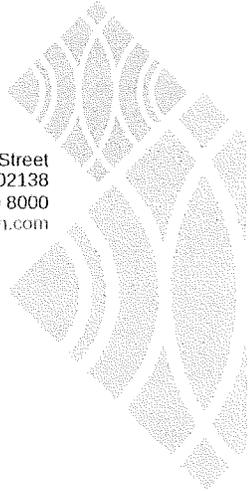




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December 26, 2017

Mark L. Nestor, Esq.
Law Office of Mark L. Nestor
45 Middle Street, Suite 1
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Email: markl49@aol.com

Subject: Report of Sound Monitoring Studies, Revision 2
Americold Logistics – 159 East Main Street
Gloucester, MA 01930
Acentech Project Number 629458

Dear Mr. Nestor:

Thank you for the opportunity to conduct a sound monitoring study on behalf of the Americold Logistics plant at 159 East Main Street in Gloucester, MA. We established continuous sound monitoring equipment in the neighborhood along East Main Street for the period of October 31st – November 8th. Due to a malfunction in some of our equipment (for which Acentech takes responsibility), we repeated a portion of this study for the period of November 28th – December 6th. Our survey methodology and findings are presented in this report.

BACKGROUND INFORMATION

It is our understanding that a series of noise complaints have been registered against the Americold facility by residences in the abutting neighborhood. Americold retained Acentech's services to conduct a monitoring study of the ambient sound levels in the community surrounding the facility and determine whether or not Americold is in compliance with the applicable noise code for the City of Gloucester.

The Americold facility under study is a food storage and shipping warehouse. As such, the operation of the plant requires significant HVAC equipment for refrigeration. As shown in Figure 1, much of this HVAC equipment is located on an elevated platform on the south side of the building, facing in the direction of the surrounding neighborhood.

APPLICABLE NOISE ORDINANCE

City of Gloucester Ordinance Number 45-1995, § I, 12-15-1995 Section 13-6 specifies that "it is unlawful for any person to cause sound, or for any person in possession of property to permit sound originating from the property, to intrude into the real property of another person whenever the sound exceeds the maximum permissible sound levels established by this article." The ordinance goes further to state that "for sound sources located within the city, the maximum permissible sound levels (dBA) are as follows":

District of Sound Source	District of Receiving Property		
	Residential	Commercial	Industrial
Residential	55	57	60
Commercial	57	60	65
Industrial	60	65	70

According to Section 13-7 of the same ordinance, the maximum permissible sound levels are reduced accordingly: "between the hours of 8:00 p.m. to 6:00 a.m. on weekdays and 8:00 p.m. to 8:00 a.m. on weekends, the sound levels established by section 13-6 are reduced by ten dB(A) where the receiving property lies within a residential district of the city." In the remainder of this report, these time periods will be referred to as 'Nighttime' and all other time periods referred to as 'Daytime'.

FIRST SOUND MONITORING STUDY

Methodology

To quantify the ambient sound levels in the surrounding community, we set up three Rion NL-52 logging sound level meters in locations determined jointly by your office, Americold Logistics, and the City of Gloucester's building inspector. The meters recorded average and statistical sound levels in 10-minute intervals from approximately 3:30pm on October 31st, 2017 to 10:30am on November 8th, 2017. The locations of these meters relative to the Americold HVAC equipment are detailed in Figure 2.

Meter #1 was located on a telephone pole on the corner of East Main Street and Chapel Street, as shown in Figure 3. Meter #2 was located on a telephone pole outside of 167 East Main Street, as shown in Figure 4. Meter #3 was located on a tree in the wooded area behind 183R East Main Street, as shown in Figure 5.

Criterion

The Americold facility at 159 East Main Street is zoned as an industrial district. For sound determined to be coming directly from the Americold plant, the maximum permissible sound levels at each meter location are shown in Table 1.

Table 1. Maximum Permissible Levels from Americold Plant Sound at Each Meter Location

	Meter #1	Meter #2	Meter #3
Nearest Address	134 East Main Street	167 East Main Street	183R East Main Street
Zoning District	Residential	Commercial	Industrial
Daytime Level (dBA)	60	65	70
Nighttime Level (dBA)	50	65	70

Results

In processing the data collected by the meters, we discovered that Meter #1 had failed to record any sound level readings beyond the initial 10-minute interval. This was due to a malfunction in that particular piece of equipment and had no bearing on the data collected at the other locations, which are presented below.

Time history charts for Meters #2 and #3 are presented at the end of this report. These graphs show the overall A-weighted sound level (dBA) plotted across the whole measurement period at each time the meter saved a record of it (every 10 minutes).

The L_{eq} data series is comprised of the average sound level for each 10-minute interval. The L_{10} , L_{90} , and L_{99} data series are percentile exceeded sound level metrics for each 10-minute interval. In other words, the L_{10} reflects the sound level exceeded for 10% of the measurement period (1 minute), the L_{90} reflects the sound level exceeded for 90% of the measurement period (9 minutes), etc.

Discussion

The L_{90} and L_{99} statistical noise metrics are most useful for isolating steady-state noises, like continuously-operating HVAC equipment, from transient sources, like car pass-bys.

At Meter #2, the L_{90} sound levels ranged from 60-66 dBA, meaning that something produced sound at that level for at least 9 minutes in each 10-minute measurement interval. It is likely that the Americold facility equipment established this 'noise floor,' since its HVAC equipment operates continuously and would therefore be best represented by the L_{90} metric. Further evidence for this statement is provided by the fact that there was a clear reduction in sound level at 12am every weeknight and throughout the day on Sunday November 5th, when we understand that the Americold plant transitioned to a lower operating set point.

Meter #2 was located within a commercial district, meaning that sound produced by Americold should not exceed 65 dBA at that location at any time. Based on the data we have collected, we believe that Americold is generally producing sound levels below the 65 dBA limit at this location. At a selection of isolated 10-minute intervals, the L_{90} sound level did reach 66 dBA, but this 1 dB difference would be imperceptible to human hearing, and we cannot conclusively state that it was caused by Americold's equipment.

While the setback of the plant is more difficult to notice in the data recorded by Meter #3, the time-history chart indicates that the L_{90} sound levels at that location typically range between 58 and 64 dBA. Because the location of this meter had clear line-of-sight to the Americold equipment, it can be concluded that the equipment contributed to this set of sound level data. The levels, however, are well below the established industrial zone limit of 70 dBA.

The results of this first sound monitoring study by Acentech indicate that the Americold Logistics plant is operating in compliance with City of Gloucester ordinance at the nearest commercial (167 East Main St.) and industrial (183R East Main St.) district property lines. However, due to the failure of the equipment at the nearest residential district property line (134 East Main Street), further study was necessary.

SECOND SOUND MONITORING STUDY

Methodology

In order to capture data from the nearest residential district property line, we placed two meters at the same location as Meter #1 from the first sound monitoring study. One of the meters was designated as the 'primary' receiver and one as the 'backup.' The meters recorded average and statistical sound levels in 10-minute intervals from approximately 1:00pm on November 28th, 2017 to 12:00pm on December 6th, 2017.

A photo of both meters is presented in Figure 6.

Criterion

At the primary meter location, the maximum permissible levels for sound determined to be coming directly from the Americold plant are shown in Table 2.

Table 2. Maximum Permissible Levels from Americold Plant Sound at Meter Location

	Primary Meter Location
Nearest Address	134 East Main Street
Zoning District	Residential
Daytime Level (dBA)	60
Nighttime Level (dBA)	50

Results

A time history chart for the primary meter is presented at the end of this report. The graph shows the overall A-weighted sound level (dBA) plotted across the whole measurement period at each time the meter saved a record of it (every 10 minutes).

Discussion

As before, we believe the L₉₀ and L₉₉ metrics are the most useful tools for evaluating continuous sound that is coming directly from Americold, while ignoring the sound of car pass-bys, transient foot traffic, etc. These metrics indicate background sound levels in the range of 58-63 dBA during typical weekday operation (6am-12am) of the plant. We conclude that the Americold equipment is causing the sound level to exceed the Daytime residential limit of 60 dBA on a semi-regular basis.

During the expected setback periods (12am-6am nightly and all-day Sunday), the L₉₀ and L₉₉ sound levels at the meter never dropped lower than 55-56 dBA. Sound levels of this magnitude (as well as the higher levels produced between 8pm – 12am on weekdays and 6am – 8am on weekends) violate the Nighttime limit of 50 dBA at this location.

It appears that someone in the community attached Christmas decorations to the pole with the Acentech sound monitoring equipment as shown in Figure 6A. We can report that there was no damage to our instrumentation. Further, a peak in all four data sets indicates that the decorating was performed around 12noon the second to last day of the survey (see a red arrow in Figure 9). After the decorations were installed, the data for the following period appears to be 2-3 dB higher than most of the other days.

Lastly, a brief analysis of the backup meter data confirms the conclusions drawn from the primary meter data.

OVERALL CONCLUSIONS

Americold Logistics is in violation of City of Gloucester Ordinance Number 45-1995, § I, 12-15-1995. The continuous sound levels produced by the facility at the nearest residential district property line (134 East Main Street) exceed those specified in Section 13-6 and Section 13-7 of the ordinance.

* * * * *

We hope this report provides you with the information that you need at this time. If you have any questions, please feel free to contact Michael Bahtiarian at mbahtiarian@acentech.com or (617) 499-8058.

Sincerely,



Michael Bahtiarian, INCE Bd. Cert.
Principal Consultant



Colin Worrich
Consultant

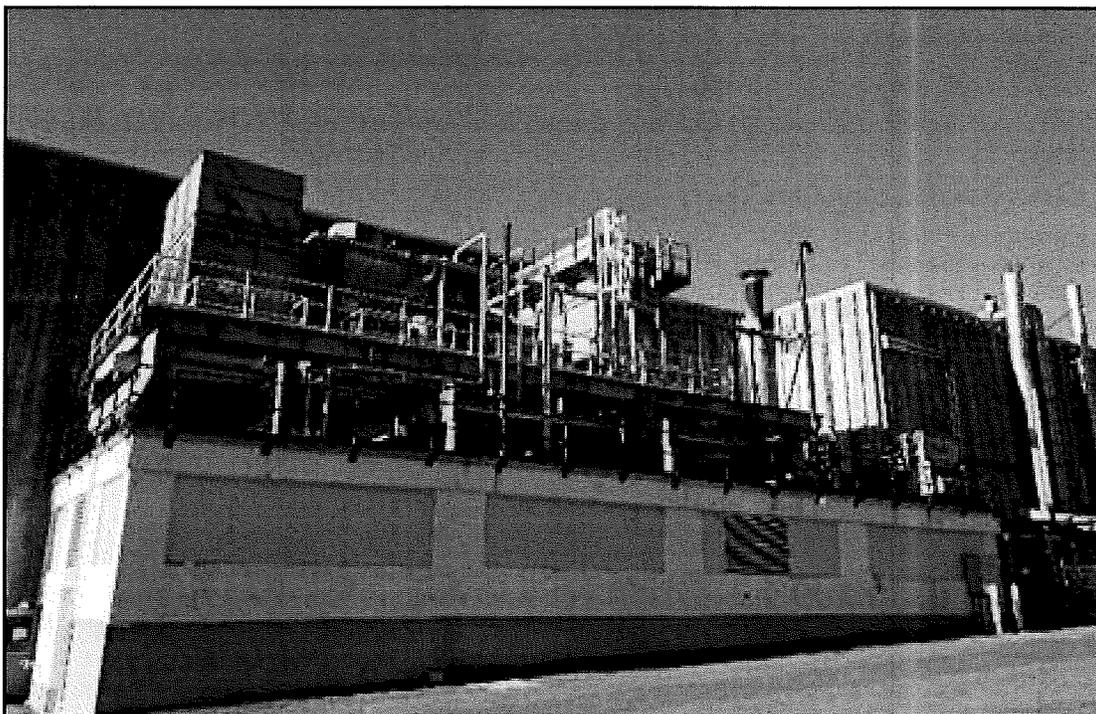


Figure 1. Americold HVAC Equipment

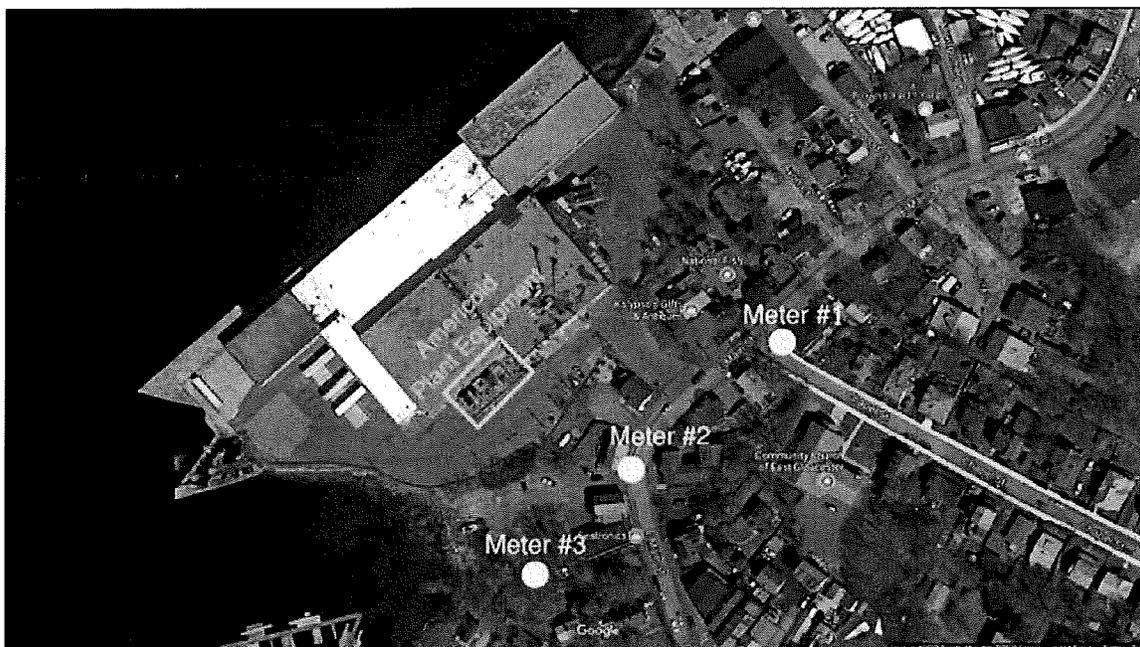


Figure 2. Relative Locations of Meters from First Sound Monitoring Study

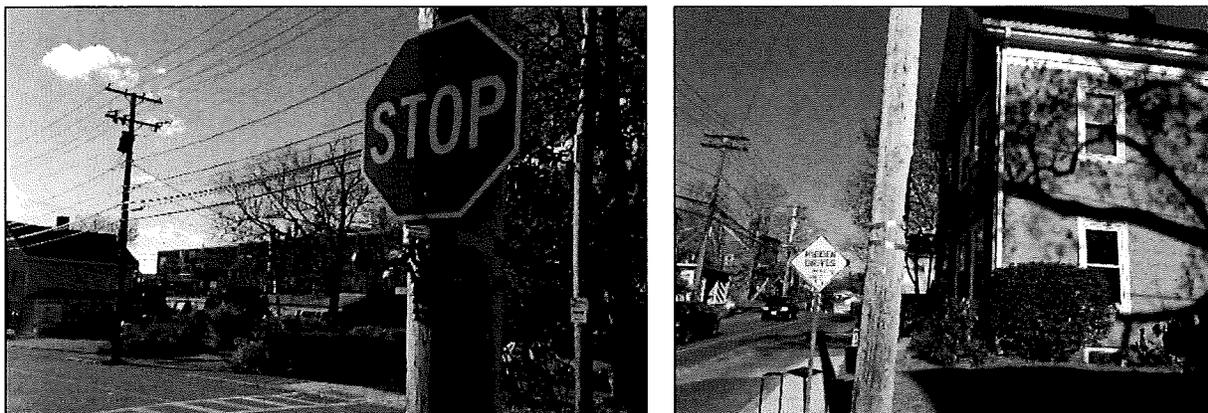


Figure 3. Photos of Meter #1 from First Sound Monitoring Study

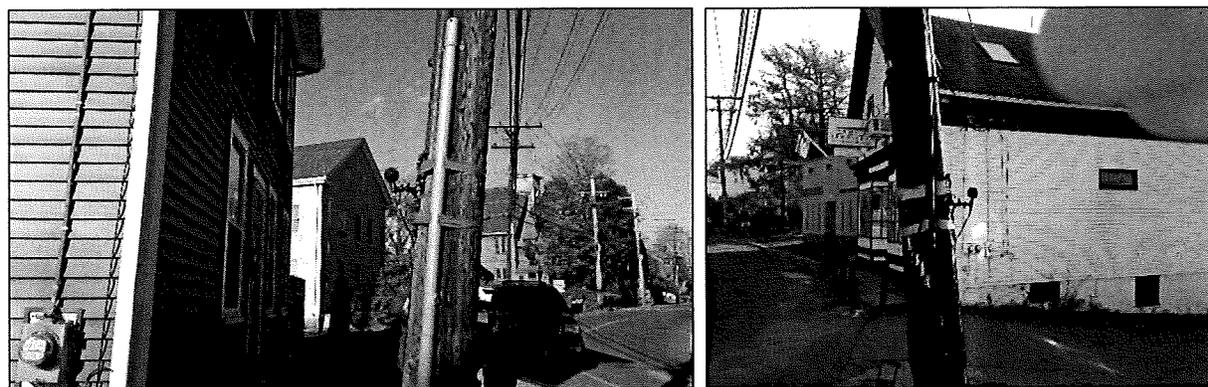


Figure 4. Photos of Meter #2 from First Sound Monitoring Study

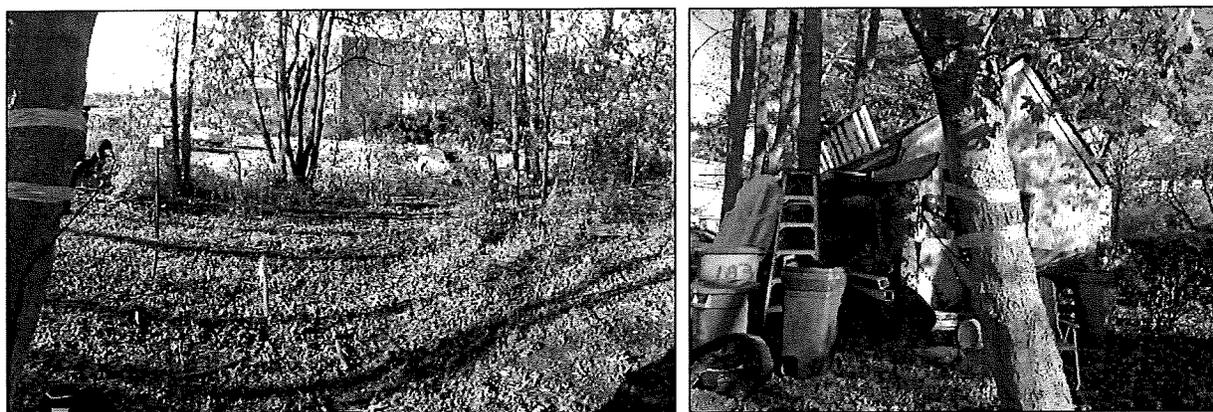


Figure 5. Photos of Meter #3 from First Sound Monitoring Study

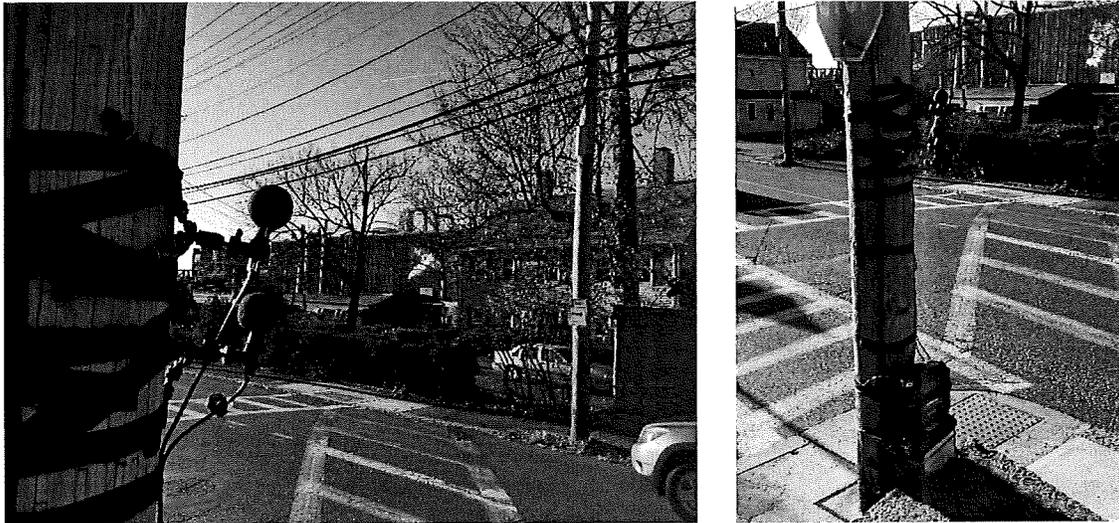


Figure 6. Photos of Primary and Backup Meters from the beginning of the Second Sound Monitoring Study



Figure 6A. Photo of Primary and Backup Meters from the end of the Second Sound Monitoring Study

Overall Sound Pressure Levels Measured in 10-minute Intervals

First Sound Monitoring Study - Meter #2 located on telephone pole near 167 East Main Street - Gloucester, MA

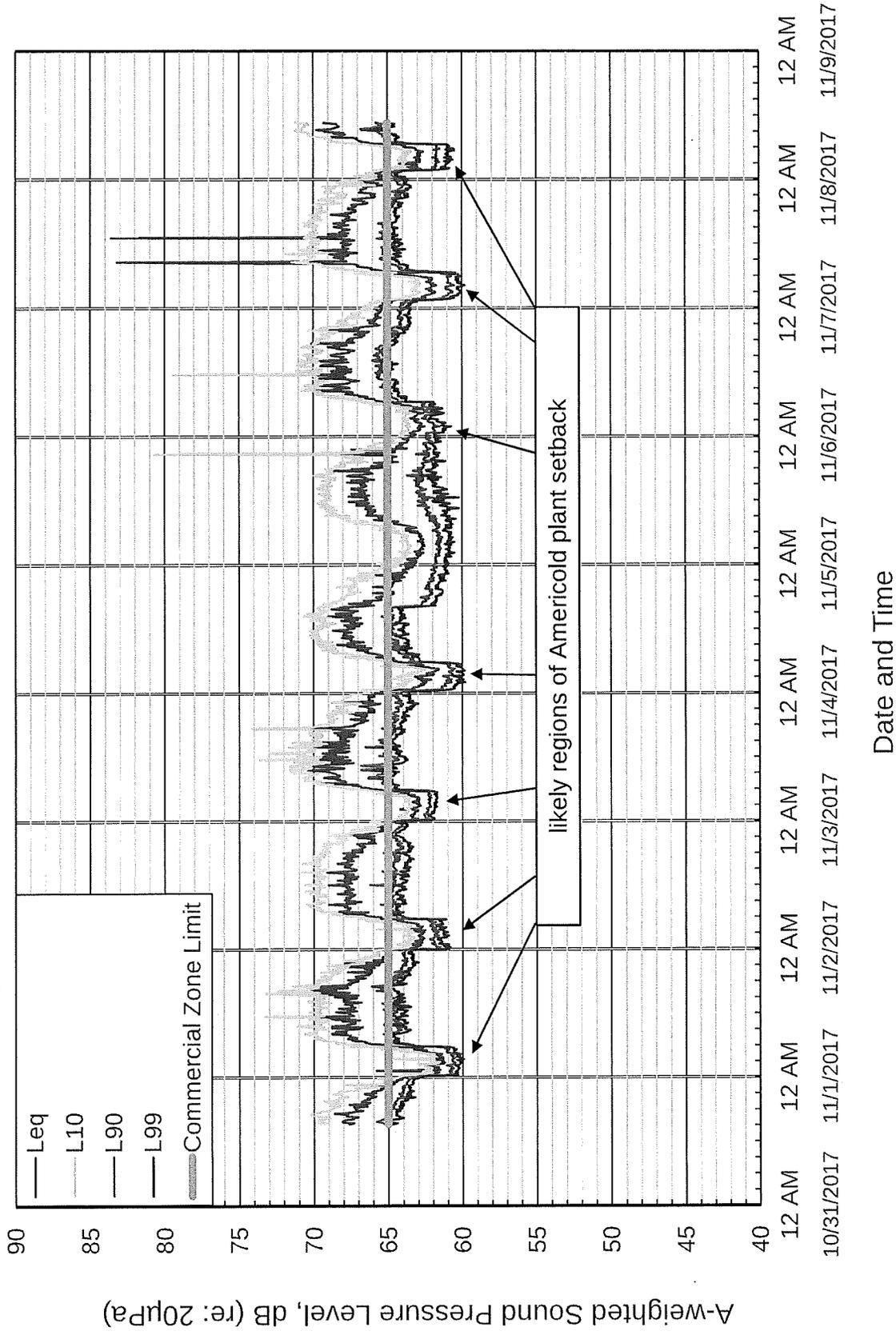
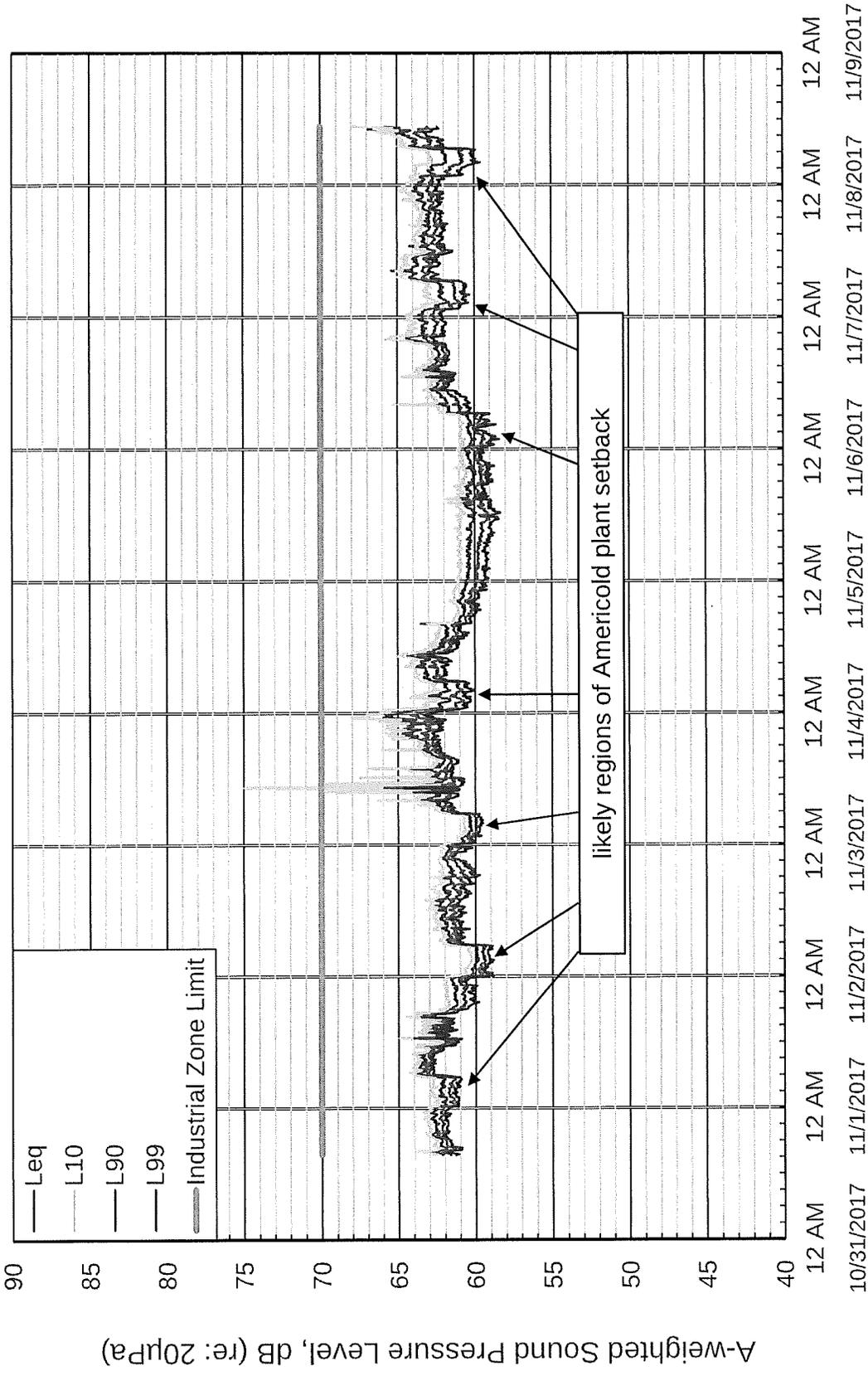


Figure 7. Time History Chart for Meter #2

Overall Sound Pressure Levels Measured in 10-minute Intervals

First Sound Monitoring Study - Meter #3 located in woods near 183R East Main Street - Gloucester, MA



Date and Time

Figure 8. Time History Chart for Meter #3

Overall Sound Pressure Levels Measured in 10-min Intervals

Second Sound Monitoring Study - Meter #1 located on telephone pole outside 134 East Main St.

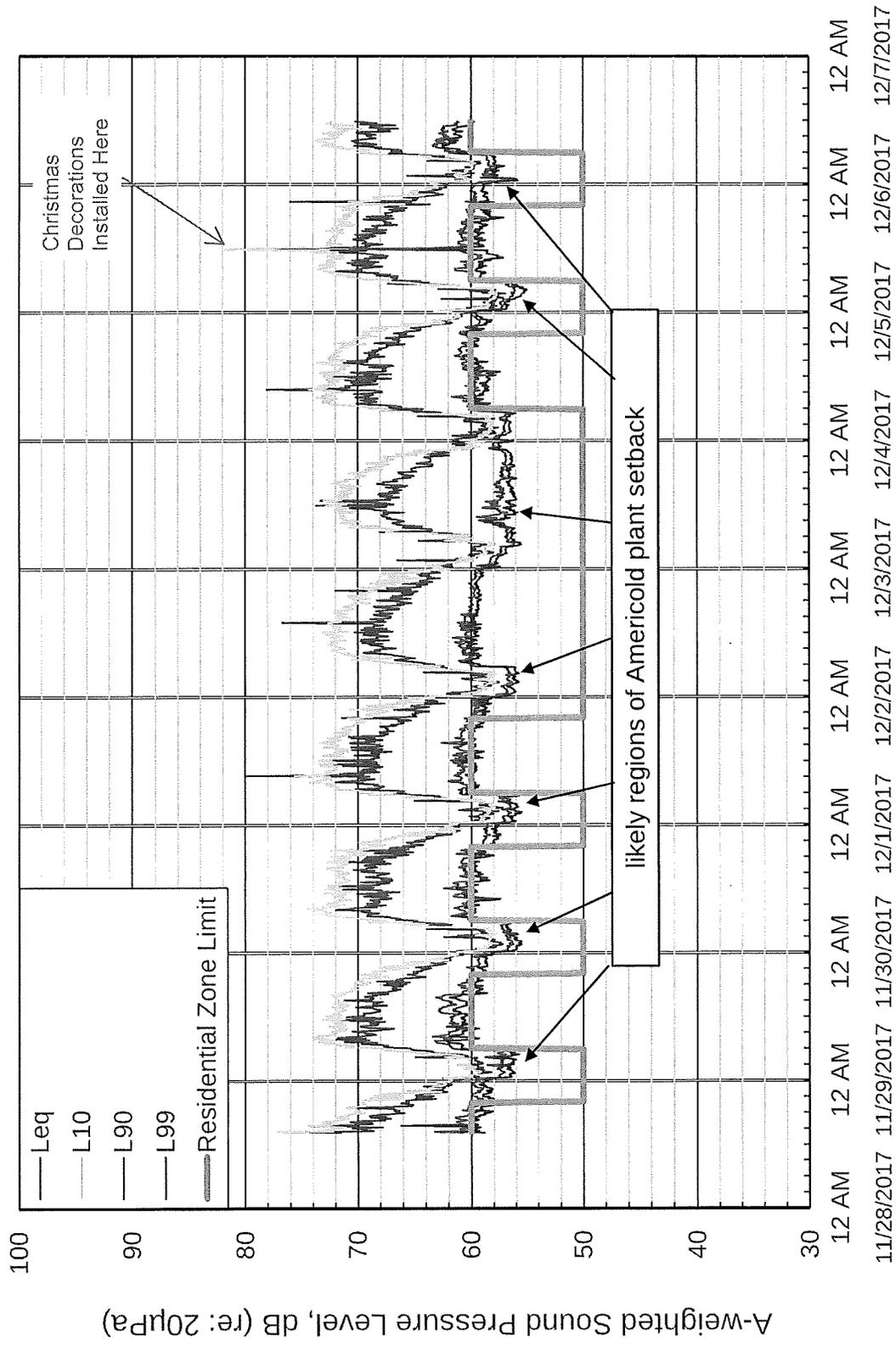


Figure 9. Time History Chart for Meter #1