

DEERFIELD WIND – SPRING 2019 SOUND MONITORING COMPLIANCE REPORT



Noise Technical Report

CROSS-SPECTRUM ACOUSTICS INC.

8/13/2019

Revised October 11, 2019



DEERFIELD WIND SPRING 2019 SOUND MONITORING COMPLIANCE REPORT

CSA Project No. J2018-1170

August 13, 2019

Revised October 11, 2019

**D.E. Barrett, INCE
H.L. Singleton, Jr., INCE Bd. Cert
J.I. Suits
J.C. Montoya**

**Prepared by:
CROSS-SPECTRUM ACOUSTICS INC.**

**25 Granby St.
East Longmeadow, MA 01028
T (413) 315-5770
F (413) 315-5770**

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY.....	1
2. INTRODUCTION	2
2.1. Project Background.....	2
2.2. Noise Fundamentals.....	2
2.3. Project Noise Standards	4
2.3.1. Prominent Discrete Tones.....	4
2.3.2. A-weighted Exterior Sound Levels.....	4
2.3.3. A-weighted Interior Sound Levels.....	5
3. METHODOLOGY	5
3.1. Changes in Methodology Compared to Fall 2018	5
3.1.1. Relocation of Site A.....	5
3.1.2. Addition of Site C-Alt.....	6
3.1.3. One-minute Weather Monitoring Intervals.....	6
3.1.4. ANS-weighting	7
3.2. Field Measurements	7
3.2.1. Monitoring Periods	7
3.2.2. Monitoring Locations	8
3.2.3. Instrumentation	17
3.2.4. Background Sound Measurements	17
3.2.5. Attended Measurement	17
3.3. Data Processing.....	18
3.3.1. Prominent Discrete Tones.....	18
3.3.2. A-weighted Exterior Sound Levels.....	19
3.3.3. A-weighted Interior Sound Levels.....	20
3.3.4. ANS-weighted Sound Levels.....	20
3.3.5. Periods Excluded Based on Turbine Data.....	22
4. MONITORING RESULTS	24
4.1. Prominent Discrete Tones.....	24
4.2. A-weighted Exterior Sound Levels.....	26
4.2.1. Summary.....	26
4.2.2. Site A	26
4.2.3. Site B.....	29
4.2.4. Site C.....	31
4.3. A-weighted Interior Sound Levels.....	35
5. CONCLUSIONS.....	35

APPENDIX A – FINAL SOUND MONITORING PROTOCOL FOR DEERFIELD WIND	A1
APPENDIX B – FALL 2018 MEASUREMENT PLAN	B1
APPENDIX C – FIELD DATA SHEETS	C1
APPENDIX D – SOUND MEASUREMENT INSTRUMENTATION.....	D1
APPENDIX E – WIND TURBINE DATA	E1
APPENDIX F – ATTENDED MEASUREMENT OBSERVER LOGS.....	F1
APPENDIX G – EXCLUDED DATA: INITIAL FILTERING	G1
APPENDIX H – EXCLUDED DATA: ADDITIONAL FILTERING, “TURBINE-OFF” PERIODS.....	H1
APPENDIX I – EXCLUDED DATA: ADDITIONAL FILTERING, “TURBINE-ON” PERIODS.....	I1

LIST OF TABLES

Table 1. Spring 2019 Monitoring Sites.....	10
Table 2. Deerfield Wind Operational Curtailments, May 8 – June 12, 2019.....	18
Table 3. Weighting System (A or ANS) Applied for Each Curtailment.....	21
Table 4. Prominent Discrete Tones.....	25
Table 5. Summary of A-weighted Exterior Sound Levels.....	26
Table 6. Summary of A-weighted Interior Sound Levels	35

LIST OF FIGURES

Figure 1. Typical A-weighted Environmental Sound Levels.....	3
Figure 2. Noise Monitoring Sites and Project Wind Turbines.....	9
Figure 3. Site A Location Map.....	10
Figure 4. Site A (Relocated), View to North	11
Figure 5. Site A (Relocated), View to Southeast	11
Figure 6. Site B Location Map.....	12
Figure 7. Site B, View to Northeast	13
Figure 8. Site B, View to Northwest.....	13
Figure 9. Site C Location Map.....	14
Figure 10. Site C, View to Northwest.....	15
Figure 11. Site C, View to East.....	15
Figure 12. Site C and Site C-Alt, View to Northeast.....	16
Figure 13. Site C-Alt, View to Northeast.....	16
Figure 14. ANS-Weighting and A-Weighting Comparison.....	22
Figure 15. Sound Level and Weather Data: Site A, May 8 – May 13, 2019	27

Figure 16. Sound Level and Weather Data: Site A, May 13 – May 20, 2019	27
Figure 17. Sound Level and Weather Data: Site A, May 20 – May 27, 2019	28
Figure 18. Sound Level and Weather Data: Site A, May 27 – June 2, 2019	28
Figure 19. Sound Level Time History Site A, May 19, 2019, 4:20 AM to 7:00 AM	29
Figure 20. Sound Level and Weather Data: Site B, May 8 – May 13, 2019.....	30
Figure 21. Sound Level and Weather Data: Site B, May 13 – May 20, 2019.....	30
Figure 22. Sound Level and Weather Data: Site B, May 20 – May 24, 2019.....	30
Figure 23. Sound Level Time History Site B, May 18, 2019, 12:30 AM to 3:10 AM	31
Figure 24. Sound Level and Weather Data: Site C, May 8 – May 13, 2019.....	32
Figure 25. Sound Level and Weather Data: Site C, May 13 – May 20, 2019.....	32
Figure 26. Sound Level and Weather Data: Site C, May 20 – May 27, 2019.....	32
Figure 27. Sound Level and Weather Data: Site C, May 27 – June 3, 2019.....	33
Figure 28. Sound Level and Weather Data: Site C, June 3 – June 10, 2019.....	33
Figure 29. Sound Level and Weather Data: Site C, June 10 – June 12, 2019.....	33
Figure 30. Sound Level Time History Site C, May 19, 2019, 4:20 AM to 7:00 AM	34

1. EXECUTIVE SUMMARY

Cross-Spectrum Acoustics (CSA) was retained by the Vermont Department of Public Service (the Department) to provide sound monitoring expert services for the Deerfield Wind Project (the Project) located in Searsburg and Readsboro, Vermont. The Project's Certificate of Public Good (CPG) contains conditions limiting sound emissions from the Project and requiring submission of a sound monitoring plan to be implemented during the first full year of operation. Sound monitoring is to take place under the direction of the Department and must be conducted in accordance with the "Final Sound Monitoring Protocol for Deerfield Wind"¹ (the Protocol). Pursuant to the Protocol, monitoring is required to consist of two continuous periods, each of two to five weeks duration, with one during the fall and one during the spring. The purpose of the monitoring program is to determine whether the Project is operating in compliance with the sound monitoring standards set forth in its CPG.

CSA completed the fall 2018 monitoring program over a period of five weeks from October 22 until November 26, 2018 with measurements conducted at three locations, designated as Sites A, B, and C. The methodology and findings previously were presented in the final report for the fall measurement program².

CSA completed the spring 2019 monitoring program over a period of five weeks from May 8 until June 12, 2019. Approximately 595 hours of raw data were collected at Site A over 25 days; approximately 380 hours of data were collected at Site B over 16 days; and approximately 790 hours of data were collected at Site C over 35 days. Following the methodology provided in the Protocol, CSA analyzed the measurement data with respect to the CPG's standards for prominent discrete tones, A-weighted exterior sound levels, and A-weighted interior sound levels. The conclusions for each standard are as follows:

- *Prominent Discrete Tones:* The entire monitoring period at each measurement site was evaluated for prominent discrete tones. No occurrences of prominent discrete tones associated with the Project were identified during the spring 2019 monitoring period.
- *A-weighted Exterior Sound Levels:* Using the methodology provided in the Protocol, exterior "turbine-only" sound levels were calculated from measured "turbine-on" and "turbine-off" sound levels. For the spring monitoring period, computed "turbine-only" sound levels at all measurement sites complied with the CPG's exterior sound level limit.
- *A-weighted Interior Sound Levels:* Interior "turbine-only" sound levels were calculated from measurements of exterior "turbine-on" and "turbine-off" sound levels and the assumption of a fixed Outdoor-to-Indoor Noise Reduction (OINR) of 15 dB to the A-weighted exterior sound level. For the spring monitoring period, the computed "turbine-only" sound levels at all measurement sites complied with the CPG's interior sound level limit.

In summary, based on the measurements and analysis conducted in accordance with the Protocol and described in this report, we conclude that the Deerfield Wind Project complies with all aspects of the CPG's sound level limits for the spring 2019 monitoring program.

¹"Final Sound Monitoring Protocol for Deerfield Wind," prepared for: Deerfield Wind, LLC, prepared by: RSG, January 16, 2018.

²"Deerfield Wind Fall 2018 Sound Monitoring Compliance Report," prepared by: Cross-Spectrum Acoustics, Inc., January 7, 2019.

2. INTRODUCTION

This section provides an introduction to the sound monitoring compliance report and includes the Project's background, a brief introduction to the fundamentals of sound and noise descriptors, and a discussion of the Project's noise standards.

2.1. PROJECT BACKGROUND

CSA was retained by the Department to provide sound monitoring expert services for the Deerfield Wind Project located in Searsburg and Readsboro, Vermont. The Project was approved by the Vermont Public Utility Commission (PUC, formerly the Public Service Board) in Docket 7250 on April 16, 2009 and commenced operations late in 2017. The CPG, issued April 16, 2009 and amended July 17, 2009, contains conditions limiting sound emissions from the Project, and requiring submission of a sound monitoring plan to be implemented during the first full year of operation. Sound monitoring is to take place under the direction of the Department and must be conducted in accordance with the Protocol approved by the PUC in Docket 7250 in January 2018. (The Protocol is attached to this report as Appendix A.)

The Protocol requires monitoring to consist of two continuous periods, each of two to five weeks duration, with one during the fall and one during the spring. This report describes the methodology and findings of the spring 2019 monitoring period. The remainder of the report provides a brief introduction to understanding environmental noise, describes the applicable Project noise standards as set forth in the CPG, describes the methodology used in the sound monitoring and data analysis, provides the results of the second (spring 2019) period of sound monitoring, and provides conclusions based on the monitoring results.

2.2. NOISE FUNDAMENTALS

Sound is defined as vibrations that travel through the air or another medium and can be heard when they reach a person's or animal's ear. Noise often is defined as unwanted sound. All sounds may be characterized by three parameters:

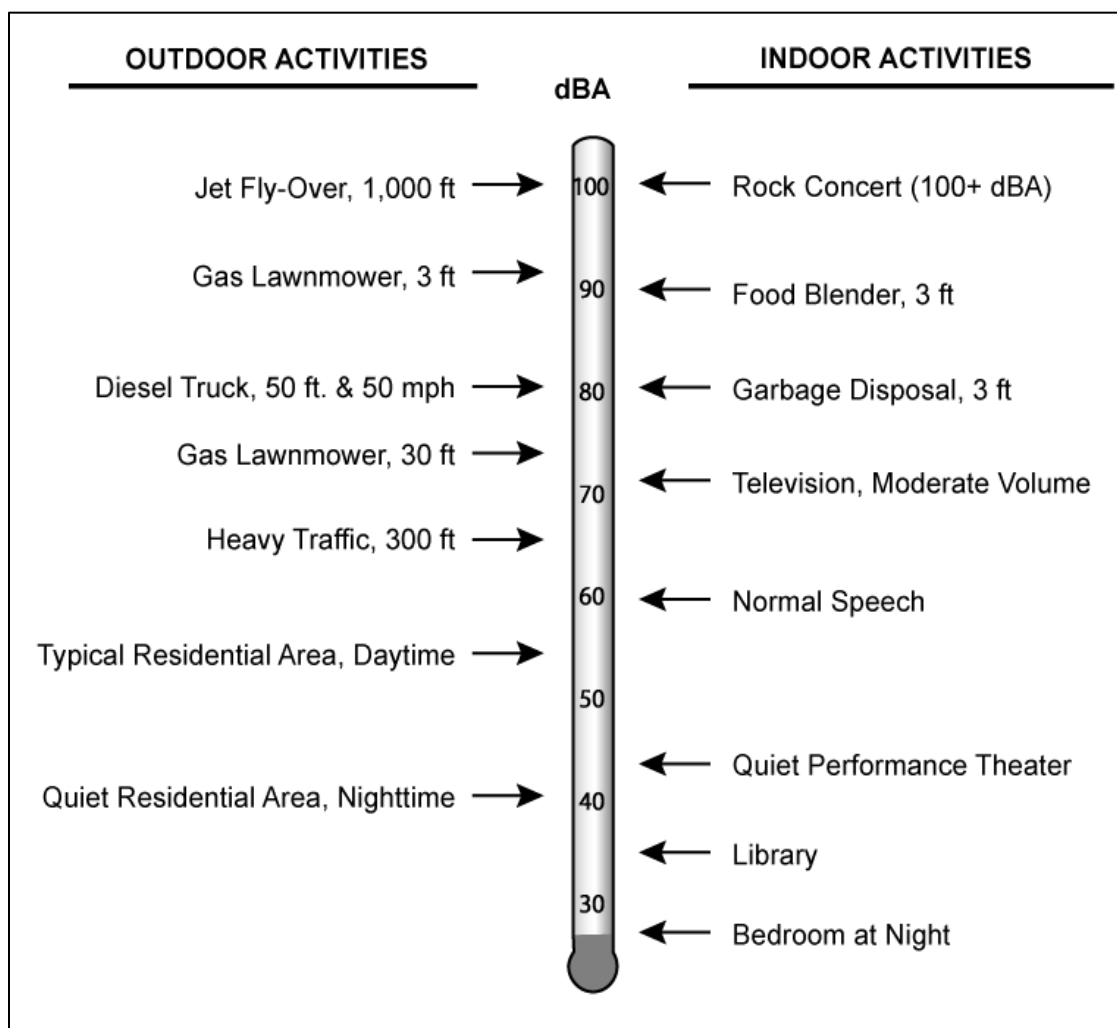
- **Level:** Sound is transmitted through the air in sound waves comprised of small oscillations in pressure just above and below atmospheric pressure. Sound pressure *level* is expressed in decibels (dB), a logarithmic quantity based on the sound pressure of the sound source of interest and a reference pressure representing the quietest sound we can hear. Although humans can detect sound levels from close to 0 dB (the lower limit of human hearing) to approximately 120 dB without experiencing pain, most environmental sounds fall within a range between about 30 dB and 100 dB.

Because decibels are logarithmic quantities, sound pressure levels do not combine, or add, as we might expect. For example, combining two sound sources that each generate a sound pressure level of 40 dB individually causes a total sound pressure level of 43 dB (not 80 dB). Every doubling of source strength results in an increase of 3 dB, so that four 40-dB sources have a combined sound pressure level of 46 dB, eight 40-dB sources have a combined sound pressure level of 49 dB, etc. A tenfold increase in either the source strength or number of equivalent sources causes the sound pressure level to increase by 10 dB.

If a louder noise source and a quieter noise source operate simultaneously, the louder source will dominate the overall sound pressure level. For example, if a 20-dB source is added to a 40-dB source, the quieter source will add less than 0.1 dB to the louder source, resulting in a combined sound pressure level that still is approximately 40 dB. As the quieter source gets louder, however, its effect on the combined sound pressure level will increase. If the quieter source increases until it is equal to the louder source, it will add 3 dB to the combined sound level, resulting in an overall sound level of 43 dB.

In a related fashion, humans also perceive changes in sound pressure level logarithmically. Generally, a change in sound level of 6-10 dB may be perceived as a doubling (or halving) of the sound level. Changes in sound level of less than 3 dB change are difficult to perceive in an environmental setting.

- **Frequency:** Frequency (pitch) is related to the rate of the small oscillations in air pressure that we perceive as sound, and is expressed in cycles per second, or Hertz (Hz). Human ears can detect a wide range of frequencies from around 20 Hz to 20,000 Hz when we are young, but the upper limit tends to decrease to about 10,000 Hz to 15,000 Hz as we age. Because human hearing is less sensitive at very high and low frequencies, the A-weighting system, which emphasizes mid-range frequencies between about 500 Hz and 10,000 Hz, was developed to correlate with human response to noise. The A-weighted sound level has been widely adopted by acousticians as the most appropriate descriptor for environmental noise. Sound levels that have been measured using A-weighting typically are expressed as “A-weighted decibels” (dBA), or indicated with a subscript such as L_{AS} (A-weighted “slow response” sound pressure level). Figure 1 provides examples of A-weighted sound levels for some typical environmental noise sources.



(Source: Federal Transit Administration, 1995)

Figure 1. Typical A-weighted Environmental Sound Levels

- **Time Pattern:** Because environmental noise changes continuously, it is sometimes convenient to describe a particular noise event or source in terms of its maximum sound level ($L_{\max}$ or $L_{A\max}$). While the maximum sound level is useful in describing one aspect of an event or noise source, it provides no information on the duration of the event or the cumulative exposure to a noise source. A common way to account for the cumulative exposure is to express the energy-average of the actual time-varying sound level over a period of time as a single number, called the “equivalent” sound level (L_{eq} or $L_{A\text{eq}}$). The L_{eq} is the constant or “equivalent” sound level that would contain the same amount of sound energy as the time-varying sound level over the same period. Due to the logarithmic addition of noise sources described above, L_{eq} is influenced strongly by the loudest events that occur during a particular period. Because the L_{eq} represents the changing sound level over a specific interval, such as one hour, an eight-hour workday, or the nine-hour nighttime period from 10:00 PM until 7:00 AM, it is important that the time period be expressed or understood when using the metric.

2.3. PROJECT NOISE STANDARDS

The purpose of the monitoring program is to determine whether the Project is operating in compliance with the sound monitoring standards set forth in its CPG. The CPG conditions relevant to Project noise standards are as follows:

Deerfield shall construct and operate the Project so that the turbines emit no prominent discrete tones pursuant to ANSI standards at the receptor locations; and Project-related sound levels at any existing surrounding residences do not exceed 45 dBA (exterior) (L_{eq} , 1 hour) or 30 dBA (interior bedrooms) (L_{eq} , 1 hour).

Each of these requirements is discussed below in greater detail.

2.3.1. Prominent Discrete Tones

The presence of prominent discrete tones for this project was based on ANSI Standard S12.9-2005 Part 4, Annex C³, which provides the following guidance to test for tonal content:

The test for the presence of a prominent discrete-frequency spectral component (tone) typically compares the time-average sound pressure level in some one-third-octave band with the time-average sound pressure levels in the adjacent two one-third-octave bands. For a prominent discrete tone to be identified as present, the time-average sound pressure level in the one-third-octave band of interest is required to exceed the time-average sound pressure level for the two adjacent one-third octave bands by some constant level difference. The constant level may vary with frequency. Possible choices for the level differences are 15 dB in low-frequency one-third-octave bands (25-125 Hz), 8 dB in middle frequency bands (160-400 Hz), and 5 dB in high-frequency bands (500-10,000 Hz).

The analysis in this report was conducted using the ANSI Standard’s suggested “possible choices” for level differences.

2.3.2. A-weighted Exterior Sound Levels

The CPG for the Project requires that project-related exterior sound levels at any existing surrounding residences do not exceed 45 dBA (exterior) (L_{eq} , 1 hour). Because it is not possible to measure project-related sound levels directly in the presence of other background noise sources, the Protocol provides a

³ ANSI S12.9-2005/Part 4, *Quantities and Procedures for Description and Measurement of Environmental Sound, Part 4: Noise Assessment and Prediction of Long-Term Community Response*, Annex C: Sounds with tonal content, American National Standards Institute, Inc., 2005.

procedure for determining project-related sound through related measurements. The procedure requires separate measurements of two different quantities: overall sound levels (i.e. background sound plus project-related sound) and background-only sound levels (i.e. with use of all project-related equipment curtailed). The background sound level then is subtracted logarithmically from the overall sound level to determine the project-related exterior sound level.

2.3.3. A-weighted Interior Sound Levels

“Because the 30 dB interior limit established by the PUC is sufficiently low that the sound test is easily contaminated by normal activities that occur indoors” and, additionally, because “frequent sound monitoring inside a bedroom is intrusive,” the Protocol limits sound tests of turbine operations to exterior measurements, with interior sound levels calculated based on a fixed 15 dBA reduction.⁴ Homeowners, however, have the option to request testing to determine the actual outside to inside noise reduction (OINR) of their house if the home meets either of the following criteria:

- The preconstruction sound model shows Deerfield Project sound levels of 40 dBA or higher at that location; or
- Sound monitoring (post-construction) shows Deerfield Project sound levels of 40 dBA (L_{eq})(1 hr) or higher at that location.

3. METHODOLOGY

This section of the report provides an overview of the required methodology as provided in the Protocol. The Protocol provides an outline of the required methodology for both the field measurements and the data processing related to the sound monitoring program. The “Noise Monitoring Plan for Deerfield Wind Project, Final, Revised,”⁵ (“Monitoring Plan,” attached to this report as Appendix B), originally developed for the fall 2018 measurements, provides additional details regarding the logistics of the measurements. Although the methodology used for the spring 2019 measurements was similar, several changes were made due to different conditions during the spring measurement period and site-specific experience gained during the fall 2018 measurements. Each of these changes is described below in Section 3.1.

Both the Protocol and the Monitoring Plan may be consulted for further details beyond the overview provided here.

3.1. CHANGES IN METHODOLOGY COMPARED TO FALL 2018

This section of the report describes the changes in methodology between the fall 2018 and spring 2019 measurements.

3.1.1. Relocation of Site A

During the fall 2018 measurements, Site A was positioned at the location of a house that had previously burned down. When the owner was contacted prior to the start of the spring 2019 measurements, CSA was informed that construction of a new house would occur during the period of the spring measurements. To ensure that the measurement equipment would not interfere with construction activities, Site A was relocated to another position on the same property approximately 150 feet to the north/northeast. Compared to the original site, any difference in distance to the nearest turbines (over 3,700 feet away) was negligible and screening provided by terrain was similar. Because the Protocol requires that all measurements used for compliance assessment occur between 10:00 PM and 7:00 AM, it was determined to be unlikely that noise from construction activities would interfere with the

⁴Protocol, Section 2.5 “Outside to Inside Test,” p. 6.

⁵“Noise Monitoring Plan for Deerfield Wind Project, Final, Revised,” Prepared for: Vermont Department of Public Service; Prepared by: Cross-Spectrum Acoustics, Inc., October 17, 2018.

measurements. In addition, any construction activities that did occur during those hours would be readily identified through the measurement data and accompanying audio recordings. Although the relocated site was closer to VT Route 9 than the original site, all vehicle passbys were filtered from the measurement data and, therefore, did not affect the measurement results. All docket parties were informed of the proposed change by email and provided an opportunity to comment prior to the start of the spring measurements.⁶ Section 3.2.2 of the report provides further information on both the original and relocated site and a figure showing both measurement locations.

3.1.2. Addition of Site C-Alt

Site C is the closest of the three measurement sites to the separate Searsburg Wind Energy Facility operated by Green Mountain Power. Because the Searsburg turbines are not part of the Deerfield Project, they remained in operation during the Deerfield curtailments conducted during the fall 2018 measurements and influenced background sound levels at Site C. During the fall 2018 measurements, it was determined that the proximity of Site C to the Searsburg turbines was the primary reason for the relatively small difference between the “turbine-on” and “turbine-off” sound levels at this site.⁷

As described in Section 3.3.2 of this report, the Protocol requires that when “background sound levels are within 3 dB of the adjacent measured Turbine-on sound levels, the background and Turbine-on periods will be excluded from further processing.”⁸ Although this criterion resulted in the exclusion of some data at all three monitoring sites during the fall 2018 measurements, the issue was most prevalent at Site C, where it caused the exclusion of nearly 10 hours of otherwise valid “turbine-on” data. Consequently, despite conducting the maximum five weeks of monitoring mandated by the Protocol at Site C, the required threshold of two hours of valid data was not achieved at Site C during the fall 2018 measurements.

To address this issue prior to the spring 2019 measurements, the Department submitted a motion to the PUC to modify the Protocol for the spring 2019 measurements, and the motion was granted by the PUC on April 25, 2019. The modification added a supplementary measurement location for the spring 2019 measurements, with monitoring conducted both at Site C and a new Site C-alt. In accordance with the modified Protocol, “Site C-alt would be in close proximity to Site C, and would be flush-mounted on the outer wall of a building on the west side facing away from the Searsburg wind turbines.”⁹ The purpose of Site C-alt was to provide measurement data obtained at a location close to the original Site C, but largely shielded from sound generated by the Searsburg turbines. Data from Site C-alt were to be utilized only if insufficient data were obtained at the original Site C. Ultimately, sufficient valid data were collected at Site C during the spring 2019 measurements, and the Site C-alt data were not used in the analysis or reporting. Section 3.2.2 of this report provides additional information on Site C-alt.

3.1.3. One-minute Weather Monitoring Intervals

During the fall 2018 measurements, in accordance with the Protocol’s requirements,¹⁰ meteorological equipment at Site B included a weather station which logged temperature, precipitation, wind speed, and wind direction over 10-minute intervals. Also in accordance with the Protocol, meteorological equipment at Site A and Site C included anemometers and wind vanes which logged wind speed and direction over 10-minute intervals. Subsequent to the fall 2018 measurements, Deerfield’s consultant, RSG,

⁶ Email from Allison Wannop, Subject: “Deerfield Wind Spring Sound Monitoring: Update on Site A,” May 2, 2019.

⁷ “Deerfield Wind, Fall 2018 Sound Monitoring Compliance Report,” pp. 26-27.

⁸ Protocol, Section 3.0 “Data Processing,” p. 9.

⁹ “Order Granting Motion to Modify the Sound Monitoring Protocol and Deferring a Decision on Thomas Shea’s Request for Outdoor/Indoor Noise Reduction Testing,” State of Vermont Public Utility Commission, p. 3, April 25, 2019.

¹⁰ Protocol, Section 2.4 “Logistics,” p. 5.

recommended increasing the wind speed logging frequency from 10-minute intervals to 1-minute intervals. CSA considered this recommendation and agreed to do so for the Spring 2019 measurements.¹¹ The primary benefit of the shorter logging frequency was potentially to provide more valid data by having the option to exclude measurement intervals shorter than 10 minutes due to weather conditions.

3.1.4. ANS-weighting

In some situations, natural sounds such as birds, insects, and frogs may influence background sound levels measured in natural and quiet outdoor areas. The Protocol recognizes this and permits the filtering of such sounds by employing a low pass filter (i.e. a filter which excludes high frequencies) which the Protocol advises may be used “without affecting the sound monitored from the turbines.”¹² Although the Protocol provides a reference for so-called “Ai-weighting” of measured sound levels,¹³ an American National Standard to address this issue has been developed jointly by the American National Standards Institute (ANSI) and the Acoustical Society of America (ASA).¹⁴ The resulting standard, which was based on Ai-weighting, defines the “ANS-weighted sound level” and provides guidance for its use.

In addition to defining the ANS-weighted sound level and providing guidance for its use, the Standard also provides a comparison of the A-weighted and ANS-weighted sound levels for various noise sources in the absence of natural sounds. For “general community noise,” the average ANS-weighted sound level has been shown to be 1.0 dB lower than the A-weighted sound level. For “fan noise” the average ANS-weighted sound level has been shown to be 0.8 dB lower than the A-weighted sound level.¹⁵

During the fall 2018 measurements, there was little nocturnal bird, insect, or frog activity; therefore ANS-weighting was not utilized. During the spring 2019 measurements however, ANS-weighting was used, to some extent, at Sites A, B, and C. At Site A and Site B, ANS-weighting was most often used to filter out bird songs between approximately 4:00 AM and 7:00 AM. At Site C, due to the presence of a small pond near the measurement site, frogs often were active throughout the night, and ANS-weighting was used more extensively.

In all cases, if it was necessary to use ANS-weighting for any portion of a particular curtailment (i.e. any portion of either the turbine-off or turbine-on periods), then ANS-weighting was used for the entire curtailment. This approach ensured that the comparison of turbine-on and turbine-off sound levels to determine the required 3-dB difference would always use the same metric for all data associated with a single curtailment. In all cases, the report distinguishes between the use of A-weighted and ANS-weighted sound levels.

3.2. FIELD MEASUREMENTS

3.2.1. Monitoring Periods

The Protocol requires that the fall and the spring monitoring periods each have a minimum continuous duration of at least two weeks, but may be extended for up to five weeks, if necessary, to obtain sufficient data. The spring 2019 measurements began at all sites on Wednesday, May 8. After confirming that sufficient valid data had been collected, measurements were concluded at Site B on Friday, May 24. At Site A, after confirming that sufficient valid data had been collected, measurements were concluded on

¹¹ “Order Granting Motion to Modify the Sound Monitoring Protocol and Deferring a Decision on Thomas Shea’s Request for Outdoor/Indoor Noise Reduction Testing,” pp. 4-5.

¹² Protocol, Section 3.0 “Data Processing,” p. 8.

¹³ “Proposed ‘Ai’-weighting; A weighting to remove insect noise from A-weighted field measurements,” Paul D. Schomer, Ian M. Slauch, and George F. Hessler, *Internoise Proceedings*, Volume 221, pp. 3991-4000, 2010.

¹⁴ *Methods to Define and Measure Residual Sound in Protected Natural and Quiet Residential Areas, ANSI/ASA Standard S3/SC1.100-2014 and ANSI/ASA S12.100-2014*, American National Standards Institute/Acoustical Society of America, December 5, 2015.

¹⁵ *Ibid.*, Annex A.

Sunday, June 2. Measurements at Site C continued for the full five-week period, concluding on Wednesday, June 12.

3.2.2. Monitoring Locations

The Protocol describes the general locations for the three required sound monitoring sites and also states “where monitoring locations are near residential areas, to the extent permission is granted, monitors shall be set near individual homes closest to the Project at these locations. If permission is not granted, then alternative homes shall be contacted, or monitors will be placed in public rights-of-way that are representative of a home, at a similar or lesser distance from the Project.”¹⁶ Based on this guidance and using aerial photo imagery, CSA first selected several candidate locations for each monitoring site prior to the fall 2018 measurement program. CSA then conducted visits to the project area on October 1, 2018 and October 16, 2018 to field check the candidate sites. Following the site visits, and after receiving additional input from docket holders, CSA selected the three final sites to be used in both the fall 2018 and spring 2019 monitoring periods.

The three final sites were selected based upon the guidance in the Protocol; conditions on the ground, including accessibility and distance from local noise sources such as roads; and the ability to gain permission from property owners. In all cases, in accordance with the Protocol, sites were selected that were “at least 7.5 m from any surface where reflections could influence measured sound pressure levels” and were placed in locations “to avoid potential contamination from sources such as flowing water, wind chimes, air conditioners, noise from homes, etc.” In addition, sites were selected such that no “structure blocks the line of sight between the microphone and the wind turbines (if otherwise visible).” Finally, CSA made “every reasonable effort to site microphones in a manner that will maximize the probability of capturing the maximum noise levels at each monitoring location, taking into account all relevant factors such as minimizing line-of-sight obstructions between microphone and the Project, and maximizing the number of turbines in line-of-sight of the microphones at each monitoring location.”¹⁷

For the spring 2019 measurements, the locations of Site B and Site C were the same as those used for the fall 2018 measurements. As described above in Section 3.1.1, due to construction activity at the former house location used during the fall 2018 measurements, Site A was relocated approximately 150 feet to the north/northeast. Both the distance and line-of-sight to the nearest wind turbines were comparable at the two locations. As described in Section 3.1.2, measurements also were conducted at a supplemental measurement site located on the same property as Site C. The measurement data collected at this location (Site C-alt) were not used in the analysis because a sufficient amount of valid data was obtained at the original Site C.

Figure 2 provides an overview map showing the general location of each measurement site and the locations of the Project’s 15 turbines. Following the figure, Table 1 provides a general description of each measurement site’s location, the approximate latitude and longitude of the site, the property owner, and other relevant notes.

The following text offers further information on each monitoring site, and Appendix C provides field data sheets for each measurement location, including site sketches.

¹⁶Protocol, Section 2.3 “Microphone Locations,” p. 4.

¹⁷Protocol, Section 2.4 “Logistics,” p. 5.

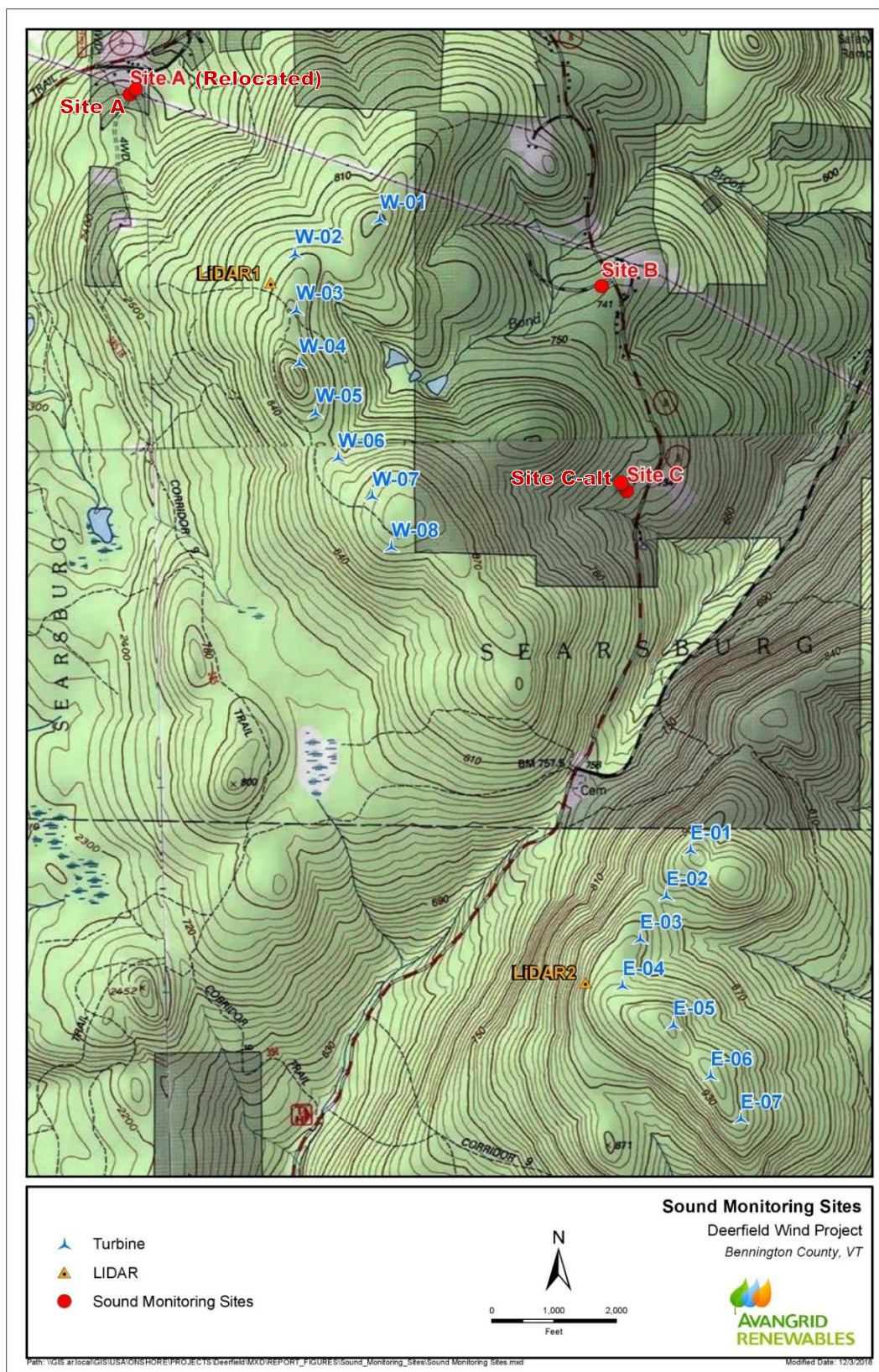


Figure 2. Noise Monitoring Sites and Project Wind Turbines

Table 1. Spring 2019 Monitoring Sites

Monitoring Site	Location	Lat./Long.	Owner	Notes
Site A (Relocated)	South of Old Route 9 and VT Route 9	42.89102 -73.00001	James Bartleson	House shown in aerial imagery no longer present
Site B	197 VT Route 8	42.88178 -72.97244	Gerry DeGray	Clearing to south side of house and driveway
Site C	343 VT Route 8	42.87274 -72.97124	Tom Shea	Edge of graded area south of barn
Site C-alt	343 VT Route 8	42.87286 -72.97122	Tom Shea	Flush-mounted on west exterior wall of barn

Site A: The Protocol describes Site A as “located south of Old Route 9, east of Bishop Hill Road, and south of VT Route 9 in Searsburg. This site is similar in location to Site 2 from the preconstruction monitoring.”¹⁸ For the fall 2018 measurements, the actual location selected for Site A was on the former site of a house located off of Old Route 9 and approximately 600 feet south of the centerline of VT Route 9, south of the transmission line right of way. The microphone was located approximately 110 feet southwest of the nearest utility pole. This location was representative of several homes located on Old Route 9 and represents the closest homes to the northwest of the Project’s western group of turbines (indicated on Figure 2 as W-01 through W-08), with the nearest turbine approximately 3,700 feet to the southeast. As described above in Section 3.1.1, for the spring 2019 measurements Site A was relocated approximately 150 feet to the north/northeast of the original site. Non-project noise sources at this location included traffic on VT Route 9, natural sounds, including birds and wind in trees, and occasional aircraft overflights. Figure 3 shows the locations of both the original and relocated Site A. Figure 4 and Figure 5 provide photos of the relocated Site.



Figure 3. Site A Location Map

¹⁸Protocol, Section 2.3 “Microphone Locations,” p. 3.

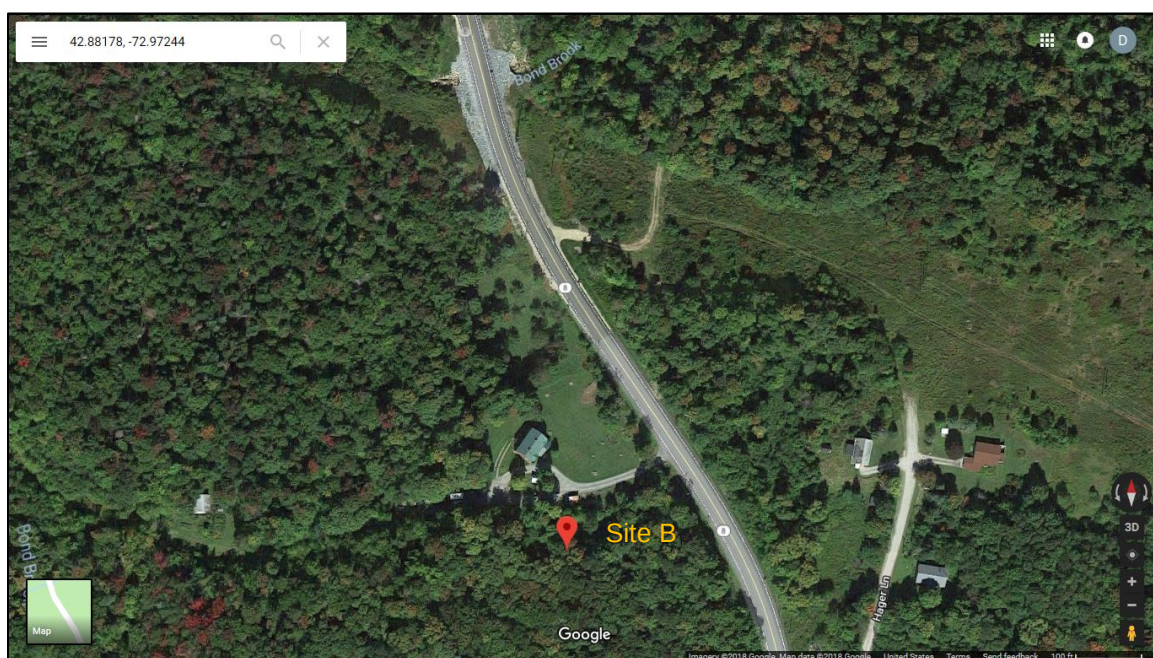


Figure 4. Site A (Relocated), View to North



Figure 5. Site A (Relocated), View to Southeast

Site B: The Protocol describes Site B’s location as “near the transmission line that crosses VT Route 8 approximately 1.3 km (0.8 miles) south of the VT 8/VT 9 intersection in Searsburg and west of VT Route 8. This site is similar to Site 4 from the preconstruction noise monitoring.”¹⁹ The selected location for Site B was a private residence at 197 VT Route 8, which is the first residence south of the transmission line right of way. The microphone was located approximately 175 feet from the centerline of VT Route 8. This site represented the closest homes to the east of the Project’s western group of turbines, with the nearest turbine approximately 3,700 feet to the west-northwest. Non-project noise sources at this location included traffic on VT Route 8, activities at the residence such as yardwork and vehicles entering and leaving the driveway, natural sounds, including wind in trees, birds, frogs, and insects, and occasional aircraft overflights. Figure 6 shows the location of Site B. Figure 7 and Figure 8 provide photos of the site.



(Basemap Google, 2018)

Figure 6. Site B Location Map

¹⁹Protocol, Section 2.3 “Microphone Locations,” p. 4.



Figure 7. Site B, View to Northeast

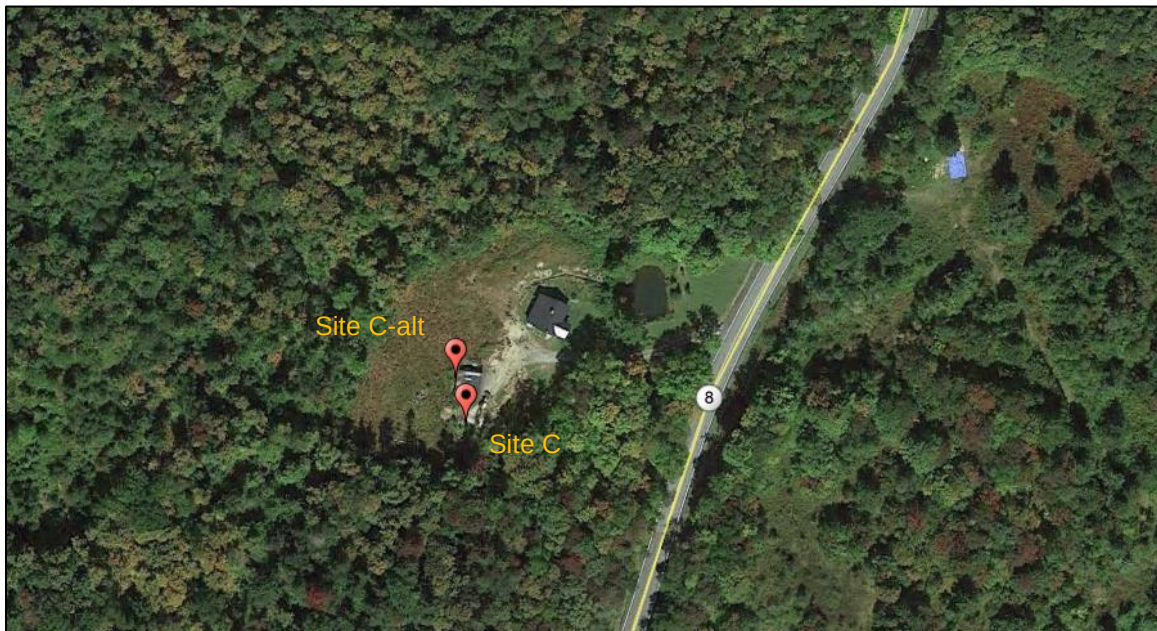


Figure 8. Site B, View to Northwest

Site C and Site C-alt: The Protocol describes Site C as “approximately 0.5 miles north of Sleepy Hollow Road on VT Route 8 in Searsburg, west of Route 8. This site is similar to Site 5 from the preconstruction monitoring.”²⁰ To be consistent with the Protocol’s guidance that “monitors shall be set near individual homes closest to the Project,”²¹ the actual monitoring site was located farther north, approximately 0.9 miles north of Sleepy Hollow Road, at the private residence at 343 VT Route 8. This site represented the closest homes to the east of the Project’s western group of turbines along this portion of VT Route 8 and was among the closest to the Project’s eastern group of turbines (indicated on Figure 2 as E01 through E-07). The microphone was located approximately 240 feet from the centerline of VT Route 8 and the closest Project turbines were approximately 4,100 feet to the west-southwest (W-04 and W-05) and approximately 6,000 feet to the south-southeast (E-01). In addition, the closest turbines in the Searsburg Wind Energy Facility operated by Green Mountain Power were approximately 4,100 feet to the southeast of this site. Non-project noise sources at this location included traffic on VT Route 8, the Searsburg wind turbines, activities at the residence such as vehicles entering and leaving the driveway and construction on some days, natural sounds, including frogs, birds, and wind in the trees, and occasional aircraft overflights.

As described above in Section 3.1.2, for the spring 2019 measurements an additional measurement site (Site C-alt) was added near Site C. The purpose of Site C-alt was to obtain supplemental data in a location largely shielded from sound caused by the Searsburg Wind Project turbines. The supplemental data from Site C-alt were to be examined only if the original Site C did not provide sufficient valid data. Because sufficient data were obtained at Site C, the data from Site C-alt were not utilized.

Figure 9 shows the locations of both Site C and Site C-alt. Figure 10, Figure 11, Figure 12, and Figure 13 provide photos of the two measurement sites.



(Basemap Google, 2018)

Figure 9. Site C Location Map

²⁰Ibid.

²¹Ibid.



Figure 10. Site C, View to Northwest



Figure 11. Site C, View to East



Figure 12. Site C and Site C-Alt, View to Northeast



Figure 13. Site C-Alt, View to Northeast

3.2.3. Instrumentation

Sound Monitoring Equipment

Sound level measurements were conducted at each site using NTi XL-2 portable sound level meters, which meet the ANSI and IEC standards for Class 1 “Precision” sound level meters. With the exception of Site C-alt, microphones, with seven-inch hydrophobic windscreens, were mounted on tripods approximately five feet above ground level. At Site C-alt, the microphone was flush-mounted on a sheet of reinforced ¾-inch plywood approximately five feet above ground level and was equipped with a hemispherical seven-inch hydrophobic windscreen. The plywood sheet was secured to an existing building with clamps. All meters were field calibrated at the start and the conclusion of the measurements and at intervals of every two to four days throughout the monitoring period. In addition, all instruments used for the measurements previously had been calibrated by an independent laboratory with certification traceable to the National Institute of Standards and Technology (NIST). The sound level meters were programmed to collect 1/3 octave band data at one second intervals and to log additional sound level data over 10-minute intervals. In addition, audio recordings were made throughout the monitoring period at all three sites.

Meteorological Equipment

Meteorological equipment at Site A and Site C included anemometers and wind vanes mounted on approximately five-foot high tripods, similar to the height of the nearby microphones. This equipment logged wind speed and direction over 1-minute intervals. At Site B, meteorological equipment included a weather station which logged temperature, precipitation, wind speed, and wind direction over 1-minute intervals. The sensors for the weather station were mounted on an approximately five-foot high tripod.

Appendix D provides a list of all instrumentation used at each site.

3.2.4. Background Sound Measurements

The Protocol requires that background sound levels must be measured by curtailing operation of the wind turbines at regular intervals, thus allowing a direct comparison between periods with and without turbines operating. To accomplish this, all Project turbines and ancillary equipment were shut down throughout the monitoring program for at least 20 minutes at a time, no less than once per night (10 PM to 7 AM) when hub-height speeds were 6 m/s or above and there was no precipitation in the form of rain, sleet, or ice. Additionally, CSA requested Avangrid to monitor hub-height wind speeds for one hour prior to and one hour after each curtailment. Data were considered for further processing only from curtailments during which hub-height wind speeds for the entire period, beginning one hour before and extending for one hour after the curtailment, were 6 m/s or greater.

During the spring 2019 measurement program, Avangrid conducted a total of 20 curtailments on 12 separate nights. Each of these curtailments met the requirements described above. Sound level data from the curtailments were subjected to further filtering and data processing as described below in Section 3.3.2 of this report. Table 2 provides a summary of the curtailments. Appendix E provides 10-minute interval wind speed and electrical output data for each of the 15 Project turbines throughout the monitoring period.

3.2.5. Attended Measurement

The Protocol requires attended monitoring to take place at each monitoring location for one hour before or after at least one turbine shutdown event, with observers making time-stamped notes regarding what they hear and the relative loudness of those sounds. CSA conducted attended monitoring for a period of nearly four hours extending from 10:00 PM on May 21 until approximately 1:45 AM on May 22. During this period, CSA observers were at all three sites for two 20-minute curtailments (attempts number 10 and 11 shown in Table 2) and also one hour before and after the first shut-down and one hour before the second shut-down. Appendix F provides the observer logs for the attended measurements.

Table 2. Deerfield Wind Operational Curtailments, May 8 – June 12, 2019

Attempt Number	Start Date & Time ¹	End Date & Time ¹	Wind speed 6 m/s or higher for entire curtailment + 1 hour before and 1 hour after?
1	May 17, 11:11 PM	May 17, 11:31 PM	Yes
2	May 18, 1:31 AM	May 18, 1:51 AM	Yes
3	May 18, 3:51 AM	May 18, 4:11 AM	Yes
4	May 19, 5:25 AM	May 19, 5:45 AM	Yes
5	May 19, 11:01 PM	May 19, 11:21 PM	Yes
6	May 20, 3:45 AM	May 20, 4:05 AM	Yes
7	May 20, 11:03 PM	May 20, 11:24 PM	Yes
8	May 21, 1:20 AM	May 21, 1:47 AM	Yes
9	May 21, 3:41 AM	May 21, 4:01 AM	Yes
10	May 21, 11:00 PM	May 21, 11:20 PM	Yes
11	May 22, 1:20 AM	May 22, 1:40 AM	Yes
12	May 22, 3:40 AM	May 22, 4:00 AM	Yes
13	May 23, 1:24 AM	May 23, 1:44 AM	Yes
14 ²	May 23, 3:44 AM	May 23, 4:04 AM	Yes
15 ²	May 26, 12:08 AM	May 26, 12:33 AM	Yes
16	May 30, 5:16 AM	May 30, 5:36 AM	Yes
17	May 31, 4:10 AM	May 31, 4:30 AM	Yes
18	May 31, 11:23 PM	May 31, 11:58 PM	Yes
19	June 3, 1:21 AM	June 3, 1:41 AM	Yes
20	June 5, 1:30 AM	June 5, 2:00 AM	Yes
21	June 5, 4:35 AM	June 5, 5:00 AM	Yes
22	June 7, 11:34 PM	June 7, 11:55 PM	Yes
Notes: ¹ Curtailment start and end times in this table are nominal times provided by Avangrid and may differ from more precise times used in the data analysis. ² Curtailments 14 and 15 did not occur as initially reported by Avangrid. See Section 3.3.5 for further information.			

Source: Avangrid

3.3. DATA PROCESSING

During the spring 2019 monitoring period, approximately 595 hours of raw data were collected at Site A over 25 days, approximately 380 hours were collected at Site B over 16 days, and approximately 790 hours were collected at Site C over 35 days. This section of the report describes the methodology used to process the data and to perform the required evaluations of prominent discrete tones, A-weighted exterior sound levels, and A-weighted interior sound levels.

3.3.1. Prominent Discrete Tones

Using an automated process, the 1/3 octave band 10-minute interval data for the entire monitoring period at each measurement site were evaluated for prominent discrete tones. The evaluation was conducted in

accordance with the guidance from ANSI Standard S12.9-2005 Part 4, Annex C described above in Section 2.3.1 of this report and in Section 3.0 of the Protocol. Specifically, the Protocol requires that tonal sounds be evaluated “for each rolling measured Turbine-On $L_{eq(1-hour)}$ ” with rolling periods incremented every 10 minutes.²² Any tonal periods identified were then examined further to determine whether the source was related to the Project. Consistent with the practice described in the recent comprehensive *Massachusetts Study in Wind Turbine Acoustics*, the examination of tonal periods was limited to “the primary audible turbine frequencies ranging from 25 Hz to 1,000 Hz.”²³

3.3.2. A-weighted Exterior Sound Levels

As discussed above in Section 2.3.2 of this report, the Protocol recognizes that it is not possible to measure project-related sound levels directly due to the presence of other background noise sources, and, therefore, provides a procedure for determining project-related sound by comparing overall sound levels (i.e. background sound plus project-related sound) to background-only sound levels (i.e. with use of all project-related equipment curtailed). This section of the report further describes the methodology for determining project-related sound levels.

Periodically throughout the monitoring period, Avangrid provided 10-minute interval hub-height wind speed and power output data for all 15 turbines and also a log of any operational curtailments (i.e., “turbine-off” periods). The wind speed data from Turbines W-01 and W-08 were used to identify periods with acceptable hub-height wind speeds of 6 m/s or higher. These two turbines were selected as representing among the closest turbines to each of the measurement sites. Only periods with high enough wind speeds at both W-01 and W-08 were used in the analysis. After confirming that the wind speed was acceptable for each 20-minute “turbine-off” period, the 10-minute intervals for one hour before and one hour after each curtailment were screened, and any intervals during which the average wind speed was not at least 6 m/s at both W-01 and W-08 were excluded.

From this reduced data set, any periods with temperatures below 14° F, or with precipitation (including rain, sleet, and ice, but not snow) were excluded. For the remaining periods, any intervals during which the wind vector had a non-zero component from the monitoring site to the nearest turbine were considered “upwind” and were excluded. Any remaining intervals with maximum wind speeds above 5 m/s at each microphone were flagged for identification and exclusion during the secondary filtering. Similarly, intervals with maximum wind speeds between 4 m/s and 5 m/s were identified for further screening and possible exclusion. During the initial filtering, the presence of disqualifying weather data during any 1-minute interval was used to exclude the corresponding full 10 minutes of acoustic data. In some cases, during the subsequent, secondary filtering, the 1-minute weather data were used to exclude shorter intervals of acoustic data. Appendix G provides the results of the initial filtering, including which 10-minute intervals were excluded at each measurement site, along with the reason for the exclusion.

After the initial filtering, all remaining 10-minute periods were subject to secondary filtering using the 1-second acoustic data and 1-minute weather data. During the secondary filtering, any events exceeding 40 decibels (either A-weighted or ANS-weighted depending on the weighting applied for that curtailment) were investigated either by listening to the audio recording of the event, or by reviewing the spectrogram of the event, to determine if the cause of the event was related to the Project. Typical events eliminated from the data included traffic passbys and aircraft overflights. Although some noise caused by wind gusts was eliminated from the data, in general, noise caused by wind blowing in trees, etc. was not excluded from either the “turbine-on” or “turbine-off” data sets unless the wind gust either created pseudo-noise or wind-induced noise that was judged sufficient to mask wind turbine sound. As required by the Protocol,

²²Protocol, Section 3.0 “Data Processing,” p. 9.

²³ *Massachusetts Study on Wind Turbine Acoustics*, “Section 9.3, Tonality Under ANSI S12.9 Part 4,” Prepared for: Massachusetts Clean Energy Center and Department of Environmental Protection, Submitted by: RSG (Resource Systems Group, Inc.), February 18, 2016, p. 143.

all periods with wind speeds above 5 m/s at the microphone locations were excluded from the data, and periods with wind speeds between 4 m/s and 5 m/s were reviewed for possible wind contamination. Appendix H provides additional information on the secondary filtering for “turbine-off” periods and Appendix I provides similar information for “turbine-on” periods. In each case, the appendices provide graphs and tables identifying periods that were excluded, along with the reason for the exclusion.

Following the initial and secondary filtering described above, either the A-weighted or ANS-weighted L_{eq} was computed for the remaining portion of each qualifying “turbine-off” period. After filtering, the remaining “turbine-off” L_{eq} s used in the final computations ranged from approximately 11 to 30 minutes in duration. Similarly, either the A-weighted or the ANS-weighted L_{eq} was computed for the remaining portion of each qualifying 10-minute “turbine-on” interval within either one hour before or after the adjacent curtailment. Following filtering, the remaining portions of the “turbine-on” interval L_{eq} s used in the final computations ranged from approximately three minutes to 10 minutes in length.

The L_{eq} for each “turbine-on” interval then was compared to the L_{eq} for the adjacent “turbine-off” interval. The “turbine-on” L_{eq} was discarded if it was not at least 3 dB higher than the adjacent “turbine-off” L_{eq} . For this evaluation, CSA defined an “adjacent” interval as any 10-minute interval within either one hour before or one hour after the qualifying “turbine-off” period.

All remaining “turbine-on” periods were used to compute a single overall “turbine-on” L_{eq} for each measurement site. Similarly, all remaining “turbine-off” periods were used to compute a single overall “turbine-off” L_{eq} for each measurement site. The “turbine-off,” or background, energy-averaged sound level was then logarithmically subtracted from the “turbine-on” energy-averaged sound level to determine the “turbine-only” sound level at each measurement site. The computed “turbine-only” sound level is the appropriate value for comparison to the CPG limit.

3.3.3. A-weighted Interior Sound Levels

As described above in Section 2.3.3, the Protocol limits sound tests of turbine operations to exterior measurements, with interior sound levels calculated based on a fixed reduction in the A-weighted sound level of 15 dB. As an alternative to using the fixed 15 dB reduction, homeowners at locations where either the preconstruction sound model shows Project sound levels of 40 dBA (L_{eq})(1 hr) or higher, or where post-construction sound monitoring shows Deerfield Project sound levels of 40 dBA (L_{eq})(1 hr) or higher, may request Outdoor to Indoor Noise Reduction measurements. For the analysis of the spring 2019 measurements included in this report, A-weighted interior sound levels were calculated by applying a fixed OINR of 15 dB to the computed “turbine-only” sound level at each site.

3.3.4. ANS-weighted Sound Levels

As described above in Section 3.1.4, the Protocol permits the use of ANS-weighting in situations when natural sounds such as birds, insects, and frogs, influence the measured background sound levels. For the spring 2019 measurements, ANS-weighting was applied only during analysis of turbine shutdowns and the one-hour periods immediately preceding and following the shutdowns if such natural sounds were determined to be present and influencing the background sound level. In all cases, ANS-weighting was calculated in accordance with the applicable American National Standard for *Methods to Define and Measure Residual Sound in Protected Natural and Quiet Residential Areas*.²⁴ If it was found necessary to apply ANS-weighting for any portion of a particular curtailment (i.e. any portion of either the turbine-off or turbine-on periods), then ANS-weighting was used for the entire curtailment. This procedure ensured that the comparison of “turbine-on” and “turbine-off” sound levels to determine the required 3-dB difference would always be applied using the same metric for data associated with a single curtailment.

²⁴ ANSI/ASA Standard S3/SC1.100-2014 and ANSI/ASA S12.100-2014, American National Standards Institute/Acoustical Society of America.

Table 3 provides a summary of the curtailments and shows which weighting system (ANS-weighting or A-weighting) was used for each measurement site. Note that if use of ANS-weighting was not necessary, then the default A-weighting was used. The table shows that, to some extent, ANS-weighting was used at each of the measurement sites. At Site A and Site B, ANS-weighting was most often used to filter out bird songs between approximately 4:00 AM and 7:00 AM and was employed during only two curtailments at each site. At Site C, due to the presence of a small pond near the measurement site, frogs often were active throughout the night, and use of ANS-weighting was necessary during all except for one curtailment.

Table 3. Weighting System (A or ANS) Applied for Each Curtailment

Curtailment Number	Start Date & Time ¹	End Date & Time ¹	ANS- or A-Weighting		
			Site A	Site B	Site C
1	May 17, 11:11 PM	May 17, 11:31 PM	A	A	ANS
2	May 18, 1:31 AM	May 18, 1:51 AM	A	A	A
3	May 18, 3:51 AM	May 18, 4:11 AM	--	A	--
4	May 19, 5:25 AM	May 19, 5:45 AM	ANS	--	ANS
5	May 19, 11:01 PM	May 19, 11:21 PM	A	--	--
6	May 20, 3:45 AM	May 20, 4:05 AM	A	--	--
7	May 20, 11:03 PM	May 20, 11:24 PM	--	--	--
8	May 21, 1:20 AM	May 21, 1:47 AM	--	--	--
9	May 21, 3:41 AM	May 21, 4:01 AM	--	ANS	--
10	May 21, 11:00 PM	May 21, 11:20 PM	--	A	--
11	May 22, 1:20 AM	May 22, 1:40 AM	--	A	--
12	May 22, 3:40 AM	May 22, 4:00 AM	--	ANS	--
13	May 23, 1:24 AM	May 23, 1:44 AM	A	A	ANS
14 ²	May 23, 3:44 AM	May 23, 4:04 AM	--	--	--
15 ²	May 26, 12:08 AM	May 26, 12:33 AM	--	--	--
16	May 30, 5:16 AM	May 30, 5:36 AM	--	--	ANS
17	May 31, 4:10 AM	May 31, 4:30 AM	--	--	ANS
18	May 31, 11:23 PM	May 31, 11:58 PM	ANS	--	ANS
19	June 3, 1:21 AM	June 3, 1:41 AM	--	--	ANS
20	June 5, 1:30 AM	June 5, 2:00 AM	--	--	--
21	June 5, 4:35 AM	June 5, 5:00 AM	--	--	--
22	June 7, 11:34 PM	June 7, 11:55 PM	--	--	ANS
LEGEND: ANS ANS-weighting A A-weighting -- No acoustical analysis conducted (excluded by weather screening or after completion of measurements at Sites A or B) Notes: ¹ Curtailment start and end times in this table are nominal times provided by Avangrid and may differ from more precise times used in the data analysis. ² Curtailments 14 and 15 did not occur as initially reported by Avangrid. See Section 3.3.5 for further information.					

Source: Avangrid, CSA, 2019

Figure 14 provides an example comparing A-weighted and ANS-weighted data for the 10-minute interval starting at 4:50 AM on May 23 at Site A. The blue line shows the A-weighted 1-second time history; the yellow line shows the ANS-weighted 1-second time history for the same interval. In each case, the plotted sound levels were derived from the same measured acoustic data and the differences in the plotted data are the product only of the choice of ANS-weighting or A-weighting. The blue A-weighted line clearly shows the effects of early morning bird activity. Except for during two vehicle passbys on VT Route 9 (at approximately 4:53:30 and 4:56:30), the A-weighted sound level generally varies between about 35 dB and 50 dB. The yellow ANS-weighted line, which filters out the spikes caused by the bird songs, is confined to a smaller range, and (with the exception of the two vehicle events) varies only between approximately 33 dB and 37 dB.

Although the A-weighted and ANS-weighted sound levels are similar during the two vehicle passbys, in other periods with little or no apparent bird activity (e.g., 4:55:10 to 4:56:10), the ANS-weighted sound level is slightly lower than the A-weighted sound level, by about 0 to 1 dB. This is consistent with a comparison provided in the ANSI/ASA Standard of the A-weighted and ANS-weighted sound levels for various noise sources in the absence of natural sounds. For “general community noise,” the Standard states that the average ANS-weighted sound level has been shown to be 1.0 dB lower than the A-weighted sound level. Similarly, for “fan noise” the Standard states that the average ANS-weighted sound level has been shown to be 0.8 dB lower than the A-weighted sound level.²⁵

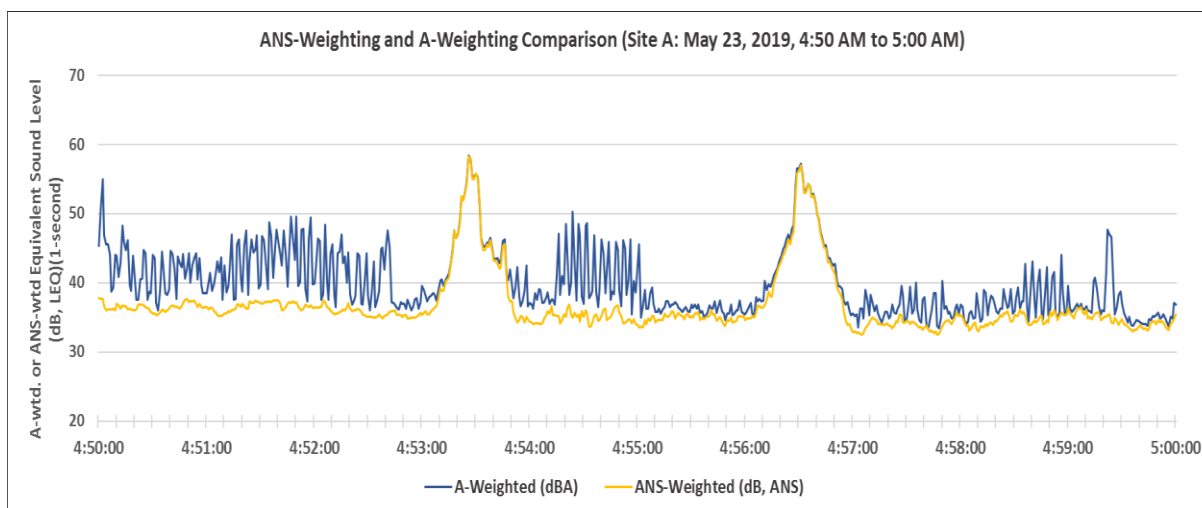


Figure 14. ANS-Weighting and A-Weighting Comparison

3.3.5. Periods Excluded Based on Turbine Data

As required by the Protocol, Avangrid provided 10-minute data, including wind speed and electrical output, for each turbine throughout the monitoring period.²⁶ Appendix E presents the complete set of data provided by Avangrid. During the ensuing data processing, several issues that potentially could affect the sound monitoring results were identified in the turbine data. CSA subsequently contacted Avangrid, and Avangrid confirmed each of the identified issues. In some cases, the issues were determined not to have a significant effect on the related sound monitoring data. In other cases, it was determined that the issues

²⁵ ANSI/ASA Standard S3/SC1.100-2014 and ANSI/ASA S12.100-2014, Annex A.

²⁶ Protocol, Section 4.0 “Reports,” p. 10.

identified in the turbine data may have influenced sound monitoring results. In the latter cases, all potentially-affected periods were excluded from the data analysis.

Each of the issues is identified below along with its resolution:

- *Issue 1:* After Curtailment 2, Turbine E4 did not come back online until approximately 6:50 AM on May 18, approximately five hours after the end of the curtailment. The extended shutdown of this turbine overlapped the hour of “turbine-on” data after Curtailment 2 and the hours of “turbine-on” data both before and after Curtailment 3.

Resolution of Issue 1: As shown on Figure 2, Turbine E4 is located near the center of the Project’s eastern turbine array. During the hour after Curtailment 2 and the one-hour periods both before and after Curtailment 3, the only valid data obtained and used in the analysis were from Site B. Because the other 14 Deerfield turbines were operating normally and because of Site B’s closer proximity to the western array, the absence of Turbine E4 affected the measured “turbine-on” sound levels at Site B by only an insignificant amount (no more than 0.1 dB). For these reasons, no data were excluded due to this issue.

- *Issue 2:* After Curtailment 5, Turbine E4 did not come back online until approximately 1:30 AM on May 20, approximately two hours after the end of the curtailment. The extended shutdown of this turbine overlapped the hour of “turbine-on” data after Curtailment 5.

Resolution of Issue 2: During Curtailment 5, the only valid data obtained and used in the analysis were from Site A. Because the other 14 Deerfield turbines were operating normally and because of Site A’s closer proximity to the western array, the absence of Turbine E4 affected the measured “turbine-on” sound levels at Site A by only an insignificant amount (no more than 0.1 dB). For these reasons, no data were excluded due to this issue.

- *Issue 3:* Before Curtailment 6, all turbines were offline for approximately 20 minutes, from approximately 2:55 AM to 3:15 AM on May 20. This offline period would have the potential to affect the hour of “turbine-on” data before Curtailment 6.

Resolution of Issue 3: All measurement data from the hour preceding Curtailment 6 were excluded from the analysis.

- *Issue 4:* After Curtailment 6, Turbine E4 did not come back online until approximately 6:50 AM on May 20, approximately two hours and 45 minutes after the end of the curtailment. The extended shutdown of this turbine overlapped the hour of “turbine-on” data after Curtailment 6.

Resolution of Issue 4: All measurement data from the hour after Curtailment 6 previously had been excluded from the analysis by the initial filtering for weather conditions. As a result, no additional data were excluded from the analysis due to this issue.

- *Issue 5:* After Curtailment 9, Turbine E4 did not come back online until approximately 6:20 AM on May 21, approximately 2 hours and twenty minutes after the end of the curtailment. The extended shutdown of this turbine would have the potential to affect the hour of “turbine-on” data after Curtailment 9.

Resolution of Issue 5: During Curtailment 9, the only valid data obtained and used in the analysis were from Site B. For reasons cited above, this issue affected “turbine-on” sound levels at Site B by only an insignificant amount (no more than 0.1 dB) and no data were excluded.

- *Issue 6:* After Curtailment 10, Turbine E4 did not come back online until approximately 5:50 AM on May 22, approximately six hours and 30 minutes after the end of the curtailment. The extended shutdown of this turbine overlapped the hour of “turbine-on” data after Curtailment 10 and the hours of “turbine-on” data before and after both Curtailment 11 and Curtailment 12.

Resolution of Issue 6: All measurement data from the hour after Curtailment 10 previously had been excluded from the analysis by the initial filtering for weather conditions. During Curtailment 11 and Curtailment 12, the only valid data obtained and used in the analysis were from Site B. For reasons cited above, this issue affected “turbine-on” sound levels at Site B by only an insignificant amount (no more than 0.1 dB) and no data were excluded.

- *Issue 7:* Curtailment 14 did not occur as initially reported by Avangrid.

Resolution of Issue 7: All measurement data related to Curtailment 14 were excluded from the analysis. Note that although this curtailment did not occur, it was retained in the list of curtailment attempts in Table 2 to maintain the original numbering sequence.

- *Issue 8:* Curtailment 15 did not occur as initially reported by Avangrid.

Resolution of Issue 8: All measurement data related to Curtailment 15 were excluded from the analysis. Note that although this curtailment did not occur, it was retained in the list of curtailment attempts in Table 2 to maintain the original numbering sequence.

- *Issue 9:* Before Curtailment 17, all turbines were offline for approximately 30 minutes, from approximately 3:20 AM to 4:00 AM on May 31. This offline period would have the potential to affect the hour of “turbine-on” data before Curtailment 17.

Resolution of Issue 9: All measurement data from the hour preceding Curtailment 17 previously had been excluded from the analysis by the initial filtering for weather conditions. As a result, no additional data were excluded from the analysis due to this issue.

4. MONITORING RESULTS

This section of the report provides the results of the monitoring and analysis for prominent discrete tones, A-weighted exterior sound levels, and A-weighted interior sound levels. As required by the Protocol, all turbine and background sound level values shown in this report are rounded to the nearest whole decibel.²⁷ Calculations were performed using the actual measured values, and the results rounded prior to inclusion in the report.

4.1. PROMINENT DISCRETE TONES

As described above in Section 3.3.1, the 1/3 octave band 10-minute interval data for the entire monitoring period at each measurement site were evaluated for prominent discrete tones. As required by the Protocol, the evaluation was conducted in accordance with ANSI Standard S12.9-2005 Part 4, Annex C “for each rolling measured Turbine-On $L_{eq}(1\text{-hour})$. . .” with rolling periods “. . . incremented every 10 minutes.”²⁸ The examination of tonal periods was limited to frequencies ranging from 25 Hz to 1,000 Hz.

Table 4 displays the results of the analysis.

²⁷Protocol, Section 3.0 “Data Processing,” p. 9

²⁸Ibid.

Table 4. Prominent Discrete Tones

Monitoring Site	Date	Time (Start of Rolling 1-hour L_{eq})	1/3 Octave Band Center Frequency	Source
Site A	5/10/2019	6:40 PM-7:20 PM	63 Hz	Electrical interference
Site A	5/11/2019	12:00 AM 1:30 AM-3:10 AM 3:40 AM 4:00 AM-8:20AM 6:20 PM-9:40 PM 10:50 PM-11:50 PM	63 Hz 63 Hz 63 Hz 63 Hz 63 Hz 63 Hz	Electrical interference
Site A	5/12/2019	12:00 AM-2:10 AM 6:40 AM-7:50 AM 9:00 AM-10:30 AM 2:20 PM-2:30 PM 10:20 PM-11:50 PM	63 Hz 63 Hz 63 Hz 63 Hz 63 Hz	Electrical interference
Site A	5/23/2019	12:40 PM 1:00 PM 1:10 PM 1:20 PM	100 Hz 100 Hz 100 Hz 100 Hz	Construction activity at residence
Site C	5/9/2019	9:50 AM 10:00 AM 10:10 AM	250 Hz 250 Hz 250 Hz	Electric saw
Site C	6/8/2019	10:00 AM 10:10 AM 10:20 AM 10:30 AM 10:40 AM 10:50 AM	200 Hz 200 Hz 200 Hz 200 Hz 200 Hz 200 Hz	Lawn mower
Site C	6/12/2019	11:00 AM	630 Hz	Motorized vehicle

At Site A, a 60-Hz tone occurred intermittently from the evening of May 10 through May 12. Because no turbine curtailments occurred during this period, the tone had no effect on the data analysis for the CPG sound level limits. Based on the 60-Hz frequency of this tone, and also due to the location of the measurement site near electrical transmission lines, it is likely that it was caused by electrical interference rather than an actual noise source. Had the tone been related to the Project wind turbines, it is likely that it would have been identified at another measurement site, or subsequently during the remainder of the measurements.

For the remainder of the five-week monitoring period, the analysis identified four events causing prominent discrete tones:

- At Site A, construction activity at the nearby residence caused a tone in the 100 Hz 1/3 octave band between approximately 12:40 PM and 1:20 PM on May 23.
- At Site C, a nearby electric saw caused a tone in the 250 Hz 1/3 octave band between 9:50 AM and 10:10 AM on May 9.

- At Site C, a lawn mower caused a tone in the 200 Hz 1/3 octave band on the morning of June 8. Although the event lasted for only 6.5 minutes, it influenced each of the rolling one-hour L_{eq} s starting at 10:00 AM, 10:10 AM, 10:20 AM, 10:30 AM, 10:40 AM, and 10:50 AM.
- At Site C, a motorized vehicle, such as a riding lawnmower, caused a tone in the 630 Hz 1/3 octave band. The duration of this event was three minutes and affected only the one-hour L_{eq} starting at 11:00 AM on June 12.

As none of these events was project-related, no occurrences of prominent discrete tones associated with the Project were identified during the spring 2019 monitoring period.

4.2. A-WEIGHTED EXTERIOR SOUND LEVELS

4.2.1. Summary

As described above in Section 3.3.2, A-weighted sound level data for qualifying “turbine-off” periods and adjacent qualifying “turbine-on” periods were evaluated in accordance with the Protocol. After filtering the data for required weather conditions and removing contaminating events, a single energy-averaged L_{eq} sound level was computed to represent the entire remaining “turbine-on” data at each site. Similarly, one energy-averaged L_{eq} sound level was computed to represent the entire remaining “turbine-off,” or background, data at each site. For each site, the background sound level then was subtracted logarithmically from the “turbine-on” sound level. The resulting “turbine-only” sound level then could be compared to the CPG’s exterior sound level limit. As discussed in Section 2.3.2, the CPG requires that project-related sound levels at any existing surrounding residences must not exceed 45 dBA (exterior) (L_{eq} , 1 hour).

Table 5 provides a summary of the analysis results. The computed “turbine-only” sound levels of 36 dBA at Site A, 40 dBA at Site B, and 38 dBA at Site C all comply with the CPG’s exterior sound level limit. The following sections of the report provide more in-depth discussions of the monitoring results at each of the three sites.

Table 5. Summary of A-weighted Exterior Sound Levels

Monitoring Site	“Turbine-on” Sound Level (L_{eq} , dBA)	“Turbine-off” Sound Level (L_{eq} , dBA)	“Turbine-only” Sound Level (L_{eq} , dBA)	CPG Exterior Sound Level Limit (L_{eq} , dBA)	Meets CPG Limit?
Site A	38	33	36	45	Yes
Site B	42	38	40	45	Yes
Site C	41	37	38	45	Yes

4.2.2. Site A

Sound level monitoring was conducted at Site A over a period of 25 days from May 8, 2019 until June 2, 2019. In addition, wind speed and wind direction data were collected at Site A throughout the same period. Temperature and precipitation data recorded at Site B were applied to this site. Figure 15 through Figure 18 provide graphs showing 10-minute interval data for L_{eq} sound level, wind speed, and temperature. The blue line indicates the A-weighted sound level throughout the entire measurement. The yellow segments indicate the A-weighted sound level during two curtailments when it was necessary to apply A-weighting, including one hour before and one hour after the turbine shutdowns. Each figure (except for the truncated weeks depicted in the first and final graphs) presents the data for a weeklong period and generally shows a typical diurnal pattern with the lowest sound levels occurring at night.

The highest measured sound levels at this site occurred during several periods on May 10, May 12, and May 13 and were caused by an unidentified source unrelated to the Project turbines. The unidentified noise source did not occur again after May 13 and did not affect any of the turbine curtailments used in

the analysis. Over the full monitoring period, 10-minute L_{eq} sound levels at Site A ranged from a low of approximately 28 dBA to a high of approximately 80 dBA. Excluding the unidentified noise source from May 10 until May 13, 10-minute L_{eq} sound levels for the remainder of the measurements ranged from a low of approximately 28 dBA to a high of approximately 73 dBA. Temperatures ranged from approximately -2°C to $+24^{\circ}\text{C}$ (28°F to 75°F) and 10-minute average wind speeds ranged from 0 m/s to approximately 5 m/s (0 mph to 11 mph). Brief pauses in data collection occurred every two to four days to download data, change batteries, and conduct calibration checks. In addition, approximately three hours of daytime data were lost on May 28 due to a battery failure.

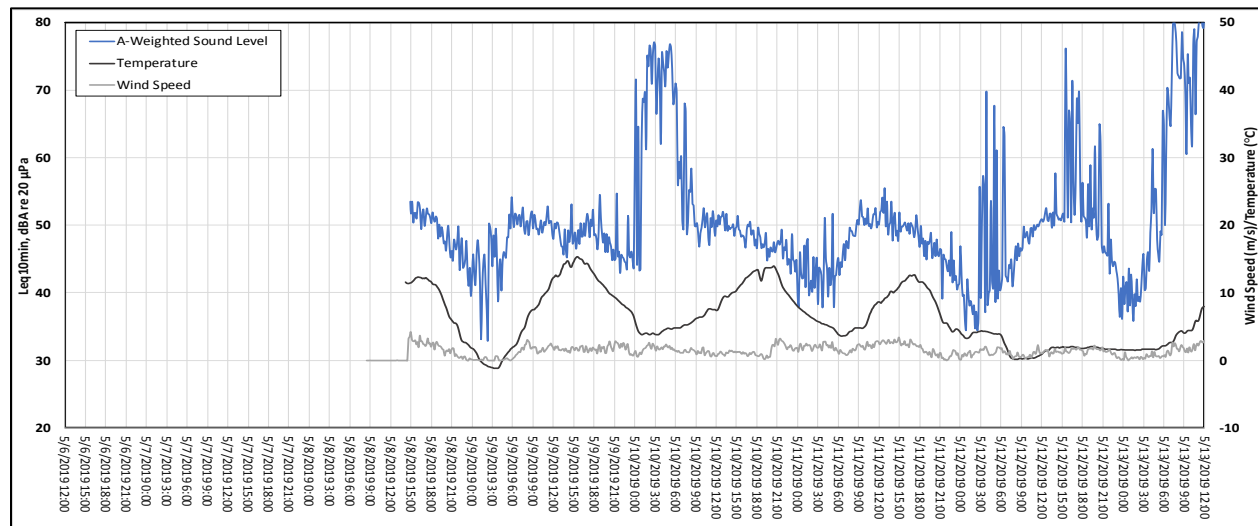


Figure 15. Sound Level and Weather Data: Site A, May 8 – May 13, 2019

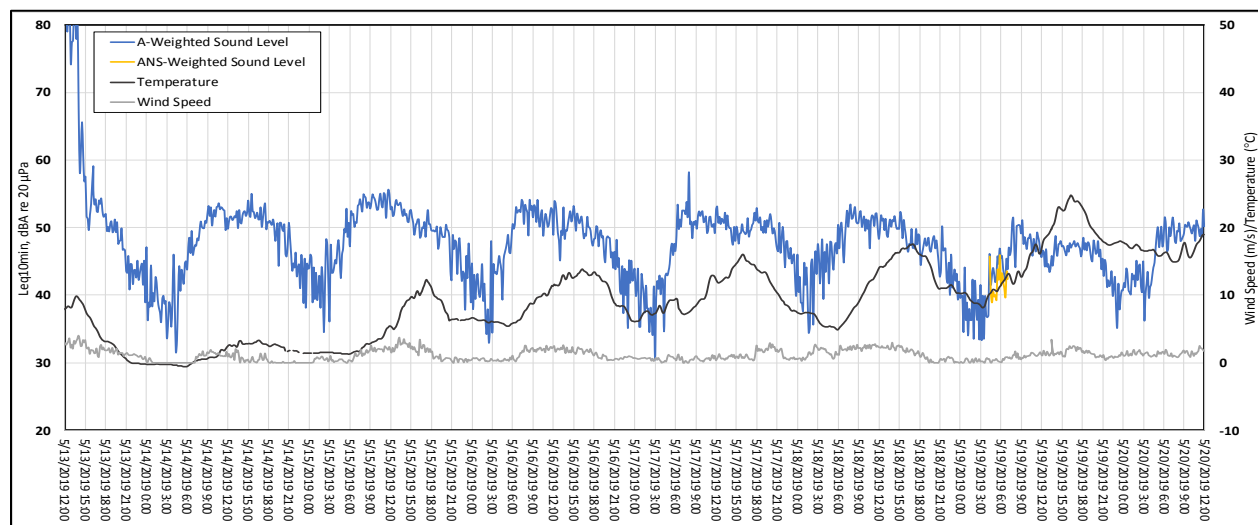


Figure 16. Sound Level and Weather Data: Site A, May 13 – May 20, 2019

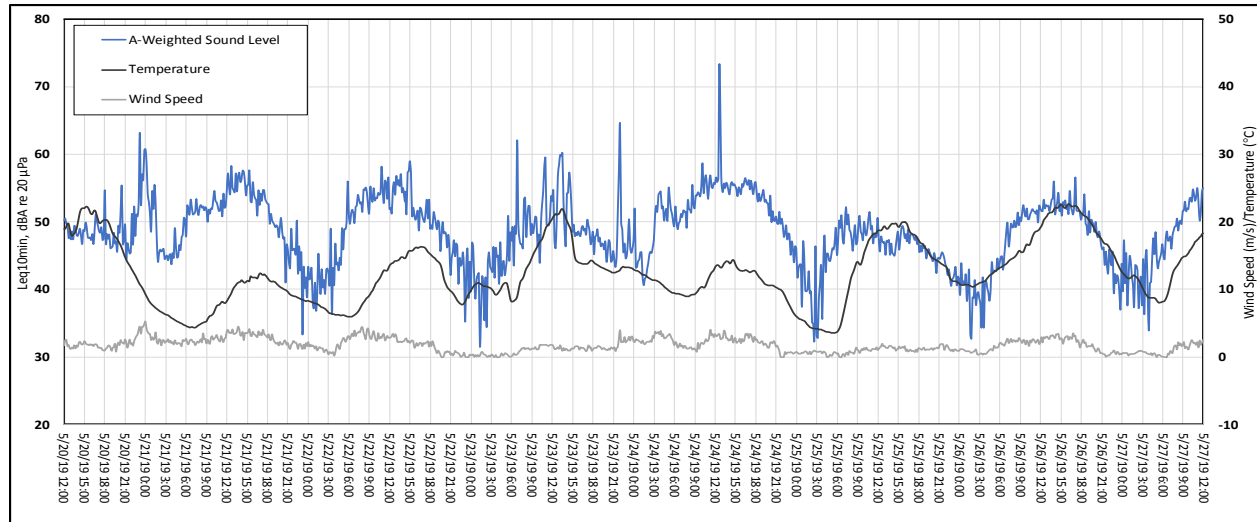


Figure 17. Sound Level and Weather Data: Site A, May 20 – May 27, 2019

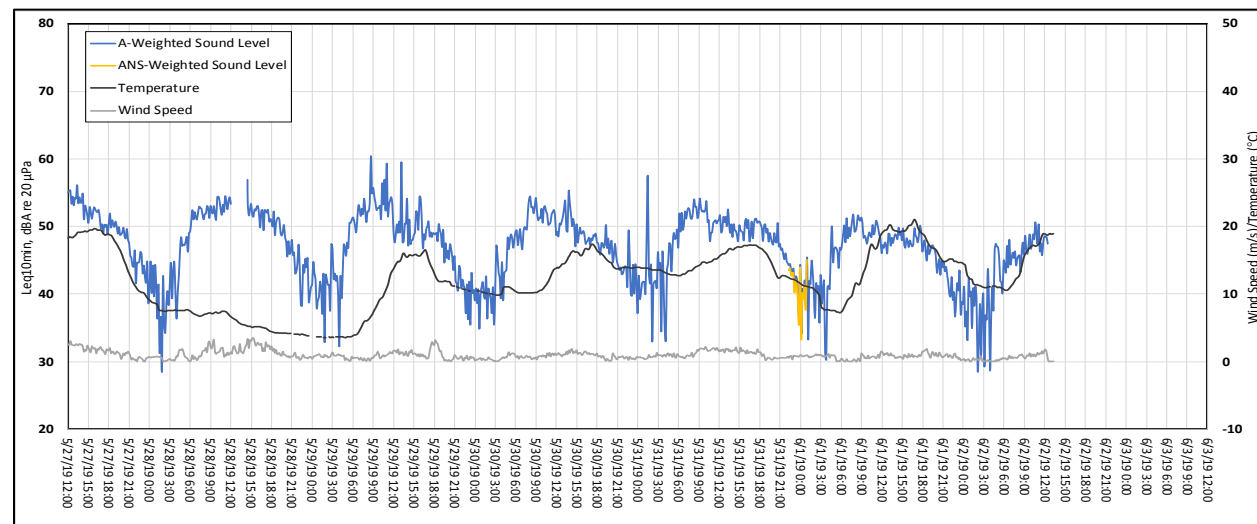


Figure 18. Sound Level and Weather Data: Site A, May 27 – June 2, 2019

During the monitoring period, six turbine-operation curtailments occurred with at least one 10-minute interval that satisfied the Protocol’s wind speed, wind direction, and temperature criteria for Site A. After further filtering and elimination of contaminating events, two hours and 21 minutes (141 minutes) of “turbine-on” data with an L_{eq} of 38 dBA, and 40 minutes of “turbine-off” data with an L_{eq} of 33 dBA remained. The computed “turbine-only” sound level of 36 dBA complies with the CPG’s 45-dBA standard. The filtered data exceeded the Protocol’s requirement of two valid hours of “turbine-on” data. The 25 days of measurements also exceeded the minimum requirement of two weeks of monitoring.

Figure 19 provides an example of typical sound level data at Site A associated with a turbine curtailment on May 19 and the adjacent one-hour periods before and after the curtailment. In contrast to the 10-minute L_{eq} data shown on the weekly graphs, this figure displays 1-second L_{eq} sound levels. Because of the presence of early morning bird activity, ANS-weighting was applied during the data analysis for this curtailment, and the plotted sound levels on Figure 19 are ANS-weighted. With the bird activity removed by the ANS-weighting, the remaining spikes in sound level are associated with individual vehicle passbys on VT Route 9. At this location, approximately 500 feet from the roadway, maximum passby sound levels generally ranged between about 48 to 63 dBA and occurred, on average, about every two minutes and 45

seconds (2:45 minutes) during this sample. During the intervals between vehicle passbys, the “turbine-on” sound level generally varied within a few decibels of 37 dBA. During the “turbine-off” period between approximately 5:25 AM and 5:50 AM, the background sound level between vehicle passbys dropped to roughly 34 dBA. Although the “turbine-on” and “turbine-off” sound levels shown in this example are consistent with the energy-average sound levels presented in Table 5, sound levels associated with other curtailments may be either higher or lower than the averages shown in Table 5.

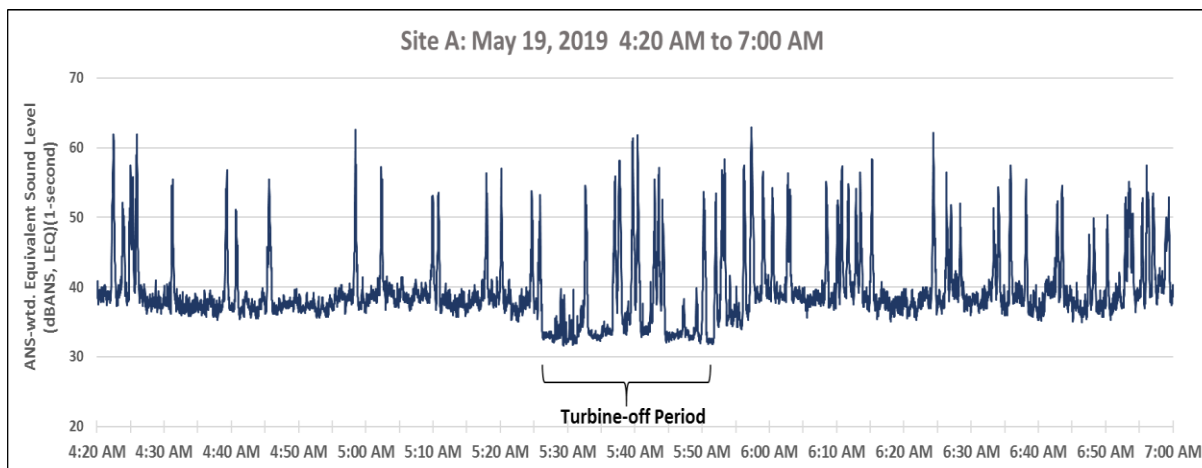


Figure 19. Sound Level Time History Site A, May 19, 2019, 4:20 AM to 7:00 AM

4.2.3. Site B

Sound level monitoring was conducted at Site B over a period of 16 days from May 8, 2019 until May 24, 2019. In addition, wind speed, wind direction, temperature, and precipitation data were collected at Site B throughout the monitoring period. Figure 20 through Figure 22 present 10-minute interval data for L_{eq} sound level, wind speed, and temperature. As with the figures for Site A, the blue line indicates the A-weighted sound level throughout the entire measurement. The yellow segments indicate the ANS-weighted sound level during two curtailments, including one hour before and one hour after the turbine shutdowns, when it was necessary to apply ANS-weighting. Each figure (except for the truncated weeks depicted in the first and final graphs) presents the data for a weeklong period. Similar to Site A, the measured sound levels generally display a typical diurnal pattern with the lowest sound levels occurring during nighttime hours.

Over the full monitoring period, 10-minute L_{eq} sound levels ranged from a low of approximately 26 dBA to a high of approximately 64 dBA. Temperatures ranged from approximately -2°C to $+24^{\circ}\text{C}$ (28°F to 75°F) and 10-minute average wind speeds ranged from 0 m/s to approximately 3 m/s (0 mph to 7 mph). Brief pauses in data collection occurred every two to four days to download data, change batteries, and conduct calibration checks. In addition, approximately 12 hours of data were lost on May 19 due to a battery failure.

During the monitoring period, eight turbine-operation curtailments included at least one 10-minute interval that satisfied the Protocol’s wind speed, wind direction, and temperature criteria for Site B. After further filtering and elimination of contaminating events, three hours and forty minutes (220 minutes) of “turbine-on” data with an L_{eq} of 42 dBA, and one hour and forty-three minutes (103 minutes) of “turbine-off” data with an L_{eq} of 38 dBA remained. The computed “turbine-only” sound level of 40 dBA complies with the CPG’s 45-dBA standard. This filtered data exceeded the Protocol’s requirement of two valid hours of “turbine-on” data. The 16 days of measurements also exceeded the minimum requirement of two weeks of monitoring.

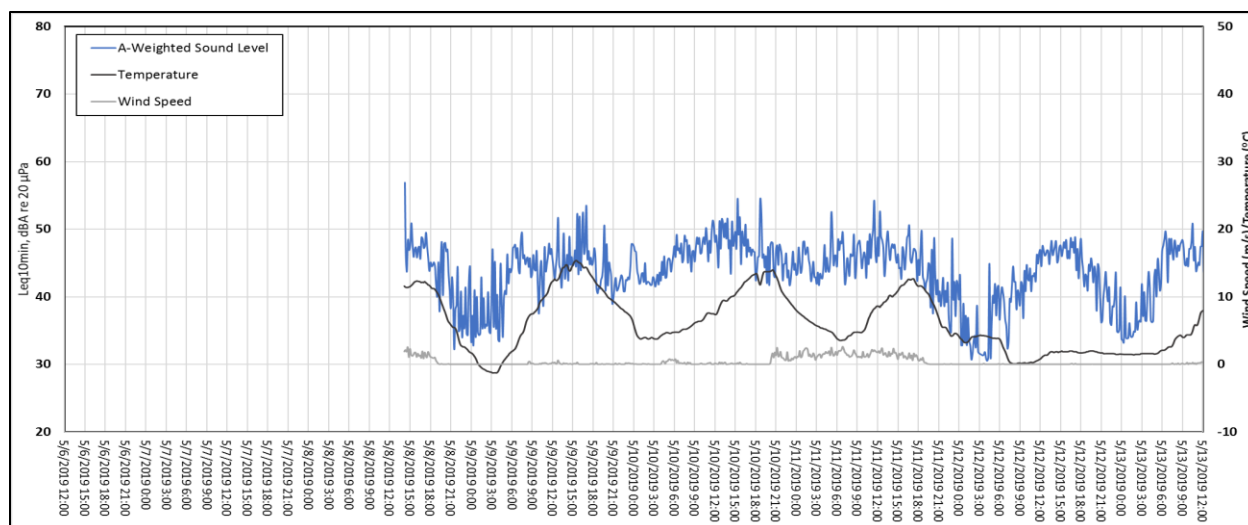


Figure 20. Sound Level and Weather Data: Site B, May 8 – May 13, 2019

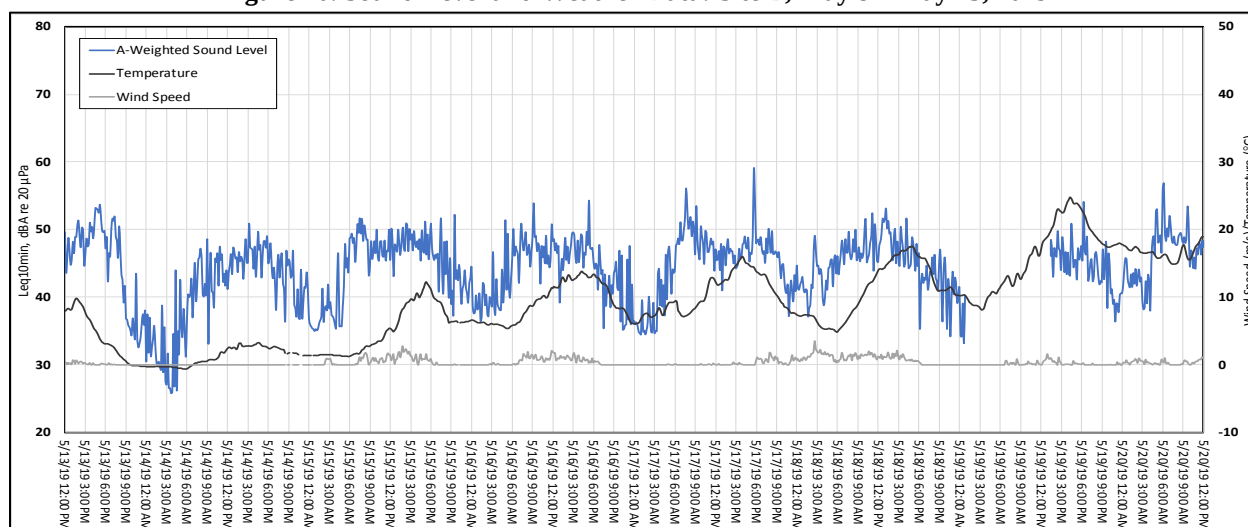


Figure 21. Sound Level and Weather Data: Site B, May 13 – May 20, 2019

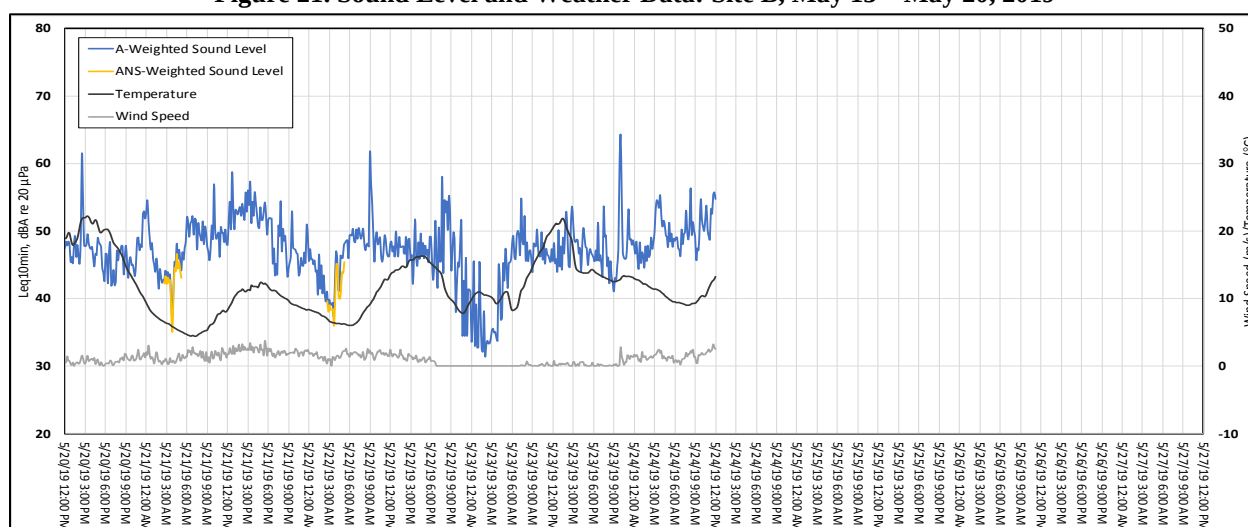


Figure 22. Sound Level and Weather Data: Site B, May 20 – May 24, 2019

Figure 23 provides an example of typical sound level data at Site B associated with a turbine curtailment that occurred on May 18, and the adjacent one-hour periods before and after the curtailment. Although hub-height wind speeds were at least 6 m/s throughout this sample, wind speeds at the measurement site initially were low and then increased in the hour following the curtailment. As a result, the final 30 minutes of the hour following the curtailment (2:40 AM to 3:10 AM) and several shorter periods in the 30 minutes immediately following the curtailment (2:10 AM to 2:40 AM) were excluded from the analysis due to wind gusts.

The 1-second interval L_{eq} sound levels shown on the figure indicate several individual vehicle passbys that occurred on VT Route 8 during the two-hour and forty-minute period. At this location, approximately 175 feet from the roadway, maximum passby sound levels during this sample ranged between about 50 and 60 dBA. During the majority of time when vehicles were not present in the hour prior to the curtailment, the “turbine-on” sound level typically varied between about 39 and 44 dBA. During the “turbine-off” period between approximately 1:30 AM and 2:00 AM, the background sound level varied between about 35 and 44 dBA. Although the “turbine-on” and “turbine-off” sound levels shown in this example are both generally consistent with the energy-average sound levels presented in Table 5, sound levels associated with other curtailments may be either higher or lower than the averages in Table 5.

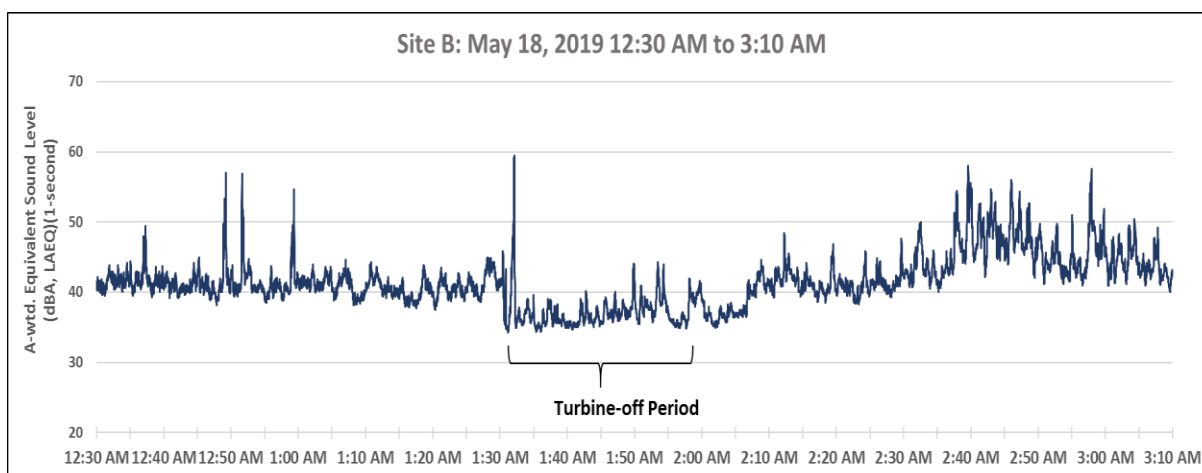


Figure 23. Sound Level Time History Site B, May 18, 2019, 12:30 AM to 3:10 AM

4.2.4. Site C

Sound level monitoring was conducted at Site C over a period of 35 days from May 8, 2019 until June 12, 2019. In addition, wind speed and wind direction data were collected at Site C throughout the monitoring period. Temperature and precipitation data recorded at Site B were applied to this site. Figure 24 through Figure 29 provide graphs showing 10-minute interval data for L_{eq} sound level, wind speed, and temperature. Over the full monitoring period, 10-minute L_{eq} sound levels ranged from a low of approximately 28 dBA to a high of approximately 72 dBA. Temperatures ranged from approximately -2° C to +24° C (28° F to 75° F) and 10-minute average wind speeds ranged from 0 m/s to approximately 3 m/s (0 mph to 7 mph).

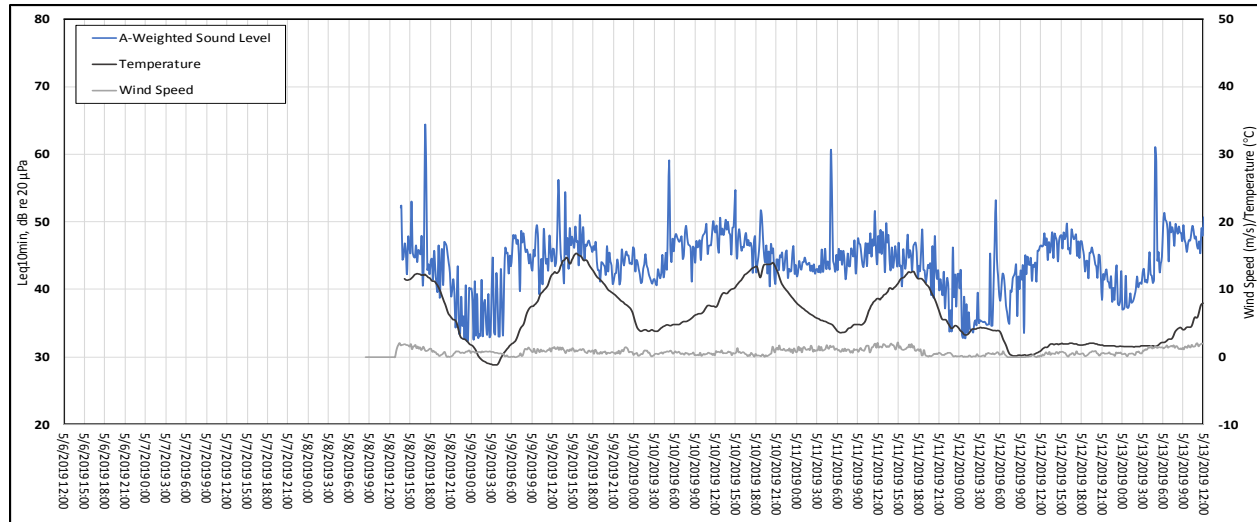


Figure 24. Sound Level and Weather Data: Site C, May 8 – May 13, 2019

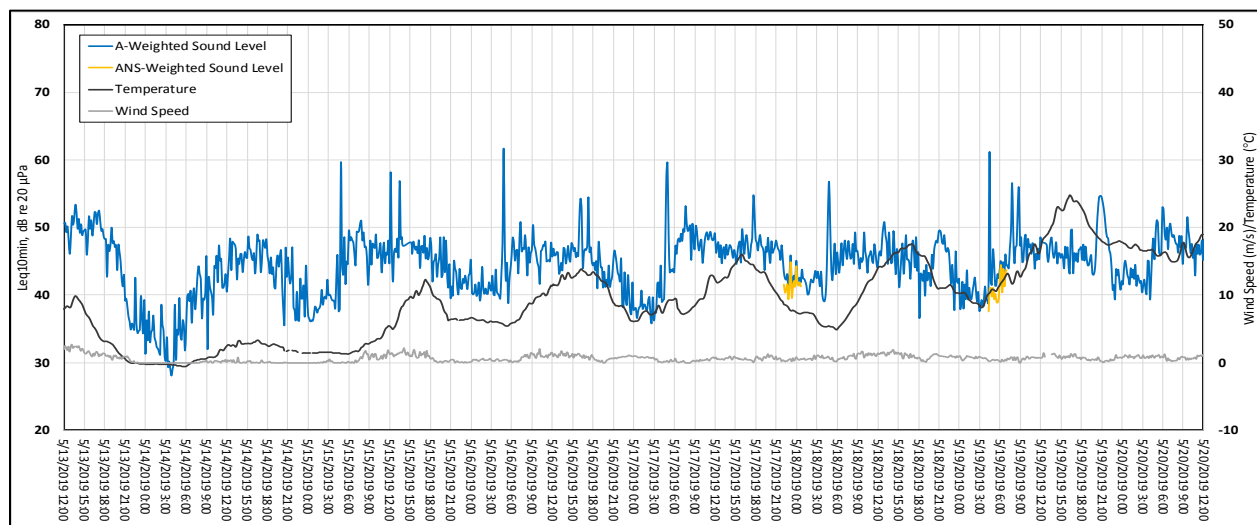


Figure 25. Sound Level and Weather Data: Site C, May 13 – May 20, 2019

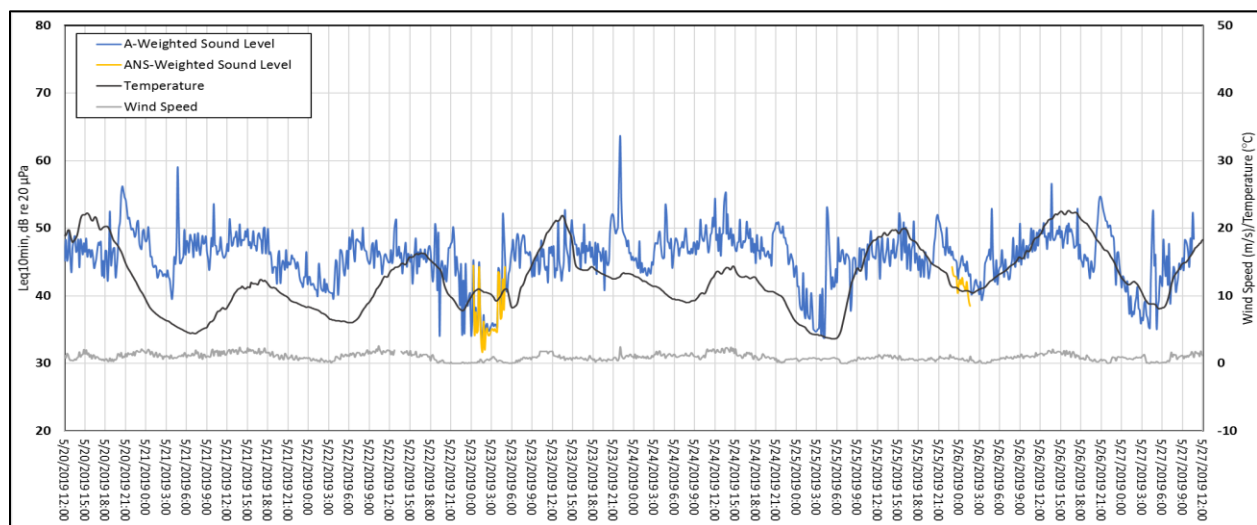


Figure 26. Sound Level and Weather Data: Site C, May 20 – May 27, 2019

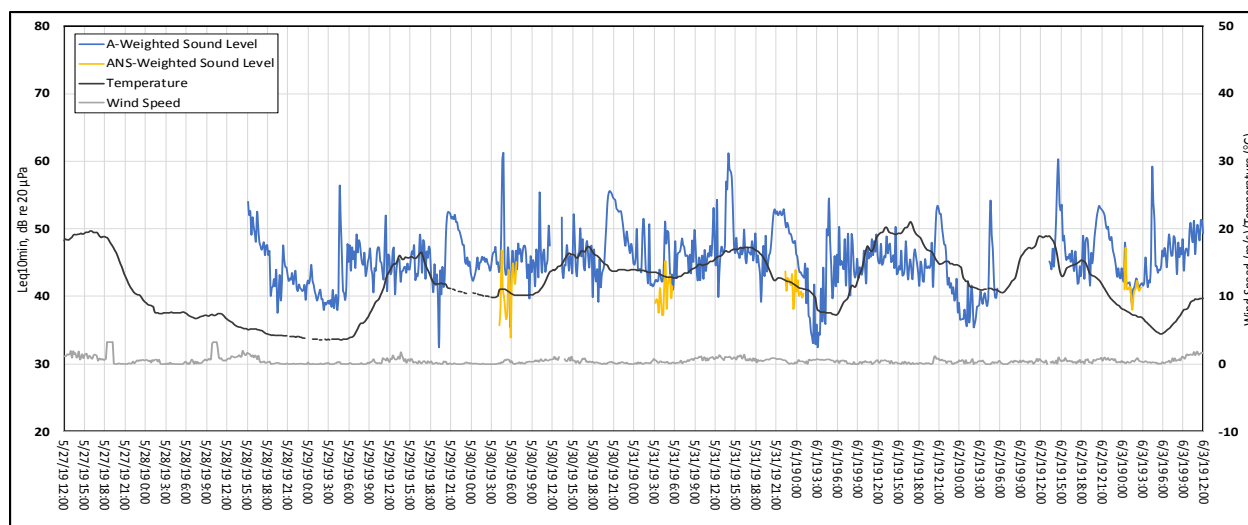


Figure 27. Sound Level and Weather Data: Site C, May 27 – June 3, 2019

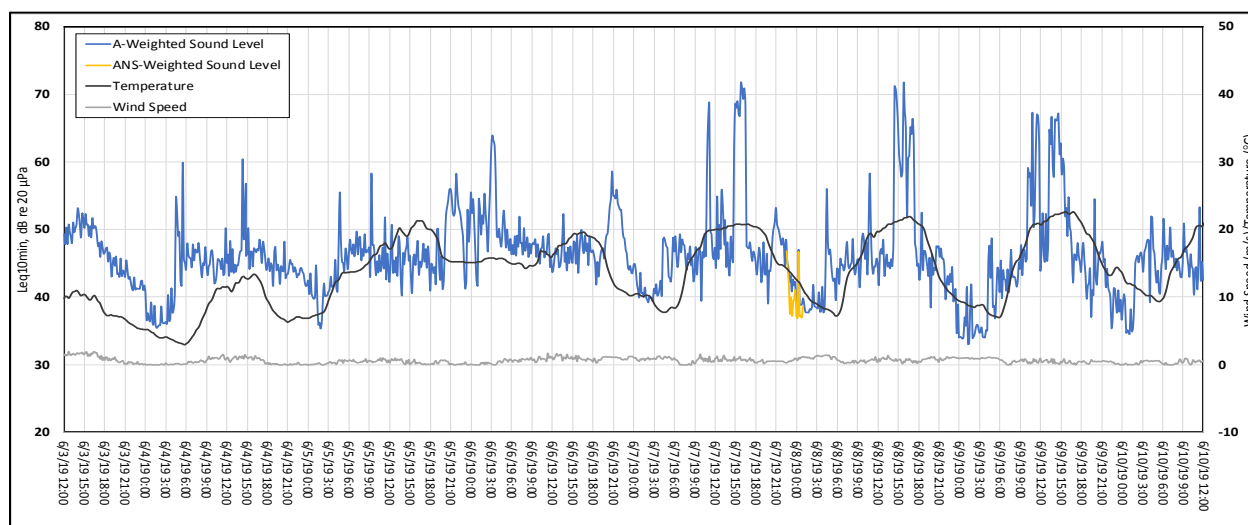


Figure 28. Sound Level and Weather Data: Site C, June 3 – June 10, 2019

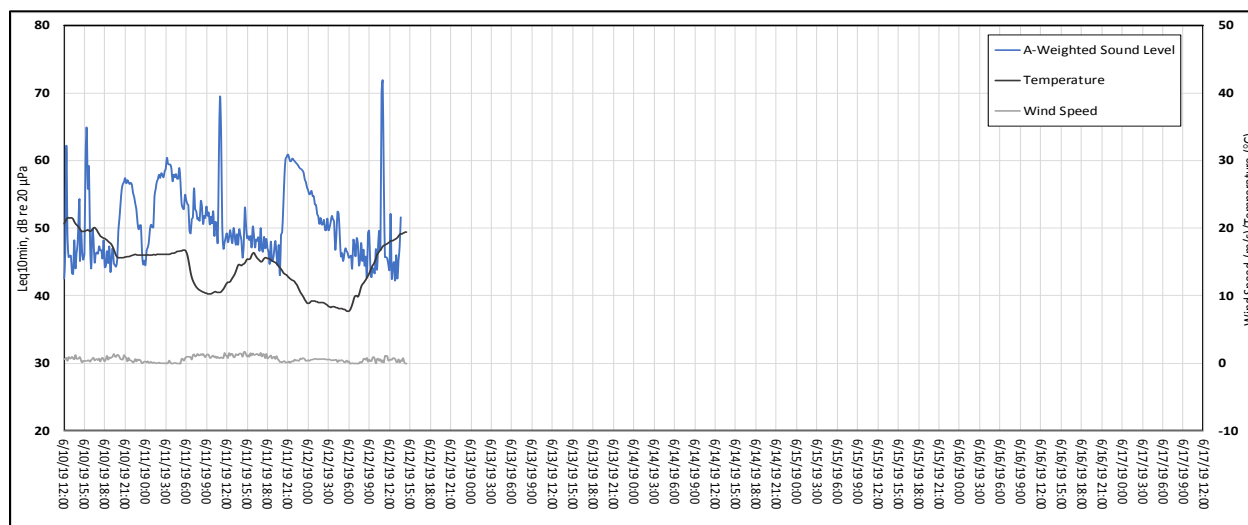


Figure 29. Sound Level and Weather Data: Site C, June 10 – June 12, 2019

Brief pauses in data collection occurred every two to four days to download data, change batteries, and conduct calibration checks. In addition, on May 27, a remote cellular access module used to remotely check the meter at Site C malfunctioned and caused the meter to stop collecting data. The module was removed the followed day and the meter functioned normally for the remainder of the measurement period. No turbine curtailments occurred during the period when the monitoring was not functioning.

During the monitoring period, nine turbine-operation curtailments occurred with at least one 10-minute interval that satisfied the Protocol's wind speed, wind direction, and temperature criteria for Site C. After further filtering and elimination of contaminating events, two hours and ten minutes (130 minutes) of "turbine-on" data with an L_{eq} of 41 dBA, and 54 minutes of "turbine-off" data with an L_{eq} of 37 dBA remained. The computed "turbine-only" sound level of 38 dBA complies with the CPG's 45-dBA standard. The filtered data exceeded the Protocol's requirement of two valid hours of "turbine-on" data. The 35 days of measurements also exceeded the minimum requirement of two weeks of monitoring.

Figure 30 provides an example of typical sound level data at Site C associated with the turbine curtailment that occurred on May 19, and the adjacent one-hour periods before and after the curtailment. This figure shows the same curtailment depicted on Figure 19 for Site A. In addition to early morning bird activity, frogs tended to be present throughout most of the nighttime data at Site C. As with nearly all of the data at Site C, ANS-weighting was applied during the data analysis for this curtailment, and the plotted sound levels on Figure 30 are ANS-weighted. With bird and frog activity removed by the ANS-weighting for this curtailment, the remaining spikes in sound level are associated with individual vehicle passbys on VT Route 8. At this location, approximately 240 feet from the roadway, maximum passby sound levels during this sample generally ranged between about 49 and 61 dBA.

During the majority of time when vehicles were not present, the "turbine-on" sound level generally ranged from about 37 to 38 dBA for the first 30 minutes of the sample, and then increased to about 39 to 40 dBA for the 30 minutes immediately preceding the curtailment. During the "turbine-off" period between approximately 5:25 AM and 5:50 AM, the background sound level dropped to about 35 to 37 dBA. For the hour after the curtailment, the "turbine-on" sound level varied between about 40 and 41 dBA. Although the "turbine-on" and "turbine-off" sound levels shown in this example are roughly consistent with the energy-average sound levels presented in Table 5, sound levels associated with other curtailments at this site may be either higher or lower than the averages shown in Table 5.

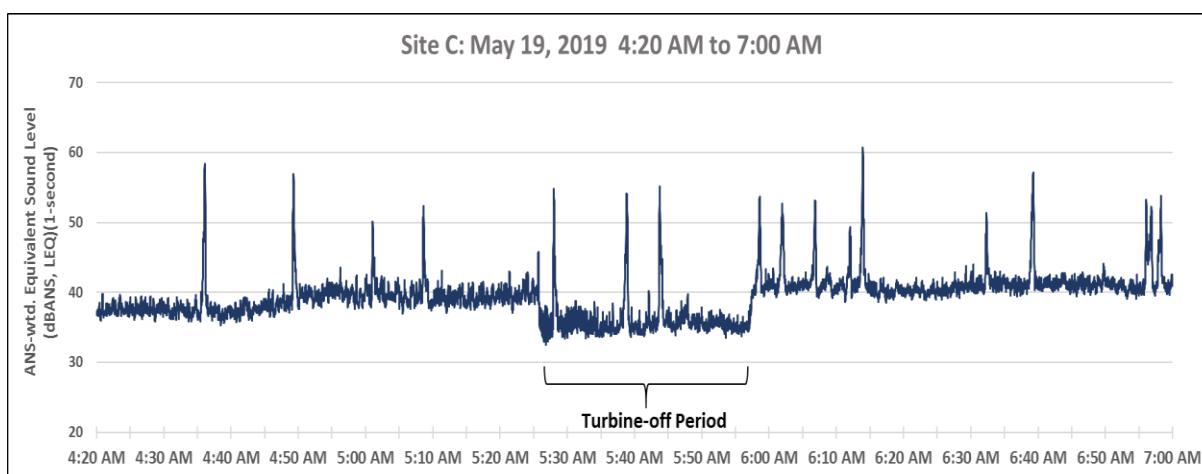


Figure 30. Sound Level Time History Site C, May 19, 2019, 4:20 AM to 7:00 AM

4.3. A-WEIGHTED INTERIOR SOUND LEVELS

Table 6 provides a summary of the calculated interior sound levels at each of the three measurement sites. For each measurement site, the table shows the measured exterior “turbine-only” (i.e., “Project”) sound level, the assumed OINR of 15 dB, and the resulting interior “turbine-only” sound level, obtained by subtracting the assumed OINR from the exterior sound level. To comply with the CPG’s interior standard, the interior “turbine-only” sound level must not exceed 30 dBA (interior) (L_{eq} , 1 hour). The computed “turbine-only” interior sound levels of 21 dBA at Site A, 25 dBA at Site B, and 23 dBA at Site C all comply with the CPG’s interior sound level limit.

Table 6. Summary of A-weighted Interior Sound Levels

Monitoring Site	Exterior “Turbine-only” Sound Level (L_{eq} , dBA)	Assumed Outdoor to Indoor Noise Reduction (dB)	Calculated Interior “Turbine-only” Sound Level (L_{eq} , dBA)	CPG Interior Sound Level Limit (L_{eq} , dBA)	Meets CPG Limit?
Site A	36	15	21	30	Yes
Site B	40	15	25	30	Yes
Site C	38	15	23	30	Yes

5. CONCLUSIONS

The spring 2019 monitoring program was conducted over a period of five weeks from May 8 until June 12. The minimum requirement of two hours of valid “turbine-on” data was exceeded during 25 days of measurements at Site A, 16 days of measurements at Site B, and 35 days of measurements at Site C.

Based on the methodology provided in the Protocol, the measurement results at all three sites were analyzed with respect to the CPG’s standards for prominent discrete tones, A-weighted exterior sound levels, and A-weighted interior sound levels. The conclusions for each were as follows:

- **Prominent Discrete Tones:** The entire monitoring period at each measurement site was evaluated for prominent discrete tones in accordance with ANSI Standard S12.9-2005 Part 4, Annex C. No occurrences of prominent discrete tones associated with the Project were identified during the spring 2019 monitoring period.
- **A-weighted Exterior Sound Levels:** Using the methodology provided in the Protocol, exterior “turbine-only” sound levels were calculated from measured “turbine-on” and “turbine-off” sound levels. The CPG requires that project-related sound levels at any existing surrounding residences must not exceed 45 dBA (exterior) (L_{eq} , 1 hour). For the spring 2019 monitoring period, the computed “turbine-only” sound levels of 36 dBA at Site A, 40 dBA at Site B, and 38 dBA at Site C all complied with the CPG’s exterior sound level limit.
- **A-weighted Interior Sound Levels:** Interior “turbine-only” sound levels were calculated from measurements of exterior “turbine-on” and “turbine-off” sound levels and the assumption of a fixed OINR of 15 dB to the A-weighted exterior sound level. The CPG requires that project-related interior sound levels at any existing surrounding residences must not exceed 30 dBA (interior) (L_{eq} , 1 hour). For the spring 2019 monitoring period, the computed “turbine-only” sound levels of 21 dBA at Site A, 25 dBA at Site B, and 23 dBA at Site C all complied with the CPG’s interior sound level limit.

In summary, based on the measurements and analysis described in this report and conducted in accordance with the Protocol, we conclude that the Deerfield Wind Project complies with all aspects of the CPG’s sound level limits for the spring 2019 monitoring program.

APPENDIX A – FINAL SOUND MONITORING PROTOCOL FOR DEERFIELD WIND



the science of insight

FINAL SOUND MONITORING PROTOCOL FOR DEERFIELD WIND

Corrected 1.16.2018



55 Railroad Row
White River Junction, VT 05001
802.295.4999
www.rsginc.com

PREPARED FOR:
DEERFIELD WIND, LLC

SUBMITTED BY:
RSG



FINAL SOUND MONITORING PROTOCOL FOR DEERFIELD WIND

PREPARED FOR:
DEERFIELD WIND, LLC

CONTENTS

1.0	INTRODUCTION.....	1
2.0	FIRST YEAR MONITORING PLAN	2
2.1	Monitoring Contractor	2
2.2	Duration and Frequency	2
2.3	Microphone Locations	3
2.4	Logistics.....	5
2.5	Outside to Inside Test.....	6
2.6	Background Sound Measurements	7
2.7	Attended measurement	7
3.0	DATA PROCESSING	8
4.0	REPORTS.....	10
5.0	COMPLAINT RESOLUTION	11

List of Figures

FIGURE 1: POTENTIAL POST-CONSTRUCTION SITES.....	3
---	----------



1.0 INTRODUCTION

The Vermont Public Utility Commission (“PUC” or “Commission”) (formerly the Public Service Board) issued a revised Certificate of Public Good (CPG) for the Deerfield Wind Project (Docket #7250) (the “Project”) on July 17, 2009. As part of the CPG, post-construction sound monitoring is required to assure conformance with the Project’s CPG noise standards. The conditions of the CPG related to the monitoring condition are:

28. Deerfield shall construct and operate the Project so that the turbines emit no prominent discrete tones pursuant to ANSI standards at the receptor locations; and Project- related sound levels at any existing surrounding residences do not exceed 45 dBA(exterior)(Leq)(1 hr) or 30 dBA (interior bedrooms)(Leq)(1 hr).
29. In the event noise from operation of the Project exceeds the maximum allowable levels, Deerfield shall take all remedial steps necessary to bring the sound levels produced by the turbine(s) into compliance with allowable levels, including modification or cessation of turbine(s) operation.
30. Deerfield shall submit to the [Commission] for review and approval a noise monitoring plan to be implemented during the first full year of operation. The plan shall establish a monitoring program to confirm under a variety of seasonal and climactic conditions compliance with the maximum allowable sound levels described above.

This report describes a monitoring plan that meets the conditions of the CPG.



2.0 FIRST YEAR MONITORING PLAN

2.1 | MONITORING CONTRACTOR

A State of Vermont agency will select and supervise a contractor to conduct the sound monitoring, subject to the Commission's approval. The minimum qualifications shall be:

- Experience with short-term attended and long-term sound compliance monitoring at wind projects.
- Experience with cold-temperature sound monitoring.
- Experience with the methodologies outlined in this Protocol.
- Board Certification through the Institute of Noise Control Engineering.

Costs for the sound monitoring contractor shall be borne by Deerfield Wind LLC.

2.2 | DURATION AND FREQUENCY

Each of the two seasonal monitoring periods shall be a continuous period at least two weeks in duration, and meant to capture a variety of meteorological and seasonal conditions. Each monitoring period can be extended for up to 5 weeks in total if necessary to client sufficient valid data to determine Project-only sound levels.

In selecting the monitoring periods, the following shall be considered:

- Whether turbines will be out of service, the length of the outage, and whether the combination of the location of the turbines and length of outages would substantially affect the results of the sound monitoring.
- Whether forecasted heavy rains or storms comprise more than 50 percent of the first two-week period.
- Whether normal operations are expected to be affected by safety concerns, grid reliability, or other issues.

This Protocol acknowledges that many of these factors cannot be forecast in advance with certainty, and therefore the presence of these conditions during monitoring periods may occur despite the best efforts of Deerfield Wind and the sound monitoring consultant. Any departure from ideal monitoring conditions shall be noted in the report.

One period of monitoring will take place during each of spring, and fall, over the first year that the Project is commercially operating. The first year, for the purposes of this monitoring, shall be defined as the first year with two full spring and fall seasons. For example, if construction concludes at the end of spring, the first year will start at the beginning of that fall through the end of spring the next year.

2.3 | MICROPHONE LOCATIONS

Sound monitoring is proposed for three locations, representing unique soundscapes around the Project. As shown on Figure 1 below, Site A is representative of the closest homes along VT 9, and Sites B and C are representative of the closest homes along VT 8.

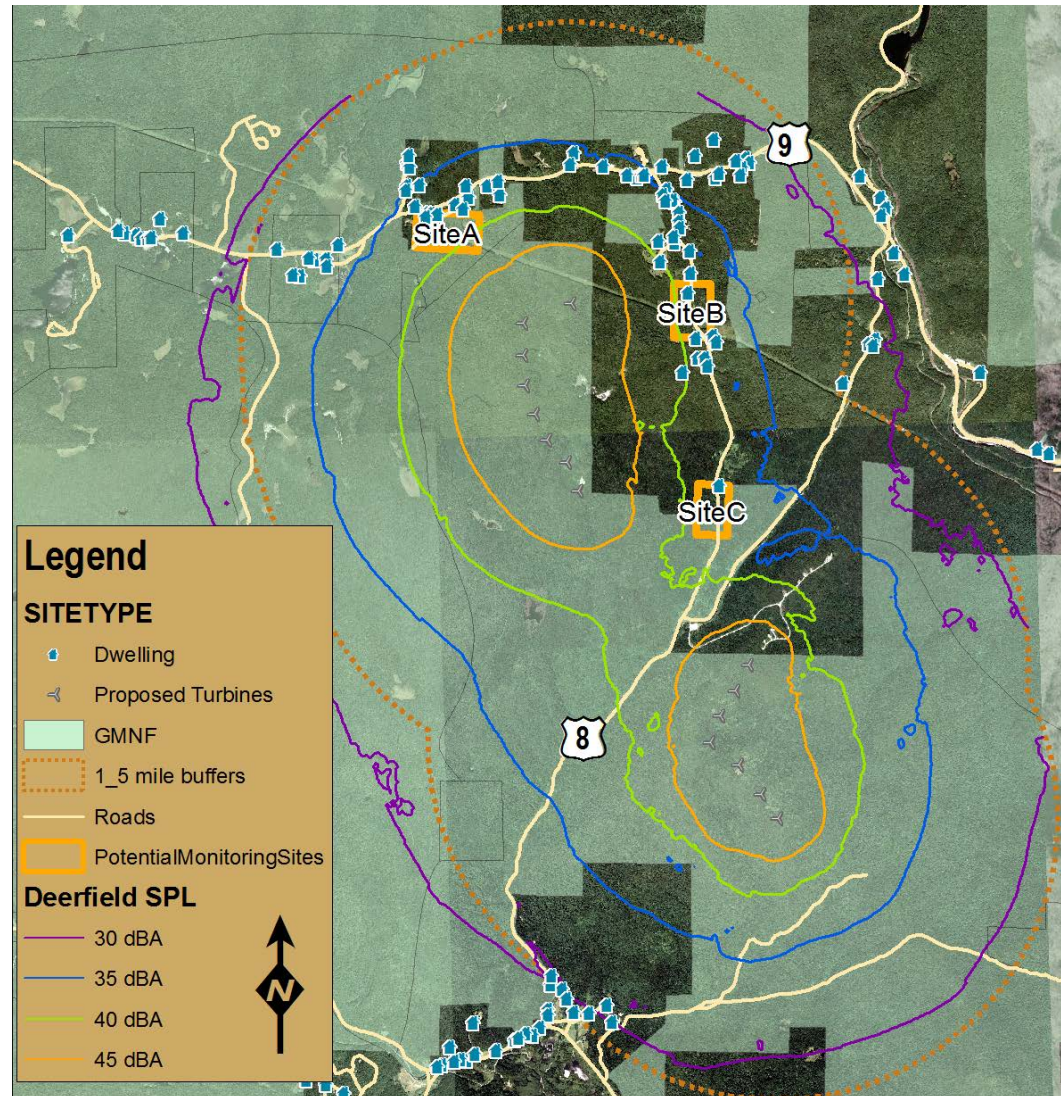


FIGURE 1: POTENTIAL POST-CONSTRUCTION SITES AND MODELED SOUND CONTOURS BASED ON AS-APPROVED FINAL DESIGN PLANS (SUBMITTED TO PUC ON 6/1/15)

- A) Site A is located south of Old Route 9, east of Bishop Hill Road, and south of VT Route 9 in Searsburg. This area is representative of sound impacts to the north of the Project, and would be as far off of VT 9 as practical. This is

similar in location to Site 2 from the pre-construction monitoring,¹ and is representative of the closest homes and highest sound impacts.

- B) Site B is located near the transmission line that crosses VT Route 8 approximately 1.3 km (0.8 miles) south of the VT 8/VT 9 intersection in Searsburg and west of VT Route 8, and extending north to 149 VT Route 8, just north of the transmission line. This is similar to Site 4 from the pre-construction monitoring, and is representative of the closest homes to the east of the project.
- C) Site C is located approximately 0.5 miles north of Sleepy Hollow Road on VT Route 8 in Searsburg, west of Route 8. This site is roughly equidistant between the Deerfield and Searsburg turbines. The Site includes the two closest homes to the north. This is similar to Site 5 from the pre-construction monitoring, and is representative of the highest combined noise impacts of Searsburg and Deerfield combined.

Monitoring sites are not proposed for the west or south, as there are no nearby homes in these directions, i.e., within a 1.5 mile radius. Beyond that distance, the modeled sound levels are generally less than 30 dBA, and thus do not present a reasonable likelihood of exceeding the CPG sound limit.

Where monitoring locations are near residential areas, to the extent permission is granted, monitors shall be set near individual homes closest to the Project at these locations. If permission is not granted, then alternative homes shall be contacted, or monitors will be placed in public rights-of-way that are representative of a home, at a similar or lesser distance from the Project.

To the extent possible, the sound monitors should be located away from roads to avoid background sound contamination. However, the setback distance from roads should still be representative of the closest home or homes.

Up to three additional monitoring locations may be selected in response to noise complaints made prior to the beginning of the last monitoring period, provided any such addition location is materially different than the locations already being monitored, and that it is within the 30 dBA (exterior) contour.

¹ RSG, "Revised Noise Impact Study for: Deerfield Wind Project, Searsburg/ Readsboro, VT," November 2007 (Exhibit DFLD-KK-4)

Final monitoring locations will be selected by the sound monitoring consultant. When the sites have been selected and the consultant has conveyed them to Deerfield Wind, Deerfield Wind shall file a map with the Commission showing these monitoring, turbine, and met tower locations.

2.4 | LOGISTICS

The location of the microphones shall be chosen on site and based on the following list of site condition priorities:

- 1) Microphones shall be located at least 7.5 m from any surface where reflections may influence the measured sound pressure levels. Microphones shall be placed in a location to avoid potential noise contamination from sources such as flowing water, wind chimes, air conditioners, noises from homes, etc.
- 2) Microphones shall be placed at a height approximately 4 to 5 feet above grade.
- 3) Microphones shall not be placed such that any structure blocks the line of sight between the microphone and wind turbines (if otherwise visible).
- 4) The Contractor will make every reasonable effort to site microphones in a manner that will maximize the probability of capturing the maximum noise levels at each monitoring location, taking into account all relevant factors such as minimizing line-of-sight obstructions between microphones and the Project, and maximizing the number of turbines in line-of-sight of the microphones at each monitoring location.
- 5) Appropriate wind screens should be used. For long-term monitoring in windy conditions, seven-inch hydrophobic wind screens or equivalent should be used.

In some cases, these limitations may mean that the best monitoring location for a specific residence may be several hundred feet away from the primary residential structure. Every effort shall be made to ensure that locations selected are representative of the noise exposure at subject homes.

Sites will include meteorological instrumentation logging data in no more than 10-minute increments, which can include one or more of the following:

- Anemometer (all sites)
- Wind vane (one site)
- Temperature sensor (one site)
- Rain sensor (one site)

All sound level meters will meet IEC Type 1 or better specifications for accuracy, and will be calibrated before and after each measurement period. All monitors will collect 1/3 octave band data from 20 Hz to 10 kHz at one-second logging intervals and audio recordings where permission is granted by the property owner. To protect the privacy of neighbors, audio



recordings shall be released to the PUC upon request and only under a confidentiality agreement or with permission of the homeowner. In all cases, the user of the audio may not disclose the content of private conversations that may have been inadvertently captured.

2.5 | OUTSIDE TO INSIDE TEST

Sound tests of turbine operations will be limited to exterior measurements. This is because the 30 dB interior limit established by the PUC is sufficiently low that the sound test is easily contaminated by normal activities that occur indoors. In addition, frequent sound monitoring inside a bedroom is intrusive. To minimize the impact to residents, interior sound levels will be calculated based on a fixed 15 dBA reduction. However, the homeowner will be given the option to allow for testing to be conducted to determine the actual outside to inside noise reduction (OINR) of the house, if that home meets the following criteria:

- 1) The preconstruction sound model shows Deerfield Project sound levels of 40 dBA or higher at that location; or
- 2) Sound monitoring (post-construction) shows Deerfield Project sound levels of 40 dBA(Leq)(1 hr) or higher at that location.

Deerfield Wind shall offer OINR testing to homeowners who meet Criterion 1 at the outset of commercial operations, and to homeowners who meet Criterion 2 based upon the first year of post-construction monitoring.

An OINR test is used to establish the noise reduction from the outside to the inside of a house. The test will be conducted in accordance with ASTM Standard E966-10, *Standard Guide for Field Measurement of Airborne Sound Insulation of Building Facades and Façade Elements (2010)*.² Any deviations from the standard necessitated by field conditions will be detailed in the report. The OINR test will be limited to a single fully-furnished occupied bedroom facing the Project at each home.

If a homeowner who meets one of these criteria initially declines OINR testing, an attenuation of 15 dBA will be assumed. However, if a homeowner who initially declined OINR testing subsequently files a complaint, that homeowner shall again be offered OINR testing at Deerfield's expense.

Tests will be conducted if permission is granted by the homeowner, with windows closed, one quarter open, and fully open. The sound monitoring consultant should ask the

² The E966 standard is copyrighted. For those who wish to review the standard, but not purchase it, one can be made available for review at RSG offices.

complainant about their window opening patterns throughout the year, and should use the complainant's response as the basis for the window-position assumption.

2.6 | BACKGROUND SOUND MEASUREMENTS

To accurately measure the sound level of the wind turbines, background sound levels must be excluded. This will be accomplished by turning off wind turbines at regular intervals. Turning off wind turbines allows a direct comparison between periods with and without turbines operating.

During the measurement program, the turbines will be shut down for 20 minutes at a time no less once per night (10 pm to 7 am) where hub height wind speeds are at 6 m/s or above, in order to ensure that the turbines would be operating at or near their maximum sound output before and after each shutdown (assuming the wind conditions remain relatively constant over that period). It is understood that wind speeds may change considerably around the shutdown times and may not be consistently high among all turbines. A greater number of turbine shutdowns may occur, with turbine shutdowns to occur as needed in order to collect sufficient turbine-off data needed to accurately determine background sound levels.

Individual contaminating events may be manually filtered or otherwise removed from the data set. These events include, but are not limited to traffic passbys, insects, property maintenance, gunshots, land clearing, voices, etc. This is described further in Section 3. Insects and birds may also be filtered by subtracting out sound at and above 1.6 kHz (a.k.a., “Ai” weighting).

The sound engineer conducting the testing may modify the background sound methodology for good cause. If such modification is made, a description of the good cause and the modifications that were made shall be included in the sound monitoring report.

2.7 | ATTENDED MEASUREMENT

For one hour before or after at least one turbine shutdown event, attended monitoring will take place at each monitoring location. Attendants will make time-stamped notes as to what they hear and the relative loudness of those sounds, including but not limited to wind turbine sound, wind, anthropogenic, and biogenic sounds.



3.0 DATA PROCESSING

Data during some periods will be removed from the results. These include periods when:

- Wind speeds (average or gusts) at a monitoring site are above 4 to 5 m/s – Winds above 5 m/s create a large amount of false noise generated from pressure fluctuations around the microphone. Data for wind speeds between 4 and 5 m/s (or below, as needed) should be carefully reviewed to identify any wind contamination that creates pseudo-noise or wind-induced noise that is sufficient to mask wind turbine sound prior to its inclusion in the filtered data set.
- The temperature is below 14°F – The ANSI S1.4 standard, “Specification for Sound Level Meters,” does not require the provision of temperature corrections below -10°C (14°F) and above 50°C (122°F). As such most sound level meters are not calibrated outside this range. If sound level meters are certified for use below 14°F, this restriction will not apply.
- Rain is present – Rain, sleet, ice, or similar events that drop precipitation onto the microphone windscreen create false noise. Snow events will not be excluded because they do not create false noise.
- Spikes are present that are not consistent with wind turbine operation. Note that this screening is only required for sound levels over 40 dBA, as manual filtering can be time-intensive. Periods that were screened should be identified in the report.

Certain background sounds such as insects and birds can be filtered by employing a low pass filter without affecting the sound monitored from the wind turbines. If these types of sources are found, a low-pass filter may be used, consistent with that described in “Proposed ‘Ai’-weighting; A weighting to remove insect noise from A-weighted field measurements”, Paul D. Schomer, Ian M. Slauch, and George F. Hessler, *InterNoise Proceedings*, Volume 221, pp. 3991-4000 (2010).

Events over 40 dBA (i.e., 5 dBA lower than the CPG exterior noise limit) where the hub height wind speed is sufficient to generate within 1 dB of the maximum sound power (over a reasonable period of time and number of turbines), and the wind direction is not upwind of the nearest turbines shall be investigated by listening to the audio tape or reviewing the spectrogram of the event and determining if the cause is wind turbine noise. If the exceedance is due to a background event, then it shall be eliminated. Events not meeting these criteria may still be investigated on a case by cases basis – for example, to compare modeled to monitored sound levels at a particular location.

Any substantial change in wind speed (or other background sound conditions) between the background and turbine-on monitoring periods shall be evaluated to assess its effect on the calculation of turbine-only sound level. Corrections may be applied as appropriate.

Where background sound levels are within 3 dB of the adjacent measured Turbine-on sound levels, the background and Turbine-on periods will be excluded from further processing

The Turbine-only sound level for the monitoring period will be determined by logarithmically subtracting the energy-averaged background sound level for all remaining measurement periods from the energy-averaged measured Turbine-On sound levels for all remaining measurement periods. This value will be used to compare to the appropriate CPG limits.

For the purposes of compliance with the 45 dBA exterior and 30 dBA interior standards, and other thresholds described in this protocol, all results will be rounded to the nearest whole integer.

At least two valid hours of Turbine-On data will be needed to determine compliance. Note that if five weeks of data monitoring are completed before two hours of valid data are collected, the monitoring period will be concluded, and the available valid periods will be used for compliance determination.

Tonal sounds will be assessed using the criteria of ANSI S12.9 Part 4 Annex C using 1/3 octave band for each rolling measured Turbine-On $L_{eq(1-hour)}$. Rolling periods will be incremented every 10 minutes. If tonal periods are found, then background sound levels can be removed or other methods employed to determine whether the tonality is due to the operation of the Project.

The sound monitoring report will include a description of each reason why data has been removed from monitoring results. The removed data will be retained by the sound monitoring consultant and provided to the Commission.

4.0 REPORTS

A report shall be prepared by the sound monitoring consultant for each monitoring season. Each monitoring report shall include:

- A description of any changes in Project operation made since the last report, special operating conditions, or turbine maintenance issues found during the test procedure.
- Layout of the project area, including topography, project boundary lines for the project and property lines delineating properties surrounding the project site.
- Locations of the sound measurement points with photographs and GPS coordinates of the microphones.
- Distance between any sound measurement point and the nearest wind turbine.
- A summary of all data collected, including sound levels, meteorological data at the monitoring stations, and turbine operating conditions.
- Times of potential exceedances of the outdoor, indoor, or tonal standard, and the results of investigations into those exceedances.
- Conclusions.
- An appendix containing 10-minute data for each turbine including wind speed, and electrical output.

If cold-weather-certified sound monitors are not used, then for the winter season, a report addendum will be prepared which includes sound levels during periods when the temperature is below 14°F. The sound monitoring consultant may include in its reports any information that it believes suggests that the sound level meters are not producing accurate data during times when the temperature falls below 14°F.

Reports shall be submitted to the PUC and the docket parties within six weeks of the end of each monitoring period. Any confidential information (i.e., audio files near residences) will be provided only after executing an appropriate protective agreement. If audio files are provided without a protective agreement, then private conversations will be redacted prior to release. The public versions of the reports (i.e. without such confidential information) will also be provided to the Forest Service.

If it is found that the Project sound level at any existing permanent structure for human habitation is above the allowable limit, Deerfield Wind shall take all remedial steps necessary to bring the sound levels produced by the turbine(s) into compliance with allowable levels, as required by the CPG. Such steps may include engineered solutions, operational changes or adjustments, or legal agreements, as applicable.

5.0 COMPLAINT RESOLUTION

The following complaint resolution procedure will assure that concerns by neighbors regarding wind turbine noise are addressed in a timely manner while, at the same time, preventing abuse of the complaint process. The complaint resolution procedure shall be as follows:

- 1) The complaint process shall be in place for the life of the Project.
- 2) Complaint phone numbers and contact persons for both Deerfield Wind and the Department of Public Service (“DPS”) shall be provided to the Town Clerks and Selectboards of Searsburg and Readsboro, and neighbors within the 30 dBA contour line of Figure 1 existing at the time of the issuance of the CPG.

Complaints may be made to Deerfield Wind by calling (866) 318-9858 or by sending a written complaint to the Deerfield Wind Project, 37 Putnam Road, Searsburg, VT 05363.

Complaints may also be made to the DPS Consumer Affairs and Public Information Division (“CAPI”) under its CPG Complaint Protocol by the following means:

VT Department of Public Service, CAPI Division
112 State Street
Montpelier, VT 05620-2601

E-mail: psd.consumer@vermont.gov

Consumer Hotline: (800) 622-4496

TTY: (800) 734-8390

Fax: (802) 828-2342

Web: <http://publicservice.vermont.gov/cpg-complaint-protocol>

- 3) Deerfield Wind will provide an initial acknowledgment to complaints within two business days of it being notified of the complaint.
- 4) Complainants who contact Deerfield Wind will be asked to provide the following information related to the complaint:
 - a. Location of the observed sound
 - b. Time(s) and date the sound occurred
 - c. Weather conditions (snow cover, cloud cover, wind direction and relative speed, etc.)
 - d. Description of the sound
- 5) Deerfield Wind may ask complainants to log sound events to help identify factors that affect the sound.
- 6) Deerfield Wind shall record the complainant information, and weather, turbine operating status, and power output during the time of the complaint. The Forest Service, PUC, and DPS will be informed of complaints along with these data.



- 7) If the complaint concerns an unidentified icing condition or mechanical problem, Deerfield will investigate as needed and take appropriate action if warranted. Once it is determined that either no aberrational condition exists or the condition is fixed, Deerfield will notify the complainant with a description of Deerfield's findings. Otherwise, no further complaint resolution steps need be taken. Deerfield will maintain files concerning such complaints and make these available to the PUC or DPS upon request.
- 8) Deerfield Wind will investigate as described below if the complaint represents permanent structure for human habitation existing at the time of the CPG issuance and within the 30 dBA contour shown on Figure 1.
- 9) Sound monitoring may be conducted in response to a complaint within the 30 dB contour if the sound level is within 5 dB of the exterior sound limit, based on sound modeling or upon order of the Commission in response to a complaint.
- 10) Sound monitoring may also be conducted if first-year or any subsequent Commission-ordered compliance monitoring during normal operating conditions (defined below) showed that a monitoring location within one mile of the complainant's home showed higher sound levels (with contaminating events filtered out) than what was modeled, to the extent that if this adjustment were applied to the complainant's home, the sound level would be within 5 dB of the exterior limit. For example, if sound monitoring at Location A showed that the maximum sound level is 39 dBA compared to modeling at that location of 38 dBA, then 1 dB would be added to the modeled sound levels of all other homes within a mile of Location A. If that adjustment raises the modeled sound level of a complainant's home over 40 dBA, then that complainant may be offered sound testing at the expense of Deerfield Wind.

Normal operating conditions would not include temporary maintenance issues, short term abnormal turbine operations, or other correctable or corrected conditions at the Project. If such abnormal conditions are the cause of the noise complaint, noise monitoring shall not be required. Deerfield Wind will make any necessary corrections to the Project as soon as feasible and shall communicate the situation to the complainant, Forest Service, PUC, and DPS.

- 11) If Deerfield Wind's sound consultant determines that follow-up sound monitoring is warranted under either Section 8 or 9 above, Deerfield Wind will notify the DPS in writing. The State of Vermont shall contract for and supervise the sound monitoring consultant. The State's sound monitoring shall begin as soon as possible, but no later than six weeks thereafter. All reasonable efforts shall be made to conduct such monitoring under conditions similar to those existing at the time the complaint arose.
- 12) The sound monitoring consultant shall work with the complainant to determine an appropriate location for the monitoring equipment.
- 13) Sound monitoring will follow the applicable protocols from Sections 2.4, 2.6, 3.0, and 4.0, above. Note that the responding noise control engineer may revise aspects of this Protocol to address specific conditions and limitations. For example, if the complaint occurs to the north of the Project along VT 9, then the noise control

engineer can limit the turbine shutdown to the western array as the eastern array would not materially affect the overall sound levels in that area. The basis for any deviations from this Protocol shall be described and substantiated in the test report.

- 14) The primary method for determining the attenuation value of a complainant home shall be OINR testing. OINR testing will be offered to complainants at Deerfield Wind's expense if the conditions for sound monitoring in Item 9, above, are met. The monitored exterior sound level will be converted to an interior level based on the ASTM E966 test result at the home. If permission is not granted for outside-to-inside testing, the attenuation value will be 15 dBA.
- 15) Because of the complexity of complaint resolution, full cooperation of the complainant and the adherence to the above test procedures is necessary.
- 16) The results of the monitoring shall be contained in a report that is submitted to the complainant, Deerfield Wind, the Department of Public Service, Forest Service, and the PUC. This report will contain specific information collected during the complaint monitoring, including wind speed and direction, operational status of the turbines, sound levels, and the raw sound level data collected by the noise control engineer conducting the tests. Allegedly confidential information will be treated the same as in Section 4 of this protocol.
- 17) If no exceedance is found at a location, including during the first-year monitoring, the location would be exempt from additional sound monitoring for five years.
- 18) Nothing in this Protocol would prevent Deerfield Wind from appealing to the PUC from relief in the cases of alleged frivolous, harassing, or repeated unsubstantiated complaints.

If it is found that the Project sound level at the complainant residence is above the allowable limit, Deerfield Wind shall take all remedial steps necessary to bring the sound levels produced by the turbine(s) into compliance with allowable levels, as required by the CPG. Such steps may include, but are not limited to, engineered solutions, operational changes or adjustments, including partial, temporary, or permanent shutdowns or noise-reduced operating modes, or legal agreements, as applicable.



APPENDIX B – FALL 2018 MEASUREMENT PLAN



TECHNICAL MEMORANDUM

Prepared for: Geoffrey Commons
Special Counsel
Vermont Public Service Department
112 State Street
Montpelier, VT 05621-2601

Prepared by: Douglas Barrett, Cross-Spectrum Acoustics Inc.

Subject: Noise Monitoring Plan for Deerfield Wind Project – FINAL -- Revised

Reference: CSA Project No. J2018-1170

Date: October 17, 2018

Cross-Spectrum Acoustics Inc. (CSA) has been retained by the Vermont Department of Public Service (DPS) to provide sound monitoring expert services in relation to compliance testing for the Deerfield Wind Project located in Searsburg and Readsboro, VT. Two periods of noise monitoring, one during the fall of 2018 and one during the spring of 2019, are to be performed in accordance with the “Final Sound Monitoring Protocol for Deerfield Wind”¹ (Protocol). This memorandum provides the detailed plan to conduct the fall 2018 measurements.

1. OVERVIEW OF MONITORING REQUIREMENTS

This section provides an overview of the monitoring requirements as provided in the Protocol. *Please note that this is intended only to provide an overview of the monitoring program and that the Protocol should be consulted to obtain all relevant information.*

1.1. Monitoring Periods: Each of the two monitoring periods shall be a continuous period at least two weeks in duration, but may be extended for up to five weeks if necessary to obtain sufficient data. In selecting the monitoring period, consideration shall be given to whether:

- Turbines will be out of service, length of outage, and whether the locations of turbines and length of outages would “substantially affect the results of the sound monitoring.”
- Forecasted heavy rains or storms comprise more than 50% of the two-week period.
- Normal operations are expected to be affected by safety concerns, grid reliability, or other issues. (Protocol, Section 2.2)

¹ “Final Sound Monitoring Protocol for Deerfield Wind,” prepared for: Deerfield Wind, LLC, prepared by: RSG, January 16, 2018.

1.2. Monitoring Locations: Sound monitoring is proposed for three locations, as described in the Protocol. Section 2 of this monitoring plan provides further information on specific sites. (Protocol, Section 2.3)

1.3 Outside to Inside Noise Reduction Testing: Outside to inside noise reduction (OINR) testing of houses may be requested by homeowners if that home meets the following criteria:

- The preconstruction sound model shows Deerfield Project sound levels of 40 dBA or higher at that location; or
- Sound monitoring (post-construction) shows Deerfield Project sound levels of 40 dBA (Leq) (1 hr) or higher at that location. (Protocol, Section 2.5)

1.4 Background Sound Measurements: Background sound levels will be excluded by turning off wind turbines at regular intervals, thus allowing a direct comparison between periods with and without turbines operating. To accomplish this, turbines will be shut down for 20 minutes at a times no less than once per night (10 pm to 7 am) where hub height speeds are at 6 m/s or above. A greater number of turbine shutdowns may occur, with shutdowns to occur as needed to collect sufficient turbine-off data. (Protocol, Section 2.6)

1.5 Attended Measurement: For one hour before or after at least one turbine shutdown event, attended monitoring will take place at each monitoring location. Attendants will make time-stamped notes regarding what they hear and the relative loudness of those sounds. (Protocol, Section 2.7)

2. MONITORING SITES

2.1 Proposed Sites: Section 2.3 of the Protocol describes the three proposed sound monitoring sites. “Revised Noise Impact Study for Deerfield Wind Project”² (Noise Study) provides further details on the monitoring sites used during the preconstruction noise measurements. As described in the Protocol:

- Site A is located south of Old Route 9, east of Bishop Hill Road, and south of VT Route 9 in Searsburg. This site is similar in location to Site 2 from the preconstruction monitoring.
- Site B is located near the transmission line that crosses VT Route 8 approximately 1.3 km (0.8 miles) south of the VT 8/VT 9 intersection in Searsburg and west of VT Route 8. This site is similar to Site 4 from the preconstruction noise monitoring.
- Site C is located approximately 0.5 miles north of Sleepy Hollow Road on VT Route 8 in Searsburg, west of Route 8. This site is similar to Site 5 from the preconstruction monitoring.

2.2 Alternative Sites: Section 2.3 of the Protocol states “where monitoring locations are near residential areas, to the extent permission is granted, monitors shall be set near individual homes closest to the Project at these locations. If permission is not granted, then alternative homes shall be

² “Revised Noise Impact Study for: Deerfield Wind Project, Searsburg/Readsboro, Vermont,” prepared for: Deerfield Wind, LLC, prepared by: RSG, November 28, 2007.

contacted, or monitors will be placed in public rights-of-way that are representative of a home, at a similar or lesser distance from the Project.”

2.3 Final Site Selection: Final monitoring sites are to be selected by the monitoring consultant (CSA). When the sites have been selected, the consultant must convey them to Deerfield Wind, and Deerfield Wind will file a map with the Commission showing monitoring, turbine, and meteorological tower locations. (Protocol, Section 2.3)

The attached technical memorandum “Final Monitoring Sites for Deerfield Wind Project -- Revised” (dated October 17, 2018) provides the final locations of the monitoring sites expected to be used for the measurements.

3. MONITORING EQUIPMENT

3.1 Required Equipment: The following instrumentation is required for the monitoring program:

- Three sound level meters (IEC Type I or better) with seven-inch hydrophobic windscreens. CSA expects to service the sound level meters every two days; therefore, each meter must have battery capability to run for at least two days and memory capability for continuous audio recording and one-second logging of 1/3 OB data. CSA’s NTi XL2 sound level meters will meet these requirements.
- Three complete battery sets for each sound level meter (nine total). This will allow for one battery set in use plus a replacement set in E. Longmeadow and a replacement set in Keene for each meter.
- Meteorological monitoring equipment: three anemometers, one wind vane, one temperature sensor, one rain sensor. Equipment must be battery-powered and capable of storing 10-minute interval data.
- Six tripods to support microphones and anemometers four to five feet above ground level.
- Three laptops or other means for time-stamping observations during attended monitoring.

3.2 Equipment Preparation: The sound level meters and meteorological instrumentation will be programmed and otherwise prepared for field use in CSA’s E. Longmeadow office the week before the measurements are to begin (week of October 8).

4. FIELDWORK

4.1 Prior to starting measurements:

- D. Barrett, in coordination with H. Singleton, will conduct the initial site survey, finalize candidate measurement sites, and start the process to obtain permissions.
- Prior to starting measurements, coordination with Deerfield Wind will be required regarding:
 - Site access
 - Development and submittal of the measurement site map (as described in Section 2.3 of the Protocol)
 - Coordination of nightly 20-minute shut-down periods

- Ensuring that turbine data (10-minute data for each wind turbine, including wind speed and electrical output) are saved during the measurement period.
- For audio recordings, CSA must obtain permission from property owners prior to starting measurements.
- H. Singleton and J. Montoya will program and prepare the instrumentation in CSA's E. Longmeadow office.

4.2 During measurements:

- J. Montoya and D. Barrett will meet at the project site and perform initial on-site deployment of equipment. J. Montoya will transport equipment from E. Longmeadow.
- After the initial set-up, either J. Montoya or D. Barrett will visit the project site every two days to service the equipment (i.e. download data and replace batteries).
- One night during the measurement period, J. Montoya and H. Singleton will make an additional trip from E. Longmeadow for attended monitoring. This monitoring session will coincide with one of D. Barrett's scheduled site visits. The exact date will be determined, in part, by weather.
- During the monitoring period, CSA will screen data after each download (according to Section 3.0 of the Protocol) until it is confirmed that at least two hours of good "turbine-on" data have been recorded at each site. J. Suits will be on-call to do this during the monitoring period in coordination with D. Barrett and H. Singleton. Note that measurements may continue for up to five weeks if sufficient data have not been obtained.
- At the conclusion of monitoring, J. Montoya and D. Barrett will meet at the project site and collect the equipment.

5. PROPOSED SCHEDULE

- Conduct site visit, select sites week of September 24 (D. Barrett).
- Prepare and program equipment week of October 8 (H. Singleton and J. Montoya).
- Deploy equipment week of October 22 (aim for Monday, October 22, weather permitting) (J. Montoya and D. Barrett).
- Conduct attended monitoring week of October 29 (pick specific night depending on weather) (H. Singleton, J. Montoya, and D. Barrett).
- If all goes according to schedule, collect equipment on November 5 (J. Montoya and D. Barrett).



TECHNICAL MEMORANDUM

Prepared for: Rob Batarags, Matt Becker, Melissa Fisher
Avangrid
Prepared by: Douglas Barrett, Cross-Spectrum Acoustics Inc.
Subject: Final Monitoring Sites for Deerfield Wind Project -- Revised
Reference: CSA Project No. J2018-1170
Date: October 17, 2018

On October 1, 2018 and October 16, 2018, Cross-Spectrum Acoustics (CSA) conducted site visits to the project site in Searsburg, VT. The purpose of the site visits was to field check the candidate sites included in our memorandum of September 26, 2018 ("Candidate Monitoring Sites for Deerfield Wind Project") and to select the three final sites to be used in both the fall 2018 and spring 2019 monitoring periods.

The three final sites were selected based upon the guidance in the "Final Sound Monitoring Protocol for Deerfield Wind"¹ (Protocol); conditions on the ground, including distance from local noise sources such as roads and accessibility; and the ability to gain permission from property owners. For each site, Table 1 provides a general description of the location, the approximate latitude and longitude of the site, the property owner, and other relevant notes. CSA has contacted each property owner and has been granted permission to conduct noise monitoring at the proposed location.

Figure 1 provides an overview map showing the general location of each site. Figures 2, 3, and 4 show the specific proposed location of each site. Although it is CSA's intention to install the monitoring equipment as close to the locations shown as possible, conditions on the ground at the time of deployment may require minor modifications.

Table 1. Final Monitoring Sites

Monitoring Site	Location	Lat./Long.	Owner	Notes
Site A	South of Old Route 9 and VT Route 9	42.890904 -73.000301	James Bartleson	House shown in aerial imagery no longer present
Site B	197 VT Route 8	42.88178 -72.97244	Gerry DeGray	Clearing to south side of house and driveway
Site C	343 VT Route 8	42.87274 -72.97124	Tom Shea	Edge of graded area south of barn

¹ "Final Sound Monitoring Protocol for Deerfield Wind," prepared for: Deerfield Wind, LLC, prepared by: RSG, January 16, 2018.



Figure 1. General Location, All Monitoring Sites (Basemap: Google 2018)

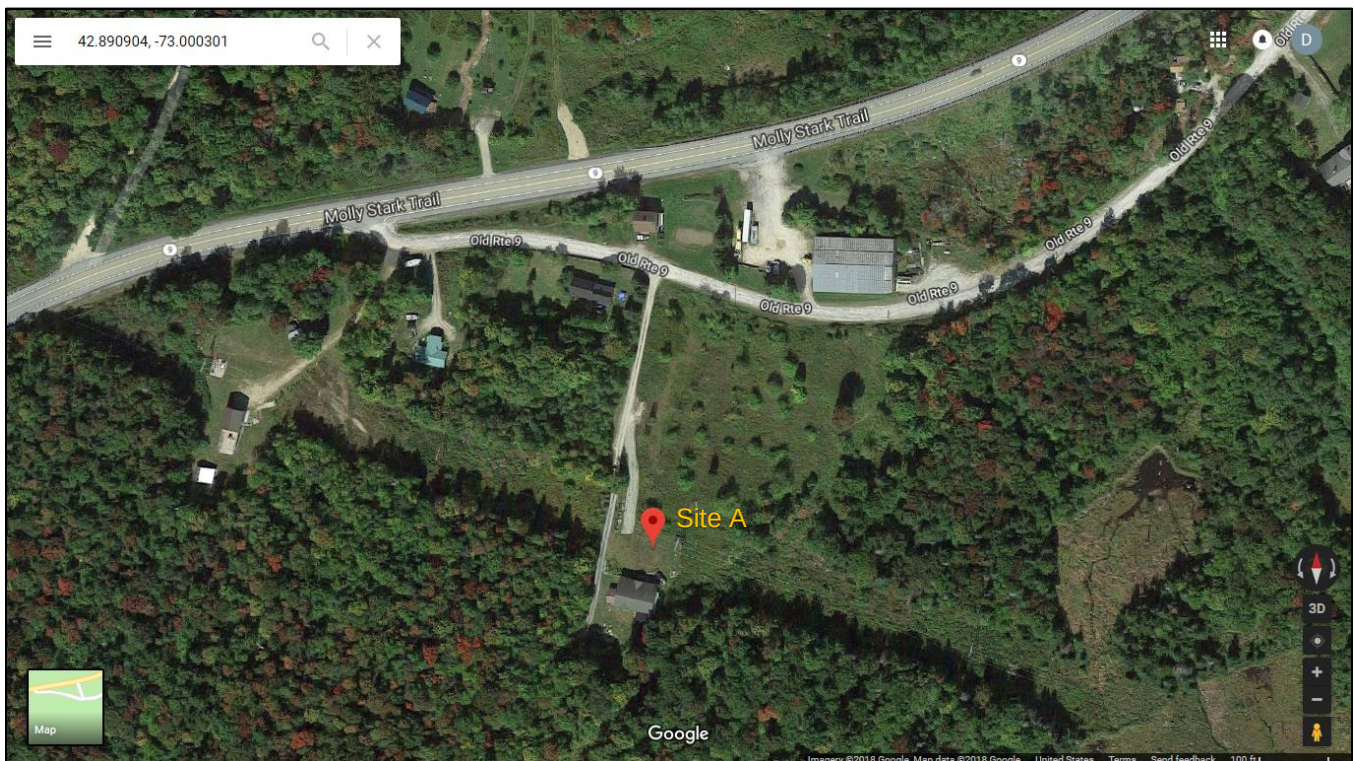


Figure 2. Site A Location Map (Basemap: Google 2018)

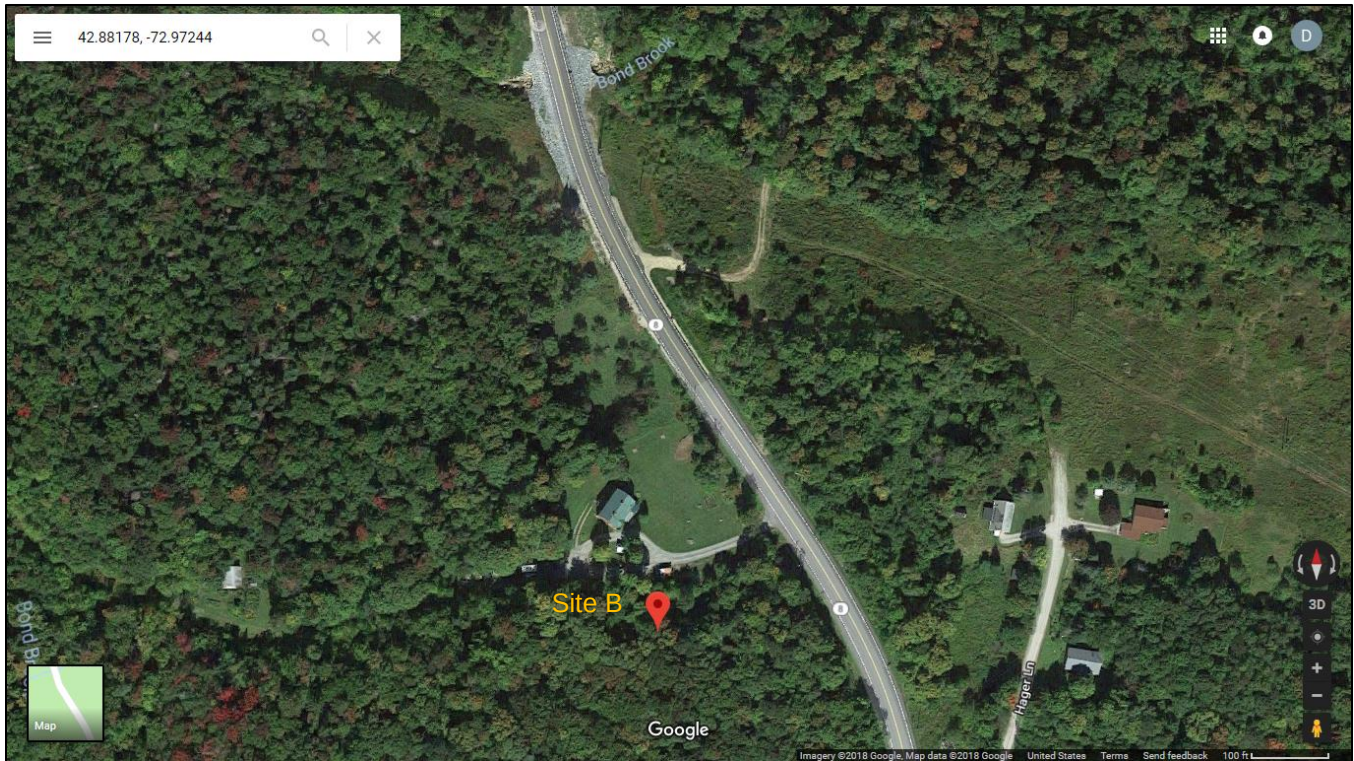


Figure 3. Site B Location Map (Basemap: Google 2018)

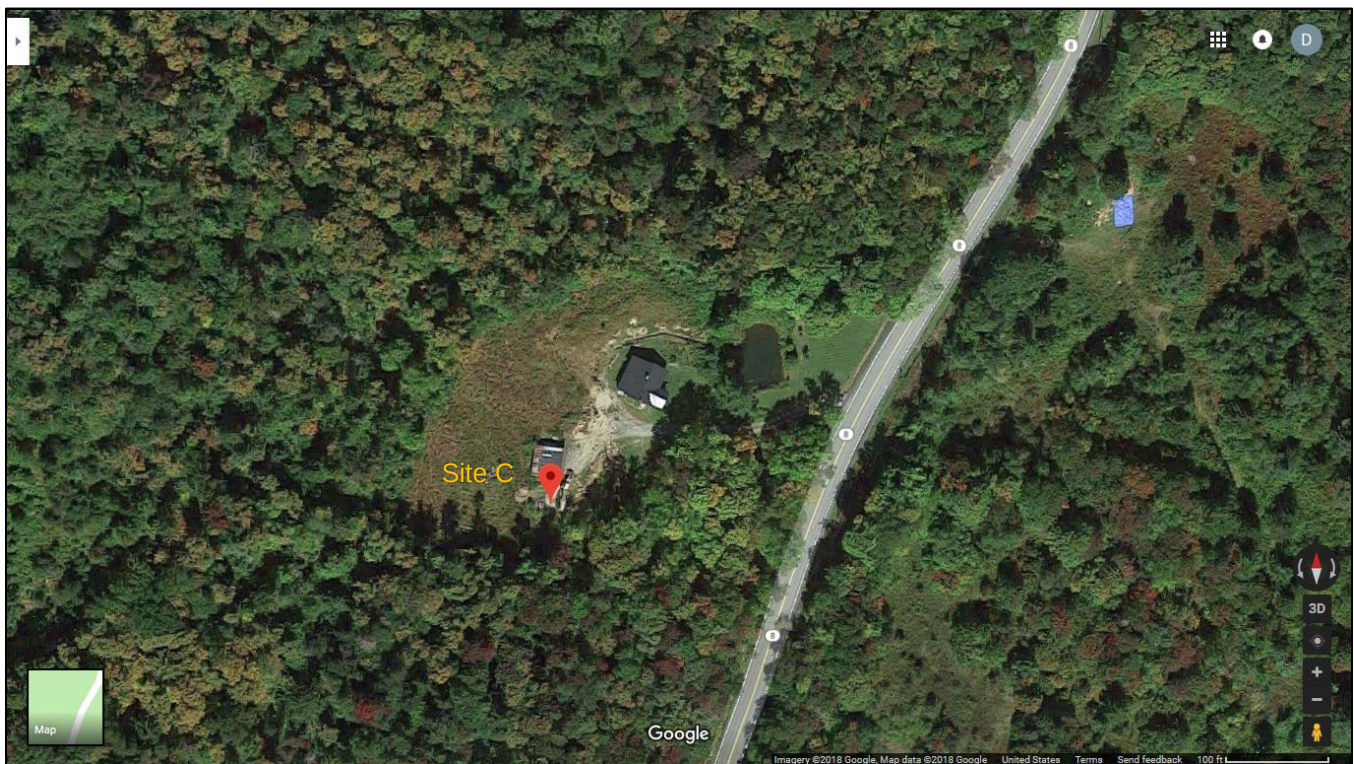


Figure 4. Site C Location Map (Basemap: Google 2018)

APPENDIX C – FIELD DATA SHEETS

This appendix provides the field data sheets, including site sketches, for each of the monitoring sites.

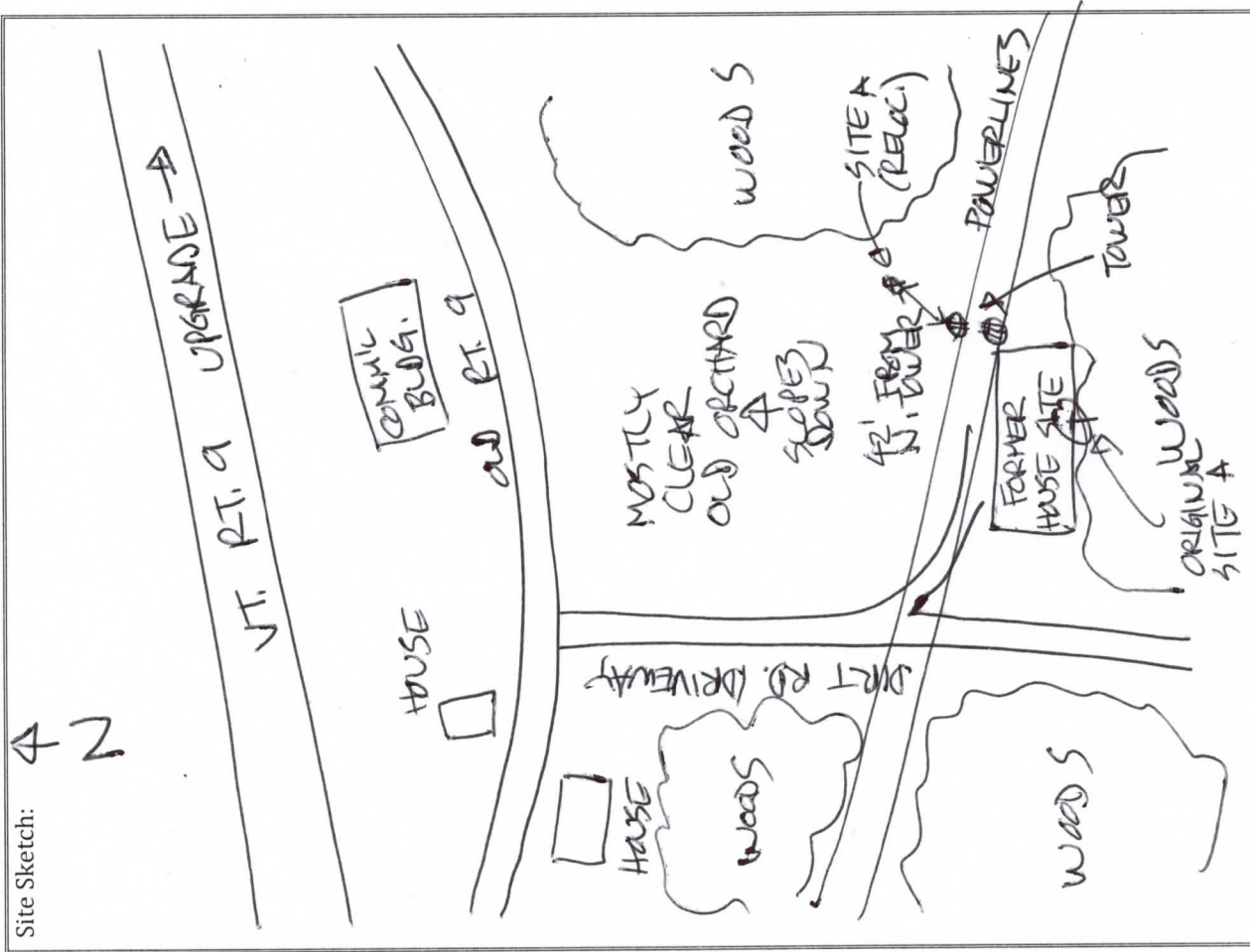
Project #: J2018-1170 Project: Deerfield Wind
 Site #: A(Relocated) Site Address: Old Rt. 9
 Field Staff: J. H. H. S. D. S.
 Date: 5/2/19 Kit: WHITE Filename: _____
 Start Date: 5/2/19 Start Time: 2:54 PM
 End Date: 6/2/19 End Time: 12:30 PM
 Start Cal: _____ End Cal: _____

Weather: _____

Sources: TRAFFIC ON RT. 9, DEERFIELD TURBINES,
 AIRCRAFT OVERFLIGHTS, NATURAL
 SOURCES: WIND
 HOUSE CONSTRUCTION BIRDS

Notes: CLEAR LOS TO VT. RT. 9
 APPROX 500' TO NORTH
 CLOSEST TURBINES VISIBLE
 TO EAST

Site Sketch:



Project #:	J2018-1170	Project:	Deerfield Wind
Site #:	B	Site Address:	197 VT. RT 8
Field Staff:	SMITH, DEB	Kit:	BLUE
Date:	5/21/19	Start Time:	2:13 PM
End Date:	5/21/19	End Time:	3:20 PM
Start Cal:		End Cal:	

Weather:

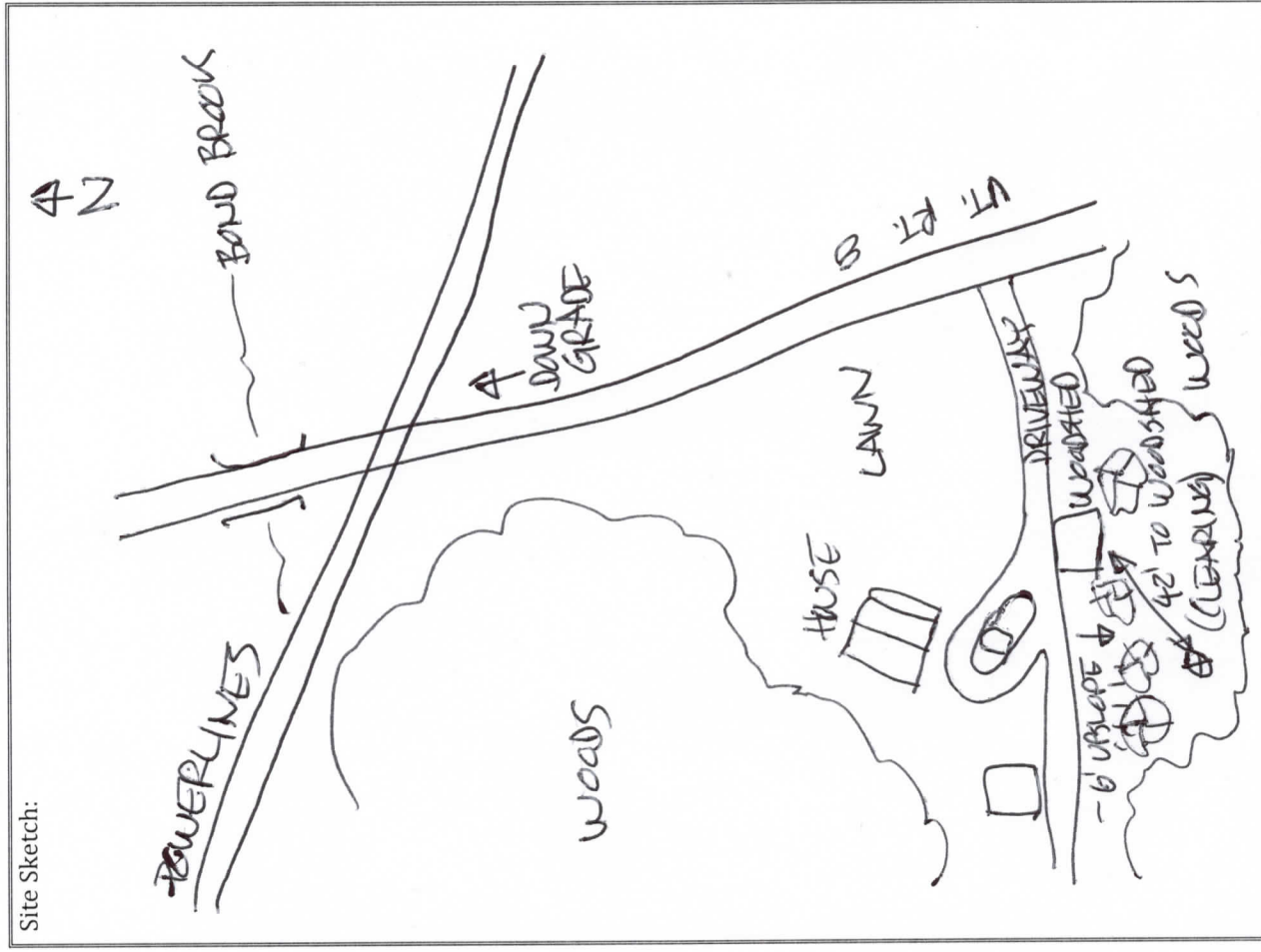
Sources: TRAFFIC ON VT. RT. 8, DORFELD TURBINES, HANGING ACTIVITIES, VEHICLES, AIRCRAFT OVERFLIGHTS

Notes: NATURAL SOUNDS; WIND IN TREES, BIRDS, FROGS, INSECTS

Notes:

CLEAR LOS ACROSS LAWN TO VT,
PT. 8, APPROX 175' AWAY - LOS
BLOCKED AS VEHICLES APPROACH FROM
S., BUT AVAILABLE TO W. ACROSS
BRIDGE
- CLOSEST TURBINES VISIBLE FROM I
- A WEATHER STATION LEFT THROUGH

Site Sketch:



Project #: J2018-1170 Project: Deerfield Wind
 Site #: C-ALT Site Address: 343 VT. RT. 8
 Field Staff: VM, HS, DB
 Date: 5/2/19 Kit: C-PURPLE Filename: C-ALT-yellow
 Start Date: 5/2/19 Start Time: 1:35 PM
 End Date: 6/12/19 End Time: 1:40 PM
 Start Cal: End Cal:

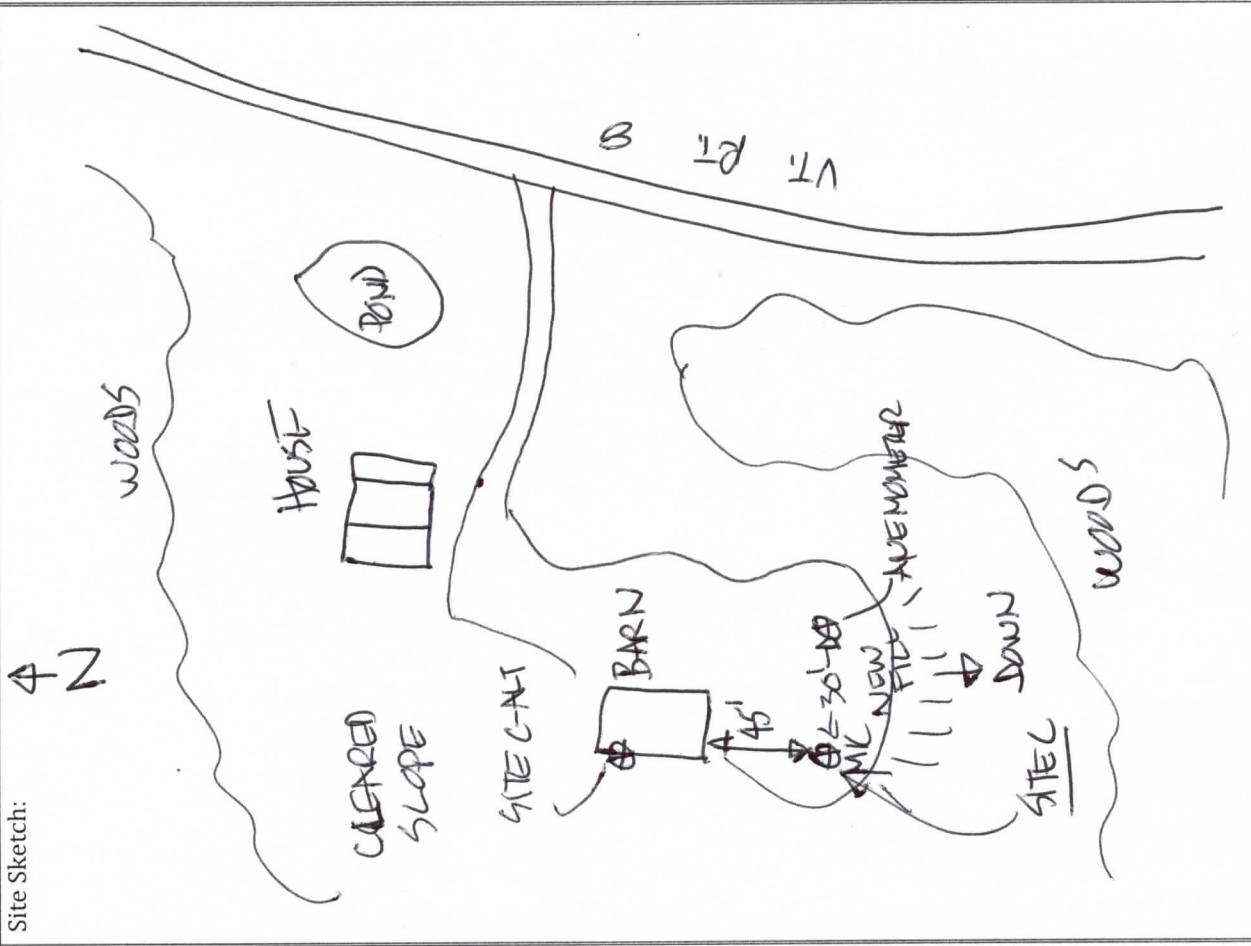
Weather:

Sources: TRAFFIC ON VT. RT. 8, DEERFIELD
 TURBINES, SEARSBURG TURBINES
 ACTIVITIES @ HOUSE INCLUDING GRADING,
 + SITE WORK, AIRCRAFT OVERFLIGHTS,
 NATURAL SOUNDS: WIND IN TREES,
 FROGS, BIRDS

Notes:

- SITE C-ALT SURFACE MOUNTED
 ON RAILROAD CLAMPED TO BARN

Site Sketch:



APPENDIX D – SOUND MEASUREMENT INSTRUMENTATION

This appendix provides a list of all sound monitoring equipment used during the spring 2019 monitoring program.

Site A (CSA “White” Kit)

Sound Level Meter: NTi Audio, XL2, SN A2A-06790-E0

Preamplifier: PCB 426E01, SN 039747

Microphone: PCB 377B02, SN 153679

Calibrator: Larson Davis CAL200, SN 4956

Site B (CSA “Blue” Kit)

Sound Level Meter: NTi Audio, XL2, SN A2A-06977-E0

Preamplifier: PCB 426E01 SN 016981

Microphone: PCB 377B02, SN 125988

Calibrator: Larson Davis CAL200, SN 8477

Site C (CSA “Purple” Kit)

Sound Level Meter: NTi Audio, XL2, SN A2A-14423-E0

Preamplifier: PCB 426E01, SN 053838

Microphone: PCB 377B02, SN 135993

Calibrator: Larson Davis CAL200, SN 4126

Site C-alt (CSA “Yellow-Prime” Kit)

Sound Level Meter: NTi Audio, XL2, SN A2A-15479-E0

Preamplifier: PCB 426E01, SN 060454

Microphone: PCB 377B02, SN 311519

Calibrator: Larson Davis CAL200, SN 16858

APPENDIX E – WIND TURBINE DATA

This appendix provides 10-minute wind speed and electrical output data for each of the 15 Deerfield Wind turbines for the period from May 17 through June 8. This range of dates is the complete set of data provided by Avangrid and includes all turbine-operation curtailments conducted during the spring 2019 monitoring program.

Please note that the times shown in this appendix denote the end of each 10-minute interval.

NOTE REGARDING TIME ZONES:

The data in this appendix were provided by Avangrid's operations center in Oregon with times referenced to Pacific Daylight Time (PDT). All other times show in the report are in the Project's local time, Eastern Daylight Time (EDT). To convert times in this appendix to local time at the Project site, add three hours.

Date/Time	Turbine Power Output (kW)																Turbine Wind Speed (m/s)													
	E1	E2	E3	E4	E5	E6	E7	W1	W2	W3	W4	W5	W6	W7	W8	E1	E2	E3	E4	E5	E6	E7	W1	W2	W3	W4	W5	W6	W7	W8
5/17/2019 0:10	315	136	201	236	421	431	410	131	238	216	293	237	246	265	276	6.11	4.76	4.78	5.48	6.92	7.15	6.89	4.23	5.51	5.12	5.56	5.16	5.42	5.63	5.38
5/17/2019 0:20	345	84	262	305	479	448	380	142	312	293	398	336	371	416	411	6.26	3.85	5.40	6.25	7.23	7.69	6.88	4.40	5.75	5.50	6.16	5.83	6.01	6.27	6.06
5/17/2019 0:30	411	63	269	338	483	484	470	180	392	379	470	434	455	498	504	6.59	2.85	5.52	6.35	7.34	7.28	7.43	4.66	6.35	6.06	6.09	6.09	6.38	6.29	6.19
5/17/2019 0:40	404	104	395	540	691	667	590	185	629	573	739	652	660	685	715	6.25	3.41	6.14	7.32	8.20	8.18	7.87	4.54	7.30	6.97	7.18	7.13	7.30	7.27	7.14
5/17/2019 0:50	387	50	377	507	473	426	553	199	658	624	798	700	659	743	771	6.04	2.80	6.14	7.15	6.73	7.22	7.52	4.66	7.30	6.93	7.16	7.18	7.07	7.14	7.15
5/17/2019 1:00	413	60	404	550	629	628	542	291	813	764	936	727	708	873	882	6.42	2.79	6.32	7.31	7.64	8.38	7.74	5.21	8.01	7.60	7.88	7.47	7.39	8.12	7.86
5/17/2019 1:10	589	69	479	689	921	898	851	307	876	801	943	815	822	869	819	7.28	3.04	6.69	8.00	8.99	9.70	9.09	5.13	7.83	7.62	7.64	7.51	7.77	7.98	7.47
5/17/2019 1:20	568	50	694	1,049	1,268	1,221	1,116	278	824	838	1,152	998	985	1,292	1,272	6.46	2.96	7.37	9.80	10.49	10.99	10.31	5.14	7.48	7.61	8.03	8.03	7.96	9.03	8.41
5/17/2019 1:30	559	45	473	835	1,065	1,023	977	270	941	932	1,255	1,073	1,058	1,342	1,241	6.47	2.71	5.55	8.79	9.72	9.82	9.59	5.02	7.93	7.99	8.40	8.51	8.32	9.35	8.32
5/17/2019 1:40	700	263	873	1,041	1,177	1,070	1,098	269	965	935	1,183	1,084	1,125	1,365	1,347	7.83	4.39	8.25	9.44	9.78	10.51	10.43	4.87	8.21	8.21	8.21	8.46	8.56	9.28	8.59
5/17/2019 1:50	963	402	1,076	1,189	1,362	1,190	1,191	253	1,173	1,136	1,496	1,407	1,411	1,803	1,876	9.05	5.35	9.26	10.19	10.84	11.26	10.64	5.00	8.72	8.64	9.20	8.95	9.20	10.30	10.26
5/17/2019 2:00	410	46	684	1,197	1,320	1,257	1,155	430	1,683	1,639	1,998	1,829	1,759	2,020	1,999	5.55	2.80	6.39	10.40	10.78	11.88	10.27	5.88	9.84	9.93	10.56	10.21	9.86	10.97	10.46
5/17/2019 2:10	387	23	379	1,295	1,462	1,350	1,294	1,020	1,963	1,880	1,999	1,990	1,871	1,999	1,999	5.78	2.34	4.61	9.78	10.86	11.08	11.16	7.59	10.44	10.31	11.04	10.75	10.09	11.07	10.58
5/17/2019 2:20	1,029	178	385	1,593	1,802	1,612	1,560	963	1,740	1,731	1,999	1,964	1,943	1,999	1,999	8.44	4.54	6.18	10.85	11.68	12.83	11.47	7.63	9.97	9.98	11.36	10.66	10.56	11.57	11.22
5/17/2019 2:30	923	226	360	1,518	1,735	1,576	1,508	1,281	1,973	1,992	1,999	1,999	1,999	1,998	1,999	8.14	5.27	5.49	10.57	11.28	12.72	11.28	8.13	11.04	11.19	11.95	11.34	11.28	12.04	11.51
5/17/2019 2:40	953	196	241	1,400	1,617	1,546	1,501	1,635	2,000	1,999	1,999	1,999	1,999	2,003	1,999	8.20	5.09	5.09	10.37	11.06	12.39	11.58	9.11	12.12	11.99	12.07	11.55	11.68	12.22	11.66
5/17/2019 2:50	1,142	398	263	1,382	1,657	1,573	1,497	1,400	1,659	1,852	1,999	1,868	1,705	1,866	1,744	9.55	6.63	4.97	10.32	11.37	12.70	11.18	9.00	10.16	10.80	11.10	10.53	10.08	10.58	9.86
5/17/2019 3:00	1,077	501	280	1,462	1,572	1,561	1,575	1,175	1,613	1,887	2,000	1,999	1,877	1,939	1,730	9.48	7.26	5.02	10.15	10.99	12.82	11.63	8.45	9.95	10.81	11.60	10.94	10.15	10.88	9.89
5/17/2019 3:10	791	320	362	1,409	1,567	1,537	1,526	1,299	1,769	1,956	1,999	1,999	2,015	2,000	2,001	7.77	5.64	5.58	9.81	10.90	12.62	11.09	8.52	10.64	11.05	12.45	11.69	11.41	12.00	11.13
5/17/2019 3:20	919	304	811	1,238	1,499	1,437	1,527	824	1,296	1,608	1,999	1,998	1,925	2,000	1,999	8.04	5.23	8.14	8.93	9.96	12.41	10.35	7.03	8.66	9.65	11.11	10.44	10.07	11.53	11.21
5/17/2019 3:30	781	249	746	1,398	1,649	1,425	1,384	628	1,538	1,516	1,986	1,738	1,667	1,909	1,890	7.42	4.66	7.07	9.63	11.40	12.19	10.98	6.66	9.43	9.15	10.19	9.61	9.46	10.48	10.04
5/17/2019 3:40	910	302	251	1,117	1,333	1,245	1,191	836	1,116	1,309	1,989	1,487	1,243	1,593	1,393	8.51	6.48	5.22	9.49	10.30	11.26	9.80	7.46	8.78	9.17	10.30	9.40	8.62	9.72	8.79
5/17/2019 3:50	1,010	578	534	1,244	1,359	1,225	1,258	873	862	1,492	2,015	1,800	1,492	1,837	1,479	9.22	7.17	7.56	9.59	10.35	10.89	10.39	7.46	7.38	9.37	11.08	9.99	9.27	10.39	9.13
5/17/2019 4:00	1,333	710	433	1,428	1,552	1,418	1,501	987	1,234	1,675	1,999	379	1,700	1,998	1,589	10.08	8.00	6.03	9.97	10.38	12.29	11.31	7.65	8.74	9.98	11.16	10.29	9.63	10.50	9.20
5/17/2019 4:10	1,234	603	425	1,535	1,632	1,389	1,493	555	1,309	1,411	1,924	1,638	1,382	1,900	1,837	9.28	7.27	6.03	10.04	10.26	11.80	10.27	6.34	8.78	9.05	10.29	9.24	8.74	10.12	9.62
5/17/2019 4:20	706	246	247	1,144	1,304	1,274	1,237	435	1,155	1,269	1,633	1,333	1,210	1,560	1,445	6.91	4.79	4.69	9.13	9.50	11.01	9.82	5.81	8.49	8.69	9.34	8.75	8.40	9.46	8.99
5/17/2019 4:30	920	248	792	1,249	1,517	1,250	1,277	713	1,558	1,470	1,943	1,451	1,417	1,922	1,535	7.76	4.18	7.81	9.35	10.17	11.05	10.34	7.03	9.27	8.98	10.10	8.75	8.81	10.36	9.28
5/17/2019 4:40	1,783	1,096	1,603	1,669	1,859	1,435	1,484	1,023	1,765	1,829	2,000	1,953	1,951	1,992	2,017	10.98	8.51	11.19	10.51	10.99	12.19	9.97	7.77	9.77	9.95	10.96	9.92	10.16	10.81	10.57
5/17/2019 4:50	1,897	1,348	1,562	1,683	1,940	1,609	1,595	1,610	1,677	1,766	2,000	1,677	1,741	1,946	1,735	11.01	9.42	11.08	10.38	11.07	12.80	9.88	9.41	9.61	9.69	10.55	9.17	9.61	10.49	9.51
5/17/2019 5:00	1,906	1,363	1,635	1,800	1,934	1,429	1,833	922	1,400	1,450	1,931	1,583	1,545	1,833	1,821	10.73	9.44	11.41	10.74	11.24	11.77	10.67	7.03	8.72	8.90	9.93	9.25	9.02	10.00	9.78
5/17/2019 5:10	1,534	926	1,426	1,565	1,785	813	1,561	283	1,755	1,939	2,005	1,742	1,635	1,963	1,944	9.46	8.62	10.36	9.95	11.05	6.74	10.05	4.72	9.64	10.01	10.44	9.47	9.29	10.40	10.24
5/17/2019 5:20	1,662	1,057	1,400	1,415	1,671	204	1,609	416	1,873	1,992	1,999	1,982	1,798	1,998	1,954	9.57	9.20	10.24	9.28	10.49	3.87	9.91	5.42	9.74	10.08	10.24	9.78	9.43	10.36	9.80
5/17/2019 5:30	1,401	829	1,238	1,314	1,648	1,265	1,495	865	1,933	1,997	1,999	1,982	1,815	1,958	1,895	8.91	8.79	9.21	8.93	10.50	11.62	9.76	6.97	10.09	10.29	10.67	9.98	9.41	10.28	9.71
5/17/2019 5:40	1,632	1,062	1,406	1,555	1,841	1,527	1,629	1,341	1,953	1,889	1,997	1,893	1,743	1,993	1,871	9.61	9.37	10.27	9.80	10.89	12.11	9.92	8.27	10.08	9.97	10.24	9.91	9.34	10.60	9.84
5/17/2019 5:50	1,662	1,177	1,685	1,868	1,982	1,799	1,873	1,728	1,983	1,915	1,996	1,792	1,652	1,950	1,960	10.05	10.14	11.24	10.80	11.75	13.28	10.79	9.90	10.58	10.27	10.79	9.88	9.10	10.59	10.03
5/17/2019 6:00	1,810	1,225	1,710	1,778	1,922	1,707	1,764	1,862	1,999	1,999	2,000	2,010	1,893	1,997	1,948	10.65	10.49	11.20	10.88	11.79	13.17	11.25	10.05	11.20	11.06	11.08	10.58	9.98	10.95	10.21
5/17/2019 6:10	1,833	1,186	1,761	1,847	1,979	1,651	1,723	1,999	1,999	2,000	1,999	1,998	2,007	1,999	1,987	11.38	10.57	11.79	11.47	12.28	12.79	10.94	11.49	11.54	11.51	11.95	10.83	10.70	11.16	10.51
5/17/2019 6:20	2,015	1,783	2,017	2,015	2,002	1,839	1,756	1,709	1,764	1,723	1,998	1,786	1,754	1,885	1,795	12.01	10.91	13.09	12.22	13.35	13.56	10.99	9.74	10.03	9.60	10.55	9.66	9.49	10.34	9.62
5/17/2019 6:30	1,897	1,594	1,849	1,941	1,999	1,874	1,842	1,075	1,816	1,713	1,999	1,710	1,663	1,788	1,712	11.45	10.15	12.04	11.99	12.89	14.34	11.11	7.44	9.87	9.79	10.51	9.53	9.46	10.18	9.65

5/17/2019 10:10	653	495	671	735	947	966	886	199	446	593	767	579	654	626	525	7.60	7.39	7.13	7.70	9.17	9.85	9.20	4.50	6.23	6.84	7.33	6.57	6.84	6.76	6.42
5/17/2019 10:20	625	571	772	821	1,011	980	886	264	433	425	612	394	441	382	361	7.74	7.89	7.98	8.20	9.44	9.87	9.17	4.77	6.14	6.00	6.57	5.96	6.14	5.82	5.73
5/17/2019 10:30	608	532	704	765	931	891	824	319	396	332	392	305	338	346	324	7.78	7.61	7.46	7.87	9.12	9.56	8.96	5.52	6.04	5.59	5.94	5.40	5.83	5.65	5.46
5/17/2019 10:40	631	488	648	671	789	787	725	190	324	267	358	346	422	435	393	7.73	7.23	7.41	7.78	8.62	9.64	8.49	4.62	5.82	5.35	5.82	5.68	6.17	6.25	5.81
5/17/2019 10:50	635	449	595	610	736	757	691	190	417	501	618	609	649	699	690	7.57	7.09	7.61	7.71	8.47	9.80	8.41	4.56	6.04	6.34	6.58	6.75	6.90	7.09	6.83
5/17/2019 11:00	810	559	725	772	849	881	887	297	557	598	752	673	735	724	728	8.05	7.72	8.27	8.24	9.03	10.44	9.30	5.19	6.80	6.81	7.11	6.76	7.33	7.33	6.85
5/17/2019 11:10	1,102	675	983	827	971	941	932	297	591	599	744	729	806	837	837	9.45	8.55	9.06	9.14	9.57	10.81	9.50	5.33	6.87	6.80	7.06	6.91	7.56	7.75	7.37
5/17/2019 11:20	1,202	776	1,073	961	1,044	925	886	291	524	536	691	693	779	755	895	9.77	8.62	8.89	9.42	9.79	10.76	9.24	5.32	6.59	6.55	6.90	6.84	7.53	7.60	7.70
5/17/2019 11:30	1,247	857	1,124	1,033	1,058	927	899	285	486	457	614	658	677	639	746	9.74	9.05	8.90	9.55	9.75	10.65	9.22	5.30	6.53	6.30	6.74	6.90	7.18	6.97	7.27
5/17/2019 11:40	1,201	835	1,041	891	1,024	848	836	305	614	603	713	651	689	608	548	9.48	8.84	8.75	8.82	9.67	10.04	8.69	5.24	6.92	6.91	7.09	6.64	7.02	6.57	6.34
5/17/2019 11:50	979	429	880	852	922	767	719	556	599	613	737	625	618	478	485	9.25	6.37	8.72	8.66	8.89	9.09	8.10	6.46	6.63	6.86	7.15	6.74	6.77	6.01	6.12
5/17/2019 12:00	879	327	646	689	778	598	655	280	365	404	490	436	525	456	432	8.95	5.67	7.77	7.83	8.77	8.01	7.69	5.18	5.84	6.05	6.33	6.10	6.34	6.04	5.93
5/17/2019 12:10	514	295	452	458	638	559	578	167	288	272	397	319	298	340	351	7.01	6.03	6.35	6.43	8.07	7.82	7.32	4.58	5.52	5.35	5.78	5.42	5.44	5.46	5.64
5/17/2019 12:20	428	276	440	425	630	620	467	106	188	206	245	207	261	196	232	6.41	5.75	6.30	6.30	7.99	8.19	6.86	3.90	4.67	4.92	5.08	4.88	5.30	4.60	4.95
5/17/2019 12:30	553	251	536	546	713	617	693	79	195	160	265	253	261	262	296	7.49	5.07	7.36	7.40	8.35	8.60	8.29	3.70	4.89	4.51	5.17	5.13	5.38	5.14	5.23
5/17/2019 12:40	556	160	473	513	676	601	593	123	195	235	244	293	305	246	389	7.49	4.46	6.81	7.12	7.74	8.20	7.64	4.21	4.74	5.17	5.11	5.44	5.51	4.91	5.99
5/17/2019 12:50	468	233	494	519	644	564	411	113	165	195	261	308	258	206	257	6.72	5.01	6.85	7.18	8.09	7.77	6.43	4.11	4.72	5.04	4.95	5.56	5.17	4.57	5.11
5/17/2019 13:00	384	107	534	596	694	459	473	114	165	196	196	200	210	244	212	6.51	3.42	7.39	7.80	8.31	7.38	7.21	4.19	4.67	4.93	4.77	4.80	4.99	5.10	4.90
5/17/2019 13:10	278	13	278	481	489	436	465	8	186	150	192	204	272	238	317	5.51	2.64	4.85	7.21	7.31	7.38	6.82	2.72	4.94	4.68	4.81	4.80	5.56	5.11	5.53
5/17/2019 13:20	332	44	250	384	421	353	399	29	156	130	195	203	172	218	252	5.71	2.79	4.87	6.27	6.65	7.00	6.51	3.20	4.71	4.58	4.87	5.00	4.63	4.93	5.19
5/17/2019 13:30	300	108	280	366	356	231	174	19	173	144	206	201	196	272	284	5.46	3.92	5.59	6.23	6.31	5.98	4.74	3.07	4.89	4.64	4.90	4.86	4.94	5.29	5.48
5/17/2019 13:40	386	116	408	469	496	347	293	63	187	228	273	286	232	295	279	6.19	3.68	6.38	6.86	7.14	6.73	5.75	3.60	4.90	5.21	5.36	5.45	5.14	5.28	5.23
5/17/2019 13:50	315	79	318	440	484	384	315	63	150	163	224	243	260	286	229	5.88	3.07	5.64	6.77	7.20	7.01	5.97	3.68	4.55	4.61	4.84	5.10	5.27	5.42	5.09
5/17/2019 14:00	305	115	317	399	462	415	350	147	160	159	222	204	206	177	140	6.06	3.72	5.86	6.36	7.02	7.05	6.28	4.38	4.73	4.71	4.99	4.86	4.88	4.47	4.31
5/17/2019 14:10	424	242	486	553	601	494	493	57	154	179	216	193	162	193	161	6.77	5.49	6.64	6.97	7.49	7.63	6.97	3.68	4.65	4.92	4.94	4.93	4.67	4.66	4.65
5/17/2019 14:20	630	400	541	500	476	448	395	199	269	215	291	272	306	317	279	7.41	6.68	7.05	6.89	6.72	7.29	6.24	5.00	5.61	5.24	5.57	5.55	5.59	5.71	5.34
5/17/2019 14:30	592	324	516	470	574	469	427	179	313	266	363	334	388	434	404	7.48	6.26	6.97	6.83	7.33	7.33	6.57	4.75	5.69	5.56	5.86	5.81	6.04	6.15	6.07
5/17/2019 14:40	600	316	485	444	481	383	301	223	317	340	437	408	378	338	286	7.09	6.15	6.47	6.47	6.65	6.89	5.92	5.10	5.76	5.76	6.05	6.03	5.86	5.37	5.28
5/17/2019 14:50	536	226	451	420	399	395	323	428	422	412	369	282	261	230	174	7.14	5.10	6.42	6.67	6.25	6.82	6.14	5.88	6.07	6.21	5.87	5.42	5.27	4.83	4.42
5/17/2019 15:00	457	296	358	399	438	349	224	1,145	1,109	1,200	1,324	1,247	1,037	967	943	6.39	5.69	5.94	6.27	6.57	6.74	5.09	8.33	8.41	9.08	8.81	8.75	8.09	7.89	7.72
5/17/2019 15:10	1,447	1,137	1,565	1,462	1,452	1,193	1,221	1,961	1,966	1,944	2,010	1,779	1,920	1,959	1,912	10.68	9.74	11.98	10.84	10.47	11.61	9.90	10.97	11.77	11.34	11.20	10.67	10.34	11.31	11.06
5/17/2019 15:20	1,827	1,460	1,888	1,895	1,950	1,903	1,876	2,000	1,919	2,014	2,008	2,006	1,994	1,951	2,005	12.30	11.51	13.39	12.71	13.59	15.01	13.23	11.57	11.16	12.19	11.82	11.80	11.54	11.93	12.28
5/17/2019 15:30	1,515	1,477	1,858	1,840	1,906	1,692	1,813	2,000	1,953	1,951	1,998	1,999	1,908	1,919	2,000	11.03	11.33	12.93	11.80	12.04	13.33	12.34	11.46	10.99	10.88	11.19	11.12	10.51	11.61	11.75
5/17/2019 15:40	1,181	1,001	1,428	1,413	1,674	1,559	1,514	2,000	1,905	1,990	2,000	1,980	2,012	1,976	1,905	9.77	9.30	10.86	10.49	11.42	13.10	10.98	12.05	10.69	11.55	11.71	11.27	11.30	11.57	11.16
5/17/2019 15:50	1,415	1,671	1,861	1,753	1,890	1,872	1,832	1,949	1,684	1,947	1,998	2,000	1,988	1,984	1,990	10.16	11.30	13.32	11.85	12.33	14.48	11.85	11.09	9.80	11.06	11.81	11.49	11.31	11.38	10.96
5/17/2019 16:00	1,557	1,471	1,680	1,829	1,756	1,772	1,724	1,760	1,945	1,972	1,999	1,902	1,940	1,889	2,010	10.77	10.54	12.08	11.84	11.90	13.96	10.89	9.85	10.71	11.03	11.51	10.49	10.41	10.86	10.93
5/17/2019 16:10	1,621	1,601	1,887	1,854	1,945	1,736	1,613	1,892	1,998	1,868	1,948	1,917	1,611	1,797	1,865	10.91	11.41	13.00	11.74	12.08	13.66	10.83	10.59	11.61	10.43	9.88	10.59	9.16	10.66	10.36
5/17/2019 16:20	1,702	1,610	1,834	1,619	1,806	1,682	1,579	1,623	1,766	1,967	1,995	1,997	1,980	1,915	1,906	11.36	11.29	13.03	10.82	11.62	13.37	10.77	9.43	9.93	10.82	11.74	11.33	11.77	11.12	10.53
5/17/2019 16:30	1,940	1,804	1,999	1,893	1,841	1,586	1,712	1,811	1,892	2,002	2,001	1,999	1,999	1,994	1,940	12.66	12.34	13.96	12.72	11.94	13.00	11.29	10.15	10.60	11.74	12.47	12.00	12.57	11.73	11.91
5/17/2019 16:40	2,015	1,917	1,957	1,993	2,017	2,016	1,951	2,016	1,977	1,999	1,999	2,000	2,000	2,013	2,000	13.20	12.47	14.12	13.42	13.19	16.21	12.36	12.39	11.47	12.95	13.02	12.66	12.17	13.19	13.00
5/17/2019 16:50	1,998	1,979	2,012	2,014	2,000	2,000	2,001	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	13.55	13.64	16.53	14.69	15.51	17.79	13.65	12.29	12.01	12.76	13.03	12.27	12.03	13.76	14.29
5/17/2019 17:00	1,914	2,006	2,004	1,998	1,999	2,000	1,994	2,000	2,000	1,999	1,999	2,000	2,000	2,000	2,000	13.19	13.09	16.69	14.84	15.14	17.08	13.82	14.09	13.38	13.85	14.83	14.57	14.03	14.81	13.88
5/17/2019 17:10	1,935	1,892	1,949	1,983	2,000	1,957</																								

5/17/2019 20:30	-7	-6	-6	-5	-6	-4	-5	-5	-6	-6	-5	-4	-6	-6	-5	9.94	9.40	10.42	9.60	10.42	12.47	10.56	9.65	8.24	8.55	9.68	8.39	7.95	7.88	8.59
5/17/2019 20:40	8	50	11	-3	-2	29	26	17	2	9	21	12	7	6	5	8.78	8.30	9.69	9.30	9.16	12.54	10.00	8.62	8.18	7.72	7.48	7.40	7.22	8.08	7.47
5/17/2019 20:50	842	526	872	718	1,052	1,012	1,061	879	803	520	523	445	600	412	500	8.69	7.47	9.58	8.18	9.77	11.75	9.98	8.47	7.54	7.07	7.25	7.27	7.38	6.46	6.87
5/17/2019 21:00	1,516	1,190	1,368	1,175	1,534	1,553	1,720	1,060	591	892	876	818	661	849	1,189	10.35	9.47	10.40	9.23	10.09	12.37	10.67	7.91	6.53	7.61	7.34	7.34	6.68	7.58	8.32
5/17/2019 21:10	1,671	1,353	1,508	1,470	1,721	1,519	1,853	1,177	756	1,114	1,374	1,188	947	1,021	1,017	10.64	9.97	10.83	9.76	11.48	12.64	11.17	8.16	7.18	8.20	8.83	8.43	7.67	7.91	7.81
5/17/2019 21:20	1,721	1,665	1,704	1,656	1,900	1,678	1,962	1,143	903	1,082	1,292	1,055	967	1,123	1,522	10.85	11.13	11.85	10.57	12.26	13.38	11.85	8.26	7.61	8.03	8.32	7.89	7.72	8.34	9.06
5/17/2019 21:30	1,781	1,478	1,732	1,613	1,870	1,766	1,985	1,210	759	942	1,200	1,030	894	1,283	1,365	10.88	10.35	11.94	10.35	11.73	13.49	11.88	8.34	7.15	7.73	8.32	7.93	7.35	8.75	8.67
5/17/2019 21:40	1,771	1,492	1,571	1,670	1,810	1,703	1,827	1,307	865	1,052	1,189	1,067	978	1,113	1,176	10.98	10.36	11.04	10.53	11.45	12.89	11.33	8.53	7.39	8.03	8.24	8.13	7.78	8.12	8.27
5/17/2019 21:50	1,644	1,529	1,604	1,697	1,884	1,670	1,783	1,206	873	1,033	1,172	963	661	1,023	1,183	10.35	10.64	11.17	10.59	11.77	12.71	11.17	8.28	7.68	7.96	8.22	7.76	6.78	7.92	8.17
5/17/2019 22:00	1,629	1,267	1,489	1,457	1,658	1,639	1,745	1,235	960	1,076	1,254	1,128	770	970	1,042	10.29	9.74	10.69	9.82	10.90	12.60	11.02	8.33	7.75	8.10	8.27	8.21	6.94	7.79	7.75
5/17/2019 22:10	1,550	1,421	1,355	1,371	1,763	1,468	1,593	1,111	1,003	1,020	1,211	967	765	842	1,018	9.78	9.76	10.15	9.60	11.23	12.34	10.20	8.06	7.86	8.08	8.16	7.79	7.12	7.43	7.72
5/17/2019 22:20	1,444	1,304	1,438	1,362	1,815	1,452	1,639	1,118	884	935	1,232	1,007	783	1,173	1,306	10.31	9.53	10.52	9.85	11.45	11.57	10.66	8.13	7.57	7.71	8.41	7.85	7.30	8.43	8.43
5/17/2019 22:30	1,594	1,613	1,559	1,583	1,851	1,446	1,548	1,137	905	1,096	1,194	962	853	1,152	1,359	10.93	10.47	11.35	10.24	11.60	11.94	10.16	8.06	7.68	8.14	8.27	7.68	7.42	8.34	8.64
5/17/2019 22:40	153	147	145	130	185	149	180	141	82	106	97	80	89	102	140	11.51	10.87	12.59	10.81	11.60	14.63	11.64	8.76	7.95	8.80	8.84	8.60	7.74	8.22	8.81
5/17/2019 22:50	-3	-3	-5	-2	-2	-1	-4	-3	-3	-2	-2	-2	-3	-2	-3	10.27	10.59	12.28	10.41	11.87	15.48	10.89	9.20	8.71	9.43	9.85	8.25	7.73	8.50	8.81
5/17/2019 23:00	47	41	15	-2	32	23	25	42	74	27	12	26	4	17	40	10.62	10.51	12.91	10.68	11.16	13.63	11.27	9.18	9.18	9.60	9.23	8.52	8.66	9.32	9.51
5/17/2019 23:10	428	375	449	-2	486	391	378	413	174	281	338	231	241	282	350	10.21	10.25	12.94	10.86	11.61	13.67	11.14	9.01	8.82	8.56	8.53	8.43	8.57	8.88	9.16
5/17/2019 23:20	1,544	1,626	1,713	-2	1,967	1,742	1,765	1,435	1,495	1,809	1,783	1,403	1,268	1,205	1,643	10.25	11.05	12.19	12.27	12.41	13.42	11.30	8.80	9.10	10.11	9.86	9.02	8.49	8.04	9.80
5/17/2019 23:30	1,577	1,703	1,833	-2	1,989	1,854	1,928	1,183	1,176	1,504	1,847	1,760	1,538	1,183	1,925	10.88	11.22	12.64	13.18	12.74	14.30	12.35	8.37	8.33	9.10	9.95	10.09	9.33	8.25	10.49
5/17/2019 23:40	1,305	1,270	1,500	-3	1,920	1,415	1,999	1,732	1,699	1,798	1,812	1,361	976	712	1,629	9.92	9.62	11.12	12.54	11.82	12.00	9.98	10.35	10.37	10.49	10.42	9.14	7.81	6.36	9.55
5/17/2019 23:50	1,561	1,513	1,924	-3	1,939	1,283	1,003	1,957	2,007	2,014	2,000	1,959	1,511	1,226	1,945	11.22	10.74	13.53	13.31	12.23	11.08	8.07	11.16	11.88	12.26	12.74	11.50	9.44	8.13	11.43
5/18/2019 0:00	1,919	1,785	1,999	-3	1,999	1,614	1,162	1,971	1,999	1,990	2,000	1,999	1,767	1,687	1,959	12.27	12.01	14.18	14.50	13.30	12.26	8.80	11.18	11.94	12.11	12.56	11.63	10.42	10.07	12.20
5/18/2019 0:10	1,774	1,626	1,925	-3	1,949	1,723	1,571	2,000	1,766	1,958	1,983	1,736	1,079	925	1,890	12.02	11.29	13.53	13.76	13.03	13.59	11.27	11.83	10.78	11.50	11.36	10.38	8.27	7.17	10.26
5/18/2019 0:20	1,906	1,682	1,992	-3	1,916	1,556	1,443	1,978	1,920	1,942	2,001	1,969	1,892	1,736	2,007	13.03	11.63	14.50	13.59	13.01	12.75	9.71	10.80	10.43	11.45	12.43	11.42	10.56	10.46	12.72
5/18/2019 0:30	1,946	1,808	1,662	-3	1,879	1,319	1,073	1,938	1,904	1,726	1,856	1,359	945	909	1,737	12.94	11.63	12.43	13.24	12.55	11.39	8.38	10.52	10.65	9.81	10.41	8.97	7.25	6.84	9.78
5/18/2019 0:40	1,948	1,682	1,453	-4	1,447	878	560	1,929	1,803	1,909	2,017	1,321	283	855	894	12.57	11.09	10.90	10.79	10.43	9.50	6.67	10.97	9.84	10.35	11.12	8.86	5.00	7.42	7.36
5/18/2019 0:50	1,892	1,787	1,609	-4	1,642	1,020	612	1,601	1,702	1,786	1,964	1,351	339	782	1,035	12.70	11.83	11.73	11.05	10.95	10.05	6.68	9.34	9.92	10.10	10.53	9.18	5.06	6.84	7.87
5/18/2019 1:00	279	293	232	-4	236	157	150	199	263	267	308	189	50	108	189	11.56	11.76	12.86	12.24	11.81	13.27	10.73	9.58	10.56	11.00	10.82	10.01	8.94	10.66	11.26
5/18/2019 1:10	-5	-4	-6	-4	-5	-4	-3	-5	-5	-4	-4	-4	-5	-5	-4	11.89	11.60	13.49	12.44	12.15	14.48	11.78	10.11	10.08	11.28	10.92	9.86	9.40	11.62	11.90
5/18/2019 1:20	3	28	19	-4	10	14	0	-9	16	112	37	13	28	2	20	11.92	11.31	12.27	12.54	12.40	13.02	9.87	11.01	9.38	9.96	10.09	9.32	8.42	10.32	10.87
5/18/2019 1:30	486	443	440	-5	483	363	387	598	606	402	475	224	162	331	374	11.44	11.65	13.12	12.47	12.46	13.74	10.61	10.38	9.43	9.78	10.25	9.04	7.53	9.89	10.66
5/18/2019 1:40	1,959	1,841	1,754	-5	1,828	1,213	897	1,903	1,748	1,599	1,899	1,067	271	535	1,034	12.20	11.56	12.09	12.43	12.06	10.78	7.84	10.29	9.73	9.45	10.00	8.17	4.34	6.07	7.72
5/18/2019 1:50	1,698	1,610	1,540	-5	1,697	1,025	749	1,808	1,394	1,537	1,723	613	150	427	633	11.10	10.58	11.14	12.40	11.41	9.92	7.21	9.89	8.80	9.17	9.41	6.92	3.72	5.90	6.44
5/18/2019 2:00	1,775	1,610	1,445	-5	1,527	819	481	1,757	1,530	1,636	1,707	766	274	392	834	11.38	10.75	11.13	11.14	10.75	8.90	6.58	9.76	9.14	9.53	9.77	7.61	4.83	5.62	7.47
5/18/2019 2:10	1,487	1,539	1,460	-5	1,579	1,033	874	1,871	1,410	1,547	1,632	591	168	427	666	10.40	10.55	10.97	11.75	10.80	10.24	7.82	9.96	8.75	9.30	9.28	6.62	3.97	5.37	6.31
5/18/2019 2:20	1,608	1,441	1,439	-6	1,571	921	579	1,688	1,215	1,276	1,502	900	387	531	922	10.89	10.38	10.70	11.05	11.02	9.55	6.81	9.49	8.34	8.55	9.02	8.15	5.22	6.08	7.66
5/18/2019 2:30	1,586	1,423	1,355	-6	1,718	906	449	1,400	1,023	1,149	1,423	1,117	510	499	1,200	11.38	10.44	10.37	12.91	11.90	9.47	6.17	8.66	7.96	8.44	8.87	8.83	5.92	5.98	8.31
5/18/2019 2:40	1,540	1,373	1,550	-6	1,712	974	665	954	1,078	991	1,508	1,302	1,075	837	1,687	11.24	10.27	11.77	10.97	11.38	9.71	7.11	7.65	8.02	7.82	9.03	8.67	8.05	6.81	9.48
5/18/2019 2:50	1,335	1,323	1,702	-6	1,816	1,060	671	1,004	1,555	1,478	1,586	1,219	1,065	884	1,781	10.13	9.88	12.10	11.78	11.72	10.35	7.46	7.77	9.18	9.24	9.51	8.36	8.04	6.81	10.04
5/18/2019 3:00	1,172	1,298	1,467	-6	1,781	1,089	838	1,189	1,500	1,229	1,520	1,234	965	691	1,581	9.16	10.09	10.52	11.91	11.48	10.45	7.49	8.16	9.04	8.24	9.07	8.71	7.53	6.44	9.34
5/18/2019 3:10	1,541	1,322	1,626	-7	1,697	881	594	1,200	1,146	1,445	1,893	1,354	1,174	836	1,869	10.75	10.01	11.43	11.66	11.06	9.41	6.20	8.12	8.06	8.98	10.05	8.88	8.23	6.66	10.16
5/18/2019 3:20	1,526	1,167	1,549	-7	1,867	879	481	739	1,235	1,323	1,617	1,081	1,013																	

5/18/2019 6:50	383	535	727	589	323	450	475	176	164	204	238	139	135	152	246	6.02	7.32	7.44	7.00	5.61	7.57	6.52	4.72	4.56	4.97	5.05	4.33	4.41	4.40	5.19
5/18/2019 7:00	407	608	779	619	307	335	417	207	406	404	293	76	282	316	437	6.29	6.85	8.00	7.45	5.60	6.68	6.49	4.90	6.08	5.94	5.50	5.73	5.49	5.30	6.02
5/18/2019 7:10	355	610	726	582	326	265	224	278	348	415	345	85	289	265	304	6.34	7.47	7.70	6.91	5.43	5.72	4.91	5.32	5.66	5.78	5.60	5.41	5.40	5.35	5.59
5/18/2019 7:20	273	565	734	437	292	123	103	424	319	319	320	358	249	182	371	5.63	7.11	7.49	6.71	5.32	4.99	4.18	5.89	5.54	5.34	5.56	5.90	5.27	4.46	5.69
5/18/2019 7:30	446	455	612	511	236	217	168	395	296	433	361	284	215	250	365	6.30	6.53	7.28	6.56	5.13	5.93	4.66	5.88	5.38	6.07	5.93	5.36	4.85	5.14	5.84
5/18/2019 7:40	282	407	627	531	254	161	170	574	446	451	433	379	230	188	487	5.58	6.44	7.35	6.79	5.12	5.14	4.95	6.72	6.23	6.15	5.83	6.11	4.97	4.58	6.29
5/18/2019 7:50	348	546	507	288	111	86	63	557	507	483	491	374	437	434	622	6.02	7.11	6.77	5.64	4.29	4.35	4.09	6.53	6.59	6.24	6.37	5.75	6.10	4.61	6.97
5/18/2019 8:00	351	318	366	259	167	261	230	667	542	587	490	288	365	481	534	5.98	5.31	6.29	5.81	5.58	6.12	5.17	6.84	6.56	6.53	6.34	5.39	5.66	6.31	6.66
5/18/2019 8:10	298	264	343	332	238	249	311	717	808	489	627	386	540	503	625	5.56	5.89	5.90	5.71	5.16	6.15	5.53	6.87	7.39	6.87	6.77	5.83	6.39	5.92	6.78
5/18/2019 8:20	362	280	294	144	126	147	134	775	865	-1	537	293	265	235	481	5.97	5.42	5.62	4.80	4.45	5.27	4.48	7.19	7.58	6.74	6.39	5.24	5.02	4.80	6.22
5/18/2019 8:30	349	431	313	183	222	195	245	739	816	476	723	556	435	312	461	6.34	6.53	5.84	5.18	4.90	5.87	5.39	6.95	7.48	7.33	7.16	6.68	6.03	5.54	6.17
5/18/2019 8:40	263	184	282	182	179	213	187	630	560	531	301	333	197	118	151	5.35	4.75	5.47	4.90	4.78	5.96	4.97	6.88	6.51	6.55	5.15	5.44	4.98	4.51	4.28
5/18/2019 8:50	11	415	433	262	234	172	292	365	226	389	293	191	145	47	77	4.17	6.49	6.57	5.89	5.06	5.51	5.85	5.57	5.54	5.72	5.71	5.22	4.40	3.84	4.54
5/18/2019 9:00	147	435	371	305	152	244	162	553	427	515	234	313	309	331	313	4.62	6.27	6.03	5.71	4.58	6.35	5.04	6.50	6.34	6.55	5.29	5.68	5.72	5.41	5.51
5/18/2019 9:10	270	469	390	376	323	293	316	374	357	281	189	186	239	349	467	5.85	6.56	6.62	5.94	5.67	6.50	5.90	6.60	5.66	5.18	5.29	4.80	5.20	5.34	6.13
5/18/2019 9:20	360	385	391	326	220	240	260	551	384	538	571	309	393	437	562	5.89	5.99	6.16	5.60	5.06	5.61	4.99	6.23	5.63	6.22	6.68	5.50	6.08	6.11	6.48
5/18/2019 9:30	261	230	295	265	236	180	237	654	483	490	473	287	555	393	444	5.09	4.91	5.61	5.32	5.12	5.78	4.93	6.83	6.37	6.36	6.18	5.71	6.40	5.53	5.89
5/18/2019 9:40	388	499	248	390	318	186	89	542	556	498	462	373	298	334	292	6.15	6.91	5.65	5.96	5.58	5.96	5.45	6.28	6.48	6.36	6.20	5.99	5.18	5.43	5.04
5/18/2019 9:50	208	460	591	426	338	210	228	654	568	575	451	417	437	330	507	4.74	6.37	7.08	6.24	5.76	6.25	5.82	6.81	6.70	6.80	6.35	6.13	6.04	5.75	6.22
5/18/2019 10:00	294	290	453	418	315	235	422	461	360	505	277	358	280	241	411	6.00	5.73	6.60	6.40	5.73	6.13	6.30	6.19	5.47	6.25	5.39	5.73	5.16	5.23	5.96
5/18/2019 10:10	266	273	420	310	243	169	238	476	410	383	208	234	236	215	226	5.72	5.83	6.21	5.47	5.00	5.28	4.93	6.15	6.02	5.91	5.35	5.28	5.27	4.72	5.05
5/18/2019 10:20	251	650	610	464	229	216	260	497	431	445	342	496	483	482	547	5.34	6.99	7.50	6.24	5.17	5.89	5.30	6.34	5.97	6.06	5.76	5.85	6.16	6.08	6.36
5/18/2019 10:30	99	228	392	382	311	220	207	491	456	503	451	417	443	395	418	4.18	5.23	6.39	6.00	5.73	6.03	4.92	6.10	6.05	6.41	6.16	5.97	6.13	5.63	5.92
5/18/2019 10:40	266	83	268	219	215	201	263	466	326	451	455	546	408	347	296	5.21	4.50	5.42	4.79	4.72	5.42	5.14	6.16	5.25	5.89	5.95	6.44	5.92	5.51	5.28
5/18/2019 10:50	26	149	211	93	129	68	63	351	95	276	372	286	161	189	301	3.70	4.30	4.66	4.13	3.86	4.33	4.02	5.66	4.77	5.14	5.66	5.36	4.91	4.47	5.41
5/18/2019 11:00	243	238	325	303	220	100	27	160	196	58	241	24	27	51	69	5.61	5.42	5.93	5.54	4.85	5.24	3.67	4.45	4.47	4.25	5.16	3.52	3.57	3.71	4.20
5/18/2019 11:10	106	97	272	82	110	2	139	437	358	172	134	2	29	108	168	3.97	4.45	5.60	4.25	4.39	5.21	4.19	5.62	5.64	4.76	4.59	3.62	3.80	4.65	5.09
5/18/2019 11:20	202	112	237	160	95	75	86	267	403	266	154	-5	1	269	188	4.59	4.35	5.35	4.94	3.87	4.47	4.28	4.93	6.06	5.19	4.51	2.71	3.26	4.96	4.87
5/18/2019 11:30	400	279	259	131	132	96	-10	98	75	166	264	78	-9	295	201	6.45	5.73	5.35	4.52	4.29	4.57	2.81	3.65	3.69	4.00	4.85	4.24	3.42	5.37	5.07
5/18/2019 11:40	165	157	232	129	134	100	4	187	277	186	132	192	122	103	161	4.46	4.24	5.07	4.83	4.60	4.62	2.94	4.48	5.62	4.90	4.74	4.59	4.09	3.70	4.43
5/18/2019 11:50	-5	17	186	165	6	24	0	234	225	213	378	339	298	257	324	3.00	3.79	4.81	5.14	3.41	3.66	2.49	5.12	5.12	5.19	5.92	5.83	5.49	4.92	5.47
5/18/2019 12:00	-13	203	321	115	45	80	28	394	391	419	440	501	412	402	506	3.96	4.62	5.57	3.53	3.68	4.37	3.81	5.82	5.98	6.06	6.15	6.20	5.82	5.74	6.38
5/18/2019 12:10	255	287	408	281	168	180	130	492	492	502	405	423	209	59	206	5.54	5.74	6.39	5.81	4.74	5.68	4.26	6.11	6.43	6.36	6.10	6.11	5.16	4.00	5.50
5/18/2019 12:20	356	416	437	229	206	193	86	524	355	345	260	274	236	159	327	5.62	6.08	6.60	5.48	5.00	5.67	3.91	6.37	5.80	5.64	5.33	5.33	5.22	4.53	5.35
5/18/2019 12:30	38	229	191	176	147	208	174	458	470	441	253	8	57	81	215	3.84	4.92	4.54	4.45	4.30	5.60	4.94	6.29	6.33	6.25	5.02	2.73	3.44	3.92	4.90
5/18/2019 12:40	171	178	237	113	107	64	16	106	203	250	210	20	42	85	104	5.09	4.84	5.32	4.19	4.11	4.36	2.87	4.40	4.70	5.24	5.05	3.23	4.00	4.30	4.30
5/18/2019 12:50	225	198	51	7	38	39	38	19	44	83	81	24	-11	70	28	5.24	4.86	3.71	3.85	3.94	3.87	4.37	3.15	3.35	3.61	3.56	3.17	2.93	3.57	3.68
5/18/2019 13:00	43	13	123	74	47	50	11	79	-12	-1	-7	-14	26	-12	133	3.49	3.57	4.79	3.56	3.68	4.12	3.44	3.92	2.95	3.20	2.99	3.42	3.72	3.19	4.55
5/18/2019 13:10	173	340	330	243	212	270	232	-10	74	51	145	154	257	159	256	4.92	6.15	5.79	5.81	5.01	6.42	5.36	3.31	3.93	4.21	4.35	4.83	5.07	4.63	5.32
5/18/2019 13:20	147	190	176	175	186	167	246	351	293	235	235	286	191	145	226	4.24	4.79	4.65	4.46	4.63	5.19	5.08	5.72	5.33	4.99	4.97	5.32	4.79	5.01	5.04
5/18/2019 13:30	301	266	207	163	67	67	68	254	237	368	249	300	224	219	260	5.61	5.65	5.01	4.71	3.71	4.45	3.76	5.21	5.29	5.78	5.13	5.37	5.05	4.96	5.25
5/18/2019 13:40	223	218	209	168	168	177	347	242	258	236	191	85	219	235	121	5.12	4.97	5.10	4.62	4.26	5.50	5.96	5.12	5.43	5.05	4.84	4.32	5.20	5.01	4.34
5/18/2019 13:50	192	226	239	216	207	194	238	446	277	320	296	279	322	203	209	4.86	5.23	5.23	5.23	5.25	5.81	5.44	6.15	5.55	5.52	5.42	5.31	5.72	4.41	5.15
5/18/2019 14:00	191	241	301	314	307	242	309	407	233	447	501	438	309	305	309	4.84	5.38	5.67	5.85	5.85	6.26	5.64	5.89	5.20	6.13	6.22	5.99	5.43	5.45	5.52
5/18/2019 14:10	143	277	366	252	312	263	261	513	377	442	570	412	445	394	312	4.97	5.79													

5/18/2019 17:10	33	8	10	5	38	51	97	-9	-11	-11	-1	-10	-8	-12	-10	2.82	2.64	2.43	2.51	3.32	3.94	3.98	2.32	1.27	1.80	2.82	2.88	2.51	2.34	2.33
5/18/2019 17:20	-11	-11	-13	-11	-11	-1	6	-7	-9	-9	-10	-9	-13	-13	-9	2.07	2.15	1.46	1.42	2.23	2.97	2.69	2.57	1.98	2.22	2.21	1.71	1.69	2.01	1.77
5/18/2019 17:30	-10	-11	-12	-10	-5	13	46	-10	-8	-8	-9	-8	-10	-11	-9	2.38	2.01	1.79	1.85	2.56	3.24	3.47	2.77	2.38	2.14	2.35	2.21	1.69	2.02	2.63
5/18/2019 17:40	-13	-12	-11	-13	-2	17	46	-13	-9	-8	-11	-9	-9	-9	-9	2.35	2.20	1.98	2.27	2.80	3.37	3.49	2.80	2.32	2.02	2.66	2.02	1.98	1.88	2.51
5/18/2019 17:50	39	2	-12	-10	35	60	95	-6	-8	-6	-9	-8	-9	-11	-9	3.33	2.93	2.25	2.64	3.34	4.16	4.20	2.90	2.71	2.39	2.82	2.46	2.02	2.13	2.81
5/18/2019 18:00	36	-2	-11	-12	34	60	101	-4	-8	-7	-5	-9	-9	-13	-9	3.19	2.73	2.18	2.82	3.40	4.22	4.29	3.07	3.13	2.99	3.05	2.86	2.23	2.14	2.22
5/18/2019 18:10	31	2	-10	11	46	63	94	-13	-9	-11	-16	-8	-9	-10	-9	3.37	2.94	2.55	3.02	3.53	4.05	4.18	2.42	2.72	2.56	2.68	2.38	2.29	2.22	2.66
5/18/2019 18:20	14	-13	-11	-5	26	35	52	-13	-11	-9	-11	-9	-9	-8	-9	3.01	2.92	2.35	2.80	3.22	3.76	3.64	2.62	2.63	2.54	2.71	2.63	2.73	2.55	2.80
5/18/2019 18:30	26	0	-11	3	40	56	86	-11	-10	-7	-9	-9	-8	-8	-4	3.15	2.76	2.32	2.83	3.46	4.02	4.12	2.43	2.38	2.38	2.65	2.55	2.94	2.70	3.15
5/18/2019 18:40	72	34	-5	35	89	106	154	5	-8	-1	8	1	-3	29	50	3.56	3.55	2.87	3.37	4.06	4.50	4.76	3.06	2.72	2.98	3.31	3.45	3.26	3.19	3.76
5/18/2019 18:50	79	43	61	45	88	98	139	49	21	41	62	60	50	67	87	3.81	3.68	3.65	3.73	4.06	4.44	4.61	3.81	3.50	3.89	4.03	4.03	3.91	3.69	4.12
5/18/2019 19:00	99	57	73	53	96	104	143	94	47	60	77	73	65	85	107	4.12	3.88	3.54	3.74	4.14	4.57	4.69	4.32	3.81	4.00	4.07	4.08	4.04	3.78	4.24
5/18/2019 19:10	51	16	25	15	48	66	91	75	20	20	36	33	23	36	51	3.19	3.10	2.91	2.92	3.63	4.08	4.16	4.19	3.38	3.40	3.60	3.61	3.50	3.25	3.79
5/18/2019 19:20	33	7	14	3	42	62	89	49	-6	-4	8	3	-5	7	26	3.14	3.06	2.75	2.68	3.52	4.24	4.19	3.95	3.01	2.92	3.33	3.18	3.06	2.97	3.51
5/18/2019 19:30	0	-12	-12	-13	-1	8	16	0	-14	-13	-11	-12	-14	-13	-10	2.65	2.34	1.88	1.90	2.58	3.09	2.69	2.90	2.40	2.33	2.51	2.53	2.28	2.41	2.60
5/18/2019 19:40	-11	-10	-11	-11	-13	-13	-6	-14	-10	-10	-11	-9	-11	-9	-11	2.20	1.80	1.58	1.99	2.60	3.14	2.97	2.82	2.64	2.67	3.03	2.76	2.77	2.73	2.91
5/18/2019 19:50	19	-8	-10	19	54	50	73	-7	-3	0	17	-9	3	11	-2	3.43	2.35	2.87	3.69	3.93	4.52	4.16	3.22	3.31	3.34	3.56	3.12	3.42	3.23	3.21
5/18/2019 20:00	49	-8	-9	27	43	44	70	3	39	26	25	3	18	18	16	3.37	2.41	2.83	3.23	3.46	3.84	3.91	2.85	3.45	3.39	3.43	3.22	3.39	2.86	3.28
5/18/2019 20:10	92	-8	-9	116	157	174	123	63	110	141	188	151	152	193	179	3.89	2.90	2.33	4.40	4.86	5.62	4.55	3.93	4.58	4.76	4.94	4.62	4.86	5.11	4.78
5/18/2019 20:20	96	3	-9	141	158	133	115	71	160	212	273	209	182	226	223	3.94	2.77	1.90	4.72	4.91	5.14	4.56	3.89	4.86	5.29	5.37	4.97	5.08	5.05	5.16
5/18/2019 20:30	112	65	-9	117	140	127	108	53	193	196	238	201	187	215	200	4.09	3.78	3.04	4.47	4.74	5.01	4.32	3.59	5.09	5.10	5.11	4.98	5.06	5.00	4.97
5/18/2019 20:40	46	-11	-9	65	112	78	68	14	166	148	188	149	126	130	119	3.36	2.47	2.40	3.74	4.30	4.22	3.82	2.98	5.08	4.81	4.95	4.73	4.59	4.24	4.29
5/18/2019 20:50	78	-6	-9	56	110	100	104	8	148	116	160	120	116	144	99	3.83	2.52	2.88	3.74	4.38	4.76	4.40	2.99	4.92	4.39	4.73	4.45	4.42	4.49	4.28
5/18/2019 21:00	37	-10	-9	44	83	74	73	-6	67	42	63	36	51	82	74	3.23	3.02	2.93	3.65	4.05	4.44	4.04	2.86	4.16	3.76	4.05	3.56	3.99	4.04	4.13
5/18/2019 21:10	-2	-10	-9	13	24	15	17	10	57	39	61	26	26	50	38	2.62	1.73	1.17	2.95	3.21	3.18	2.97	3.29	4.04	3.81	4.05	3.46	3.70	3.65	3.60
5/18/2019 21:20	-12	-9	-10	-13	-13	-12	-13	-15	-9	-12	-4	-12	-15	-8	-14	1.96	1.61	1.25	2.06	2.02	2.06	1.84	2.70	2.06	2.33	2.86	2.22	2.74	2.67	2.57
5/18/2019 21:30	-12	-8	-10	-11	-11	-10	-10	-13	-10	-12	-17	-12	-13	-15	-12	2.49	1.81	2.34	2.62	2.70	2.70	2.70	2.30	1.67	1.90	2.48	2.12	2.57	2.48	2.53
5/18/2019 21:40	0	-8	-10	1	1	-9	-4	-15	-1	-1	38	7	-5	20	15	2.58	1.98	2.54	3.03	2.95	2.69	2.82	2.60	2.28	2.73	3.58	3.11	3.05	3.26	3.26
5/18/2019 21:50	-3	-8	-10	34	8	-3	-11	15	0	-13	14	0	-7	10	13	2.46	2.34	2.93	3.36	2.68	2.75	2.43	3.91	3.42	3.15	3.24	2.27	2.60	2.70	2.89
5/18/2019 22:00	51	-1	-9	61	76	26	-4	50	33	-15	20	-9	-4	45	36	3.37	3.13	3.39	3.42	3.78	3.37	2.44	3.70	3.61	2.90	3.60	3.02	3.08	3.43	3.46
5/18/2019 22:10	50	3	-9	84	103	39	13	7	-6	-12	64	19	-2	51	38	3.43	2.83	3.21	3.89	4.07	3.51	2.64	2.91	2.81	2.38	4.06	3.22	3.09	3.47	3.47
5/18/2019 22:20	82	1	-8	142	152	78	63	-14	-11	-11	106	62	52	131	144	3.55	2.59	2.89	4.57	4.76	4.24	3.65	2.50	2.63	2.91	4.18	3.65	3.66	4.23	4.56
5/18/2019 22:30	229	109	183	254	350	273	208	-3	64	89	217	126	124	194	217	5.36	4.03	5.39	5.30	6.67	6.15	5.68	3.38	4.23	4.44	5.06	4.37	4.50	4.72	5.02
5/18/2019 22:40	208	6	219	261	322	243	193	87	163	142	229	174	172	242	257	5.02	2.17	5.26	5.55	6.48	6.06	5.30	3.85	4.71	4.53	5.08	4.65	4.90	4.93	5.36
5/18/2019 22:50	129	9	160	281	356	336	340	53	205	214	350	269	243	318	328	4.06	2.20	4.44	5.90	6.66	7.07	6.77	3.41	5.00	5.12	5.88	5.34	5.40	5.80	5.76
5/18/2019 23:00	101	-2	124	365	434	409	339	59	360	358	524	436	406	522	549	3.66	2.13	3.06	6.61	7.19	7.82	6.57	3.34	6.08	6.07	6.70	6.31	6.44	7.19	6.94
5/18/2019 23:10	144	2	61	356	443	386	311	64	559	564	783	692	654	729	741	4.18	2.33	2.62	6.73	7.13	7.66	6.43	3.42	6.99	7.01	7.52	7.30	7.61	7.74	7.47
5/18/2019 23:20	169	-7	-13	260	378	311	279	73	389	397	549	445	395	475	473	4.34	2.06	1.52	5.48	6.61	6.42	5.98	3.39	6.29	6.30	6.71	6.35	6.34	6.69	6.50
5/18/2019 23:30	299	73	-9	320	432	409	383	80	414	460	578	451	376	466	438	5.92	3.67	2.04	6.21	6.96	7.07	6.93	3.73	6.81	6.74	6.88	6.64	6.32	7.25	6.58
5/18/2019 23:40	536	273	95	410	509	506	455	168	268	341	613	375	268	331	263	7.47	6.10	3.44	6.75	7.45	8.21	7.20	4.76	5.38	6.00	7.17	6.34	5.61	5.92	5.62
5/18/2019 23:50	461	267	134	471	424	406	304	320	409	447	635	402	315	374	343	7.02	5.89	4.22	7.15	6.93	7.26	6.16	5.50	6.26	6.58	6.93	6.20	5.81	6.15	5.91
5/19/2019 0:00	601	231	200	571	709	657	566	376	459	425	721	450	370	475	528	7.45	5.38	5.07	7.67	8.29	8.52	7.68	5.79	6.32	6.29	7.36	6.48	6.01	6.71	6.57
5/19/2019 0:10	647	287	193	608	755	705	671	303	333	263	760	469	399	592	610	7.67	6.00	5.21	7.53	8.20	8.41	8.02	5.52	5.81	5.16	7.65	6.53	6.15	7.03	6.74
5/19/2019 0:20	703	357	192	528	576	460	488	317	398	342	897	614	556	761	738	8.02	6.49	5.06	7.07	7.55	7.31	7.16	5.62	6.23	5.63	7.98	6.86	6.81	7.66	7.45
5/19/2019 0:30	938	559	311	735	880	739	804	254	289	210	875	674	641	889	843	9.10	7.44	5.55	8.24	8.91	9.00	8.71	5.10	5.31	4.40	7.98	7.19	7.15	8.14	7.74
5/19/2019 0:40	1,075	437	112	1,046	1,238	991	1,017	388	484	518	984	754	661	902	836	9.50	6.54	3.31	9.02	9.62	9.69	8.88	5.87	6.81	7.01	8.08	7.44	7.22	8.21	7.76
5/19/2019 0:50	992	293	41	863	1																									

5/19/2019 3:30	1,999	1,639	1,999	1,999	1,999	1,999	1,986	1,568	1,965	2,014	1,999	1,999	1,999	2,000	1,999	14.20	12.34	13.56	13.39	13.54	14.97	14.12	9.05	10.51	10.82	11.33	10.82	10.80	12.28	11.74
5/19/2019 3:40	1,999	1,516	2,000	2,001	1,999	1,999	1,938	1,645	2,014	2,001	1,999	1,999	1,999	2,006	1,998	14.37	10.93	13.53	13.16	12.88	14.57	13.50	9.45	10.80	10.80	11.60	11.18	11.17	12.48	11.58
5/19/2019 3:50	1,999	1,856	1,999	1,999	1,999	1,999	2,002	1,939	1,999	2,000	1,999	1,999	1,999	2,001	1,999	14.94	11.70	13.90	13.51	13.34	14.92	14.12	11.31	11.41	11.61	12.38	11.75	11.75	12.96	12.21
5/19/2019 4:00	1,999	1,919	1,999	1,999	1,999	1,999	2,000	2,010	1,999	1,999	1,999	1,999	1,999	2,000	1,999	15.18	11.86	14.08	13.69	13.64	15.49	14.47	12.14	11.64	11.92	12.57	11.84	11.68	13.47	12.89
5/19/2019 4:10	1,999	1,840	1,998	1,999	1,999	1,999	1,943	1,964	1,999	1,987	1,999	1,999	1,998	2,001	1,999	14.73	12.00	13.43	13.21	13.73	14.56	13.94	11.54	11.33	10.81	11.96	10.97	10.80	12.43	11.52
5/19/2019 4:20	1,999	1,895	1,999	1,999	1,999	1,999	2,020	1,060	1,977	1,860	1,999	1,940	1,899	1,999	2,000	13.60	11.77	13.43	12.75	13.80	15.39	14.01	7.27	10.34	9.92	11.07	10.10	9.99	11.70	11.24
5/19/2019 4:30	1,999	2,007	1,999	1,999	1,999	1,999	1,999	1,320	2,014	1,910	1,999	1,842	1,764	2,000	1,999	14.45	12.74	14.57	13.68	14.63	17.01	14.46	8.71	10.47	10.36	10.85	9.80	9.98	11.20	10.88
5/19/2019 4:40	1,999	1,998	1,999	1,999	1,999	510	1,999	1,524	1,998	1,973	1,999	2,006	2,005	2,001	1,999	14.71	12.90	15.03	14.17	15.41	18.12	15.55	8.85	10.58	10.30	11.35	10.44	10.41	11.66	11.00
5/19/2019 4:50	1,999	1,892	1,996	1,999	1,999	-25	1,999	1,770	1,978	1,949	2,000	1,890	1,867	2,000	1,979	13.79	11.94	14.33	13.56	14.83	19.40	14.93	9.76	10.33	10.16	10.60	9.74	9.84	11.19	10.56
5/19/2019 5:00	1,950	1,698	1,933	1,965	1,999	-22	1,994	1,333	1,651	1,506	1,995	1,541	1,732	1,898	1,994	13.34	11.05	13.19	12.60	13.35	19.26	13.32	8.53	9.51	9.30	10.20	8.91	9.57	11.10	11.13
5/19/2019 5:10	1,607	1,056	1,264	1,256	1,401	-19	1,375	1,466	1,974	1,942	2,005	1,942	1,743	2,007	1,893	11.01	9.59	10.29	9.81	10.41	19.12	10.29	9.10	10.53	10.57	11.20	10.32	9.81	10.86	10.34
5/19/2019 5:20	528	359	606	622	1,154	-16	1,311	1,458	1,731	1,663	1,819	1,611	1,358	1,427	1,296	7.59	6.88	7.35	8.00	9.62	18.97	10.67	9.39	10.73	10.10	10.80	9.70	8.96	9.48	8.74
5/19/2019 5:30	845	226	1,040	1,401	1,704	-13	1,781	349	1,054	1,142	1,618	1,304	1,287	1,811	1,680	8.14	4.83	9.01	10.88	11.40	18.83	12.47	5.15	8.16	8.33	9.41	8.70	8.72	10.33	9.66
5/19/2019 5:40	959	181	1,103	1,746	1,997	-10	1,976	514	310	550	1,067	912	969	1,246	1,299	8.06	4.18	8.81	11.58	12.38	18.69	12.22	5.62	6.73	7.38	8.50	8.25	7.93	8.53	8.43
5/19/2019 5:50	467	402	924	549	1,049	-6	1,575	53	16	114	106	78	65	102	89	7.38	7.57	9.18	9.09	10.28	17.47	10.87	3.58	3.42	4.48	4.87	4.34	4.62	4.75	5.81
5/19/2019 6:00	471	349	530	487	764	648	681	202	198	229	370	273	313	352	479	6.47	5.51	6.67	6.44	8.22	8.22	7.62	5.10	5.17	5.24	5.94	5.47	5.57	6.04	6.39
5/19/2019 6:10	422	300	435	456	598	664	658	372	582	568	694	540	429	409	384	6.85	6.22	6.55	6.89	7.67	8.62	7.64	5.72	7.04	7.00	7.21	6.84	6.40	6.35	6.18
5/19/2019 6:20	955	576	927	853	1,222	1,167	1,143	533	994	996	1,314	931	836	953	988	9.08	8.22	8.96	8.97	10.17	11.04	9.66	6.33	8.22	8.25	8.76	7.95	7.65	8.17	7.98
5/19/2019 6:30	1,975	1,485	1,804	1,876	1,977	1,930	1,808	950	1,717	1,619	1,744	1,575	1,576	1,794	1,818	12.06	11.12	12.36	12.33	12.84	14.44	12.63	7.54	9.88	9.81	9.97	9.81	9.76	10.94	10.27
5/19/2019 6:40	1,999	1,618	1,962	2,005	1,999	1,981	1,946	1,804	2,001	2,003	1,999	2,000	2,003	1,999	2,000	13.14	11.36	13.37	13.26	13.77	15.38	13.79	10.12	11.14	11.25	12.02	11.72	11.93	12.82	12.39
5/19/2019 6:50	1,999	1,952	1,999	1,999	1,999	1,997	1,980	2,008	2,000	2,000	1,999	1,999	1,999	1,999	1,999	14.50	12.78	14.51	14.01	14.29	15.83	14.13	10.96	10.87	11.05	11.70	11.27	11.32	12.36	11.63
5/19/2019 7:00	1,999	1,623	1,998	1,977	1,999	1,997	1,852	1,925	1,945	1,894	1,988	1,937	1,993	1,991	1,921	13.06	11.64	13.15	12.77	12.96	14.24	13.22	10.55	10.21	10.19	10.81	10.37	10.65	11.04	10.13
5/19/2019 7:10	1,999	1,590	2,000	1,952	1,999	1,789	1,589	1,056	1,608	1,513	1,888	1,812	1,938	1,932	1,885	13.59	12.17	13.26	12.80	12.71	13.46	11.96	7.83	9.44	9.25	9.89	9.85	10.26	10.69	9.95
5/19/2019 7:20	1,962	1,419	1,924	1,785	1,996	1,788	1,806	892	1,641	1,683	1,996	1,998	2,003	1,996	1,946	13.28	11.65	12.84	12.08	12.22	13.38	11.57	7.24	9.79	9.63	10.26	10.30	10.58	11.07	10.47
5/19/2019 7:30	1,982	1,394	1,825	1,724	2,002	1,851	1,906	1,031	1,820	1,898	2,008	1,997	1,999	2,004	1,930	13.30	11.21	12.17	11.86	12.64	13.60	12.21	7.78	9.88	10.06	10.49	10.47	10.61	11.07	10.25
5/19/2019 7:40	1,645	1,097	1,616	1,567	1,909	1,713	1,775	1,003	1,518	1,574	1,825	1,736	1,928	1,922	1,731	11.86	9.68	11.11	11.37	11.93	13.07	12.11	7.84	9.40	9.39	10.00	9.57	10.02	10.53	9.64
5/19/2019 7:50	1,600	1,015	1,431	1,447	1,862	602	1,802	784	1,309	1,502	1,924	1,734	1,958	1,941	1,579	11.73	9.60	10.55	10.82	11.82	13.58	12.64	6.90	8.67	9.22	9.96	9.75	10.28	10.49	9.31
5/19/2019 8:00	1,501	974	1,443	1,485	1,869	1,597	1,857	623	1,630	1,462	1,998	1,850	1,900	1,998	1,881	11.62	9.44	10.65	11.09	11.64	13.07	12.62	6.46	9.40	8.99	10.29	10.02	10.16	10.78	10.01
5/19/2019 8:10	1,355	771	1,436	1,534	1,913	1,715	1,804	753	1,351	1,533	1,895	1,662	1,675	1,894	1,838	10.69	8.73	10.71	11.41	11.95	13.00	12.22	7.06	8.78	9.11	10.18	9.26	9.39	10.30	9.94
5/19/2019 8:20	1,190	720	1,217	1,264	1,764	1,612	1,646	735	1,132	1,335	1,767	1,317	1,355	1,500	1,392	10.32	8.50	9.51	10.20	11.30	12.80	12.14	6.80	8.38	8.91	9.77	8.60	8.57	9.41	8.65
5/19/2019 8:30	1,259	704	1,290	1,238	1,620	1,447	1,476	607	1,310	1,228	1,599	1,268	1,298	1,351	1,033	10.87	8.07	10.14	9.96	10.96	11.99	11.11	6.47	8.69	8.54	9.25	8.53	8.78	9.17	7.73
5/19/2019 8:40	1,437	513	1,241	1,371	1,615	1,356	1,356	655	1,332	1,177	1,718	1,310	1,103	1,389	1,149	10.71	6.55	10.43	10.13	11.15	12.14	11.02	6.78	8.99	8.41	9.57	8.62	8.08	9.08	8.20
5/19/2019 8:50	1,413	641	1,250	1,261	1,456	1,139	1,024	810	1,310	949	1,335	1,118	984	1,278	966	10.74	7.44	9.81	9.81	10.67	11.32	9.65	6.98	8.84	7.72	8.42	8.06	7.65	8.77	7.69
5/19/2019 9:00	915	344	669	699	962	715	632	464	785	703	871	699	632	757	717	8.55	5.93	7.50	7.54	8.91	9.09	7.73	6.08	7.20	6.98	7.34	6.75	6.70	7.30	7.18
5/19/2019 9:10	821	368	647	685	863	576	498	416	507	450	617	629	699	776	691	8.11	6.63	7.38	7.69	8.61	7.99	7.17	5.65	6.27	6.03	6.56	6.62	7.00	7.11	6.74
5/19/2019 9:20	913	450	903	949	1,053	881	720	272	430	396	563	434	477	568	557	8.48	6.40	8.75	9.05	9.58	9.79	8.43	5.04	6.04	5.95	6.51	6.05	6.26	6.69	6.70
5/19/2019 9:30	832	361	852	924	1,120	1,020	946	184	470	381	561	572	721	918	808	8.73	6.08	8.45	9.17	9.73	10.61	9.34	4.61	6.42	5.78	6.58	6.80	7.10	8.04	7.38
5/19/2019 9:40	709	280	658	735	1,077	848	817	329	670	604	867	709	783	1,003	907	8.19	5.67	7.43	7.81	9.74	9.88	8.77	5.57	6.90	6.94	7.69	7.14	7.28	7.99	7.56
5/19/2019 9:50	554	175	535	790	785	875	874	414	650	585	810	761	748	864	751	6.77	4.82	6.75	7.90	8.55	9.54	8.43	5.80	6.79	6.73	7.51	7.28	7.26	7.58	7.18
5/19/2019 10:00	588	253	613	844	978	889	880	344	616	623	883	953	1,057	945	831	6.87	5.23	6.94	8.15	9.28	9.38	9.04	5.51	6.95	7.09	7.51	7.91	8.24	8.19	7.59
5/19/2019 10:10	413	169	448	741	917	858	791	378	792	920	1,005	815	1,134																	

5/19/2019 13:50	1,007	498	515	857	1,027	979	1,024	795	626	249	496	528	680	333	1,108	8.79	7.02	7.14	8.18	9.17	10.36	9.48	7.25	6.75	5.02	6.28	6.77	7.24	5.00	8.45
5/19/2019 14:00	788	408	568	864	822	981	885	911	665	275	802	776	936	721	1,396	8.01	6.23	7.18	8.22	8.27	10.14	9.16	7.61	6.82	5.25	7.22	7.59	7.95	6.92	9.12
5/19/2019 14:10	788	488	633	784	1,146	900	1,020	1,330	501	197	1,106	816	756	965	1,384	7.73	6.46	7.71	8.10	9.42	9.87	9.39	8.84	6.28	4.73	8.21	7.72	7.30	8.27	9.07
5/19/2019 14:20	988	417	765	952	1,208	1,135	1,050	873	599	191	982	900	850	958	1,521	8.53	6.26	8.19	8.63	9.70	11.14	9.64	7.73	6.57	4.59	7.66	8.06	7.53	7.99	9.33
5/19/2019 14:30	675	349	719	978	1,257	1,032	1,012	946	552	277	1,066	928	737	628	1,072	7.09	5.88	7.59	9.05	9.93	10.53	9.46	7.69	6.53	5.12	8.02	8.14	7.38	6.65	8.19
5/19/2019 14:40	662	281	590	902	1,000	998	934	811	444	193	833	799	912	625	1,206	7.28	5.74	7.43	8.33	8.78	10.33	9.09	7.41	5.77	4.66	7.39	7.77	7.84	6.74	8.68
5/19/2019 14:50	608	293	783	1,214	1,109	934	913	1,316	573	240	1,080	1,102	992	836	1,386	6.95	5.84	8.40	9.54	9.25	10.03	9.09	8.80	6.65	5.03	8.14	8.63	8.18	7.47	9.18
5/19/2019 15:00	986	344	743	1,276	1,494	1,386	1,256	767	426	204	1,177	893	904	1,165	1,433	8.63	5.70	8.15	9.70	10.62	12.04	10.22	7.10	5.60	4.74	8.43	7.88	7.75	8.84	9.33
5/19/2019 15:10	849	466	816	1,129	1,464	1,331	1,196	853	426	172	1,262	1,262	1,267	1,402	1,674	7.80	6.72	8.67	9.13	10.37	12.06	9.93	7.41	5.96	4.32	8.76	9.12	8.93	9.67	9.81
5/19/2019 15:20	764	283	771	1,095	1,373	1,208	1,230	533	262	119	1,111	1,240	1,395	1,730	1,847	7.93	5.54	8.27	9.61	10.68	11.48	10.47	6.40	4.92	4.06	8.36	8.74	9.06	10.65	10.31
5/19/2019 15:30	786	487	1,043	1,136	1,465	1,331	1,313	756	207	97	762	923	1,113	864	1,270	7.84	6.98	9.43	9.14	10.80	11.96	10.83	6.97	4.59	3.96	7.44	8.14	8.24	7.48	8.85
5/19/2019 15:40	851	372	922	1,107	1,403	1,360	1,410	562	356	135	799	770	756	682	858	8.21	5.94	8.90	8.95	10.56	12.23	11.06	6.52	5.58	4.19	7.42	7.71	7.39	6.97	7.64
5/19/2019 15:50	1,339	377	963	1,518	1,606	1,483	1,490	642	347	96	1,002	920	1,039	1,345	1,382	9.91	5.94	9.25	10.62	11.15	12.46	11.66	6.81	5.23	3.97	8.11	8.09	8.04	9.57	9.09
5/19/2019 16:00	1,291	591	1,166	1,387	1,666	1,529	1,395	600	278	111	872	804	847	1,104	1,548	9.70	7.54	9.96	10.07	11.45	12.64	11.32	6.58	5.14	4.04	7.61	7.88	7.53	8.63	9.52
5/19/2019 16:10	1,457	476	1,083	1,438	1,654	1,371	1,392	717	294	137	1,237	1,279	1,235	1,527	1,892	10.31	6.46	9.49	10.10	11.34	11.79	11.00	6.93	5.31	4.20	8.78	9.53	8.73	9.89	10.62
5/19/2019 16:20	1,536	450	1,164	1,561	1,642	1,586	1,545	941	333	151	1,455	1,405	1,414	1,481	1,802	10.70	6.37	10.06	10.76	11.09	13.20	11.39	7.67	5.47	4.37	9.39	9.43	9.26	9.67	10.13
5/19/2019 16:30	1,507	806	1,145	1,696	1,929	1,718	1,871	1,074	302	169	1,426	1,169	1,501	1,644	1,894	10.03	8.06	10.49	10.99	12.03	13.84	12.50	7.96	5.48	4.59	9.08	8.77	9.51	10.20	10.83
5/19/2019 16:40	915	605	1,042	1,625	1,971	1,753	1,906	729	271	354	1,708	1,521	1,416	1,933	1,974	8.24	7.07	10.26	11.01	12.33	14.27	12.40	6.83	4.88	5.47	10.26	9.60	9.29	11.38	11.40
5/19/2019 16:50	1,134	702	1,199	1,674	1,920	1,837	1,697	831	328	329	1,796	1,519	1,311	1,872	1,977	8.85	7.53	10.92	10.90	12.40	14.34	12.12	7.41	5.44	5.43	10.32	9.46	8.73	10.90	11.31
5/19/2019 17:00	803	606	965	1,511	1,620	1,651	1,591	931	366	671	1,956	1,459	1,178	1,722	1,890	8.02	7.02	9.45	10.48	11.76	13.45	11.71	7.94	5.38	6.86	10.85	9.44	8.39	10.46	10.43
5/19/2019 17:10	1,008	460	805	1,607	1,773	1,664	1,618	1,030	425	572	1,872	1,410	1,288	1,847	1,793	8.61	6.45	8.81	10.90	11.95	13.68	11.50	7.92	5.98	6.49	10.39	9.14	8.65	10.87	10.09
5/19/2019 17:20	1,178	626	868	1,604	1,831	1,674	1,586	850	427	544	1,762	1,256	1,235	1,678	1,827	9.38	7.40	9.05	11.35	11.95	13.86	12.17	7.57	5.87	6.66	9.97	8.68	8.52	10.11	10.17
5/19/2019 17:30	1,198	580	671	1,568	1,796	1,564	1,577	891	761	873	1,726	1,424	1,265	1,705	1,712	9.47	7.12	7.63	11.03	11.40	12.79	12.09	7.57	7.28	7.89	9.88	9.21	8.67	10.07	9.89
5/19/2019 17:40	1,372	533	606	1,485	1,813	1,607	1,662	651	564	913	1,862	1,387	1,232	1,571	1,885	9.91	6.89	7.62	10.50	11.58	13.33	12.12	6.90	6.47	7.99	10.45	9.17	8.69	9.74	10.45
5/19/2019 17:50	1,157	593	490	1,612	1,804	1,637	1,701	653	778	1,221	1,811	1,455	998	1,479	1,607	9.12	7.37	6.59	10.85	11.64	13.81	12.04	7.08	7.53	8.83	10.33	9.34	8.10	9.68	9.93
5/19/2019 18:00	814	267	494	1,432	1,580	1,458	1,587	760	1,349	1,603	1,856	1,667	1,305	1,607	1,697	7.76	5.14	6.35	10.44	11.21	12.61	11.05	7.15	9.24	10.05	10.44	9.93	8.88	10.03	10.18
5/19/2019 18:10	584	229	193	898	1,055	1,124	1,296	897	1,249	1,438	1,785	1,744	1,453	1,799	1,759	7.14	5.45	4.81	8.72	9.76	11.23	10.32	7.85	8.57	9.59	10.53	10.36	9.30	10.45	9.97
5/19/2019 18:20	569	222	218	704	1,110	1,038	1,044	947	912	1,016	1,774	1,331	1,400	1,443	1,118	6.96	5.13	5.31	8.02	9.50	10.31	9.67	7.78	7.81	8.11	9.97	8.98	9.19	9.68	8.37
5/19/2019 18:30	603	246	293	766	1,097	1,207	1,264	472	432	703	1,551	988	915	811	667	7.03	5.09	6.07	8.14	9.35	11.17	10.47	6.10	6.19	7.18	9.44	8.12	8.01	7.86	7.14
5/19/2019 18:40	414	183	204	826	982	1,094	1,031	562	742	846	1,434	831	699	974	903	6.20	4.84	5.16	8.36	8.97	10.61	9.38	6.50	7.41	7.58	9.10	7.78	7.21	8.29	7.73
5/19/2019 18:50	345	101	175	699	1,014	994	888	420	561	510	1,131	828	584	834	788	5.73	3.95	4.60	7.63	8.75	10.11	8.83	5.97	6.58	6.64	8.31	7.64	6.69	7.64	7.62
5/19/2019 19:00	287	111	117	650	973	847	660	266	364	522	1,178	934	889	853	964	5.26	4.19	4.30	7.35	9.14	9.55	8.04	5.22	5.90	6.21	8.30	8.13	7.76	7.83	8.10
5/19/2019 19:10	435	159	231	1,146	1,230	1,212	1,358	210	510	711	1,247	783	853	1,058	1,025	6.17	4.38	5.01	9.06	10.05	11.41	10.13	4.99	6.60	7.34	8.59	7.35	7.66	8.46	8.26
5/19/2019 19:20	358	124	382	1,205	1,254	1,192	1,132	433	749	953	1,447	1,000	856	1,411	1,415	5.74	4.45	5.73	9.41	9.79	11.65	10.06	6.07	7.46	8.07	9.15	8.21	7.75	9.30	9.22
5/19/2019 19:30	594	68	470	1,382	1,418	1,125	1,057	946	1,196	1,320	1,857	1,597	1,576	1,747	1,579	7.06	4.07	6.02	10.43	10.53	11.02	9.78	7.71	8.60	9.04	10.56	9.58	9.71	10.33	9.46
5/19/2019 19:40	700	125	707	1,488	1,519	1,373	1,216	550	1,511	1,491	1,864	1,509	1,301	1,769	1,494	7.26	4.43	7.54	10.32	10.76	12.50	10.34	6.43	9.69	9.44	10.44	9.47	8.67	10.24	9.14
5/19/2019 19:50	615	197	1,038	1,650	1,894	1,434	1,486	699	1,389	1,621	1,999	1,797	1,844	1,858	1,823	6.86	4.81	8.81	10.74	12.09	12.57	11.44	6.98	9.18	9.86	11.54	10.36	10.43	10.77	10.81
5/19/2019 20:00	756	287	1,055	1,867	1,884	1,616	1,626	1,069	1,505	1,400	1,948	1,778	1,871	1,907	1,991	7.70	5.34	8.86	11.75	12.25	13.40	12.12	7.88	9.75	9.14	11.29	10.44	10.74	11.48	11.21
5/19/2019 20:10	117	20	121	234	225	174	222	55	184	151	259	219	152	243	239	11.55	9.73	12.80	12.87	12.27	15.89	14.57	9.24	9.01	9.50	10.45	10.13	8.90	11.45	10.07
5/19/2019 20:20	-3	-4	-6	-2	-5	-3	-3	-3	-5	-3	-3	-3	-5	-3	-3	12.69	11.09	13.62	12.69	12.32	17.07	15.38	10.05	9.59	11.18	11.73	11.24	11.23	12.25	11.46
5/19/2019 20:30	57	5	28	-2	36	9	6	31	37	23	80	11	22	9	8	12.89	10.86	13.97	13.37	12.28	16.11	14.69	9.71	10.51	11.20	11.61	11.65	12.36	13.27	12.09
5/19/2019 20:40	1,071	178	410	-2	416	416	488	794	487	373	1,477	432	440	453	451															

5/20/2019 0:10	-3	-2	-4	-1	-3	-4	-3	-3	-4	-4	-2	-2	-4	-2	-4	16.75	13.82	17.38	16.42	16.83	18.52	16.96	11.66	13.48	13.21	15.45	14.38	14.12	15.58	15.15
5/20/2019 0:20	51	4	22	-1	36	9	20	-7	24	36	68	42	22	29	19	14.87	12.36	15.47	15.07	16.50	19.24	16.73	11.77	12.45	12.90	14.89	13.42	14.10	15.15	13.65
5/20/2019 0:30	446	373	466	-1	471	480	477	1,070	494	1,470	1,491	444	457	456	466	15.53	12.79	16.64	16.24	15.06	17.38	15.52	10.49	12.39	12.38	13.60	14.13	14.78	14.94	14.59
5/20/2019 0:40	1,674	1,309	1,963	-1	2,009	2,006	2,008	1,706	2,014	1,997	2,000	2,007	2,007	2,005	2,006	10.96	9.53	14.09	14.68	13.71	16.26	14.31	10.41	12.82	12.60	14.51	13.54	13.43	14.75	13.85
5/20/2019 0:50	914	690	1,230	-2	1,240	1,245	1,246	1,213	1,251	1,237	1,250	1,254	1,248	1,243	1,254	12.18	10.39	15.01	14.86	14.30	17.00	14.97	10.45	12.05	12.40	13.63	12.57	11.89	12.64	12.08
5/20/2019 1:00	-3	-7	-8	-2	-6	-7	-7	-7	-7	-8	-7	-6	-5	-7	-3	16.04	13.20	16.77	15.78	15.28	17.85	15.72	9.93	11.69	12.57	14.43	13.76	13.09	14.01	13.84
5/20/2019 1:10	61	3	28	-2	32	9	0	30	33	51	85	-5	16	29	38	16.74	13.90	17.54	16.38	16.58	18.54	16.33	9.52	10.63	11.36	12.76	12.78	13.66	14.71	13.58
5/20/2019 1:20	476	369	356	-2	490	367	1,199	1,040	1,107	591	443	353	355	361	351	14.99	12.37	16.23	15.62	15.72	18.53	14.82	10.45	10.48	10.71	12.10	11.84	12.41	13.81	13.52
5/20/2019 1:30	1,909	1,624	2,004	-2	2,009	1,995	2,001	1,252	1,524	1,853	1,971	2,008	2,009	2,009	2,011	13.09	11.28	14.70	14.93	14.02	17.10	14.68	8.56	9.57	10.66	11.51	11.74	11.39	12.46	11.73
5/20/2019 1:40	2,000	1,936	2,000	-2	2,000	2,018	2,000	1,423	1,639	1,895	2,015	1,992	1,999	1,998	1,999	14.94	12.72	15.45	14.62	15.35	17.93	14.73	8.98	9.73	10.80	11.45	11.24	11.81	13.08	12.19
5/20/2019 1:50	2,000	2,006	2,000	-2	2,000	1,999	2,000	1,609	2,009	2,015	1,999	2,001	1,999	2,000	1,999	15.99	13.85	16.61	16.60	15.77	17.52	16.16	9.48	11.50	11.96	12.49	12.09	12.64	13.72	13.83
5/20/2019 2:00	2,000	2,000	2,000	-3	2,000	2,000	1,999	1,510	1,998	1,965	2,000	2,000	2,000	2,001	2,000	16.06	13.77	16.37	17.05	16.69	19.26	16.64	9.08	11.04	11.14	12.52	12.18	12.54	13.49	13.84
5/20/2019 2:10	2,000	1,973	2,000	-3	1,999	1,980	2,000	1,972	1,999	1,993	2,000	1,998	1,965	2,000	1,991	14.81	12.62	15.59	15.90	15.65	17.89	15.33	10.81	11.19	11.27	12.03	11.51	11.07	12.29	11.66
5/20/2019 2:20	2,000	1,857	1,998	-3	2,000	1,825	1,998	1,941	2,000	2,005	2,000	1,993	1,878	1,997	2,006	13.12	12.09	14.16	15.12	14.25	17.22	13.67	10.96	11.73	11.67	12.31	11.44	10.56	11.77	11.41
5/20/2019 2:30	1,999	1,884	1,999	-3	1,999	1,645	2,002	1,997	2,000	2,000	2,000	2,000	2,005	2,001	2,001	13.76	13.39	15.07	15.65	14.46	17.03	13.29	12.48	13.04	13.48	14.69	13.28	12.72	13.62	12.74
5/20/2019 2:40	2,000	1,893	1,999	-3	1,999	1,465	2,000	2,002	1,999	2,000	2,000	2,000	1,999	2,000	2,000	14.14	13.26	14.61	14.85	14.83	16.84	14.07	12.25	12.52	12.38	13.33	12.40	11.97	12.25	12.38
5/20/2019 2:50	2,000	1,884	2,000	-3	1,999	1,285	2,000	1,820	1,999	1,999	2,000	1,999	1,998	1,986	1,978	13.58	13.32	14.81	15.29	14.87	16.65	14.41	10.26	11.70	12.82	12.77	11.57	10.93	11.22	10.82
5/20/2019 3:00	1,971	1,749	1,940	-3	2,000	1,105	1,956	1,994	2,000	1,999	2,000	1,998	2,000	1,996	1,940	12.82	11.32	13.80	14.90	13.52	16.47	13.65	11.12	12.25	12.27	12.83	12.07	11.64	11.83	10.83
5/20/2019 3:10	1,796	1,641	1,861	-3	1,999	925	1,988	2,002	1,998	1,999	2,000	2,000	2,000	2,008	2,013	11.76	10.84	13.13	14.29	12.89	16.28	13.80	11.30	12.62	11.68	12.25	12.39	11.72	12.38	11.25
5/20/2019 3:20	2,004	1,751	1,946	-4	2,000	745	1,926	1,553	2,000	2,000	1,999	1,998	2,000	1,990	1,999	13.17	11.83	14.08	14.78	14.80	16.09	12.72	8.98	11.56	12.69	12.76	12.89	12.34	11.83	11.74
5/20/2019 3:30	1,997	2,021	2,011	-4	1,994	565	2,017	1,914	1,977	1,999	2,000	1,997	2,000	2,001	2,000	14.86	14.82	18.62	17.60	16.31	15.90	16.11	12.00	12.35	14.17	14.12	13.69	14.39	14.49	15.13
5/20/2019 3:40	1,676	1,591	1,798	-4	1,823	385	1,578	1,797	1,877	1,961	1,998	2,001	1,999	1,999	1,999	12.31	11.90	13.28	13.28	12.54	15.71	11.45	10.34	10.35	10.99	11.72	11.79	11.28	11.51	11.39
5/20/2019 3:50	1,360	1,184	1,395	-4	1,671	205	1,186	1,656	1,999	1,999	2,000	1,999	1,999	2,000	2,000	10.52	10.55	11.00	12.03	11.53	15.52	10.22	9.82	11.24	11.56	11.93	11.83	11.36	12.14	11.47
5/20/2019 4:00	1,415	1,278	1,616	1,242	1,719	85	1,279	1,463	1,961	1,977	2,000	1,999	1,999	2,000	1,999	10.45	11.09	11.90	11.70	11.00	15.04	10.49	8.93	10.87	11.39	12.57	11.57	11.34	12.17	11.49
5/20/2019 4:10	1,463	1,411	1,642	1,597	1,632	1,569	1,509	1,844	1,958	2,014	1,999	2,000	1,999	2,002	1,990	10.18	10.09	11.94	10.21	11.32	12.86	10.48	10.45	10.72	11.33	12.58	11.61	10.87	11.61	11.20
5/20/2019 4:20	1,285	1,062	1,439	1,207	1,360	1,249	1,122	1,776	1,825	1,985	1,999	1,984	1,915	1,990	1,982	10.07	9.79	10.96	9.46	10.47	11.29	9.51	9.99	10.15	11.04	11.35	10.99	10.17	11.21	10.79
5/20/2019 4:30	1,234	1,099	1,419	1,233	1,297	1,110	1,050	1,469	1,740	1,921	1,980	1,814	1,779	1,848	1,668	9.24	9.14	10.96	9.25	9.81	10.78	9.02	9.25	9.89	10.55	10.86	9.93	9.65	10.39	9.40
5/20/2019 4:40	1,307	1,078	1,424	1,281	1,568	1,371	1,402	1,043	1,610	1,857	1,942	1,797	1,811	1,694	1,775	10.25	10.25	11.04	9.65	10.76	11.79	10.73	7.52	9.51	10.19	10.38	10.10	9.89	10.09	9.75
5/20/2019 4:50	1,549	1,332	1,520	1,552	1,623	1,486	1,614	548	1,650	1,822	2,000	1,839	1,770	1,797	1,625	10.43	9.94	10.90	10.15	10.79	12.41	10.82	6.56	9.73	10.16	10.76	9.99	9.79	10.47	9.26
5/20/2019 5:00	1,407	1,013	1,265	1,185	1,464	1,334	1,420	1,047	1,975	1,983	1,998	1,994	1,904	1,895	1,952	10.35	9.33	10.32	9.42	10.82	12.11	10.75	7.89	10.76	10.91	11.41	11.06	10.28	10.88	10.43
5/20/2019 5:10	1,202	911	1,271	1,198	1,531	1,542	1,784	1,012	1,894	1,904	1,992	1,582	1,549	1,635	1,578	9.72	9.03	10.47	9.57	10.82	13.09	11.39	7.43	10.33	10.52	10.81	9.24	9.15	9.64	9.24
5/20/2019 5:20	1,364	1,311	1,496	1,476	1,832	1,802	1,795	866	1,844	1,910	2,002	1,459	1,251	1,558	1,475	10.32	9.85	11.33	10.87	11.48	13.91	12.22	7.31	10.36	10.49	10.83	8.88	8.38	9.49	9.10
5/20/2019 5:30	1,365	1,146	1,497	1,580	1,950	1,839	1,939	531	1,635	1,477	1,892	1,291	1,353	1,505	1,634	10.11	9.36	11.36	10.77	12.28	14.45	12.06	6.07	9.49	9.14	10.11	8.56	8.88	9.50	9.43
5/20/2019 5:40	1,495	1,219	1,501	1,539	1,838	1,721	1,952	737	1,597	1,745	1,924	1,813	1,594	1,775	1,736	10.24	9.32	11.41	10.47	11.61	13.81	11.78	7.06	9.59	10.17	10.44	10.05	9.28	10.34	9.90
5/20/2019 5:50	1,661	1,530	1,632	1,546	1,703	1,599	1,782	1,207	1,653	1,802	1,997	1,957	1,834	1,943	1,793	11.47	10.61	12.08	10.73	11.91	13.16	11.37	8.51	9.84	10.18	11.22	10.42	10.47	10.94	10.18
5/20/2019 6:00	1,409	1,167	1,533	1,319	1,701	1,662	1,759	1,178	1,573	1,971	2,000	1,985	2,010	1,964	1,988	10.26	10.02	11.53	9.95	11.69	13.49	11.87	8.45	9.68	11.24	11.61	11.23	11.45	11.87	10.75
5/20/2019 6:10	1,356	1,004	1,315	1,448	1,559	1,525	1,634	1,304	1,887	1,842	1,999	1,883	1,974	1,969	1,961	10.20	9.21	10.60	10.04	10.83	12.82	11.85	8.45	10.85	10.59	12.23	10.46	11.35	11.43	11.35
5/20/2019 6:20	1,317	1,046	1,326	1,462	1,743	1,451	1,229	1,161	1,772	1,996	1,999	2,015	2,005	1,998	2,011	9.69	8.79	10.59	10.63	11.31	12.46	9.84	8.22	10.43	11.91	12.48	11.70	12.12	11.89	11.68
5/20/2019 6:30	1,718	1,714	1,877	1,868	1,870	1,388	1,328	1,916	1,995	2,000	2,000	1,998	2,000	2,001	1,999	11.72	11.28	13.66	12.29	12.24	12.27	10.25	10.52	11.47	12.69	12.11	12.27	11.69	13.03	12.59
5/20/2019 6:40	1,946	1,871	1,909	1,898	1,971	1,753	1,953	1,944	2,010	1,997	1,999	2,001	1,999	2,000	1															

5/20/2019 10:30	1,352	1,004	1,502	-2	1,698	1,491	1,488	429	1,538	1,711	1,796	1,305	1,295	1,438	1,471	10.74	9.74	11.23	11.69	11.39	13.19	11.25	5.63	9.34	9.88	9.85	8.66	8.41	9.70	9.12
5/20/2019 10:40	1,619	1,283	1,626	-4	1,793	1,649	1,624	499	1,474	1,758	1,738	1,493	1,356	1,676	1,819	11.89	10.29	11.78	11.73	11.90	13.51	12.15	6.18	9.31	9.94	9.73	9.05	8.68	10.09	10.00
5/20/2019 10:50	1,614	1,579	1,955	-7	1,948	1,731	1,553	816	1,870	1,756	1,823	1,825	1,689	1,747	1,782	11.82	10.71	13.71	11.77	12.80	13.93	11.64	7.22	10.40	9.90	10.11	10.13	9.67	10.36	9.88
5/20/2019 11:00	1,551	1,312	1,310	532	1,535	1,390	1,239	1,454	1,678	1,845	1,800	1,867	1,760	1,868	1,706	11.58	10.05	10.45	10.12	11.10	12.34	10.48	8.94	9.89	10.38	9.79	10.42	9.97	10.67	9.97
5/20/2019 11:10	1,594	1,062	1,434	1,730	1,748	1,540	1,596	1,604	1,959	1,873	1,962	2,016	1,823	1,996	1,955	11.28	9.31	11.60	11.78	12.47	13.32	11.86	9.99	11.48	10.62	11.21	12.04	10.40	12.18	10.97
5/20/2019 11:20	1,958	1,812	1,751	1,868	1,667	1,422	1,847	1,635	1,814	2,007	1,999	1,999	2,017	1,999	1,845	13.14	12.27	13.20	12.28	12.30	12.76	12.70	10.32	13.06	12.42	13.18	12.36	12.58	12.58	10.77
5/20/2019 11:30	1,939	1,630	1,901	1,921	1,999	1,539	1,829	1,568	1,930	1,943	2,000	2,001	1,988	1,999	1,997	13.48	11.72	14.44	14.31	14.14	13.46	13.08	10.11	11.50	12.64	13.37	12.67	12.02	12.50	13.07
5/20/2019 11:40	1,954	1,815	1,923	1,847	1,941	1,452	1,735	1,731	1,974	1,969	1,996	1,999	1,998	1,752	1,932	14.00	12.76	13.88	12.47	13.19	12.78	12.28	10.27	11.94	11.53	12.43	13.00	12.25	10.86	11.31
5/20/2019 11:50	1,982	1,698	1,724	1,623	1,986	1,618	1,436	1,474	1,973	1,799	1,921	1,982	1,971	1,990	2,014	13.05	11.75	12.83	11.56	12.91	13.82	10.90	9.45	11.78	10.53	11.06	11.90	11.53	12.32	12.75
5/20/2019 12:00	1,723	1,348	1,638	1,877	1,969	1,556	1,377	1,935	2,008	2,016	1,993	1,777	36	1,998	1,999	11.98	10.63	12.84	12.98	13.32	14.03	11.21	11.45	13.52	13.43	11.70	10.30	10.85	12.27	12.79
5/20/2019 12:10	1,959	1,764	1,953	1,962	2,016	1,995	1,871	1,777	1,978	1,999	2,000	1,948	-25	1,981	1,901	13.45	12.28	13.82	13.39	14.52	18.29	14.19	10.80	12.40	13.47	13.02	12.15	10.22	12.43	11.04
5/20/2019 12:20	1,887	1,627	2,002	1,959	1,984	1,999	1,867	1,934	1,976	1,998	1,999	2,001	-19	2,017	2,017	13.42	11.70	15.18	14.70	15.18	18.49	14.87	12.46	13.46	15.14	15.73	15.11	15.06	14.44	14.94
5/20/2019 12:30	1,789	1,561	1,706	1,723	1,868	1,780	1,838	1,857	1,969	1,993	1,998	2,001	-12	2,001	1,977	12.30	11.21	12.83	12.31	13.37	14.96	13.30	11.04	12.25	13.01	13.21	13.97	13.80	13.39	12.27
5/20/2019 12:40	1,296	1,107	1,149	1,136	1,424	1,688	1,901	1,851	1,877	1,658	1,969	1,994	1,632	2,001	1,977	10.33	9.96	9.94	9.51	11.02	14.84	13.45	10.76	11.11	10.57	11.22	13.03	12.89	12.89	11.54
5/20/2019 12:50	1,290	966	1,476	1,778	1,981	2,017	2,012	1,415	1,816	1,956	1,984	1,970	1,944	1,909	1,639	10.54	9.24	11.92	13.06	14.21	17.39	13.78	9.12	10.76	12.67	12.28	12.30	11.44	11.33	10.21
5/20/2019 13:00	1,734	1,511	1,897	1,946	1,998	1,828	1,512	742	1,676	1,803	1,958	2,003	1,974	1,975	1,727	11.89	11.06	13.59	13.42	13.49	14.93	11.02	7.04	10.07	10.91	11.52	12.43	11.75	11.88	9.96
5/20/2019 13:10	1,699	1,326	1,615	1,715	1,876	1,923	1,583	1,034	1,781	2,015	2,000	1,999	2,013	1,911	1,568	12.14	10.68	12.19	12.05	12.69	15.29	11.57	7.94	10.29	12.18	11.86	12.90	11.54	11.26	11.16
5/20/2019 13:20	1,784	1,467	1,676	1,747	1,794	1,820	1,736	1,024	1,529	1,963	1,999	2,000	2,002	1,893	1,841	11.94	10.83	12.18	11.70	11.92	14.48	11.92	8.02	9.90	11.67	12.03	12.93	11.91	11.67	10.85
5/20/2019 13:30	1,530	1,370	1,600	1,719	1,554	1,420	1,259	916	1,764	1,721	1,877	1,921	1,958	1,946	1,708	11.49	10.54	11.92	11.70	11.09	12.74	10.47	7.61	10.21	10.42	10.97	11.31	11.97	11.71	10.52
5/20/2019 13:40	1,410	1,162	1,441	1,570	1,713	1,229	1,535	1,817	1,904	1,805	1,595	1,627	1,955	1,571	1,621	10.58	9.96	11.06	11.19	11.58	11.74	10.91	10.90	11.10	10.76	9.90	9.93	11.26	10.12	9.93
5/20/2019 13:50	1,331	1,274	1,366	1,533	1,553	1,300	1,640	1,220	1,100	1,144	1,625	2,017	138	1,472	1,555	10.18	10.03	11.25	10.91	11.23	11.98	12.26	8.62	8.33	8.49	10.11	11.14	10.34	9.74	9.65
5/20/2019 14:00	1,526	1,555	1,795	1,654	1,413	1,471	1,207	1,431	1,425	972	1,489	1,221	-25	997	1,384	11.41	11.48	13.10	11.60	10.60	12.70	9.63	9.29	9.40	7.88	9.28	8.66	8.92	8.31	9.12
5/20/2019 14:10	1,227	1,389	1,571	1,593	1,771	1,470	1,551	976	976	1,071	1,141	1,224	-18	1,279	1,218	9.84	10.68	11.80	11.32	12.20	13.03	10.98	8.03	8.11	8.52	8.60	8.73	8.81	9.20	8.59
5/20/2019 14:20	725	581	752	732	965	981	1,148	797	657	1,063	1,159	1,273	-12	1,117	1,424	8.07	7.52	8.33	7.89	8.82	10.29	9.35	7.31	7.05	8.42	8.39	8.78	8.55	8.62	9.13
5/20/2019 14:30	573	465	703	691	652	602	576	478	526	594	879	803	737	627	1,282	7.59	7.10	7.99	7.53	8.06	8.39	7.78	6.44	6.80	6.92	7.71	7.42	7.86	6.75	8.88
5/20/2019 14:40	491	594	595	433	871	1,110	1,083	574	681	597	901	831	824	628	802	7.24	7.78	7.54	6.58	8.94	10.91	9.48	6.87	7.06	7.01	7.65	7.72	7.58	7.30	7.25
5/20/2019 14:50	619	508	804	709	670	738	888	430	659	962	981	888	735	754	694	7.73	7.61	8.38	7.97	7.78	9.45	8.91	6.09	7.21	8.01	7.90	7.86	7.09	7.62	6.99
5/20/2019 15:00	705	609	865	699	943	871	664	401	690	699	839	1,125	830	1,087	886	7.64	8.32	8.66	7.91	9.19	9.80	8.14	6.01	7.03	7.19	7.54	8.34	7.34	8.70	7.63
5/20/2019 15:10	1,090	855	1,050	779	1,209	996	1,029	497	997	720	956	810	1,145	1,055	819	9.31	9.02	9.16	8.03	10.18	10.39	8.98	6.32	8.16	7.19	7.86	7.43	8.29	8.34	7.47
5/20/2019 15:20	696	640	821	798	899	1,007	1,025	565	804	775	1,041	845	1,057	1,188	1,102	7.34	7.39	8.39	8.09	8.87	10.37	9.01	6.51	7.33	7.29	8.23	7.54	7.98	8.85	8.01
5/20/2019 15:30	457	451	897	906	1,082	816	825	897	609	477	644	682	732	627	581	6.98	7.30	8.87	8.33	9.76	9.42	8.49	7.93	7.16	6.62	7.17	7.04	6.99	7.04	6.78
5/20/2019 15:40	602	403	763	845	1,059	1,124	1,095	728	902	735	813	636	828	713	747	7.57	6.58	8.05	8.19	9.44	10.94	8.75	7.34	7.83	7.37	7.50	6.93	7.43	7.13	7.34
5/20/2019 15:50	1,004	1,099	1,047	1,131	1,261	1,098	1,195	1,423	1,646	1,712	1,690	1,090	1,015	828	1,067	8.77	9.61	9.44	9.43	10.08	11.33	10.08	9.08	10.32	10.63	10.55	8.49	8.20	7.75	8.25
5/20/2019 16:00	1,164	1,463	1,563	1,590	1,764	1,668	1,709	1,517	1,195	1,355	1,326	1,044	1,374	1,489	1,583	9.57	10.56	11.66	11.21	11.54	13.33	11.76	9.39	8.50	8.76	8.60	8.00	8.80	9.69	9.36
5/20/2019 16:10	1,483	1,215	1,691	1,581	1,845	1,659	1,869	1,343	1,454	1,384	1,491	1,265	1,170	1,305	1,554	10.46	9.77	11.78	11.16	11.92	13.06	12.65	8.80	9.17	8.90	9.25	8.59	8.28	8.73	9.50
5/20/2019 16:20	1,213	1,264	1,461	1,476	1,731	1,519	1,619	1,062	1,171	1,023	1,303	941	832	1,281	1,572	10.05	9.55	11.03	10.05	11.50	12.46	11.59	8.11	8.42	8.05	8.51	7.51	7.04	8.75	9.29
5/20/2019 16:30	1,299	1,385	1,493	1,458	1,768	1,674	1,538	1,087	1,367	1,392	1,175	1,235	1,376	1,566	1,768	10.42	10.27	11.45	10.18	11.61	13.31	11.19	8.38	8.99	9.20	8.51	8.41	8.96	9.98	9.89
5/20/2019 16:40	1,665	1,170	1,431	1,564	1,840	1,607	1,707	1,249	1,171	1,060	1,687	1,172	1,687	1,864	1,268	11.20	9.58	11.23	10.68	12.04	13.27	11.77	8.50	8.56	8.20	10.02	8.50	9.70	10.68	8.55
5/20/2019 16:50	1,720	1,364	1,534	1,716	1,848	1,735	1,800	1,479	1,403	1,634	1,743	1,460	1,342	1,690	1,718	11.48	10.89	11.71	11.46	12.09	13.65	12.37	9.45	9.16	9.82	10.25	9.11	8.59	10.16	9.85
5/20/2019 17:00	1,609	1,639	1,772	1,674	1,935	1,862	1,736	1,855	1,662	1,813	1,578	1,703	1,698	1,957	1,768	10.87	11.90	12.88	11.43											

5/20/2019 20:50	2,000	2,000	1,889	2,000	1,936	1,945	2,000	1,998	1,995	1,953	1,993	2,005	1,999	2,000	1,729	19.22	19.80	24.80	21.13	23.66	25.25	20.21	19.22	18.67	19.56	20.09	19.89	18.26	18.53	19.62
5/20/2019 21:00	2,000	2,000	1,906	2,000	2,000	1,918	1,993	1,998	1,988	1,922	1,956	2,000	1,984	2,000	993	19.67	19.29	23.68	20.38	20.10	23.34	20.35	19.07	20.42	21.11	21.87	16.62	19.50	19.45	18.15
5/20/2019 21:10	1,999	2,000	1,975	2,000	1,985	1,892	2,000	1,952	1,974	1,934	1,794	1,996	1,961	2,000	1,987	17.62	18.10	22.28	20.64	21.31	24.28	21.32	21.91	19.61	19.87	23.03	19.33	19.64	20.24	20.74
5/20/2019 21:20	2,000	2,000	1,990	1,999	1,989	1,956	2,000	1,705	1,968	637	834	1,996	1,269	2,000	1,999	18.96	19.68	23.19	21.85	22.07	24.61	20.42	21.31	21.45	21.03	22.82	19.00	20.01	21.22	18.40
5/20/2019 21:30	1,998	2,000	2,000	2,000	2,000	1,987	2,000	1,103	1,983	1,972	1,596	2,000	1,372	2,000	2,000	16.31	16.91	22.53	18.92	21.54	23.08	18.83	18.94	19.35	21.09	21.81	17.66	19.68	20.32	18.53
5/20/2019 21:40	2,003	2,000	2,000	2,000	2,000	1,978	1,999	1,999	1,997	2,001	1,998	2,000	2,000	2,001	1,999	18.30	18.33	20.65	17.25	19.42	23.74	19.04	16.13	16.28	17.77	17.75	15.22	15.63	17.10	17.54
5/20/2019 21:50	1,931	1,949	1,983	1,997	2,000	1,984	1,977	1,998	1,999	1,999	1,998	1,999	2,000	2,001	1,999	14.16	15.71	16.23	15.28	17.18	19.30	18.32	16.22	15.56	16.31	16.92	16.81	14.03	15.28	14.39
5/20/2019 22:00	1,640	1,703	1,814	1,800	1,994	1,914	1,903	2,001	1,999	1,993	2,001	1,995	2,000	2,000	1,999	11.83	12.33	14.42	12.88	15.09	16.87	14.87	15.35	15.24	14.89	15.22	14.38	15.00	15.91	13.42
5/20/2019 22:10	1,192	1,362	1,605	1,366	1,646	1,680	1,618	1,996	1,978	2,004	1,994	1,954	1,900	1,921	2,001	9.48	11.02	12.85	10.33	11.68	14.45	11.74	13.79	12.62	13.60	14.09	13.07	11.14	12.90	14.66
5/20/2019 22:20	1,358	1,287	1,258	1,353	1,362	1,419	1,448	1,742	1,836	1,951	1,998	1,776	1,723	1,794	1,712	10.01	10.53	10.52	10.38	10.21	13.29	10.97	10.86	11.86	14.14	14.31	11.02	10.39	11.68	10.81
5/20/2019 22:30	349	541	464	596	491	693	488	591	619	610	651	930	664	641	594	10.89	10.83	13.40	10.33	10.48	14.94	12.64	12.13	15.80	13.52	16.04	13.53	12.00	12.29	11.05
5/20/2019 22:40	-23	-17	-15	-13	-16	-15	-16	-21	-21	-23	-19	-19	-21	-20	-17	12.12	11.92	15.82	13.05	13.81	16.78	13.87	15.78	15.26	14.38	17.57	16.51	14.18	15.54	13.34
5/20/2019 22:50	-20	-12	-12	-10	-11	-10	-10	-12	-11	-12	-10	-11	-12	-12	-11	12.89	14.80	17.75	13.98	13.62	15.54	14.44	12.16	13.78	14.16	14.20	12.93	13.25	12.59	12.20
5/20/2019 23:00	730	797	814	712	809	763	809	735	765	816	733	586	745	806	703	12.34	12.31	16.13	11.88	13.16	17.33	16.23	10.73	12.73	12.62	12.50	11.24	10.41	12.03	10.42
5/20/2019 23:10	1,761	1,878	1,877	1,951	1,966	1,729	1,970	1,892	1,888	1,934	2,007	1,948	1,720	1,725	1,754	12.03	12.39	14.28	13.50	13.25	14.41	13.61	11.03	12.31	12.06	12.35	12.32	9.87	10.71	10.98
5/20/2019 23:20	1,724	1,738	1,836	1,850	1,886	1,974	1,894	1,756	1,868	1,797	1,857	1,873	1,484	1,641	1,635	11.55	11.30	13.86	12.35	14.09	16.44	13.92	10.05	12.09	11.02	11.89	10.77	9.44	10.22	10.33
5/20/2019 23:30	1,526	1,691	1,878	1,631	1,795	1,885	1,965	1,239	1,868	1,750	1,828	1,327	1,314	1,272	1,503	10.59	11.43	14.04	11.10	11.89	15.49	13.63	8.67	11.26	11.33	10.67	9.00	8.70	9.19	9.71
5/20/2019 23:40	1,710	1,721	1,629	1,668	1,807	1,715	1,937	1,599	1,638	1,998	1,645	1,085	1,514	1,287	1,416	11.43	11.39	12.44	11.63	11.78	14.12	13.41	10.41	10.23	12.28	10.40	8.36	9.35	9.63	9.36
5/20/2019 23:50	1,470	1,538	1,270	1,328	1,553	1,412	1,632	1,713	1,679	1,832	1,650	1,408	1,504	1,704	1,690	10.38	10.55	10.66	9.74	10.66	12.08	10.75	10.70	10.37	11.05	10.67	9.38	9.34	10.28	9.92
5/21/2019 0:00	1,242	986	1,330	1,266	1,730	1,368	1,714	1,938	1,863	1,846	1,851	1,793	1,602	1,411	1,702	9.25	8.63	10.68	9.87	11.32	12.09	11.61	10.82	11.69	11.08	10.68	10.48	9.53	9.55	10.24
5/21/2019 0:10	1,197	1,059	1,295	1,097	1,405	1,447	1,391	1,768	1,874	1,810	1,778	1,382	1,510	1,559	1,800	9.72	9.11	10.86	9.11	10.73	12.43	10.22	10.56	10.80	10.50	11.16	9.20	9.40	10.35	10.37
5/21/2019 0:20	1,416	1,622	1,629	1,571	1,754	1,346	1,636	1,556	1,839	1,912	1,870	1,813	1,804	1,790	1,703	10.20	10.92	12.23	10.50	11.52	12.02	11.22	9.61	11.10	11.13	11.43	10.70	10.30	10.78	10.05
5/21/2019 0:30	1,528	1,515	1,523	1,569	1,783	1,789	1,946	1,683	1,934	1,927	2,009	1,878	1,901	1,805	1,657	10.98	10.32	11.74	10.88	11.64	14.46	12.93	10.25	11.73	11.54	12.44	11.07	11.19	10.99	10.12
5/21/2019 0:40	1,647	1,159	1,334	1,687	1,847	1,360	1,655	1,856	1,955	1,821	2,001	1,889	1,624	1,853	1,676	11.60	9.56	11.22	11.50	12.08	12.18	11.74	10.64	12.53	11.27	12.87	11.18	9.96	11.08	9.82
5/21/2019 0:50	392	96	713	613	437	651	647	728	594	592	719	874	510	706	770	9.57	9.47	13.29	9.68	10.50	12.96	12.22	10.31	11.11	10.83	11.11	10.89	9.97	11.20	9.27
5/21/2019 1:00	-20	-12	-14	-10	-11	-9	-10	-27	-21	-22	-20	-10	-12	-11	-10	9.51	9.10	11.18	10.33	10.01	13.63	10.71	10.90	10.16	11.27	11.50	10.58	10.24	9.75	8.94
5/21/2019 1:10	745	861	888	-2	808	922	1,141	858	826	1,106	988	941	925	1,020	706	9.21	10.28	11.30	9.16	10.87	13.03	12.05	8.89	9.90	10.17	10.65	9.76	8.95	10.95	8.79
5/21/2019 1:20	1,329	1,212	1,621	-2	1,437	1,438	1,687	1,265	1,457	1,437	1,666	1,515	1,338	1,423	1,500	9.91	9.52	12.03	11.70	10.45	12.24	10.91	8.59	9.32	9.09	9.83	9.75	8.58	9.66	9.10
5/21/2019 1:30	1,419	1,470	1,591	-3	1,684	1,912	1,985	1,916	1,493	1,812	1,684	1,804	1,577	1,192	1,266	10.58	10.99	11.74	10.66	11.33	14.76	13.47	10.70	9.32	10.89	10.08	10.38	9.72	8.65	8.54
5/21/2019 1:40	1,723	1,728	1,666	-3	1,769	1,851	1,851	1,976	1,804	1,766	1,845	1,757	1,393	1,704	1,804	11.06	11.95	12.52	10.44	11.17	14.39	12.49	11.11	10.80	10.81	10.51	10.15	8.78	10.27	10.56
5/21/2019 1:50	1,253	1,543	1,741	-3	1,914	1,838	1,831	1,901	1,876	1,814	1,892	1,827	1,419	1,492	1,901	9.75	11.02	12.84	11.68	12.50	15.03	11.80	11.61	10.72	10.93	10.96	10.32	9.01	9.71	11.36
5/21/2019 2:00	1,751	1,443	1,603	-4	1,934	1,689	1,855	1,821	1,941	2,000	1,992	1,816	1,850	1,926	1,524	11.32	10.52	12.14	12.78	13.00	14.00	12.03	10.46	11.46	12.57	11.89	10.33	10.29	10.69	9.47
5/21/2019 2:10	1,873	1,699	1,698	-4	1,885	1,921	1,978	1,992	2,002	2,000	2,005	1,918	1,636	1,954	2,013	12.81	11.75	12.17	12.89	13.03	14.88	12.80	11.50	11.95	13.03	12.87	10.55	9.69	11.36	12.36
5/21/2019 2:20	1,825	1,665	1,646	-4	1,857	1,768	1,914	1,991	1,997	1,944	2,000	1,921	1,701	1,896	1,961	11.98	12.06	12.37	12.75	12.48	14.41	12.29	11.92	11.82	11.53	12.28	11.29	10.00	11.60	11.26
5/21/2019 2:30	1,771	1,631	1,830	-5	1,957	1,901	1,932	1,909	1,977	1,997	2,000	1,921	1,822	1,872	1,927	11.83	11.37	13.39	12.91	13.32	14.76	12.50	10.97	11.53	12.25	13.64	11.13	10.39	11.61	11.31
5/21/2019 2:40	2,014	1,855	1,784	-5	1,963	1,792	1,898	1,955	1,979	1,999	1,993	2,004	1,755	1,978	1,953	13.51	12.51	13.15	13.83	13.46	14.98	12.97	10.76	11.73	12.48	12.50	12.40	10.41	11.19	11.53
5/21/2019 2:50	1,923	1,861	1,750	-5	1,930	1,955	1,992	1,962	2,003	1,996	2,005	1,938	1,845	1,946	1,881	13.07	12.88	13.47	13.67	13.23	15.70	13.39	11.41	13.68	13.19	13.31	11.44	10.94	11.94	11.03
5/21/2019 3:00	1,794	1,820	1,769	-6	1,939	1,728	1,801	2,009	1,999	2,003	2,000	2,013	1,671	1,949	1,984	12.07	12.52	13.34	13.49	12.69	14.13	12.25	13.15	12.67	12.83	13.19	12.44	9.95	12.21	12.62
5/21/2019 3:10	1,882	1,957	1,973	-6	1,977	1,931	2,011	2,000	2,000	1,999	1,999	1,997	1,962	2,005	1,999	13.27	14.07	15.63	14.09	14.39	16.20	14.41	12.82	13.48	14.05	14.33	12.43	12.41	13.65	14.23
5/21/2019 3:20	1,950	2,004	2,000	-6	1,864	1,989	2,001	1,992	1,999	1,999																				

5/21/2019 7:10	1,212	1,644	1,645	1,553	1,489	1,460	1,575	2,009	1,784	1,541	1,862	1,811	1,649	1,637	1,486	9,71	11.22	12.25	10.73	10.54	12.25	11.34	11.23	10.37	9.37	10.95	10.61	9.71	10.09	9.47	
5/21/2019 7:20	1,940	1,704	1,963	1,429	1,273	1,436	1,802	1,934	1,846	2,018	1,988	1,716	1,432	1,405	1,823	13.45	12.26	14.51	10.55	10.15	12.88	12.41	11.54	12.38	13.75	12.99	10.63	9.30	9.42	10.43	
5/21/2019 7:30	1,787	1,893	1,473	1,274	1,562	1,631	1,728	1,942	1,845	1,998	2,001	1,965	1,867	1,760	1,505	12.46	12.63	12.50	10.89	11.28	13.59	12.35	11.08	11.55	13.35	13.93	12.54	11.02	10.94	9.28	
5/21/2019 7:40	1,553	1,510	1,441	1,053	1,626	1,799	1,767	2,005	1,951	1,842	1,787	1,835	1,874	1,912	1,937	10.67	11.02	11.64	10.93	11.15	13.98	12.41	12.57	12.12	11.54	11.19	10.99	11.60	12.65	12.90	
5/21/2019 7:50	1,368	1,431	1,235	42	1,740	1,789	1,734	1,847	1,799	1,743	1,579	1,673	1,897	1,771	1,730	10.33	10.65	10.85	12.58	12.05	14.24	12.75	11.69	10.77	10.42	10.21	10.34	11.55	11.04	10.44	
5/21/2019 8:00	1,128	1,578	1,782	24	1,636	1,649	1,899	1,619	1,854	1,962	2,006	2,012	2,007	1,995	1,779	10.23	11.28	13.32	12.99	10.91	13.67	12.65	9.63	10.48	11.84	13.15	14.28	12.81	12.68	10.39	
5/21/2019 8:10	1,684	1,628	1,938	7	1,756	1,777	1,838	1,883	2,016	1,961	1,990	1,972	1,882	1,943	1,975	11.64	11.37	14.42	13.40	12.73	15.15	12.33	11.47	12.66	13.07	11.94	11.46	10.88	11.79	11.39	
5/21/2019 8:20	1,811	1,942	1,990	-6	1,995	1,904	1,979	2,001	1,999	1,992	1,978	1,724	1,852	1,811	1,889	12.03	13.02	14.88	12.60	14.27	16.21	13.92	13.76	13.26	12.61	13.11	10.62	11.21	11.16	11.51	
5/21/2019 8:30	1,630	1,631	1,817	1,443	1,880	1,715	1,902	1,963	1,662	1,932	1,819	1,914	1,530	1,334	1,517	11.47	11.22	13.16	12.54	12.49	14.24	13.10	11.90	10.99	11.29	12.00	11.83	10.33	9.63	9.40	
5/21/2019 8:40	1,690	1,692	1,984	1,982	1,946	1,853	1,708	1,876	1,822	1,925	1,984	1,691	1,608	1,841	1,965	12.01	11.82	14.84	13.38	13.19	14.76	11.18	12.25	11.84	12.24	11.29	10.08	10.00	11.05	11.74	
5/21/2019 8:50	1,817	1,470	1,717	1,903	1,815	1,673	1,500	1,900	1,892	1,738	1,973	1,947	1,783	1,789	1,797	12.73	10.99	13.38	12.56	12.09	13.93	10.90	12.25	12.08	11.39	12.83	11.78	10.20	11.68	11.19	
5/21/2019 9:00	1,809	1,628	1,615	1,436	1,204	1,157	1,136	1,959	1,535	1,955	1,925	1,909	1,997	1,941	1,768	12.58	11.59	12.73	10.49	9.62	11.43	9.60	12.15	11.15	12.21	13.63	12.46	13.28	13.29	11.04	
5/21/2019 9:10	1,853	1,930	1,908	1,440	972	1,438	1,194	1,999	1,932	1,982	2,009	2,011	1,859	1,677	1,776	12.83	13.52	14.14	10.73	9.62	12.88	10.89	13.77	12.50	14.35	15.53	14.01	11.71	11.11	11.38	
5/21/2019 9:20	2,003	2,015	2,020	1,917	1,616	1,478	1,532	2,000	2,013	1,994	1,944	1,920	1,700	1,579	1,709	14.86	15.52	16.58	13.53	12.03	13.24	10.56	13.93	12.81	13.50	13.30	11.95	10.54	10.60	10.87	
5/21/2019 9:30	1,799	1,925	1,971	1,916	1,914	1,901	1,902	2,001	1,999	2,000	2,002	2,014	1,964	2,001	2,003	12.37	13.76	15.05	14.10	14.12	16.09	13.84	15.74	13.43	15.15	15.91	15.04	13.24	14.35	14.63	
5/21/2019 9:40	1,961	1,634	1,515	1,901	1,876	1,731	1,611	2,000	1,982	1,998	1,999	1,987	2,004	1,999	1,988	14.24	13.86	13.77	13.64	13.51	14.85	13.22	15.91	12.68	13.83	13.83	14.75	14.44	13.50	14.72	14.30
5/21/2019 9:50	2,016	1,873	1,929	1,975	1,972	1,768	1,801	1,998	1,998	2,000	1,999	1,984	1,999	1,983	1,999	15.30	13.25	16.18	14.99	14.56	15.73	14.02	13.22	15.24	15.15	14.79	13.22	12.89	13.68	13.62	
5/21/2019 10:00	2,000	2,009	1,748	1,729	1,818	1,789	1,770	1,999	1,999	1,999	2,000	592	1,997	2,002	1,975	15.40	15.44	14.68	12.12	12.97	15.22	12.72	15.79	15.49	14.53	14.07	12.75	13.17	14.23	13.89	
5/21/2019 10:10	2,001	1,983	2,003	1,986	1,922	1,832	1,512	2,000	2,000	1,998	1,999	0	2,001	1,992	1,999	16.22	15.24	15.86	15.50	14.63	15.91	11.14	13.96	16.79	14.90	16.71	13.45	13.96	14.60	14.26	
5/21/2019 10:20	1,991	2,012	1,977	1,912	1,960	1,944	1,585	1,999	2,000	1,999	2,000	-2	1,969	2,007	1,994	15.51	15.86	17.06	14.19	14.77	16.93	11.89	15.45	15.27	15.61	16.04	16.07	12.80	14.35	14.09	
5/21/2019 10:30	1,911	1,867	2,000	2,002	1,999	2,013	2,000	1,998	2,000	2,000	2,000	-3	2,000	2,001	2,005	13.87	13.76	17.30	16.89	17.10	17.64	14.90	13.58	14.94	15.52	14.34	15.95	13.88	14.77	14.71	
5/21/2019 10:40	1,762	1,964	1,997	1,981	1,974	1,988	1,997	2,000	2,000	2,000	1,983	-4	1,999	2,000	2,000	12.73	14.22	17.00	15.62	15.89	18.16	15.24	15.29	15.28	13.34	12.52	14.09	12.51	13.76	13.43	
5/21/2019 10:50	2,002	2,000	2,000	2,002	1,999	1,959	1,996	1,999	1,999	1,997	2,004	-5	2,000	1,999	2,000	15.93	16.21	19.18	16.61	15.69	17.98	16.15	14.88	13.35	13.83	15.73	16.99	13.44	15.45	15.60	
5/21/2019 11:00	1,927	1,996	1,997	1,777	1,765	1,728	1,990	1,999	2,000	2,001	2,000	-6	1,914	1,830	1,973	14.30	15.23	16.97	14.21	13.31	16.18	15.76	15.24	15.23	15.13	15.16	16.24	11.49	11.09	13.45	
5/21/2019 11:10	2,005	2,002	2,002	1,504	2,001	1,966	1,974	1,992	1,996	1,999	2,000	-8	1,949	1,821	2,013	16.63	17.47	18.41	14.53	16.15	18.54	16.67	12.89	14.69	15.03	15.10	15.49	11.62	11.76	13.51	
5/21/2019 11:20	2,000	1,999	2,000	1,975	1,977	2,003	2,020	2,004	1,988	1,999	1,999	-9	1,995	2,001	2,000	17.70	16.30	18.05	16.01	16.55	19.84	17.10	14.50	13.30	15.12	14.24	14.79	12.92	13.44	14.23	
5/21/2019 11:30	1,957	1,997	1,991	2,006	2,013	1,817	1,858	2,001	2,004	2,000	2,001	1,217	1,915	1,918	2,000	15.08	15.84	18.12	16.20	15.98	16.42	14.31	16.97	14.24	14.50	14.40	12.80	11.74	12.53	13.96	
5/21/2019 11:40	2,006	1,966	2,006	2,000	2,002	2,019	2,005	1,967	1,995	2,000	2,000	1,989	1,811	1,906	1,969	16.16	13.89	17.04	16.28	17.19	19.52	16.73	12.34	13.76	15.06	15.79	15.02	12.40	13.29	13.94	
5/21/2019 11:50	1,955	1,949	2,001	1,984	1,994	1,972	2,009	2,017	1,973	1,981	1,873	1,906	1,997	1,986	1,968	14.66	13.92	17.32	15.64	16.56	18.78	15.91	14.60	13.26	13.23	12.19	11.49	11.53	12.68	12.66	
5/21/2019 12:00	1,945	2,017	1,995	1,999	1,999	1,971	2,003	1,998	1,999	2,004	2,010	1,860	1,941	1,956	2,019	15.55	16.20	18.78	16.60	17.73	19.56	16.48	13.87	15.33	16.29	15.00	11.92	12.74	13.61	15.04	
5/21/2019 12:10	1,879	1,971	1,926	1,981	1,963	1,723	1,893	1,997	2,000	1,999	1,998	1,975	1,927	1,942	1,968	13.49	13.84	15.36	15.40	15.02	16.00	13.52	14.27	15.59	16.34	14.04	12.38	12.13	12.69	12.87	
5/21/2019 12:20	1,626	2,015	2,020	1,874	1,844	1,668	1,721	1,999	1,998	1,972	1,688	1,928	1,971	2,005	1,989	14.67	15.82	17.37	13.57	13.14	14.48	12.81	15.39	13.34	12.60	13.97	13.64	13.16	13.80	13.65	
5/21/2019 12:30	1,539	2,002	2,000	1,949	1,939	1,967	2,017	1,999	1,999	2,005	2,000	1,905	1,739	1,537	1,918	13.44	14.43	16.87	14.05	13.74	16.62	15.45	16.29	15.00	15.78	13.68	12.31	10.66	10.59	11.88	
5/21/2019 12:40	1,913	1,984	1,916	1,714	1,545	1,489	1,545	2,000	1,870	2,001	1,998	1,999	1,994	1,984	1,973	14.24	14.53	14.97	12.07	11.21	13.14	11.19	13.79	11.55	13.16	13.12	12.24	12.60	13.18	13.92	
5/21/2019 12:50	1,984	1,921	1,999	2,002	2,003	1,909	1,981	2,000	2,000	1,994	1,941	1,734	1,713	1,889	1,986	14.53	14.49	17.40	14.95	14.93	17.17	14.68	14.51	14.85	13.39	12.12	10.53	10.40	11.48	12.49	
5/21/2019 13:00	1,903	1,976	2,000	2,016	1,970	1,848	1,698	2,000	2,001	2,000	2,013	1,977	1,915	1,777	1,817	13.58	14.19	18.45	15.71	14.69	16.61	12.93	15.06	14.41	15.17	14.85	13.09	11.30	10.75	10.73	
5/21/2019 13:10	1,824	1,857	1,813	1,931	1,944	1,948	1,967	2,000	1,998	1,944	2,000	1,998	1,995	2,006	2,015	13.37	13.30	15.14	13.67	13.47	16.42	15.02	15.60	13.87	12.37	13.77	12.59	11.71	13.10	13.18	
5/21/2019 13:20	1,853	1,919	1,943	2,012	1,995	1,818	1,841	1,999	2,001	2,006	2,001	1,915	1,843	1,892	2,002	13.14	13.39	15.09	14.73	14.22	15.89	14.06	16.51	15.61	14.13	12.79	12.07	11.11	11.56	13.37	
5/21/2019 13:30	1,678	1,771	1,989	1,895	1,889	1,																									

5/21/2019 17:30	1,771	1,910	1,934	1,911	1,958	1,564	1,441	1,700	1,740	1,826	1,633	1,420	1,307	1,193	1,853	12.37	12.77	14.27	12.89	13.16	12.75	10.22	9.98	9.99	10.48	9.69	8.91	8.34	8.16	10.90
5/21/2019 17:40	1,783	1,776	1,685	1,806	1,827	1,150	951	1,923	1,905	1,912	1,808	1,505	995	1,029	1,499	12.62	11.76	12.48	11.79	11.61	10.39	8.06	11.72	12.10	11.27	10.50	9.38	7.96	7.70	9.17
5/21/2019 17:50	1,920	1,924	1,740	1,815	1,849	1,173	920	2,004	1,716	1,823	1,780	1,158	730	857	1,456	12.94	12.78	12.70	11.54	11.77	11.04	7.84	12.06	10.57	10.54	10.49	8.44	6.97	7.19	9.26
5/21/2019 18:00	2,007	1,946	1,889	1,758	1,964	1,669	1,389	1,960	1,762	1,667	1,616	771	310	884	980	14.57	13.76	14.02	12.28	13.24	13.35	10.94	10.82	9.99	9.79	9.50	7.60	5.35	7.05	7.51
5/21/2019 18:10	1,940	1,845	1,883	1,873	1,916	1,446	961	1,706	1,942	1,937	1,873	1,704	1,468	1,106	1,896	12.71	12.50	14.27	12.98	13.19	11.94	7.62	9.89	10.94	11.37	11.38	10.29	9.19	7.66	11.23
5/21/2019 18:20	2,001	1,926	1,959	1,870	1,933	1,633	1,230	1,901	1,850	1,919	1,999	1,838	1,465	1,228	1,908	13.84	12.89	15.54	12.48	13.56	12.78	8.70	10.78	10.39	10.79	11.21	10.48	8.99	8.16	10.57
5/21/2019 18:30	1,856	1,810	1,867	1,752	1,603	830	568	1,871	1,629	1,922	1,996	1,728	1,533	1,161	1,947	13.03	12.20	13.95	12.01	11.35	8.94	6.50	10.49	9.59	10.51	10.85	10.42	9.68	8.27	10.90
5/21/2019 18:40	1,837	1,839	2,000	2,017	2,011	1,735	1,592	2,015	1,781	1,683	1,895	1,572	1,388	1,231	1,869	12.40	13.02	14.99	14.34	13.79	13.32	10.90	11.35	10.55	10.46	10.59	9.63	8.72	8.48	10.80
5/21/2019 18:50	1,866	1,697	2,005	1,964	1,971	1,640	1,441	1,994	1,882	1,899	1,998	1,664	1,601	1,266	1,931	12.61	11.88	14.71	13.49	13.88	13.02	9.73	11.09	10.81	10.94	11.26	9.93	9.64	8.43	11.18
5/21/2019 19:00	1,944	1,961	1,910	1,764	1,764	1,177	1,064	1,939	1,816	1,888	1,933	1,752	1,290	1,153	1,857	13.76	13.34	13.13	12.08	11.59	10.85	8.37	11.08	10.95	10.70	11.22	10.47	8.85	7.85	10.29
5/21/2019 19:10	2,005	1,926	2,015	2,019	2,003	1,908	1,788	2,013	1,947	1,999	1,996	1,862	1,587	1,435	1,946	14.18	13.04	15.86	14.26	15.94	15.45	12.09	11.67	11.29	11.72	11.83	10.89	9.39	9.04	11.42
5/21/2019 19:20	1,995	1,972	1,987	1,861	1,859	1,517	1,362	2,000	2,004	1,957	1,991	1,771	1,527	1,445	2,018	14.68	13.83	15.06	13.05	12.77	12.62	9.60	12.01	11.63	11.20	11.54	10.42	9.26	9.02	11.94
5/21/2019 19:30	2,010	1,958	2,011	1,998	2,006	1,861	1,646	1,997	1,865	1,940	1,981	1,794	1,678	1,325	1,999	13.70	13.10	15.74	13.74	15.40	14.22	10.27	11.21	10.95	11.31	11.01	10.14	9.73	8.12	11.89
5/21/2019 19:40	1,934	1,882	1,998	2,002	1,994	1,725	1,437	2,000	1,679	1,565	1,765	1,670	1,651	1,422	1,999	13.06	12.41	15.06	14.17	14.18	13.20	10.48	11.40	9.98	9.77	10.07	9.79	9.54	8.98	11.43
5/21/2019 19:50	1,897	1,972	1,985	1,998	2,001	1,918	1,726	1,934	1,739	1,866	1,863	1,608	1,601	1,498	2,000	13.02	14.08	15.69	14.30	14.59	14.34	12.38	10.38	10.07	10.53	10.37	9.86	9.58	9.31	11.41
5/21/2019 20:00	2,011	1,989	2,006	1,975	1,980	1,595	1,392	2,002	1,921	1,865	1,982	1,851	1,620	1,521	1,999	13.94	13.74	14.62	13.22	13.28	12.37	10.03	11.03	10.79	10.55	11.63	10.61	9.48	9.11	12.08
5/21/2019 20:10	414	487	600	606	434	544	294	485	399	521	279	210	210	401	512	13.40	14.36	15.80	14.00	14.71	16.83	14.08	11.42	11.67	11.39	11.51	9.95	9.48	11.35	12.74
5/21/2019 20:20	-19	-23	-20	-15	-18	-10	-9	-24	-19	-19	-15	-10	-11	-9	-18	15.36	14.09	16.80	15.23	15.79	18.36	15.70	10.82	10.91	10.90	11.69	11.60	11.46	12.92	13.50
5/21/2019 20:30	1,707	1,634	1,705	-3	1,712	1,671	1,648	1,694	1,685	1,503	1,698	1,661	1,614	1,543	1,697	14.25	12.50	15.84	15.02	15.06	16.17	13.79	10.91	11.23	10.72	11.64	11.15	10.09	10.25	12.43
5/21/2019 20:40	1,923	1,946	1,958	-3	1,999	1,795	1,685	1,994	1,757	1,866	1,934	1,783	1,916	1,744	1,994	12.58	13.06	14.34	14.84	14.02	14.30	11.37	11.92	10.11	10.87	10.66	10.20	10.39	9.80	11.27
5/21/2019 20:50	1,819	1,956	1,959	-3	1,987	1,758	1,747	2,005	1,983	2,014	2,017	1,846	1,747	1,546	2,003	12.57	14.18	14.24	13.57	12.79	13.67	11.92	11.58	11.60	12.48	12.26	10.69	10.09	9.38	11.99
5/21/2019 21:00	1,979	1,914	1,932	-3	2,011	1,751	1,561	1,997	1,946	1,964	1,999	1,967	1,868	1,785	1,999	12.74	12.87	14.44	13.86	13.91	14.11	10.48	11.95	11.27	11.17	11.44	10.90	10.64	10.46	12.62
5/21/2019 21:10	1,952	1,865	1,998	-3	1,997	1,727	1,543	2,001	1,983	1,932	1,912	1,673	1,653	1,679	1,996	13.22	12.38	15.15	13.45	13.36	13.69	10.88	12.11	11.22	10.63	10.67	10.15	10.03	10.42	12.40
5/21/2019 21:20	1,907	1,612	1,864	-2	1,907	1,349	1,244	1,983	1,775	1,817	1,909	1,498	1,592	1,572	1,967	12.53	11.01	12.87	11.55	11.85	11.48	9.48	10.82	10.17	10.22	10.32	9.16	9.28	9.52	11.51
5/21/2019 21:30	1,762	1,609	1,951	-2	1,932	1,400	1,192	2,000	1,939	1,987	2,009	1,819	1,504	1,052	1,979	11.47	11.06	13.34	12.35	12.14	11.41	8.90	11.16	10.76	11.12	12.12	10.74	9.19	8.14	10.54
5/21/2019 21:40	1,847	1,732	1,929	-2	2,002	1,476	1,199	1,982	2,011	2,011	1,976	1,616	1,506	1,437	2,006	12.49	11.10	13.79	12.25	12.91	11.85	9.00	10.73	11.66	11.88	10.92	9.53	9.09	8.94	11.25
5/21/2019 21:50	1,859	1,717	1,817	-2	1,939	1,231	908	1,999	1,874	1,755	1,962	1,820	1,690	1,336	1,969	12.65	11.14	12.83	10.94	12.29	10.48	7.45	11.11	10.50	9.95	10.70	9.98	9.60	8.34	11.08
5/21/2019 22:00	1,930	1,744	1,890	-2	1,959	1,442	974	2,014	1,903	2,001	1,755	1,417	1,075	732	1,804	12.42	11.55	13.64	12.29	13.17	12.08	8.53	11.98	10.44	10.66	9.91	9.24	7.99	6.40	10.09
5/21/2019 22:10	1,866	1,738	1,906	-2	1,915	1,417	1,101	2,000	1,813	1,848	1,913	1,603	1,314	800	1,960	12.67	11.22	13.43	12.49	12.79	11.45	8.12	10.63	9.85	10.35	10.45	9.41	8.71	6.73	10.71
5/21/2019 22:20	1,945	1,667	1,704	-2	1,975	1,314	851	1,956	1,553	1,907	1,979	1,613	1,196	883	1,855	12.56	11.30	12.23	12.10	12.57	11.16	7.74	10.59	9.25	10.40	10.93	9.76	8.26	6.86	10.40
5/21/2019 22:30	455	422	541	-2	399	582	140	415	329	393	424	562	537	259	547	12.08	11.82	13.19	12.65	13.49	14.93	11.76	10.12	9.12	9.39	10.50	9.15	8.94	9.22	10.68
5/21/2019 22:40	-28	-15	-19	-2	-18	-9	-9	-22	-18	-19	-17	-12	-13	-9	-16	11.96	11.30	13.83	11.42	12.87	15.18	12.25	10.48	9.48	10.38	10.91	9.62	8.35	10.06	10.94
5/21/2019 22:50	1,568	1,418	1,401	-2	1,427	882	840	1,681	1,540	1,609	1,567	1,020	944	789	1,508	11.75	10.83	11.92	10.23	10.91	10.84	9.07	10.96	10.09	10.64	10.12	8.53	8.26	7.65	10.30
5/21/2019 23:00	1,393	1,318	1,362	-2	1,517	954	870	1,987	1,933	1,775	1,711	1,132	970	554	1,366	9.91	10.02	10.51	9.71	10.55	9.83	8.14	10.79	10.16	9.91	9.61	8.32	7.77	5.89	8.68
5/21/2019 23:10	1,509	1,279	1,410	-2	1,440	880	820	1,964	1,561	1,485	1,640	1,247	995	666	1,380	10.66	9.67	10.52	9.51	10.36	9.60	8.27	10.52	9.18	8.99	9.33	8.70	7.98	6.46	8.67
5/21/2019 23:20	1,491	1,330	1,341	-2	1,454	865	850	1,780	1,426	1,154	1,191	912	699	389	1,183	10.45	10.09	10.07	9.48	10.53	9.36	8.34	9.69	8.96	8.43	8.30	7.64	7.09	4.71	8.18
5/21/2019 23:30	1,467	1,254	1,484	-2	1,588	702	627	1,596	1,655	1,381	1,550	1,013	567	355	1,176	10.21	9.69	10.62	9.68	10.75	7.87	6.55	9.13	9.46	8.83	9.17	8.11	6.39	5.06	8.29
5/21/2019 23:40	1,467	1,057	1,465	-2	1,774	595	403	1,618	1,546	1,620	1,728	1,084	683	366	1,248	9.80	8.48	10.60	9.94	11.20	7.24	5.37	9.29	9.15	9.43	9.53	8.29	6.99	4.91	8.33
5/21/2019 23:50	1,628	1,090	1,473	-2	1,722	527	409	1,302	1,350	1,431	1,470	845	515	286	952	10.67	8.81	10.43	9.80	11.08	7.03	5.80	8.53	8.60	8.98	8.86	7.88	6.44	4.52	7.62
5/22/2019 0:00	1,738	1,269	1,557	-2	1,761	667	534	1,555	1,307	1,320	1,461	1,012	829	313	1,468	11.17	9.62	11.01	10.16	11.18	7.79	6.39	9.13							

5/22/2019 3:50	1,867	1,815	1,826	1,686	1,853	1,981	1,929	2,018	2,008	1,969	1,962	1,012	727	1,958	1,852	12.42	12.41	13.23	11.73	12.17	15.93	13.44	11.80	11.66	11.56	11.07	7.64	6.73	11.60	10.17
5/22/2019 4:00	1,691	1,774	1,729	1,789	1,875	1,728	1,697	1,999	1,939	1,880	1,959	1,091	457	1,661	1,582	11.54	11.53	12.56	12.22	12.11	14.10	11.56	11.93	10.31	10.38	11.07	8.28	5.80	10.05	9.19
5/22/2019 4:10	1,655	1,732	1,584	1,590	1,785	1,654	1,697	1,941	1,748	1,890	1,915	874	510	1,471	1,336	11.41	11.06	11.91	10.95	11.60	13.34	11.10	10.71	10.83	10.84	10.68	7.04	6.25	9.98	8.61
5/22/2019 4:20	1,787	1,537	1,681	1,569	1,845	1,618	1,680	1,943	1,850	1,419	1,152	627	1,223	1,826	1,722	11.53	10.50	12.02	11.32	11.84	12.73	11.23	11.13	11.08	9.03	8.00	6.67	8.72	11.23	10.30
5/22/2019 4:30	1,665	1,568	1,726	1,767	1,875	1,573	1,570	2,002	1,773	1,309	958	494	1,226	1,856	1,820	11.33	10.66	12.21	11.53	12.23	12.71	10.93	12.08	10.30	8.56	7.62	5.61	8.33	10.74	10.45
5/22/2019 4:40	1,390	1,744	1,568	1,379	1,676	1,784	1,622	2,000	2,010	1,988	1,900	846	1,055	1,846	1,743	10.45	11.62	11.22	9.97	11.44	13.59	11.51	11.91	11.84	11.27	10.06	7.73	7.77	11.03	10.05
5/22/2019 4:50	1,263	1,005	1,404	1,333	1,448	1,232	1,095	1,976	1,935	1,770	1,528	333	862	1,538	1,636	9.80	9.00	11.00	9.96	10.06	11.11	9.02	11.28	11.24	10.17	9.04	5.07	7.11	9.69	9.28
5/22/2019 5:00	1,748	1,550	1,611	1,600	1,803	1,769	1,776	1,371	1,811	1,650	1,567	501	149	872	765	11.31	10.70	11.53	10.73	11.28	13.59	11.84	8.95	10.14	9.78	9.66	6.07	4.83	7.34	6.91
5/22/2019 5:10	1,795	1,718	1,435	1,241	1,635	1,614	1,859	1,666	1,888	1,933	1,911	632	414	1,328	1,072	11.84	11.23	10.83	9.55	10.83	12.94	11.56	9.64	10.72	10.86	11.24	6.61	5.72	9.18	8.18
5/22/2019 5:20	1,096	1,122	1,153	1,355	1,196	1,247	1,295	1,574	1,429	1,383	1,261	223	378	1,176	1,336	9.36	9.19	9.83	10.09	9.63	10.96	9.51	9.20	9.16	8.66	7.99	4.51	5.69	8.07	8.48
5/22/2019 5:30	1,389	1,510	1,424	1,401	1,473	1,586	1,757	1,215	1,219	486	349	433	871	1,395	1,189	9.99	10.50	10.98	10.17	10.31	12.93	11.17	8.46	8.50	5.85	5.63	5.79	7.36	9.09	8.16
5/22/2019 5:40	1,009	1,127	1,476	1,392	1,294	1,119	1,206	1,226	1,570	1,152	1,238	399	732	1,612	1,292	9.18	9.37	10.92	10.11	9.81	10.48	9.13	8.25	9.64	8.31	8.59	6.29	6.64	9.88	8.27
5/22/2019 5:50	1,255	1,168	1,162	1,152	923	932	780	608	1,086	857	807	142	285	753	568	10.07	9.76	9.75	9.48	8.61	9.89	8.55	6.50	7.96	7.51	6.50	4.23	5.24	6.96	6.19
5/22/2019 6:00	1,648	1,499	1,298	1,403	1,277	990	964	701	679	375	259	504	445	745	847	11.44	10.94	10.53	10.43	9.70	10.01	8.41	6.98	6.87	5.78	5.30	6.63	6.31	7.21	7.54
5/22/2019 6:10	1,229	1,058	1,116	1,050	1,073	598	558	1,094	1,125	1,371	1,361	603	252	536	739	9.15	8.64	9.53	8.81	8.61	8.12	6.76	8.20	8.32	8.88	8.92	6.55	4.80	6.45	7.18
5/22/2019 6:20	506	445	692	643	621	485	407	1,478	1,320	1,342	1,461	708	271	830	887	6.85	6.56	7.68	7.35	7.17	7.30	6.27	8.89	8.53	8.67	8.66	6.99	4.59	6.86	6.95
5/22/2019 6:30	1,341	1,103	941	643	758	772	767	897	1,351	1,283	1,056	161	167	880	600	10.44	9.37	9.08	7.12	7.91	9.04	8.29	7.54	8.82	8.77	7.93	4.48	4.25	7.67	6.33
5/22/2019 6:40	1,087	960	990	774	1,062	1,270	1,451	931	991	1,069	1,024	128	-13	499	452	9.18	8.59	8.91	8.26	8.84	11.15	10.58	7.58	7.77	7.97	7.78	3.87	2.84	5.82	5.86
5/22/2019 6:50	1,058	948	841	668	866	972	1,166	1,000	1,367	1,302	1,192	122	84	625	375	8.94	8.71	8.40	7.55	8.44	9.94	9.45	7.84	8.78	8.66	8.46	4.02	4.05	6.82	5.59
5/22/2019 7:00	975	789	975	807	821	746	764	946	1,130	1,267	1,343	224	78	673	483	9.17	8.03	8.94	8.27	8.11	9.13	7.99	7.49	8.04	8.33	8.76	5.10	3.71	6.84	6.00
5/22/2019 7:10	1,332	1,334	1,199	1,113	1,154	1,225	1,081	1,232	737	515	662	164	110	573	507	9.95	10.38	10.08	9.53	9.13	11.19	9.28	8.24	7.24	6.48	6.81	4.82	4.38	6.49	6.32
5/22/2019 7:20	1,749	1,556	1,476	1,499	1,517	1,414	1,397	866	1,056	887	951	199	161	522	599	11.56	11.25	11.25	10.38	10.87	12.05	10.40	7.31	8.15	7.66	7.40	5.04	4.46	6.04	6.52
5/22/2019 7:30	1,361	1,435	1,284	1,126	1,008	1,218	1,150	894	959	803	892	189	313	777	616	10.06	10.41	10.28	9.47	8.57	11.06	9.09	7.74	7.82	7.06	7.51	4.58	5.44	7.23	6.51
5/22/2019 7:40	1,396	1,295	1,164	1,114	1,326	1,324	1,463	872	654	774	1,009	220	94	525	453	10.42	9.88	9.62	8.81	9.68	11.82	10.09	7.35	6.68	7.18	8.03	4.65	3.95	6.35	5.81
5/22/2019 7:50	918	945	865	633	700	669	464	1,590	1,355	521	584	178	481	1,084	866	8.40	8.46	8.58	7.54	7.48	8.64	6.30	9.68	8.85	5.53	6.00	4.37	5.65	8.16	7.22
5/22/2019 8:00	846	961	877	589	754	755	720	981	1,235	932	834	160	207	477	436	7.89	8.75	8.53	7.49	7.70	8.76	7.25	8.14	8.53	7.45	7.42	4.45	5.02	6.10	6.43
5/22/2019 8:10	1,139	1,065	881	587	947	781	567	1,135	1,089	436	645	533	687	1,277	1,014	9.52	8.86	8.45	7.21	8.48	9.02	7.03	7.96	8.27	5.77	6.38	6.28	6.52	8.61	7.69
5/22/2019 8:20	1,129	1,042	957	743	813	912	867	712	1,137	1,010	944	232	67	492	422	9.29	8.60	8.76	7.73	7.78	9.50	8.11	6.80	8.29	7.95	7.66	4.87	3.88	5.95	5.94
5/22/2019 8:30	923	1,001	1,045	855	817	815	659	607	923	807	851	233	2	362	276	8.51	8.93	8.99	8.21	8.11	9.32	7.64	6.77	7.69	7.14	7.41	5.00	2.83	5.49	5.06
5/22/2019 8:40	856	711	493	327	332	568	495	719	596	419	274	194	10	172	433	8.06	7.56	6.63	5.60	5.46	7.71	6.54	6.77	6.73	5.77	6.16	5.15	4.66	4.80	6.02
5/22/2019 8:50	747	549	634	449	496	537	517	891	905	592	652	251	37	102	330	7.81	7.09	7.21	6.58	6.64	7.91	6.40	7.55	7.76	6.98	6.88	5.46	3.90	3.91	5.56
5/22/2019 9:00	572	367	392	331	283	244	238	710	754	600	841	222	6	188	249	6.95	6.56	6.25	5.99	5.41	5.93	5.32	7.06	7.06	6.27	7.44	4.60	3.38	4.28	5.42
5/22/2019 9:10	715	616	483	216	335	271	242	348	655	721	741	291	99	227	432	7.59	7.09	6.75	4.83	5.54	5.98	5.00	6.26	6.85	7.01	6.97	5.32	4.17	5.43	5.91
5/22/2019 9:20	601	413	400	73	247	310	360	980	765	819	1,031	701	190	280	507	7.03	6.29	6.86	5.73	4.97	6.59	7.08	7.60	8.21	7.50	8.11	7.22	5.93	6.02	6.53
5/22/2019 9:30	275	456	670	-2	416	229	105	1,087	1,409	1,116	1,267	710	393	428	828	5.93	6.81	7.78	7.23	6.54	6.14	5.08	8.00	9.06	8.20	8.44	7.16	5.27	5.74	7.25
5/22/2019 9:40	629	574	649	-3	496	249	199	1,235	1,302	1,086	1,069	326	69	247	363	7.36	7.10	8.08	7.83	6.77	6.15	5.23	8.39	8.62	8.10	8.06	5.02	3.25	4.96	5.43
5/22/2019 9:50	868	774	683	-3	701	541	337	1,167	950	598	679	190	269	729	543	8.11	7.91	7.67	7.72	7.42	7.74	6.11	8.19	7.75	6.23	6.50	4.48	5.45	7.28	6.28
5/22/2019 10:00	906	685	762	-3	841	818	693	782	505	238	250	204	379	594	715	8.45	7.67	7.76	6.93	8.10	9.48	7.79	6.79	6.17	5.29	5.38	4.56	5.55	6.54	6.63
5/22/2019 10:10	650	532	629	-4	547	678	691	394	17	97	134	17	156	408	522	7.34	6.78	7.65	6.15	7.21	8.77	7.46	5.92	4.68	3.98	4.31	3.26	4.66	5.77	6.39
5/22/2019 10:20	634	307	421	-4	435	561	724	172	320	260	255	19	66	156	80	7.51	6.06	6.62	5.36	6.52	8.25	7.78	5.27	5.80	5.22	5.23	3.71	3.90	4.12	4.28
5/22/2019 10:30	426	421	342	-4	206	229	189	268	334	458	402	26	-12	100	139	6.57	6.52	5.71	4.58	5.11	5.93	4.88	4.96	5.99	6.11	5.89	3.98	3.27	4.08	5.10
5/22/2019 10:40	400	207	222	-4	247	272	293	458	465	562	647	353	268	22	159	6.30	4.93	4.93	3.80	4.99	6.03	5.83	6.46	6.28	6.42	6.51	5.81	5.17	4.31	5.55
5/22/2019 10:50	415	255	262	-5	90	237	201																							

5/22/2019 14:10	381	366	324	217	267	206	167	423	428	331	298	138	22	102	195	5.95	5.93	5.68	4.90	5.30	5.47	4.54	5.94	6.08	5.48	5.50	4.27	3.90	4.96	4.89
5/22/2019 14:20	300	242	207	135	146	144	26	339	289	208	303	37	-15	196	276	5.80	5.61	4.85	4.80	4.73	5.05	3.48	5.75	5.42	4.57	5.68	3.33	3.26	4.79	5.29
5/22/2019 14:30	253	313	270	242	181	299	256	327	343	293	272	29	-11	100	70	5.23	5.83	5.24	5.04	4.76	6.51	5.68	5.61	5.75	5.54	5.37	3.24	2.30	3.66	3.67
5/22/2019 14:40	254	227	243	116	199	101	90	186	389	314	249	26	80	249	141	5.43	5.25	5.32	4.43	5.07	4.57	3.62	4.51	5.93	5.53	5.08	3.37	4.12	4.95	4.32
5/22/2019 14:50	345	239	269	228	261	238	143	403	362	304	230	21	-13	62	46	5.86	5.35	5.23	5.02	5.28	6.10	5.18	6.05	5.81	5.64	4.90	3.66	1.86	3.52	3.82
5/22/2019 15:00	240	197	190	180	108	116	112	300	326	322	367	120	-2	101	105	5.31	5.33	4.48	4.91	4.22	4.65	4.09	5.27	5.68	5.62	5.86	4.39	2.65	3.81	4.07
5/22/2019 15:10	354	328	296	232	232	170	166	404	349	320	447	285	105	120	199	6.17	6.06	5.55	5.41	5.32	5.32	4.54	6.09	5.81	5.74	6.34	5.50	3.69	3.83	4.78
5/22/2019 15:20	223	269	211	241	134	116	150	283	433	446	444	149	4	128	47	5.03	5.45	5.45	5.46	4.28	4.86	4.75	5.32	6.08	6.11	6.12	4.36	1.95	3.83	3.17
5/22/2019 15:30	232	302	281	221	245	199	136	305	311	184	250	164	50	47	116	5.25	5.84	5.54	5.25	5.48	5.78	4.32	5.41	5.70	4.65	5.08	4.54	3.85	3.10	4.19
5/22/2019 15:40	358	286	191	160	136	120	98	299	351	295	291	-12	-14	62	150	6.22	5.73	4.49	4.78	4.18	4.38	3.92	5.47	5.79	5.54	5.31	2.81	2.36	3.81	4.36
5/22/2019 15:50	234	260	276	302	270	128	90	266	279	129	162	0	-9	-1	6	5.49	5.49	5.54	5.74	5.38	4.68	3.81	5.26	5.30	4.17	4.49	2.42	1.37	2.44	2.68
5/22/2019 16:00	206	181	166	176	86	113	75	71	17	25	29	-11	-9	5	17	5.25	5.00	4.48	4.72	3.66	4.68	3.67	3.55	3.00	3.36	3.32	2.01	1.88	2.69	3.09
5/22/2019 16:10	108	78	47	60	100	84	92	31	5	-1	-5	-9	-9	13	0	4.02	3.79	3.29	3.43	3.98	4.31	3.77	3.17	2.75	2.44	2.64	2.15	2.24	2.73	2.85
5/22/2019 16:20	156	118	112	114	213	202	194	25	13	-14	-13	-9	14	62	77	4.43	4.36	3.91	4.42	5.36	5.71	5.16	3.12	3.04	2.56	3.16	3.40	3.36	3.50	3.99
5/22/2019 16:30	157	128	153	185	187	204	148	-1	-8	-10	-12	5	52	49	42	4.83	4.68	4.43	5.13	5.04	5.47	4.62	2.69	2.65	1.85	2.39	2.71	3.76	3.21	3.25
5/22/2019 16:40	92	101	115	156	126	202	201	0	7	-10	-11	-11	-5	-7	-13	3.84	4.24	3.92	4.48	4.20	5.67	5.19	2.88	2.87	1.59	1.78	1.56	2.56	2.35	1.98
5/22/2019 16:50	160	172	163	177	183	320	288	-13	-10	-10	-9	-9	-11	-14	-11	4.45	4.77	4.30	4.61	4.77	6.64	5.79	2.12	2.64	1.74	1.71	1.12	1.37	2.24	2.23
5/22/2019 17:00	166	145	142	128	136	202	142	-5	-12	-9	-8	-8	-9	-12	-6	4.46	4.69	4.09	4.57	4.36	5.49	4.57	2.89	1.96	1.52	1.54	1.92	2.07	2.23	2.55
5/22/2019 17:10	95	64	97	121	149	189	195	22	-9	-9	-9	-8	-12	39	14	3.62	3.88	3.57	4.45	4.67	5.48	5.07	3.49	2.15	1.58	2.05	1.68	2.40	3.36	2.85
5/22/2019 17:20	72	57	57	70	88	70	82	12	-8	-9	-12	-9	-7	38	-6	3.47	3.72	3.17	3.40	3.99	4.07	3.67	3.28	2.70	1.87	2.27	2.34	2.75	3.03	2.44
5/22/2019 17:30	20	2	-1	-8	-5	26	25	-5	-6	-10	-10	-8	-14	-12	-7	2.63	2.72	2.28	1.91	2.51	3.26	3.05	2.50	2.69	2.27	2.13	2.74	2.66	2.50	2.92
5/22/2019 17:40	-16	-11	-12	-2	28	36	39	-13	-11	-9	-10	-8	-11	-13	-9	2.24	1.60	1.55	2.98	3.18	3.54	3.39	2.62	2.77	2.81	2.85	2.81	2.81	2.72	2.79
5/22/2019 17:50	-14	-10	-11	-2	-1	-1	9	-12	-8	-9	-8	-9	-9	-9	-12	2.21	1.55	1.64	3.03	2.59	2.96	2.74	2.32	2.54	2.27	2.74	2.52	2.50	2.45	2.41
5/22/2019 18:00	-6	-8	-4	-2	94	112	134	-11	-9	-9	-8	-9	-9	-7	-9	3.04	2.54	2.91	4.13	4.17	4.80	4.60	1.50	1.72	1.93	2.36	2.23	2.14	2.08	1.96
5/22/2019 18:10	151	66	115	-1	260	276	279	-12	-9	-11	-2	-3	0	8	36	4.72	4.07	4.40	6.31	5.88	6.55	6.01	2.83	3.02	3.12	3.54	3.53	3.51	3.48	4.02
5/22/2019 18:20	190	94	180	-1	249	231	240	-14	-5	4	64	42	44	90	121	5.00	4.11	4.86	6.58	5.54	5.91	5.45	3.12	3.19	3.31	4.00	3.81	3.75	3.97	4.60
5/22/2019 18:30	111	88	125	-1	174	170	143	20	35	86	167	117	99	156	175	4.25	4.09	4.02	5.76	5.03	5.21	4.62	3.48	3.51	4.24	4.78	4.49	4.23	4.53	4.91
5/22/2019 18:40	63	46	43	0	55	45	26	-16	-9	-11	22	15	1	12	14	3.54	3.47	3.11	4.19	3.60	3.63	3.03	2.51	2.48	2.54	3.20	2.86	2.75	2.79	3.26
5/22/2019 18:50	70	38	43	-4	59	37	40	-2	10	12	67	39	28	64	68	3.64	3.38	3.17	3.40	3.67	3.86	3.32	3.10	3.15	3.30	4.02	3.44	3.57	3.65	3.98
5/22/2019 19:00	104	54	77	37	102	70	79	0	1	-6	41	21	14	50	56	4.02	3.58	3.62	3.53	4.27	4.16	4.01	2.97	2.99	2.92	3.64	3.28	3.23	3.29	3.76
5/22/2019 19:10	140	70	106	57	139	117	119	-4	-4	2	64	35	9	43	40	4.60	3.90	3.95	3.50	4.84	4.63	4.70	2.97	2.93	3.10	3.92	3.55	3.20	3.10	3.54
5/22/2019 19:20	175	82	117	88	138	120	125	31	46	47	100	44	16	37	50	5.03	4.09	4.26	4.18	4.92	4.73	4.78	3.62	3.85	3.84	4.24	3.63	3.20	3.04	3.63
5/22/2019 19:30	227	131	179	73	196	176	184	84	112	105	174	82	28	81	125	5.38	4.66	4.64	3.35	5.35	5.29	5.19	4.21	4.48	4.40	4.90	4.07	3.46	3.55	4.48
5/22/2019 19:40	295	175	237	38	116	160	188	197	227	203	307	156	-1	193	201	6.00	5.23	5.11	2.94	3.80	5.21	4.61	5.06	5.26	5.13	5.68	4.77	2.77	4.81	5.00
5/22/2019 19:50	256	181	195	82	32	51	137	232	255	256	254	39	-13	107	203	5.58	5.28	4.60	3.69	2.61	3.62	4.50	5.32	5.50	5.49	5.17	3.26	2.44	3.98	5.01
5/22/2019 20:00	224	168	76	154	133	-9	100	209	177	66	48	39	23	2	147	5.31	5.19	3.53	4.77	4.58	3.34	4.15	5.05	4.72	4.18	3.33	3.46	3.78	2.60	4.61
5/22/2019 20:10	200	89	23	125	130	79	75	185	129	-15	78	36	162	-6	215	5.02	4.03	2.81	4.42	4.59	4.35	3.99	4.88	4.37	4.30	3.67	2.56	4.97	2.41	5.17
5/22/2019 20:20	316	193	97	227	205	163	150	309	253	-6	157	63	218	11	305	6.04	5.45	3.81	5.50	5.47	5.29	5.06	5.55	5.26	4.42	4.05	2.95	5.19	2.61	5.61
5/22/2019 20:30	259	155	62	204	194	151	139	226	185	27	218	141	209	84	248	5.48	4.97	3.32	5.20	5.37	5.19	4.85	5.23	4.58	3.26	5.12	4.39	5.19	3.63	5.44
5/22/2019 20:40	211	73	112	188	188	149	134	265	63	-12	298	249	238	234	294	4.79	3.62	4.02	4.92	5.17	4.96	4.62	5.38	3.61	2.44	5.95	5.67	5.58	5.30	5.56
5/22/2019 20:50	180	58	128	207	238	216	191	271	52	-12	278	212	221	157	260	4.64	3.52	4.03	5.13	5.74	5.55	5.48	5.31	3.58	2.57	5.75	5.22	5.29	4.30	5.44
5/22/2019 21:00	236	126	222	263	316	285	270	358	131	-8	219	219	265	158	301	5.10	4.55	5.27	5.69	6.19	6.12	6.13	5.95	4.32	2.74	5.02	5.76	5.46	3.84	5.66
5/22/2019 21:10	277	177	267	347	393	340	295	387	164	10	268	237	278	218	346	5.30	5.12	5.36	6.19	6.61	6.29	6.23	6.01	4.54	3.08	5.31	5.28	5.59	4.60	5.79
5/22/2019 21:20	367	112	158	351	400	361	298	476	163	5	315	239	321	191	396	6.11	4.33	3.92	6.38	6.74	6.59	5.96	6.37	4.58	2.83	5.89	5.23	5.98	4.02	6.10
5/22/2019 21:30	380	138	193	397	421	358	290	296	183	17	295	170	263	137	355	5.95	4.45	4.25	6.74	6.87	6.68	6.09	5.51	4.71	2.95	5.72	4.53	5.53	3.77	5.86
5/22/2019 21:40	428	163	140	417	426	357	260	391	217	54	310	235	353	190	513	6.67	5.09	4.03	6.84	7.04	7.05	5.73	5.92</							

5/23/2019 0:30	432	146	467	518	589	534	510	231	115	50	770	484	383	538	525	6.00	4.30	6.73	7.14	7.49	7.35	7.06	4.90	3.84	2.97	7.45	6.60	6.02	6.97	6.68
5/23/2019 0:40	390	276	283	452	522	485	505	271	112	102	730	535	443	592	546	5.98	5.98	5.63	6.77	7.35	7.41	7.32	5.26	3.67	3.26	7.20	6.80	6.48	7.18	6.72
5/23/2019 0:50	486	322	198	497	596	565	633	253	274	306	754	579	534	658	636	6.72	6.30	4.29	7.02	7.62	7.60	7.45	5.23	5.45	5.77	7.36	6.77	6.77	7.20	6.84
5/23/2019 1:00	635	352	82	599	741	657	670	242	434	501	767	557	470	559	516	7.61	6.54	2.84	7.63	8.28	8.43	7.88	5.07	6.63	6.91	7.31	6.78	6.51	6.87	6.46
5/23/2019 1:10	479	109	50	708	865	855	910	232	474	505	726	578	526	706	645	5.93	3.56	3.03	7.75	8.82	8.89	8.36	5.12	6.72	6.78	7.16	6.78	6.72	7.57	7.03
5/23/2019 1:20	362	52	277	652	836	674	621	130	549	523	714	507	450	694	668	5.76	2.63	5.02	7.42	8.22	8.32	7.31	4.13	6.92	6.76	7.29	6.58	6.43	7.27	7.08
5/23/2019 1:30	419	42	344	691	868	749	613	276	718	638	898	664	656	986	895	6.10	2.71	5.27	7.62	8.28	8.62	7.82	5.29	7.71	7.11	7.90	7.31	7.17	8.38	7.84
5/23/2019 1:40	429	16	196	894	954	738	584	367	856	777	1,159	834	780	1,057	996	5.91	2.38	3.87	8.60	8.73	8.75	7.80	5.77	7.92	7.41	8.37	7.48	7.36	8.12	7.92
5/23/2019 1:50	859	90	625	927	1,067	904	852	250	847	751	1,084	815	759	1,019	1,117	8.06	3.00	7.36	8.51	8.99	9.20	8.51	4.91	7.89	7.36	8.21	7.52	7.22	8.22	8.25
5/23/2019 2:00	1,229	415	1,189	1,256	1,384	1,197	1,181	422	983	983	1,449	1,108	1,013	1,308	1,239	10.49	5.79	9.40	9.50	10.45	10.85	9.68	5.81	8.21	8.05	8.90	8.32	7.97	8.87	8.39
5/23/2019 2:10	1,250	412	1,073	1,089	1,246	1,039	932	463	1,273	1,217	1,744	1,389	1,316	1,649	1,571	10.55	5.71	9.19	9.54	9.98	9.95	8.76	5.99	9.03	8.67	9.74	8.99	8.85	10.07	9.35
5/23/2019 2:20	1,048	169	712	908	1,083	901	786	479	1,465	1,420	1,789	1,493	1,459	1,690	1,551	9.35	3.25	6.96	9.05	9.72	9.30	8.73	6.01	9.46	9.40	9.67	9.04	9.25	10.11	9.15
5/23/2019 2:30	744	46	471	970	1,129	974	790	339	1,012	920	1,047	857	863	1,080	1,058	7.92	2.55	5.71	9.04	10.07	9.75	8.79	5.65	8.17	7.96	7.91	7.56	7.95	8.90	8.17
5/23/2019 2:40	584	81	441	777	1,003	751	593	214	555	500	729	599	602	954	1,098	7.08	3.19	5.79	7.98	8.97	8.85	7.53	4.80	6.75	6.61	7.25	7.01	6.76	8.04	8.42
5/23/2019 2:50	740	364	607	645	1,090	886	812	232	598	553	866	563	454	650	642	7.85	6.37	6.98	7.45	9.22	9.37	8.04	4.84	7.00	6.67	7.68	6.83	6.33	7.28	7.06
5/23/2019 3:00	472	186	402	477	839	761	717	295	592	601	743	516	507	713	736	6.78	5.25	6.30	6.96	8.62	9.19	7.93	5.45	6.96	6.83	7.14	6.48	6.58	7.41	7.29
5/23/2019 3:10	753	206	565	649	1,076	971	937	341	586	501	569	348	341	489	530	8.18	5.01	7.08	7.83	9.51	10.06	8.77	5.63	7.11	6.55	6.75	5.89	5.93	6.34	6.57
5/23/2019 3:20	775	126	725	1,021	1,308	1,216	1,222	284	406	359	572	451	473	667	683	7.82	3.96	7.63	8.95	10.33	10.89	10.17	5.28	6.36	5.95	6.68	6.50	6.46	7.09	7.04
5/23/2019 3:30	970	168	1,016	1,311	1,448	1,395	1,445	303	655	636	894	585	543	790	763	8.65	3.99	9.01	9.53	10.83	11.99	10.86	5.38	7.34	7.26	7.84	6.98	6.83	7.81	7.36
5/23/2019 3:40	833	135	1,040	1,533	1,589	1,367	1,348	307	763	765	1,144	813	767	1,174	1,110	7.32	3.76	8.70	10.30	11.62	11.91	10.70	5.25	7.30	7.23	8.28	7.51	7.34	8.82	8.14
5/23/2019 3:50	763	127	737	1,253	1,288	1,195	1,207	426	684	601	995	816	741	1,268	1,306	7.15	3.51	7.42	9.47	10.41	10.93	10.35	6.00	7.22	6.63	7.76	7.38	7.12	9.04	8.75
5/23/2019 4:00	946	163	939	1,295	1,400	1,290	1,280	413	944	863	1,311	813	878	1,363	1,427	7.96	4.07	9.01	9.59	10.89	11.06	10.14	5.82	8.11	7.77	8.62	7.49	7.64	9.48	9.12
5/23/2019 4:10	1,009	142	878	1,201	1,364	1,184	1,052	418	885	823	1,318	888	777	1,140	1,038	8.28	3.71	8.66	9.36	10.66	10.55	9.30	5.92	7.63	7.47	8.49	7.63	7.23	8.64	7.79
5/23/2019 4:20	1,002	142	896	1,260	1,393	1,283	1,164	582	1,116	1,014	1,348	978	886	979	1,036	8.11	3.92	8.66	9.57	10.63	10.88	9.53	6.36	8.16	8.00	8.62	7.87	7.65	7.99	7.98
5/23/2019 4:30	1,041	250	1,033	1,305	1,445	1,260	1,242	519	1,192	1,141	1,442	1,131	923	1,141	942	8.40	4.63	9.25	9.59	10.82	10.98	9.81	6.10	8.46	8.34	8.82	8.38	7.62	8.56	7.70
5/23/2019 4:40	1,057	282	1,181	1,482	1,467	1,259	1,151	740	1,201	914	1,458	1,077	821	1,154	1,359	8.25	5.05	10.11	10.07	10.78	10.88	9.26	7.10	8.47	7.56	8.95	8.18	7.21	8.61	8.79
5/23/2019 4:50	1,264	567	1,295	1,555	1,503	1,164	1,089	661	1,320	873	1,021	1,061	1,220	1,024	1,332	9.31	6.77	10.55	10.11	10.62	10.81	9.12	6.75	8.86	7.45	7.64	8.01	8.31	7.78	8.78
5/23/2019 5:00	1,391	696	1,311	1,461	1,604	1,184	1,177	993	1,273	1,098	1,112	954	1,145	739	1,015	10.10	7.58	10.45	10.05	10.82	10.97	10.17	7.77	8.47	8.35	8.17	7.70	8.23	7.00	7.86
5/23/2019 5:10	1,285	595	1,229	1,377	1,471	1,294	1,120	653	767	701	875	1,033	1,010	681	839	9.68	6.90	9.89	9.96	10.28	11.35	9.95	6.63	7.35	6.98	7.55	7.95	7.82	6.84	7.31
5/23/2019 5:20	1,154	471	1,257	1,400	1,638	1,416	1,246	648	932	866	1,198	1,042	700	869	990	9.26	5.89	10.07	9.84	11.18	12.12	10.64	6.74	7.74	7.77	8.36	8.07	7.22	7.78	7.86
5/23/2019 5:30	1,081	323	1,113	1,329	1,640	1,436	1,330	691	937	773	1,110	964	767	1,011	1,158	8.59	5.16	9.75	9.75	11.15	12.35	9.79	7.11	7.80	7.27	8.16	7.80	7.30	8.15	8.30
5/23/2019 5:40	1,262	532	1,265	1,329	1,509	1,393	1,454	701	941	850	1,069	829	710	916	1,165	9.57	6.25	10.06	9.69	10.42	11.92	10.05	6.83	7.71	7.51	7.94	7.30	7.10	7.65	8.18
5/23/2019 5:50	928	315	863	966	1,296	1,228	1,210	370	907	755	788	590	650	808	718	8.15	5.21	8.22	8.38	9.82	11.12	9.31	5.72	7.79	7.22	7.18	6.77	6.89	7.52	7.01
5/23/2019 6:00	848	376	847	818	1,022	1,049	1,083	218	610	568	879	692	836	645	634	7.84	5.63	8.14	7.81	8.83	10.50	9.38	4.85	6.69	6.62	7.67	7.01	7.40	6.78	6.72
5/23/2019 6:10	840	254	665	836	1,169	1,205	1,254	300	775	719	804	709	917	674	661	8.15	4.93	7.39	8.01	9.47	10.95	10.39	5.28	7.52	7.34	7.23	7.22	7.82	6.94	6.76
5/23/2019 6:20	850	253	680	756	1,026	1,164	1,083	347	489	540	729	624	686	585	684	7.99	4.67	7.40	7.85	9.07	11.03	9.80	5.54	6.21	6.66	7.13	7.10	7.16	6.67	6.82
5/23/2019 6:30	658	218	608	807	976	733	578	268	503	525	620	712	517	357	425	6.87	4.34	7.27	8.00	8.99	8.69	7.54	5.11	6.58	6.56	6.70	7.04	6.39	5.61	6.11
5/23/2019 6:40	257	78	338	602	827	742	585	96	391	287	459	385	266	236	280	4.98	3.12	5.49	7.31	8.34	8.85	7.57	3.86	6.00	5.44	6.18	5.99	5.46	4.93	5.41
5/23/2019 6:50	108	21	320	217	706	533	405	30	224	236	312	404	245	215	251	3.64	2.83	5.56	7.44	7.93	7.73	6.27	2.86	5.01	5.05	5.54	6.10	5.11	4.69	5.20
5/23/2019 7:00	127	17	305	13	432	398	358	60	248	224	272	257	221	212	138	4.10	2.93	5.60	7.90	6.72	6.96	6.03	3.65	5.34	5.18	5.35	5.30	5.01	4.94	4.52
5/23/2019 7:10	271	97	331	12	481	364	262	-16	169	86	212	157	180	210	254	5.51	3.81	5.89	7.80	6.56	6.92	5.43	2.33	4.69	3.73	4.86	4.75	4.79	4.61	5.17
5/23/2019 7:20	174	43	271	11	410	433	414	-13	105	90	130	200	159	192	214	4.54	3.12	5.44	7.70	6.25	7.26	6.84	2.16	4.30	4.06	4.28	4.75	4.50	4.56	4.88
5/23/2019 7:30	154	41	223	10	333	342	350	4	48	61	132	133	104	141	172	4.53	3.13	4.92	7.60	5.86	6.72	6.06	3.40	3.68	3.83	4.07	4.26	4.29	4.15	4.57
5																														

5/23/2019 10:50	285	115	307	411	606	456	628	170	507	391	506	569	650	642	659	5.47	4.11	5.68	6.56	7.68	7.29	7.65	4.65	6.50	5.94	6.29	6.93	7.03	7.04	7.26
5/23/2019 11:00	125	76	307	420	451	438	450	241	300	367	498	380	580	436	548	4.43	3.71	5.84	6.65	6.79	7.38	6.50	5.09	5.59	5.99	6.56	6.16	6.91	6.26	6.78
5/23/2019 11:10	706	450	663	493	695	688	796	367	618	767	936	654	724	838	881	7.73	7.30	7.53	6.81	7.99	8.73	8.48	5.86	7.11	7.56	7.89	7.29	7.44	7.65	7.95
5/23/2019 11:20	886	526	711	695	803	789	969	455	649	763	971	811	847	832	767	8.31	6.86	7.53	7.61	8.31	8.97	9.29	6.12	7.03	7.24	7.73	7.64	7.40	7.37	7.19
5/23/2019 11:30	281	181	311	421	503	428	655	132	283	320	452	374	375	438	527	5.74	5.18	5.71	6.43	7.17	7.00	7.81	4.32	5.63	5.92	6.49	6.23	6.17	6.32	6.63
5/23/2019 11:40	779	381	904	1,154	1,102	289	1,232	217	533	506	778	651	663	472	639	8.24	6.15	8.51	9.13	9.53	11.31	10.41	4.95	6.88	6.57	7.47	7.14	7.13	6.22	6.97
5/23/2019 11:50	984	475	1,226	1,336	1,470	-2	1,341	288	565	619	838	913	867	941	886	8.68	7.40	9.91	9.57	11.06	8.21	10.97	5.62	6.96	7.09	7.39	7.80	7.56	7.94	7.70
5/23/2019 12:00	864	357	1,068	1,258	1,359	1,017	1,196	433	983	845	1,040	822	909	1,082	1,164	7.65	5.95	9.24	9.63	10.80	10.19	10.49	6.28	8.04	7.53	7.97	7.63	7.79	8.49	8.23
5/23/2019 12:10	430	59	456	717	797	879	796	676	773	683	950	918	886	1,154	1,093	6.28	3.33	6.09	7.94	7.89	8.66	8.14	7.23	7.84	7.41	7.75	7.70	7.67	8.57	8.02
5/23/2019 12:20	273	50	230	510	716	788	493	681	746	572	839	649	713	754	705	5.42	3.36	4.60	6.51	7.90	8.61	6.76	6.93	7.56	6.79	7.41	6.94	7.18	7.28	6.90
5/23/2019 12:30	214	55	104	251	279	696	201	425	217	125	480	419	452	375	329	4.94	3.45	3.86	5.28	5.73	8.57	5.18	6.10	4.75	4.15	6.42	6.27	6.34	5.91	5.61
5/23/2019 12:40	346	91	173	273	334	605	190	800	658	458	872	703	714	696	680	6.43	3.71	4.28	5.79	6.10	8.52	5.02	7.55	7.02	5.87	7.76	7.25	7.34	7.40	7.02
5/23/2019 12:50	244	175	186	235	281	513	265	949	500	165	852	725	792	801	765	5.61	4.85	4.91	5.36	5.61	8.47	5.83	7.84	6.47	4.05	7.72	7.62	7.72	7.91	7.32
5/23/2019 13:00	540	273	150	431	486	422	307	901	698	326	940	675	685	664	590	6.66	5.50	3.83	6.61	6.68	8.42	5.83	7.81	6.84	5.19	7.76	7.14	7.37	7.00	6.74
5/23/2019 13:10	382	71	64	283	360	330	256	1,014	578	505	1,013	781	827	903	912	6.39	3.57	3.14	5.63	6.12	8.38	5.42	7.87	6.42	6.59	7.73	7.32	7.51	7.69	7.69
5/23/2019 13:20	276	46	45	260	341	239	288	797	693	525	648	612	521	579	610	5.39	3.14	2.96	5.50	6.06	8.33	6.04	7.31	7.25	6.71	6.78	6.98	6.47	6.71	6.84
5/23/2019 13:30	259	27	56	153	225	147	181	793	626	475	618	505	424	354	424	5.32	3.04	3.13	4.55	5.19	8.28	4.81	7.41	6.92	6.21	6.65	6.57	5.96	5.47	6.18
5/23/2019 13:40	460	73	94	333	444	55	352	685	568	419	800	539	677	858	1,152	6.76	3.83	3.38	6.08	6.81	8.23	6.25	6.80	6.64	6.15	7.22	6.52	7.15	7.33	8.20
5/23/2019 13:50	294	35	53	279	359	140	266	761	602	586	952	868	779	744	627	5.14	3.16	3.22	5.56	6.43	6.20	5.89	7.38	6.76	6.88	7.77	7.98	7.64	7.21	6.78
5/23/2019 14:00	348	70	58	125	294	424	459	903	471	469	1,633	1,168	1,075	1,066	987	6.20	4.11	3.33	4.56	5.87	6.48	6.58	7.50	5.91	6.12	9.33	8.58	8.32	8.79	8.12
5/23/2019 14:10	712	397	287	572	770	563	336	970	539	522	1,362	922	856	994	898	7.68	6.46	5.81	7.01	8.07	7.21	6.14	7.85	6.63	6.74	8.91	8.10	7.86	8.27	7.69
5/23/2019 14:20	874	376	441	429	864	538	549	972	448	309	1,227	882	802	958	1,035	8.34	6.46	6.65	6.60	8.44	7.19	6.94	7.86	5.72	4.96	8.69	8.16	7.69	8.22	8.08
5/23/2019 14:30	1,349	324	1,097	997	1,127	941	842	1,006	368	171	1,376	1,282	1,350	1,453	1,592	10.12	6.20	9.45	8.60	9.69	8.45	8.55	7.81	5.75	4.51	8.83	9.05	8.88	9.34	9.38
5/23/2019 14:40	1,178	395	828	953	1,209	1,114	1,077	1,212	498	660	1,912	1,614	1,482	1,838	1,923	9.11	6.78	8.36	8.48	9.69	9.01	9.36	8.21	5.98	6.52	10.30	9.51	9.14	10.29	10.47
5/23/2019 14:50	910	432	787	823	1,014	697	711	1,181	401	340	1,496	1,185	1,215	1,556	1,714	8.22	6.86	8.26	7.88	9.08	7.38	7.79	8.31	5.56	4.96	9.18	8.70	8.61	9.84	9.80
5/23/2019 15:00	941	658	519	739	927	695	746	1,155	509	576	1,763	1,498	1,458	1,867	1,991	7.93	8.25	7.04	7.79	8.27	7.25	7.95	8.15	6.03	6.30	9.73	9.32	9.12	10.49	10.55
5/23/2019 15:10	1,115	677	739	1,034	1,209	916	803	942	921	830	1,394	1,055	1,049	1,277	1,460	8.80	7.90	8.15	8.63	8.91	8.10	7.82	7.72	7.68	7.50	8.80	8.08	7.95	8.52	8.83
5/23/2019 15:20	1,128	527	339	979	1,095	959	874	1,032	1,203	1,069	1,391	1,246	1,103	1,324	1,084	8.73	7.03	5.46	8.33	8.85	8.05	8.95	7.76	8.67	8.45	8.83	8.56	8.31	9.13	8.12
5/23/2019 15:30	681	312	187	706	953	943	954	1,029	1,447	1,495	1,860	1,605	1,503	1,784	1,679	7.11	5.50	4.34	7.14	8.55	8.15	8.87	7.86	9.29	9.50	9.94	9.46	9.27	10.19	9.64
5/23/2019 15:40	763	248	255	958	882	901	836	1,093	1,529	1,517	1,862	1,943	1,576	1,767	1,752	7.74	5.03	4.82	8.94	8.89	8.49	8.31	8.15	9.36	9.59	10.57	10.52	9.38	10.08	9.60
5/23/2019 15:50	695	145	161	917	902	718	566	1,288	1,602	1,564	1,910	1,655	1,697	1,769	1,593	7.13	4.52	3.93	8.28	8.87	7.79	7.66	8.53	9.48	9.47	10.33	9.54	9.60	10.23	9.45
5/23/2019 16:00	905	340	226	807	685	651	687	1,156	1,623	1,478	1,696	1,694	1,577	1,501	1,551	8.70	6.41	4.81	8.17	8.01	7.32	8.17	8.20	9.62	9.26	9.60	9.93	9.51	9.44	9.35
5/23/2019 16:10	898	524	408	735	990	1,064	985	1,157	1,613	1,566	1,984	1,624	1,695	1,769	1,871	7.90	7.20	6.48	8.37	8.98	9.26	9.56	8.34	9.70	9.79	10.82	9.66	9.96	10.51	10.05
5/23/2019 16:20	916	498	556	854	851	761	642	1,439	1,503	1,596	1,937	1,587	1,327	1,493	1,190	8.12	7.26	7.43	8.38	8.64	7.87	8.13	9.11	9.24	9.74	10.45	9.72	8.68	9.42	8.25
5/23/2019 16:30	797	469	451	715	897	661	570	1,082	1,463	1,118	1,579	1,247	1,067	1,005	867	7.80	7.22	6.65	7.69	8.71	7.32	7.15	8.06	9.28	8.51	9.33	8.70	8.25	7.88	7.58
5/23/2019 16:40	959	513	356	757	823	786	687	1,291	1,533	1,429	1,829	1,499	1,318	1,220	1,009	8.15	7.13	6.05	7.63	8.26	7.79	7.42	8.47	9.41	9.23	10.00	9.40	8.68	8.78	7.94
5/23/2019 16:50	988	621	501	931	1,107	915	856	1,492	1,719	1,631	1,958	1,488	1,015	1,089	1,167	8.54	7.83	6.60	8.60	9.26	8.24	8.67	8.91	9.99	9.81	10.51	9.17	8.02	8.38	8.49
5/23/2019 17:00	801	406	288	654	810	864	763	1,226	1,442	1,267	1,807	1,168	1,106	1,351	1,471	8.13	6.78	5.68	7.16	8.21	8.18	8.19	8.20	9.21	8.66	9.88	8.28	8.32	9.28	9.17
5/23/2019 17:10	761	323	336	617	801	893	760	1,743	1,422	1,358	1,914	1,237	1,052	1,582	1,717	8.01	5.90	5.97	7.19	8.22	8.13	8.20	9.67	8.93	8.82	10.31	8.55	8.19	9.78	9.69
5/23/2019 17:20	620	343	330	635	827	669	687	1,676	1,448	1,330	1,725	1,341	1,143	1,717	1,853	7.02	5.93	6.03	7.28	8.23	7.39	8.14	9.39	9.12	8.91	9.70	8.87	8.25	10.41	10.22
5/23/2019 17:30	822	408	379	712	772	667	521	1,432	1,593	1,521	1,914	1,578	1,389	2,001	1,942	7.95	6.46	6.16	7.59	8.02	7.40	7.19	8.86	9.61	9.48	10.32	9.51	9.07	11.06	10.59
5/23/2019 17:40	708	338	286	1,030	1,235	1,061	1,001	1,524	1,866	1,694	1,907	1,638	1,421	1,905	1,929	7.39	6.06	5.65	8.65	9.39	8.59	8.96	9.14	10.68	10.04	10.38	9.52	9.04	10.66	10.27
5/23/2019 17:50	885	378	555	1,735	1,785	1,584	1,368	1,373	1,750	1,526	2,000	1,821	1,798	1,977	1,932	7.70	5.98	6.59	10.98	11.47	10.57	9.87	8.							

5/23/2019 21:10	1,999	1,994	2,000	280	2,000	371	2,000	2,000	2,000	2,000	2,000	2,000	2,001	2,001	15.64	15.23	16.44	1.65	17.32	3.23	17.49	15.53	15.80	15.06	15.42	12.99	13.88	13.88	13.62	
5/23/2019 21:20	2,000	2,004	1,999	159	2,000	251	2,000	2,000	1,999	2,000	-5	2,000	1,999	2,001	2,000	14.90	14.68	16.69	0.94	17.06	2.18	15.89	13.83	13.14	14.08	14.73	13.10	13.09	13.83	13.96
5/23/2019 21:30	1,989	1,998	2,000	39	2,000	130	2,000	2,000	2,000	2,000	-5	2,000	2,000	2,000	2,000	14.67	15.18	17.16	3.10	15.99	1.14	16.55	13.67	14.02	14.55	14.68	13.91	12.89	13.70	13.79
5/23/2019 21:40	2,013	1,994	2,000	1,325	2,000	17	2,000	2,000	2,000	1,999	-5	2,001	2,000	2,000	2,000	15.08	13.76	16.57	16.67	17.00	6.93	15.53	14.72	13.24	13.92	15.72	14.54	12.34	13.11	14.48
5/23/2019 21:50	2,001	2,006	2,000	1,996	1,999	1,838	1,999	2,000	1,999	2,000	-5	2,000	2,000	2,000	1,999	14.98	14.56	16.91	15.55	16.93	15.22	15.15	14.09	13.54	14.31	14.43	12.76	11.76	13.78	12.96
5/23/2019 22:00	1,999	2,000	1,999	2,002	2,000	2,000	2,000	2,000	2,000	2,000	-5	1,999	1,999	2,001	1,999	14.97	14.89	17.07	15.48	16.56	15.69	15.93	14.67	13.08	13.97	13.92	12.15	12.11	13.49	13.57
5/23/2019 22:10	2,001	1,999	1,999	1,998	2,000	2,000	2,001	2,000	2,000	2,000	852	2,000	1,999	2,001	2,000	15.57	15.40	17.34	14.51	16.66	15.98	16.03	14.01	13.27	14.06	12.52	12.20	12.06	12.97	12.52
5/23/2019 22:20	2,000	1,987	2,000	1,999	1,999	1,999	1,999	2,000	2,000	2,000	2,000	2,001	1,999	2,000	2,000	15.79	14.29	17.21	15.14	16.41	15.37	15.85	14.00	13.63	13.46	13.90	12.57	12.11	13.49	12.99
5/23/2019 22:30	1,148	1,112	1,308	1,418	1,138	1,444	1,104	1,178	1,175	1,207	1,210	1,414	1,247	1,310	1,249	15.90	15.40	17.78	15.36	16.85	15.88	16.30	14.72	14.00	14.09	14.41	13.51	13.30	13.21	12.96
5/23/2019 22:40	-23	-23	-25	-22	-24	-19	-23	-25	-23	-23	-11	-23	-25	-22	-22	15.38	15.18	18.21	16.76	17.97	16.88	16.32	14.92	13.42	13.90	14.85	14.67	14.67	13.80	13.76
5/23/2019 22:50	837	805	843	802	845	814	841	820	839	832	851	799	835	843	834	15.56	15.91	18.12	16.84	17.19	16.68	16.21	14.21	13.32	14.13	14.20	13.90	12.90	13.85	13.94
5/23/2019 23:00	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	15.05	14.88	16.88	15.65	16.69	16.00	15.56	13.61	13.51	13.62	13.88	13.51	13.22	13.49	13.77
5/23/2019 23:10	2,001	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	15.15	14.89	17.21	15.39	16.40	15.82	14.79	14.16	13.81	14.43	14.67	14.15	13.61	13.75	13.83
5/23/2019 23:20	2,000	2,000	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	15.23	14.78	16.70	15.47	16.02	15.67	15.14	14.04	13.74	14.23	14.96	14.10	13.41	13.91	14.04
5/23/2019 23:30	2,000	1,999	1,999	2,000	2,000	1,999	1,999	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	14.77	14.44	17.57	15.97	16.74	15.63	15.17	14.04	14.09	14.25	15.00	13.91	13.40	14.22	13.03
5/23/2019 23:40	1,998	2,000	2,000	1,999	1,999	2,000	2,000	1,999	2,000	2,000	1,999	2,000	2,000	2,000	1,999	15.26	14.58	17.92	16.16	16.89	15.83	15.59	14.17	14.30	15.36	14.91	14.18	14.50	14.09	14.18
5/23/2019 23:50	2,000	1,999	2,000	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	16.08	15.57	18.53	16.66	17.62	16.39	16.00	14.78	15.40	14.50	15.70	14.09	15.16	15.84	15.34
5/24/2019 0:00	2,001	2,000	2,000	1,999	2,000	2,000	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,002	2,000	16.86	15.60	20.13	16.96	19.14	18.07	17.27	16.25	14.59	14.89	17.11	14.57	14.66	16.39	14.78
5/24/2019 0:10	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,001	2,000	2,000	2,000	2,001	2,000	2,000	16.54	16.95	19.17	17.82	18.65	18.39	17.95	15.80	15.51	16.50	16.87	16.08	15.68	15.54	16.03
5/24/2019 0:20	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,999	1,999	2,000	2,000	2,000	2,000	2,000	18.09	19.00	21.71	18.54	20.29	20.30	18.17	17.29	16.65	16.52	17.92	15.42	16.79	18.09	16.39
5/24/2019 0:30	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,999	1,999	2,000	2,000	2,000	2,001	1,999	18.29	19.43	22.04	18.89	20.71	20.59	20.76	18.18	17.72	17.45	17.86	16.27	17.16	18.18	17.29
5/24/2019 0:40	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,999	2,000	1,999	18.79	17.32	21.79	19.15	20.18	20.63	19.70	18.41	16.46	18.26	17.90	17.46	17.19	17.24	18.18
5/24/2019 0:50	1,285	1,211	1,429	1,541	1,251	1,636	1,213	1,286	1,259	1,360	1,360	1,542	1,405	1,438	1,408	19.13	19.03	22.83	20.12	21.09	20.60	20.35	18.32	18.92	18.91	18.98	17.38	17.86	18.82	17.43
5/24/2019 1:00	-23	-24	-25	-24	-23	-24	-22	-27	-23	-23	-21	-22	-25	-23	-23	20.14	18.86	25.08	20.50	21.19	21.43	21.65	19.49	18.98	20.73	19.61	18.70	17.93	19.05	18.84
5/24/2019 1:10	854	841	850	-12	859	810	852	832	830	833	836	808	822	844	831	18.19	18.64	21.97	18.89	20.63	20.91	21.66	18.03	18.69	18.54	18.12	16.52	16.56	18.27	16.92
5/24/2019 1:20	2,000	2,000	2,000	-3	2,000	2,000	2,000	2,000	1,998	1,999	1,999	1,992	2,000	2,000	2,000	17.53	17.23	20.99	17.75	18.93	19.18	19.70	19.30	15.80	18.03	18.30	17.38	16.42	17.38	16.72
5/24/2019 1:30	2,000	2,000	2,000	-3	2,000	2,000	2,000	1,999	2,000	2,000	1,998	2,007	2,000	2,000	2,001	16.59	16.36	20.42	18.40	19.10	18.55	18.19	16.65	16.80	16.39	17.38	15.13	16.07	16.78	16.21
5/24/2019 1:40	1,999	2,001	1,999	-3	2,000	1,999	2,000	1,996	2,000	2,000	2,001	2,000	2,000	2,000	2,000	16.54	17.29	18.39	17.62	17.59	15.67	15.86	16.79	16.73	16.06	16.46	15.85	16.15	17.28	17.13
5/24/2019 1:50	1,999	2,000	2,000	-4	1,999	1,999	1,995	1,989	2,000	1,997	1,999	2,000	1,999	2,000	1,999	15.54	15.23	19.51	18.28	17.37	16.20	16.45	15.62	16.02	15.91	16.43	15.17	13.22	14.74	15.27
5/24/2019 2:00	1,985	1,982	2,000	-4	2,000	2,001	1,999	1,432	1,999	1,999	2,000	1,999	2,000	2,000	1,996	14.80	15.14	18.86	15.41	17.10	15.04	14.96	16.14	16.60	15.91	17.81	14.44	13.35	15.25	15.04
5/24/2019 2:10	2,011	2,018	2,000	-4	2,000	2,000	1,999	1,378	1,990	2,000	1,999	2,001	2,000	2,000	2,004	15.65	15.11	17.22	16.08	16.07	14.89	14.92	16.89	16.11	15.94	16.81	15.09	14.83	15.12	14.82
5/24/2019 2:20	1,999	1,998	1,998	-4	1,998	2,000	2,002	2,000	2,006	1,998	1,998	1,999	2,000	2,000	2,002	16.10	14.91	18.48	16.97	16.62	15.84	15.58	17.12	16.59	16.59	16.88	15.72	14.22	16.46	16.50
5/24/2019 2:30	1,998	1,999	1,998	-5	2,003	2,000	1,999	2,000	1,999	2,000	2,000	2,000	2,000	2,001	1,999	16.83	16.40	17.54	16.51	16.81	15.80	17.50	15.67	15.80	15.54	17.37	15.66	14.98	16.72	14.71
5/24/2019 2:40	2,000	2,000	2,001	-5	2,000	2,000	2,001	1,998	1,999	1,999	2,000	1,996	1,999	2,000	1,998	15.54	14.96	17.90	15.96	17.00	16.16	15.12	14.99	16.08	16.34	15.29	15.24	13.74	15.99	13.40
5/24/2019 2:50	1,976	2,000	1,999	-5	1,999	1,999	1,999	2,002	2,001	2,000	2,000	1,999	2,000	1,995	1,999	14.02	15.33	17.91	15.64	16.42	16.22	16.23	14.62	15.49	16.87	17.20	13.64	13.12	14.17	14.33
5/24/2019 3:00	1,857	1,938	1,974	14	1,990	1,989	1,982	2,000	1,987	2,000	1,999	1,952	1,997	1,960	1,999	12.91	13.42	16.00	14.13	14.22	14.83	16.33	13.83	14.17	13.80	15.53	12.09	12.11	12.31	13.46
5/24/2019 3:10	1,904	1,852	1,876	1,877	1,982	2,006	2,018	1,972	1,983	1,974	1,978	2,018	1,859	1,815	1,972	13.07	12.28	13.84	13.10	13.90	14.45	14.75	12.29	12.21	12.33	13.39	13.27	11.05	11.24	11.68
5/24/2019 3:20	1,859	1,859	1,944	1,912	2,004	2,005	2,001	2,003	2,002	1,988	1,981	1,988	1,561	1,827	1,835	12.40	12.72	14.90	13.32	14.58	14.37	13.78	11.50	12.00	11.99	12.19	12.60	9.18	11.25	10.77
5/24/2019 3:30	2,011	1,911	1,934	1,951	1,999	1,990	1,980	2,001	1,958	1,998	2,009	1,962	1,841	1,932	1,936	14.76	12.83	13.93	13.90	14.68	13.93	14.58	11.75	11.55	11.61	12.2				

5/24/2019 7:30	1,884	1,888	1,879	1,907	1,997	1,796	1,535	1,362	1,600	1,525	1,372	473	197	982	837	13.48	13.71	13.94	12.80	13.77	11.65	10.79	8.74	9.54	9.60	9.42	5.92	4.76	7.94	7.49
5/24/2019 7:40	2,010	2,007	1,963	1,969	2,000	1,919	1,669	1,700	1,882	1,955	1,936	1,218	447	1,623	1,427	14.39	14.95	14.99	13.27	14.67	12.71	11.25	9.69	10.87	11.43	11.31	8.32	5.92	10.21	9.00
5/24/2019 7:50	1,999	1,991	1,921	1,857	1,950	1,683	1,408	1,818	1,637	1,681	1,859	1,081	359	1,671	1,327	13.79	14.03	14.22	13.28	13.88	11.51	9.98	9.86	9.43	9.68	10.69	7.65	5.50	10.33	8.39
5/24/2019 8:00	1,926	1,969	1,867	1,853	1,958	1,769	1,441	1,791	1,881	1,951	1,952	985	356	1,641	1,329	13.70	13.52	13.89	12.74	13.39	11.50	10.15	10.11	10.75	10.98	11.30	7.52	5.51	9.82	8.53
5/24/2019 8:10	1,939	1,922	1,784	1,764	1,837	1,593	1,303	2,017	1,888	1,795	1,811	695	557	1,783	1,465	12.87	13.68	13.01	12.17	12.30	10.99	9.65	11.70	11.28	10.54	10.18	6.68	6.22	11.53	9.50
5/24/2019 8:20	1,987	2,008	1,934	1,854	1,910	1,761	1,550	2,000	2,004	2,001	2,017	1,260	534	1,780	1,659	14.60	14.13	13.96	12.58	13.22	11.99	11.00	11.61	11.80	11.98	12.15	8.77	5.92	10.88	9.21
5/24/2019 8:30	1,999	1,999	1,962	1,992	1,923	1,909	1,801	2,000	1,999	2,009	2,000	1,997	987	1,987	1,893	14.48	15.05	14.66	13.54	13.72	12.99	12.60	12.86	11.87	12.68	13.29	11.01	7.29	12.64	10.86
5/24/2019 8:40	2,001	2,000	1,837	1,783	1,896	1,765	1,711	2,000	2,001	1,996	1,999	1,755	536	1,668	1,489	14.83	14.41	13.31	12.33	13.58	11.81	11.81	14.24	12.55	12.46	12.19	10.23	5.75	10.25	9.23
5/24/2019 8:50	1,994	2,000	1,936	1,779	1,840	1,896	1,829	2,000	1,999	1,962	1,922	1,549	431	1,417	1,262	14.85	15.21	14.49	12.46	13.02	12.68	12.53	14.63	12.43	11.68	11.52	9.37	5.75	9.39	8.12
5/24/2019 9:00	1,900	1,966	1,993	1,677	1,918	1,921	1,866	2,000	1,950	2,000	2,002	1,740	799	1,372	1,509	13.27	14.78	15.10	12.03	13.89	13.19	12.77	12.97	11.07	12.00	12.22	10.69	7.04	9.62	9.71
5/24/2019 9:10	2,017	1,972	1,763	1,623	1,739	1,513	1,290	2,000	2,010	2,000	1,951	1,484	589	1,144	1,369	14.51	13.23	13.23	11.55	11.93	10.46	9.88	12.83	12.12	12.25	11.22	9.30	6.26	8.16	8.67
5/24/2019 9:20	1,942	1,935	1,610	1,718	1,875	1,507	1,148	1,994	1,942	1,855	1,994	1,750	832	1,278	1,400	13.51	13.31	12.69	12.22	12.69	10.70	9.00	11.66	11.12	11.13	11.82	10.49	6.85	8.68	8.58
5/24/2019 9:30	1,352	1,817	1,827	1,957	2,017	1,854	1,610	2,005	1,801	1,906	1,840	1,305	720	958	1,490	12.08	13.18	14.16	13.69	14.35	12.05	11.29	11.93	10.53	10.79	10.84	8.93	6.91	8.56	8.91
5/24/2019 9:40	1,905	1,967	1,623	1,688	1,672	1,426	1,273	1,840	1,992	2,010	2,008	1,309	7	1,318	1,095	14.81	13.81	12.43	11.76	11.46	10.57	9.89	10.29	11.41	11.77	11.74	8.99	5.31	8.94	7.99
5/24/2019 9:50	1,977	1,930	1,874	1,692	1,834	1,753	1,615	1,840	1,885	1,747	1,888	1,102	106	1,335	1,160	14.01	13.37	13.85	12.12	12.91	12.47	11.86	10.67	10.99	10.62	10.78	8.19	5.50	9.05	8.10
5/24/2019 10:00	1,960	1,887	1,813	1,871	1,841	1,499	1,319	1,899	1,317	1,382	1,160	869	570	425	1,133	13.00	13.06	13.22	12.58	12.22	10.64	10.22	10.41	8.87	9.15	8.31	7.48	6.21	5.70	8.58
5/24/2019 10:10	1,879	1,695	1,781	1,792	1,943	1,787	1,585	1,940	1,734	1,759	1,740	1,191	494	756	1,050	12.76	12.19	13.03	12.16	13.06	11.57	10.73	11.13	10.13	10.20	10.10	8.92	6.10	6.59	7.77
5/24/2019 10:20	1,978	1,848	1,806	1,903	1,779	1,432	1,192	2,000	1,985	2,009	2,004	1,772	1,146	1,380	1,684	13.78	13.11	13.59	12.83	12.55	10.33	9.05	11.45	11.79	12.40	11.66	10.66	8.18	9.07	9.51
5/24/2019 10:30	2,020	2,015	1,935	1,841	1,954	1,854	1,779	1,993	2,001	1,937	1,924	1,186	353	1,540	1,444	16.02	15.43	14.97	12.96	13.77	13.21	12.88	12.08	11.65	11.32	10.87	8.33	5.33	10.12	9.11
5/24/2019 10:40	1,996	1,999	1,975	1,903	1,964	1,928	1,846	1,999	1,999	1,976	1,953	1,145	444	1,722	1,689	15.23	14.56	15.29	12.79	14.15	13.32	12.57	12.73	13.51	12.61	11.61	8.26	6.09	10.34	9.28
5/24/2019 10:50	1,955	1,997	2,002	1,920	1,990	2,000	2,000	2,000	1,991	1,849	1,723	1,388	740	1,375	1,572	13.95	14.63	15.34	13.20	14.55	14.44	13.97	11.94	11.73	10.83	10.46	8.88	7.06	9.46	9.61
5/24/2019 11:00	1,943	1,994	1,960	1,791	1,866	1,945	1,901	1,953	1,938	2,011	1,945	999	346	1,248	1,152	14.25	14.23	15.08	12.45	13.49	13.23	13.06	11.43	10.95	11.28	11.12	8.03	5.47	8.87	7.98
5/24/2019 11:10	1,905	1,976	1,781	1,671	1,778	1,626	1,400	1,765	1,530	1,406	1,665	1,213	590	886	1,423	12.86	13.47	12.94	12.13	11.92	10.96	10.45	10.45	9.57	9.16	9.88	8.89	6.42	7.57	9.03
5/24/2019 11:20	1,962	1,666	1,825	1,968	1,914	1,482	1,132	1,736	1,705	1,572	1,713	1,288	869	632	1,569	12.94	11.39	13.70	13.06	12.98	10.42	8.92	10.30	9.95	9.73	10.13	8.97	7.96	6.48	9.23
5/24/2019 11:30	1,481	1,703	1,816	1,906	1,871	1,538	1,151	1,991	1,821	1,836	2,010	1,901	1,233	1,339	1,737	12.36	12.08	13.92	12.64	12.80	10.37	9.13	11.49	10.52	10.60	11.62	11.00	8.53	8.89	10.41
5/24/2019 11:40	1,823	1,706	1,899	1,763	1,823	1,460	995	2,001	1,643	1,633	1,965	1,573	981	937	1,586	12.12	11.96	14.06	12.14	12.96	10.20	8.14	12.03	10.34	10.03	10.83	9.71	7.45	7.76	9.54
5/24/2019 11:50	1,954	1,836	1,666	1,297	1,633	1,256	957	1,996	1,527	1,987	1,980	1,466	651	983	1,131	13.70	12.62	12.58	11.06	11.60	9.33	8.55	11.83	9.51	11.22	11.23	9.68	7.00	7.99	8.46
5/24/2019 12:00	1,685	1,670	1,745	1,974	1,960	1,586	1,132	1,872	1,355	1,424	1,729	873	473	661	1,140	11.54	11.75	13.16	13.03	13.07	10.55	8.52	10.14	8.81	9.08	9.64	7.67	5.62	6.51	8.33
5/24/2019 12:10	1,659	1,675	1,251	1,096	995	852	646	1,602	1,215	1,158	1,101	433	115	445	403	11.45	11.03	10.60	9.37	8.72	8.24	7.46	9.34	8.48	8.47	8.12	5.77	3.95	5.95	5.67
5/24/2019 12:20	1,690	1,400	1,313	981	1,262	801	510	1,571	1,169	852	879	205	77	303	422	11.65	10.64	10.41	9.11	9.97	7.49	6.39	9.35	8.51	7.75	7.40	4.92	3.87	5.72	6.12
5/24/2019 12:30	1,327	1,219	721	750	563	256	158	1,073	686	575	805	389	122	-15	677	9.96	9.69	8.24	7.97	6.92	5.12	4.32	8.13	7.20	6.74	7.43	5.82	4.17	5.63	6.81
5/24/2019 12:40	914	846	717	682	401	314	267	1,338	1,077	899	925	146	100	413	317	8.41	8.36	7.90	7.64	6.22	5.49	5.17	8.70	8.10	7.82	7.80	4.31	3.85	5.57	5.39
5/24/2019 12:50	715	733	1,036	1,042	858	1,052	786	1,047	759	763	834	129	-18	429	407	7.66	8.01	9.07	8.79	8.28	8.69	7.91	8.12	7.24	7.42	7.59	4.28	3.38	5.45	5.76
5/24/2019 13:00	971	755	905	855	676	874	646	1,075	838	627	695	62	48	669	495	9.30	8.24	8.43	7.98	7.48	8.05	7.60	8.08	7.52	6.80	6.92	3.59	3.58	6.97	5.94
5/24/2019 13:10	938	1,083	1,302	963	1,017	1,285	1,122	1,760	1,308	825	889	89	97	791	570	9.08	9.35	10.08	8.79	8.98	9.64	9.19	10.04	8.73	7.48	7.43	3.76	4.00	7.21	6.59
5/24/2019 13:20	1,658	1,634	1,452	1,545	1,296	1,366	1,276	1,689	1,427	1,219	1,238	234	49	830	676	11.01	11.01	10.95	10.65	9.96	9.74	9.57	9.63	9.10	8.65	8.49	5.01	3.46	7.30	6.56
5/24/2019 13:30	1,264	1,200	920	861	828	790	746	1,277	1,449	1,546	1,565	708	234	174	366	9.93	9.30	8.78	8.14	7.91	7.53	7.76	8.63	9.25	9.53	9.52	6.64	4.64	4.72	5.44
5/24/2019 13:40	1,471	1,380	1,361	1,119	1,247	1,314	1,062	1,945	1,953	1,803	1,818	410	375	1,193	883	10.78	10.51	10.72	9.57	9.79	9.74	9.33	10.76	11.25	10.99	10.32	5.79	5.65	8.43	6.97
5/24/2019 13:50	1,691	1,227	1,165	1,279	965	1,026	800	1,999	1,922	1,597	1,230	229	594	1,690	1,171	11.45	9.60	9.83	9.94	8.33	8.71	7.95	10.78	10.68	9.34	7.82	4.69	6.89	10.13	7.76
5/24/2019 14:00	1,771	1,411	1,432	1,565	1,334	1,389	1,141	1,864	1,769	1,377	1,245	258	643	1,506	1,348	12.24	10.93	11.03	10.96	10.26	10.35	9.20	10.91	10.04	8.87	8.18	4.88	6.70		

5/24/2019 17:50	794	482	590	353	631	679	579	752	846	630	1,176	800	795	1,203	1,187	7.96	6.89	7.32	5.52	7.51	7.24	7.07	7.06	7.46	6.93	8.48	7.33	7.23	8.39	8.19
5/24/2019 18:00	768	481	685	240	665	562	585	621	717	719	1,162	568	858	1,123	1,256	7.64	6.82	7.57	4.78	7.40	6.82	6.99	6.59	7.07	7.17	8.40	6.67	7.54	8.19	8.38
5/24/2019 18:10	850	295	481	173	805	652	1,001	594	654	380	850	660	551	861	1,046	7.77	5.67	6.60	4.17	7.92	7.01	8.79	6.46	6.82	5.79	7.58	7.24	6.58	7.55	7.88
5/24/2019 18:20	741	145	370	197	1,160	1,304	1,313	345	296	323	467	314	474	595	829	7.77	4.60	5.83	4.72	9.54	9.40	9.84	5.64	5.39	5.55	6.12	5.58	6.43	6.58	7.47
5/24/2019 18:30	1,019	515	720	268	1,193	1,136	1,287	573	600	573	664	635	628	919	1,227	8.74	6.76	7.70	4.93	9.76	8.87	9.43	6.69	6.92	6.73	6.84	6.94	6.94	8.04	8.55
5/24/2019 18:40	429	126	240	104	435	575	641	650	541	548	809	356	541	921	1,025	6.82	4.44	4.93	3.70	6.39	6.80	7.52	6.78	6.33	6.69	7.25	5.69	6.65	7.96	7.86
5/24/2019 18:50	295	35	160	237	632	659	689	229	132	132	142	118	158	324	405	5.79	2.84	4.59	5.11	7.69	7.32	8.01	4.78	4.40	4.29	4.11	4.28	4.79	5.35	6.08
5/24/2019 19:00	341	70	217	205	992	1,158	1,110	140	82	77	94	133	145	319	463	6.18	3.59	4.92	4.90	9.03	9.42	9.42	4.47	3.89	4.03	3.86	4.38	4.74	5.61	6.34
5/24/2019 19:10	378	179	206	118	571	447	428	116	76	143	295	265	331	558	764	5.88	4.30	4.36	3.81	7.05	6.20	5.92	4.09	3.78	4.61	5.53	5.46	5.84	6.44	7.41
5/24/2019 19:20	160	14	-5	29	229	189	195	105	117	110	214	138	171	275	466	4.72	2.58	2.30	2.84	5.52	4.75	5.25	4.14	4.38	4.10	4.96	4.46	4.76	5.23	6.19
5/24/2019 19:30	172	81	88	1	183	140	185	38	52	101	203	168	186	272	315	5.06	4.02	3.89	2.28	5.12	4.33	4.86	3.39	3.52	4.19	4.84	4.68	5.05	5.34	5.65
5/24/2019 19:40	90	8	11	43	184	146	163	140	130	147	169	215	146	203	247	3.87	2.80	2.96	3.02	4.93	4.36	4.88	4.61	4.41	4.68	4.71	5.02	4.65	4.57	5.25
5/24/2019 19:50	83	-3	4	-3	209	232	163	129	101	127	152	149	97	117	144	3.78	2.40	2.70	3.26	5.27	5.22	4.66	4.43	4.21	4.50	4.41	4.65	4.42	3.93	4.58
5/24/2019 20:00	64	-10	-5	-4	195	190	205	65	45	72	107	109	53	91	137	3.48	1.82	2.15	3.24	5.20	4.93	5.21	3.87	3.61	3.97	4.19	4.29	4.10	3.76	4.57
5/24/2019 20:10	96	-5	-2	-5	223	189	182	30	-2	30	88	72	26	103	130	4.00	2.18	2.50	4.00	5.45	5.17	5.18	3.27	2.89	3.57	3.97	3.92	3.79	3.96	4.59
5/24/2019 20:20	39	-14	19	-6	197	210	199	32	6	8	78	49	-8	54	89	3.23	2.78	2.81	2.88	5.39	5.32	5.24	3.53	3.15	3.14	3.90	3.57	3.28	3.40	4.19
5/24/2019 20:30	139	10	13	-1	360	331	277	138	112	147	232	198	155	172	191	4.21	2.76	2.81	3.94	6.28	5.76	5.65	4.58	4.38	4.79	5.17	4.86	4.83	4.49	4.98
5/24/2019 20:40	169	6	19	74	327	322	306	95	75	119	220	270	220	292	324	4.55	2.69	2.66	3.44	6.18	6.10	5.88	4.07	3.97	4.42	4.96	5.30	5.07	5.15	5.74
5/24/2019 20:50	149	22	34	-1	230	209	230	118	60	38	183	214	117	150	169	4.54	3.04	3.15	2.29	5.68	5.21	5.54	4.34	3.60	3.46	4.85	4.15	4.52	4.26	4.67
5/24/2019 21:00	135	50	81	-3	291	274	249	89	73	69	219	155	128	176	188	4.44	3.50	3.80	3.36	6.14	5.60	5.92	4.06	3.97	4.09	4.99	4.54	4.53	4.43	4.91
5/24/2019 21:10	193	82	114	-3	454	420	330	112	76	84	285	235	219	334	436	4.89	3.91	4.28	3.43	6.56	6.65	6.45	4.27	3.99	3.98	5.47	5.12	5.18	5.50	6.37
5/24/2019 21:20	203	29	87	-3	561	532	506	208	197	265	524	490	489	529	626	4.88	2.61	3.84	3.40	7.33	7.04	7.38	5.02	5.07	5.54	6.43	6.19	6.42	6.27	6.93
5/24/2019 21:30	194	59	84	-3	512	434	490	149	156	195	419	334	358	388	436	5.09	3.50	3.74	3.36	7.16	6.24	7.05	4.59	4.76	5.04	6.03	5.63	5.88	5.63	6.37
5/24/2019 21:40	134	-3	0	-3	296	323	339	143	116	173	316	279	251	286	329	4.36	2.26	2.48	3.08	5.92	5.85	6.08	4.51	4.32	4.84	5.47	5.43	5.33	5.44	5.78
5/24/2019 21:50	206	91	-9	-3	380	448	416	197	180	146	290	246	164	187	163	4.93	4.31	5.13	5.55	6.63	6.69	7.08	4.97	4.86	4.52	5.37	5.38	4.90	4.46	4.81
5/24/2019 22:00	315	187	153	-4	420	478	443	109	134	30	152	91	16	64	101	5.90	5.34	4.91	6.20	6.85	6.50	7.11	4.38	4.54	3.13	4.49	4.22	3.59	3.49	4.11
5/24/2019 22:10	248	115	180	-4	481	496	417	77	66	48	37	29	-36	10	21	5.20	4.28	4.53	6.11	6.96	6.71	6.65	3.94	3.93	3.71	3.32	3.21	2.93	2.78	3.18
5/24/2019 22:20	238	61	128	-4	456	410	405	-10	-11	-12	3	9	-7	96	128	5.18	3.37	3.92	6.06	6.83	6.27	6.70	2.46	2.32	2.14	2.84	3.03	3.26	3.91	4.40
5/24/2019 22:30	264	164	241	-4	545	555	537	33	17	30	100	73	100	251	274	5.19	4.81	5.14	6.70	6.95	6.83	7.20	3.42	3.34	3.59	4.11	3.80	4.33	5.26	5.47
5/24/2019 22:40	491	287	398	-4	667	759	722	166	217	221	297	221	240	348	377	6.67	6.16	6.31	7.68	7.20	7.72	7.81	4.77	5.22	5.31	5.53	5.10	5.44	5.77	6.09
5/24/2019 22:50	509	323	444	-4	829	787	759	202	243	254	399	281	240	340	386	7.02	6.00	6.29	8.26	8.49	7.67	8.22	4.98	5.34	5.37	5.86	5.50	5.25	5.66	5.94
5/24/2019 23:00	298	237	373	-4	593	713	533	96	143	101	212	155	125	183	211	5.42	5.51	5.92	7.03	7.66	7.63	7.43	3.99	4.57	3.96	4.92	4.63	4.56	4.70	5.15
5/24/2019 23:10	251	160	267	-4	488	502	498	18	33	30	208	110	52	106	107	5.40	5.02	5.40	6.72	7.19	7.00	6.97	3.18	3.35	3.29	4.99	4.24	3.99	4.05	4.35
5/24/2019 23:20	125	71	159	-4	388	380	410	-17	-16	-6	95	74	11	43	71	4.04	3.65	4.38	6.06	6.53	6.47	6.69	2.39	2.52	2.84	3.85	3.85	3.42	3.20	3.90
5/24/2019 23:30	26	-11	-12	-4	171	218	293	-13	-12	-13	-5	-18	-36	-5	40	2.81	1.72	2.20	3.12	4.95	5.12	5.99	2.46	2.71	2.36	2.66	2.38	2.26	2.60	3.55
5/24/2019 23:40	0	-10	-9	-4	107	137	170	-11	-10	-11	-12	-13	-32	-11	65	2.34	1.64	2.30	3.44	4.07	4.34	4.77	2.31	2.59	2.18	2.40	2.31	2.03	2.50	3.91
5/24/2019 23:50	11	-9	22	-4	90	112	163	-11	-9	-10	-15	-13	-33	-8	76	2.61	1.72	2.92	3.93	3.90	4.14	4.80	1.80	2.24	2.06	2.25	2.23	2.08	2.56	4.04
5/25/2019 0:00	43	16	59	-4	79	75	99	-12	-9	-11	-11	-11	-35	-2	52	3.21	3.09	3.18	4.55	3.89	3.71	4.14	1.73	1.64	1.95	2.39	2.03	1.92	2.61	3.66
5/25/2019 0:10	49	29	65	-4	11	80	88	-11	-13	-14	-1	-11	-36	-16	45	3.23	3.16	3.26	4.34	4.03	4.11	4.22	2.36	2.26	2.25	2.73	2.48	2.38	2.50	3.61
5/25/2019 0:20	91	51	106	-4	9	104	108	-10	-9	-14	1	-14	-37	2	70	4.08	3.63	3.74	4.76	4.53	4.35	4.43	2.37	1.95	2.36	2.90	2.55	2.36	2.62	3.95
5/25/2019 0:30	54	26	74	-4	65	63	68	-11	-8	-11	-14	-13	-34	-7	44	3.69	3.24	3.34	4.64	3.78	3.80	3.80	1.72	1.48	1.97	2.50	2.32	1.98	2.61	3.59
5/25/2019 0:40	30	8	35	-4	31	31	31	-11	-8	-10	-3	-15	-35	-3	36	3.24	2.97	2.86	4.14	3.34	3.31	3.40	2.47	1.81	2.73	3.03	2.68	2.30	2.67	3.57
5/25/2019 0:50	27	15	29	-4	25	10	2	-12	-8	-13	8	-13	-33	3	19	3.19	3.01	2.87	4.08	3.39	2.70	2.37	2.87	2.51	2.91	3.12	2.81	2.77	2.77	3.23
5/25/2019 1:00	31	20	22	-4	8	0	10	-11	-8	-13	-15	-11	-33	-9	7	3.14	3.20	2.50	4.22	2.79	2.51	2.61	2.42	2.43	2.06	2.80	2.53	2.59	2.59	3.27
5/25/2019 1:10	16	8	10	-4	0	4	9	-11	-8	-11	-13	-10	-35	5	32	2.91	3.06	2.39	3.91	2.53	2.61	2.65	2.32	2.62	2.18	2.58	2.90	2.95	2.78	3.71
5/25/2019 1:20	25	26	20	-4	18	25	32	-11	-9	-13	18	1	-29	16	32	3.15	3.29	2.93												

5/25/2019 4:10	-9	-8	-6	-5	-8	-8	-8	-11	-13	-9	-8	-9	-31	-10	-9	2.77	2.37	2.48	2.76	2.46	2.46	2.74	2.63	2.67	2.48	2.77	2.44	2.68	2.47	2.33
5/25/2019 4:20	-9	-9	-7	-5	-9	-8	-8	-11	-13	-9	-10	-9	-31	-10	-9	2.53	2.08	2.34	2.51	2.53	2.73	3.14	2.53	2.74	2.71	2.98	2.36	2.43	2.47	2.32
5/25/2019 4:30	-8	-8	-7	-5	-8	-3	-8	-11	-8	-9	-9	-8	-31	-10	-9	2.57	1.94	2.35	2.61	2.53	3.12	3.16	2.17	2.65	2.75	2.95	2.77	2.55	2.55	2.65
5/25/2019 4:40	-9	-8	-6	-5	-6	-5	-8	-11	-8	-10	-3	-9	-31	-11	-8	2.56	2.22	2.38	2.76	2.25	2.62	3.13	2.11	3.18	3.13	2.96	2.71	2.76	2.63	2.75
5/25/2019 4:50	-9	-8	-6	-5	-6	-5	-8	-12	-6	-10	8	-7	-32	-10	-7	2.72	2.45	1.99	2.93	2.58	2.70	2.86	2.75	2.57	2.23	3.14	2.87	2.78	2.91	2.75
5/25/2019 5:00	-7	-9	-7	-5	-6	-2	-9	3	-10	-9	19	-5	-32	-7	8	2.91	2.13	2.14	3.06	2.95	3.26	2.93	3.32	2.48	2.51	3.26	2.78	2.77	3.07	3.21
5/25/2019 5:10	43	-8	-6	-5	9	36	15	8	21	-1	22	13	-13	39	43	3.28	2.77	2.84	3.51	3.39	3.03	3.39	3.02	3.38	3.02	3.18	2.89	3.03	3.02	3.31
5/25/2019 5:20	9	-8	-6	-5	14	13	0	-3	1	-8	16	-5	-30	30	32	2.66	2.25	2.12	3.11	2.73	2.75	2.44	2.51	3.01	2.53	3.02	2.66	2.62	2.99	3.33
5/25/2019 5:30	-6	-8	-7	-5	-8	-8	-9	1	0	-10	-5	-6	-23	19	16	1.89	1.96	1.85	2.61	2.18	1.90	2.62	2.67	2.72	2.52	2.96	2.90	2.69	2.97	2.91
5/25/2019 5:40	7	-9	-8	-5	-10	1	-8	35	-13	-11	-4	-4	-21	2	5	2.69	2.60	1.64	2.64	2.24	2.91	3.20	3.44	2.17	2.22	2.85	2.78	2.70	2.39	2.67
5/25/2019 5:50	3	-10	-6	-5	-7	0	14	0	-9	-9	-10	-4	-18	-10	-2	2.53	1.90	2.14	3.24	2.50	2.32	2.95	2.85	2.47	1.44	2.32	2.64	2.80	2.13	2.48
5/25/2019 6:00	29	14	-6	-5	10	23	38	48	38	-9	33	-10	1	-9	46	2.83	3.05	2.55	3.24	3.18	2.95	3.26	3.63	3.58	2.15	3.20	2.53	3.08	2.43	3.35
5/25/2019 6:10	52	-4	-7	-5	61	40	37	54	43	12	67	-1	27	-5	62	3.60	2.36	3.14	4.33	3.57	3.02	3.36	3.63	3.68	3.50	3.82	3.28	3.48	2.84	3.54
5/25/2019 6:20	39	-12	-3	-5	21	6	-5	9	0	38	59	9	-20	47	78	3.24	3.03	3.74	3.37	2.75	2.46	3.44	3.28	2.68	3.19	3.58	3.19	2.52	3.18	3.90
5/25/2019 6:30	-9	27	7	-5	6	38	43	3	-11	-13	-7	-4	-24	-7	-6	2.29	3.02	2.55	3.21	3.28	3.06	3.29	2.55	2.13	2.07	2.53	2.83	2.49	2.55	2.91
5/25/2019 6:40	43	8	-9	-5	131	49	101	-12	-9	-10	-6	34	48	43	86	3.37	2.93	3.44	4.57	4.34	4.43	4.23	2.40	2.16	2.22	3.34	3.35	4.12	3.63	4.10
5/25/2019 6:50	180	34	12	-5	116	84	141	-10	-11	-9	69	51	32	40	155	4.77	3.40	3.35	4.51	4.13	4.21	4.41	2.93	2.77	3.12	3.95	3.73	3.40	3.02	4.41
5/25/2019 7:00	133	12	39	73	182	206	201	-8	3	5	41	16	67	33	31	4.27	2.85	3.23	5.12	4.74	4.96	5.27	2.84	3.28	2.96	3.44	3.05	3.95	3.60	3.71
5/25/2019 7:10	204	141	175	223	267	183	142	114	-11	-8	26	35	54	41	108	4.77	4.57	4.57	5.35	5.53	4.64	4.29	4.26	2.84	2.13	3.41	3.15	3.65	2.89	4.06
5/25/2019 7:20	126	69	86	-3	203	190	207	103	44	-12	108	108	107	126	192	4.76	3.89	3.84	4.80	5.03	5.03	5.59	3.88	3.56	2.39	3.96	4.10	4.08	3.99	4.65
5/25/2019 7:30	196	102	55	-9	218	250	247	67	189	63	131	84	144	86	253	5.01	3.71	3.33	4.78	5.07	5.19	5.45	3.97	4.73	4.07	4.34	3.97	4.59	3.64	5.18
5/25/2019 7:40	155	73	101	-5	212	146	80	144	38	-4	132	120	160	171	153	4.12	3.68	3.88	5.44	4.89	4.30	4.12	4.39	3.43	3.08	4.33	4.15	4.68	4.29	4.39
5/25/2019 7:50	28	34	78	-6	135	40	114	36	60	-10	71	87	53	79	104	3.70	2.99	3.58	4.96	4.46	3.33	4.61	3.00	3.52	2.99	3.79	3.92	3.50	3.45	4.13
5/25/2019 8:00	128	-11	93	-5	136	196	223	40	62	4	124	88	71	33	63	4.42	3.17	3.86	4.75	4.30	5.06	5.14	3.46	3.75	3.22	4.24	4.01	3.79	3.04	3.72
5/25/2019 8:10	148	69	81	-6	186	136	127	46	41	2	34	25	114	69	56	4.36	3.41	3.71	4.26	4.76	4.19	4.45	3.78	3.65	3.53	3.96	3.83	4.32	3.24	3.96
5/25/2019 8:20	113	81	95	-5	252	237	171	143	4	-14	33	13	52	27	103	3.78	4.31	3.94	5.46	5.06	5.27	5.13	4.33	3.19	2.79	2.98	2.92	3.48	3.33	4.00
5/25/2019 8:30	41	81	61	-4	175	169	96	62	33	-9	76	72	-23	15	124	3.33	3.62	3.82	4.52	4.83	4.67	4.28	3.40	3.75	3.39	4.51	4.50	3.13	2.92	4.34
5/25/2019 8:40	158	83	141	-3	226	29	44	4	156	35	123	142	128	166	69	4.87	3.60	4.53	4.83	5.13	5.11	3.54	3.90	4.82	3.63	4.22	4.68	4.85	4.41	3.83
5/25/2019 8:50	106	89	128	-3	202	15	110	62	19	-9	28	2	-12	36	99	4.07	3.99	4.27	4.88	4.90	4.73	4.79	3.14	2.95	2.91	3.30	3.25	2.67	3.30	4.60
5/25/2019 9:00	131	96	138	-3	281	262	290	130	-12	5	45	32	88	112	176	4.49	3.78	4.34	4.93	5.70	5.33	5.47	4.45	2.58	3.01	3.74	3.53	4.17	3.93	4.63
5/25/2019 9:10	68	44	142	-3	231	208	181	203	70	-11	78	18	120	145	209	4.18	3.77	4.48	4.98	5.09	4.84	5.25	4.81	4.00	3.26	4.21	3.83	4.32	4.11	4.93
5/25/2019 9:20	31	24	153	-3	231	250	253	61	161	175	220	188	113	72	132	3.39	3.39	4.30	5.03	5.41	5.32	5.57	3.95	4.89	4.70	5.07	5.00	4.30	3.86	4.94
5/25/2019 9:30	185	38	159	-3	137	298	236	-9	209	230	301	287	94	157	138	4.83	4.06	4.67	5.08	4.39	5.37	5.32	4.87	4.65	5.01	5.54	5.72	4.43	4.30	4.35
5/25/2019 9:40	92	15	140	-3	205	129	91	76	342	365	356	380	349	90	224	3.72	3.16	4.42	5.13	5.05	4.72	5.77	4.39	5.82	5.94	5.89	5.99	5.98	4.13	5.46
5/25/2019 9:50	227	162	335	-3	423	291	323	166	364	341	377	298	319	275	413	4.86	4.99	5.87	5.18	6.28	5.58	5.93	4.38	5.88	5.27	5.65	5.88	5.87	5.15	6.25
5/25/2019 10:00	160	113	284	-3	490	444	391	138	210	209	346	449	434	319	451	4.93	4.22	5.49	5.23	7.06	6.50	6.28	5.42	4.95	5.12	5.81	6.45	6.27	5.53	6.40
5/25/2019 10:10	386	232	364	-3	642	500	615	302	507	367	534	701	792	434	585	6.25	5.22	5.87	5.29	7.50	6.60	7.44	5.19	6.43	6.08	6.48	7.48	7.30	6.06	6.80
5/25/2019 10:20	521	236	443	-3	836	644	859	323	657	729	1,031	801	855	898	1,041	6.83	5.48	6.56	5.34	8.60	7.37	8.60	5.36	6.94	7.48	8.03	7.42	7.76	8.20	8.21
5/25/2019 10:30	346	205	629	-3	890	612	953	370	621	669	889	682	625	775	1,051	5.88	4.98	7.44	5.39	8.83	6.71	9.14	5.56	6.97	7.13	7.67	7.20	6.78	7.42	8.26
5/25/2019 10:40	494	285	563	-3	871	859	991	534	499	627	742	610	560	765	777	6.89	5.55	7.21	5.44	8.58	7.93	9.13	6.26	6.21	6.75	7.24	6.96	6.81	7.36	7.24
5/25/2019 10:50	388	280	686	-3	1,000	778	1,098	230	445	365	514	360	553	230	583	6.25	5.53	7.59	5.49	8.99	7.82	9.53	4.91	6.37	5.98	6.24	6.03	6.59	5.66	6.88
5/25/2019 11:00	486	281	560	-3	598	648	792	281	427	479	520	438	403	286	573	6.86	5.59	6.98	5.54	7.00	7.50	8.29	5.38	6.24	6.44	6.80	6.29	6.09	5.14	6.49
5/25/2019 11:10	336	142	346	-3	250	548	545	193	383	321	364	304	291	461	532	5.80	4.37	6.00	5.59	5.44	6.42	7.03	4.65	5.71	5.43	5.69	5.46	5.64	6.27	6.58
5/25/2019 11:20	275	89	340	-3	405	449	477	93	164	143	268	211	265	353	313	5.45	4.41	6.00	5.64	6.39	6.67	6.32	4.64	4.57	4.62	5.21	4.91	5.48	5.38	5.56
5/25/2019 11:30	96	-5	79	-3	169	209	110	165	145	154	339	269	309	317	237	4.14	3.06	3.43	5.69	4.58	4.96	4.74	4.60	4.22	4.01	5.73	5.70	5.65	5.72	5.17
5/25/2019 11:40	125	15	149	-3	111	166	126	240	140	176	369	271	227	208	254	4.04	3.41	4.60	5.74	4.46	4.65	4.91	5.22	4.27	4.44	5.76	5.30	5.11	4.92	5.28
5/25/2019 11:50	237	127	202	-3	286	399	279	96	298	267	449	368	318	407	423</															

5/25/2019 14:30	71	8	112	-3	150	361	310	100	191	217	338	311	261	272	402	3.58	2.82	3.98	6.59	4.52	5.96	6.31	4.12	4.83	4.99	5.76	5.65	5.49	5.50	6.03
5/25/2019 14:40	61	-10	21	-3	207	322	324	97	207	152	311	161	241	349	306	3.52	2.03	3.08	6.64	5.39	5.72	5.95	3.74	5.01	4.69	5.66	4.60	5.30	5.73	5.62
5/25/2019 14:50	65	4	119	-3	336	414	358	142	369	360	441	275	248	607	570	3.57	3.07	4.12	6.69	6.01	6.22	6.42	4.37	6.04	5.95	6.13	5.56	5.26	6.97	6.71
5/25/2019 15:00	97	28	76	-3	323	309	351	255	295	360	429	357	356	557	780	3.97	3.00	3.64	6.74	6.23	5.86	6.08	5.28	5.36	6.12	6.17	5.92	5.98	6.70	7.40
5/25/2019 15:10	143	17	65	31	350	633	714	205	622	423	615	531	651	700	699	4.40	2.90	3.55	6.28	5.88	7.23	7.82	4.80	7.16	6.24	6.71	6.58	7.05	7.03	6.92
5/25/2019 15:20	276	62	382	426	680	493	487	448	321	491	881	690	767	636	593	5.81	4.29	5.85	6.68	7.66	6.98	7.19	6.16	5.53	6.47	7.65	7.12	7.57	7.09	6.93
5/25/2019 15:30	626	250	104	755	727	924	684	796	671	758	949	842	1,051	1,172	1,088	7.72	5.33	3.75	7.97	8.23	9.03	8.17	7.37	7.13	7.60	7.76	7.69	8.38	8.58	8.11
5/25/2019 15:40	339	88	64	643	644	800	811	934	926	1,124	1,480	1,186	1,059	1,402	1,385	5.78	3.84	3.08	7.48	7.89	8.02	8.53	7.59	8.04	8.54	9.15	8.36	8.12	9.21	8.84
5/25/2019 15:50	217	49	279	773	754	1,113	1,174	885	928	1,088	1,494	1,139	1,013	1,679	1,494	4.68	3.20	5.20	7.61	8.19	9.37	9.65	7.70	7.82	8.50	9.04	8.28	8.02	10.09	9.18
5/25/2019 16:00	410	168	614	1,069	1,138	1,066	1,000	709	1,220	1,183	1,747	1,349	1,482	1,827	1,724	5.68	4.65	7.11	8.84	9.23	8.95	9.21	7.00	8.91	8.45	9.07	8.75	9.21	10.36	9.78
5/25/2019 16:10	517	131	291	1,021	1,082	1,005	859	714	1,047	1,052	1,732	1,386	1,305	1,867	1,796	6.82	4.09	4.43	9.01	9.46	8.99	9.02	7.04	8.37	8.43	9.87	9.14	8.78	10.53	10.01
5/25/2019 16:20	481	171	234	960	931	911	852	882	1,007	1,261	1,782	1,155	1,318	1,709	1,747	6.67	4.50	4.47	8.59	9.11	8.66	8.50	7.35	8.15	8.83	9.82	8.52	8.84	10.16	9.95
5/25/2019 16:30	774	332	181	918	1,135	1,294	969	905	999	1,202	1,539	1,403	1,159	1,562	1,809	8.23	5.81	4.29	8.75	9.64	9.72	9.16	7.68	8.27	8.67	9.09	9.12	8.50	9.71	10.01
5/25/2019 16:40	857	501	311	1,322	1,171	1,457	1,502	1,069	1,256	1,287	1,717	1,490	1,672	1,639	1,829	7.91	6.49	5.13	9.46	9.23	10.45	11.08	8.12	8.95	8.99	9.89	9.12	9.83	9.75	10.18
5/25/2019 16:50	713	160	332	1,327	1,264	1,099	956	1,176	1,512	1,678	1,978	1,766	1,896	1,955	1,998	7.60	4.43	4.97	9.88	9.83	8.89	8.61	8.20	9.54	10.18	11.01	10.11	10.48	11.17	11.22
5/25/2019 17:00	1,001	256	302	1,214	1,217	1,158	1,188	1,063	1,690	1,584	1,998	1,885	1,979	1,998	2,000	8.93	5.45	4.88	9.73	9.93	9.19	10.43	8.15	10.06	9.89	10.70	10.55	11.09	11.39	12.07
5/25/2019 17:10	1,252	471	517	1,467	1,323	1,453	1,531	1,797	1,977	2,008	2,008	2,010	2,000	2,007	1,999	9.98	6.45	6.09	10.37	10.36	10.52	11.27	10.02	11.53	11.85	12.71	12.27	11.67	13.30	12.51
5/25/2019 17:20	1,313	595	314	1,252	1,511	1,740	1,469	1,541	1,574	1,809	2,000	2,000	1,919	2,001	1,993	10.07	7.35	5.23	9.38	11.08	11.95	11.29	9.29	9.47	10.55	11.44	11.45	10.56	11.98	11.46
5/25/2019 17:30	1,060	286	315	1,246	1,524	1,590	1,256	1,113	1,626	1,784	1,979	1,987	1,986	2,000	1,999	8.58	5.35	4.67	9.13	11.14	10.93	10.20	8.15	9.83	10.30	11.06	11.27	10.76	11.93	11.63
5/25/2019 17:40	1,125	314	235	1,091	1,466	1,724	1,499	1,199	1,518	1,655	1,996	2,014	1,976	2,000	2,003	9.19	5.98	4.56	9.34	10.97	11.59	11.30	8.42	9.48	10.08	11.48	11.27	10.97	11.77	11.40
5/25/2019 17:50	1,350	494	696	1,585	1,608	1,687	1,593	1,564	1,884	1,863	1,999	1,988	1,996	2,000	1,997	9.77	6.71	7.33	10.88	11.08	11.13	11.28	9.32	10.93	10.81	11.57	11.45	11.32	11.52	11.47
5/25/2019 18:00	1,608	926	623	1,379	1,639	1,756	1,671	1,847	1,860	1,918	2,000	2,002	2,005	2,001	1,986	11.57	9.06	7.31	10.29	11.36	11.78	11.26	10.32	11.07	11.34	12.37	11.89	12.01	12.24	11.21
5/25/2019 18:10	1,940	1,393	1,007	1,891	1,993	2,013	1,976	1,797	1,989	1,940	1,999	1,996	1,994	1,999	1,999	13.24	10.53	8.41	11.68	12.59	13.31	13.32	10.00	11.80	11.44	12.67	13.33	13.08	12.27	12.76
5/25/2019 18:20	1,707	819	724	1,734	1,806	1,786	1,652	1,959	1,947	1,996	1,999	1,997	1,996	1,999	1,999	11.63	8.07	6.93	10.99	11.66	11.61	11.57	10.85	12.12	12.02	12.69	11.74	12.26	13.18	13.23
5/25/2019 18:30	1,894	1,094	683	1,708	1,687	1,675	1,626	1,900	1,998	1,999	1,999	2,004	1,999	2,001	1,999	11.87	9.21	6.92	10.93	11.15	11.04	11.60	10.57	12.41	12.67	13.02	11.35	11.73	12.12	12.28
5/25/2019 18:40	1,837	827	759	1,803	1,913	1,834	1,732	1,938	1,960	1,979	2,002	1,996	2,002	1,998	1,999	11.40	7.47	7.26	11.29	12.04	11.76	11.54	10.79	11.62	11.83	12.43	11.96	11.72	12.41	11.43
5/25/2019 18:50	1,607	722	514	1,569	1,816	1,545	1,379	1,730	1,728	1,872	1,995	1,985	1,991	1,984	1,974	11.11	7.96	6.32	10.35	11.61	10.77	10.75	9.91	10.05	10.64	11.71	11.15	11.41	11.67	10.56
5/25/2019 19:00	1,620	854	601	1,520	1,391	1,122	958	1,184	1,723	1,874	1,993	1,659	1,832	1,894	1,926	10.59	7.96	6.43	10.13	9.96	9.01	9.18	8.32	10.47	11.00	11.37	9.86	10.36	10.71	10.50
5/25/2019 19:10	972	232	381	1,113	1,379	1,172	1,077	1,686	1,991	1,897	2,005	1,856	2,017	2,002	2,001	8.24	5.00	5.88	8.79	10.05	9.28	9.30	9.74	11.41	10.66	11.65	10.57	11.63	11.94	12.17
5/25/2019 19:20	1,539	691	1,280	1,871	1,967	1,865	1,467	1,903	1,994	1,974	2,000	2,000	2,000	2,001	1,989	10.73	7.97	9.55	11.71	13.06	12.26	11.71	10.52	11.57	11.35	12.11	11.64	11.09	12.31	11.95
5/25/2019 19:30	1,330	360	835	1,693	1,724	1,735	1,617	1,987	2,005	2,007	2,000	2,000	1,975	1,996	2,009	9.37	5.51	7.55	10.89	11.67	10.93	10.52	10.94	11.39	11.11	11.96	11.33	10.67	12.02	11.25
5/25/2019 19:40	1,289	312	580	1,361	1,519	1,477	1,328	1,949	1,999	2,000	1,999	1,990	1,933	2,003	1,999	9.80	5.65	6.27	10.13	10.86	10.07	9.89	10.37	12.22	11.35	12.14	10.75	10.49	11.48	11.02
5/25/2019 19:50	1,619	786	1,457	1,740	1,952	1,863	1,792	1,971	1,999	1,990	2,000	2,009	2,001	2,001	1,999	10.47	7.62	11.13	10.67	12.24	12.29	12.28	10.68	11.42	10.98	11.89	10.96	11.35	11.77	11.31
5/25/2019 20:00	1,755	890	1,668	1,876	2,003	2,003	1,947	1,982	2,000	2,009	2,000	1,999	2,000	2,001	1,999	10.72	8.07	11.70	11.62	12.97	12.78	12.33	10.38	12.16	11.74	13.05	11.92	11.49	12.76	11.94
5/25/2019 20:10	1,748	572	1,703	1,963	2,001	1,982	1,849	2,012	1,999	2,000	1,999	1,999	2,000	2,001	2,000	11.05	6.73	11.51	11.89	12.72	12.24	12.00	10.82	12.45	11.98	13.20	12.09	11.40	13.06	12.06
5/25/2019 20:20	1,616	632	1,649	1,926	1,959	1,865	1,774	2,000	2,000	2,000	2,000	2,000	1,999	1,999	1,999	10.40	6.86	10.98	11.71	12.26	11.87	11.66	11.37	12.78	12.66	13.57	12.39	11.68	12.70	11.92
5/25/2019 20:30	1,666	916	1,857	1,991	2,020	1,968	1,923	1,980	2,000	2,000	2,000	1,999	2,000	2,001	1,999	10.58	8.41	12.55	12.12	12.76	12.66	12.06	10.71	12.39	12.37	13.32	12.48	12.64	12.78	12.53
5/25/2019 20:40	1,826	1,236	1,865	1,970	2,000	1,992	1,913	2,012	1,999	1,999	1,999	1,999	2,000	2,001	1,999	10.96	9.31	12.92	11.86	12.74	12.46	11.91	11.23	11.56	11.76	12.79	12.41	12.04	12.77	12.29
5/25/2019 20:50	1,871	1,151	1,654	1,871	1,905	1,900	1,840	1,978	1,999	1,999	2,000	2,000	2,000	2,002	1,999	11.77	9.07	11.90	11.47	12.10	11.94	11.12	10.95	11.15	10.95	11.83	11.56	11.94	12.41	11.94
5/25/2019 21:00	1,754	998	1,529	1,689	2,004	1,867	1,835	1,998	2,000	2,000	1,999	2,000	2,000	2,001	1,999	11.13	8.37	11.33	10.68	12.16	11.54	11.41	10.67	11.17	11.14	11.17	11.01	11.30	11.83	11.61
5/25/2019 21:10	1,774	1,114																												

5/26/2019 0:50	1,655	1,362	1,532	1,621	1,891	1,825	1,869	880	1,871	1,871	1,999	1,735	1,595	1,816	1,750	11.02	9.79	11.42	10.24	11.59	11.88	12.05	7.07	10.06	10.06	10.33	9.49	9.42	10.31	9.70
5/26/2019 1:00	1,548	1,288	1,531	1,522	1,760	1,704	1,660	1,016	1,961	1,976	1,999	1,953	1,995	1,995	1,945	11.12	9.00	10.86	9.68	11.16	10.81	10.22	7.57	10.18	10.17	10.47	10.00	10.02	10.68	9.98
5/26/2019 1:10	1,564	1,309	1,478	1,494	1,699	1,630	1,542	805	1,977	1,978	1,998	1,977	1,963	2,016	1,999	11.10	9.10	10.64	9.46	11.19	10.21	10.13	6.81	10.21	10.25	10.49	10.00	9.87	10.60	10.41
5/26/2019 1:20	1,392	1,141	1,378	1,326	1,579	1,549	1,577	1,345	2,014	2,006	1,999	2,017	2,009	1,999	2,000	10.23	8.49	10.30	9.11	11.09	10.02	10.36	8.36	10.67	10.95	11.33	10.75	10.34	10.70	10.53
5/26/2019 1:30	1,612	1,435	1,622	1,624	1,871	1,852	1,928	1,996	2,000	1,999	1,999	1,983	2,000	2,000	1,998	10.98	9.61	11.32	10.04	11.64	11.07	11.03	10.15	11.23	11.39	11.84	10.78	10.17	11.21	10.84
5/26/2019 1:40	1,823	1,567	1,826	1,861	2,011	1,908	1,889	1,932	1,999	1,999	1,999	1,999	2,004	2,000	1,999	10.88	9.86	12.23	10.88	11.76	11.45	10.76	10.19	10.82	11.07	11.67	11.10	10.92	11.39	11.19
5/26/2019 1:50	1,940	1,737	1,797	1,864	2,005	2,009	1,937	2,004	1,999	1,999	1,999	2,000	1,998	2,003	2,000	11.91	10.90	12.48	11.49	12.54	12.63	12.25	11.95	11.08	11.75	11.77	11.33	10.81	11.49	11.45
5/26/2019 2:00	2,011	1,916	2,017	2,003	2,000	2,009	1,984	1,998	1,999	1,998	2,000	1,984	1,986	1,998	1,980	12.72	11.94	13.58	12.18	13.03	12.52	12.31	11.01	11.36	11.59	12.03	10.78	10.96	11.53	11.63
5/26/2019 2:10	1,909	1,710	1,832	1,851	1,999	1,973	1,997	1,957	1,967	1,892	2,001	2,004	1,936	1,874	1,963	12.12	10.83	12.77	11.59	12.97	12.42	11.98	10.80	10.65	11.23	11.36	10.81	10.35	10.87	10.47
5/26/2019 2:20	1,898	1,508	1,891	1,980	1,999	1,917	2,000	1,999	1,998	1,998	2,000	1,992	1,925	1,999	1,994	11.78	10.72	13.11	12.32	12.62	11.81	11.92	11.11	11.01	11.67	11.63	11.03	10.12	11.50	10.99
5/26/2019 2:30	1,741	1,600	1,982	1,975	2,000	1,894	1,900	1,997	2,008	2,001	1,998	2,004	2,006	2,014	2,003	11.42	10.78	13.44	12.20	12.80	11.66	11.67	11.34	11.39	11.32	11.31	10.83	11.15	11.57	11.14
5/26/2019 2:40	1,700	1,612	1,946	1,891	1,997	1,907	1,818	2,001	1,999	2,000	2,000	1,998	1,999	2,000	1,981	11.72	10.81	12.96	11.68	12.84	12.10	12.14	12.04	11.40	12.04	11.54	11.28	10.45	11.88	10.94
5/26/2019 2:50	1,706	1,476	1,965	1,869	1,984	1,880	1,796	1,997	2,000	1,998	2,000	2,007	1,998	2,000	1,999	11.27	10.57	13.34	11.65	12.53	11.86	11.90	11.83	11.57	11.54	12.51	11.38	11.05	11.86	11.59
5/26/2019 3:00	1,538	1,537	1,935	1,897	1,982	1,948	1,948	2,002	1,999	2,000	1,999	1,998	1,565	2,000	1,990	10.81	10.63	13.16	12.02	12.31	12.16	12.92	11.94	12.05	11.44	11.81	11.44	10.49	11.56	11.54
5/26/2019 3:10	1,656	1,530	1,827	1,981	1,999	1,901	1,701	2,000	2,000	1,982	2,000	1,999	-24	2,000	2,010	10.80	10.72	12.84	12.22	12.30	12.01	11.50	12.28	11.68	11.46	12.59	11.80	11.58	12.56	11.93
5/26/2019 3:20	1,966	1,595	1,986	1,898	2,007	2,004	1,973	2,000	1,999	2,000	1,999	2,001	-23	2,000	1,983	12.32	11.62	14.25	12.29	13.93	13.53	12.67	13.33	12.99	13.47	12.99	11.65	12.06	12.58	11.78
5/26/2019 3:30	1,954	1,890	1,950	1,967	1,999	2,013	1,977	2,000	2,000	1,999	2,000	1,999	-22	2,000	2,015	13.07	13.84	14.65	13.73	14.52	13.07	12.93	13.61	13.08	13.60	13.50	12.41	11.75	12.22	12.71
5/26/2019 3:40	1,890	1,849	1,896	1,945	2,002	1,922	1,975	2,000	1,999	2,000	1,999	2,000	107	2,004	1,992	12.88	13.14	13.46	12.41	14.13	12.82	12.91	12.37	12.17	12.19	11.87	11.53	11.60	11.90	11.95
5/26/2019 3:50	1,911	1,834	1,987	1,998	1,999	2,008	1,980	2,000	2,000	2,000	1,999	2,000	2,013	2,000	2,005	13.53	12.80	14.36	13.00	13.87	12.92	13.06	12.72	13.00	12.10	12.03	11.41	11.22	11.72	11.81
5/26/2019 4:00	1,958	1,869	2,000	1,988	2,002	2,009	2,003	2,000	1,999	2,000	2,000	1,999	2,000	2,001	2,000	13.84	13.82	15.34	13.26	14.67	14.11	14.15	13.46	13.57	13.55	13.29	11.97	11.78	12.90	13.31
5/26/2019 4:10	2,000	1,992	2,000	1,996	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,970	2,000	2,000	13.67	14.28	15.46	13.54	14.63	15.13	14.36	13.44	13.90	13.69	13.51	12.19	11.66	12.42	13.32
5/26/2019 4:20	2,000	1,880	1,999	1,992	1,999	2,000	2,000	2,000	2,000	1,999	2,000	2,000	2,008	2,000	2,000	14.24	13.17	15.44	13.24	14.31	14.71	14.36	14.13	14.12	14.31	13.57	12.31	12.51	12.41	12.68
5/26/2019 4:30	1,992	1,947	1,999	2,009	1,999	1,996	1,985	2,000	2,000	2,000	2,000	1,998	2,000	2,000	1,999	13.67	13.45	15.42	13.64	14.68	14.19	13.99	13.26	12.38	12.88	13.10	11.53	11.91	12.45	12.54
5/26/2019 4:40	1,996	1,804	1,963	1,928	2,000	2,002	2,014	1,999	2,000	2,000	1,999	2,000	1,999	2,000	1,998	13.47	12.56	15.02	12.40	13.97	13.55	13.45	12.44	12.71	13.02	12.84	12.57	10.89	12.87	11.62
5/26/2019 4:50	1,913	1,842	1,962	2,016	1,998	1,999	1,999	2,000	1,999	2,000	2,000	2,000	2,000	2,001	2,000	12.67	13.20	14.22	13.47	14.04	14.06	13.70	12.42	12.90	12.84	12.62	11.98	11.71	12.40	12.63
5/26/2019 5:00	1,996	1,800	2,007	1,978	1,982	1,998	2,000	1,999	2,000	2,000	2,000	2,001	1,999	2,001	1,999	14.40	12.56	15.17	13.13	13.67	13.72	13.90	13.36	12.41	13.51	13.25	12.48	12.71	12.56	13.73
5/26/2019 5:10	1,980	1,823	1,998	2,004	1,984	1,994	1,994	2,000	2,000	1,999	2,000	2,000	1,995	1,999	2,000	14.04	13.03	14.38	13.83	13.74	13.66	13.53	13.73	13.05	13.09	13.51	12.02	11.77	12.46	13.13
5/26/2019 5:20	1,995	1,935	2,000	2,000	2,018	2,002	1,997	2,000	1,999	2,000	2,000	1,999	2,004	2,002	2,000	13.41	13.64	15.05	13.46	14.61	14.39	14.27	12.90	12.52	12.70	13.14	12.14	12.18	12.61	12.22
5/26/2019 5:30	2,016	2,004	1,979	1,984	1,998	1,988	2,006	2,000	1,999	2,000	1,999	2,000	1,992	2,000	1,999	13.74	13.84	15.06	13.48	14.81	13.27	13.96	12.88	12.69	12.10	13.04	12.32	11.14	12.58	13.55
5/26/2019 5:40	1,928	1,965	1,955	1,976	2,001	1,926	1,965	1,999	1,999	2,000	2,001	1,999	1,965	2,000	1,999	12.46	13.73	14.56	12.86	13.80	12.55	12.92	12.01	12.75	11.96	12.41	11.97	10.84	12.11	12.49
5/26/2019 5:50	1,949	1,871	1,996	1,888	1,999	2,006	2,009	1,999	1,999	2,000	2,000	2,000	1,955	2,000	2,001	12.95	12.65	15.37	12.75	14.08	13.54	13.45	12.52	13.34	12.15	12.05	12.01	11.80	11.95	12.03
5/26/2019 6:00	1,860	1,896	1,980	2,018	2,002	1,969	1,969	2,000	1,995	2,000	2,000	2,001	2,009	1,998	1,997	12.45	13.29	14.97	14.02	14.24	13.27	12.85	12.69	11.87	12.36	12.67	11.83	12.55	11.83	12.96
5/26/2019 6:10	1,977	1,929	1,980	1,920	1,985	1,950	2,000	2,000	1,981	1,984	1,999	1,989	1,040	2,001	2,000	14.21	13.69	14.46	13.17	13.42	12.99	13.78	13.14	11.75	12.47	12.55	11.76	11.13	12.13	12.58
5/26/2019 6:20	1,962	1,822	1,962	1,889	1,948	1,977	1,997	2,000	1,951	2,001	2,000	1,997	-25	1,933	1,998	13.33	12.80	14.75	12.95	13.36	13.83	14.16	13.72	11.17	12.74	13.06	11.96	12.86	12.31	12.61
5/26/2019 6:30	1,972	1,800	1,984	1,978	1,995	2,013	1,947	1,998	2,014	1,992	1,999	1,955	-23	1,964	1,985	13.43	12.71	14.02	13.56	13.86	14.23	13.62	12.96	12.29	12.74	12.68	10.88	12.64	12.43	12.29
5/26/2019 6:40	1,678	1,804	1,728	1,641	1,801	1,859	1,830	1,942	1,918	1,938	2,000	1,842	-22	1,772	1,908	11.52	12.08	12.92	11.14	11.98	12.23	12.63	11.30	10.44	11.37	11.79	10.27	10.04	10.17	10.76
5/26/2019 6:50	1,581	1,532	1,609	1,403	1,524	1,706	1,558	1,874	1,933	1,732	1,934	1,607	-23	1,848	1,996	11.35	10.69	12.08	10.31	11.10	11.35	11.41	10.83	10.75	10.14	11.05	9.60	10.14	10.52	10.93
5/26/2019 7:00	1,459	1,330	1,694	1,713	1,939	1,768	1,481	1,943	1,855	1,824	1,897	1,693	1,443	1,897	1,861	10.14	10.64	12.24	11.36	12.36	11.48	10.87	10.80	10.76	10.65	10.58	9.95	9.93	11.05	10.36
5/26/2019 7:10	1,609	1,585	1,675	1,588	1,911	1,769	1,435	1,932	2,011	2,003	1,985																			

5/26/2019 11:10	1,955	-13	1,999	2,011	2,008	2,000	1,976	2,000	1,999	2,000	1,998	2,000	167	2,001	2,000	13.67	15.91	18.22	16.76	17.16	16.20	15.20	14.26	15.28	15.16	14.77	14.35	14.32	14.79	15.54
5/26/2019 11:20	1,968	85	2,000	1,999	1,999	1,962	1,924	2,000	1,999	2,000	1,991	1,985	-25	1,999	1,980	16.07	15.29	17.29	15.68	15.68	14.27	13.81	15.22	14.12	12.97	12.94	14.62	16.44	15.46	13.38
5/26/2019 11:30	1,922	1,966	1,998	1,991	1,919	1,943	1,944	2,000	2,000	1,998	2,001	1,999	-23	2,001	2,010	14.38	15.49	16.75	15.45	13.79	14.36	14.36	14.73	14.49	14.05	14.48	15.35	15.38	15.57	14.38
5/26/2019 11:40	2,013	1,920	1,925	1,948	2,010	2,002	1,996	2,000	1,999	2,000	1,999	2,000	-22	2,000	2,001	17.60	14.73	15.01	14.04	14.99	15.87	15.32	14.41	14.10	15.00	16.16	15.17	14.72	14.86	16.14
5/26/2019 11:50	1,988	1,983	2,014	2,006	2,001	1,967	1,926	2,000	1,999	1,998	2,001	1,999	-23	1,992	1,998	16.47	15.51	16.89	15.30	15.53	14.74	14.68	14.98	14.74	13.46	14.67	15.10	15.25	14.11	13.34
5/26/2019 12:00	2,006	1,958	2,000	1,972	1,926	1,984	2,015	1,999	2,000	2,002	2,000	1,983	1,506	2,007	2,000	15.53	15.06	17.52	15.56	13.79	16.08	16.91	13.03	12.35	14.93	15.37	15.21	14.73	16.00	14.48
5/26/2019 12:10	1,998	1,942	1,999	2,000	2,009	1,999	2,000	1,997	2,000	1,999	1,999	2,000	2,003	2,000	1,999	16.00	14.57	17.78	16.82	16.83	17.04	15.59	13.26	13.93	13.87	15.72	16.64	15.79	15.73	16.69
5/26/2019 12:20	1,932	1,873	2,000	1,993	1,998	1,996	1,998	1,999	2,000	1,999	2,000	1,999	2,000	2,000	2,000	14.22	14.64	17.60	15.54	16.32	15.97	15.06	13.38	15.67	14.93	14.43	14.70	14.32	14.25	13.92
5/26/2019 12:30	1,996	1,785	1,786	1,919	1,999	1,974	2,003	2,001	1,999	1,982	1,995	2,000	1,999	2,000	2,000	14.41	12.86	14.08	13.94	15.16	14.89	16.20	15.29	14.15	12.69	13.42	13.24	12.87	14.47	14.60
5/26/2019 12:40	1,666	1,820	2,018	2,004	1,999	2,020	1,967	2,000	1,968	1,762	2,004	2,000	1,998	2,000	2,000	12.10	14.08	16.98	15.64	16.69	17.08	16.59	13.96	12.34	10.43	13.22	12.91	14.12	15.01	13.89
5/26/2019 12:50	1,785	1,739	2,004	1,988	1,975	1,996	1,945	2,000	1,949	2,009	2,001	2,000	2,000	1,987	1,997	13.27	13.62	16.64	15.30	15.04	14.67	14.61	14.91	13.09	13.71	13.57	13.24	13.27	13.92	13.68
5/26/2019 13:00	1,995	658	1,921	1,992	2,019	1,999	2,002	1,999	1,999	2,001	1,994	2,000	2,000	2,009	2,002	15.26	15.05	16.02	15.18	15.76	16.38	16.54	13.79	13.76	14.56	14.56	14.93	13.68	14.09	13.78
5/26/2019 13:10	2,002	-23	2,000	2,001	2,000	1,996	2,002	1,999	2,003	1,999	2,005	2,000	1,927	2,001	2,000	14.44	16.97	19.94	16.41	15.78	14.49	16.75	15.12	13.57	13.79	13.98	13.68	13.20	13.98	14.80
5/26/2019 13:20	1,949	-22	1,999	1,992	2,000	1,951	1,969	2,000	2,000	1,999	2,000	2,000	-15	1,950	1,999	14.61	15.94	18.12	16.45	16.00	14.50	15.66	15.47	15.19	14.37	14.33	13.85	12.72	13.19	14.59
5/26/2019 13:30	1,991	-15	2,000	1,979	1,994	2,013	2,008	2,000	1,999	2,000	2,000	1,999	-25	1,995	1,999	14.60	15.05	18.68	15.29	15.08	15.88	15.40	15.01	15.67	15.88	14.53	14.10	14.11	13.96	14.41
5/26/2019 13:40	2,006	878	1,994	1,959	1,909	1,997	1,955	2,000	1,998	1,999	1,995	1,996	-23	1,993	2,000	14.42	13.34	15.96	14.36	14.65	15.16	15.89	14.04	13.82	14.19	12.55	12.05	12.19	14.34	14.57
5/26/2019 13:50	1,994	2,005	2,005	2,017	2,011	2,001	1,952	2,000	2,000	1,999	2,005	2,003	-22	2,000	1,994	15.49	15.91	17.78	17.08	16.54	14.66	14.87	14.81	14.25	13.43	12.72	13.37	14.34	14.63	12.87
5/26/2019 14:00	1,853	1,925	1,999	2,004	1,999	2,000	2,011	2,000	2,000	2,000	1,999	1,999	-23	1,996	2,003	13.11	13.67	16.34	15.70	16.30	15.83	16.05	13.37	13.43	15.32	14.56	14.13	14.72	14.53	14.61
5/26/2019 14:10	1,897	1,997	1,999	1,998	2,000	1,999	1,956	2,000	1,999	1,998	2,000	1,995	734	1,954	2,000	13.45	14.66	17.03	15.53	15.93	15.01	14.94	14.07	13.88	13.30	14.53	12.99	12.71	12.75	14.07
5/26/2019 14:20	2,005	1,980	1,882	1,759	1,939	2,000	2,003	2,001	1,999	1,998	1,999	1,994	1,995	2,001	1,998	14.74	14.65	14.80	12.61	14.21	14.79	15.95	13.05	13.27	14.21	13.90	12.82	12.42	13.93	14.37
5/26/2019 14:30	1,720	1,794	1,824	1,923	1,967	1,980	1,986	1,999	1,999	1,999	2,000	1,999	2,000	1,978	1,954	12.51	12.43	14.26	14.24	15.07	14.72	16.00	13.61	13.99	15.22	14.10	14.45	12.74	13.21	12.81
5/26/2019 14:40	1,770	1,321	1,936	2,020	2,013	1,932	1,962	2,000	1,999	1,925	2,000	2,000	1,999	1,585	1,928	12.27	11.62	14.43	14.44	14.78	13.89	14.61	13.71	13.09	12.32	13.73	12.11	12.03	10.48	10.81
5/26/2019 14:50	1,648	1,533	1,876	1,942	2,002	1,981	1,913	2,000	1,961	2,017	2,000	1,961	1,842	1,738	1,450	11.89	11.43	14.00	13.39	14.49	14.68	14.51	12.95	12.91	12.85	13.27	11.04	11.02	10.87	9.80
5/26/2019 15:00	1,595	1,488	1,706	1,688	1,924	1,950	1,938	1,999	1,975	1,917	1,987	1,986	1,941	1,567	1,945	11.49	11.33	13.05	12.13	13.05	13.35	13.17	11.87	11.54	11.70	12.89	12.44	11.39	10.46	11.25
5/26/2019 15:10	1,632	1,386	1,576	1,447	1,632	1,439	1,685	1,703	1,865	1,941	1,886	1,885	1,961	1,835	1,569	11.68	10.56	11.86	10.77	11.45	10.30	11.88	10.25	11.15	11.09	11.24	11.35	11.27	11.32	10.19
5/26/2019 15:20	940	1,094	1,640	1,459	1,772	1,664	1,461	1,630	1,623	1,764	1,758	1,608	1,335	1,396	1,667	8.67	9.61	11.98	10.74	12.27	11.35	10.71	9.98	9.98	11.04	10.31	9.93	8.95	9.42	9.74
5/26/2019 15:30	754	840	1,409	953	1,136	1,439	1,448	1,858	1,640	1,784	1,949	1,350	772	1,737	1,485	7.95	8.56	11.15	9.00	9.55	10.61	10.66	10.61	9.99	10.70	11.58	8.92	9.76	10.69	9.36
5/26/2019 15:40	727	856	1,253	1,416	1,451	1,414	1,324	1,462	1,352	1,418	1,645	1,300	-24	1,826	1,606	7.96	8.78	10.48	10.45	10.61	10.46	10.01	9.06	9.35	9.29	9.69	8.89	9.07	10.66	9.75
5/26/2019 15:50	1,458	1,371	1,242	1,209	1,401	1,386	1,442	1,550	1,290	1,714	1,613	1,525	-22	1,397	1,445	10.64	10.55	10.52	9.63	10.26	10.07	10.90	9.87	8.79	10.19	9.92	9.23	8.93	9.29	9.11
5/26/2019 16:00	1,691	1,791	1,704	1,659	1,656	1,586	1,788	1,956	1,815	1,328	1,857	1,779	-22	1,476	1,315	12.05	11.93	12.89	12.17	11.78	11.00	11.82	11.52	11.18	9.05	10.71	10.24	9.83	9.73	8.84
5/26/2019 16:10	1,707	1,755	1,988	1,841	1,874	1,838	1,760	1,996	1,938	1,611	1,966	1,848	-22	1,463	1,787	12.08	11.68	14.48	12.97	12.52	11.87	11.57	11.41	11.39	10.18	11.37	10.55	9.42	9.57	10.64
5/26/2019 16:20	1,598	1,833	1,713	1,534	1,717	1,778	1,872	1,879	1,925	1,837	1,897	1,453	-23	1,537	1,609	11.29	11.95	12.47	11.06	11.29	11.62	12.49	10.71	11.03	10.93	10.72	9.19	8.80	9.71	9.61
5/26/2019 16:30	1,567	1,844	1,822	1,539	1,721	1,719	1,972	1,934	1,612	1,869	1,856	1,556	1,450	1,509	1,389	11.11	12.08	12.97	11.11	11.67	11.35	12.90	11.09	9.61	10.95	10.52	9.55	9.57	9.67	8.72
5/26/2019 16:40	1,817	1,637	1,900	1,794	1,841	1,796	1,952	1,898	1,475	1,704	1,830	1,376	1,216	1,586	1,671	12.06	11.34	13.62	12.07	12.63	11.93	12.61	10.55	9.23	10.40	10.23	9.06	8.36	9.75	9.75
5/26/2019 16:50	1,733	1,720	1,694	1,749	1,814	1,557	1,580	1,401	1,134	1,433	1,633	1,226	825	1,283	1,576	11.87	11.45	12.22	11.62	11.98	10.77	10.85	8.86	8.47	9.41	9.74	8.62	7.52	8.96	9.58
5/26/2019 17:00	1,559	1,490	1,660	1,751	1,834	1,698	1,774	1,396	1,138	1,037	1,463	1,115	1,086	1,342	1,236	10.98	10.95	12.23	11.80	12.09	11.14	11.67	9.01	8.43	8.38	9.04	8.22	8.27	9.35	8.41
5/26/2019 17:10	1,778	1,483	1,720	1,706	1,905	1,649	1,645	1,595	1,096	1,530	1,624	1,257	1,144	1,129	1,172	11.93	10.72	12.49	11.57	12.30	10.88	11.33	9.46	8.30	9.52	9.51	8.66	8.40	8.79	8.31
5/26/2019 17:20	1,734	1,664	1,709	1,593	1,709	1,739	1,605	1,787	1,583	1,479	1,437	1,108	1,014	1,205	1,413	11.73	11.12	12.15	11.29	11.47	11.16	11.25	10.06	9.48	9.34	9.11	8.36	7.95	8.97	9.05
5/26/2019 17:30	1,694	1,554	1,761	1,650	1,725	1,695	1,745	1,900	1,612	1,709	1,797	1,406	1,130	1,321	1,267															

5/26/2019 21:30	-9	-10	-10	-9	-8	-8	-9	-11	-9	-9	-8	-8	-22	-9	-9	7.09	6.66	7.98	7.73	8.80	8.92	9.15	6.86	6.92	6.88	7.87	7.23	6.69	8.10	8.48
5/26/2019 21:40	132	62	129	166	231	206	225	110	120	35	103	93	62	138	172	7.53	6.45	7.82	8.02	8.62	9.00	9.33	6.80	6.89	6.39	7.27	6.88	6.43	7.70	8.26
5/26/2019 21:50	619	445	670	804	668	700	1,015	588	497	8	138	470	424	422	808	7.86	6.87	7.69	8.81	7.24	7.55	9.50	6.84	6.57	2.83	3.99	6.84	6.45	5.71	7.48
5/26/2019 22:00	579	392	632	714	654	632	888	544	439	-9	68	207	368	497	412	7.67	6.67	7.49	8.16	7.35	7.30	8.48	6.63	6.29	2.21	3.29	4.94	6.17	6.66	6.24
5/26/2019 22:10	465	322	422	441	437	392	538	364	328	21	103	61	204	386	286	7.32	6.16	6.52	7.16	6.86	6.42	7.05	6.12	6.02	2.11	3.91	3.66	5.25	6.36	5.66
5/26/2019 22:20	409	265	311	336	396	337	417	277	222	90	127	-11	10	254	169	7.18	5.92	5.41	6.61	6.87	6.23	6.40	5.62	5.32	3.87	4.54	1.67	3.12	5.26	4.14
5/26/2019 22:30	347	233	286	289	322	295	441	185	156	119	91	-9	-26	153	106	6.48	5.65	5.34	6.28	6.01	5.74	6.67	5.00	4.67	4.59	3.36	1.74	2.29	4.44	4.00
5/26/2019 22:40	376	273	374	417	364	462	498	199	93	-12	-6	50	-24	43	152	6.38	5.86	5.85	7.01	6.16	6.53	7.39	5.09	4.28	2.50	3.14	3.94	4.12	3.33	4.84
5/26/2019 22:50	396	345	442	467	426	534	610	214	121	-12	39	128	93	148	332	6.44	6.24	6.29	7.29	6.28	6.80	7.87	5.18	4.50	1.92	3.28	4.95	4.36	4.36	5.95
5/26/2019 23:00	439	340	435	493	425	426	568	199	105	-11	5	71	85	106	245	6.98	6.34	6.46	7.31	6.42	6.35	7.72	5.14	4.25	2.00	3.06	4.10	4.21	4.08	5.40
5/26/2019 23:10	377	312	376	394	380	404	475	158	97	-6	9	30	59	75	102	6.93	6.17	6.42	6.90	6.58	6.56	6.81	4.85	4.22	2.51	3.11	3.64	4.05	3.67	4.14
5/26/2019 23:20	247	208	257	293	342	331	351	66	59	3	77	-4	23	104	50	5.97	5.54	5.03	6.21	6.37	6.20	6.33	3.89	3.81	3.34	4.14	2.36	3.67	4.08	3.55
5/26/2019 23:30	146	110	139	183	191	234	245	28	55	57	93	-10	-23	86	27	4.60	4.65	4.27	4.90	4.97	5.33	5.45	3.48	3.78	3.90	4.23	1.64	2.30	3.81	3.25
5/26/2019 23:40	53	39	40	62	89	119	154	74	77	58	50	-8	-22	70	12	3.22	3.44	3.06	3.77	4.09	4.34	4.97	4.17	4.19	3.96	3.21	1.68	2.11	3.73	2.88
5/26/2019 23:50	40	18	22	39	74	81	89	93	66	-4	4	-8	19	175	145	3.21	3.15	2.82	3.41	4.13	3.94	4.02	4.18	4.05	2.74	2.25	2.05	3.41	4.58	4.65
5/27/2019 0:00	86	33	87	124	162	145	138	64	32	-12	-9	-8	28	124	122	3.92	3.24	3.76	4.35	4.98	4.66	4.53	3.88	3.48	2.06	2.29	2.57	3.72	4.16	4.57
5/27/2019 0:10	198	151	127	163	399	379	303	150	71	-12	20	45	88	183	147	5.22	4.75	4.17	4.78	6.34	6.22	5.79	4.59	3.97	2.32	3.26	3.63	4.37	4.65	4.63
5/27/2019 0:20	428	263	300	308	623	504	507	186	182	-2	57	75	148	255	236	6.63	5.54	5.58	6.04	7.79	6.77	7.19	4.81	4.81	2.39	3.42	3.89	4.82	5.18	5.23
5/27/2019 0:30	692	500	565	540	885	601	548	263	202	-9	111	238	252	266	398	7.86	7.30	6.96	7.42	8.87	7.22	7.31	5.31	5.04	2.58	3.94	5.42	5.40	5.10	6.02
5/27/2019 0:40	674	450	702	616	867	413	422	286	204	20	100	92	228	379	474	7.15	7.24	7.65	7.83	8.83	6.12	6.40	5.46	4.91	2.90	3.86	3.92	5.18	5.74	6.49
5/27/2019 0:50	438	266	532	534	378	175	265	278	256	50	128	169	226	433	488	6.10	6.10	6.53	7.03	6.01	4.74	5.46	5.35	5.19	3.25	4.03	4.60	5.32	6.08	6.52
5/27/2019 1:00	511	335	470	505	512	322	402	525	434	245	237	-5	150	584	457	6.48	6.35	6.32	6.95	6.87	5.83	6.22	6.59	6.21	5.29	4.66	2.48	4.70	7.37	6.05
5/27/2019 1:10	457	293	440	536	404	420	653	635	370	307	292	-12	50	470	349	6.37	6.08	6.23	7.08	6.16	6.50	7.72	6.87	5.84	5.70	5.32	2.24	3.66	6.43	5.39
5/27/2019 1:20	448	316	417	504	656	609	531	427	339	334	382	3	-23	204	182	6.51	6.31	5.94	7.05	7.80	7.61	7.09	6.14	5.76	5.95	5.70	2.68	2.34	4.65	4.44
5/27/2019 1:30	336	239	264	322	379	463	769	221	256	62	25	4	12	142	222	5.58	5.39	5.09	5.94	6.22	6.44	8.29	5.10	5.27	3.16	2.93	3.10	3.63	4.29	5.02
5/27/2019 1:40	367	213	284	340	424	603	907	272	306	13	15	3	64	222	329	5.93	5.39	5.40	6.16	6.49	7.10	8.56	5.38	5.61	2.48	2.83	2.95	4.11	5.15	5.85
5/27/2019 1:50	558	332	416	473	523	813	1,141	571	505	50	55	64	277	521	494	7.23	6.12	6.42	6.52	7.08	7.89	9.58	6.76	6.58	2.49	3.07	3.77	5.69	6.82	6.90
5/27/2019 2:00	363	254	303	386	387	451	742	463	383	76	103	79	302	599	468	6.60	6.16	6.05	6.61	7.04	7.37	9.16	7.00	6.56	3.64	4.19	4.90	6.73	7.63	7.64
5/27/2019 2:10	-12	-12	-13	-12	-12	-12	-11	-14	-11	-11	-9	-10	-21	-11	-11	5.38	5.15	6.31	6.54	7.96	8.63	8.76	6.89	6.38	6.88	7.50	7.52	7.21	7.94	8.37
5/27/2019 2:20	-6	-7	-10	-5	-8	-8	-8	-11	-8	-8	-8	-8	-21	-8	-9	6.71	6.32	6.99	6.87	8.24	9.25	9.06	5.80	5.97	6.56	7.22	7.37	7.01	7.81	8.52
5/27/2019 2:30	69	41	57	-4	154	191	159	26	43	41	83	73	44	59	98	6.87	6.30	6.87	6.94	8.90	9.47	9.55	5.46	5.85	5.94	7.02	6.91	6.66	7.22	7.68
5/27/2019 2:40	549	258	386	-4	1,260	1,365	1,205	269	413	217	605	516	421	519	627	7.14	5.72	6.19	4.76	9.82	9.74	10.45	5.47	6.19	4.93	7.02	6.83	6.16	6.44	7.07
5/27/2019 2:50	511	266	370	-4	1,015	1,129	981	204	294	256	510	413	406	557	687	7.36	6.12	6.06	5.09	9.51	9.05	9.45	5.09	5.64	5.57	6.51	6.13	6.17	6.69	7.29
5/27/2019 3:00	439	146	251	-4	873	902	874	239	213	201	549	352	438	648	753	6.87	4.72	5.13	4.88	8.86	8.73	8.97	5.27	5.15	5.14	6.77	5.71	6.30	7.19	7.62
5/27/2019 3:10	404	144	245	-5	778	776	714	252	215	200	538	321	354	592	665	6.79	5.08	5.46	4.31	8.54	8.36	8.45	5.31	5.04	4.99	6.77	5.67	5.86	7.02	7.44
5/27/2019 3:20	336	84	190	-5	786	842	696	147	93	67	325	185	178	397	455	6.15	3.86	4.75	4.66	8.65	8.74	8.28	4.56	4.00	3.69	5.86	4.98	4.79	6.04	6.38
5/27/2019 3:30	298	128	244	-5	690	683	636	43	61	14	175	65	59	255	316	6.12	4.54	5.32	4.34	8.25	7.89	8.16	3.44	3.80	3.18	4.80	3.83	3.75	5.39	5.82
5/27/2019 3:40	306	108	217	21	641	582	532	1	22	-11	131	43	56	171	228	6.21	4.51	5.02	3.51	7.72	7.11	7.55	3.03	3.41	2.71	4.63	3.53	3.90	4.76	5.22
5/27/2019 3:50	308	148	301	108	636	623	624	20	19	-13	87	56	32	172	241	6.05	5.05	5.66	3.60	7.68	7.42	7.90	3.44	3.24	1.95	4.49	3.98	3.56	4.68	5.35
5/27/2019 4:00	239	135	269	133	446	606	483	86	47	-10	119	121	121	242	276	5.06	4.37	5.29	3.89	6.89	7.64	6.96	4.15	3.65	2.24	4.31	4.62	4.52	5.21	5.55
5/27/2019 4:10	165	67	125	37	263	263	293	158	144	7	195	171	162	271	295	4.73	3.82	4.29	2.77	5.79	5.67	5.68	4.64	4.54	2.80	5.09	4.93	4.77	5.33	5.37
5/27/2019 4:20	170	128	175	167	264	274	212	224	209	30	115	162	202	224	269	5.02	4.69	4.70	4.93	5.76	5.67	5.14	4.97	4.92	3.02	4.05	4.92	5.07	4.84	5.35
5/27/2019 4:30	501	332	285	327	465	331	320	175	114	45	108	23	77	362	272	6.45	6.04	5.24	5.86	6.73	5.99	6.02	4.57	4.19	3.49	4.02	2.94	3.91	5.90	5.31
5/27/2019 4:40	347	169	286	343	281	277	289	299	267	8	35	95	190	333	313	5.60	4.59	5.79	6.16	5.41	5.41	5.52	5.48	5.43	2.56	2.98	4.12	5.12	5.40	5.48
5/27/2019 4:50	616	481	472	396	508	482	375	230	199	52	148	157	306	324	474	6.81	6.89	6.45	6.30	6.74	6.61	6.33	4.78	4.82	3.36	4.25	4.61	5.50	5.30	6.45
5/27/2019 5:00	397	398	605	590	495	393	526	223																						

5/27/2019 7:50	113	86	124	110	173	204	210	280	125	59	19	-1	281	293	301	3.64	3.80	4.07	3.83	4.45	4.72	4.99	5.33	4.44	3.95	3.22	2.77	5.63	5.53	5.77
5/27/2019 8:00	114	125	87	70	102	145	130	292	304	219	242	25	15	260	315	4.22	4.29	3.86	3.47	4.07	4.15	4.35	5.49	5.61	4.98	5.65	4.22	3.25	5.15	5.58
5/27/2019 8:10	176	120	110	59	279	230	240	367	337	169	260	214	87	196	247	4.80	3.99	4.02	3.69	5.43	5.07	5.08	5.87	5.68	4.61	5.15	4.87	3.87	4.81	5.28
5/27/2019 8:20	9	176	191	-3	125	51	-7	267	206	118	141	149	191	191	260	2.90	4.64	4.91	5.00	4.22	3.63	3.16	5.18	4.98	4.26	4.55	4.79	4.94	4.66	5.13
5/27/2019 8:30	286	255	249	-3	275	189	5	242	39	45	121	85	155	192	202	5.53	5.26	5.24	5.79	5.51	4.88	3.77	4.99	3.57	3.71	4.12	3.76	4.69	4.62	5.08
5/27/2019 8:40	242	171	230	-3	277	207	144	100	160	171	111	-14	15	76	110	5.38	4.79	5.00	5.73	5.20	4.64	4.97	4.07	5.23	4.77	4.51	3.57	3.59	3.78	4.18
5/27/2019 8:50	233	179	194	-3	22	69	86	305	165	100	182	103	72	73	164	4.99	5.08	5.31	4.34	3.05	3.80	4.48	5.55	5.21	4.58	4.94	4.55	3.92	3.96	4.49
5/27/2019 9:00	295	352	379	-3	222	205	79	52	189	140	148	65	89	92	85	5.80	5.93	6.15	6.09	5.47	4.87	4.66	3.97	4.77	4.00	4.34	3.53	4.05	3.40	3.89
5/27/2019 9:10	143	53	50	-3	128	181	231	522	395	197	264	-7	162	350	295	4.23	3.58	3.72	4.22	4.17	4.49	5.20	6.97	5.77	4.22	4.89	3.42	4.62	6.04	5.42
5/27/2019 9:20	601	530	444	-4	230	112	236	234	403	263	280	67	179	298	411	7.28	7.07	6.81	5.74	5.49	5.02	5.73	5.13	6.10	5.03	5.47	4.45	4.78	5.36	6.07
5/27/2019 9:30	445	254	276	-4	227	159	182	710	582	358	363	72	33	201	161	6.39	5.21	5.49	5.27	5.09	4.85	4.92	7.40	6.73	5.79	5.83	4.35	3.81	4.82	5.12
5/27/2019 9:40	522	554	482	-4	179	297	112	864	889	320	306	-13	82	488	337	6.95	7.13	6.82	5.06	4.89	5.53	5.37	7.43	7.79	5.62	5.39	2.56	4.18	6.30	5.63
5/27/2019 9:50	549	483	477	-4	205	180	107	687	616	607	515	8	-14	164	109	7.09	6.88	7.04	4.92	5.46	4.44	4.70	7.16	6.73	6.66	6.43	3.78	3.75	4.48	4.40
5/27/2019 10:00	438	379	495	-4	255	57	80	1,082	1,197	976	1,004	470	302	294	764	6.37	6.42	7.37	6.92	6.47	5.23	4.48	8.19	8.74	8.43	7.90	6.54	5.46	6.07	6.95
5/27/2019 10:10	69	600	621	199	514	309	220	1,238	938	933	896	533	334	187	420	4.60	7.36	7.52	6.59	6.72	5.30	5.44	8.70	8.03	7.84	8.06	6.64	5.77	5.18	6.29
5/27/2019 10:20	372	695	738	807	236	235	277	1,448	1,604	1,512	1,170	1,062	1,158	1,087	1,443	7.43	8.20	8.83	8.20	5.66	5.23	5.55	9.15	9.79	9.47	8.09	8.34	8.44	8.38	9.07
5/27/2019 10:30	742	803	1,085	1,181	790	771	694	1,427	1,413	1,185	902	630	512	623	1,165	7.54	8.60	9.82	9.56	8.17	7.82	8.46	9.26	9.06	8.42	7.65	7.21	6.86	7.21	8.47
5/27/2019 10:40	304	827	1,047	903	697	779	799	816	644	1,096	875	993	890	928	1,269	6.89	8.60	9.24	8.62	7.30	7.35	7.80	7.38	6.94	8.52	7.55	8.16	7.50	7.72	8.65
5/27/2019 10:50	418	1,112	1,152	869	722	817	929	909	1,170	1,045	1,053	823	806	826	1,166	6.73	9.18	10.25	8.46	7.94	7.76	8.31	7.94	8.53	8.21	8.24	7.57	7.47	7.79	8.24
5/27/2019 11:00	177	895	949	756	392	486	852	886	679	580	416	188	397	458	672	5.56	8.54	9.16	8.00	6.11	6.67	8.21	7.49	7.06	6.83	6.06	4.61	5.69	6.04	6.65
5/27/2019 11:10	764	755	575	355	421	353	257	766	782	630	615	165	45	263	295	8.72	8.09	7.40	5.96	6.35	5.80	5.73	7.05	7.40	7.05	6.82	4.40	4.39	5.30	5.45
5/27/2019 11:20	645	684	452	-5	342	164	123	461	405	408	482	81	52	291	261	7.50	8.10	7.07	5.75	5.75	5.32	5.93	6.08	5.83	5.82	6.04	3.66	4.01	5.85	5.80
5/27/2019 11:30	296	420	414	-6	265	170	105	105	104	70	116	81	-22	68	67	5.64	6.71	6.99	6.73	5.63	4.57	4.35	4.16	4.15	3.67	4.10	4.11	2.94	3.97	3.61
5/27/2019 11:40	57	263	317	-8	246	194	184	6	187	186	50	181	111	116	11	4.15	5.56	5.58	5.47	5.01	4.66	5.35	3.82	4.76	4.67	3.54	4.74	4.04	3.88	3.14
5/27/2019 11:50	35	-10	169	-5	79	-13	76	211	324	296	264	298	239	205	214	3.56	3.15	5.00	4.26	4.12	3.55	3.93	4.98	5.51	5.33	5.36	5.26	4.98	4.47	5.28
5/27/2019 12:00	296	224	329	-5	119	102	163	516	685	678	608	573	479	488	466	5.81	5.40	6.12	3.97	4.55	4.00	4.70	6.45	7.19	7.20	6.95	6.79	6.71	6.45	6.33
5/27/2019 12:10	479	576	471	193	412	397	303	592	569	602	734	532	382	350	483	6.65	7.37	7.29	6.50	6.44	6.15	5.79	6.58	6.69	6.84	7.23	6.42	6.03	5.73	6.37
5/27/2019 12:20	644	987	940	795	618	950	1,026	367	371	419	373	264	527	437	339	8.14	8.98	9.50	8.26	7.48	8.70	9.10	5.67	6.16	6.34	5.82	5.36	6.81	6.28	6.70
5/27/2019 12:30	588	527	557	0	526	426	422	463	463	696	695	569	751	654	711	6.94	6.84	6.94	6.82	6.72	6.41	6.46	6.37	6.55	7.32	7.20	7.16	7.22	7.13	7.07
5/27/2019 12:40	168	442	498	106	351	340	240	769	764	753	954	816	692	645	731	5.30	6.70	7.13	5.82	6.41	6.08	5.39	7.19	7.45	7.27	7.76	7.45	7.13	7.07	7.20
5/27/2019 12:50	760	743	875	666	556	448	578	1,303	547	579	683	740	516	695	802	7.84	8.09	8.71	7.74	7.02	6.43	7.13	8.83	6.32	6.85	6.75	7.05	6.14	6.32	6.98
5/27/2019 13:00	453	558	520	439	270	225	216	497	331	436	268	370	311	299	233	7.02	7.26	6.97	6.70	5.40	5.08	5.04	6.48	5.74	6.32	5.47	6.03	5.87	5.34	5.35
5/27/2019 13:10	776	743	860	693	452	367	492	566	675	805	857	606	492	381	748	8.43	8.04	8.23	7.76	6.32	6.05	6.70	6.61	7.17	7.58	7.55	6.88	6.41	6.16	7.40
5/27/2019 13:20	660	586	325	215	296	357	372	565	475	505	379	302	258	304	380	7.39	7.24	5.87	5.08	5.41	5.51	5.97	6.65	6.32	6.76	5.99	5.53	4.76	5.39	5.77
5/27/2019 13:30	470	478	783	674	741	657	870	756	676	570	588	478	284	280	398	6.80	7.19	8.55	8.15	8.14	7.59	8.63	7.39	7.20	6.72	6.84	6.53	5.62	5.41	6.17
5/27/2019 13:40	547	679	985	943	807	776	905	658	315	576	687	587	397	396	606	7.60	7.77	9.34	8.52	8.15	7.96	8.43	6.92	5.89	6.72	7.15	6.76	5.85	5.95	6.93
5/27/2019 13:50	968	963	955	754	819	829	879	609	543	806	1,042	1,101	677	728	635	8.87	8.78	8.98	7.76	8.44	7.96	8.32	6.79	6.99	7.72	8.30	8.51	7.15	7.46	6.87
5/27/2019 14:00	1,060	898	858	660	835	987	1,085	933	829	974	664	673	1,055	858	1,022	9.34	8.59	8.57	7.62	8.44	8.73	9.65	7.88	7.51	7.97	7.48	7.13	8.01	8.01	8.22
5/27/2019 14:10	291	412	433	511	536	585	606	668	488	592	452	486	551	502	462	5.70	6.66	6.71	6.89	6.97	7.28	7.74	7.00	6.62	6.82	6.32	6.47	6.82	6.40	6.26
5/27/2019 14:20	581	573	547	436	548	585	315	820	736	739	525	543	594	626	427	7.73	7.09	7.28	7.15	7.20	7.08	6.61	7.56	7.58	7.45	6.66	6.65	6.75	7.19	6.16
5/27/2019 14:30	378	544	774	938	884	975	962	504	496	458	709	1,040	871	868	874	6.24	7.41	8.51	8.96	8.73	8.84	9.32	6.28	6.58	6.41	7.18	8.34	7.54	7.57	7.80
5/27/2019 14:40	938	907	1,142	1,010	1,123	933	624	620	677	648	829	678	791	599	845	9.37	8.99	10.03	9.08	9.32	8.67	7.66	6.96	7.24	7.21	7.39	6.91	7.21	6.65	7.50
5/27/2019 14:50	692	665	998	885	924	681	701	622	387	551	689	773	826	625	934	8.06	8.31	9.18	8.72	8.91	7.47	7.90	6.73	5.97	6.82	7.24	7.57	7.68	6.88	7.98
5/27/2019 15:00	547	574	684	613	648	618	497	319	552	721	651	482	546	529	565	7.34	7.36	7.73	7.20	7.67	7.21	6.69	5.69	6.70	7.49	6.95	6.20	6.78	6.46	6.68
5/27/2019 15:10	397	427	569	161	225	396	468	534	623	667	751	376																		

5/27/2019 18:10	221	167	222	154	297	458	532	110	94	44	218	195	157	353	478	5.14	5.12	4.89	4.48	5.96	7.28	7.44	4.32	4.14	3.81	5.19	4.99	4.72	5.79	6.71
5/27/2019 18:20	313	206	335	304	333	483	624	64	83	76	267	155	143	301	411	5.99	5.61	6.30	6.55	6.36	6.80	7.85	3.80	4.08	4.11	5.62	4.88	4.71	5.64	6.59
5/27/2019 18:30	317	202	353	365	356	428	588	86	132	98	264	177	132	317	449	6.21	5.55	6.55	7.20	6.32	6.60	7.70	4.10	4.52	4.33	5.56	5.16	4.77	5.93	6.97
5/27/2019 18:40	394	243	399	434	382	410	551	113	179	56	268	249	230	390	580	6.89	5.92	6.23	7.46	6.62	6.39	7.45	4.30	5.00	3.50	5.39	5.74	5.58	6.16	7.51
5/27/2019 18:50	387	262	446	453	437	497	690	156	136	122	342	299	242	471	662	6.64	5.77	6.32	7.73	6.76	6.76	8.28	4.68	4.62	4.54	6.21	5.95	5.44	6.83	7.46
5/27/2019 19:00	346	239	387	399	383	434	617	124	113	90	272	248	174	329	508	6.41	5.74	5.96	7.58	6.45	6.33	7.86	4.63	4.46	4.19	5.68	5.63	4.83	5.82	6.76
5/27/2019 19:10	285	205	332	378	334	356	428	196	194	59	306	298	279	287	408	6.55	5.43	5.93	7.12	6.62	6.53	6.69	4.98	4.94	3.25	5.16	6.05	5.83	5.53	6.30
5/27/2019 19:20	192	140	251	292	235	237	267	143	233	120	337	373	360	304	457	5.43	4.83	4.99	6.58	5.95	5.74	5.59	4.63	5.28	4.05	6.30	6.56	6.16	5.76	6.46
5/27/2019 19:30	220	168	263	286	218	238	296	289	246	189	387	401	359	337	467	5.90	5.55	5.16	6.33	5.74	5.64	6.01	5.69	5.46	5.15	6.28	6.52	6.07	5.91	6.57
5/27/2019 19:40	291	220	293	290	262	266	336	216	141	99	309	366	281	351	500	6.32	5.86	5.46	6.23	6.03	5.59	6.16	5.02	4.70	4.10	5.78	6.29	5.50	5.68	6.44
5/27/2019 19:50	374	342	332	300	228	230	358	241	225	87	230	278	218	296	449	6.87	6.90	5.69	6.35	5.55	5.24	6.12	5.42	5.48	4.11	5.24	5.95	5.25	5.56	6.57
5/27/2019 20:00	403	352	362	292	190	182	330	215	276	49	183	343	273	275	431	6.85	6.74	5.78	6.02	5.27	4.70	5.70	5.25	5.72	2.93	4.60	6.49	5.88	5.52	6.30
5/27/2019 20:10	309	243	292	137	225	238	320	330	256	124	242	346	206	323	450	6.06	5.65	5.43	3.95	5.45	5.35	5.86	5.99	5.63	4.68	4.99	6.26	5.22	5.44	6.31
5/27/2019 20:20	294	208	264	88	187	259	276	300	271	129	271	373	185	336	447	6.00	5.74	5.43	3.21	5.14	5.62	5.82	5.75	5.58	4.07	5.03	6.19	4.98	5.56	6.36
5/27/2019 20:30	310	276	304	242	173	261	318	268	190	4	158	265	145	293	431	6.40	6.14	5.29	6.11	4.81	5.74	6.15	5.43	5.18	2.05	4.17	5.69	4.76	5.43	6.38
5/27/2019 20:40	315	291	357	379	282	344	395	264	202	-14	107	265	242	223	404	6.51	6.32	5.93	6.74	6.14	6.17	6.92	5.51	5.30	2.33	3.95	5.88	5.42	5.06	6.13
5/27/2019 20:50	280	263	314	322	148	289	395	212	211	-2	137	275	256	214	320	6.17	6.12	5.26	6.36	4.36	5.63	6.64	5.13	5.25	1.84	4.19	5.78	5.34	5.14	5.72
5/27/2019 21:00	228	201	261	264	120	223	385	109	111	-12	129	187	167	174	299	5.68	5.46	4.86	6.15	4.17	5.03	6.48	4.56	4.54	1.38	4.34	5.12	4.80	4.75	5.79
5/27/2019 21:10	181	140	180	121	95	148	260	80	65	-10	131	159	139	163	257	5.18	4.88	4.25	4.05	3.94	4.49	5.73	4.31	4.12	1.23	4.58	4.95	4.78	4.82	5.63
5/27/2019 21:20	100	62	86	20	64	131	190	53	38	-10	92	116	87	106	202	3.94	3.76	3.59	2.31	3.76	4.79	5.26	4.05	3.80	1.39	4.10	4.62	4.41	4.17	5.17
5/27/2019 21:30	83	69	102	34	55	123	197	28	25	-9	78	91	36	64	160	3.91	3.87	3.73	2.74	3.85	4.47	5.27	3.75	3.62	1.48	4.02	4.41	3.84	3.55	4.91
5/27/2019 21:40	101	85	119	39	49	150	210	28	34	-5	105	77	21	101	172	4.06	4.06	3.97	2.92	3.70	4.76	5.46	3.71	3.76	2.77	4.60	4.19	3.60	4.14	5.11
5/27/2019 21:50	118	79	126	43	47	147	197	4	10	13	120	62	41	105	184	4.26	4.22	4.17	3.11	3.46	4.70	5.50	3.25	3.38	3.83	4.78	4.09	4.08	4.38	5.16
5/27/2019 22:00	107	70	97	10	32	135	176	-2	-3	2	101	37	41	77	163	3.99	4.07	3.74	2.04	3.10	4.52	5.29	3.11	3.08	3.09	4.62	3.57	4.01	4.06	4.93
5/27/2019 22:10	82	42	66	-14	23	104	139	-17	-10	-18	44	17	26	57	127	3.90	3.69	3.70	2.22	2.95	4.24	4.77	2.76	2.84	2.74	3.88	3.38	3.76	3.61	4.56
5/27/2019 22:20	68	18	33	-9	38	70	101	-21	6	-19	26	21	7	35	107	3.71	3.07	3.19	2.31	3.47	3.86	4.29	2.79	2.95	2.90	3.53	3.52	3.63	3.22	4.28
5/27/2019 22:30	35	-12	-10	-2	29	40	66	-17	-6	-15	16	17	-3	18	78	3.22	1.56	2.08	3.24	3.47	3.44	3.81	2.73	3.06	2.71	3.37	3.56	3.49	3.08	4.00
5/27/2019 22:40	-8	-10	-10	-2	6	17	30	-13	-19	-11	7	8	-10	8	56	2.49	1.89	2.20	3.32	3.00	3.06	3.28	2.69	2.91	2.70	3.34	3.46	3.27	3.02	3.81
5/27/2019 22:50	-12	-8	-9	-2	-6	-3	12	-11	-22	-11	4	-1	-19	2	42	2.46	2.17	1.94	3.51	2.78	2.69	2.61	2.88	2.93	2.90	3.30	3.33	3.13	2.85	3.85
5/27/2019 23:00	-9	-10	-9	-2	-8	-1	24	-11	-12	-14	-9	-16	-29	-5	14	2.67	3.32	2.39	3.76	2.64	2.74	3.14	2.55	2.86	2.88	3.23	2.95	2.87	2.70	3.54
5/27/2019 23:10	6	-1	-9	-2	-10	8	62	-6	-4	26	8	24	-16	-14	18	3.33	4.44	3.59	4.61	3.06	3.37	3.88	3.46	3.48	3.83	3.28	3.59	2.95	2.72	3.36
5/27/2019 23:20	61	80	-13	-2	36	48	68	89	146	130	144	157	104	35	103	3.44	4.20	4.81	5.29	3.62	3.74	3.74	4.30	4.96	4.82	4.87	4.90	4.54	3.09	4.15
5/27/2019 23:30	81	96	72	-2	52	65	79	122	156	135	173	167	160	92	140	4.10	4.35	3.78	5.39	3.67	3.72	3.88	4.61	5.04	4.77	5.08	4.96	5.13	4.03	4.80
5/27/2019 23:40	86	122	113	-2	69	91	121	115	177	140	161	147	121	133	146	3.98	4.73	3.92	5.28	3.77	4.04	4.55	4.53	5.01	4.80	4.83	4.78	4.73	4.43	4.73
5/27/2019 23:50	105	116	124	-2	88	116	133	140	207	153	172	137	142	170	203	4.24	4.62	4.05	5.62	3.97	4.59	4.77	4.65	5.22	4.96	4.82	4.75	4.99	4.76	5.03
5/28/2019 0:00	168	134	146	-2	119	127	124	142	212	173	209	173	192	227	259	5.11	4.67	4.31	6.01	4.67	4.78	4.64	4.65	5.41	5.07	5.34	5.12	5.33	5.47	5.67
5/28/2019 0:10	155	125	136	-2	99	120	137	212	303	251	273	222	234	253	279	4.68	4.69	4.27	5.57	4.34	4.38	4.78	5.08	6.00	5.48	5.74	5.47	5.51	5.57	5.72
5/28/2019 0:20	212	151	168	-1	129	123	131	158	220	179	202	182	183	232	281	5.26	4.91	4.61	5.89	4.63	4.54	4.86	4.83	5.57	5.09	5.25	5.25	5.40	5.50	5.69
5/28/2019 0:30	170	121	155	-1	107	106	114	184	250	226	305	271	253	263	286	4.75	4.69	4.74	5.78	4.42	4.42	4.54	4.91	5.69	5.40	5.96	5.72	5.80	5.72	5.88
5/28/2019 0:40	182	157	179	-1	147	146	157	117	193	156	189	171	151	173	199	5.06	5.00	4.84	6.01	4.81	4.97	5.23	4.60	5.24	4.93	5.18	5.12	5.10	5.01	5.31
5/28/2019 0:50	186	127	157	-1	154	158	152	180	249	204	243	216	225	256	305	5.20	4.64	4.57	6.23	5.15	5.20	5.16	4.96	5.46	5.21	5.35	5.31	5.48	5.60	6.18
5/28/2019 1:00	174	141	155	-1	147	141	148	133	193	168	212	189	211	234	280	4.83	4.82	4.38	6.03	4.84	4.73	4.93	4.59	5.07	5.07	5.22	5.16	5.38	5.29	5.70
5/28/2019 1:10	211	184	195	-1	148	124	141	248	363	324	394	335	328	364	446	5.31	5.21	4.72	6.21	4.81	4.58	4.68	5.35	6.12	5.94	6.12	6.05	6.02	6.15	6.57
5/28/2019 1:20	164	122	119	-1	99	106	112	267	357	337	382	322	313	331	377	5.04	4.51	4.06	5.74	4.46	4.49	4.54	5.44	6.03	5.96	6.05	5.98	5.90	5.83	6.22
5/28/2019 1:30	284	208	260	-1	228	221	211	390	482	431	493	400	349	369	446	6.05	5.36	5.35	7.15	6.03	5.68	5.53	6.13	6.67	6.40	6.47	6.34	6.29	6.05	6.56
5/28/2019 1:40	385	328	392	-1	294	329	336</																							

5/28/2019 4:30	924	808	904	908	722	602	546	678	882	844	1,070	811	699	863	1,053	8.49	8.65	8.79	8.67	7.97	7.40	7.46	6.95	7.84	7.55	8.18	7.50	7.12	7.68	8.29
5/28/2019 4:40	811	604	716	557	714	584	573	631	698	651	846	577	395	508	567	8.41	7.69	7.86	8.24	8.25	7.57	7.59	6.94	7.40	7.25	7.70	6.80	6.03	6.35	6.72
5/28/2019 4:50	1,065	969	1,129	992	923	825	714	1,090	1,359	1,280	1,485	921	769	789	922	9.65	9.77	9.99	9.66	8.98	8.59	8.52	8.10	9.06	8.60	9.06	7.77	7.58	7.27	8.03
5/28/2019 5:00	1,097	975	1,129	1,145	963	785	709	1,109	1,363	1,217	1,451	946	727	801	1,036	9.31	9.00	9.54	9.39	8.91	8.01	8.14	8.27	9.05	8.59	8.96	7.69	7.17	7.35	7.96
5/28/2019 5:10	1,198	1,045	1,256	714	1,122	971	712	1,130	1,194	787	877	370	245	454	536	10.02	9.70	9.96	8.33	9.62	8.65	8.47	8.21	8.47	7.42	7.40	5.82	5.37	5.80	6.57
5/28/2019 5:20	1,154	993	1,378	203	1,185	950	615	1,332	1,612	1,260	1,293	821	480	459	437	9.68	9.87	9.95	7.87	10.05	8.84	8.00	8.80	9.60	8.53	8.82	7.73	6.41	6.33	6.01
5/28/2019 5:30	1,301	998	1,258	163	1,022	638	551	1,429	1,759	1,571	1,354	917	672	532	650	9.62	9.87	9.73	8.48	9.20	7.41	7.19	9.02	9.58	9.34	8.85	7.88	6.97	6.01	7.00
5/28/2019 5:40	1,408	1,048	1,323	122	978	694	656	1,434	1,566	1,441	1,530	922	376	438	1,074	9.87	9.90	9.96	9.09	8.84	7.60	7.75	8.81	9.24	8.81	9.21	7.95	5.75	5.99	7.83
5/28/2019 5:50	1,324	1,155	1,373	81	1,070	812	787	1,519	1,660	1,602	1,781	1,498	1,052	825	793	9.64	10.45	10.09	9.71	9.18	7.98	8.11	8.94	9.33	9.23	9.67	9.25	7.94	7.11	7.30
5/28/2019 6:00	1,229	1,110	1,351	40	963	720	626	1,757	1,740	1,624	1,688	1,572	1,208	1,284	1,188	9.42	9.79	10.02	10.32	9.07	7.83	7.23	9.60	9.43	9.07	9.36	9.39	8.42	8.60	8.17
5/28/2019 6:10	1,379	1,134	1,377	-1	1,018	847	852	1,915	1,737	1,831	1,918	1,716	1,418	1,188	1,268	9.83	9.66	10.18	10.60	9.10	8.16	8.37	9.95	9.46	9.73	9.96	9.55	8.89	8.29	8.27
5/28/2019 6:20	1,179	1,038	1,185	-11	1,164	1,072	887	1,592	1,683	1,806	1,948	1,627	813	1,169	1,818	9.30	9.44	9.27	10.72	9.60	8.88	8.94	9.08	9.59	9.70	10.20	9.24	7.04	8.28	9.78
5/28/2019 6:30	1,153	1,116	1,134	-12	1,111	1,247	1,039	1,693	1,838	1,874	1,974	1,925	1,290	1,229	1,472	9.14	9.55	9.36	10.18	9.40	9.53	9.61	9.53	9.93	10.03	10.56	10.10	8.72	8.85	8.92
5/28/2019 6:40	1,270	1,107	1,219	-12	1,079	1,108	1,022	1,541	1,467	1,531	1,671	1,356	1,471	1,755	1,227	9.67	8.84	9.64	9.64	9.09	8.96	8.74	8.95	8.96	9.14	9.36	8.69	8.99	9.73	8.41
5/28/2019 6:50	1,393	1,275	1,226	-13	1,030	944	835	1,246	1,331	1,126	1,338	1,444	1,307	1,263	1,144	9.96	9.43	9.55	9.10	8.83	8.16	8.09	8.36	8.85	8.18	8.58	9.07	8.77	8.46	8.18
5/28/2019 7:00	1,100	968	1,220	584	1,111	1,033	925	717	468	937	797	737	563	668	1,481	8.88	8.66	9.57	8.93	8.92	8.31	8.08	6.76	6.25	7.82	7.10	6.61	5.99	6.88	9.27
5/28/2019 7:10	927	947	1,167	1,356	1,262	1,103	946	867	719	1,276	1,083	625	426	1,176	1,757	8.39	8.99	9.45	9.88	9.38	8.57	9.15	7.36	7.13	8.61	7.95	7.08	6.05	8.58	9.73
5/28/2019 7:20	1,208	1,257	1,358	1,275	1,190	1,072	994	1,440	1,409	1,467	1,392	1,539	1,266	1,743	1,829	9.91	9.82	10.69	9.99	9.59	8.80	9.59	8.76	8.88	8.79	8.75	9.32	8.55	9.89	10.04
5/28/2019 7:30	1,273	1,160	1,437	1,539	1,243	1,270	1,226	1,477	1,955	1,914	1,720	1,673	1,569	1,723	1,811	10.00	9.82	10.63	10.23	9.87	9.50	9.83	8.97	10.09	10.27	9.73	9.58	9.50	9.82	10.12
5/28/2019 7:40	1,252	1,160	1,301	1,225	1,074	1,170	1,125	1,851	1,873	1,562	1,826	1,918	1,479	1,384	1,920	9.83	9.79	9.94	9.46	9.23	8.92	9.04	9.75	9.85	8.92	9.69	10.20	8.98	9.87	10.45
5/28/2019 7:50	1,192	1,131	1,310	1,136	1,043	1,259	1,274	1,829	1,977	2,009	1,922	1,847	1,607	1,577	1,576	9.82	9.82	9.89	9.17	9.21	9.28	9.73	9.76	10.37	10.41	10.31	9.95	9.52	9.66	9.39
5/28/2019 8:00	1,230	1,207	1,367	1,442	1,342	1,215	1,049	2,014	1,760	1,951	2,007	1,979	1,329	1,820	2,012	9.83	9.79	10.15	10.11	9.83	8.87	9.64	10.41	9.54	10.04	10.66	10.67	8.63	10.24	10.86
5/28/2019 8:10	1,296	1,223	1,489	1,524	1,336	1,265	1,114	1,744	1,625	1,778	1,941	1,887	1,606	1,450	1,934	9.72	9.69	10.53	10.19	9.84	9.16	9.92	9.39	9.32	9.62	10.40	9.94	9.51	9.03	10.35
5/28/2019 8:20	1,116	976	1,327	1,410	1,180	1,289	1,134	1,482	1,231	1,206	1,619	1,514	1,211	1,624	1,737	9.54	9.32	9.99	10.34	9.69	9.56	10.06	8.81	8.19	8.23	9.39	9.15	8.53	9.58	9.64
5/28/2019 8:30	1,026	892	1,220	1,179	1,001	968	937	646	661	867	547	684	683	1,196	1,450	9.15	8.97	9.55	9.35	9.13	8.54	8.86	6.64	6.88	7.34	5.96	6.98	7.08	8.68	8.91
5/28/2019 8:40	839	804	807	915	911	777	763	641	539	514	415	436	501	685	621	8.33	8.53	7.68	8.08	8.57	7.59	7.98	6.76	6.43	6.24	5.96	6.12	6.33	6.95	6.86
5/28/2019 8:50	1,029	976	1,223	1,224	1,015	871	779	773	1,033	1,087	895	488	485	1,176	1,376	9.38	9.48	9.48	9.72	9.37	8.33	8.82	7.11	8.08	8.03	7.32	6.38	6.42	8.67	8.65
5/28/2019 9:00	1,366	1,125	1,391	1,331	1,156	1,188	1,009	717	979	1,270	1,603	850	663	1,330	1,701	9.58	9.99	10.31	10.09	9.84	9.36	9.71	7.04	7.80	8.61	8.83	7.35	6.84	8.83	9.43
5/28/2019 9:10	1,444	1,243	1,435	1,589	1,279	1,401	1,233	1,175	1,018	1,513	1,685	1,333	916	1,416	1,571	9.59	10.86	10.56	10.38	10.45	9.45	9.31	8.11	7.92	9.06	9.50	8.63	7.50	8.92	9.07
5/28/2019 9:20	1,689	1,339	1,584	1,677	1,407	1,293	1,278	1,203	1,329	1,960	1,924	1,880	1,679	1,961	1,877	10.12	11.16	10.76	10.03	10.85	8.84	8.97	8.19	8.72	10.18	10.37	10.22	9.65	10.59	10.02
5/28/2019 9:30	1,797	1,639	1,616	1,797	1,572	1,666	1,434	1,425	1,849	1,922	1,950	1,809	1,387	1,855	1,920	10.46	10.89	11.23	10.49	11.12	10.13	10.22	8.59	9.78	10.11	10.38	9.74	8.61	10.20	10.16
5/28/2019 9:40	1,944	1,834	1,792	1,874	1,760	1,887	1,728	1,903	1,903	1,950	1,975	1,613	1,277	1,868	1,931	11.31	10.82	12.10	10.99	11.88	10.98	10.86	11.19	10.75	10.81	10.95	9.31	8.62	10.73	10.84
5/28/2019 9:50	1,994	1,870	1,935	2,012	1,925	2,020	1,914	1,939	2,013	1,941	2,000	1,868	1,671	1,975	2,001	11.94	11.06	12.97	11.85	12.21	11.62	11.35	10.34	11.29	10.28	11.77	9.92	9.66	11.34	11.56
5/28/2019 10:00	1,973	2,000	1,978	1,916	1,976	1,987	1,880	1,972	1,701	1,884	1,991	1,749	1,289	1,818	1,969	12.18	12.58	13.24	11.60	11.37	12.01	11.68	11.08	9.56	10.34	11.70	9.79	8.51	10.71	11.46
5/28/2019 10:10	1,959	1,978	1,930	1,794	1,999	1,915	1,949	1,896	1,689	1,665	1,399	736	1,229	1,637	1,891	11.98	11.65	13.23	11.19	11.77	11.74	11.40	10.89	9.97	9.68	9.26	7.14	8.43	9.58	10.49
5/28/2019 10:20	1,931	1,985	1,808	1,750	1,943	1,918	1,651	1,950	1,907	1,818	1,996	1,831	1,513	1,710	2,004	12.03	12.32	12.43	10.48	11.25	11.34	11.24	10.22	10.49	9.99	10.92	9.80	9.27	10.00	10.93
5/28/2019 10:30	1,971	1,863	1,789	1,700	1,769	1,809	1,597	1,954	1,640	1,566	1,906	1,440	1,213	1,683	1,910	11.75	11.21	12.42	10.37	10.68	10.56	10.39	10.62	9.29	9.22	10.73	8.76	8.01	10.00	11.14
5/28/2019 10:40	1,891	1,804	1,947	1,968	1,894	1,910	1,792	1,902	1,762	1,974	1,877	1,569	1,245	1,774	2,013	11.53	11.28	12.72	11.64	11.37	11.15	10.66	10.35	10.61	10.75	10.26	9.12	8.91	10.39	11.31
5/28/2019 10:50	1,923	1,645	1,887	1,918	1,912	1,766	1,792	1,936	2,011	1,991	1,867	1,976	1,738	1,993	1,999	12.41	11.67	12.39	11.46	11.22	10.53	10.54	10.69	10.91	11.16	10.61	10.85	9.77	11.36	11.46
5/28/2019 11:00	1,967	1,804	1,936	1,929	1,928	1,806	1,830	2,000	1,999	1,999	1,986	1,972	1,579	1,996	2,000	12.34	11.91	12.78	11.64	11.34	10.85	11.10	11.87	11.38	12.75	11.74	10.97	9.33	11.64	11.85
5/28/2019 11:10	1,915	1,879	1,725	1,607	1,863	1,835	1,694	1,996	1,999	1,999																				

5/28/2019 14:50	578	654	812	914	403	302	271	1,424	1,898	1,813	1,770	1,457	1,326	1,201	1,180	7.11	7.48	8.20	8.12	6.28	5.51	5.41	8.95	10.15	9.71	9.72	9.02	9.05	8.58	8.36
5/28/2019 15:00	406	409	620	685	430	406	383	1,039	1,219	1,278	1,479	1,258	1,127	1,007	1,011	6.38	6.67	7.16	7.72	6.73	6.46	6.74	7.79	8.49	8.44	8.89	8.45	8.19	8.11	7.78
5/28/2019 15:10	348	397	502	563	263	189	245	1,210	1,252	1,280	1,344	1,072	872	962	907	5.81	6.52	6.95	6.71	5.13	4.45	5.25	8.33	8.69	8.51	8.51	8.13	7.55	7.85	7.42
5/28/2019 15:20	489	568	626	641	387	358	357	1,168	1,349	1,390	1,477	1,113	938	831	954	6.97	7.27	7.25	7.70	6.41	6.07	6.15	8.05	8.74	8.80	8.97	8.30	8.15	7.50	7.88
5/28/2019 15:30	390	412	481	540	314	272	275	1,278	1,293	1,233	1,310	1,021	912	970	999	6.12	6.58	6.51	7.08	6.01	5.65	5.86	8.62	8.65	8.46	8.60	8.12	7.89	8.22	8.01
5/28/2019 15:40	414	415	497	526	343	250	229	1,066	1,252	1,153	1,118	984	848	890	921	6.20	6.49	6.83	7.50	6.22	5.46	5.45	8.12	8.80	8.31	8.22	8.01	7.74	7.86	7.78
5/28/2019 15:50	419	416	580	605	359	297	283	1,033	1,087	922	1,074	899	855	859	874	6.60	6.60	7.10	7.86	6.22	5.86	5.76	8.04	8.46	7.76	8.07	7.69	7.87	7.88	7.82
5/28/2019 16:00	398	314	492	605	381	301	279	1,002	1,099	875	1,060	862	761	757	935	6.53	6.03	6.82	7.67	6.58	5.89	5.88	7.82	8.14	7.55	8.09	7.66	7.66	7.57	8.15
5/28/2019 16:10	375	363	473	584	355	279	250	819	892	822	830	610	616	634	808	6.31	6.86	6.78	7.59	6.33	5.58	5.61	7.50	7.90	7.71	7.43	6.92	7.08	7.19	7.54
5/28/2019 16:20	303	327	455	653	378	369	372	837	948	950	1,065	786	701	620	828	6.01	6.58	6.68	7.85	6.73	6.33	6.50	7.46	7.89	7.98	8.07	7.64	7.21	7.24	7.67
5/28/2019 16:30	388	337	476	615	378	373	369	908	988	978	1,128	1,012	945	883	980	6.29	6.76	6.65	7.34	6.17	6.00	6.24	7.53	8.08	7.96	8.14	8.05	8.06	7.85	8.02
5/28/2019 16:40	346	330	452	630	402	303	329	757	981	950	979	859	817	756	824	6.16	6.56	6.57	7.52	6.38	5.56	5.76	7.25	7.92	7.91	7.78	7.64	7.72	7.57	7.57
5/28/2019 16:50	395	378	427	524	291	226	233	775	684	781	859	813	715	692	831	6.48	6.86	6.19	6.95	5.65	5.12	5.14	7.28	6.95	7.38	7.47	7.65	7.44	7.38	7.66
5/28/2019 17:00	297	274	335	503	259	209	240	710	800	706	836	742	776	705	717	5.80	6.18	5.69	6.78	5.43	4.83	5.40	7.11	7.38	7.16	7.43	7.40	7.67	7.50	7.28
5/28/2019 17:10	331	281	346	423	224	188	203	561	603	661	819	673	591	608	746	6.19	6.58	5.82	6.53	5.53	4.88	5.05	6.73	7.00	7.19	7.57	7.23	7.05	7.04	7.68
5/28/2019 17:20	288	230	283	341	161	97	139	504	569	638	777	666	620	575	647	5.67	6.14	5.45	6.14	4.82	3.98	4.49	6.36	6.84	7.13	7.39	7.15	7.15	7.05	7.04
5/28/2019 17:30	305	270	290	324	160	147	157	440	661	655	805	694	680	602	695	5.92	6.35	5.17	5.91	4.81	4.71	4.85	6.17	7.09	6.99	7.49	7.24	7.34	6.99	7.08
5/28/2019 17:40	283	245	241	292	122	92	98	504	783	616	808	700	605	550	611	5.78	6.12	5.08	5.49	4.38	3.95	4.21	6.46	7.51	6.83	7.47	7.26	7.06	6.75	7.00
5/28/2019 17:50	321	249	230	247	121	86	91	513	787	718	810	628	598	532	612	6.02	6.13	4.93	5.25	4.42	3.99	4.06	6.56	7.58	7.34	7.63	7.15	7.23	6.77	7.00
5/28/2019 18:00	366	338	337	312	148	117	106	623	882	826	884	727	607	576	698	6.10	6.33	5.54	5.69	4.46	4.17	4.23	6.92	7.77	7.61	7.81	7.18	7.03	6.80	7.18
5/28/2019 18:10	293	259	234	221	102	69	51	490	624	525	609	466	584	494	537	5.70	5.80	4.96	5.25	4.23	3.72	3.61	6.43	7.00	6.53	6.96	6.25	6.97	6.44	6.67
5/28/2019 18:20	291	271	275	308	176	137	121	547	697	616	718	613	596	587	627	5.91	6.05	5.53	6.28	5.23	4.52	4.54	6.57	7.24	6.88	7.39	6.82	7.09	6.91	7.06
5/28/2019 18:30	361	313	282	299	169	133	128	461	635	495	598	520	494	527	585	6.13	6.23	5.28	5.81	4.96	4.45	4.46	6.23	7.01	6.47	6.93	6.56	6.69	6.56	6.99
5/28/2019 18:40	292	243	219	210	139	91	77	445	584	509	588	492	487	439	471	5.76	5.50	4.96	5.04	4.61	3.97	3.99	6.28	6.75	6.64	6.83	6.50	6.67	6.25	6.43
5/28/2019 18:50	312	271	251	254	175	123	112	494	575	621	639	543	453	419	526	6.14	5.89	5.06	6.07	4.91	4.22	4.30	6.35	6.72	6.94	6.95	6.67	6.56	6.10	6.72
5/28/2019 19:00	205	175	185	202	112	72	55	302	423	423	492	387	403	379	475	5.13	5.49	4.71	5.35	4.28	3.77	3.65	5.67	6.36	6.28	6.58	6.05	6.26	5.99	6.45
5/28/2019 19:10	332	289	324	352	193	162	173	297	421	455	579	565	470	502	632	6.17	6.54	5.47	6.40	5.03	4.61	4.71	5.56	6.18	6.25	6.68	6.95	6.46	6.71	7.11
5/28/2019 19:20	342	265	326	341	169	155	159	131	305	297	406	404	402	404	531	6.38	6.41	5.72	6.34	4.93	4.51	4.67	4.65	5.65	5.66	6.03	6.30	6.25	6.24	6.70
5/28/2019 19:30	309	227	303	320	161	133	133	77	189	183	286	289	263	295	391	6.02	6.20	5.70	6.47	4.85	4.45	4.45	4.13	5.05	4.97	5.57	5.75	5.65	5.69	6.19
5/28/2019 19:40	193	179	221	269	93	86	99	46	142	130	203	210	194	206	250	5.12	5.48	4.87	5.71	4.05	3.75	3.88	3.87	4.70	4.65	5.10	5.21	5.15	4.79	5.18
5/28/2019 19:50	157	194	193	157	33	30	81	16	96	70	116	134	155	175	176	4.65	5.73	4.72	4.66	3.37	3.43	3.86	3.50	4.36	4.01	4.41	4.59	4.93	4.72	4.94
5/28/2019 20:00	69	129	130	114	9	14	27	-1	79	81	124	125	122	107	82	3.50	4.90	3.89	4.24	2.67	2.51	3.04	3.24	3.95	4.00	4.44	4.34	4.61	3.82	3.95
5/28/2019 20:10	57	97	93	86	-7	-11	-12	-28	41	-15	59	87	91	45	-14	3.27	4.34	3.52	3.84	2.14	1.98	2.21	2.47	3.63	4.51	3.88	4.07	4.54	2.99	2.74
5/28/2019 20:20	27	59	69	41	-10	-11	22	-30	15	8	47	43	45	40	-12	2.79	4.16	3.55	2.95	1.77	1.60	2.68	2.22	3.25	3.60	3.83	3.76	4.13	3.32	2.94
5/28/2019 20:30	48	81	83	4	-8	-5	40	-27	-2	26	75	88	80	87	60	3.16	4.04	3.67	2.93	2.00	2.25	2.82	2.01	3.08	3.44	4.01	4.18	4.30	3.96	4.08
5/28/2019 20:40	80	154	126	110	38	49	71	-27	-9	14	54	57	69	67	67	3.72	5.25	4.17	4.37	3.31	3.33	3.79	1.95	2.75	3.34	3.89	3.85	4.36	3.63	3.68
5/28/2019 20:50	131	157	153	148	42	65	105	-26	-1	28	75	85	94	131	153	4.60	5.34	4.54	4.61	3.45	3.67	4.40	2.48	3.21	3.58	3.97	4.18	4.47	4.38	4.79
5/28/2019 21:00	152	163	152	130	26	64	101	-22	13	69	109	169	181	191	221	4.88	5.30	4.53	4.54	3.11	3.63	4.19	2.70	3.36	4.03	4.25	4.85	5.25	4.84	5.20
5/28/2019 21:10	182	186	193	199	56	76	150	-28	25	83	131	143	148	128	162	5.05	5.76	4.97	5.27	3.71	3.53	4.80	2.42	3.69	4.35	4.56	4.63	4.81	4.20	4.76
5/28/2019 21:20	65	92	87	86	7	37	85	-26	-13	11	35	45	34	43	46	3.43	4.40	3.86	4.01	2.66	3.30	3.99	1.97	2.73	3.31	3.57	3.65	3.86	3.38	3.34
5/28/2019 21:30	23	58	46	47	-12	2	44	-26	-13	-11	31	45	27	23	43	3.14	4.45	3.44	3.16	1.95	2.52	3.46	2.13	2.93	3.10	3.93	3.87	3.96	3.35	3.76
5/28/2019 21:40	-11	26	16	10	-11	-10	7	-26	-8	-12	-5	20	1	-7	1	1.95	3.19	2.76	1.99	1.45	1.56	2.83	1.92	2.74	3.08	2.98	3.65	3.71	2.53	2.57
5/28/2019 21:50	-22	-13	-12	-12	-8	-8	-12	-26	-8	-11	-12	-10	-33	-12	-11	1.32	2.32	1.42	0.95	2.39	2.47	2.19	1.63	2.03	2.39	2.47	2.71	2.57	2.11	1.52
5/28/2019 22:00	-18	-12	-11	-9	-10	-8	-11	-27	-9	-9	-9	-7	-28	-9	-9	1.33	1.50	0.85	1.79	2.94	2.72	2.86	1.71	2.16	2.34	2.15	2.86	2.96	2.04	1.83
5/28/2019 22:10	-18	-10	-9	-8	58	13	-10	-27	-9	-8	-8	-9	-30	-8	-8	2.24	1.28	1.21	2.28	3.96	3.45	3.39	2.14	2.81						

5/29/2019 1:10	342	166	212	244	233	231	293	-23	-6	-7	200	-5	-37	157	209	6.22	5.40	4.64	5.40	4.88	5.11	5.85	2.71	3.05	3.64	5.03	3.64	3.44	4.42	4.99
5/29/2019 1:20	314	159	242	271	301	137	226	-23	-6	-6	212	78	-28	206	300	5.98	5.31	5.01	5.50	5.52	4.00	5.59	2.67	2.87	3.69	5.10	4.15	3.57	4.87	5.92
5/29/2019 1:30	474	259	374	419	267	319	380	-24	-7	37	336	249	-29	246	419	7.18	6.35	6.35	7.06	4.82	5.87	6.42	2.96	2.75	3.79	6.09	5.70	2.85	4.85	6.64
5/29/2019 1:40	589	414	654	687	526	244	421	18	32	114	439	316	33	264	448	7.18	7.28	7.90	7.84	6.05	4.53	6.30	3.98	3.86	4.22	6.55	6.00	3.75	4.86	6.63
5/29/2019 1:50	635	493	661	669	404	219	457	104	121	228	547	356	93	193	448	7.30	7.72	7.61	7.74	5.10	4.60	6.67	4.33	4.43	5.32	6.81	6.19	3.60	3.76	6.41
5/29/2019 2:00	574	419	534	503	309	215	412	124	123	223	475	281	70	153	357	6.99	7.19	6.78	7.24	4.93	4.44	6.05	4.53	4.47	5.34	6.34	5.68	4.10	3.38	5.96
5/29/2019 2:10	474	329	514	471	525	64	196	285	254	349	573	276	24	100	258	6.01	6.39	6.37	6.59	7.73	2.86	4.56	5.69	5.54	5.97	6.80	5.88	2.97	3.18	5.13
5/29/2019 2:20	375	146	490	456	460	72	252	263	244	304	451	224	-4	23	161	5.79	5.21	6.19	6.71	7.46	3.00	5.18	5.49	5.43	5.66	6.10	5.34	2.26	2.61	4.33
5/29/2019 2:30	375	171	374	409	571	25	101	252	195	230	341	53	-28	16	68	5.76	5.10	5.45	6.13	7.72	2.41	3.35	5.47	4.98	5.17	5.59	3.44	1.70	2.70	3.57
5/29/2019 2:40	364	143	271	357	478	45	171	134	167	181	231	97	-28	48	162	6.28	5.06	4.88	6.08	7.10	2.58	4.38	4.86	4.80	4.80	5.12	4.85	1.96	3.08	4.70
5/29/2019 2:50	301	167	432	403	508	144	373	75	111	152	256	100	-24	40	160	6.21	5.32	5.94	6.35	8.05	3.94	6.12	4.46	4.42	4.65	5.37	4.62	2.95	2.87	4.63
5/29/2019 3:00	390	204	387	329	308	279	403	-3	34	83	208	78	-22	81	216	6.50	5.79	5.80	6.18	5.40	5.44	6.76	3.24	3.44	4.11	5.01	4.10	2.76	3.09	5.04
5/29/2019 3:10	278	174	299	325	230	355	419	-27	-10	-6	69	10	-20	47	112	5.66	5.57	5.78	6.49	4.63	6.14	6.96	2.43	2.73	3.03	4.19	3.42	3.21	3.60	4.55
5/29/2019 3:20	326	261	348	343	260	259	436	-16	0	15	123	62	24	99	212	6.17	5.94	5.95	6.18	5.20	5.12	6.98	2.71	3.04	3.39	5.04	4.18	3.83	4.25	5.34
5/29/2019 3:30	356	383	409	373	208	230	349	87	85	139	260	205	152	113	343	5.84	6.42	6.29	6.69	4.65	4.85	6.28	4.42	4.17	4.89	5.38	5.37	4.98	3.94	6.14
5/29/2019 3:40	549	475	524	471	205	276	435	206	199	240	341	264	231	158	394	6.95	7.03	6.54	7.17	4.21	4.98	6.44	5.47	5.29	5.45	5.84	5.68	5.50	3.94	6.21
5/29/2019 3:50	695	505	575	513	205	578	766	256	254	302	383	310	268	249	460	8.00	7.16	6.58	7.39	4.40	7.45	8.96	5.73	5.68	5.79	5.99	6.00	5.69	5.15	6.51
5/29/2019 4:00	712	497	621	535	396	843	1,062	187	212	261	379	215	216	237	428	8.55	7.51	7.23	7.78	6.04	8.59	9.76	5.07	5.19	5.55	6.03	5.13	5.46	5.19	6.62
5/29/2019 4:10	794	491	707	633	425	953	1,054	239	257	297	419	299	252	269	481	8.85	7.51	7.65	8.38	6.38	9.28	9.80	5.34	5.48	5.73	6.06	5.87	5.52	5.03	6.63
5/29/2019 4:20	976	636	814	720	550	1,069	1,097	299	275	309	449	313	255	256	515	9.82	8.35	8.42	8.60	7.06	9.66	9.98	5.70	5.43	5.67	6.20	5.78	5.42	4.49	6.77
5/29/2019 4:30	982	568	774	640	617	941	819	374	326	355	494	301	219	354	539	9.79	7.86	8.39	7.84	7.06	9.15	8.97	6.01	5.84	6.11	6.53	5.93	5.34	6.07	7.10
5/29/2019 4:40	809	470	658	562	774	842	788	337	291	335	550	280	197	457	581	8.85	7.60	7.83	7.54	8.26	8.60	8.40	5.81	5.68	5.89	6.64	5.68	5.06	6.50	6.85
5/29/2019 4:50	492	294	525	518	573	808	816	212	190	208	348	193	129	333	403	7.14	5.99	6.57	6.75	6.39	8.32	8.48	5.09	5.08	5.01	5.93	5.09	4.59	5.64	6.07
5/29/2019 5:00	437	283	453	558	444	893	866	264	169	205	352	193	158	322	388	6.81	5.93	6.11	7.07	5.18	8.64	8.53	5.51	4.91	5.06	5.95	4.81	4.82	5.72	6.17
5/29/2019 5:10	521	220	406	408	401	658	651	271	219	182	274	99	44	214	308	6.75	5.32	6.10	6.05	5.32	7.51	7.52	5.42	5.10	4.72	5.30	3.86	3.63	4.59	5.61
5/29/2019 5:20	555	319	386	370	320	642	604	264	215	199	276	115	41	170	267	6.71	6.08	5.81	5.80	5.03	7.38	7.30	5.36	5.02	4.82	5.29	4.16	3.42	4.47	5.36
5/29/2019 5:30	558	369	347	293	326	492	587	246	121	113	245	168	106	270	282	6.92	6.19	5.68	5.39	5.54	6.49	7.09	5.20	4.21	4.05	4.91	4.55	4.19	5.30	5.26
5/29/2019 5:40	248	163	302	195	306	441	433	114	91	221	277	234	89	197	295	5.23	4.61	5.40	4.81	5.56	6.49	6.50	4.40	3.88	4.87	5.23	5.03	3.92	4.56	5.31
5/29/2019 5:50	204	180	220	198	194	385	304	88	84	135	235	97	124	113	228	5.09	4.65	4.47	4.75	4.71	6.08	5.69	4.23	3.77	4.34	4.90	3.90	4.31	3.68	4.94
5/29/2019 6:00	363	220	270	256	248	255	273	123	94	175	105	236	277	335	396	5.81	5.36	5.29	5.50	5.22	5.15	5.16	4.41	3.90	4.59	3.96	5.12	5.51	5.58	5.90
5/29/2019 6:10	387	334	356	311	290	273	221	115	107	143	222	283	162	285	376	6.05	6.03	5.80	5.71	5.75	5.32	4.99	4.34	4.10	4.36	4.99	5.30	4.57	5.18	5.64
5/29/2019 6:20	376	395	197	180	122	150	210	137	293	377	286	272	152	138	233	5.88	6.22	4.93	4.54	4.01	4.29	4.90	4.50	5.53	5.86	5.08	5.37	4.62	4.22	4.93
5/29/2019 6:30	58	219	157	103	81	133	188	73	238	309	339	303	219	169	196	3.54	5.22	4.64	4.01	3.75	4.30	4.80	3.95	5.09	5.51	5.65	5.71	5.27	4.28	4.72
5/29/2019 6:40	140	181	189	156	137	164	190	178	127	120	110	132	83	86	192	4.48	4.83	4.93	4.72	4.46	4.73	4.94	4.91	4.18	4.38	4.01	4.30	4.00	3.69	4.99
5/29/2019 6:50	107	137	157	144	148	151	216	144	48	57	90	116	118	113	183	4.39	4.70	4.40	4.54	4.52	4.46	5.11	4.53	3.50	3.58	3.81	4.30	4.33	3.86	4.78
5/29/2019 7:00	45	27	65	93	31	19	49	29	14	11	8	1	-29	3	22	3.19	2.98	3.55	3.87	3.14	2.89	3.38	3.15	2.75	2.97	2.77	2.50	2.37	2.56	2.99
5/29/2019 7:10	-24	-12	-12	-4	-7	-12	-11	-14	-10	-12	-12	-10	-31	-12	-12	1.45	1.60	1.61	2.45	2.25	1.95	1.80	1.06	1.27	1.57	1.38	1.12	1.44	1.71	2.26
5/29/2019 7:20	-20	-9	-11	-6	-10	-9	-10	-11	-8	-9	-8	-7	-30	-9	-9	1.13	1.56	0.99	1.15	1.84	1.38	1.73	1.49	1.03	1.00	1.27	1.32	1.05	1.18	1.81
5/29/2019 7:30	-19	-9	-9	-6	-8	-9	-9	-10	-8	-9	-9	-8	-28	-11	-9	0.79	1.16	0.99	1.23	0.82	1.11	2.15	1.33	0.80	0.84	0.81	0.94	1.30	0.59	0.90
5/29/2019 7:40	-9	-9	-9	-6	-9	-8	-9	-10	-8	-9	-10	-9	-28	-8	-8	0.96	1.27	0.93	0.87	1.10	1.43	2.08	1.34	0.76	0.94	0.94	0.84	1.23	0.84	1.09
5/29/2019 7:50	-9	-10	-9	-6	-9	-8	-10	-11	-9	-9	-9	-8	-21	-9	-9	0.82	1.32	2.19	1.80	1.66	1.90	1.52	0.80	1.21	1.36	1.21	0.93	1.21	1.47	1.96
5/29/2019 8:00	-9	-10	-10	-6	-8	-8	-12	-11	-10	-9	-9	-8	-20	-8	-9	1.57	2.17	2.32	2.25	1.80	1.56	2.07	1.24	1.30	1.52	1.43	1.59	1.37	1.09	0.95
5/29/2019 8:10	-9	-9	-10	-6	-8	-7	-11	-12	-9	-10	-9	-8	-21	-8	-9	1.48	1.79	1.89	1.75	1.29	2.22	1.54	1.74	1.62	1.91	1.70	1.54	2.05	0.95	1.83
5/29/2019 8:20	-9	-10	2	-6	-8	-8	-10	-12	-9	-9	-8	-9	-20	-9	-9	2.23	2.57	2.67	2.27	2.16	2.21	2.27	1.14	1.65	2.00	1.42	2.29	1.86	1.67	1.99
5/29/2019 8:30	-7	-11	-2	-6	-8	-7	-10	-11	-9	-9	-9	-9	-20	-10	-9	2.09	2.71	2.52	2.27	1.81	1.99	1.94	1.76	1.61	1.88	2.07	1.88	1.52	1.25	1.63
5/29/2019 8:40	-6	18	39	-7	-2	1	24	-11	-9	-4	7	-4	-21	-8	-9	2.66	3.04	3.47	3.35	3.10										

5/29/2019 11:30	71	14	63	101	127	142	176	-10	119	54	38	110	94	143	147	3.80	2.94	3.50	3.92	4.37	4.50	4.72	3.14	4.38	3.86	3.75	4.15	4.11	4.26	4.53
5/29/2019 11:40	82	46	118	157	214	198	229	49	192	53	97	86	110	129	188	3.71	3.74	4.17	4.68	5.39	5.18	5.24	3.35	4.87	4.10	4.15	4.12	4.35	4.27	4.83
5/29/2019 11:50	182	61	141	196	198	207	184	20	157	184	188	185	216	211	230	4.72	3.55	4.43	4.97	5.07	5.07	5.17	3.66	4.54	5.08	4.89	4.93	5.20	4.79	5.18
5/29/2019 12:00	134	66	158	151	190	167	189	98	261	335	174	297	190	185	196	4.34	3.72	4.51	4.50	5.11	4.67	5.04	4.13	5.41	5.86	4.66	5.51	4.94	4.57	4.87
5/29/2019 12:10	89	56	65	51	96	56	68	75	171	169	242	191	123	134	141	3.70	3.25	3.41	3.26	4.04	3.36	3.48	3.97	4.90	4.83	5.27	5.02	4.57	4.27	4.50
5/29/2019 12:20	52	16	20	23	29	17	23	12	42	72	110	87	32	35	37	3.46	2.91	2.98	2.98	3.00	2.87	3.44	2.94	3.52	4.01	4.36	4.10	3.55	3.32	3.37
5/29/2019 12:30	-10	-13	-1	-10	22	28	34	54	25	58	62	43	51	50	50	2.78	2.56	2.96	2.98	3.09	3.24	3.19	3.85	3.39	3.89	3.94	4.01	3.85	3.41	3.82
5/29/2019 12:40	-11	-11	-12	-7	0	-6	18	47	49	24	81	84	86	61	96	2.75	2.40	2.26	2.60	2.57	2.28	3.13	3.50	3.51	3.35	3.82	4.01	4.11	3.26	3.94
5/29/2019 12:50	-10	-9	-12	-9	-12	-8	-10	-5	21	-3	-4	6	-19	2	-4	2.32	1.85	1.92	2.19	2.23	2.31	2.87	2.76	3.14	2.89	2.62	2.97	2.46	2.66	2.57
5/29/2019 13:00	-9	-9	-10	7	-9	-11	-12	-12	5	-3	-5	-6	-5	-7	1	2.11	1.89	2.30	2.70	2.41	2.74	2.76	2.30	3.05	2.46	2.55	2.65	2.80	2.49	2.89
5/29/2019 13:10	4	-8	-12	-9	-12	-8	-11	-9	-12	-11	26	-3	35	52	82	2.76	2.18	2.48	2.17	2.68	2.33	2.17	2.39	2.14	2.84	3.87	3.17	3.67	3.30	3.90
5/29/2019 13:20	-4	-8	-13	-11	-5	1	-1	-9	-12	-11	-8	-7	-6	7	19	2.24	1.63	2.30	2.31	2.41	2.40	3.30	2.90	2.23	2.35	2.52	2.66	3.07	2.57	3.05
5/29/2019 13:30	-8	-8	-7	-11	-6	20	24	-5	-10	-9	-13	-5	16	13	5	1.92	2.18	2.65	2.64	2.99	2.69	3.14	2.41	2.36	1.95	2.95	2.70	3.27	2.74	2.99
5/29/2019 13:40	-7	-7	-2	12	10	5	4	-6	9	3	-11	-11	-20	-9	-12	2.45	2.03	2.60	3.20	2.91	2.53	2.43	2.64	3.57	3.31	2.79	2.87	2.56	2.06	2.78
5/29/2019 13:50	-8	13	-3	-5	-13	-10	-11	1	-12	-6	-7	-12	-13	-9	-10	2.26	2.23	1.89	2.11	1.55	1.49	1.08	2.54	2.48	2.61	2.70	2.88	2.96	2.74	2.92
5/29/2019 14:00	-8	-10	-11	-10	-10	-8	-9	-11	-11	-12	-11	-10	-24	-10	-7	2.22	2.65	2.14	0.88	1.02	1.00	1.58	1.62	2.24	2.58	2.41	2.61	2.55	2.13	2.40
5/29/2019 14:10	-7	2	-9	-7	-8	-6	-8	-9	-12	-9	-9	-9	-24	-3	-5	2.87	3.37	3.32	1.71	1.75	2.11	2.41	2.91	1.48	1.55	1.84	2.50	2.73	2.47	2.48
5/29/2019 14:20	73	97	-9	-8	-5	-7	-9	65	7	-9	-9	-8	-21	-10	-11	3.75	3.98	3.71	3.19	3.25	2.94	2.66	4.28	3.72	2.69	1.74	1.30	1.77	1.57	1.67
5/29/2019 14:30	151	142	12	53	33	2	10	150	206	109	24	-11	-20	-7	-11	4.60	4.82	4.02	3.61	3.01	2.77	3.12	4.50	4.97	4.77	3.69	3.67	1.94	2.28	3.10
5/29/2019 14:40	153	123	95	44	19	4	20	177	228	144	150	47	-21	26	23	4.69	4.38	3.75	3.29	2.79	2.30	2.80	4.62	5.14	4.38	4.41	3.45	3.08	3.40	3.83
5/29/2019 14:50	165	150	103	27	42	46	36	216	221	166	174	151	12	72	55	4.92	4.78	3.93	2.82	3.34	3.23	3.04	4.88	5.15	4.68	4.50	4.43	3.25	3.40	3.58
5/29/2019 15:00	288	292	235	104	110	75	57	303	264	235	221	125	34	23	-6	5.65	6.00	4.99	3.91	4.29	3.63	3.45	5.47	5.41	5.20	5.03	4.20	3.55	2.89	2.61
5/29/2019 15:10	274	261	193	72	75	63	50	304	362	235	137	68	9	-4	4	5.36	5.75	4.67	3.50	3.92	3.62	3.49	5.44	5.85	5.25	4.41	3.72	3.25	2.52	2.93
5/29/2019 15:20	186	197	141	70	62	30	12	301	334	204	149	70	12	-5	17	5.00	5.37	4.25	3.78	3.66	2.85	2.69	5.58	5.77	4.96	4.49	3.80	3.48	2.45	3.27
5/29/2019 15:30	201	168	124	42	23	-8	-11	304	386	205	140	57	-4	56	142	5.06	5.26	4.11	3.28	3.03	2.72	2.42	5.54	6.13	4.99	4.41	3.68	3.15	3.36	4.55
5/29/2019 15:40	173	127	89	41	36	20	86	232	229	171	110	70	-6	119	180	4.76	4.51	3.78	3.29	3.09	3.03	4.22	5.09	5.14	4.67	4.18	3.73	2.99	4.08	4.85
5/29/2019 15:50	159	98	97	111	74	36	109	278	261	141	142	98	21	162	151	4.72	4.05	3.82	4.26	3.79	3.09	4.21	5.47	5.35	4.48	4.49	4.20	3.34	4.56	4.54
5/29/2019 16:00	198	128	89	120	50	16	77	202	190	180	166	74	-18	74	84	5.27	4.68	3.70	4.34	3.48	2.57	3.82	4.86	4.83	4.88	4.57	3.94	2.14	3.52	3.90
5/29/2019 16:10	98	90	31	122	67	18	31	305	184	122	172	51	-16	30	-9	4.16	4.03	2.94	4.37	3.77	2.51	3.05	5.52	4.79	4.34	4.67	3.79	2.45	2.91	2.52
5/29/2019 16:20	105	91	13	74	45	12	46	72	64	39	10	-12	-22	-8	-12	4.11	4.10	2.47	3.90	3.40	2.47	3.33	3.62	3.67	3.54	2.87	2.36	1.67	2.27	2.49
5/29/2019 16:30	17	-5	-12	15	12	-9	-5	-6	-9	-7	-11	-11	-21	-9	-11	2.93	2.24	1.72	3.02	2.83	2.26	2.33	2.71	2.72	2.39	2.45	1.77	2.00	1.75	1.71
5/29/2019 16:40	-10	-13	-10	-10	-12	-9	-10	-14	-18	-11	-11	-9	-20	-7	-9	2.04	2.02	1.74	2.43	2.02	1.44	1.67	2.59	2.84	2.09	2.31	1.87	1.96	1.86	2.31
5/29/2019 16:50	-13	-11	-9	-10	-9	-7	-10	-6	3	-9	9	-8	-22	-8	24	2.29	1.93	2.12	2.19	1.73	1.89	1.48	2.68	2.96	2.36	2.99	3.19	3.14	2.80	3.31
5/29/2019 17:00	15	-8	-8	11	-1	-5	-9	32	43	-9	-10	-6	1	-8	45	3.03	2.78	2.90	2.98	2.65	2.56	2.24	3.50	3.68	3.01	2.98	2.32	3.15	2.17	3.55
5/29/2019 17:10	10	-3	-13	-12	-13	-5	-8	2	36	-8	-13	-10	-21	-9	-6	2.83	2.89	2.31	2.48	2.06	2.24	2.21	2.97	3.54	2.95	2.53	1.91	1.47	1.83	2.67
5/29/2019 17:20	40	9	-14	-5	-10	-10	-13	-1	5	-14	-10	-9	-21	-6	-8	3.24	2.85	2.32	2.69	2.61	2.46	1.97	3.03	3.04	2.41	2.21	1.45	2.23	1.91	2.73
5/29/2019 17:30	-10	-11	-9	-4	-9	-8	-6	-17	-15	-11	-8	-8	3	-8	-2	2.33	2.16	1.47	2.53	2.46	2.29	2.19	2.70	2.78	2.01	1.74	2.09	3.25	2.48	2.88
5/29/2019 17:40	32	5	-10	32	25	20	22	-19	-10	-10	-8	-8	-21	-7	22	3.26	2.93	1.65	3.33	3.31	3.00	2.98	2.58	2.82	1.94	2.09	1.61	2.66	1.88	3.23
5/29/2019 17:50	74	-13	1	105	103	68	38	-9	5	-12	-11	-9	0	-7	14	3.92	2.63	2.77	4.36	4.38	3.80	3.46	2.91	3.08	2.38	2.24	2.11	3.31	2.21	3.20
5/29/2019 18:00	111	44	17	111	137	116	80	10	-15	-12	3	-9	-12	-4	62	4.34	3.73	3.07	4.42	4.63	4.26	3.65	3.19	2.70	2.18	2.69	2.55	3.11	2.37	3.76
5/29/2019 18:10	64	25	82	142	197	176	168	-14	-11	-10	23	20	40	19	97	3.46	3.13	3.99	4.54	5.32	4.80	4.91	2.26	2.59	2.21	2.85	3.30	3.77	2.71	4.11
5/29/2019 18:20	71	-10	107	132	170	148	149	-13	-5	-9	42	31	23	87	142	3.48	2.39	3.98	4.25	4.73	4.64	4.68	2.15	2.44	1.35	3.49	3.52	3.55	3.94	4.51
5/29/2019 18:30	100	17	130	157	193	148	122	-12	-11	-9	58	42	10	73	42	3.89	2.87	4.07	4.62	5.20	4.57	4.52	2.43	1.81	1.34	3.81	3.61	3.30	3.60	3.50
5/29/2019 18:40	28	-12	51	101	142	137	112	-12	-9	-9	13	22	42	50	44	3.32	2.04	3.43	4.25	4.76	4.48	4.36	2.87	2.18	1.42	3.21	3.35	3.83	3.41	3.61
5/29/2019 18:50	23	-6	64	104	138	142	128	21	-14	-8	35	65	72	124	187	3.08	2.84	3.60	4.05	4.70	4.74	4.82	3.42	2.57	2.42	3.48	4.21	4.08	4.16	4.85
5/29/2019 19:00	43	-3	64	103	159	119	106	-6	-11	-9	167	123	100	159	178	3.17	2.71	3.54	4.07	4.48	4.16	4.33	3.02	2.65	2.64	4.83	4.55	4.36	4.26	4.81
5/29/2019 19:10	68	22	86	132	165	132	122	-7	-10	-9	241	185	157	190	179	3.35	3.45	3.81	4.30	4.77	4.37	4.29	2.82	2.62	2.6					

5/29/2019 21:50	93	3	14	243	254	206	126	40	245	251	327	254	165	214	162	3.53	2.99	2.24	5.87	5.96	5.33	4.75	3.37	5.50	5.40	5.74	5.32	4.85	4.87	4.73
5/29/2019 22:00	40	-10	12	205	231	153	108	7	142	146	279	218	164	222	165	3.05	1.72	2.22	5.38	5.76	4.87	4.33	2.94	4.67	4.79	5.52	5.05	4.85	5.00	4.75
5/29/2019 22:10	38	-11	54	196	239	154	91	100	270	204	260	202	153	196	198	2.80	1.56	2.62	5.22	5.75	4.69	4.26	4.27	5.76	5.20	5.35	5.01	4.82	4.85	4.89
5/29/2019 22:20	40	-11	61	162	187	139	91	69	244	187	304	224	172	240	224	2.76	1.63	3.13	4.84	5.15	4.56	4.32	3.90	5.53	4.96	5.55	5.05	4.80	5.01	5.05
5/29/2019 22:30	75	-12	46	152	182	114	63	-11	177	150	202	141	127	178	181	3.67	1.67	2.90	4.77	5.26	4.42	3.93	2.58	5.04	4.71	4.95	4.34	4.59	4.52	4.75
5/29/2019 22:40	68	-13	65	136	176	132	71	1	154	122	174	113	102	142	139	3.60	2.10	3.31	4.37	5.08	4.54	4.09	2.98	4.88	4.55	4.89	4.33	4.48	4.54	4.54
5/29/2019 22:50	188	50	139	138	198	162	118	1	199	172	246	187	187	230	249	5.13	3.83	4.29	4.50	5.16	5.00	4.35	3.06	5.19	5.01	5.31	4.80	4.98	5.05	5.27
5/29/2019 23:00	257	91	204	219	259	253	234	30	220	211	289	239	241	285	303	5.64	4.41	4.78	5.02	5.98	5.53	5.21	3.54	5.28	5.26	5.53	5.22	5.39	5.37	5.46
5/29/2019 23:10	347	154	286	234	304	294	283	20	188	182	263	199	191	243	258	6.18	4.97	5.47	5.30	6.15	5.91	5.75	3.26	5.10	5.02	5.33	4.85	5.10	5.08	5.34
5/29/2019 23:20	381	206	270	279	340	312	282	37	147	153	215	176	161	191	183	6.23	5.47	5.41	5.90	6.49	5.80	5.94	3.48	4.83	4.83	5.14	4.80	4.92	4.80	4.90
5/29/2019 23:30	386	245	325	305	392	341	291	20	109	116	171	142	155	200	180	6.31	5.43	5.73	5.95	6.69	6.00	6.14	3.40	4.40	4.60	4.87	4.48	4.87	4.99	4.88
5/29/2019 23:40	301	168	254	263	345	290	272	32	75	74	129	92	121	164	155	5.77	4.91	5.24	5.59	6.34	5.72	6.24	3.72	4.18	4.17	4.64	4.12	4.67	4.61	4.70
5/29/2019 23:50	268	192	249	247	328	309	339	52	128	111	138	84	115	141	107	5.61	4.85	5.12	5.36	6.37	6.10	6.10	3.61	4.61	4.49	4.60	4.09	4.51	4.48	4.35
5/30/2019 0:00	242	186	242	260	360	337	341	196	276	262	338	182	176	227	184	5.41	5.14	5.06	5.31	6.57	6.20	6.49	4.79	5.56	5.52	5.85	5.05	4.88	5.04	4.80
5/30/2019 0:10	265	208	281	283	414	393	374	291	201	224	308	229	239	260	308	5.64	4.53	5.22	5.72	6.64	6.05	6.22	5.48	5.05	5.12	5.63	5.23	5.30	5.05	5.68
5/30/2019 0:20	301	236	347	330	454	361	380	293	203	276	345	228	133	201	254	5.72	5.03	5.84	5.56	6.76	6.11	6.46	5.57	5.05	5.62	5.66	5.08	4.48	4.78	5.28
5/30/2019 0:30	366	278	368	365	465	383	373	297	203	261	285	191	178	257	290	6.01	5.38	5.83	5.86	7.08	6.37	6.55	5.67	4.96	5.49	5.52	5.03	4.94	5.12	5.63
5/30/2019 0:40	403	371	400	343	493	538	515	253	183	319	396	249	201	211	246	6.39	5.65	5.88	5.49	7.03	7.52	7.19	5.36	4.76	5.76	5.96	5.40	5.00	4.96	5.23
5/30/2019 0:50	279	250	409	324	409	479	545	346	274	259	396	215	195	291	257	5.64	5.30	5.90	5.53	6.62	7.25	7.37	5.80	5.39	5.30	6.02	5.06	4.93	5.21	5.35
5/30/2019 1:00	282	246	459	392	540	540	506	498	360	315	442	290	407	409	374	6.13	6.05	6.57	6.35	7.52	7.24	7.32	6.54	5.77	5.59	6.19	5.56	6.12	6.30	5.97
5/30/2019 1:10	343	292	395	600	693	537	492	506	268	444	434	399	267	328	359	5.73	5.70	5.85	7.08	7.99	6.72	6.93	6.31	5.27	6.16	6.09	6.19	5.25	5.26	5.73
5/30/2019 1:20	429	316	485	357	479	448	459	477	371	493	406	305	345	388	383	6.27	6.33	6.55	5.93	7.00	6.55	7.17	6.32	5.82	6.54	6.04	5.34	5.62	5.84	5.87
5/30/2019 1:30	517	443	624	456	743	604	647	459	348	429	462	425	383	435	531	6.97	7.12	7.18	6.73	8.51	7.19	7.88	6.21	5.96	6.38	6.19	6.24	5.95	6.31	6.59
5/30/2019 1:40	462	409	682	587	634	724	660	297	247	511	582	405	423	381	704	6.61	6.88	7.51	7.05	7.67	7.69	7.87	5.46	5.15	6.57	6.67	5.92	6.04	5.59	7.01
5/30/2019 1:50	529	556	488	388	542	856	807	365	318	379	404	374	226	316	476	6.84	7.36	6.33	6.12	7.20	8.37	8.69	5.84	5.74	5.91	5.99	6.10	4.97	5.54	6.39
5/30/2019 2:00	846	731	597	718	805	697	775	909	712	789	622	556	497	679	973	8.09	7.50	7.29	7.18	8.44	7.28	8.07	7.63	7.28	7.53	6.70	6.56	6.33	7.02	7.90
5/30/2019 2:10	681	659	648	912	1,063	965	879	781	790	570	902	832	832	893	1,211	7.98	6.75	7.50	8.11	9.30	8.26	8.10	7.12	7.35	6.57	7.60	7.73	7.51	7.93	8.44
5/30/2019 2:20	481	527	698	523	427	408	488	597	346	177	516	537	488	343	433	8.05	7.88	9.30	8.52	8.70	8.06	8.69	7.52	6.56	5.75	6.98	7.24	6.73	6.60	6.38
5/30/2019 2:30	-12	-11	-13	-10	-10	-11	-10	-14	-12	-13	-12	-11	-22	-12	-10	7.65	8.77	10.04	8.83	9.55	9.49	9.12	6.92	5.99	7.00	7.25	5.38	5.96	6.54	6.12
5/30/2019 2:40	288	186	224	209	258	221	307	295	170	234	194	147	86	86	123	9.15	8.60	9.57	8.39	9.77	9.25	9.49	8.36	6.97	7.73	7.68	6.61	7.20	6.69	7.39
5/30/2019 2:50	930	811	1,035	779	997	1,144	1,113	634	525	588	899	703	658	566	595	8.77	8.42	9.03	7.43	9.12	9.68	9.20	6.59	6.32	6.54	7.51	7.12	6.96	6.61	6.70
5/30/2019 3:00	663	699	872	727	889	913	969	323	324	347	493	420	449	373	424	7.52	8.59	8.54	7.92	8.94	8.79	9.31	5.56	5.72	5.77	6.43	6.09	6.32	5.80	6.07
5/30/2019 3:10	431	434	595	672	804	715	871	559	467	544	587	335	421	309	318	6.35	6.72	7.26	7.39	8.31	8.09	8.92	6.74	6.45	6.70	6.73	5.62	6.17	5.50	5.59
5/30/2019 3:20	413	332	388	435	573	556	651	451	392	516	595	486	323	271	492	6.29	5.62	6.20	6.81	7.70	7.05	7.57	6.22	5.94	6.47	6.76	6.25	5.77	5.29	6.52
5/30/2019 3:30	294	328	253	244	399	354	299	292	306	159	293	188	145	204	189	5.94	5.59	5.23	5.04	6.28	5.90	5.80	5.60	5.61	4.68	5.59	4.79	4.48	4.67	4.62
5/30/2019 3:40	159	180	279	159	186	145	209	223	197	127	171	128	60	152	267	4.62	4.56	5.26	4.60	4.99	4.50	5.37	5.11	5.03	4.26	4.76	4.50	3.60	4.12	5.25
5/30/2019 3:50	181	206	222	115	108	171	186	157	100	111	71	51	71	149	173	5.17	4.86	4.97	4.35	4.44	4.79	5.31	4.68	4.14	4.26	3.70	3.57	3.92	4.07	4.70
5/30/2019 4:00	194	106	140	159	187	141	180	171	155	118	72	113	47	95	79	5.24	4.35	4.21	4.73	5.01	4.68	4.89	4.69	4.41	4.39	3.61	4.26	3.53	3.77	3.80
5/30/2019 4:10	102	78	144	107	131	150	156	30	-5	112	81	49	2	36	25	4.25	4.04	4.40	3.93	4.69	4.58	4.67	3.13	2.41	4.31	3.78	3.56	3.04	3.10	3.02
5/30/2019 4:20	104	99	104	79	75	108	111	-16	-13	29	21	-10	9	0	23	3.99	3.70	3.83	3.65	3.82	4.10	4.34	2.44	2.19	3.42	3.09	2.61	3.28	2.50	3.10
5/30/2019 4:30	53	51	81	86	91	85	73	-7	-13	20	33	37	54	45	22	3.20	3.60	3.66	3.91	4.00	3.81	3.59	2.26	2.42	3.29	3.31	3.54	3.86	3.23	3.01
5/30/2019 4:40	142	109	149	159	178	165	161	116	46	73	41	69	32	87	106	4.60	4.06	4.39	4.33	5.20	4.87	4.60	4.42	3.64	4.06	3.32	3.93	3.44	3.64	4.10
5/30/2019 4:50	136	164	205	189	195	208	191	144	94	93	102	79	34	103	97	4.64	5.35	4.87	4.47	5.21	5.14	4.84	4.47	4.10	4.19	4.13	3.99	3.47	3.70	3.94
5/30/2019 5:00	120	119	167	128	195	176	210	87	88	102	98	68	29	67	100	4.51	4.92	4.42	4.31	5.27	4.94	5.40	4.01	4.11	4.28	4.13	3.68	3.52	3.46	4.11
5/30/2019 5:10	126	137	161	175	191	195	223	36	50	38	48	48	89	112	113	4.15	4.20	4.38	4.65	5.31	5.15	5.47	3.41	3.62	3.50					

5/30/2019 8:10	97	73	106	89	132	155	117	79	63	109	94	102	87	136	129	3.90	3.84	4.01	3.77	4.54	4.54	4.27	3.75	3.69	4.27	3.93	4.13	4.05	4.18	4.37
5/30/2019 8:20	93	91	108	93	154	149	155	69	136	102	189	144	174	102	146	3.83	4.03	3.87	3.93	4.64	4.54	4.54	3.70	4.53	3.97	4.78	4.48	4.82	3.73	4.28
5/30/2019 8:30	41	23	71	94	142	143	121	11	41	109	123	146	139	111	93	3.31	3.15	3.55	4.09	4.56	4.51	4.25	3.03	3.41	4.21	4.29	4.46	4.54	4.05	3.97
5/30/2019 8:40	299	238	247	254	437	246	223	118	77	177	205	258	224	280	198	5.57	5.33	5.47	5.27	6.83	5.45	5.29	4.23	3.80	4.68	4.90	5.29	5.12	5.39	4.89
5/30/2019 8:50	465	388	423	342	426	445	200	201	203	314	452	434	499	440	374	6.56	6.56	6.00	5.70	6.62	6.46	5.04	4.91	4.95	5.72	6.13	6.09	6.41	5.91	5.69
5/30/2019 9:00	373	343	361	342	393	308	324	136	250	322	308	461	393	355	400	6.12	5.94	5.85	5.80	6.49	5.79	6.06	4.36	5.30	5.67	5.54	6.31	6.01	5.71	5.83
5/30/2019 9:10	485	354	410	405	399	355	413	169	351	407	463	407	316	279	432	6.57	6.25	6.22	6.15	6.42	6.03	6.54	4.60	5.91	6.06	6.20	6.12	5.54	5.03	6.12
5/30/2019 9:20	458	361	389	261	380	320	410	118	364	358	484	563	473	365	429	6.64	6.28	6.09	5.31	6.48	5.68	6.55	3.99	5.92	5.79	6.39	6.57	6.34	5.55	6.05
5/30/2019 9:30	493	413	442	341	439	546	463	198	465	454	578	538	449	370	362	6.71	6.53	6.27	5.74	6.63	6.90	6.96	4.77	6.23	6.11	6.36	6.40	6.27	5.63	5.70
5/30/2019 9:40	414	268	289	253	314	376	438	265	223	211	315	383	418	378	465	6.49	5.56	5.32	5.16	6.09	6.43	6.55	4.89	5.02	4.86	5.59	5.78	6.28	5.83	6.30
5/30/2019 9:50	292	255	287	188	318	332	349	136	249	331	291	305	291	221	343	5.67	5.54	5.33	5.13	5.77	5.63	5.87	4.32	5.16	5.66	5.43	5.30	5.38	4.86	5.46
5/30/2019 10:00	205	123	236	192	207	201	250	132	186	169	226	210	179	234	333	4.79	4.36	5.04	5.06	5.23	5.14	5.49	4.29	4.57	4.54	5.12	4.99	4.79	4.83	5.79
5/30/2019 10:10	112	80	123	116	148	120	140	17	83	176	240	180	237	198	191	4.22	4.03	4.19	3.92	4.47	4.10	4.42	3.08	4.14	4.61	5.14	4.75	5.18	4.68	4.73
5/30/2019 10:20	268	188	234	263	336	357	344	81	207	266	309	331	361	269	276	5.64	5.02	5.38	5.52	6.06	6.21	6.07	3.75	4.98	5.27	5.54	5.65	5.88	5.27	5.38
5/30/2019 10:30	270	185	181	172	180	242	289	116	202	227	252	284	320	246	206	5.30	4.82	4.54	4.77	5.06	5.23	5.98	4.09	5.02	5.07	5.37	5.46	5.71	4.96	4.80
5/30/2019 10:40	201	91	141	181	289	293	320	243	314	270	273	267	287	289	320	5.05	4.01	4.33	4.89	5.85	5.70	6.11	5.10	5.50	5.20	5.49	5.29	5.39	5.15	5.64
5/30/2019 10:50	187	127	179	291	352	394	472	280	288	349	444	273	286	307	303	5.10	4.34	4.45	5.61	6.19	6.11	6.76	5.30	5.45	5.80	6.13	5.45	5.44	5.49	5.66
5/30/2019 11:00	240	101	234	292	333	347	457	149	221	249	298	276	173	243	288	5.05	3.86	4.93	5.61	6.02	6.09	6.74	4.93	5.08	5.17	5.49	5.42	4.79	5.03	5.47
5/30/2019 11:10	239	137	268	312	429	415	423	228	239	271	305	364	254	182	209	5.31	4.30	5.38	5.84	6.56	6.31	6.50	4.81	5.13	5.32	5.40	6.05	5.53	4.45	4.97
5/30/2019 11:20	289	180	179	222	369	478	510	231	404	647	464	660	508	255	428	5.44	4.69	4.79	5.14	6.47	6.57	7.13	5.74	6.20	7.19	6.26	7.10	6.53	5.33	6.31
5/30/2019 11:30	267	148	365	389	551	448	476	267	555	627	675	636	659	545	488	5.38	4.45	6.05	6.34	7.27	6.14	6.51	5.10	6.61	6.97	6.98	7.14	7.14	6.44	6.34
5/30/2019 11:40	404	274	504	587	810	562	773	189	244	451	469	838	879	654	737	6.14	5.77	6.56	7.18	8.18	6.61	7.92	4.66	4.95	6.22	6.30	7.63	7.82	7.19	7.26
5/30/2019 11:50	436	131	491	577	642	712	732	384	547	623	693	707	557	424	468	6.52	4.75	6.63	7.34	7.79	7.82	8.33	5.76	6.72	7.02	6.93	7.25	6.75	6.07	6.21
5/30/2019 12:00	500	232	591	697	727	871	786	302	555	427	737	751	861	641	377	6.73	5.34	7.16	7.54	8.09	8.64	7.85	5.34	6.74	6.04	7.38	7.31	7.67	6.65	5.96
5/30/2019 12:10	586	454	563	575	580	347	605	306	497	510	788	702	693	581	365	7.30	6.82	6.80	6.99	7.35	5.83	7.28	5.38	6.68	6.28	7.42	7.26	7.04	6.49	5.86
5/30/2019 12:20	377	289	452	395	454	399	529	299	552	611	641	702	588	559	430	6.25	5.67	6.38	6.23	6.85	6.34	7.61	5.51	6.71	6.84	6.80	7.06	6.83	6.65	6.02
5/30/2019 12:30	245	168	255	282	433	483	508	279	293	461	639	618	481	525	411	5.27	4.84	5.18	5.56	6.48	6.49	7.44	5.11	5.42	6.38	6.92	6.73	6.20	6.49	6.08
5/30/2019 12:40	286	170	208	274	367	308	285	76	345	340	335	435	363	293	213	5.82	4.85	4.45	5.52	6.32	5.88	5.80	3.68	5.76	5.80	5.59	6.19	5.77	5.22	4.78
5/30/2019 12:50	58	13	59	73	136	128	185	44	147	191	187	158	135	97	104	3.36	2.78	3.37	3.61	4.35	4.25	5.19	3.36	4.54	4.87	4.77	4.49	4.47	3.67	4.18
5/30/2019 13:00	41	15	55	160	188	211	250	26	30	124	126	134	111	71	132	3.35	2.78	3.29	4.71	5.18	5.02	5.32	3.33	3.43	4.42	4.36	4.43	4.48	3.56	4.43
5/30/2019 13:10	63	31	73	269	286	314	299	91	205	298	346	212	140	108	204	3.94	3.11	3.33	5.40	5.50	5.69	5.91	4.01	5.10	5.47	5.86	5.08	4.43	3.90	4.97
5/30/2019 13:20	67	37	151	280	330	285	361	93	194	176	266	196	152	219	316	3.81	3.55	4.33	5.49	5.90	5.65	6.29	3.98	4.85	4.61	5.38	5.11	4.86	4.73	5.52
5/30/2019 13:30	200	112	203	281	295	229	331	99	366	208	173	222	132	153	219	4.79	4.01	5.00	5.58	5.64	5.14	6.21	4.01	5.75	5.18	4.59	5.03	4.31	4.27	4.95
5/30/2019 13:40	251	211	266	297	277	254	409	193	289	209	170	141	132	153	112	5.67	5.36	5.50	6.00	5.80	5.28	6.16	4.68	5.52	5.21	4.64	4.44	4.69	4.32	4.07
5/30/2019 13:50	250	179	248	306	346	209	270	57	207	283	331	317	229	168	325	5.51	5.05	5.21	5.93	6.40	5.24	6.18	3.57	5.10	5.63	5.95	5.75	5.15	4.51	5.56
5/30/2019 14:00	198	160	251	327	408	351	428	121	317	380	639	571	410	234	317	5.07	4.51	5.26	5.78	6.32	6.08	6.50	4.55	5.78	6.02	6.97	6.80	6.33	5.00	5.91
5/30/2019 14:10	146	59	216	319	339	396	367	218	335	426	502	429	345	191	102	4.38	3.38	4.76	5.86	6.23	6.30	6.20	5.08	5.78	5.95	6.31	6.08	5.75	4.35	4.25
5/30/2019 14:20	106	102	186	268	274	296	241	160	263	351	295	269	213	131	231	3.62	3.99	4.86	5.57	5.62	5.88	5.52	4.53	5.27	5.94	5.61	5.38	5.15	4.12	5.16
5/30/2019 14:30	160	118	207	265	351	370	433	437	424	411	304	372	336	263	235	4.62	4.61	4.90	5.35	6.02	6.32	6.86	6.23	6.11	6.20	5.62	6.13	5.74	5.21	5.19
5/30/2019 14:40	215	119	235	326	325	457	439	284	346	298	374	391	366	339	258	5.25	4.26	5.25	5.97	6.28	6.43	6.44	5.40	5.96	5.62	6.07	6.06	5.94	5.44	5.35
5/30/2019 14:50	308	231	316	350	431	413	451	258	338	385	584	436	283	204	209	6.01	5.79	5.72	5.98	6.82	6.52	6.71	5.34	5.82	6.09	6.66	6.10	5.69	4.72	4.94
5/30/2019 15:00	367	254	363	423	536	559	509	331	579	576	751	481	408	149	177	6.21	5.95	6.15	6.64	7.54	7.29	7.18	5.48	6.86	6.88	7.24	6.38	6.25	4.13	4.70
5/30/2019 15:10	434	288	447	448	507	485	533	195	418	507	603	484	496	255	157	6.82	6.18	6.52	6.57	7.32	6.89	7.57	4.72	6.18	6.81	6.82	6.47	6.58	5.08	4.64
5/30/2019 15:20	380	236	322	337	469	412	387	103	405	278	446	389	321	261	265	5.87	5.47	5.76	5.99	6.63	6.19	6.64	3.81	6.20	5.31	6.10	5.93	5.81	5.10	5.35
5/30/2019 15:30	500	342	507	398	469	476	513	62	306	248	233	346	295	259	278															

5/30/2019 18:30	517	161	489	507	585	455	515	317	851	754	963	844	793	854	811	7.12	3.93	6.68	6.78	7.68	6.48	6.80	5.37	7.77	7.54	7.65	7.67	7.77	7.68	7.32
5/30/2019 18:40	931	417	741	728	791	671	633	250	726	733	927	902	829	964	991	8.69	6.20	7.97	7.68	8.38	7.43	7.53	5.10	7.35	7.30	7.81	7.68	7.62	8.00	7.73
5/30/2019 18:50	980	547	739	712	795	676	611	215	683	735	1,053	879	836	1,021	1,069	8.60	6.91	7.92	7.57	8.25	7.15	7.73	4.87	7.14	7.29	7.95	7.73	7.49	8.03	8.01
5/30/2019 19:00	1,220	679	888	930	1,022	956	789	451	900	1,031	1,306	1,013	942	1,058	935	9.27	7.34	8.61	8.40	9.08	8.39	8.20	6.05	7.80	8.01	8.59	7.82	7.79	8.02	7.41
5/30/2019 19:10	1,032	495	894	815	983	795	780	454	824	883	1,117	1,051	974	1,087	887	8.89	6.55	8.77	8.07	9.02	7.92	8.34	6.11	7.61	7.81	8.06	8.02	8.00	8.29	7.52
5/30/2019 19:20	1,104	707	955	933	1,033	909	878	259	811	836	1,139	995	1,012	957	971	8.53	7.46	8.88	8.17	9.05	8.18	8.73	5.04	7.39	7.64	8.27	7.79	8.35	7.97	7.55
5/30/2019 19:30	1,290	832	977	895	1,078	1,001	824	452	814	845	1,126	1,055	1,064	1,138	1,083	9.25	7.85	8.79	8.27	9.16	8.50	8.40	6.30	7.49	7.57	8.17	7.91	8.25	8.52	8.02
5/30/2019 19:40	1,069	703	969	906	1,019	910	820	446	704	684	932	815	894	964	939	9.56	8.13	8.70	8.39	9.03	8.37	8.48	6.11	7.20	7.19	7.65	7.28	7.79	8.03	7.71
5/30/2019 19:50	1,038	681	858	844	928	918	766	419	527	553	764	718	723	785	820	8.66	8.12	8.45	7.99	8.59	8.27	7.96	6.06	6.69	6.78	7.22	7.24	7.26	7.43	7.32
5/30/2019 20:00	1,068	721	913	937	1,065	895	917	308	594	713	830	810	791	742	758	9.34	7.99	8.58	8.27	9.24	8.12	8.73	5.46	7.08	7.31	7.39	7.38	7.46	7.22	7.17
5/30/2019 20:10	1,242	878	1,089	1,045	1,308	1,139	1,085	321	821	872	1,114	1,012	893	1,021	958	9.82	8.23	9.21	8.48	9.80	9.15	8.95	5.48	7.81	7.79	8.12	7.95	7.68	8.18	7.78
5/30/2019 20:20	1,095	790	959	1,020	1,198	1,157	1,152	668	734	734	896	836	937	859	887	9.40	8.26	8.64	8.51	9.77	9.63	9.62	7.09	7.29	7.23	7.53	7.43	7.83	7.49	7.41
5/30/2019 20:30	899	654	892	928	1,154	1,082	1,029	566	617	592	763	664	736	645	750	8.96	8.18	8.49	8.57	9.97	9.88	9.30	6.67	6.97	6.76	7.35	6.87	7.23	6.83	7.18
5/30/2019 20:40	852	621	813	841	976	923	832	422	477	411	510	457	460	534	469	8.56	7.61	7.83	7.96	9.15	8.79	8.36	5.84	6.24	6.03	6.38	6.09	6.22	6.36	6.06
5/30/2019 20:50	528	376	494	514	666	708	679	433	558	429	643	487	455	435	325	6.82	6.08	6.62	6.60	7.72	7.69	7.43	6.18	6.78	6.12	6.98	6.27	6.39	5.79	5.58
5/30/2019 21:00	112	67	92	125	147	162	200	170	176	192	203	172	127	107	79	7.30	6.62	8.18	7.42	8.09	8.00	8.24	7.91	7.66	8.18	6.88	7.38	7.67	7.71	7.25
5/30/2019 21:10	294	190	224	177	249	238	131	195	322	258	336	255	238	250	297	8.45	7.20	8.63	7.96	8.26	8.07	8.13	7.90	8.17	7.60	8.10	7.56	7.66	7.98	7.71
5/30/2019 21:20	741	555	682	591	748	642	585	394	833	800	972	983	1,012	1,174	1,054	7.67	6.97	7.50	7.35	8.14	7.07	7.51	5.76	7.51	7.44	7.57	7.90	8.03	8.64	8.12
5/30/2019 21:30	854	523	720	630	789	739	700	358	762	777	969	967	1,028	1,147	1,030	8.16	7.03	7.90	7.68	8.41	7.55	8.01	5.60	7.41	7.36	7.76	7.59	8.04	8.35	8.00
5/30/2019 21:40	775	524	737	598	706	642	598	408	861	970	1,022	909	806	762	840	8.08	7.66	7.75	7.51	8.08	7.13	7.56	5.83	7.62	7.73	7.82	7.57	7.43	7.14	7.57
5/30/2019 21:50	562	466	562	558	757	591	578	656	771	722	945	678	635	664	769	6.95	6.71	6.91	6.56	7.91	7.01	7.10	6.84	7.27	7.11	7.72	6.94	6.85	6.96	7.13
5/30/2019 22:00	576	423	583	637	686	575	503	533	679	810	1,031	920	799	800	826	6.91	7.01	7.00	7.75	7.82	7.13	7.05	6.49	7.07	7.54	7.88	7.60	7.34	7.52	7.42
5/30/2019 22:10	791	501	673	678	752	621	606	855	639	753	852	685	706	893	916	7.71	7.07	7.51	7.20	7.94	7.01	7.28	7.56	6.88	7.33	7.56	6.92	7.11	7.58	7.63
5/30/2019 22:20	233	241	305	365	411	410	266	378	368	322	484	364	347	279	340	7.47	6.83	7.35	7.09	8.63	7.48	7.76	6.97	6.59	6.62	7.07	6.67	6.65	6.52	6.85
5/30/2019 22:30	16	34	-13	-12	27	-11	11	6	5	9	-12	-12	-22	-10	-12	6.80	6.46	7.03	6.70	7.67	7.25	8.07	7.23	6.79	6.99	6.67	6.90	6.31	5.86	5.93
5/30/2019 22:40	9	7	-9	-8	14	-7	10	5	33	28	-8	-9	-21	-8	-6	5.98	5.95	6.96	5.88	6.45	6.52	6.27	6.97	5.78	5.72	6.37	5.38	5.56	6.30	6.01
5/30/2019 22:50	1,172	921	961	955	993	783	585	1,220	755	591	766	923	804	893	820	8.93	8.02	9.05	8.84	8.92	8.10	7.67	8.37	7.33	6.73	7.23	7.85	7.41	7.82	7.29
5/30/2019 23:00	557	585	840	794	968	1,042	860	627	644	671	635	640	535	544	699	7.30	7.12	9.27	8.00	9.49	9.53	10.00	7.37	7.21	7.48	7.25	7.44	6.56	6.69	6.84
5/30/2019 23:10	36	12	-13	-11	60	-11	21	17	1	36	-12	-12	-21	-12	20	7.68	6.64	9.05	8.28	8.82	8.07	8.60	7.45	6.88	6.89	7.04	6.31	6.05	6.72	6.62
5/30/2019 23:20	-7	1	-9	-9	0	-8	58	111	114	26	-8	-9	-20	-8	42	8.41	7.48	9.17	7.94	8.82	8.01	8.60	6.90	7.33	7.99	8.27	7.07	7.00	7.51	7.45
5/30/2019 23:30	27	7	-9	-9	17	-7	28	31	16	14	-8	-8	-19	-8	15	8.33	8.25	9.43	8.14	8.91	9.07	9.26	8.40	8.00	8.63	8.33	7.95	7.75	8.46	7.82
5/30/2019 23:40	98	60	38	53	68	61	99	56	99	35	26	15	12	17	18	9.62	8.77	10.13	8.65	10.20	9.67	10.27	7.82	7.33	7.79	7.24	6.50	7.19	6.89	8.00
5/30/2019 23:50	430	428	496	457	458	435	452	421	489	418	439	416	503	472	301	8.80	8.70	9.35	7.21	8.60	8.07	9.38	7.16	8.26	8.52	8.18	7.89	7.64	7.35	7.23
5/31/2019 0:00	404	485	429	385	413	346	380	548	475	668	394	333	392	401	363	9.72	8.50	10.15	8.47	8.99	8.77	9.19	9.38	8.41	8.77	8.10	8.03	7.47	8.14	7.94
5/31/2019 0:10	1,260	1,066	1,027	944	1,068	1,142	1,118	1,160	976	1,110	1,249	1,011	850	1,012	1,198	9.59	8.60	9.29	8.75	8.94	9.25	9.14	8.28	7.89	8.19	8.52	8.11	7.32	8.23	8.50
5/31/2019 0:20	709	620	679	737	650	755	693	550	450	486	607	485	469	673	750	10.49	10.32	11.62	9.10	10.20	10.04	9.87	8.22	7.53	8.49	8.52	7.76	7.64	8.88	8.84
5/31/2019 0:30	30	39	-11	-10	-11	-11	20	16	7	7	16	-11	-21	-11	20	9.78	9.46	12.00	9.49	10.82	10.33	10.70	8.52	7.88	7.60	8.49	8.20	7.13	7.21	7.78
5/31/2019 0:40	-10	-7	-9	-8	41	-7	16	8	48	38	17	-8	-19	-8	8	9.41	9.88	11.54	9.81	11.26	10.70	10.46	8.14	7.85	8.61	8.13	7.75	7.08	7.64	7.82
5/31/2019 0:50	-1	42	-10	-8	46	-7	26	6	9	1	-9	-8	-19	-8	-5	9.44	9.83	11.00	10.19	10.80	10.06	10.02	8.35	7.55	8.09	8.07	7.18	7.38	7.83	8.06
5/31/2019 1:00	257	381	451	435	446	524	542	527	358	493	555	373	300	342	408	9.10	8.32	10.05	8.89	9.57	9.94	10.39	9.10	7.44	8.82	8.46	7.90	7.40	7.78	7.76
5/31/2019 1:10	1,197	928	1,286	967	722	1,060	963	1,624	1,344	1,121	1,296	867	759	1,146	1,060	9.04	8.18	10.00	7.88	7.33	9.26	8.63	9.45	8.81	8.26	8.51	7.47	7.29	8.51	8.07
5/31/2019 1:20	41	6	34	96	5	52	2	6	6	4	3	46	44	29	4	9.57	9.57	10.80	9.15	9.55	9.55	9.67	8.20	8.16	8.71	8.42	7.68	7.50	7.94	8.47
5/31/2019 1:30	-10	-9	-10	-9	-9	-8	-9	-12	-9	-9	-10	-9	-20	-9	-9	9.36	9.07	10.42	9.67	11.01	10.48	10.60	9.11	8.40	8.26	8.30	7.61	7.49	7.62	8.64
5/31/2019 1:40	88	155	172	130	130	117	90	159	218	71	90	76	43	66	106	8.43	8.63	9.42	8.70	8.77	8.56	8.51	8.42	8.24	7.41	7.85	7.01	6.26	7.16	7.68
5/31/2019 1:50	830	810	980	897	631	853	770	977	823	796	1,071	882	704	824	809															

5/31/2019 4:50	412	720	669	685	789	876	805	374	277	363	249	300	313	422	521	6.20	7.78	7.39	7.42	7.94	8.14	7.89	5.77	5.38	6.05	4.98	5.29	5.45	6.05	6.35
5/31/2019 5:00	569	574	722	632	334	605	691	353	328	242	234	206	204	242	368	7.02	6.78	7.62	6.94	5.38	6.91	7.66	5.82	5.72	5.28	5.00	4.86	4.97	4.88	5.88
5/31/2019 5:10	425	531	354	320	246	361	409	326	330	439	396	322	297	197	417	6.14	7.16	5.88	6.11	5.19	6.38	6.79	5.62	5.66	6.44	5.91	6.03	5.68	4.30	6.02
5/31/2019 5:20	440	538	516	379	196	233	318	277	249	301	316	266	284	228	435	6.55	6.91	6.71	6.29	4.87	5.01	6.10	5.37	5.22	5.55	5.50	5.27	5.45	4.38	6.05
5/31/2019 5:30	466	525	610	463	161	204	316	427	149	163	219	147	123	94	300	6.73	6.97	7.18	6.44	4.10	4.93	6.16	6.15	4.55	4.68	5.07	4.60	4.51	3.47	5.48
5/31/2019 5:40	742	761	832	692	239	434	607	570	266	276	333	327	324	276	616	8.01	7.90	8.38	7.63	4.79	6.18	7.71	6.71	5.28	5.55	5.51	5.78	5.61	4.95	6.90
5/31/2019 5:50	796	729	818	749	303	469	521	626	623	595	638	597	588	389	827	8.25	8.00	8.06	7.70	5.22	6.36	7.15	6.84	6.97	6.68	6.89	7.06	6.93	5.27	7.44
5/31/2019 6:00	555	535	680	537	192	211	179	875	549	540	536	471	492	307	578	7.10	7.20	7.46	6.98	4.71	5.07	4.93	7.48	6.64	6.71	6.44	6.54	6.48	5.12	6.82
5/31/2019 6:10	745	754	692	386	284	288	425	840	702	509	517	643	709	662	715	7.42	8.13	7.53	6.23	5.64	5.60	6.50	7.40	7.15	6.58	6.42	7.10	7.13	7.09	7.13
5/31/2019 6:20	862	838	602	538	382	565	729	1,398	716	749	984	794	816	651	929	8.41	8.41	7.12	7.29	6.32	7.21	8.20	9.05	7.23	7.28	7.75	7.45	7.58	6.98	7.82
5/31/2019 6:30	1,056	776	754	734	773	796	874	1,108	1,073	893	588	688	874	1,037	1,101	9.35	7.88	8.60	8.20	8.19	7.91	8.62	8.12	8.18	7.74	6.71	7.06	7.68	8.39	8.56
5/31/2019 6:40	856	725	576	779	648	580	563	814	697	792	699	402	735	892	821	8.15	7.90	7.65	7.45	7.21	6.89	7.12	7.34	7.17	7.46	6.95	6.04	6.98	7.60	7.28
5/31/2019 6:50	712	855	705	447	180	226	402	1,011	797	774	545	399	505	635	790	7.96	8.86	7.54	6.58	4.68	5.09	6.29	7.95	7.46	7.52	6.62	6.18	6.44	6.97	7.38
5/31/2019 7:00	486	548	613	436	319	348	614	573	717	846	929	597	635	607	730	6.46	7.20	7.39	6.48	6.03	6.12	7.36	6.55	7.25	7.61	7.82	6.80	6.68	6.69	7.10
5/31/2019 7:10	356	495	530	535	619	647	675	770	873	775	927	766	797	706	593	6.30	6.75	6.90	6.60	7.21	7.29	7.69	7.42	7.62	7.39	7.75	7.52	7.61	7.08	6.79
5/31/2019 7:20	435	476	646	479	241	254	221	1,072	470	984	1,222	890	692	733	807	6.40	6.92	7.36	6.59	4.93	5.09	5.07	8.03	6.37	8.06	8.35	7.56	7.10	7.06	7.27
5/31/2019 7:30	433	402	245	227	113	199	216	645	903	924	987	626	626	642	656	6.16	6.31	5.07	5.27	4.51	4.90	5.30	6.96	7.80	7.85	7.85	6.55	6.52	6.88	6.84
5/31/2019 7:40	194	271	235	271	274	306	306	684	647	552	547	508	488	332	457	5.29	5.76	5.26	5.45	5.61	5.82	6.00	6.91	7.04	6.65	6.78	6.70	6.40	5.61	6.19
5/31/2019 7:50	220	266	465	461	313	394	455	726	400	255	449	389	316	230	265	5.21	6.02	6.63	6.74	5.70	6.12	6.53	7.09	5.99	5.39	6.11	5.86	5.62	4.76	5.25
5/31/2019 8:00	4	376	424	253	215	294	349	388	382	434	403	402	359	332	376	3.50	6.36	6.15	5.32	4.93	5.56	6.03	6.07	6.11	6.15	5.87	6.00	5.80	5.58	5.95
5/31/2019 8:10	205	325	330	268	225	239	253	567	487	469	343	406	473	318	409	5.31	5.73	6.14	5.94	5.48	5.16	5.59	6.55	6.29	6.35	5.81	5.97	6.37	5.58	5.95
5/31/2019 8:20	338	316	437	356	315	276	288	424	387	411	513	544	474	397	478	5.78	5.92	6.48	5.87	5.52	5.51	6.18	6.05	6.00	6.06	6.49	6.58	6.27	5.77	6.15
5/31/2019 8:30	219	296	371	375	349	397	483	719	449	415	381	340	443	469	400	5.13	5.69	5.92	6.14	5.83	6.13	6.81	7.20	6.17	5.99	5.76	5.62	5.95	6.17	6.04
5/31/2019 8:40	281	470	500	425	308	450	491	555	436	555	642	590	559	653	635	5.87	6.89	6.93	6.36	5.61	6.33	6.85	6.66	6.13	6.68	6.99	6.67	6.63	6.99	6.91
5/31/2019 8:50	427	462	443	372	386	508	578	552	608	409	454	439	364	387	389	6.65	6.72	6.64	6.43	6.25	6.69	7.07	6.59	6.86	5.90	6.03	6.21	5.74	5.77	5.73
5/31/2019 9:00	324	206	463	365	430	499	515	451	406	456	453	448	247	251	462	5.78	5.72	6.43	6.13	6.50	6.70	7.01	6.12	6.01	6.20	6.12	6.31	5.45	5.26	6.21
5/31/2019 9:10	176	364	449	432	464	461	479	467	419	351	502	530	401	370	408	5.34	6.50	6.56	6.09	6.58	6.40	6.70	6.30	6.15	5.81	6.46	6.75	5.98	5.71	6.03
5/31/2019 9:20	331	496	446	258	230	225	325	448	459	472	582	585	558	541	560	5.77	6.48	6.51	5.52	5.26	5.30	6.14	6.01	6.27	6.04	6.57	6.88	6.75	6.73	6.74
5/31/2019 9:30	379	343	306	373	350	360	541	478	473	253	494	536	474	480	419	6.27	6.06	5.66	6.25	6.37	5.97	7.32	6.25	6.35	5.16	6.22	6.32	6.01	5.85	5.51
5/31/2019 9:40	230	405	462	459	423	352	520	732	469	427	321	111	218	182	255	5.34	6.31	6.67	6.32	6.31	5.85	6.57	7.14	6.30	6.13	5.45	4.29	5.07	4.40	5.30
5/31/2019 9:50	440	575	709	641	597	414	400	468	304	415	465	364	308	286	278	6.94	7.51	8.13	7.07	7.28	6.14	6.42	6.22	5.63	6.21	6.29	5.88	5.62	5.27	5.25
5/31/2019 10:00	414	447	646	496	487	524	527	522	325	454	424	357	274	293	383	6.16	6.76	7.63	6.48	6.41	6.62	7.44	6.47	5.55	6.14	6.03	5.50	5.22	5.25	5.83
5/31/2019 10:10	582	757	466	504	540	587	619	760	621	613	694	313	556	542	714	7.25	8.18	7.09	7.05	7.53	7.30	7.58	7.21	7.06	7.01	6.95	5.47	6.32	6.25	7.16
5/31/2019 10:20	371	708	518	561	556	685	619	521	556	651	727	595	470	307	494	6.42	7.75	7.37	6.87	7.20	7.59	7.88	6.48	6.65	6.90	7.17	7.00	6.17	5.11	6.45
5/31/2019 10:30	496	398	655	414	451	477	571	713	696	553	674	560	447	411	378	6.81	6.56	7.74	6.26	6.29	6.34	7.23	7.27	7.11	6.80	7.10	6.55	6.23	5.77	5.81
5/31/2019 10:40	273	519	643	554	527	449	464	668	599	742	580	583	406	397	300	6.25	7.12	7.71	7.24	6.98	6.69	6.97	7.00	6.79	7.45	6.73	6.92	6.18	5.96	5.69
5/31/2019 10:50	631	793	882	756	690	591	598	991	731	593	814	744	646	523	679	7.12	8.23	8.42	7.73	7.59	7.28	7.51	8.06	7.30	6.89	7.48	7.42	6.89	6.62	6.98
5/31/2019 11:00	643	627	740	685	687	656	662	707	834	809	930	879	709	578	686	7.18	7.46	7.98	7.70	7.89	7.29	7.97	7.07	7.50	7.41	7.85	7.98	7.09	6.95	7.05
5/31/2019 11:10	592	628	473	458	580	547	592	700	657	945	976	1,032	593	631	675	6.96	7.29	6.99	6.65	7.15	6.91	7.19	7.01	7.01	7.97	7.91	8.31	6.84	6.87	6.94
5/31/2019 11:20	589	668	1,047	1,030	1,008	940	906	615	720	1,035	1,026	908	614	621	480	7.47	7.98	9.28	8.99	9.35	8.48	8.43	6.85	7.22	8.09	7.90	8.05	6.67	6.76	6.46
5/31/2019 11:30	566	682	815	924	1,040	1,196	1,138	1,026	963	949	651	744	666	514	603	7.31	7.84	8.19	8.63	9.19	9.64	10.08	8.16	8.08	7.90	6.92	7.19	6.94	6.46	6.72
5/31/2019 11:40	859	837	915	884	842	632	663	879	819	1,081	1,307	894	519	668	1,083	8.35	8.54	8.66	8.66	8.42	7.59	7.66	7.52	7.48	8.19	8.70	7.91	6.52	6.95	8.06
5/31/2019 11:50	760	757	976	965	859	630	724	1,181	884	953	632	784	1,191	1,235	1,157	8.04	7.92	8.96	8.49	8.19	7.25	8.05	8.50	7.73	7.87	6.90	7.48	8.60	8.96	8.43
5/31/2019 12:00	988	1,083	1,275	1,125	1,117	1,020	925	905	553	623	799	1,087	1,362	1,103	909	9.00	9.51	10.00	9.65	9.33	9.00	8.55	7.53	6.71	6.98	7.54	7.99	8.83	8.47	7.70

5/31/2019 15:10	377	373	615	580	602	576	695	654	707	874	1,044	727	630	512	407	6.06	6.51	7.20	7.10	7.39	7.22	8.18	6.94	7.18	7.89	8.21	7.18	6.95	6.46	6.12
5/31/2019 15:20	815	1,029	887	588	514	548	571	1,099	821	1,022	1,177	947	1,214	1,076	753	8.53	9.35	8.56	6.92	7.10	7.08	7.47	8.33	7.43	8.25	8.59	8.03	8.75	8.70	7.31
5/31/2019 15:30	704	706	975	964	1,155	1,126	1,005	804	711	1,000	874	836	1,015	952	912	8.02	8.05	8.95	8.62	9.60	9.25	9.46	7.30	7.14	8.16	7.61	7.52	8.01	8.17	7.88
5/31/2019 15:40	642	752	928	845	791	723	916	851	823	517	857	810	645	651	699	7.88	8.17	8.45	8.53	8.07	7.92	9.37	7.70	7.50	6.46	7.62	7.42	6.73	6.94	7.06
5/31/2019 15:50	819	770	755	578	741	676	773	657	535	689	879	546	515	538	701	8.61	8.61	7.74	7.18	8.18	7.26	8.06	6.93	6.68	7.25	7.75	6.39	6.59	6.15	7.03
5/31/2019 16:00	935	737	869	796	715	460	699	416	311	392	426	512	465	314	521	8.49	8.36	8.23	8.26	7.70	6.41	8.00	5.93	5.43	6.17	5.97	6.50	6.25	5.35	6.44
5/31/2019 16:10	819	570	766	498	473	564	720	348	289	318	445	480	463	375	616	8.45	7.80	7.76	6.74	7.05	7.00	8.30	5.84	5.49	5.75	6.27	6.41	6.31	5.74	6.88
5/31/2019 16:20	438	465	689	507	667	724	759	301	454	664	771	742	705	478	736	6.66	7.10	7.81	7.23	8.05	7.91	8.37	5.51	6.34	7.08	7.15	7.16	7.17	5.97	7.10
5/31/2019 16:30	405	449	500	393	504	592	565	811	767	680	841	734	427	454	585	6.02	7.02	6.69	6.30	7.36	7.29	7.94	7.58	7.33	7.17	7.34	7.08	6.20	6.39	6.68
5/31/2019 16:40	419	379	541	505	719	752	768	671	574	575	592	581	467	522	498	6.02	6.73	6.86	6.56	8.02	7.78	8.34	7.01	6.69	6.85	6.48	6.78	6.27	6.65	6.36
5/31/2019 16:50	614	573	689	733	766	849	858	588	538	553	722	713	536	516	547	6.90	7.78	7.29	8.12	8.21	8.05	8.88	6.79	6.76	6.59	7.10	7.09	6.69	6.72	6.59
5/31/2019 17:00	719	628	882	762	943	930	923	778	643	656	853	701	665	699	785	7.65	7.74	8.26	7.94	8.75	8.34	9.10	7.43	6.93	7.12	7.49	7.10	7.01	7.13	7.28
5/31/2019 17:10	973	794	961	974	1,143	1,012	942	1,067	887	933	1,223	998	937	1,192	1,321	8.30	8.11	8.72	8.64	9.41	8.68	9.24	8.38	7.82	7.98	8.45	7.95	7.85	8.65	8.87
5/31/2019 17:20	895	636	878	762	985	954	1,002	1,064	998	1,052	1,404	1,145	1,122	1,252	1,369	8.68	8.03	8.24	8.36	9.12	9.00	9.71	8.35	8.13	8.33	8.93	8.28	8.32	8.99	9.03
5/31/2019 17:30	886	882	1,153	1,088	1,318	1,311	1,259	1,135	1,274	1,383	1,643	1,405	1,239	1,428	1,459	9.02	8.82	9.81	8.80	10.29	10.28	10.53	8.34	8.89	9.16	9.87	9.09	8.60	9.66	9.04
5/31/2019 17:40	1,283	1,201	1,391	1,407	1,593	1,620	1,519	1,624	1,432	1,531	1,827	1,577	1,445	1,555	1,529	10.45	9.57	10.12	9.50	10.94	11.14	11.60	9.83	9.10	9.57	9.96	9.44	8.99	9.75	9.10
5/31/2019 17:50	1,636	1,438	1,694	1,708	1,931	1,884	1,844	1,931	1,662	1,734	1,996	1,767	1,466	1,670	1,673	11.22	10.18	11.96	10.98	12.01	11.75	12.15	10.48	9.66	10.13	10.38	9.72	8.97	9.84	9.61
5/31/2019 18:00	1,788	1,468	1,758	1,861	1,997	2,007	2,009	2,008	1,653	1,658	1,924	1,722	1,574	1,692	1,814	11.65	11.88	12.55	11.58	12.48	12.66	13.17	10.46	9.65	9.73	10.26	9.56	9.34	9.87	9.92
5/31/2019 18:10	1,633	1,279	1,653	1,687	1,933	1,950	1,993	1,931	1,586	1,702	1,910	1,671	1,586	1,786	1,936	10.97	10.83	11.37	10.77	12.00	12.02	12.86	10.25	9.43	9.90	10.11	9.55	9.50	10.17	10.37
5/31/2019 18:20	1,748	1,426	1,747	1,814	1,995	2,006	2,008	1,987	1,697	1,699	1,947	1,699	1,586	1,872	1,976	11.25	11.05	12.03	11.35	12.25	12.43	12.74	10.34	9.69	9.69	10.20	9.51	9.35	10.40	10.29
5/31/2019 18:30	1,748	1,606	1,823	1,783	1,990	1,933	1,997	2,014	1,728	1,707	1,963	1,676	1,446	1,714	1,837	12.22	11.89	12.38	11.63	12.26	12.57	12.33	10.63	9.94	9.78	10.30	9.56	9.02	10.06	9.90
5/31/2019 18:40	1,646	1,556	1,753	1,739	1,978	1,941	2,002	1,998	1,794	1,642	1,923	1,439	1,245	1,472	1,654	11.71	11.40	12.41	11.25	12.13	12.21	12.08	10.85	9.86	9.66	10.20	8.98	8.41	9.36	9.44
5/31/2019 18:50	1,734	1,564	1,811	1,760	1,990	1,935	1,957	1,975	1,738	1,617	1,946	1,590	1,321	1,649	1,717	11.50	10.88	11.94	10.81	12.08	11.89	12.28	10.54	9.87	9.56	10.16	9.38	8.74	10.03	9.66
5/31/2019 19:00	1,789	1,670	1,895	1,885	2,009	2,021	2,018	1,924	1,646	1,511	1,867	1,351	1,343	1,441	1,594	12.14	11.62	12.21	11.50	12.32	12.48	13.39	10.11	9.57	9.42	10.17	8.90	8.84	9.57	9.33
5/31/2019 19:10	1,715	1,597	1,856	1,798	1,989	1,975	1,976	1,888	1,537	1,515	1,887	1,413	1,290	1,458	1,543	11.94	11.54	12.23	11.33	12.13	12.38	13.41	10.12	9.25	9.27	9.98	9.12	8.50	9.83	9.13
5/31/2019 19:20	1,637	1,440	1,664	1,670	1,909	1,893	1,916	1,858	1,517	1,461	1,785	1,441	1,252	1,409	1,356	11.14	10.76	11.23	10.51	11.62	11.58	12.70	10.25	9.33	9.39	9.87	9.01	8.59	9.14	8.71
5/31/2019 19:30	1,713	1,483	1,733	1,645	1,949	1,917	1,987	1,925	1,465	1,466	1,770	1,412	1,287	1,535	1,529	11.15	10.51	11.54	11.19	11.99	11.68	12.59	10.24	9.21	9.36	9.77	8.87	8.64	9.65	9.18
5/31/2019 19:40	1,869	1,632	1,915	1,836	2,018	2,018	2,002	1,998	1,548	1,547	1,805	1,462	1,305	1,629	1,683	11.58	11.03	12.57	12.12	12.88	12.50	12.79	10.34	9.40	9.43	9.76	8.95	8.70	9.66	9.37
5/31/2019 19:50	1,894	1,741	2,002	1,859	1,997	2,000	1,999	2,005	1,877	1,849	2,000	1,816	1,518	1,820	1,898	11.78	11.77	12.71	12.66	13.20	12.47	13.27	10.87	10.29	10.09	10.50	9.83	9.12	10.09	9.99
5/31/2019 20:00	1,808	1,584	1,824	1,707	2,001	2,000	1,999	1,780	1,444	1,471	1,710	1,272	1,158	1,485	1,554	11.42	10.79	12.36	11.81	12.51	12.23	12.67	9.82	9.11	9.28	9.60	8.58	8.29	9.39	9.18
5/31/2019 20:10	1,848	1,630	1,797	1,731	2,001	1,999	1,999	1,824	1,285	1,358	1,673	1,299	1,022	1,303	1,518	11.51	10.67	12.26	11.45	12.61	12.59	12.95	9.97	8.79	8.96	9.63	8.61	8.02	8.87	9.19
5/31/2019 20:20	1,777	1,727	1,870	1,809	1,986	2,001	1,998	1,725	1,320	1,368	1,628	1,245	1,217	1,539	1,645	12.34	11.09	12.61	12.14	12.76	12.76	13.03	9.77	8.82	9.16	9.45	8.57	8.60	9.63	9.49
5/31/2019 20:30	993	1,015	1,186	1,136	1,163	1,284	1,186	1,042	712	807	944	707	654	974	948	12.06	11.12	12.48	11.39	12.32	12.27	12.61	9.84	8.79	9.22	9.47	8.53	8.10	8.99	9.24
5/31/2019 20:40	-22	-23	-24	-23	-23	-22	-22	-27	-18	-18	-22	-18	-22	-18	-17	11.22	10.45	12.24	10.27	12.06	12.00	12.49	10.13	9.11	9.35	9.25	8.16	7.70	8.69	8.97
5/31/2019 20:50	-13	-14	-16	-13	-20	-18	-20	-20	-11	-11	-11	-9	-21	-8	-10	10.43	10.42	12.00	10.61	12.15	12.26	12.70	9.56	8.44	9.06	9.16	8.14	7.55	8.73	8.76
5/31/2019 21:00	74	64	70	64	77	84	81	37	26	31	45	32	12	41	50	10.54	10.35	11.48	10.36	11.65	11.77	12.17	9.29	8.40	8.81	9.17	8.04	7.96	8.97	8.96
5/31/2019 21:10	1,790	1,554	1,683	1,639	1,978	1,964	2,014	1,190	894	934	1,170	858	805	1,104	1,251	11.41	10.63	11.20	10.36	12.07	12.05	12.41	8.48	7.65	7.96	8.42	7.56	7.51	8.61	8.70
5/31/2019 21:20	1,736	1,475	1,550	1,553	1,838	1,792	1,790	1,222	945	929	1,128	744	628	974	1,213	11.73	9.96	11.44	10.33	11.49	11.70	12.77	8.61	8.01	8.05	8.45	7.49	6.92	8.14	8.71
5/31/2019 21:30	1,714	1,692	1,720	1,727	1,991	1,937	1,882	1,512	1,187	1,186	1,387	907	799	1,264	1,515	13.18	10.76	12.80	11.92	12.08	12.52	13.57	9.50	8.60	8.89	9.08	8.16	7.47	9.19	9.74
5/31/2019 21:40	1,731	1,815	1,855	1,676	2,000	1,981	1,919	1,471	1,142	1,208	1,353	987	918	1,344	1,584	13.32	11.59	13.21	13.08	12.12	12.64	13.75	9.32	8.40	8.88	8.95	8.44	7.76	9.37	9.96
5/31/2019 21:50	1,765	1,569	1,709	1,534	1,924	1,856	1,812	1,476	1,143	1,201	1,339	977	860	1,293	1,522	12.24	12.05	12.76	12.48	11.52	11.85	13.00	9.47	8.49	8.87	8.93	8.44	7.72	9.29	9.83
5/31/2019 22:00	1,687																													

6/1/2019 1:30	222	127	133	111	153	249	289	-2	-14	-17	17	-16	-22	23	60	5.75	4.86	3.89	4.16	5.24	5.89	6.07	3.16	2.46	2.61	3.43	2.58	2.45	3.39	4.16
6/1/2019 1:40	193	100	115	92	172	236	259	-10	-10	-12	-10	-11	-22	-12	26	5.58	4.39	3.79	4.04	5.55	5.83	5.85	2.57	2.01	2.26	2.61	2.24	2.35	2.74	3.60
6/1/2019 1:50	126	56	94	82	160	163	179	-14	-9	-9	-3	-9	-22	10	25	4.80	3.93	3.93	4.24	5.07	4.87	5.02	2.15	1.98	2.25	2.92	2.34	2.33	3.13	3.61
6/1/2019 2:00	198	113	144	126	185	178	169	-4	2	14	85	16	-9	82	99	5.26	4.69	4.40	4.73	5.32	5.00	5.01	3.36	3.13	3.37	4.31	3.45	3.10	4.03	4.48
6/1/2019 2:10	181	94	139	122	201	180	184	53	33	55	118	27	1	79	74	5.27	4.45	4.52	4.67	5.43	5.22	5.10	4.08	3.78	4.02	4.69	3.47	3.27	4.07	4.27
6/1/2019 2:20	198	113	144	127	208	182	203	44	43	36	73	-1	-5	58	41	4.91	4.54	4.36	4.54	5.33	5.27	5.26	3.93	3.85	3.71	4.22	3.14	3.10	3.72	3.79
6/1/2019 2:30	188	113	144	106	151	127	141	124	106	111	141	82	64	101	94	4.81	4.71	4.47	4.40	4.90	4.65	4.79	4.52	4.46	4.54	4.66	4.42	4.28	4.05	4.36
6/1/2019 2:40	233	137	161	128	191	166	182	182	122	122	162	80	64	124	109	5.52	4.96	4.36	4.69	5.36	4.89	5.22	4.95	4.72	4.59	4.87	4.28	4.22	4.36	4.58
6/1/2019 2:50	296	189	216	190	267	254	295	184	138	134	172	78	60	127	132	5.76	5.41	4.86	4.95	5.83	5.71	5.92	4.93	4.67	4.68	4.92	4.20	4.16	4.31	4.68
6/1/2019 3:00	289	190	213	185	269	274	300	182	144	159	179	108	68	119	132	5.93	5.38	4.64	5.18	5.98	5.85	6.08	4.82	4.62	4.93	4.94	4.61	4.33	4.21	4.59
6/1/2019 3:10	269	203	256	232	333	341	355	229	174	179	203	130	96	150	181	5.91	5.65	5.24	5.76	6.56	6.58	6.49	5.08	4.78	5.02	5.05	4.77	4.60	4.37	4.85
6/1/2019 3:20	230	180	256	240	377	361	403	191	157	160	179	128	122	139	153	5.80	5.39	5.04	5.53	6.88	6.30	6.74	4.99	4.82	4.90	4.93	4.81	4.84	4.47	4.69
6/1/2019 3:30	315	267	330	312	351	343	390	122	78	102	163	78	49	121	158	6.35	6.32	5.69	6.08	6.27	6.09	6.58	4.42	3.96	4.18	4.90	4.02	3.81	4.35	4.92
6/1/2019 3:40	360	284	331	314	303	301	336	217	184	210	288	194	137	236	293	6.43	6.63	5.59	6.11	6.16	5.91	6.27	5.30	5.04	5.33	5.74	5.39	4.77	5.73	5.91
6/1/2019 3:50	412	274	333	329	354	331	361	347	291	320	386	296	233	312	381	6.93	6.80	5.75	6.60	6.57	6.33	6.51	6.21	5.82	6.11	5.97	6.21	5.62	6.04	6.16
6/1/2019 4:00	196	138	173	158	212	218	264	108	74	91	118	91	61	104	127	5.23	5.04	4.62	4.97	5.37	5.51	5.81	4.38	3.99	4.28	4.41	4.22	4.10	4.05	4.43
6/1/2019 4:10	138	112	118	105	191	237	292	34	18	31	53	32	5	34	54	4.33	4.50	3.94	4.43	5.51	5.56	6.25	3.66	3.32	3.69	3.89	3.57	3.44	3.33	3.87
6/1/2019 4:20	221	182	180	165	249	284	364	86	60	75	106	74	41	80	108	5.35	5.21	4.42	4.77	5.93	5.84	6.46	4.26	3.93	4.17	4.35	4.20	3.92	3.70	4.46
6/1/2019 4:30	218	145	158	140	210	239	297	90	68	83	133	85	46	99	141	5.68	4.92	4.27	4.82	5.64	5.82	6.09	4.35	4.10	4.28	4.61	4.33	3.95	4.00	4.76
6/1/2019 4:40	177	105	125	95	158	181	225	88	69	88	142	86	45	96	127	5.38	4.56	4.11	4.39	5.12	5.08	5.62	4.21	4.08	4.24	4.68	4.30	3.98	3.99	4.66
6/1/2019 4:50	95	49	73	71	159	195	229	16	22	31	66	31	1	50	76	4.31	3.86	3.63	4.09	5.18	5.38	5.83	3.45	3.52	3.64	4.04	3.67	3.36	3.58	4.19
6/1/2019 5:00	110	57	98	113	219	238	272	11	29	41	102	31	-5	35	53	4.31	3.96	3.98	4.59	5.70	5.57	6.05	3.46	3.70	3.87	4.44	3.69	3.25	3.38	3.83
6/1/2019 5:10	166	81	148	191	316	319	350	79	86	116	210	131	90	160	178	4.76	4.20	4.64	5.25	6.42	5.96	6.45	4.31	4.40	4.64	5.20	4.85	4.41	4.57	5.08
6/1/2019 5:20	220	154	226	228	333	334	361	72	66	75	139	74	31	110	126	5.16	4.93	5.12	5.24	6.40	5.94	6.36	4.21	4.14	4.07	4.70	4.15	3.75	4.16	4.71
6/1/2019 5:30	68	33	48	45	70	87	102	-14	-11	-12	-5	-13	-22	-1	8	3.10	3.06	2.76	3.02	3.57	3.70	4.06	1.55	1.87	1.86	2.78	2.10	1.93	2.37	2.96
6/1/2019 5:40	-11	-11	-11	-11	-11	-12	-12	-13	-9	-10	-10	-10	-20	-10	-11	1.35	0.74	1.29	1.35	1.41	1.98	2.04	1.70	1.44	1.88	1.54	1.65	1.48	0.83	1.30
6/1/2019 5:50	-9	-8	-10	-9	-9	-9	-10	-11	-10	-9	-8	-8	-20	-7	-8	1.29	1.01	0.47	1.07	1.44	1.28	1.52	2.71	2.94	2.62	2.15	1.99	1.73	1.14	1.24
6/1/2019 6:00	-8	-8	-10	-8	-8	-8	-8	-11	-8	-9	-8	-8	-20	-7	-8	2.28	2.12	1.69	1.92	1.82	1.15	1.39	2.24	2.04	1.94	2.40	2.36	2.63	2.25	2.49
6/1/2019 6:10	-9	-9	-10	-9	-8	-8	-9	-11	-8	-9	-7	-8	-20	-7	-9	2.49	2.39	1.88	2.15	2.37	2.52	2.44	2.11	1.61	2.17	2.12	2.57	2.91	2.47	2.81
6/1/2019 6:20	10	-4	-9	43	24	30	-9	-10	-9	-10	31	46	60	44	64	3.31	3.05	3.64	4.09	3.69	3.53	2.92	2.52	3.01	3.22	3.92	4.09	4.42	4.03	3.99
6/1/2019 6:30	-11	-11	-10	23	32	34	15	-13	-12	-10	106	88	93	93	68	2.05	2.04	2.50	2.98	3.16	3.20	3.26	2.73	2.08	1.99	4.15	3.72	4.27	3.92	3.62
6/1/2019 6:40	-12	-10	-9	-2	32	28	29	-11	-10	-10	-5	-2	-7	0	-7	1.49	1.83	1.32	2.42	3.28	3.29	3.37	2.93	2.37	2.11	2.95	2.49	3.14	2.64	2.55
6/1/2019 6:50	-9	-10	-9	11	9	47	59	-11	-6	-6	-1	-13	-19	-13	-12	2.73	2.00	2.89	3.39	3.34	3.52	3.84	2.11	2.99	3.06	3.12	2.87	2.93	2.78	2.72
6/1/2019 7:00	21	-8	-9	45	53	61	74	-11	-12	-10	-7	-12	-12	-11	0	3.22	2.44	3.08	3.32	3.61	3.67	3.76	1.67	2.27	2.33	2.32	2.30	2.76	2.72	2.58
6/1/2019 7:10	-12	-10	-9	5	1	4	-10	-14	-9	-11	-11	-9	-22	-14	-11	2.27	1.56	1.83	2.82	2.57	2.50	2.17	1.21	1.67	1.73	2.07	1.79	2.28	2.18	2.18
6/1/2019 7:20	1	-8	-9	16	8	0	15	-13	-9	-9	-9	-9	-20	-11	-9	2.38	1.99	2.45	2.78	2.83	2.32	3.01	1.42	1.57	1.91	2.03	1.85	1.96	1.55	1.75
6/1/2019 7:30	-5	-9	-9	28	41	9	12	-12	-9	-9	-3	-8	-19	-3	21	2.27	2.12	2.54	3.16	3.26	2.55	2.85	1.87	2.09	1.89	2.20	2.57	2.45	2.67	3.49
6/1/2019 7:40	39	-12	-10	80	86	55	30	-5	23	12	54	43	69	111	162	3.32	2.68	2.77	3.74	3.81	3.34	3.15	3.23	3.58	3.54	3.64	3.75	3.99	3.94	4.67
6/1/2019 7:50	26	6	-9	12	46	76	37	-2	49	63	79	13	75	122	116	2.98	2.68	3.40	4.01	3.34	3.72	3.14	2.51	3.69	3.90	3.81	2.90	4.21	4.13	4.24
6/1/2019 8:00	-11	16	-9	-7	87	107	87	15	28	28	44	61	15	106	91	2.70	2.92	3.56	3.93	3.60	4.00	3.83	3.09	3.42	3.59	3.39	3.82	3.23	4.00	3.99
6/1/2019 8:10	33	47	82	-7	160	187	190	-14	3	1	46	34	34	70	62	3.40	3.31	3.81	3.86	4.96	4.91	5.34	1.93	3.12	3.06	3.65	3.36	3.69	3.61	3.54
6/1/2019 8:20	17	-1	34	-7	118	93	131	-14	-5	0	15	5	11	41	20	2.78	2.43	3.05	3.80	4.53	3.97	4.73	2.41	2.87	2.89	3.07	2.91	3.28	3.23	3.06
6/1/2019 8:30	24	16	22	-7	91	144	159	-6	15	33	77	-8	3	43	41	2.97	2.95	4.30	3.74	3.94	4.61	4.92	2.80	2.98	3.56	3.92	2.68	3.34	3.34	3.54
6/1/2019 8:40	87	48	-7	-7	142	159	113	-15	26	12	26	-6	35	75	105	3.87	3.33	4.94	3.68	4.58	4.75	4.45	2.70	3.31	2.82	3.21	3.28	3.71	3.72	4.19
6/1/2019 8:50	77	68	-6	-7	125	79	59	11	-12	-11	97	146	132	203	246	3.55	3.65	4.88	3.62	4.37	3.55	3.62	3.31	2.34	1.89	4.22	4.63	4.49	4.87	5.27
6/1/2019 9:00	6	-11	-4	-7	120	102	121	38	54	12	99	100	132	191	239	2.78	2.63	4.70	3.56	4.18	4.03	4.37	3.52	3.98	3.45	4.26	4.09	4.50	4.73	5.09
6/1/2019 9:10	44	-11	50	-7	62	84	99	74	61	99	123	133	193	205	205	3.31	2.71	3.43	3.49											

6/1/2019 11:50	63	10	-6	120	109	127	161	117	36	28	93	40	90	202	220	3.49	2.67	3.58	4.24	3.96	4.19	4.71	4.26	3.35	3.25	4.01	3.48	4.21	5.03	5.06
6/1/2019 12:00	91	12	-7	115	180	131	156	7	25	13	48	94	136	207	250	4.03	2.90	3.67	4.22	5.24	4.52	4.54	3.37	3.02	2.93	3.45	3.98	4.71	4.90	5.15
6/1/2019 12:10	41	14	-7	72	115	96	71	39	-14	-14	30	17	68	72	174	3.29	2.81	3.77	3.72	4.31	4.02	3.94	3.55	2.56	2.61	3.42	3.20	4.02	3.42	4.66
6/1/2019 12:20	44	-11	-9	85	68	60	58	-7	-8	-11	55	32	49	110	76	3.09	2.40	3.73	3.91	3.94	3.56	3.70	2.69	2.80	2.58	3.76	3.91	3.93	3.96	4.01
6/1/2019 12:30	8	0	25	88	60	66	34	-8	1	14	96	68	58	98	135	3.37	2.97	3.08	3.97	3.52	3.63	3.99	3.07	2.87	2.54	4.05	3.81	3.89	3.91	4.67
6/1/2019 12:40	10	-7	17	35	37	33	27	49	-15	-13	71	84	97	87	109	2.60	2.31	3.19	3.23	3.32	3.02	3.02	3.24	2.90	2.23	3.73	4.07	4.38	3.75	4.19
6/1/2019 12:50	9	-10	-3	19	26	10	-6	76	8	-11	129	62	54	56	74	2.70	2.36	3.23	2.96	2.98	2.84	3.35	3.82	3.23	2.47	4.42	3.69	3.89	3.47	3.90
6/1/2019 13:00	-6	-9	-4	71	100	78	31	-7	10	0	99	62	40	72	143	2.57	2.78	5.17	3.61	4.10	3.92	3.92	2.46	2.54	2.57	4.12	3.85	3.65	3.53	4.51
6/1/2019 13:10	42	-6	-4	103	94	72	47	47	13	-12	49	11	28	41	117	3.31	2.87	5.16	4.10	3.97	3.77	3.79	3.65	3.09	2.22	3.58	3.11	3.56	3.25	4.27
6/1/2019 13:20	79	-1	-5	107	91	65	73	46	35	-11	59	51	69	89	98	3.72	2.55	5.01	4.01	4.04	3.76	4.29	3.70	3.52	3.08	3.70	3.71	4.08	3.79	4.13
6/1/2019 13:30	86	-12	-6	102	95	93	127	35	19	-9	64	40	20	6	11	3.77	2.99	4.85	4.06	4.13	3.91	4.89	3.17	3.24	2.29	3.72	3.59	3.21	2.69	3.16
6/1/2019 13:40	87	-8	-6	78	87	77	66	15	-7	-8	102	41	40	19	22	3.77	2.66	4.70	3.88	4.03	3.75	4.15	2.70	3.07	2.27	4.10	3.35	3.91	2.90	3.18
6/1/2019 13:50	55	-6	-7	86	118	87	102	18	-7	-8	140	82	44	33	41	3.41	2.60	4.54	4.09	4.22	3.88	4.26	3.14	2.85	2.47	4.75	4.08	3.85	3.18	3.65
6/1/2019 14:00	45	2	15	127	118	97	88	109	75	-3	65	55	71	39	107	3.49	2.66	4.03	4.64	4.46	3.95	4.03	4.29	3.86	2.87	3.76	3.76	4.15	3.27	4.25
6/1/2019 14:10	92	20	104	151	144	115	163	153	69	-9	50	72	89	39	99	3.93	3.54	4.03	4.77	4.63	4.15	4.75	4.72	3.84	2.32	3.34	3.99	4.32	3.19	4.04
6/1/2019 14:20	57	8	107	135	120	60	91	108	66	-2	50	57	89	91	186	3.58	2.69	4.01	4.59	4.41	3.46	4.20	4.26	3.80	2.80	3.52	3.68	4.44	3.76	4.92
6/1/2019 14:30	81	20	90	160	132	89	101	137	81	-11	114	112	127	133	162	3.81	3.22	3.70	4.82	4.43	3.94	4.24	4.43	3.75	2.44	4.19	4.58	4.73	4.29	4.69
6/1/2019 14:40	154	50	104	172	217	148	159	242	63	-5	145	164	154	97	224	4.78	3.56	3.93	5.11	5.38	4.74	4.99	5.28	3.77	2.69	4.39	5.02	4.93	3.56	5.14
6/1/2019 14:50	252	78	62	201	200	164	184	91	81	-5	74	77	128	56	251	5.49	3.89	3.38	5.39	5.31	4.92	5.35	4.02	3.98	2.62	3.56	3.94	4.61	3.09	5.39
6/1/2019 15:00	246	82	81	335	360	242	262	49	144	38	67	11	100	23	266	5.29	3.83	3.50	6.47	6.41	5.51	5.93	3.65	4.44	3.41	3.90	2.94	4.32	2.57	5.16
6/1/2019 15:10	237	54	65	327	317	257	199	172	289	132	103	36	51	40	180	5.57	3.50	3.40	6.40	6.30	5.55	5.29	4.87	5.42	4.46	4.06	3.08	3.67	3.19	4.82
6/1/2019 15:20	223	289	90	254	163	123	373	201	211	127	98	-5	15	33	136	5.51	5.94	3.70	5.54	4.83	3.99	6.34	4.80	5.11	4.40	4.12	2.66	3.30	2.83	4.33
6/1/2019 15:30	426	258	95	361	313	253	403	425	398	268	273	100	-8	176	195	6.77	5.57	3.88	6.05	5.99	5.37	6.35	6.21	6.23	5.51	5.26	4.18	3.15	4.56	4.99
6/1/2019 15:40	556	244	196	520	708	489	389	501	431	290	218	57	221	84	556	6.89	5.55	4.81	7.38	8.00	6.40	6.46	6.47	6.23	5.49	4.91	3.86	4.90	3.59	6.82
6/1/2019 15:50	644	283	179	603	619	514	414	460	638	340	340	189	399	155	978	7.41	5.68	4.64	7.65	7.68	6.73	6.66	6.17	7.00	5.76	5.60	4.36	6.40	3.68	7.91
6/1/2019 16:00	809	366	292	652	811	837	746	819	659	260	411	371	471	243	980	7.80	6.24	5.42	7.51	8.29	8.25	8.32	7.55	7.00	5.13	5.75	5.84	6.47	4.62	7.98
6/1/2019 16:10	777	312	420	702	861	702	744	737	507	165	550	449	627	369	1,276	7.81	5.63	6.22	7.78	8.47	7.50	8.44	7.27	6.42	4.47	6.40	6.59	7.04	5.04	8.76
6/1/2019 16:20	649	290	406	652	858	867	792	841	507	163	591	580	936	487	1,376	7.53	6.06	6.34	7.52	8.50	8.43	8.56	7.52	6.35	4.45	6.43	6.77	8.09	5.54	8.94
6/1/2019 16:30	718	324	446	787	867	800	782	377	133	2	357	466	662	419	1,225	7.98	6.25	6.37	8.18	8.49	7.91	8.66	5.98	4.26	2.91	5.62	6.47	7.26	5.00	8.70
6/1/2019 16:40	569	187	244	589	727	634	556	356	342	167	312	217	305	154	617	7.21	5.00	4.81	7.31	8.00	7.30	7.41	5.79	5.66	4.53	5.70	5.00	5.61	3.64	6.83
6/1/2019 16:50	540	168	130	392	416	393	344	366	436	208	229	108	454	100	909	7.17	5.01	4.21	6.62	6.85	6.52	6.28	5.83	6.21	5.00	4.85	3.62	6.84	3.36	7.94
6/1/2019 17:00	486	257	176	477	440	288	301	507	435	124	561	361	620	227	1,000	6.91	5.80	4.82	6.99	6.65	5.48	5.95	6.59	6.07	4.24	6.70	5.97	7.11	4.01	7.89
6/1/2019 17:10	358	228	198	398	316	136	162	552	637	342	280	152	461	171	695	6.17	5.56	4.84	6.42	5.93	4.34	4.58	6.66	7.24	5.71	5.00	3.93	6.32	4.06	7.30
6/1/2019 17:20	717	410	228	704	637	496	404	761	805	411	361	206	355	139	501	7.76	6.29	4.78	7.94	7.80	7.14	6.85	7.22	7.47	6.12	5.67	4.54	5.72	3.44	6.60
6/1/2019 17:30	700	286	292	506	607	506	377	583	497	170	452	425	474	344	955	7.89	5.60	5.54	7.11	7.86	7.04	6.34	6.80	6.41	4.44	6.25	6.26	6.48	5.22	8.02
6/1/2019 17:40	737	346	344	625	627	585	519	1,031	438	87	842	915	981	894	1,382	7.86	6.23	5.64	7.81	8.05	7.25	6.85	7.99	6.10	3.75	7.69	8.54	8.40	8.10	8.94
6/1/2019 17:50	857	417	470	754	769	673	571	1,131	420	91	1,152	1,212	1,169	1,062	1,507	8.35	6.44	6.62	8.40	8.65	7.57	7.78	8.31	5.99	3.87	8.99	9.23	8.74	8.59	9.33
6/1/2019 18:00	768	548	699	829	885	807	768	1,007	363	52	951	1,125	1,056	1,080	1,331	8.07	7.27	8.15	8.61	8.96	8.04	9.01	8.06	5.91	3.50	8.09	8.97	8.56	9.31	8.96
6/1/2019 18:10	803	680	824	890	1,070	968	895	658	175	20	968	926	788	954	1,163	7.97	7.82	8.56	8.79	9.69	8.62	9.58	6.90	4.52	3.25	8.68	8.24	7.64	8.57	8.60
6/1/2019 18:20	1,013	186	779	922	1,094	1,014	997	668	299	68	1,209	1,063	883	1,187	1,336	8.66	4.55	8.39	8.38	9.01	8.65	8.88	7.02	5.34	3.68	9.18	8.57	7.88	9.22	9.02
6/1/2019 18:30	1,007	291	896	956	1,117	1,015	975	722	292	103	1,574	1,304	1,074	1,418	1,521	8.55	5.57	8.86	9.32	9.21	8.92	9.00	7.06	5.11	4.22	9.97	9.04	8.36	9.57	9.35
6/1/2019 18:40	1,223	301	972	992	1,035	986	973	846	203	185	1,825	1,529	1,452	1,769	1,748	9.77	5.50	9.00	9.22	9.44	8.63	8.84	7.56	4.28	4.50	10.26	9.70	9.64	10.42	10.04
6/1/2019 18:50	1,004	708	1,058	1,073	1,177	1,162	1,159	1,369	560	540	1,991	1,606	1,447	1,785	1,749	8.38	7.70	9.30	9.42	9.98	9.18	9.29	8.88	6.39	6.02	10.57	9.75	9.62	10.58	10.10
6/1/2019 19:00	1,137	812	641	1,088	1,192	1,160	1,128	1,349	640	617	1,940	1,547	1,428	1,690	1,559	8.97	8.64	7.03	9.19	9.64	9.22	9.70	8.59	6.80	6.16	10.39	9.43	9.39	10.17	9.40
6/1/2019 19:10	1,407	814	284	1,008	1,170	1,203	1,150	1,031	998	893	1,678	1,336	1,238	1,428	1,278	10.24	8.55	4.40	9.11	9.92	9.26	10.20	7.95	8.68	8.18	9.65	8.88			

6/1/2019 22:10	371	219	174	444	404	311	260	110	130	150	476	392	376	389	363	5.54	5.21	3.35	6.45	6.34	6.11	5.80	4.20	4.23	4.17	6.52	5.88	6.25	5.98	5.88
6/1/2019 22:20	265	241	133	398	408	353	311	146	143	130	594	541	578	582	525	5.60	5.80	3.71	6.49	6.60	6.32	5.99	4.60	4.19	3.78	6.60	6.42	7.30	7.10	6.62
6/1/2019 22:30	377	203	116	470	490	397	341	192	228	188	748	654	667	687	602	5.76	4.93	2.75	6.76	7.10	6.24	6.15	4.92	5.10	4.52	7.35	6.71	7.37	7.51	6.62
6/1/2019 22:40	470	161	133	600	648	480	349	318	739	733	936	763	720	797	639	6.13	4.13	3.25	7.53	8.04	6.74	6.03	5.64	8.10	7.84	8.08	7.40	7.46	8.05	6.97
6/1/2019 22:50	470	87	192	658	735	535	347	276	673	709	888	762	735	803	636	6.17	3.17	3.82	8.12	8.52	7.02	6.48	5.46	7.71	7.59	7.80	7.34	7.67	8.14	7.06
6/1/2019 23:00	853	167	469	686	653	393	271	268	618	626	826	682	658	724	620	8.20	4.07	6.58	7.94	7.93	6.35	5.81	5.19	7.29	7.14	7.59	7.07	7.40	7.79	6.90
6/1/2019 23:10	664	96	334	405	391	305	260	100	355	445	624	546	571	724	578	7.78	3.11	5.25	6.31	6.41	6.23	6.23	4.11	6.06	6.43	6.91	6.70	7.07	7.96	6.83
6/1/2019 23:20	631	129	240	451	506	506	514	139	373	370	495	429	483	508	459	7.66	3.23	4.55	6.47	7.16	6.88	7.01	4.47	6.22	6.17	6.41	5.96	6.51	6.63	6.04
6/1/2019 23:30	666	89	381	634	699	560	454	263	494	468	618	473	512	557	531	7.95	3.03	6.23	7.60	8.19	7.19	6.88	5.21	6.98	6.50	6.99	6.10	6.67	6.88	6.47
6/1/2019 23:40	843	207	636	710	758	586	456	301	668	575	754	583	561	637	532	8.43	4.61	7.87	8.08	8.42	7.51	7.05	5.31	7.33	6.99	7.40	6.78	7.13	7.36	6.67
6/1/2019 23:50	1,010	578	874	825	920	739	554	326	678	620	836	722	727	783	632	8.82	8.18	8.36	9.00	9.11	8.22	7.70	5.62	7.41	7.18	7.66	7.21	7.68	8.10	7.09
6/2/2019 0:00	998	422	846	805	869	728	556	318	660	558	729	613	641	716	655	9.07	6.64	8.37	9.00	9.18	8.18	7.76	5.56	7.24	6.89	7.34	6.76	7.28	7.96	7.16
6/2/2019 0:10	968	666	842	826	934	804	667	344	572	525	711	622	670	792	721	8.66	8.48	8.14	8.75	9.34	8.26	8.16	5.89	6.98	6.82	7.35	6.93	7.39	8.06	7.47
6/2/2019 0:20	727	518	598	615	771	747	736	319	549	509	647	603	677	686	671	7.83	7.54	6.91	7.42	8.36	8.16	8.75	5.73	6.84	6.51	7.04	6.71	7.31	7.45	7.13
6/2/2019 0:30	711	469	621	621	811	786	800	330	447	402	559	443	504	545	516	8.13	7.48	7.14	7.75	8.52	8.62	8.89	5.76	6.42	6.12	6.79	6.09	6.58	7.09	6.47
6/2/2019 0:40	761	511	684	701	809	819	792	229	350	348	459	394	481	538	538	8.28	7.53	7.47	7.91	8.76	8.88	9.03	5.07	5.98	6.13	6.42	6.06	6.73	7.00	6.71
6/2/2019 0:50	675	490	602	630	691	715	656	268	443	418	532	453	490	517	514	7.86	7.39	6.95	7.52	8.43	8.63	8.35	5.31	6.37	6.46	6.70	6.27	6.70	6.96	6.52
6/2/2019 1:00	589	374	550	539	609	602	575	160	409	376	465	372	425	455	446	7.70	6.93	7.25	7.44	7.99	8.12	7.95	4.40	6.55	6.39	6.58	5.97	6.46	6.91	6.31
6/2/2019 1:10	574	441	551	572	651	600	547	196	363	316	412	358	403	414	397	7.64	7.18	7.19	7.53	8.13	8.14	7.86	4.96	6.29	5.75	6.32	5.85	6.38	6.54	6.12
6/2/2019 1:20	451	303	438	433	485	430	356	156	371	356	422	392	418	432	417	6.80	6.31	6.33	6.81	7.33	6.70	6.70	4.59	6.23	6.16	6.43	5.96	6.60	6.44	6.26
6/2/2019 1:30	380	243	359	358	404	379	357	77	288	272	322	281	328	348	317	6.43	5.91	5.92	6.29	6.76	6.25	6.77	3.82	5.74	5.67	5.92	5.45	6.16	6.25	5.74
6/2/2019 1:40	5	2	5	8	12	9	9	-9	2	1	4	5	-2	8	5	5.45	5.48	6.04	6.13	6.48	6.55	6.43	4.82	5.49	5.62	5.56	5.41	6.01	6.07	5.69
6/2/2019 1:50	-10	-10	-12	-8	-9	-9	-9	-12	-10	-11	-10	-9	-22	-9	-9	5.49	5.38	5.88	6.03	6.25	6.28	6.24	4.86	5.12	5.55	5.37	5.41	5.98	5.69	5.43
6/2/2019 2:00	158	138	171	-3	209	217	203	66	116	120	146	163	166	156	151	5.36	5.72	5.41	6.26	6.35	6.39	6.63	4.38	4.89	5.26	5.12	5.41	5.87	5.37	5.47
6/2/2019 2:10	310	294	371	-3	433	423	419	106	216	224	272	286	308	301	312	5.63	6.55	6.06	6.90	7.16	7.28	7.26	4.00	4.95	5.26	5.37	5.51	6.14	6.11	6.02
6/2/2019 2:20	456	320	478	-3	607	616	554	151	380	393	456	456	495	505	445	7.07	6.67	6.86	7.76	8.08	7.97	7.91	4.48	6.21	6.43	6.62	6.59	7.15	7.34	6.51
6/2/2019 2:30	338	104	474	-3	563	554	501	182	552	545	618	566	573	586	506	6.49	4.09	6.92	7.61	7.73	7.67	7.53	4.74	7.29	6.97	7.03	6.56	7.22	7.64	6.57
6/2/2019 2:40	312	83	526	-3	555	483	407	329	706	656	753	668	641	671	627	5.83	3.20	7.22	7.62	7.62	7.39	7.16	5.70	7.56	7.47	7.60	7.03	7.55	7.99	7.03
6/2/2019 2:50	457	159	459	-3	517	459	429	299	584	568	699	640	646	687	639	7.12	4.12	6.72	7.30	7.41	6.62	6.81	5.46	7.14	7.06	7.25	6.91	7.22	7.64	6.99
6/2/2019 3:00	469	268	417	-3	557	519	475	271	491	455	546	489	521	518	493	6.56	5.97	6.14	7.44	7.63	7.01	7.06	5.40	6.72	6.48	6.75	6.23	6.77	6.81	6.43
6/2/2019 3:10	646	502	637	-3	746	645	562	249	487	453	605	481	607	623	592	7.26	7.31	7.10	8.16	8.42	7.51	7.75	5.20	6.58	6.45	6.92	6.33	6.98	7.12	6.92
6/2/2019 3:20	519	398	469	-3	563	476	460	224	491	407	511	355	442	432	434	6.98	6.62	6.31	7.61	7.64	7.19	7.26	4.74	6.49	6.12	6.57	5.83	6.21	6.28	6.09
6/2/2019 3:30	458	327	480	-3	586	581	552	170	380	356	501	405	524	498	464	7.11	6.50	6.36	7.52	7.49	7.14	7.14	4.73	6.08	5.88	6.45	5.84	6.71	6.58	6.13
6/2/2019 3:40	474	323	438	-3	494	466	414	205	403	360	483	397	484	462	476	7.04	6.42	5.98	7.11	7.23	6.43	7.09	4.64	6.05	5.77	6.29	5.84	6.41	6.21	6.23
6/2/2019 3:50	352	220	298	-3	359	358	346	171	363	328	446	318	346	398	367	6.44	5.61	5.35	6.27	6.56	6.04	6.54	4.33	5.99	5.72	6.17	5.64	5.86	5.96	5.72
6/2/2019 4:00	268	182	253	-3	325	332	324	141	264	221	301	176	256	287	279	5.99	5.39	4.94	6.40	6.16	5.92	6.48	4.30	5.48	5.24	5.58	4.76	5.41	5.50	5.32
6/2/2019 4:10	264	154	208	-3	245	247	248	175	227	174	252	145	181	242	228	5.71	4.93	4.71	5.83	5.73	5.38	5.85	4.64	5.22	4.77	5.38	4.67	5.00	5.05	4.91
6/2/2019 4:20	150	90	129	-4	172	177	195	65	114	108	151	127	156	151	155	4.97	4.08	4.01	5.11	5.01	5.06	5.22	3.69	4.31	4.22	4.70	4.19	4.67	5.07	4.51
6/2/2019 4:30	111	44	142	38	168	167	175	56	169	194	214	232	267	238	262	4.65	3.33	4.28	5.22	5.01	5.20	5.26	3.84	5.08	5.30	5.23	5.18	5.72	5.28	5.40
6/2/2019 4:40	240	110	226	238	269	258	282	26	139	130	183	175	221	252	267	5.65	4.34	5.18	5.57	6.01	5.81	6.03	3.48	4.73	4.68	4.95	4.92	5.54	5.56	5.54
6/2/2019 4:50	395	254	307	282	353	320	304	21	136	139	217	172	187	227	238	6.71	5.92	5.43	6.02	6.57	6.01	6.34	3.37	4.64	4.67	5.18	4.95	5.07	5.41	5.41
6/2/2019 5:00	456	303	388	370	396	418	385	29	106	106	178	190	222	242	239	6.92	6.46	6.00	6.42	6.81	6.72	7.01	3.37	4.36	4.38	4.83	4.88	5.33	5.26	5.29
6/2/2019 5:10	388	235	319	310	389	378	385	45	113	99	159	148	165	201	186	6.55	5.93	5.66	5.99	6.63	6.28	6.86	3.55	4.40	4.20	4.63	4.43	4.82	4.86	4.80
6/2/2019 5:20	387	255	303	255	356	345	357	63	84	97	142	118	79	143	163	6.85	6.17	5.75	5.45	6.45	6.19	6.51	3.81	3.89	4.24	4.56	4.23	4.14	4.50	4.64
6/2/2019 5:30	390	221	301	261	301	303	378	53	90	111	171	152	135	174	213	6.82	5.72	5.76	5.73	5.97	5.78	6.45	3.72	4.14	4.45	4.78	4.55	4.66	4	

6/2/2019 8:30	274	189	247	317	355	262	412	208	409	431	634	526	429	403	369	5.32	4.88	5.22	5.84	6.06	5.44	6.39	5.08	6.15	6.04	6.86	6.72	6.16	5.81	5.85
6/2/2019 8:40	166	105	147	133	218	151	258	204	335	256	476	655	540	408	376	4.63	4.00	4.27	4.25	5.06	4.57	5.65	4.93	5.82	5.57	6.51	7.15	6.58	6.07	5.55
6/2/2019 8:50	81	54	144	220	239	248	286	206	254	410	482	682	653	402	100	3.62	3.54	4.59	5.42	5.44	5.45	5.69	5.01	5.63	6.23	6.39	7.26	7.13	6.02	4.36
6/2/2019 9:00	76	7	69	204	232	258	273	180	326	349	422	437	304	208	361	3.81	3.23	3.72	5.01	5.34	5.42	5.65	4.71	5.78	5.79	6.20	6.36	5.59	4.91	6.06
6/2/2019 9:10	255	121	227	288	479	431	494	108	372	338	340	244	194	233	337	5.59	4.51	5.34	5.84	6.79	6.17	6.77	4.21	5.98	5.75	5.83	5.69	5.06	4.98	5.79
6/2/2019 9:20	129	49	149	190	265	277	314	180	224	251	356	180	116	122	127	4.24	3.33	4.13	4.93	5.67	5.66	6.02	4.80	5.25	5.45	5.98	4.71	4.37	4.07	4.11
6/2/2019 9:30	125	82	176	152	322	238	346	140	144	301	345	288	246	179	230	4.40	3.90	4.93	5.14	6.12	5.31	6.13	5.14	4.57	5.50	5.88	5.65	5.50	4.66	5.04
6/2/2019 9:40	193	111	149	134	137	246	284	117	194	319	341	388	281	286	259	4.75	4.27	4.40	4.22	4.26	5.52	5.81	4.29	5.03	5.98	6.09	6.25	5.48	5.45	5.46
6/2/2019 9:50	292	239	277	275	290	476	829	350	394	544	703	661	470	449	382	5.97	5.41	5.49	5.76	5.93	6.83	8.42	5.70	6.37	6.62	7.18	7.29	6.60	6.43	6.16
6/2/2019 10:00	380	242	308	235	503	601	603	259	311	220	332	257	390	323	411	6.24	5.50	5.65	5.38	6.84	7.29	7.22	5.06	5.64	5.09	5.89	5.32	6.12	5.49	5.98
6/2/2019 10:10	206	86	219	388	529	447	579	318	286	294	326	303	247	254	228	5.32	4.06	5.22	6.59	7.07	6.36	7.30	5.58	5.51	5.74	5.82	5.58	5.43	5.24	5.30
6/2/2019 10:20	214	123	323	371	445	481	499	35	141	300	301	187	199	180	186	4.97	4.46	5.77	6.20	6.60	6.32	6.90	3.45	4.31	5.59	5.32	4.70	5.14	4.71	4.84
6/2/2019 10:30	62	15	186	321	305	438	437	166	308	304	438	432	277	206	222	3.73	2.65	4.79	5.88	5.83	6.76	6.56	4.70	5.84	5.32	6.19	6.16	5.43	4.97	4.82
6/2/2019 10:40	75	56	51	124	237	303	325	32	20	87	89	133	97	130	118	3.23	3.27	3.42	4.48	5.31	5.72	5.87	3.49	3.70	3.94	3.95	4.20	4.28	4.12	4.17
6/2/2019 10:50	-12	-9	63	96	244	214	327	34	27	-9	11	-5	-4	4	-9	2.31	2.30	3.51	4.55	5.62	5.06	5.94	4.03	3.49	3.22	2.77	2.91	2.99	2.75	2.48
6/2/2019 11:00	59	11	157	253	285	301	297	184	168	139	189	104	64	105	96	4.13	3.43	4.38	5.45	5.78	5.87	5.99	5.00	4.83	4.62	5.00	4.45	3.96	3.92	4.16
6/2/2019 11:10	82	37	80	73	135	157	196	123	49	145	132	98	78	118	148	3.74	3.88	3.56	3.40	4.16	4.30	4.71	4.42	3.56	4.62	4.35	3.82	3.93	4.13	4.60
6/2/2019 11:20	105	58	70	75	77	57	86	484	410	432	340	340	219	181	275	3.80	3.48	3.34	3.48	3.95	3.44	4.12	6.30	5.86	6.23	5.65	5.88	5.09	4.53	5.48
6/2/2019 11:30	799	726	893	867	745	641	647	1,665	1,179	1,293	1,425	1,020	775	728	767	7.57	7.65	8.74	7.43	7.89	7.10	7.38	9.42	8.31	8.71	8.64	8.21	7.28	7.02	7.42
6/2/2019 11:40	1,361	1,157	1,451	1,318	1,405	1,214	999	1,456	1,181	1,580	1,419	946	735	1,030	1,135	9.33	8.77	10.59	9.21	9.68	8.99	9.43	9.03	8.30	9.77	9.11	7.87	7.28	8.39	7.94
6/2/2019 11:50	1,416	1,372	1,488	1,423	1,184	1,383	1,487	1,615	1,721	1,730	1,818	1,562	1,822	1,620	1,666	10.79	10.89	11.39	10.68	10.03	10.12	11.23	9.43	9.82	9.80	9.97	9.23	9.99	10.17	10.08
6/2/2019 12:00	1,954	1,951	2,007	743	1,987	2,073	2,019	1,947	1,944	2,017	2,009	2,015	2,016	1,968	2,016	13.27	13.37	14.62	13.50	13.54	15.02	14.16	10.68	10.70	11.11	11.60	10.84	11.79	11.69	11.66
6/2/2019 12:10	1,887	1,615	1,988	1,833	1,967	2,078	1,948	1,980	1,975	1,973	1,992	1,974	1,937	1,934	1,988	12.54	11.64	13.90	12.15	13.22	15.30	13.17	10.39	10.51	10.60	10.41	10.99	10.05	10.81	10.72
6/2/2019 12:20	1,611	1,404	1,706	1,753	1,770	2,078	1,994	1,767	1,681	1,585	1,900	1,751	1,491	1,481	1,692	10.93	11.63	11.65	10.69	11.97	15.30	11.93	9.46	9.39	9.21	9.96	9.78	8.97	9.10	9.40
6/2/2019 12:30	1,305	1,163	1,497	1,512	1,907	2,078	2,004	1,249	976	1,050	1,225	1,236	986	1,383	1,266	9.60	9.94	10.79	9.91	12.12	15.30	13.11	8.66	7.83	8.06	8.26	8.49	7.94	9.18	8.58
6/2/2019 12:40	1,572	1,305	1,671	1,630	1,951	2,078	2,000	1,459	1,014	1,684	1,730	1,278	1,454	1,403	1,786	11.00	11.04	11.80	10.69	12.83	15.30	13.40	9.11	7.93	9.74	8.89	8.63	8.77	9.17	9.91
6/2/2019 12:50	1,413	1,355	1,671	1,615	1,939	2,078	1,779	1,396	1,230	1,771	1,867	1,659	1,345	1,624	1,795	10.69	10.29	12.08	10.93	12.31	15.30	12.56	8.96	8.59	9.98	10.23	9.83	8.79	9.97	9.99
6/2/2019 13:00	1,365	1,224	1,542	1,491	1,668	2,078	1,878	1,418	1,741	1,933	1,966	1,856	1,720	1,626	1,804	10.35	10.29	11.52	10.98	11.57	15.30	12.66	8.86	9.80	10.62	10.86	10.37	9.96	10.13	10.13
6/2/2019 13:10	1,572	1,314	1,638	1,650	1,741	2,078	1,654	471	1,114	1,653	1,818	1,652	1,795	1,729	1,750	10.64	9.67	11.59	10.90	11.98	15.30	10.99	5.88	8.19	9.61	10.38	9.65	10.09	10.24	9.94
6/2/2019 13:20	1,364	987	1,209	1,267	1,428	2,078	1,781	1,143	1,087	1,561	1,318	1,312	1,322	1,387	1,419	9.73	9.21	9.81	9.49	10.79	15.30	11.49	8.36	7.97	9.40	8.65	8.71	8.79	9.18	8.82
6/2/2019 13:30	1,185	788	1,021	1,173	1,344	2,078	1,354	737	1,031	1,443	1,244	1,366	1,154	1,221	1,092	9.43	8.23	8.98	9.22	10.47	15.30	10.02	7.03	8.01	9.25	8.31	8.97	8.15	8.93	8.14
6/2/2019 13:40	1,142	745	997	705	1,096	2,078	1,283	631	1,049	1,172	1,344	1,158	1,115	1,435	1,100	9.36	7.99	8.73	7.78	9.42	15.30	9.79	6.73	8.21	8.38	8.67	8.21	8.14	9.34	8.05
6/2/2019 13:50	1,092	949	1,133	1,122	1,260	2,078	1,167	660	995	828	1,479	1,048	929	1,185	1,138	9.36	9.10	9.33	9.25	9.96	15.30	9.81	6.85	7.97	7.45	9.14	8.17	7.77	8.51	8.33
6/2/2019 14:00	889	800	1,138	927	1,174	2,078	1,170	387	735	695	1,073	931	842	695	812	8.65	8.14	9.34	8.33	9.75	15.30	9.93	6.01	7.20	7.18	8.14	7.66	7.49	6.85	7.11
6/2/2019 14:10	846	522	777	797	891	2,078	1,968	525	650	631	872	795	523	668	853	8.31	6.55	7.78	7.68	8.53	15.30	9.13	6.51	6.97	7.00	7.50	7.20	6.45	6.80	7.44
6/2/2019 14:20	750	549	754	885	906	1,395	847	544	673	809	943	606	653	587	739	7.90	7.69	7.62	8.24	8.88	10.27	8.93	6.48	7.04	7.43	7.62	6.72	6.92	6.66	7.12
6/2/2019 14:30	498	356	463	359	648	332	865	228	465	611	651	571	519	603	715	7.14	6.84	6.38	6.21	7.68	6.06	8.82	4.51	6.40	6.91	7.01	6.85	6.58	6.92	7.13
6/2/2019 14:40	499	358	361	414	657	624	782	240	538	619	863	678	623	739	744	7.15	6.34	6.05	6.69	7.77	7.00	8.06	4.88	6.36	7.04	7.58	7.03	6.80	7.17	7.12
6/2/2019 14:50	551	315	469	463	555	379	299	206	494	704	867	688	581	626	593	7.02	6.13	6.53	6.69	7.07	5.91	5.73	4.71	6.53	7.11	7.53	6.95	6.68	6.76	6.66
6/2/2019 15:00	610	516	671	534	663	674	614	239	655	605	1,000	757	653	592	730	7.15	7.16	7.35	6.86	7.39	7.60	7.18	4.96	7.05	6.76	7.64	7.17	6.92	6.53	7.08
6/2/2019 15:10	616	490	685	634	772	667	493	454	853	975	1,183	1,157	1,006	937	1,044	7.36	7.09	7.42	7.36	7.98	7.10	6.58	5.93	7.70	8.02	8.33	8.41	8.01	8.02	8.04
6/2/2019 15:20	638	413	528	483	518	323	342	480	954	870	1,297	1,011	1,107	823	965	7.65	6.64	6.68	6.55	6.87	5.61	5.95	6.09	7.99	7.68	8.69	7.97	8.27	7.40	7.92
6/2/2019 15:30	382	326	451	516	564	551	572	302	771	818	983	734	735	742	1,159	5.90	5.93	6.46	6.80	7.18	6.84	7.44	5.33	7.31						

6/2/2019 18:50	1,958	1,986	1,924	1,938	1,913	1,829	1,900	1,999	2,002	2,015	1,886	2,007	1,988	1,999	1,999	12,37	12,75	14,26	12,32	12,27	12,16	11,99	12,00	11,83	11,77	11,13	11,86	11,68	11,88	11,39
6/2/2019 19:00	1,869	1,825	1,980	1,929	2,005	2,011	2,012	1,999	2,000	2,000	2,004	1,999	1,955	1,996	1,992	12,36	11,57	13,76	12,52	12,95	13,38	12,48	12,06	12,49	11,94	12,30	12,28	10,56	11,77	11,14
6/2/2019 19:10	2,003	1,988	2,010	2,020	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,978	2,000	1,997	1,997	14,44	12,91	16,07	13,90	15,02	14,50	14,68	13,93	13,19	12,97	13,75	12,31	11,17	12,43	12,16
6/2/2019 19:20	1,999	1,984	1,998	2,000	2,000	1,996	1,999	2,000	2,000	2,000	1,999	2,000	2,009	1,999	2,001	14,27	12,96	15,53	13,14	14,86	14,83	15,48	12,83	12,30	12,94	13,01	12,16	11,11	11,87	11,59
6/2/2019 19:30	1,999	1,906	1,997	1,990	1,997	2,002	2,000	1,999	1,999	1,996	2,000	1,999	2,005	1,976	1,963	13,58	12,44	14,68	12,51	13,49	14,27	15,05	12,27	11,48	11,26	12,44	11,38	11,11	11,66	11,54
6/2/2019 19:40	1,999	2,019	1,959	2,008	2,000	2,001	2,000	2,000	1,989	2,002	2,000	1,984	1,996	1,965	2,004	13,17	12,76	14,09	12,98	14,41	13,36	14,06	12,05	11,33	11,41	11,85	10,99	10,77	11,01	11,81
6/2/2019 19:50	2,000	1,998	2,000	1,998	1,999	1,999	1,999	2,000	1,999	2,000	1,948	1,940	2,017	2,000	1,993	13,51	12,77	14,75	12,96	14,26	14,41	14,37	11,77	11,22	11,21	11,25	10,34	10,15	11,31	11,21
6/2/2019 20:00	1,999	1,954	2,000	2,001	1,999	2,000	2,000	2,000	1,992	1,999	1,999	1,998	1,950	1,995	2,000	13,48	13,33	14,86	12,89	14,38	14,06	14,82	12,21	11,08	11,24	11,16	10,52	10,20	11,21	11,33
6/2/2019 20:10	1,999	2,010	2,000	1,999	2,000	1,999	1,999	1,998	1,980	1,932	1,978	1,911	1,736	1,925	2,000	13,22	12,22	14,65	12,92	13,86	13,68	14,70	11,37	10,31	10,34	10,56	9,99	9,53	10,55	10,36
6/2/2019 20:20	2,000	2,000	1,999	1,997	1,999	2,000	1,999	1,938	1,619	1,584	1,751	1,510	1,243	1,789	1,766	13,69	12,68	14,06	12,55	14,05	13,71	14,59	10,01	9,47	9,17	9,72	8,98	8,33	9,92	9,58
6/2/2019 20:30	1,932	1,845	1,902	1,868	1,981	1,999	2,000	1,304	1,135	1,188	1,283	929	626	930	1,213	12,63	11,91	12,86	11,52	12,91	13,02	13,54	8,27	8,10	8,24	8,46	7,47	6,71	7,49	8,23
6/2/2019 20:40	1,732	1,609	1,900	1,745	2,019	1,999	1,999	1,162	776	841	957	757	607	840	766	11,68	11,19	12,66	10,97	13,05	12,85	13,83	8,24	7,21	7,37	7,63	7,10	6,56	7,40	6,86
6/2/2019 20:50	1,901	1,879	1,973	1,883	2,000	1,999	1,999	1,214	867	984	1,027	750	849	951	1,000	12,07	12,06	13,56	12,09	13,42	14,04	14,65	8,31	7,45	7,75	7,84	7,05	7,37	7,83	7,75
6/2/2019 21:00	2,017	2,015	2,002	2,000	2,000	2,000	2,000	1,973	1,667	1,845	1,690	1,336	1,255	1,538	1,699	13,43	12,78	14,48	12,75	14,64	15,37	15,52	10,55	9,60	10,26	9,45	8,66	8,29	9,40	9,48
6/2/2019 21:10	2,000	1,999	2,000	1,999	1,999	2,000	1,999	2,001	1,946	2,006	2,011	1,979	1,892	2,018	2,014	13,84	12,67	14,61	12,90	14,67	14,94	15,47	11,49	10,51	10,86	10,75	10,03	9,88	10,60	10,65
6/2/2019 21:20	1,999	1,999	1,999	1,994	2,000	2,000	1,999	2,000	1,934	1,998	1,999	1,808	1,769	1,999	1,999	14,08	12,73	15,31	13,43	14,78	14,86	15,36	11,02	10,24	10,40	10,83	9,60	9,51	11,07	10,75
6/2/2019 21:30	1,998	1,878	2,000	2,004	1,999	1,999	2,000	1,859	1,604	1,521	1,588	1,287	1,190	1,817	1,805	12,87	11,80	14,01	12,06	13,69	13,84	14,69	9,65	9,25	8,87	9,09	8,31	8,09	10,16	9,50
6/2/2019 21:40	1,917	1,738	1,811	1,891	1,998	1,999	1,999	1,651	1,530	1,373	1,377	950	784	1,304	1,450	11,93	11,32	12,32	11,63	13,09	12,89	13,95	9,36	9,22	8,77	8,65	7,53	7,13	8,72	8,90
6/2/2019 21:50	1,917	1,646	1,759	1,701	2,001	1,999	2,000	2,016	2,013	1,997	2,016	1,932	1,483	1,854	1,987	11,78	10,82	12,15	10,73	12,56	12,38	12,95	11,45	10,84	11,17	11,10	10,11	8,93	10,71	10,54
6/2/2019 22:00	2,013	1,992	2,019	1,996	1,999	2,000	2,000	1,991	1,904	1,967	1,989	1,847	1,831	1,999	1,995	13,48	12,56	14,89	12,94	14,66	14,32	15,09	10,86	10,03	10,70	11,03	9,95	10,00	11,25	11,31
6/2/2019 22:10	2,000	1,993	1,998	1,999	2,000	1,999	1,999	1,870	1,690	1,650	1,923	1,384	1,398	1,753	1,911	13,59	12,41	14,98	13,09	15,37	15,46	16,23	9,78	9,69	9,27	10,10	8,63	8,65	9,95	10,07
6/2/2019 22:20	1,999	2,008	2,001	1,999	2,000	2,000	2,000	1,950	1,744	1,847	1,999	1,864	1,483	1,890	1,920	13,73	13,39	14,85	13,15	15,15	15,44	15,85	10,17	9,63	9,94	10,33	9,89	8,77	10,53	10,09
6/2/2019 22:30	627	753	921	1,023	668	914	819	795	617	625	796	626	754	684	765	14,30	14,52	16,33	14,55	16,29	15,87	16,58	11,62	10,74	11,39	11,99	10,95	10,29	11,11	11,53
6/2/2019 22:40	-21	-22	-23	-21	-23	-22	-22	-23	-17	-16	-16	-10	-31	-16	-15	15,92	15,18	18,29	16,03	17,40	16,88	17,48	12,76	11,64	12,51	13,23	11,70	12,15	12,11	12,73
6/2/2019 22:50	1,407	1,404	1,365	1,361	1,408	1,407	1,398	1,392	1,376	1,388	1,399	1,356	1,374	1,396	1,393	14,65	13,74	16,66	14,34	16,24	15,66	16,91	11,54	11,02	11,14	11,36	11,00	10,61	11,37	11,44
6/2/2019 23:00	2,000	2,003	2,000	1,999	1,999	2,000	2,000	1,999	1,875	1,907	2,000	1,727	1,735	1,983	2,000	14,25	13,38	15,40	13,73	15,45	15,50	16,47	10,45	10,08	10,32	10,77	9,49	9,53	10,76	10,79
6/2/2019 23:10	1,999	1,999	1,999	1,999	2,000	2,000	2,000	2,000	1,999	2,003	2,000	2,017	1,989	1,986	2,000	14,26	14,40	16,27	14,51	16,16	15,57	16,74	10,88	10,73	11,08	11,56	10,88	10,59	11,19	11,69
6/2/2019 23:20	2,000	2,000	1,999	2,000	2,000	2,000	2,000	2,000	1,999	1,999	1,999	2,001	2,005	2,003	1,999	15,71	15,21	17,53	15,55	17,29	17,09	18,10	12,31	12,45	12,29	12,48	11,08	10,88	11,58	12,00
6/2/2019 23:30	2,000	2,000	2,000	2,001	2,000	2,000	2,000	2,000	2,000	1,999	2,000	2,000	1,999	1,998	2,000	15,71	14,85	17,61	14,80	16,24	16,52	16,36	12,83	13,10	13,92	13,85	13,27	11,83	13,31	12,97
6/2/2019 23:40	2,000	2,000	2,000	2,000	2,001	1,999	2,000	2,000	1,992	1,994	1,999	1,999	1,991	2,000	2,000	14,49	14,00	15,74	14,50	15,40	15,36	16,74	12,19	11,64	12,51	12,76	11,47	11,19	12,16	12,16
6/2/2019 23:50	2,000	1,999	1,999	1,999	1,999	1,999	2,000	1,999	1,975	2,005	1,997	1,999	1,938	1,998	1,999	14,47	14,68	16,09	14,41	15,69	15,64	16,94	11,68	10,81	11,51	12,13	11,27	11,00	11,66	11,76
6/3/2019 0:00	1,998	1,919	1,992	1,991	2,000	2,000	2,000	1,920	1,927	1,994	2,002	1,929	1,781	1,860	1,899	13,95	12,72	14,88	13,58	15,81	14,89	16,31	10,07	10,41	10,95	11,21	10,44	9,79	10,78	10,45
6/3/2019 0:10	1,904	1,840	1,969	1,887	2,000	1,998	2,000	1,895	1,960	1,985	1,963	1,893	1,563	1,791	1,890	12,47	12,32	13,72	12,62	14,14	14,36	15,43	10,10	10,57	10,96	11,08	10,19	9,09	10,43	10,56
6/3/2019 0:20	1,761	1,559	1,913	1,876	1,999	2,002	1,999	1,953	1,935	2,001	1,971	1,752	1,493	1,561	1,652	11,57	11,09	13,35	11,88	13,47	13,80	15,57	10,69	10,31	10,85	10,82	10,03	9,07	9,54	9,69
6/3/2019 0:30	1,778	1,763	1,926	1,878	1,995	1,987	1,810	1,987	1,983	1,990	2,003	1,995	1,862	1,901	2,017	11,51	11,69	13,38	11,80	12,76	13,12	12,74	10,61	10,77	11,13	11,44	10,53	9,98	10,84	10,88
6/3/2019 0:40	1,998	1,867	1,902	1,854	1,999	2,012	1,969	1,997	2,005	2,000	2,000	2,001	1,830	1,997	1,881	12,32	11,79	13,21	11,55	13,50	14,04	13,61	11,07	11,50	11,94	12,59	11,15	10,06	11,88	10,39
6/3/2019 0:50	1,989	1,991	1,987	1,996	1,999	1,999	2,010	1,948	1,931	1,911	1,999	1,986	1,805	1,956	1,972	13,68	12,98	14,89	13,37	14,39	13,82	15,27	10,49	10,55	11,03	11,18	10,81	9,99	10,81	10,85
6/3/2019 1:00	2,005	1,976	2,004	2,000	2,000	2,000	2,001	1,642	1,711	1,873	1,917	1,573	1,474	1,646	1,856	13,68	12,97	14,40	13,72	14,71	14,65	15,42	9,29	9,79	9,89	10,45	9,08	8,84	9,52	10,13
6/3/2019 1:10	1,806	1,720	1,942	1,880	1,996	2,000	1,999	1,566	1,483	1,657	1,880	1,577	1,167	1,559	1,745	11,72	11,81	13,64	12,66	13,99	13,50	14,83	9,26	9,27	9,33	10,27	9,4			

6/3/2019 5:10	747	987	1,266	1,160	1,140	1,205	995	1,896	1,296	1,839	1,880	1,542	1,780	1,642	1,572	8,20	9,23	10,01	9,33	9,33	9,07	9,09	10,10	8,48	9,87	10,08	9,20	9,82	9,67	9,31
6/3/2019 5:20	1,117	1,372	1,540	1,126	882	962	1,059	1,543	830	1,838	1,920	1,544	1,566	1,032	1,090	9,36	10,06	10,99	8,98	8,12	8,36	8,85	9,17	7,46	10,00	10,56	9,42	9,32	8,15	7,86
6/3/2019 5:30	1,179	1,102	1,143	847	868	997	862	591	1,682	1,803	2,017	1,807	1,901	1,160	1,574	9,14	8,84	9,34	7,88	8,37	8,31	8,21	10,10	9,67	10,23	11,48	10,15	10,52	8,40	8,95
6/3/2019 5:40	707	760	1,194	1,549	1,731	1,633	1,074	-9	1,110	1,595	1,760	1,719	1,561	1,849	1,454	7,33	8,42	9,88	10,35	11,62	11,04	9,14	10,17	8,12	9,13	10,15	9,67	9,07	10,68	8,94
6/3/2019 5:50	1,116	1,250	1,322	1,427	1,571	1,671	1,831	-4	1,797	1,445	1,870	1,851	1,813	1,905	1,636	9,44	9,59	10,30	10,07	10,67	11,30	12,15	11,03	10,45	8,90	10,31	10,41	10,01	10,52	9,55
6/3/2019 6:00	1,670	1,590	1,531	1,420	1,380	1,196	1,379	-4	1,754	1,504	1,991	1,926	1,637	1,512	1,684	11,08	11,24	11,60	10,48	10,08	9,17	10,00	11,47	10,34	9,23	10,90	10,97	9,82	9,70	9,48
6/3/2019 6:10	1,039	1,861	1,747	1,482	1,565	1,660	1,441	-4	1,698	1,844	2,017	1,821	1,881	1,977	2,002	9,89	11,57	12,31	10,45	10,66	11,10	10,44	11,91	10,96	10,27	11,41	10,92	10,89	11,76	12,13
6/3/2019 6:20	1,154	1,253	1,220	1,073	1,622	1,529	1,610	-5	1,948	2,011	1,983	1,955	1,956	1,803	1,816	9,30	10,06	9,95	8,97	10,87	10,20	10,98	12,36	12,79	12,15	12,22	11,50	11,36	11,08	10,86
6/3/2019 6:30	1,485	1,458	1,334	1,089	1,182	1,456	1,471	-5	1,959	2,002	1,838	1,988	1,975	1,872	1,996	10,60	10,47	10,72	9,01	9,09	9,89	10,74	12,80	11,59	12,39	10,48	11,54	10,92	11,09	12,12
6/3/2019 6:40	1,563	1,446	1,184	1,155	1,338	1,364	1,452	-5	2,011	1,987	2,007	1,901	1,991	1,777	2,005	10,85	10,18	10,06	9,44	10,15	9,80	10,52	13,24	12,43	11,56	11,49	11,26	11,90	12,25	12,66
6/3/2019 6:50	1,282	1,630	1,755	1,237	1,580	1,893	1,764	-5	1,808	1,987	1,958	2,016	2,000	2,001	2,000	10,54	11,56	12,72	9,82	10,82	12,14	12,51	13,69	10,40	12,08	12,55	13,80	13,89	13,91	13,95
6/3/2019 7:00	1,831	1,688	1,785	1,718	1,663	1,865	1,774	-5	1,798	1,967	2,000	2,000	1,994	2,001	1,999	12,52	11,88	13,30	12,24	12,33	12,83	13,08	14,13	10,30	11,82	13,81	15,07	13,84	13,98	13,90
6/3/2019 7:10	1,952	1,959	1,932	1,973	1,913	1,978	1,963	-6	1,947	2,008	2,000	1,999	2,006	2,000	1,989	13,68	13,63	14,86	13,71	13,68	14,13	14,52	14,57	11,93	14,54	15,05	15,30	13,30	13,34	13,04
6/3/2019 7:20	1,839	1,838	2,003	1,993	2,006	2,016	1,965	-6	1,999	2,000	2,000	2,000	2,000	2,001	2,007	12,83	13,11	15,05	14,29	14,76	15,07	14,30	15,02	14,46	16,12	14,85	13,89	12,95	14,62	13,92
6/3/2019 7:30	1,929	1,841	1,822	1,956	1,953	1,995	1,987	-6	2,000	1,999	1,999	2,000	2,000	2,000	1,999	13,35	13,02	13,70	13,46	14,25	14,99	15,64	15,46	14,42	13,65	13,40	14,87	14,37	14,02	13,91
6/3/2019 7:40	1,987	1,844	2,007	2,012	1,968	1,938	1,985	-6	2,000	2,000	2,000	2,000	2,000	2,000	1,999	13,60	12,87	15,74	14,47	15,16	14,53	14,31	15,90	14,75	14,26	15,36	14,95	14,02	13,97	14,76
6/3/2019 7:50	1,996	1,956	1,999	1,999	2,000	1,999	1,899	-6	1,999	2,000	1,999	2,000	2,000	2,000	1,943	14,34	13,71	16,00	14,57	14,69	15,09	13,86	16,35	13,83	12,66	12,98	12,57	13,36	13,31	12,12
6/3/2019 8:00	2,000	2,004	1,999	1,999	2,000	1,999	1,996	881	2,000	2,000	2,000	2,000	2,000	2,000	1,997	15,76	16,01	17,32	15,71	15,36	14,68	15,23	14,65	14,69	15,30	15,18	14,41	13,00	13,60	12,99
6/3/2019 8:10	1,906	1,925	2,000	1,971	1,999	2,000	2,003	2,000	2,000	1,999	2,000	1,999	2,000	2,001	2,000	12,82	13,08	15,56	14,56	14,62	15,89	15,64	13,93	13,97	14,28	15,65	15,28	13,82	14,55	14,46
6/3/2019 8:20	1,997	2,019	2,000	2,008	2,001	1,999	1,998	1,976	1,999	2,000	2,000	2,000	1,999	2,001	2,000	15,49	15,02	17,37	14,74	14,90	15,03	15,24	12,83	12,40	12,63	13,93	14,53	13,56	14,11	14,36
6/3/2019 8:30	1,999	1,971	1,977	1,978	1,997	2,000	2,000	2,009	2,000	1,966	2,000	1,998	2,001	2,000	1,970	16,00	14,34	15,25	13,94	14,66	15,00	15,76	13,12	12,80	12,37	12,41	11,55	13,42	13,37	13,28
6/3/2019 8:40	1,963	1,970	2,015	2,020	2,001	1,886	1,887	2,000	2,000	1,988	1,999	2,002	1,999	2,001	2,013	14,39	14,09	16,35	15,20	14,51	12,80	12,72	12,44	12,66	11,65	11,33	12,69	12,50	12,93	13,15
6/3/2019 8:50	1,952	1,868	1,977	1,998	2,000	2,009	2,006	2,000	1,990	1,999	1,999	1,999	2,000	2,000	2,000	13,26	13,66	15,18	14,23	14,96	14,37	14,58	14,49	12,91	12,21	12,83	13,34	13,04	13,07	12,78
6/3/2019 9:00	2,013	2,017	2,020	1,937	1,991	1,941	1,812	2,000	2,003	1,999	2,001	1,999	2,000	2,000	1,962	15,51	16,21	16,68	13,22	13,75	12,87	12,20	13,53	11,81	11,71	13,00	13,04	13,55	13,12	12,73
6/3/2019 9:10	1,959	1,898	1,995	2,019	1,991	1,884	1,967	1,996	1,982	1,999	2,000	1,995	1,963	1,993	2,016	14,28	13,75	16,49	15,27	14,82	13,47	14,36	12,77	11,85	13,04	13,36	13,02	10,91	11,77	13,00
6/3/2019 9:20	1,885	1,970	1,939	1,981	2,002	2,000	1,978	1,997	2,006	1,865	1,998	1,983	2,015	1,988	2,000	13,06	13,09	14,49	13,96	15,03	14,86	14,92	11,84	11,66	10,73	12,01	11,67	11,51	12,29	13,95
6/3/2019 9:30	1,887	1,940	1,789	1,785	1,874	1,849	1,971	1,603	1,803	1,922	1,994	2,009	1,990	1,975	2,000	13,15	12,66	13,18	11,57	12,16	12,21	14,66	10,30	10,94	11,55	12,51	13,11	12,23	12,35	13,67
6/3/2019 9:40	1,862	1,681	1,936	1,886	1,971	1,941	1,879	2,006	2,001	1,861	2,002	2,000	2,000	1,994	1,990	12,96	12,52	14,90	12,80	13,88	12,90	12,08	12,16	12,91	10,42	11,94	13,56	14,22	13,50	13,43
6/3/2019 9:50	1,949	1,993	1,994	2,000	2,000	2,019	1,997	1,954	1,972	2,012	2,000	2,000	2,000	2,011	2,007	14,21	14,66	17,45	15,86	16,80	15,37	15,83	11,78	12,23	12,07	14,47	14,49	14,26	15,13	14,43
6/3/2019 10:00	2,013	2,015	1,999	2,000	1,999	2,000	2,000	2,013	2,010	2,000	2,000	1,999	2,000	2,001	1,999	15,58	15,12	18,83	17,63	18,21	17,16	16,43	14,52	13,07	13,71	13,56	14,22	13,82	14,37	14,49
6/3/2019 10:10	1,458	2,000	2,000	2,000	2,000	1,999	938	1,999	1,997	1,999	1,999	2,000	2,000	2,000	2,000	14,35	14,92	18,54	17,02	17,46	17,86	15,93	14,16	14,25	15,73	14,84	14,31	14,79	15,58	14,99
6/3/2019 10:20	2,003	2,000	2,000	1,999	2,000	1,999	2,001	1,999	1,998	2,000	2,000	2,000	2,000	2,001	2,000	15,36	15,51	17,66	16,86	16,60	16,02	16,16	15,05	15,32	17,12	16,59	17,45	15,10	15,99	15,60
6/3/2019 10:30	1,999	1,997	2,000	2,000	2,000	2,000	1,986	1,998	2,000	2,000	2,000	1,999	2,000	2,001	1,999	16,65	16,87	20,10	18,46	19,24	18,60	17,10	14,14	14,12	16,97	17,34	17,02	16,65	16,01	15,44
6/3/2019 10:40	1,962	1,939	2,000	2,000	1,999	1,999	2,000	2,001	2,000	2,000	2,000	2,000	2,000	2,000	2,000	15,12	14,37	17,47	15,62	16,80	17,12	16,90	14,25	14,45	16,65	17,40	17,99	15,45	16,03	16,64
6/3/2019 10:50	1,859	1,929	1,999	1,726	2,000	1,999	1,989	1,999	1,997	2,000	2,000	1,999	2,000	2,001	1,997	14,84	14,09	17,96	16,46	16,00	16,10	16,63	13,54	13,79	14,21	14,35	14,86	15,06	14,97	13,50
6/3/2019 11:00	1,476	1,986	2,000	1,999	1,999	2,000	2,000	2,000	2,002	1,999	2,000	1,999	1,997	2,000	2,000	13,91	14,79	19,04	16,43	16,95	17,75	18,66	14,67	14,58	15,45	14,75	14,00	14,58	14,94	15,59
6/3/2019 11:10	2,000	1,961	2,000	2,000	1,991	2,000	2,000	2,000	2,001	2,000	1,999	1,999	2,003	2,000	2,000	15,83	15,24	17,88	16,65	16,33	17,47	18,58	16,87	15,93	17,12	16,07	14,00	15,25	17,98	17,42
6/3/2019 11:20	2,000	2,014	2,000	1,992	2,009	2,000	2,000	2,000	2,000	2,000	2,000	1,999	1,999	2,001	2,000	16,20	17,42	19,17	16,18	16,98	17,83	17,60	14,73	15,16	16,21	14,67	15,69	15,74	17,45	17,23
6/3/2019 11:30	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,999	2,000	1,999	2,000	2,000	2,000	1,999	16,98	16,70	20,71	18,55	17,81	18,06	18,83	14,18	14,75						

6/3/2019 15:30	1,774	1,913	1,991	1,837	1,932	1,995	1,967	1,825	1,781	1,827	1,877	1,744	1,027	1,202	1,598	11,65	12,56	14,00	12,20	12,46	13,04	13,27	10,57	11,17	10,99	10,59	9,78	7,73	8,80	9,48
6/3/2019 15:40	1,959	1,966	1,868	1,765	1,802	1,964	1,985	1,835	1,530	1,600	1,236	1,181	1,204	1,401	1,509	12,86	12,93	13,21	11,45	11,65	12,71	14,26	10,06	9,65	9,49	8,53	8,53	8,55	9,58	9,29
6/3/2019 15:50	1,729	1,774	1,977	1,808	1,856	1,765	1,879	1,455	1,493	1,627	1,848	1,777	1,983	1,986	1,778	11,74	11,95	14,30	11,93	12,30	11,31	12,59	9,43	9,72	9,65	10,32	10,06	11,10	11,34	10,45
6/3/2019 16:00	1,925	1,920	1,981	1,921	1,988	1,959	1,829	1,855	1,565	1,902	1,452	1,138	1,199	1,467	1,658	12,51	12,96	13,87	12,79	13,69	12,31	12,04	10,13	9,76	10,61	9,11	8,44	8,18	9,25	9,84
6/3/2019 16:10	1,946	1,866	1,691	1,569	1,840	2,001	1,975	1,642	1,409	1,683	1,921	1,896	1,853	1,952	2,001	13,01	12,07	12,09	10,77	12,02	12,72	13,50	9,50	8,86	9,77	10,76	10,19	10,14	11,54	11,59
6/3/2019 16:20	1,744	1,519	1,816	1,520	1,565	1,856	1,991	1,799	1,777	1,802	1,896	1,931	1,905	2,012	1,972	11,61	10,75	12,82	11,32	11,03	12,22	13,22	10,58	10,21	10,46	10,96	11,11	10,57	11,78	11,64
6/3/2019 16:30	1,820	1,652	1,667	1,913	2,008	1,960	1,886	1,956	1,827	1,751	1,998	1,969	2,003	1,993	1,986	12,56	11,61	12,20	12,12	12,84	12,67	12,61	10,71	10,31	10,06	11,11	11,83	10,95	11,76	11,03
6/3/2019 16:40	1,900	1,815	1,791	1,902	1,956	1,986	1,884	1,920	2,004	1,830	1,829	1,977	1,857	1,998	1,991	12,05	11,80	12,42	11,99	12,58	12,64	12,32	10,51	10,90	10,55	10,15	10,76	10,15	11,76	10,85
6/3/2019 16:50	1,754	1,672	1,744	1,868	1,848	1,777	1,767	1,969	1,840	2,016	2,001	1,750	1,743	1,945	1,791	11,66	11,70	12,08	11,93	12,11	11,38	11,79	10,58	10,20	11,16	11,23	9,86	9,64	10,63	10,10
6/3/2019 17:00	1,657	1,569	1,587	1,278	1,586	1,790	1,736	1,799	1,610	1,803	1,714	1,507	1,259	1,458	1,556	11,56	11,35	11,24	9,71	10,69	11,31	12,08	9,80	9,30	9,94	9,54	8,97	8,44	9,20	9,30
6/3/2019 17:10	1,363	1,385	1,692	1,697	1,812	1,793	1,806	1,576	1,551	1,301	1,811	1,599	1,609	1,611	1,377	10,17	10,18	12,07	11,02	11,74	11,82	12,60	9,06	9,38	8,59	9,91	9,49	9,42	9,72	8,86
6/3/2019 17:20	1,772	1,419	1,720	1,720	1,823	1,458	1,740	1,937	1,422	1,448	1,478	1,373	1,631	1,501	1,698	11,62	10,58	11,93	11,21	11,45	10,13	11,68	10,07	9,00	9,09	9,08	8,80	9,49	9,46	9,74
6/3/2019 17:30	1,747	1,601	1,752	1,675	1,757	1,774	1,761	1,887	1,500	1,647	1,739	1,573	1,605	1,590	1,781	11,35	10,85	12,18	11,18	11,32	11,36	11,30	10,06	9,27	9,52	9,56	9,06	9,19	9,69	9,73
6/3/2019 17:40	1,745	1,588	1,612	1,553	1,871	1,916	1,715	1,935	1,735	1,581	1,669	1,521	1,291	1,871	1,352	11,29	10,86	11,22	10,68	11,80	11,90	10,95	10,29	9,69	9,20	9,52	8,95	8,38	10,42	8,85
6/3/2019 17:50	1,835	1,485	1,762	1,641	1,907	1,833	1,895	1,997	1,758	1,685	1,919	1,461	1,500	1,424	1,699	11,58	10,40	12,08	10,90	11,81	11,43	11,88	10,57	9,80	9,54	10,34	9,08	8,81	9,22	9,62
6/3/2019 18:00	1,772	1,545	1,766	1,616	1,830	1,880	1,888	1,790	1,580	1,589	1,746	1,509	1,401	1,518	1,632	11,42	10,69	12,40	10,65	11,68	11,64	12,01	9,66	9,24	9,21	9,58	9,04	8,82	9,32	9,47
6/3/2019 18:10	1,626	1,519	1,618	1,558	1,852	1,769	1,707	1,646	1,101	1,348	1,414	1,140	1,054	1,272	1,489	10,77	10,74	11,31	10,53	11,58	11,09	10,91	9,27	7,95	8,53	8,61	8,00	7,71	8,50	8,87
6/3/2019 18:20	1,680	1,564	1,510	1,307	1,808	1,744	1,783	1,611	880	994	1,196	1,177	733	1,040	1,038	10,57	10,52	10,80	9,47	11,18	11,05	11,00	9,10	7,39	7,73	8,14	8,34	7,01	8,13	7,72
6/3/2019 18:30	1,731	1,532	1,604	1,492	1,869	1,878	1,993	1,747	1,293	1,506	1,615	1,312	1,129	1,230	1,448	10,99	10,54	11,29	10,17	11,39	11,45	11,94	9,48	8,46	9,11	9,18	8,55	8,19	8,35	8,86
6/3/2019 18:40	1,827	1,748	1,931	1,735	1,939	1,996	2,004	2,014	1,666	1,841	1,919	1,858	1,601	1,731	1,892	11,62	11,35	12,73	11,10	11,77	12,05	12,09	10,65	9,26	9,67	9,85	9,91	9,17	9,76	9,90
6/3/2019 18:50	1,851	1,732	1,937	1,859	2,001	1,986	1,992	2,000	1,794	1,836	2,012	1,812	1,694	1,925	2,000	11,72	11,45	12,62	11,72	12,07	12,27	12,06	10,65	9,72	9,94	10,37	9,83	9,41	10,30	10,77
6/3/2019 19:00	1,888	1,675	2,018	1,913	2,002	1,991	1,993	2,000	2,016	2,007	1,999	1,799	1,749	1,978	1,944	11,78	11,27	12,84	12,10	12,58	12,44	12,50	11,25	10,47	10,66	10,50	9,59	9,45	10,60	10,07
6/3/2019 19:10	1,747	1,611	1,996	1,845	1,990	1,958	1,990	1,999	2,000	2,000	1,999	1,926	1,671	1,923	1,994	11,59	11,23	12,70	11,96	12,39	12,26	12,44	10,90	10,26	10,53	10,62	10,06	9,28	10,20	10,29
6/3/2019 19:20	1,823	1,644	1,915	1,746	1,991	1,865	1,834	2,000	2,000	2,000	1,999	2,016	1,803	1,959	1,994	12,05	11,36	12,15	11,47	12,37	11,82	11,85	11,33	10,91	10,92	11,00	10,38	9,49	10,30	10,01
6/3/2019 19:30	1,604	1,391	1,832	1,657	1,903	1,865	1,882	1,999	1,998	1,999	1,999	1,999	2,017	2,000	2,003	10,69	10,37	11,88	11,11	11,75	11,76	11,78	11,56	11,02	11,22	11,59	10,56	10,07	10,80	10,52
6/3/2019 19:40	1,573	1,224	1,707	1,559	1,918	1,887	1,919	2,000	1,996	1,999	1,999	1,962	1,981	1,994	1,993	10,80	9,85	11,40	10,76	11,75	11,70	11,88	10,96	10,55	11,05	11,10	10,12	10,19	10,79	10,22
6/3/2019 19:50	1,715	1,526	1,748	1,720	1,995	1,939	1,930	1,999	2,003	2,000	1,999	2,015	1,893	1,999	1,991	11,11	10,62	11,68	11,20	12,07	11,74	11,74	11,18	10,67	10,89	11,25	10,24	9,79	10,84	10,53
6/3/2019 20:00	1,892	1,643	1,941	1,862	2,006	2,019	2,019	2,000	1,998	2,000	1,999	1,970	1,936	2,003	1,999	11,70	10,95	12,72	11,78	12,42	12,38	12,75	10,77	10,65	11,07	11,36	10,15	10,20	11,11	11,39
6/3/2019 20:10	1,952	1,829	2,012	2,010	2,003	1,999	1,998	2,000	1,998	2,000	1,999	1,959	1,981	1,990	1,998	11,92	11,51	13,33	12,05	12,87	12,79	12,62	11,13	10,86	10,68	11,22	10,03	10,20	10,94	10,75
6/3/2019 20:20	1,956	1,718	1,912	1,947	2,000	2,000	1,999	1,999	1,984	1,967	1,999	1,652	1,603	1,762	1,952	11,59	10,91	12,52	11,55	12,36	12,23	12,10	10,86	10,27	10,28	10,49	9,28	9,12	9,60	10,19
6/3/2019 20:30	1,791	1,423	1,771	1,824	1,998	1,900	1,973	1,988	1,938	2,009	2,000	1,679	1,458	1,742	1,907	10,77	10,07	12,04	11,15	11,89	11,43	11,36	10,37	10,13	10,47	10,50	9,28	8,71	9,76	9,90
6/3/2019 20:40	1,708	1,484	1,808	1,861	2,001	1,923	1,954	2,011	2,001	2,000	1,999	1,947	1,786	1,971	1,975	10,57	10,12	12,22	11,28	11,94	11,42	11,46	10,76	10,68	11,09	11,25	9,98	9,67	10,50	9,95
6/3/2019 20:50	1,747	1,562	1,820	1,824	1,991	1,936	2,018	1,999	1,818	1,858	1,999	1,836	1,672	1,881	1,927	11,20	10,27	12,11	10,83	11,86	11,54	11,57	10,50	9,83	10,04	10,52	9,90	9,33	10,24	9,96
6/3/2019 21:00	721	770	1,263	1,861	982	1,265	1,229	1,374	913	920	998	992	815	1,080	984	10,64	9,91	12,41	11,40	12,16	11,95	11,87	10,35	10,03	10,49	10,28	9,46	8,71	9,94	9,81
6/3/2019 21:10	-24	-14	-17	1,674	-18	-18	-22	-43	-22	-20	-18	-18	-30	-18	-16	10,55	9,61	12,27	10,52	12,02	11,57	11,73	10,71	9,48	9,95	10,33	9,56	9,10	9,40	9,67
6/3/2019 21:20	-19	-11	-12	1,363	-11	-10	-10	-30	-10	-12	-10	-10	-31	-9	-11	9,43	9,37	12,03	9,56	11,08	10,88	10,79	9,41	8,44	9,45	9,30	8,88	8,34	8,71	8,90
6/3/2019 21:30	-19	-10	-10	1,505	-9	-8	-10	-28	-10	-9	-9	-10	-31	-8	-9	9,31	9,05	11,52	10,09	10,77	10,32	10,43	8,81	7,96	8,38	8,44	8,09	7,75	7,97	8,04
6/3/2019 21:40	-19	-8	-10	1,553	-9	-7	-8	-26	-8	-10	-8	-8	-31	-7	-8	9,97	10,24	11,70	10,34	11,64	10,70	10,69	9,38	8,59	9,01	8,48	8,58	8,11	8,59	8,58
6/3/2019 21:50	-18	-9	-9	1,279	-9	-8	-8	-26	-9	-8	-8	-8	-31	-7	-9	9,85	9,28	11,19	9,60	10,64	10,41	10,35	8,40	7,67	7,98	8,00	7,91	7,46	7,78	8,16
6/3/2019 22:00	79	43	-9	86	82	-8	-8	-27	270	63	-9	-9	26	-8	13	8,46	8,42	9,98	8,53	9,76	9,48	9,78	7,44	6,65	7,2					

6/4/2019 1:50	-16	-7	-6	-5	-9	-7	-15	1,278	-6	-7	-5	-4	-31	-6	-6	9.67	8.30	9.79	8.37	9.82	10.26	10.51	8.48	7.50	7.23	7.51	6.71	6.16	6.83	6.58
6/4/2019 2:00	-15	-5	-6	-4	-8	-5	-14	1,311	-6	-6	-6	-4	-30	-5	-5	9.83	8.67	9.93	8.43	9.65	9.95	10.18	8.58	7.64	7.64	7.48	6.87	6.38	7.00	7.16
6/4/2019 2:10	-16	-5	-7	-5	-8	-5	-11	1,281	-6	-5	-5	-4	-31	-5	-4	9.77	8.57	9.92	8.87	9.82	9.82	9.90	8.38	7.73	7.35	7.66	6.91	6.53	7.37	7.26
6/4/2019 2:20	-15	-6	-6	-5	-8	-5	-10	1,221	-7	-6	-5	-5	-30	-5	-5	9.56	8.53	9.66	8.24	9.59	9.64	9.57	8.25	7.62	7.38	7.36	6.83	6.32	7.30	6.76
6/4/2019 2:30	-15	-5	-6	-5	-8	-4	-10	126	185	192	-5	218	159	66	28	9.37	8.31	9.55	8.13	9.19	9.16	9.09	8.50	7.24	7.19	7.11	6.07	5.77	6.52	6.61
6/4/2019 2:40	40	183	-7	-5	257	201	111	-26	-7	-8	-5	86	53	-6	15	9.41	8.26	8.85	7.28	8.73	8.46	8.59	8.86	7.51	7.27	7.74	6.50	5.76	6.84	6.57
6/4/2019 2:50	31	-7	-6	-5	-11	-5	121	38	37	29	-5	73	116	113	90	8.89	7.46	8.44	6.96	8.52	8.74	8.69	8.83	7.30	7.37	7.68	6.19	5.60	6.45	6.42
6/4/2019 3:00	-13	24	-6	-5	38	12	13	-2	30	22	-5	-2	-28	-7	-6	8.87	7.34	8.50	7.12	8.31	8.31	8.33	8.66	7.46	7.31	7.33	6.36	5.76	6.53	6.30
6/4/2019 3:10	26	14	17	-6	-4	-6	-12	-27	-7	-7	-5	9	-22	14	12	8.46	6.94	7.67	6.81	8.34	8.37	8.49	8.46	7.16	7.06	7.22	5.91	5.12	6.20	5.80
6/4/2019 3:20	-17	-8	-8	-5	14	23	26	-4	13	11	-5	-2	-30	-6	-6	8.14	7.15	7.85	6.38	7.98	7.96	8.40	7.44	6.54	6.44	7.00	5.29	5.10	5.98	5.38
6/4/2019 3:30	6	74	92	88	53	-5	-12	-27	-7	-7	-5	5	57	16	71	8.08	6.91	7.45	6.36	7.94	7.85	8.41	7.27	6.26	6.22	6.47	5.49	4.85	5.51	5.38
6/4/2019 3:40	-17	-7	-7	412	45	120	118	194	65	12	-5	8	-23	15	-7	8.40	7.25	8.05	6.43	7.58	7.52	7.71	6.99	5.64	5.84	5.82	4.88	4.63	5.24	5.05
6/4/2019 3:50	37	93	300	293	97	-6	-12	-27	-7	-7	-5	13	-9	29	2	8.22	6.88	7.76	6.52	7.69	7.78	7.90	6.23	5.43	5.70	5.50	4.59	4.48	5.46	5.29
6/4/2019 4:00	51	101	-9	92	-4	161	223	-14	50	56	-6	0	8	35	31	8.35	7.87	8.67	6.98	8.16	8.02	8.32	6.37	5.10	5.54	5.67	5.01	4.47	4.73	5.12
6/4/2019 4:10	-16	405	389	-6	-9	-5	-12	-7	-8	-8	-6	-7	125	31	-7	7.83	5.94	6.35	6.52	7.69	7.73	7.97	5.77	5.64	5.37	5.25	4.66	4.32	4.39	5.11
6/4/2019 4:20	-15	170	369	117	255	-4	-10	-7	-6	-6	-5	-5	31	-6	-6	6.82	6.10	5.70	5.19	6.87	6.92	7.41	5.86	5.48	5.35	5.60	4.66	4.50	4.43	4.43
6/4/2019 4:30	-15	-7	312	230	386	-4	-10	-7	-6	-6	-5	-4	-31	-5	-6	6.86	6.10	5.21	4.90	6.11	6.54	6.81	5.95	5.41	5.46	5.38	4.72	4.57	4.94	4.33
6/4/2019 4:40	-15	-6	220	260	364	113	32	-7	-6	-6	-6	-5	-31	-5	-6	6.97	6.69	6.48	5.41	6.00	6.41	6.88	6.04	5.31	4.79	4.81	4.69	4.15	4.19	4.51
6/4/2019 4:50	371	174	201	162	269	223	235	-6	70	71	-6	49	-22	5	9	5.74	5.17	4.76	4.50	5.42	4.97	4.92	6.13	4.08	4.06	4.19	3.71	2.97	2.68	3.11
6/4/2019 5:00	189	137	129	81	141	99	116	-6	105	73	-5	48	29	37	23	5.14	4.77	4.25	4.00	4.86	4.13	4.38	6.23	4.35	3.94	3.94	3.81	3.84	3.27	3.15
6/4/2019 5:10	-17	-8	-9	-7	-11	-7	-13	-6	-8	-8	-5	-7	-32	-9	-8	4.70	4.89	4.97	4.16	4.82	5.19	5.24	6.32	5.34	5.16	4.45	4.34	3.73	3.81	3.76
6/4/2019 5:20	78	115	123	4	9	14	13	-6	4	2	-4	51	44	66	46	4.66	4.64	4.82	4.98	5.37	4.75	4.99	6.41	5.19	5.51	4.30	3.92	3.91	3.87	4.09
6/4/2019 5:30	195	185	171	-8	-11	-6	-12	-6	-7	-7	-5	151	53	117	158	4.95	4.62	4.51	4.60	5.19	4.76	4.76	6.50	4.65	5.19	5.23	4.40	3.59	3.67	4.39
6/4/2019 5:40	153	167	181	-6	-8	-5	-11	-5	-6	-6	-4	131	19	50	112	4.43	4.80	4.70	4.74	5.01	4.69	4.31	6.59	4.53	4.51	4.40	4.20	3.42	3.17	3.99
6/4/2019 5:50	190	186	195	-5	-8	-5	-11	-5	-6	-6	-6	74	-22	33	20	4.55	4.82	4.57	4.78	4.90	4.23	4.78	6.68	3.99	3.40	3.31	3.82	3.16	2.83	2.91
6/4/2019 6:00	265	88	106	-6	-8	-5	-10	-5	-6	-6	-5	27	-28	-8	-6	5.23	3.84	3.84	4.00	3.88	3.93	4.20	6.78	3.64	3.59	3.36	3.08	2.55	2.21	2.51
6/4/2019 6:10	173	85	115	50	59	27	11	-5	18	30	-5	57	-29	-9	9	4.54	3.87	3.94	3.62	3.75	3.41	3.55	6.87	3.52	3.38	3.67	3.48	2.35	2.25	2.78
6/4/2019 6:20	30	63	104	63	63	66	75	-5	132	198	-6	69	38	11	32	3.03	3.68	3.97	3.42	3.61	3.55	3.65	6.96	4.24	4.74	5.14	3.66	3.54	3.66	4.46
6/4/2019 6:30	110	88	100	123	118	161	94	-4	88	78	-6	-8	-31	-8	-8	4.18	3.86	3.83	4.22	3.99	4.42	5.40	7.05	3.85	3.78	4.41	4.34	4.10	4.69	4.56
6/4/2019 6:40	119	155	155	109	206	-5	-8	-4	101	111	-6	-5	-30	-7	-5	4.35	4.63	4.29	5.05	4.95	4.34	5.39	7.14	4.06	4.20	4.41	4.70	4.39	4.83	4.64
6/4/2019 6:50	65	151	-5	-7	10	-6	-5	-4	204	133	-6	-6	-31	-6	-6	5.57	4.95	6.49	5.20	5.69	5.70	6.00	7.24	4.83	4.75	4.12	4.01	4.72	5.18	5.36
6/4/2019 7:00	-19	68	24	24	13	10	4	-4	61	38	-5	96	32	92	14	4.10	6.61	7.29	6.95	6.75	6.59	6.85	7.33	5.01	5.09	5.31	5.15	4.43	4.20	4.33
6/4/2019 7:10	142	46	11	30	9	-4	-5	-4	8	18	-4	186	200	18	18	6.58	6.62	8.47	6.76	6.68	7.14	7.11	7.42	6.76	6.32	6.16	5.80	5.69	5.41	5.95
6/4/2019 7:20	-18	-4	-8	-7	12	21	25	-3	270	172	-4	77	159	34	-8	6.23	6.63	8.37	7.27	7.39	7.79	7.84	7.51	6.37	6.27	6.51	6.72	5.78	5.33	5.67
6/4/2019 7:30	156	205	222	120	180	-7	-7	-15	-8	-8	-4	-7	-2	16	57	8.02	6.12	6.07	6.55	6.37	5.87	6.53	7.09	5.74	5.17	5.64	5.93	6.16	6.17	6.36
6/4/2019 7:40	-5	22	109	-8	-5	152	67	191	34	9	-5	26	71	19	50	6.90	6.65	7.49	6.16	6.35	5.84	6.53	5.34	4.97	5.53	6.15	5.72	5.35	6.28	6.35
6/4/2019 7:50	168	3	132	21	57	42	85	293	8	34	-5	47	-31	-8	-6	6.23	7.64	7.58	7.03	6.55	6.97	7.42	5.25	4.27	5.43	5.43	5.59	6.78	6.46	5.77
6/4/2019 8:00	9	-8	-10	-8	-11	-7	-7	286	268	8	-6	89	117	110	21	7.38	8.33	9.37	7.15	6.60	5.86	6.72	5.15	5.21	5.23	6.19	5.45	6.95	5.82	5.42
6/4/2019 8:10	162	212	289	261	384	305	197	181	213	163	-5	253	78	122	92	5.38	5.87	7.02	5.68	6.46	6.84	7.17	5.13	5.72	6.07	6.61	6.36	5.58	5.38	4.89
6/4/2019 8:20	344	336	617	598	702	591	65	568	546	443	-3	740	445	186	298	6.00	6.01	7.60	7.03	7.39	6.98	7.97	6.42	6.41	5.88	4.91	6.96	6.04	4.65	4.61
6/4/2019 8:30	435	539	721	647	664	767	112	395	544	489	-2	518	444	324	344	6.11	6.79	7.58	6.76	7.14	7.65	8.10	5.42	6.28	6.09	4.39	6.25	5.98	5.44	6.12
6/4/2019 8:40	474	581	976	901	925	808	159	917	847	805	-2	520	719	778	906	7.39	7.18	9.03	7.73	7.87	7.51	8.23	7.53	7.34	7.24	3.87	6.07	6.78	7.19	7.12
6/4/2019 8:50	487	616	1,063	543	668	674	207	731	505	894	-2	834	558	937	706	7.25	7.79	9.59	7.75	8.11	7.52	8.36	7.06	6.77	7.33	3.35	7.24	6.80	7.80	7.24
6/4/2019 9:00	1,041	1,066	1,006	821	884	915	254	598	495	198	-2	600	770	599	555	8.69	8.59	8.94	7.22	7.79	7.93	8.48	6.33	6.53	5.68	2.83	6.52	6.94	6.50	6.67
6/4/2019 9:10	729	619	946	806	760	993	302	475	753	1,019	-1	1,006	683	630	650	7.65	7.67	8.84	7.91	7.74	8.46	8.61	6.33	6.94	7.92	2.31	7.92	7.11	6.60	6.68
6/4/2019 9:20	999	942	1,036	896	935	912	349	454	637	571	-1	812	732	585	645	8.83	8.57	9.08	8.20	8.35	8.07	8.74	5.87	6.75	6.63	1.79	7.38	7.08	6.59	6.46
6/4/2019 9:30	687	819	1,129	830	951	902	397	699	749	540	-1	802	703	479	761	8.04	8.26	9.19	8.07	8.31	8.29	8.87	6.91	7.20	6.28	1.27	7.11	6.93	5.78	7.06
6/4/2019 9:40	905	905	907	809																										

6/4/2019 12:10	1,258	1,429	1,670	1,597	1,620	1,664	1,155	367	1,251	1,558	1,671	1,571	1,491	1,142	1,218	10.01	10.87	12.02	10.87	10.83	11.20	10.92	5.97	8.63	9.34	9.50	9.38	9.03	8.62	8.36
6/4/2019 12:20	1,489	1,441	1,797	1,776	1,867	1,817	1,203	1,087	1,398	1,487	1,170	1,034	1,397	1,253	1,028	10.61	11.05	12.21	11.90	12.16	11.93	11.05	8.15	8.96	9.11	8.34	8.13	8.86	8.73	8.08
6/4/2019 12:30	1,039	1,217	1,205	1,152	1,212	1,006	1,151	1,418	1,104	1,439	1,241	1,326	1,158	1,258	1,197	9.05	9.42	9.95	9.14	9.37	8.48	10.33	8.61	8.38	9.18	8.74	9.05	8.13	8.93	8.44
6/4/2019 12:40	1,000	784	1,211	1,189	1,242	791	522	865	760	1,126	1,206	1,726	1,542	1,518	1,176	8.94	7.95	10.18	9.36	9.94	7.98	6.78	7.78	7.32	8.22	9.55	9.79	9.18	9.54	9.71
6/4/2019 12:50	992	1,121	1,483	1,529	1,551	1,550	1,419	1,521	1,217	1,222	1,489	1,646	1,558	1,500	1,635	9.12	9.74	11.35	10.93	11.25	10.60	10.68	9.69	8.78	8.42	9.23	9.85	9.47	9.87	9.67
6/4/2019 13:00	1,694	1,440	1,509	1,433	1,716	1,729	1,722	1,643	1,693	1,673	1,587	1,287	1,240	1,293	1,635	11.80	10.74	12.02	10.46	11.30	11.74	11.22	9.71	9.92	10.02	9.58	8.72	8.58	9.06	9.37
6/4/2019 13:10	1,213	1,044	1,360	1,420	1,521	1,453	1,397	1,953	1,971	1,926	1,481	1,362	1,374	1,605	1,691	9.98	9.08	10.62	10.21	10.49	10.02	10.57	10.84	10.97	10.95	9.67	9.04	9.06	9.89	9.79
6/4/2019 13:20	1,541	1,455	1,396	1,068	1,157	1,020	1,090	1,831	1,686	1,777	1,434	1,438	1,235	1,429	1,892	10.68	10.98	10.71	9.33	9.41	8.96	9.20	10.68	9.80	10.58	9.06	8.98	8.59	9.57	10.15
6/4/2019 13:30	1,576	1,556	1,891	1,792	1,968	1,856	1,532	1,644	1,524	1,874	1,927	1,795	1,601	1,294	1,016	10.93	11.50	13.03	12.09	12.70	11.96	11.25	9.68	9.15	10.67	10.79	10.20	9.45	9.20	7.58
6/4/2019 13:40	1,103	1,373	1,545	1,425	1,743	1,560	1,814	1,687	1,802	1,495	1,939	1,673	1,247	1,329	1,239	9.16	10.31	11.43	10.28	11.37	10.79	12.15	9.70	10.04	9.19	10.60	9.83	8.66	9.08	8.47
6/4/2019 13:50	1,272	1,237	1,345	1,376	1,555	1,381	1,352	1,169	1,611	1,667	1,734	1,561	1,653	1,686	1,860	9.69	9.77	10.69	10.16	10.88	10.07	10.06	10.32	10.07	10.53	10.27	9.71	9.91	10.70	10.54
6/4/2019 14:00	1,531	1,585	1,845	1,735	1,725	1,731	1,696	1,597	1,688	1,568	1,514	1,458	1,708	1,798	1,624	10.91	11.31	13.52	12.13	12.30	12.07	13.16	9.74	9.74	9.55	9.21	9.55	9.88	10.61	9.95
6/4/2019 14:10	1,494	1,372	1,458	1,375	1,613	1,917	1,167	1,697	1,469	1,802	1,889	1,569	1,372	1,502	1,385	10.37	10.53	11.61	10.45	11.20	12.31	13.14	9.94	9.36	10.20	10.90	9.65	8.89	9.57	9.10
6/4/2019 14:20	1,975	1,688	1,681	1,882	1,970	1,917	1,959	1,814	1,789	1,683	1,255	1,150	1,423	1,573	1,738	12.96	11.81	12.85	12.36	12.86	13.09	13.79	10.19	10.23	9.83	8.65	8.31	9.05	9.76	10.29
6/4/2019 14:30	1,679	1,449	1,411	1,181	1,503	1,763	1,830	1,884	1,870	1,686	1,707	1,323	1,023	1,227	1,420	11.06	10.36	11.07	9.64	10.87	11.04	12.36	10.41	10.16	9.65	9.71	8.69	7.83	8.47	9.00
6/4/2019 14:40	1,574	1,340	1,532	1,153	1,205	990	1,420	1,425	1,226	924	1,159	1,202	1,271	1,457	1,544	10.89	10.43	11.38	9.33	9.79	8.64	10.43	8.78	8.48	7.74	8.41	8.39	8.54	9.46	9.38
6/4/2019 14:50	1,323	1,081	1,097	1,221	1,312	1,487	1,626	1,243	1,050	1,267	1,286	1,108	810	643	976	9.64	9.29	9.49	9.42	10.24	10.20	11.56	8.49	8.23	8.76	8.61	8.17	7.47	7.00	7.69
6/4/2019 15:00	1,166	857	1,047	1,180	1,384	1,490	1,356	1,165	977	915	1,166	843	750	1,050	1,584	9.48	8.05	8.93	8.98	9.93	10.14	10.04	8.23	8.06	7.55	8.13	7.45	7.02	7.91	9.17
6/4/2019 15:10	1,021	852	1,182	928	1,140	996	1,131	1,290	1,010	1,237	1,578	859	690	889	944	8.27	7.57	9.75	8.10	8.94	8.44	9.06	8.60	7.96	8.68	9.24	7.45	7.03	7.60	7.75
6/4/2019 15:20	995	793	859	842	909	820	703	951	837	866	841	518	622	688	762	8.75	8.13	8.41	8.50	8.83	8.02	7.65	7.46	7.46	7.47	7.29	6.32	6.70	6.94	7.14
6/4/2019 15:30	569	444	763	744	1,024	905	825	637	488	564	557	433	309	365	505	7.35	7.30	7.64	7.82	8.71	7.98	8.46	6.66	6.35	6.54	6.52	6.11	5.42	5.49	6.22
6/4/2019 15:40	618	416	615	555	810	753	748	506	599	692	745	557	259	381	383	6.79	6.55	7.14	6.61	8.16	7.62	7.96	6.31	6.57	6.83	7.15	6.65	5.41	5.62	5.79
6/4/2019 15:50	623	390	660	560	612	713	711	724	601	611	810	551	331	412	599	7.10	6.61	7.17	6.75	7.54	7.59	7.95	7.06	6.69	6.65	7.20	6.42	5.49	5.76	6.44
6/4/2019 16:00	586	423	440	426	691	708	630	762	696	736	743	702	690	779	768	6.71	6.78	6.33	6.05	7.86	7.58	7.34	7.17	6.94	7.09	6.93	7.00	6.89	7.11	7.02
6/4/2019 16:10	577	441	700	694	923	775	985	698	646	773	1,027	693	651	873	718	7.03	6.76	7.69	7.16	8.51	7.60	9.21	6.88	6.74	7.28	7.71	6.88	6.65	7.37	6.89
6/4/2019 16:20	628	712	810	810	1,043	678	839	512	571	529	721	657	514	564	687	6.73	7.77	8.00	7.56	8.67	7.11	8.34	6.13	6.55	6.41	6.87	6.85	6.33	6.54	6.88
6/4/2019 16:30	504	400	650	496	775	565	555	411	412	492	614	427	445	516	602	6.64	6.36	7.12	6.92	7.98	6.79	7.41	5.87	6.02	6.17	6.63	5.95	6.09	6.23	6.59
6/4/2019 16:40	404	245	541	515	692	811	787	285	352	374	571	358	291	296	324	6.36	5.79	6.77	6.99	8.09	8.38	8.46	5.28	5.65	5.88	6.50	5.66	5.51	5.12	5.58
6/4/2019 16:50	452	319	620	625	836	912	903	260	277	331	538	346	242	272	275	6.01	6.91	7.21	7.60	8.52	8.61	8.89	5.23	5.32	5.53	6.42	5.68	5.25	5.09	5.25
6/4/2019 17:00	744	520	875	764	1,047	1,079	1,023	267	353	385	459	334	247	424	436	7.61	8.22	8.23	8.64	9.38	9.25	9.33	5.25	5.77	5.92	6.02	5.57	5.32	5.88	5.99
6/4/2019 17:10	560	419	564	465	646	638	585	175	233	293	385	241	256	272	350	8.66	8.14	9.22	8.53	9.61	9.37	9.37	5.84	6.36	6.59	6.88	6.14	6.48	6.49	6.83
6/4/2019 17:20	735	594	786	769	952	866	780	338	395	468	558	413	385	537	562	9.69	8.10	10.02	9.51	10.46	9.84	9.68	6.70	7.02	7.44	7.58	6.84	6.76	7.47	7.54
6/4/2019 17:30	1,324	977	1,328	1,272	1,579	1,459	1,318	756	826	902	1,301	856	756	1,015	1,117	10.51	8.97	9.62	9.98	10.78	10.25	9.99	7.27	7.44	7.61	8.52	7.32	7.18	7.99	8.19
6/4/2019 17:40	1,191	809	1,202	1,144	1,435	1,268	1,104	1,057	1,114	1,101	1,435	998	941	1,281	1,410	10.38	8.81	9.42	10.15	10.40	9.75	9.84	8.02	8.35	8.12	8.66	7.95	7.82	8.71	8.88
6/4/2019 17:50	1,000	601	1,024	1,060	1,374	1,134	981	1,225	1,225	1,235	1,631	1,130	1,070	1,498	1,576	9.26	7.85	8.51	9.65	10.06	8.98	8.76	8.51	8.41	8.38	9.17	8.23	8.06	9.23	9.25
6/4/2019 18:00	1,268	796	1,338	1,301	1,638	1,428	1,099	1,544	1,634	1,686	2,009	1,531	1,429	1,850	2,017	10.50	8.71	9.58	10.37	10.86	9.96	9.31	9.17	9.31	9.46	10.17	9.09	8.74	10.01	10.12
6/4/2019 18:10	1,474	1,079	1,590	1,550	1,926	1,834	1,572	1,817	1,888	1,945	1,998	1,902	1,714	2,002	1,999	10.61	9.59	11.24	10.68	11.37	11.78	10.53	9.85	9.97	10.00	10.72	9.82	9.43	10.62	10.49
6/4/2019 18:20	1,952	1,592	1,812	1,909	2,010	2,017	2,022	2,002	2,015	2,013	1,999	2,014	1,987	1,999	1,999	11.92	11.04	13.06	11.63	12.46	13.01	12.30	10.93	11.03	11.38	12.17	10.65	10.00	11.22	11.11
6/4/2019 18:30	2,003	1,564	1,945	2,004	1,999	1,999	1,999	1,999	1,999	1,999	1,999	2,000	1,999	1,999	1,999	12.30	11.23	13.34	11.55	13.20	12.97	12.37	11.37	11.75	11.77	12.50	10.88	10.38	11.46	11.42
6/4/2019 18:40	1,845	1,384	1,933	1,998	1,999	1,998	1,801	2,000	1,999	1,999	1,999	1,999	2,000	1,999	1,999	11.83	10.81	12.79	11.49	13.46	12.33	11.44	11.66	11.63	12.13	12.59	11.14	10.16	11.60	11.30
6/4/2019 18:50	1,876	1,529	1,812	1,914	2,000	2,000	1,998	1,999	2,000	2,000	1,999	1,999	1,999	1,999	1,999	12.54	11.06	12.29	11.59	13.21	12.97	12.79	12.04	12.31						

6/4/2019 22:30	1,935	1,179	1,968	2,000	1,999	2,002	2,002	2,000	1,999	1,999	1,999	1,999	1,999	1,999	2,002	1,999	12.47	9.70	13.01	12.35	12.92	13.17	12.50	11.05	12.50	12.65	13.69	12.73	11.83	12.66	12.48
6/4/2019 22:40	185	151	185	186	186	182	189	188	189	191	196	189	190	190	187	15.45	13.25	16.45	13.98	14.38	13.54	13.61	13.09	14.39	14.05	14.65	13.23	13.07	13.40	12.44	
6/4/2019 22:50	-1	-1	-2	-1	-1	-1	-1	-2	-1	-1	-1	-1	-1	-1	-2	15.09	13.17	16.29	14.16	14.94	13.85	14.28	13.59	14.37	14.08	14.23	12.57	12.97	13.40	12.01	
6/4/2019 23:00	-3	-3	-4	-4	-3	-3	-3	-4	-3	-4	-4	-4	-4	-4	-3	14.69	12.56	15.86	13.44	14.04	13.18	13.71	13.59	14.15	13.80	14.05	13.70	13.50	13.53	12.76	
6/4/2019 23:10	19	-6	24	48	48	13	8	121	0	0	5	14	16	2	8	15.21	13.02	15.75	14.40	14.44	13.69	13.06	12.59	13.13	13.08	13.68	12.76	12.54	13.55	12.72	
6/4/2019 23:20	1,512	1,522	795	1,520	1,521	1,495	797	1,526	1,501	1,504	778	1,502	1,503	1,508	1,510	14.15	12.26	15.30	14.18	14.46	14.25	13.18	14.04	13.85	13.99	15.00	12.95	12.15	13.03	13.00	
6/4/2019 23:30	1,999	1,999	1,999	1,999	1,999	1,999	1,999	2,000	1,999	1,999	2,000	1,999	2,000	2,000	1,999	13.57	11.95	14.92	13.55	14.69	14.13	12.92	13.55	13.65	13.98	14.42	13.96	12.71	13.55	13.42	
6/4/2019 23:40	1,999	1,999	2,000	2,000	2,000	1,999	2,000	2,000	2,000	1,999	1,999	1,999	1,999	2,000	2,000	13.92	12.81	15.31	14.34	15.06	14.19	12.70	13.30	13.50	13.96	14.63	14.10	13.57	14.78	13.93	
6/4/2019 23:50	2,000	1,998	2,000	2,000	2,000	1,999	1,999	1,999	2,000	2,000	1,999	2,000	2,000	2,000	2,000	14.88	13.05	15.99	15.21	15.49	14.50	13.66	13.01	13.64	13.94	14.69	13.59	13.64	14.76	14.18	
6/5/2019 0:00	1,999	2,000	2,000	2,000	1,999	1,999	1,999	2,000	1,999	1,999	1,999	1,999	2,000	1,999	1,999	15.62	13.65	17.16	16.61	16.62	15.48	14.60	12.66	14.39	14.28	14.70	13.82	13.55	14.69	14.32	
6/5/2019 0:10	1,999	1,999	2,000	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	1,999	2,001	1,999	1,999	15.19	13.45	17.52	16.08	16.55	16.08	14.65	12.38	14.82	14.77	15.47	14.22	13.03	14.22	13.68	
6/5/2019 0:20	2,000	1,996	1,999	2,000	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	14.10	13.81	16.34	16.04	16.98	16.77	14.79	12.11	14.16	14.32	14.96	14.34	13.84	14.78	14.06	
6/5/2019 0:30	2,000	2,003	2,000	2,000	2,000	2,000	2,000	2,001	1,998	2,000	2,000	2,000	1,999	2,000	1,999	14.69	14.06	16.20	15.67	16.43	15.75	15.41	12.74	14.71	15.29	16.24	14.22	13.60	14.69	14.56	
6/5/2019 0:40	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,001	2,000	14.81	14.34	16.84	16.39	16.76	16.09	15.76	13.35	14.51	15.00	15.86	14.81	14.28	14.85	14.02	
6/5/2019 0:50	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,998	2,000	2,000	2,000	2,000	1,999	2,001	1,999	13.77	13.42	16.01	15.28	15.56	15.21	14.64	13.35	14.34	15.20	15.51	14.33	14.39	14.98	13.69	
6/5/2019 1:00	1,999	1,999	2,000	2,000	2,000	2,000	1,999	2,002	2,000	2,000	2,000	1,999	2,000	2,000	2,000	14.55	13.78	16.38	15.22	15.59	14.88	14.32	13.34	13.67	15.22	15.44	15.21	14.34	14.54	14.36	
6/5/2019 1:10	1,999	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,999	14.72	13.58	17.04	15.94	15.81	15.37	14.31	13.41	13.92	15.25	16.49	15.09	14.51	14.34	14.87	
6/5/2019 1:20	2,000	1,999	2,000	2,001	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	2,001	2,000	2,000	14.06	13.80	16.05	14.63	15.67	14.51	14.12	13.81	14.11	15.01	15.59	14.71	14.52	14.98	14.67	
6/5/2019 1:30	2,000	1,999	2,000	2,000	2,000	2,000	2,000	2,000	1,999	2,000	2,000	1,999	2,001	2,000	2,000	14.66	13.59	15.95	14.36	15.25	15.64	14.86	14.50	14.50	15.24	16.02	15.07	14.72	15.14	14.97	
6/5/2019 1:40	1,087	1,089	1,083	1,085	1,089	1,083	1,088	1,086	1,082	1,089	1,098	1,090	1,092	1,095	1,093	15.09	15.28	18.05	16.41	16.93	17.04	16.45	15.02	14.91	15.85	16.26	15.85	14.69	15.62	15.13	
6/5/2019 1:50	-1	-1	-3	-1	-2	-2	-1	-2	-1	-2	-1	-1	-1	-1	-1	15.99	15.53	19.32	17.42	17.97	17.01	16.93	16.29	15.15	16.99	15.51	16.36	15.55	15.54	15.35	
6/5/2019 2:00	-2	-2	-3	-2	-2	-2	-2	-3	-2	-2	-2	-2	-2	-2	-2	16.01	15.24	18.72	17.01	17.49	16.32	16.79	15.80	15.23	16.08	16.33	16.43	15.48	15.99	14.84	
6/5/2019 2:10	22	31	8	68	2	42	27	57	15	26	15	5	11	71	73	15.02	15.11	18.14	17.38	17.57	16.57	16.22	15.96	15.77	17.32	16.82	16.53	15.73	15.09	15.36	
6/5/2019 2:20	1,675	1,682	368	1,677	1,682	1,683	374	1,656	1,882	1,676	347	1,677	1,674	1,683	362	15.31	14.34	17.72	15.41	16.29	15.25	14.84	14.86	14.33	16.21	16.40	14.93	14.78	15.19	14.70	
6/5/2019 2:30	1,999	1,999	2,011	2,000	2,000	2,000	2,012	2,000	2,000	1,999	2,010	2,000	2,000	2,000	2,010	14.67	13.95	16.84	16.34	16.25	15.30	14.58	15.00	14.56	16.09	15.82	16.08	15.29	15.17	14.47	
6/5/2019 2:40	1,999	2,000	2,000	1,999	2,000	2,000	1,999	2,000	2,000	2,001	2,000	2,000	2,000	1,999	2,000	14.48	14.42	17.20	15.94	16.23	15.39	14.02	14.79	14.50	15.64	15.66	15.62	14.86	15.13	14.92	
6/5/2019 2:50	2,000	1,954	2,000	1,999	2,001	2,000	2,000	2,000	2,000	1,999	2,000	1,999	2,000	2,001	1,999	14.33	12.98	15.52	14.37	15.13	14.73	13.66	13.62	13.83	14.61	15.61	14.38	14.40	14.49	14.46	
6/5/2019 3:00	1,999	2,012	1,999	2,001	2,000	2,000	2,000	2,001	2,000	2,000	2,000	2,000	2,000	2,000	1,999	14.44	13.49	15.89	14.45	14.77	15.08	14.13	14.19	13.66	14.69	14.83	13.93	14.19	14.70	14.26	
6/5/2019 3:10	1,998	1,995	2,000	1,999	2,000	2,000	1,983	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	14.57	13.49	16.10	14.09	14.81	14.84	14.43	13.77	13.90	13.85	14.27	13.87	13.75	14.49	14.21	
6/5/2019 3:20	2,000	1,987	2,000	1,995	1,999	1,999	1,899	2,000	1,999	1,999	2,000	2,000	2,000	2,001	2,000	13.54	13.18	15.77	13.68	14.58	14.53	13.33	13.34	12.61	13.67	14.08	13.95	13.28	14.37	13.49	
6/5/2019 3:30	2,000	1,982	2,000	2,000	2,000	2,000	1,968	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	13.49	13.15	15.66	14.10	14.65	14.21	13.35	12.71	12.54	12.96	14.64	12.89	13.43	13.41	13.90	
6/5/2019 3:40	1,998	2,018	2,000	1,999	2,000	2,000	1,982	2,000	1,999	2,000	2,000	2,000	2,000	2,001	2,000	13.12	13.26	15.10	13.72	14.57	13.95	13.88	12.16	12.77	13.80	14.43	13.77	13.34	14.00	13.14	
6/5/2019 3:50	1,999	1,994	2,000	1,998	1,999	1,999	1,982	2,000	2,000	2,000	1,999	2,000	2,000	2,000	2,000	12.82	12.94	14.99	13.57	14.10	13.76	14.08	12.99	12.53	12.91	14.42	13.36	13.05	14.14	13.46	
6/5/2019 4:00	1,999	1,887	1,997	1,999	2,001	1,999	1,944	1,999	1,999	1,999	2,000	2,000	2,000	2,000	2,000	12.82	12.51	14.78	13.96	14.21	14.08	13.05	12.76	12.29	13.75	14.73	13.20	13.06	13.89	13.88	
6/5/2019 4:10	1,989	2,004	1,961	2,000	1,998	1,995	1,873	1,999	2,000	2,000	1,999	1,999	2,000	2,000	1,999	12.50	13.18	13.53	13.57	14.08	13.34	12.22	12.27	11.59	13.01	13.65	12.61	12.59	13.63	12.73	
6/5/2019 4:20	1,980	1,896	2,003	1,981	2,001	1,913	1,676	2,000	2,000	2,000	1,999	2,000	1,999	2,000	2,000	12.25	11.87	14.35	13.08	13.63	12.66	11.28	12.13	11.75	11.72	12.43	12.28	12.15	12.47	13.01	
6/5/2019 4:30	1,867	1,674	1,997	1,843	1,952	1,955	1,601	2,000	1,998	1,996	2,000	2,000	2,001	2,000	1,999	11.83	11.52	13.76	11.69	12.95	12.74	10.99	11.91	11.51	11.57	12.08	12.35	11.53	12.49	12.29	
6/5/2019 4:40	1,795	1,667	1,943	1,871	1,883	1,765	1,502	2,000	2,001	2,003	2,000	2,000	2,000	2,000	2,000	11.68	11.40	13.31	11.87	12.41	11.46	10.96	11.70	11.92	11.91	12.45	12.07	12.21	12.03	12.37	
6/5/2019 4:50	1,772	1,680	1,897	1,920	1,993	1,850	1,633	2,000	1,999	2,000	2,000	1,998	1,999	1,999	1,998	11.12	11.53	13.01	11.92	12.73	12.07	11.21	12.56	12.38	11.69	12.85	11.28	11.61	12.61	11.89	
6/5/2019 5:00	1,700	1,699	1,850	2,018	1,943	1,807	1,642	2,000	1,975	2,000	2,000	2,000	1,999	2,002	1,9																

6/5/2019 8:50	537	516	730	754	857	1,007	860	549	493	708	826	503	-8	407	465	7.25	7.32	7.85	8.32	8.67	8.94	8.80	6.58	6.58	7.30	7.52	6.52	7.96	6.08	6.55
6/5/2019 9:00	401	407	536	524	763	808	573	654	531	541	876	664	-8	613	737	6.37	6.85	6.99	7.08	8.34	7.83	7.22	7.03	6.75	6.46	7.51	7.26	7.92	6.92	7.28
6/5/2019 9:10	470	349	384	382	445	534	572	258	278	517	570	444	-8	480	419	6.39	6.41	6.17	6.21	6.74	6.81	7.36	5.26	5.36	6.83	6.81	6.32	7.88	6.36	6.41
6/5/2019 9:20	558	492	472	361	381	551	591	307	331	347	289	343	-8	407	418	7.01	6.85	6.17	6.20	6.49	6.98	7.49	5.49	5.55	5.96	5.49	5.68	7.85	5.98	6.19
6/5/2019 9:30	392	466	622	613	556	435	419	251	227	151	359	333	-8	286	261	6.37	6.73	7.50	7.12	6.95	6.26	6.39	5.29	5.33	4.71	6.02	5.81	7.81	5.37	5.36
6/5/2019 9:40	439	396	500	521	541	480	476	68	226	224	285	267	-8	132	152	6.92	6.57	6.83	7.08	7.46	6.81	6.67	3.85	5.31	5.15	5.55	5.52	7.77	4.20	4.98
6/5/2019 9:50	286	217	174	202	296	372	317	127	216	166	254	272	-8	230	275	5.60	5.42	4.63	4.82	6.01	5.90	5.95	4.35	5.08	4.85	5.18	5.47	7.73	5.11	5.29
6/5/2019 10:00	134	87	131	210	309	316	401	31	179	216	422	323	-8	233	295	4.37	4.08	4.44	5.40	5.92	5.90	6.73	3.39	4.94	5.23	6.32	5.66	7.69	5.01	5.63
6/5/2019 10:10	146	96	155	140	233	230	229	139	186	373	357	320	-8	203	179	4.65	4.12	4.71	4.26	5.18	5.08	5.37	4.51	5.00	5.98	5.79	5.75	7.66	4.90	4.73
6/5/2019 10:20	119	152	354	458	502	408	243	159	203	248	278	194	-8	225	369	4.43	4.79	5.82	6.57	6.92	6.34	5.93	4.55	5.01	5.18	5.66	4.99	7.62	4.90	6.00
6/5/2019 10:30	340	183	296	404	341	390	330	116	178	441	523	371	-8	434	564	5.94	5.09	5.71	6.16	6.11	6.31	6.31	4.17	5.41	6.25	6.68	6.04	7.58	6.48	6.75
6/5/2019 10:40	456	330	472	573	667	817	882	112	309	270	339	438	-8	304	296	6.77	6.15	6.97	7.43	7.92	8.29	8.45	4.32	5.87	5.48	5.78	6.36	7.54	5.31	5.65
6/5/2019 10:50	446	306	491	543	593	501	443	235	679	716	763	650	-8	363	510	6.60	6.06	6.82	6.99	7.44	6.59	6.81	5.55	7.35	7.41	7.45	7.28	7.50	6.00	6.63
6/5/2019 11:00	460	402	380	373	376	487	591	415	778	780	716	722	-8	332	383	6.80	6.74	6.07	6.52	6.38	6.37	7.42	6.28	7.53	7.34	7.24	7.45	7.47	5.76	6.00
6/5/2019 11:10	270	94	202	428	483	543	675	281	321	394	317	366	-8	442	567	5.33	3.99	4.89	6.72	6.91	6.78	8.09	5.15	5.62	6.27	5.77	5.89	7.43	6.20	6.74
6/5/2019 11:20	358	167	345	404	451	477	643	68	172	318	403	532	-8	326	291	6.07	4.89	5.97	6.34	6.82	6.57	8.20	3.71	4.78	5.86	5.93	6.74	7.39	5.57	5.37
6/5/2019 11:30	409	244	351	395	408	379	473	18	176	141	222	288	-8	281	316	6.30	5.75	5.81	6.29	6.76	6.05	7.04	3.39	4.90	4.75	5.05	5.68	7.35	5.43	5.64
6/5/2019 11:40	394	267	343	299	419	292	471	209	327	398	485	438	-8	250	359	6.26	5.75	6.01	5.79	6.82	5.60	6.77	5.14	5.86	6.32	6.43	6.44	7.31	5.15	5.84
6/5/2019 11:50	553	468	638	503	495	532	697	155	309	390	322	364	-8	325	406	7.45	7.09	7.53	6.93	6.95	7.19	7.82	4.48	5.95	6.15	5.58	6.16	7.27	5.81	6.19
6/5/2019 12:00	289	228	335	335	515	656	758	85	291	330	404	457	-8	393	404	5.48	5.34	5.86	5.96	7.28	7.57	8.26	3.95	5.79	5.72	6.20	6.39	7.24	5.86	6.15
6/5/2019 12:10	225	90	202	379	737	703	874	180	144	327	465	421	-8	495	578	5.22	4.15	4.77	6.17	8.02	8.14	8.86	4.60	4.43	5.81	6.42	6.32	7.20	6.41	6.81
6/5/2019 12:20	194	52	220	488	569	528	428	15	292	250	346	318	-8	374	389	4.83	3.36	4.86	6.74	7.23	6.86	7.01	3.06	5.62	5.38	5.77	5.58	7.16	5.74	6.08
6/5/2019 12:30	318	145	295	326	424	419	524	-2	235	136	395	381	-8	295	362	5.59	4.54	5.55	6.03	6.84	6.65	7.34	2.97	5.33	4.47	6.06	6.08	7.12	5.47	5.98
6/5/2019 12:40	303	121	218	297	455	299	375	170	446	381	408	512	-8	557	646	5.91	4.46	5.17	5.77	6.75	5.52	6.78	4.72	6.39	6.10	6.23	6.72	7.08	6.69	7.04
6/5/2019 12:50	79	45	164	232	272	181	253	156	399	364	317	546	-8	431	424	4.01	3.24	4.68	5.20	5.62	4.93	5.92	4.23	5.91	5.92	5.93	6.76	7.05	5.88	6.26
6/5/2019 13:00	139	57	223	284	431	410	414	113	113	322	485	430	-8	158	81	4.61	3.64	5.14	5.99	6.86	6.48	6.88	4.09	4.66	5.69	6.29	6.09	7.01	4.34	3.75
6/5/2019 13:10	308	117	246	346	410	399	276	20	125	102	222	242	-7	220	324	5.39	4.42	5.29	6.28	6.82	6.10	5.72	3.06	4.38	4.45	5.21	5.37	6.97	5.40	6.27
6/5/2019 13:20	92	32	173	353	425	362	239	114	189	246	467	412	-7	203	464	3.93	3.26	4.60	6.25	6.58	6.25	6.08	4.06	4.89	5.46	6.22	6.06	6.93	4.76	6.36
6/5/2019 13:30	196	54	175	379	424	258	336	75	175	187	376	341	-7	353	378	4.71	3.30	4.44	6.08	6.81	5.45	6.20	3.99	5.09	4.92	5.99	5.98	6.89	5.64	5.88
6/5/2019 13:40	227	102	227	299	370	253	336	119	184	215	258	196	-7	224	224	4.97	4.17	5.06	5.91	6.22	5.37	6.14	4.18	5.05	5.31	5.22	4.97	6.86	4.98	5.35
6/5/2019 13:50	255	90	273	410	405	356	292	6	194	149	212	193	-7	293	382	5.35	3.94	5.48	6.32	6.46	6.13	6.36	2.92	4.82	4.69	5.17	5.00	6.82	5.42	6.05
6/5/2019 14:00	182	70	230	364	458	288	221	324	151	163	465	388	-7	501	524	4.88	4.03	5.27	6.35	7.25	5.65	5.88	5.74	4.77	4.71	6.55	6.12	6.78	6.76	6.59
6/5/2019 14:10	162	45	183	342	355	391	376	299	254	258	340	275	-7	268	327	4.50	3.33	4.96	6.26	6.46	6.49	6.94	5.30	5.50	5.71	5.82	5.52	6.74	5.19	5.72
6/5/2019 14:20	99	27	174	392	442	534	509	117	283	241	362	262	-7	348	438	3.84	3.01	4.41	6.89	7.04	7.23	7.56	4.24	5.65	5.39	5.94	5.45	6.70	5.96	6.22
6/5/2019 14:30	105	4	32	305	497	547	517	246	264	317	456	350	-7	344	463	4.11	2.71	2.83	6.08	7.28	7.36	7.19	5.39	5.78	6.11	6.47	6.10	6.67	5.78	6.40
6/5/2019 14:40	402	123	62	398	630	577	487	236	258	335	459	364	-7	433	482	6.60	4.32	3.31	6.66	8.07	6.96	7.23	5.01	5.51	6.11	6.35	6.20	6.63	6.60	6.48
6/5/2019 14:50	334	72	-2	468	519	563	579	233	259	298	538	394	-7	409	428	6.00	3.56	2.35	6.62	7.40	6.89	7.23	5.19	5.53	5.96	6.77	6.42	6.59	6.55	6.19
6/5/2019 15:00	304	100	5	432	424	471	516	281	218	267	511	403	-7	471	448	6.21	4.35	2.36	6.82	6.91	6.47	7.06	5.53	5.12	5.74	6.57	6.42	6.55	6.56	6.31
6/5/2019 15:10	229	81	22	387	484	512	503	274	291	364	607	482	-7	626	674	5.08	4.11	2.73	6.50	7.29	6.77	7.06	5.45	5.84	6.29	6.82	6.56	6.51	7.22	7.20
6/5/2019 15:20	258	-7	195	762	673	712	718	278	476	496	816	639	-7	738	886	5.13	2.87	4.39	7.86	7.59	7.82	8.02	5.31	6.85	6.87	7.61	7.15	6.48	7.55	7.80
6/5/2019 15:30	651	179	367	1,260	1,407	1,349	1,286	333	622	633	988	830	-7	956	1,054	7.20	4.77	5.56	10.51	10.51	10.54	10.57	5.49	7.26	7.32	8.14	7.85	6.44	8.05	8.20
6/5/2019 15:40	528	120	178	1,061	1,136	1,280	1,188	533	1,006	1,154	1,643	1,151	-7	1,618	1,267	6.46	3.98	4.25	9.58	9.31	9.63	9.69	6.64	8.18	8.64	9.62	8.28	6.40	9.81	8.68
6/5/2019 15:50	226	52	207	795	968	1,113	989	312	951	865	1,158	897	-7	1,110	1,135	4.68	2.86	4.14	8.21	9.00	9.00	9.06	5.24	7.84	7.74	8.30	7.72	6.36	8.25	8.25
6/5/2019 16:00	299	62	126	934	1,084	1,199	1,137	292	658	644	826	714	-7	882	781	5.53	3.43	3.85	9.17	9.55	9.23	10.14	5.37	7.12	7.26	7.51	7.34	6.32	7.91	7.36
6/5/2019 16:10	515	140	506	1,292	1,249	1,394	1,318	527	581	671	1,055	861	-7	1,086	1,156	6.51	4.28													

6/5/2019 19:10	-10	-9	-12	-11	-11	-11	-10	-13	-6	-11	-10	-10	-9	-10	-11	6.99	5.62	6.82	7.19	7.80	8.26	8.04	3.05	3.36	4.02	4.87	4.90	5.47	6.55	6.87
6/5/2019 19:20	-8	-9	-10	-9	-9	-8	-8	-11	-4	-9	-8	-8	-8	-8	-8	7.48	6.91	9.00	8.63	9.57	9.13	9.73	4.25	4.98	4.88	6.17	5.54	5.60	7.19	8.00
6/5/2019 19:30	-8	-9	-9	-10	-10	-9	-9	-11	-6	-9	-8	-8	-6	-8	-8	7.50	7.22	9.55	9.35	10.08	9.72	10.11	7.67	8.24	8.32	8.14	8.04	7.92	8.42	7.91
6/5/2019 19:40	441	308	513	541	654	552	496	812	1,097	1,056	1,198	1,107	1,068	1,057	836	7.19	6.91	8.72	8.44	9.31	8.63	8.86	8.54	9.83	9.40	10.45	9.47	9.29	9.66	8.63
6/5/2019 19:50	973	611	673	706	782	614	562	977	1,624	1,601	1,843	1,611	1,529	1,600	1,474	8.42	7.02	7.37	7.48	8.23	7.19	7.41	7.60	9.39	9.39	9.99	9.09	9.08	9.51	8.72
6/5/2019 20:00	991	715	918	711	967	884	821	536	1,114	1,249	1,606	1,416	1,138	1,362	1,357	8.61	7.67	8.59	7.45	8.62	8.39	8.29	6.04	8.22	8.55	9.16	8.76	8.08	8.82	8.64
6/5/2019 20:10	785	454	752	661	715	570	450	141	430	503	596	513	464	573	473	8.64	7.59	8.29	8.29	8.25	7.43	7.04	3.96	6.07	6.52	6.50	6.42	6.26	6.62	6.11
6/5/2019 20:20	468	152	406	445	564	556	506	91	92	135	190	144	115	138	86	6.58	4.06	6.13	7.29	7.77	7.60	7.42	4.28	4.19	4.58	4.94	4.54	4.39	4.31	3.93
6/5/2019 20:30	281	183	288	330	523	445	402	159	193	166	159	77	13	52	43	5.64	4.67	5.34	5.97	7.24	6.50	6.20	4.69	5.12	4.86	4.82	3.88	3.55	3.40	3.56
6/5/2019 20:40	247	135	230	219	318	334	371	45	112	86	80	25	-1	36	45	5.37	4.38	5.10	5.37	6.04	5.97	6.09	3.48	4.47	4.19	4.17	3.28	3.83	3.29	3.38
6/5/2019 20:50	5	2	27	12	31	29	4	-4	6	2	5	-5	-1	6	4	6.31	5.46	6.45	5.99	6.87	6.52	6.77	4.41	4.40	5.13	5.56	5.11	5.30	5.41	4.73
6/5/2019 21:00	-9	-11	-12	-11	-10	-9	-10	-12	-10	-11	-9	-9	-1	-8	-9	7.00	5.91	7.60	7.15	7.57	7.34	7.35	3.96	4.02	4.52	4.83	4.87	5.46	5.63	5.12
6/5/2019 21:10	-8	-8	-9	-9	-9	-8	-9	-10	-8	-8	-8	-8	-1	-8	-8	7.06	6.27	7.87	7.25	7.50	7.05	7.03	2.72	2.61	3.02	3.55	4.34	4.29	5.05	5.31
6/5/2019 21:20	-8	-8	-9	-9	-8	-8	-9	-12	-9	-9	-9	-9	-1	-8	-8	7.50	6.40	8.12	7.03	7.30	6.34	7.07	3.49	3.33	3.36	3.67	3.56	3.55	3.13	3.15
6/5/2019 21:30	90	94	106	134	220	235	273	68	76	142	236	244	-1	115	98	4.37	4.18	4.50	4.45	5.56	5.42	5.97	4.28	4.35	4.89	5.55	5.53	5.66	4.55	4.58
6/5/2019 21:40	175	123	146	180	342	327	281	107	245	227	348	247	-1	290	282	4.89	4.49	4.37	5.04	6.07	6.00	6.08	4.07	5.28	5.19	5.90	5.40	5.57	5.61	5.46
6/5/2019 21:50	-1	-4	-3	3	12	8	15	-5	0	1	6	4	-3	13	13	4.98	4.77	6.22	6.42	7.35	7.47	7.23	5.43	5.42	5.06	5.04	4.75	5.35	5.55	5.67
6/5/2019 22:00	322	156	323	365	708	532	478	243	319	361	586	358	-3	355	437	6.45	5.68	6.22	6.62	8.28	7.82	7.46	5.80	6.17	6.38	7.04	6.38	6.67	6.09	6.52
6/5/2019 22:10	995	606	1,122	1,218	1,330	1,221	1,141	268	478	567	784	494	-3	444	522	9.23	8.07	9.65	10.18	10.20	9.82	10.12	5.21	6.70	6.95	7.37	6.42	6.90	6.11	6.57
6/5/2019 22:20	1,683	1,167	1,676	1,622	1,757	1,796	1,646	276	884	850	1,254	1,084	-3	1,480	1,597	11.16	10.19	11.85	11.00	11.34	11.56	11.91	5.24	7.92	7.66	8.69	8.28	10.07	9.64	9.52
6/5/2019 22:30	1,694	1,195	1,475	1,502	1,741	1,646	1,532	902	1,068	1,314	1,571	1,468	-3	1,781	1,794	10.79	9.78	10.71	10.06	11.25	10.60	11.25	7.59	8.23	8.73	9.17	8.89	10.03	10.00	9.57
6/5/2019 22:40	1,800	1,331	1,767	1,895	1,943	1,805	1,683	173	871	805	997	854	-3	1,190	1,229	10.75	10.27	12.58	11.75	11.76	11.16	11.21	4.30	7.69	7.56	7.91	7.55	8.26	8.37	8.36
6/5/2019 22:50	1,866	1,552	1,850	1,980	1,998	1,988	1,920	794	1,436	1,436	1,566	1,347	-3	1,264	1,122	11.41	10.38	12.75	11.81	11.94	12.02	11.70	7.07	9.36	9.19	9.42	8.93	9.22	8.73	8.08
6/5/2019 23:00	1,646	1,399	1,634	1,756	1,801	1,867	1,810	1,272	1,539	1,842	2,002	1,921	-3	1,684	1,641	10.38	9.42	11.72	10.96	10.83	11.28	10.94	8.61	9.48	10.17	10.64	10.20	10.41	9.85	9.39
6/5/2019 23:10	1,613	1,203	1,532	1,635	1,744	1,699	1,664	1,291	1,595	1,563	1,986	1,779	-3	1,780	1,736	10.03	9.53	11.16	10.29	11.48	10.68	10.34	8.77	9.37	9.27	10.38	9.71	11.32	10.08	9.44
6/5/2019 23:20	1,615	1,162	1,484	1,513	1,609	1,620	1,494	1,286	1,378	1,374	1,526	1,296	-3	1,401	1,487	10.22	10.15	10.58	10.03	11.45	10.21	9.94	8.70	9.04	8.77	9.00	8.58	9.93	8.96	8.95
6/5/2019 23:30	1,426	1,018	1,351	1,338	1,286	1,451	1,411	982	1,061	1,139	1,615	1,059	-3	1,149	1,033	10.08	10.00	10.28	9.72	10.61	9.78	10.18	7.86	8.15	8.29	9.39	7.88	8.90	8.28	7.77
6/5/2019 23:40	1,375	877	1,324	1,261	1,500	1,476	1,380	625	776	742	991	779	-3	991	986	10.47	9.83	10.59	9.75	10.29	9.83	10.16	6.92	7.57	7.36	7.99	7.36	8.91	8.16	7.76
6/5/2019 23:50	1,371	927	1,297	1,282	1,552	1,455	1,481	460	500	655	952	965	-3	1,216	1,262	9.98	9.65	10.30	9.57	10.21	10.42	10.33	6.45	6.59	7.14	7.76	7.75	9.24	8.72	8.50
6/6/2019 0:00	1,297	915	1,138	1,146	1,314	1,438	1,266	451	697	758	1,004	823	-3	1,004	1,169	9.34	8.99	9.31	8.76	9.54	10.90	9.63	6.10	7.30	7.45	7.77	7.39	8.46	7.76	8.26
6/6/2019 0:10	538	392	590	513	723	1,438	645	750	876	988	1,204	855	-3	708	779	5.82	6.58	6.29	6.33	7.58	10.90	7.43	7.19	7.83	8.06	8.35	7.42	7.61	7.00	7.20
6/6/2019 0:20	164	182	319	346	525	1,438	632	1,027	1,077	1,070	1,261	859	-3	900	962	4.46	5.14	5.55	6.06	7.11	10.90	7.98	7.85	8.24	8.33	8.41	7.44	7.95	7.87	7.68
6/6/2019 0:30	225	148	250	252	396	1,438	560	1,208	990	831	888	534	-3	361	517	5.03	4.88	5.03	5.26	6.27	10.90	7.11	8.46	8.03	7.71	7.31	6.34	6.48	5.44	6.22
6/6/2019 0:40	161	122	146	166	246	1,438	529	870	827	758	707	607	-3	489	483	4.14	4.35	4.20	4.65	5.42	10.90	6.85	7.37	7.44	7.26	7.11	6.73	6.19	6.09	6.18
6/6/2019 0:50	579	381	448	366	476	1,438	361	1,197	1,009	1,254	1,447	1,184	-3	994	799	6.94	6.32	6.45	6.06	6.53	10.90	6.07	8.27	8.07	8.89	8.99	8.70	7.75	8.23	7.49
6/6/2019 1:00	1,342	1,230	976	1,146	1,611	1,438	1,400	1,261	1,053	1,474	1,596	1,246	-3	1,495	1,529	10.20	9.74	9.04	9.50	10.70	10.90	9.78	8.88	8.22	9.36	9.72	8.68	8.82	9.65	9.40
6/6/2019 1:10	1,564	1,379	1,759	1,837	1,896	1,438	1,770	1,719	1,626	1,761	1,660	1,758	-3	1,584	1,586	10.61	10.80	12.53	11.60	11.68	10.90	11.32	9.46	9.53	9.99	9.78	9.53	8.99	9.63	9.53
6/6/2019 1:20	1,652	1,307	1,712	1,542	1,799	1,438	1,850	1,605	1,281	1,670	1,849	1,552	-3	1,790	1,562	11.26	11.32	12.45	10.89	12.09	10.90	12.34	9.65	8.84	9.85	10.57	9.97	10.23	10.29	9.84
6/6/2019 1:30	1,723	1,503	1,760	1,652	1,835	1,438	1,581	1,893	1,594	1,549	1,838	1,592	-3	1,413	1,542	11.64	11.66	12.17	11.17	11.65	10.90	10.54	10.40	9.68	9.52	9.99	9.65	9.34	9.49	9.32
6/6/2019 1:40	1,647	1,456	1,746	1,615	1,781	1,438	1,779	1,836	1,314	1,641	1,332	1,534	-3	1,844	1,533	11.35	11.66	12.30	11.00	11.73	10.90	12.43	10.25	8.86	9.97	8.71	9.61	9.98	10.62	9.49
6/6/2019 1:50	1,692	1,556	1,747	1,862	1,895	1,438	1,472	1,831	1,667	1,324	1,543	1,850	-3	1,584	1,351	11.47	11.09	12.36	11.85	12.27	10.90	10.73	10.23	9.66	8.88	9.41	10.39	9.61	10.00	9.04
6/6/2019 2:00	1,455	1,647	1,830	1,566	1,921	1,438	1,675	1,950	1,601	1,647	2,007	1,607	-3	1,826	1,862	10.35	11.44	12.95	11.26	12.35	10.90	11.44	10.60	9.71	10.03	10.95	9.44	10.47	10.67	10.32
6/6/2019 2:10	1,930	1,620	1,912	2,001	2,004	1,438	2,015	1,929	1,904	1,957	1,936	1,876	-3	1,861	1,887	12.27	11.53	13.33	12.57	12.78	10.90	12.70	10.55	10.95	10.81	11.00	10.53	10.94	11.10	10

6/6/2019 5:30	610	485	240	633	583	728	720	671	318	50	195	396	-3	780	878	7.26	7.59	7.73	7.89	7.16	7.37	7.66	7.14	5.55	3.23	4.83	6.44	7.46	7.47	7.53
6/6/2019 5:40	549	527	6	695	517	441	474	692	582	153	206	354	-3	630	686	7.27	7.88	8.10	8.13	7.03	6.25	6.61	7.07	6.89	4.44	4.82	5.74	6.70	7.09	7.19
6/6/2019 5:50	610	459	4	543	597	500	425	710	557	159	196	141	-3	621	487	7.66	7.31	8.10	7.30	7.49	6.60	6.57	7.12	6.58	4.06	4.70	4.33	7.20	6.94	6.14
6/6/2019 6:00	550	443	3	497	445	398	304	443	380	248	247	54	-3	481	477	7.32	7.00	8.10	7.01	6.33	6.37	5.95	5.88	5.98	5.03	5.00	3.47	5.56	6.16	6.05
6/6/2019 6:10	703	623	1	412	678	540	552	332	438	288	291	5	-3	379	444	8.12	7.94	8.10	6.48	7.73	7.02	7.45	5.70	6.21	5.02	5.10	2.78	4.75	5.91	5.95
6/6/2019 6:20	598	518	0	596	761	466	507	398	373	163	193	155	-3	550	491	7.52	7.27	8.10	7.51	7.86	6.34	7.15	5.98	6.00	4.29	4.18	4.67	6.63	6.47	6.24
6/6/2019 6:30	815	674	-2	777	832	785	774	371	454	150	159	83	-3	434	257	8.17	7.64	8.10	7.67	8.27	7.81	8.08	5.88	6.32	4.16	4.22	4.00	5.36	5.83	5.12
6/6/2019 6:40	769	558	-3	511	511	717	677	215	240	134	279	247	-3	433	540	7.85	7.14	8.10	6.91	7.04	7.50	7.87	4.88	4.94	4.19	5.09	5.08	5.77	6.01	6.61
6/6/2019 6:50	235	207	-5	272	287	391	406	271	140	121	192	6	18	214	173	5.12	5.09	8.10	5.33	5.42	6.33	6.39	5.10	4.34	3.96	4.53	2.89	3.60	4.77	4.61
6/6/2019 7:00	66	81	-6	71	109	160	133	198	180	26	17	-3	66	223	153	3.55	3.75	8.10	3.65	3.95	4.41	4.40	4.73	4.63	3.17	2.79	2.51	3.73	4.73	4.46
6/6/2019 7:10	67	55	-8	124	107	79	72	128	186	167	121	14	27	175	127	3.57	3.52	8.10	4.38	4.23	3.82	4.04	4.09	4.66	4.64	3.90	3.08	3.26	4.38	4.12
6/6/2019 7:20	224	187	-9	215	161	199	196	230	291	168	187	-3	67	336	240	5.33	5.16	8.10	5.33	4.63	4.89	4.72	5.08	5.52	4.23	4.75	3.22	3.76	5.39	5.12
6/6/2019 7:30	331	325	-11	382	343	200	203	609	355	75	67	4	201	481	310	6.28	5.99	8.10	6.49	6.08	4.77	5.12	6.88	5.72	3.58	3.60	3.46	5.33	6.38	5.83
6/6/2019 7:40	377	382	127	389	528	381	301	325	302	279	175	104	123	291	256	6.22	6.36	6.89	6.65	6.99	6.32	5.61	5.57	5.84	5.20	4.88	4.38	4.17	4.96	5.03
6/6/2019 7:50	636	400	335	223	280	216	210	700	476	574	617	154	-2	167	128	7.56	6.35	6.10	5.71	5.73	4.71	5.05	7.12	6.23	6.86	6.86	4.52	2.40	4.25	4.00
6/6/2019 8:00	633	447	455	454	322	259	206	571	660	651	625	105	-16	266	159	7.25	6.80	6.54	6.23	5.71	5.22	4.78	6.58	6.95	7.14	6.72	3.86	2.16	4.90	4.04
6/6/2019 8:10	388	400	495	241	300	332	338	506	463	489	537	68	6	243	201	6.34	6.61	6.69	5.20	5.87	5.74	5.95	6.30	6.30	6.52	6.64	3.53	2.95	4.83	4.78
6/6/2019 8:20	325	474	406	382	259	283	261	456	602	504	360	18	14	273	255	6.07	7.22	6.20	6.23	5.34	5.37	5.51	6.20	6.94	6.66	5.64	2.82	3.18	5.06	5.13
6/6/2019 8:30	412	493	525	417	291	326	293	359	701	706	733	55	35	383	290	6.36	6.84	6.63	6.62	5.72	5.51	5.34	5.71	7.05	7.32	7.43	3.45	3.58	5.83	5.29
6/6/2019 8:40	347	557	452	489	455	258	216	378	323	268	305	36	-9	206	165	6.19	7.39	6.64	6.97	6.88	5.03	5.03	6.06	5.51	5.19	5.37	3.04	2.63	4.45	4.46
6/6/2019 8:50	244	281	322	232	250	206	184	107	284	205	218	22	-13	117	94	5.08	5.50	5.67	5.22	5.47	4.98	4.72	4.09	5.46	4.95	5.03	2.96	2.46	3.89	3.78
6/6/2019 9:00	207	195	266	290	246	303	272	44	39	42	99	-11	-10	224	161	5.25	4.95	5.19	5.82	5.19	5.53	5.41	3.36	3.53	3.34	3.86	2.62	3.03	4.73	4.46
6/6/2019 9:10	116	139	128	139	145	185	166	-6	-14	-6	13	-9	-12	55	37	4.19	4.46	4.04	4.40	4.40	4.70	4.58	2.31	2.26	2.43	2.73	1.64	1.61	3.31	3.28
6/6/2019 9:20	226	163	127	51	49	63	58	5	-12	57	83	-1	-10	19	35	5.61	4.91	4.14	3.25	3.11	3.36	3.45	3.08	2.58	3.26	3.85	2.72	2.44	3.01	3.11
6/6/2019 9:30	148	187	105	172	89	27	10	188	147	119	197	6	-1	110	84	4.56	4.81	4.07	4.99	3.90	2.86	3.36	4.83	4.82	4.01	4.76	2.76	2.29	3.94	3.76
6/6/2019 9:40	240	163	299	95	156	117	44	197	195	80	115	12	58	147	114	5.36	4.98	5.76	5.09	4.63	4.28	3.49	4.77	4.84	3.86	4.08	3.34	3.89	4.14	4.03
6/6/2019 9:50	317	282	261	187	208	158	114	197	196	109	247	180	24	139	362	5.96	5.41	5.44	5.08	5.01	4.59	4.40	4.95	4.87	4.15	5.17	4.92	4.63	3.91	5.88
6/6/2019 10:00	173	191	385	279	325	154	136	169	156	106	86	13	-17	87	139	5.14	5.59	6.01	5.73	5.95	4.22	4.24	4.65	4.56	4.35	3.77	2.61	4.74	3.48	3.93
6/6/2019 10:10	189	207	147	143	113	65	132	107	78	55	74	5	-16	76	72	4.74	5.13	4.60	4.71	4.18	4.02	4.67	4.05	3.84	3.62	3.91	2.72	4.65	3.59	3.71
6/6/2019 10:20	237	186	248	259	302	62	64	189	117	108	135	39	-15	3	29	5.48	5.41	5.13	5.43	5.79	3.26	3.87	4.88	4.29	4.23	4.50	3.43	4.56	2.50	3.06
6/6/2019 10:30	212	180	124	146	143	67	20	252	182	248	318	55	-14	138	98	5.13	4.94	4.45	4.25	4.46	3.58	3.17	5.31	4.88	5.37	5.78	3.40	4.47	4.17	3.93
6/6/2019 10:40	294	145	233	64	189	126	91	286	234	241	319	209	-13	132	149	5.78	5.54	5.31	3.42	4.72	4.11	3.89	5.38	5.15	5.28	5.66	5.11	4.39	3.97	4.45
6/6/2019 10:50	67	208	392	213	256	179	138	314	209	344	313	290	-12	245	324	3.95	5.44	6.08	5.84	5.37	4.79	4.68	5.54	5.04	5.80	5.52	5.40	4.30	4.81	5.60
6/6/2019 11:00	172	319	517	377	226	310	278	444	490	462	557	381	-11	326	374	4.76	6.29	6.77	6.47	5.10	5.43	5.76	6.33	6.52	6.47	6.70	6.07	4.21	5.74	5.99
6/6/2019 11:10	216	417	485	441	300	190	269	712	600	674	697	534	-10	449	517	5.69	6.81	6.46	6.51	5.58	4.55	5.26	7.08	6.98	7.16	7.15	6.79	4.12	5.87	6.59
6/6/2019 11:20	264	525	817	712	570	562	424	499	546	590	623	475	-9	390	597	5.62	7.05	8.40	7.93	7.25	6.96	7.14	6.22	6.75	7.01	6.86	6.52	4.04	5.95	7.00
6/6/2019 11:30	247	582	627	471	204	232	276	498	595	666	669	507	-7	722	800	5.56	7.13	7.52	6.56	4.65	5.12	5.29	6.42	6.81	7.20	7.15	6.50	3.95	7.44	7.46
6/6/2019 11:40	-9	331	365	268	171	51	95	503	322	478	581	522	-6	627	826	3.03	5.97	5.74	5.52	4.63	3.06	4.22	6.54	5.40	6.34	6.63	6.85	3.86	7.13	7.68
6/6/2019 11:50	53	541	485	369	203	175	70	501	489	626	595	486	-5	524	589	4.14	6.95	6.67	6.48	5.10	4.66	4.77	6.61	6.53	7.06	6.73	6.48	3.77	6.59	6.56
6/6/2019 12:00	265	320	323	214	184	99	104	450	378	446	480	376	-4	441	487	5.17	5.70	5.95	5.19	4.72	3.78	4.00	6.17	5.99	6.30	6.32	6.12	3.69	6.04	6.34
6/6/2019 12:10	10	245	266	131	194	113	112	382	234	413	470	275	21	256	279	3.34	5.45	5.43	4.63	4.81	3.94	4.10	5.82	4.61	6.09	6.41	5.38	4.56	5.23	5.70
6/6/2019 12:20	260	212	177	190	161	94	85	218	151	259	251	295	68	255	340	5.14	5.35	5.12	5.10	4.63	3.81	4.82	4.96	5.13	5.43	5.42	5.51	5.06	4.92	5.55
6/6/2019 12:30	260	314	250	166	178	197	162	188	421	364	382	302	297	272	379	5.67	6.20	5.27	5.03	5.32	4.77	5.23	4.87	6.30	5.99	5.91	5.28	5.54	5.26	5.92
6/6/2019 12:40	250	273	279	283	232	98	97	411	352	457	382	343	221	119	265	5.29	5.41	5.52	5.88	5.20	4.25	4.59	6.06	5.78	6.35	5.86	6.05	5.01	3.92	5.19
6/6/2019 12:50	289	156	390	197	180	140	109	427	311	316	323	247	231	170	308	5.70	5.41	6.24	4.80	4.55	4.11	4.31	6.19	5.64	5.59	5.61	5.23	4.95	4.48	5.74
6/6/2019 13:00	97	151	302	79	110																									

6/6/2019 15:50	174	184	251	299	177	262	303	335	245	260	254	9	-9	121	105	4.81	4.93	4.95	5.51	4.69	5.20	6.01	5.82	5.20	5.51	5.36	2.83	2.41	4.24	4.09	
6/6/2019 16:00	222	197	243	165	154	143	141	288	182	215	266	54	-8	137	97	5.61	5.21	5.24	4.81	4.81	4.31	4.55	5.59	4.77	5.12	5.47	3.70	1.95	4.09	4.06	
6/6/2019 16:10	288	289	233	240	289	98	67	233	220	159	133	1	-9	33	13	6.13	6.10	4.94	5.61	5.49	3.80	3.78	5.20	5.10	4.90	4.47	2.57	1.74	3.09	2.80	
6/6/2019 16:20	171	175	207	194	96	175	149	200	125	105	138	-4	-8	43	5	4.78	4.81	4.75	4.91	3.83	4.79	4.76	5.03	4.46	4.39	4.47	2.51	1.69	3.08	2.82	
6/6/2019 16:30	158	123	175	152	81	78	81	144	79	50	71	-10	-9	4	-7	4.94	4.49	4.42	4.66	3.80	3.53	3.71	4.56	3.92	3.76	3.97	2.59	2.36	2.68	2.21	
6/6/2019 16:40	159	166	148	121	145	27	21	94	6	10	18	-8	-8	-13	-10	5.11	4.89	4.38	4.52	4.84	2.68	3.28	4.11	2.86	3.18	3.13	2.53	2.03	2.35	2.39	
6/6/2019 16:50	117	101	89	68	58	-1	-1	53	28	23	67	19	0	5	70	4.50	4.17	3.64	3.71	3.57	2.04	2.88	3.80	3.32	3.46	3.88	3.59	3.12	2.66	3.95	
6/6/2019 17:00	94	135	135	114	85	-7	-7	61	64	88	121	61	16	-11	79	3.76	4.65	4.11	4.38	3.92	1.94	3.03	3.88	3.84	4.26	4.49	3.92	3.12	2.37	3.97	
6/6/2019 17:10	71	90	121	80	58	-5	18	54	41	69	110	80	64	-10	105	4.33	5.02	5.29	4.82	4.58	3.04	4.18	4.47	3.69	4.44	4.74	4.84	4.43	2.60	5.04	
6/6/2019 17:20	-11	-11	-4	-11	-11	-12	-10	-13	-12	-12	-11	-10	-12	-10	-10	5.07	5.30	5.99	5.08	5.58	5.50	5.59	5.02	4.32	4.74	4.63	4.65	4.14	4.59	4.86	
6/6/2019 17:30	-8	-8	-4	-8	-8	-8	-8	-10	-8	-9	-8	-8	-8	-9	-9	5.10	5.61	5.86	4.92	5.45	5.52	5.60	5.09	4.44	4.79	4.59	4.69	4.25	4.71	5.03	
6/6/2019 17:40	-8	-8	-4	-9	-8	-9	-8	-11	-8	-8	-8	-8	-8	-7	-8	4.85	5.31	5.71	4.90	5.39	5.48	5.63	4.79	4.32	4.34	4.57	4.45	3.96	4.33	4.65	
6/6/2019 17:50	-9	-8	-4	-9	-8	-8	-8	-11	-8	-8	-7	-8	-8	-9	-7	-8	5.51	5.70	6.34	5.66	5.92	5.82	5.99	4.95	4.62	5.04	4.92	5.07	4.60	4.90	5.32
6/6/2019 18:00	-8	-8	-4	-9	-8	-8	-8	-11	-8	-8	-8	-8	-9	-7	-8	6.01	6.87	7.18	5.99	6.79	6.82	6.96	5.17	4.78	5.18	5.08	5.21	4.91	5.16	5.72	
6/6/2019 18:10	-8	-8	-4	-9	-8	-8	-9	-11	-8	-9	-8	-9	-9	-9	-9	6.23	6.85	7.35	6.29	6.81	6.94	6.88	5.66	4.90	5.36	5.19	5.31	4.82	5.34	6.02	
6/6/2019 18:20	397	400	-4	372	145	150	307	237	141	145	165	138	83	39	230	5.94	6.89	7.40	6.96	4.25	5.05	6.46	5.72	4.89	5.06	4.99	4.99	4.36	3.25	5.71	
6/6/2019 18:30	301	379	-4	320	84	77	216	272	192	196	212	175	75	26	226	5.28	6.53	6.62	6.26	2.95	3.45	5.48	5.40	4.84	5.16	5.06	5.06	3.54	2.60	5.53	
6/6/2019 18:40	191	240	-4	282	63	208	244	214	127	134	170	136	132	78	224	4.88	5.82	6.75	6.11	3.22	5.12	5.88	5.23	4.71	4.69	4.89	4.64	4.55	3.55	5.24	
6/6/2019 18:50	9	7	-4	11	-10	6	10	-2	-1	-2	1	-1	-4	-4	4	5.53	5.87	6.61	5.70	5.54	6.00	6.25	5.30	4.75	5.20	5.31	5.17	4.77	5.10	5.86	
6/6/2019 19:00	-9	-7	-4	-8	-9	-9	-10	-11	-9	-9	-8	-9	-9	-8	-9	5.64	5.75	5.98	5.61	6.06	6.17	6.19	5.06	4.53	4.95	5.01	5.24	5.07	5.21	5.83	
6/6/2019 19:10	-8	-5	-5	-5	-8	-8	-8	-11	-9	-9	-8	-8	-9	-7	-7	5.12	5.41	5.15	5.74	5.84	5.68	5.76	4.49	3.96	4.09	4.54	4.53	4.30	4.73	5.40	
6/6/2019 19:20	-9	-5	-6	-5	-8	-9	-8	-11	-8	-8	-8	-8	-9	-7	-8	3.99	4.39	4.31	4.33	4.81	4.75	4.90	2.97	2.86	3.01	3.33	3.32	3.21	3.36	3.78	
6/6/2019 19:30	-8	-5	-6	-5	-9	-8	-8	-11	-9	-8	-8	-8	-9	-9	-8	2.94	2.82	3.48	3.19	3.12	3.18	3.31	3.10	2.90	2.92	2.93	3.03	2.98	3.16	3.28	
6/6/2019 19:40	-8	-6	-7	-5	-9	-8	-8	-11	-9	-8	-7	-8	-8	-8	-8	3.08	3.17	2.80	2.93	2.85	2.95	2.98	3.68	3.19	3.44	3.30	3.50	3.21	3.23	3.44	
6/6/2019 19:50	-8	-6	-7	-6	-9	-9	-8	-12	-8	-9	-8	-8	-9	-8	-8	2.76	3.12	3.03	2.70	2.31	2.60	2.87	3.76	3.84	3.52	2.80	2.98	2.93	3.09	3.03	
6/6/2019 20:00	-8	-5	-6	-6	-8	-8	-8	-11	-8	-8	-8	-8	-9	-7	-8	2.66	3.00	2.39	1.90	1.87	2.37	2.63	4.29	4.40	4.30	3.34	3.95	3.67	3.95	3.74	
6/6/2019 20:10	-9	-5	-6	-5	-8	-8	-8	-11	-8	-8	-8	-8	-9	-4	-8	3.40	3.58	3.33	3.07	2.82	3.35	3.51	4.60	4.68	4.67	3.86	4.48	3.99	4.46	4.13	
6/6/2019 20:20	-8	-5	-6	-6	-8	-8	-8	-11	-8	-8	-8	-8	-10	-5	-9	3.22	3.65	3.07	3.18	3.28	3.57	3.56	4.43	4.27	4.69	4.68	4.95	4.33	4.58	4.67	
6/6/2019 20:30	-8	-5	-6	-6	-8	-8	-8	-11	-8	-8	-8	-9	-9	-5	-8	3.23	3.66	2.93	3.51	3.15	3.21	3.28	4.08	4.15	4.30	4.60	4.61	4.18	4.33	4.77	
6/6/2019 20:40	-8	-5	-6	-6	-8	-8	-8	-10	-8	-8	-8	-8	-8	-5	-9	3.48	3.64	3.53	3.43	3.32	3.46	3.36	4.31	4.44	4.53	4.52	4.16	4.12	4.57	5.17	
6/6/2019 20:50	-9	-6	-6	-6	-8	-8	-8	-11	-8	-9	-8	-8	-8	-5	-8	3.63	3.65	2.77	3.33	3.34	3.54	3.44	3.99	3.92	4.40	4.53	4.59	4.41	4.80	4.88	
6/6/2019 21:00	-8	-5	-6	-5	-8	-8	-8	-11	-8	-9	-8	-8	-9	-6	-8	3.40	3.68	2.45	3.50	3.19	3.51	3.50	4.30	4.33	4.32	4.28	4.77	4.58	4.60	4.52	
6/6/2019 21:10	-9	-5	-6	-6	-8	-9	-8	-11	-8	-9	-8	-8	-8	-5	-9	3.21	3.57	1.81	3.03	3.04	3.21	3.28	5.33	5.17	4.97	4.69	5.12	5.01	4.87	4.77	
6/6/2019 21:20	-8	-5	-6	-6	-8	-8	-8	-11	-8	-9	-8	-8	-9	-5	-9	3.31	3.43	2.27	3.24	3.07	3.29	3.26	5.15	5.13	4.94	4.82	5.37	5.16	5.22	5.01	
6/6/2019 21:30	-8	-5	-6	-6	-9	-8	-8	-11	-9	-9	-8	-8	-9	-4	-9	3.07	3.19	1.83	3.30	3.04	3.43	3.47	4.70	5.01	4.76	4.49	4.99	4.54	4.71	4.76	
6/6/2019 21:40	-9	-6	-6	-6	-7	-8	-8	-11	-8	-9	-8	-8	-9	-5	-9	2.94	3.12	1.78	3.39	3.17	3.55	3.79	4.62	5.07	4.99	4.55	4.70	4.37	4.40	4.59	
6/6/2019 21:50	-8	-6	-6	-6	-6	-8	-8	-11	-8	-8	-8	-8	-9	-6	-8	2.54	2.61	3.29	3.36	3.28	3.48	3.95	3.03	4.64	4.21	3.98	3.86	3.65	3.73	3.99	
6/6/2019 22:00	-9	-6	-7	-6	-5	-8	-8	-11	-8	-8	-8	-8	-8	-5	-7	2.67	2.74	2.64	3.36	3.10	3.48	3.68	2.13	4.79	3.11	3.85	4.18	3.65	4.04	4.38	
6/6/2019 22:10	-9	-5	-6	-5	-5	-8	-8	-11	-8	-8	-8	-9	-8	-5	-6	3.33	3.25	3.37	3.64	3.47	3.77	3.95	2.52	3.20	3.41	4.64	3.64	4.01	4.05	4.47	
6/6/2019 22:20	-9	-5	-7	-5	-6	-7	-8	-11	-8	-9	-8	-8	-8	-4	-5	3.68	3.59	3.54	3.91	3.91	4.13	4.12	2.85	4.28	3.39	4.48	4.11	3.92	4.31	4.43	
6/6/2019 22:30	-8	-5	-6	-5	-6	-6	-8	-11	-8	-8	-8	-8	-5	-4	-6	3.46	3.34	3.57	3.86	3.86	4.32	4.35	4.23	4.74	4.85	5.20	4.62	3.75	4.26	4.44	
6/6/2019 22:40	-6	-5	-6	-5	-5	-5	-8	-9	-8	-8	-8	-8	-6	-4	-5	3.94	3.82	4.15	4.21	4.24	4.35	4.36	5.51	5.56	5.78	6.18	5.77	4.64	5.31	5.67	
6/6/2019 22:50	-5	-5	-6	-6	-5	-6	-8	-8	-7	-8	-7	-9	-5	-6	-6	3.72	3.85	4.12	4.18	4.16	4.48	4.67	5.73	5.71	6.18	6.55	6.60	5.51	5.04	6.28	
6/6/2019 23:00	-5	-6	-7	-5	-6	-5	-9	-8	-5	-7	-6	-6	-6	-5	-5	4.09	4.15	4.22	4.77	4.02	4.55	4.40	6.00	5.92	6.38	6.55	6.43	5.77	5.19	4.92	
6/6/2019 23:10	-5	-5	-6	-5	-5	-5	-8	-8	-4	-5	-5	-5	-6	-5	-6	3.75	3.53	3.93	3.96	4.50	4.49	4.47	5.87	5.91	6.16	6.49	6.43	5.81	5.32	4.69	
6/6/2019 23:20	-6	-5	-6	-6	-5	-5	-9	-8	-6	-6	-5	-5	-6	-4	-5	4.26	3.86	4.27	4.54	4.35	4.54	4.71	5.15	5.44	5.87	6.55	6.42	5.87	5.29	5.36	
6/6/2019 23:30	-5	-5	-6	-6	-5	-6	-8	-8	-6	-6	-5	-5	-5	-5	-6	4.23	3.98	4.71	5.02	4.54	4.85	5.00	4.88	5.27	5.62	6.16	5.59	5.17	4.92	5.56	
6/6/2019 23:40	-5	-7	-6	-5	-6	-5	-5	-8	-5	-5	-5	-6	-6	-5	-6	4.59	4.18	5.04	5.20	4.58	4.75	4.68	3.54	4.51	4.54	5.10	4.87	4.73	4.98	5.01	
6/6/2019 23:50	-6	-5	-6	-5	-6	-5	-5	-8	-5	-5	-5	-6	-5	-5	-5	3.92	3.62	4.14	4.60												

6/7/2019 2:10	140	91	150	35	124	223	212	123	115	98	158	65	130	167	204	4.53	4.42	4.66	2.31	4.31	5.60	5.54	4.54	4.62	4.65	4.88	3.88	4.78	5.14	5.55
6/7/2019 2:20	75	50	85	62	54	86	112	61	57	22	65	28	62	102	148	3.83	3.70	3.98	3.93	3.69	3.94	4.25	3.56	3.52	2.99	3.72	3.54	3.66	3.82	4.68
6/7/2019 2:30	68	44	92	102	27	32	46	0	2	-10	-13	-5	-10	27	43	3.81	3.67	4.11	4.71	3.39	3.00	3.54	2.66	2.59	1.13	2.58	2.85	2.74	3.11	3.81
6/7/2019 2:40	95	62	124	156	52	51	34	-15	-10	-7	10	-9	-10	7	18	4.08	3.80	3.87	5.23	3.39	3.44	3.41	2.60	2.19	2.31	3.25	1.61	2.45	2.89	3.01
6/7/2019 2:50	117	92	142	151	53	35	37	-13	-8	-7	-1	-6	-8	4	8	4.60	4.19	4.46	4.88	3.50	3.32	3.55	2.47	2.10	1.93	3.09	1.60	2.52	2.77	2.90
6/7/2019 3:00	135	114	149	151	89	43	44	-9	-7	-5	4	-5	-7	7	3	5.03	4.71	4.42	4.92	4.06	3.40	3.56	2.30	2.41	2.25	3.21	1.42	2.31	2.76	2.75
6/7/2019 3:10	120	103	141	133	97	22	19	-8	-7	-7	21	-6	-7	13	15	4.53	4.40	4.34	4.69	4.17	2.95	2.88	2.05	2.46	1.26	3.37	2.36	2.40	2.78	3.09
6/7/2019 3:20	116	100	153	167	86	48	33	-8	-7	-7	22	-7	-7	7	29	4.57	4.48	4.35	5.18	3.56	3.49	3.30	2.15	2.33	1.58	3.15	2.59	2.41	2.62	3.27
6/7/2019 3:30	116	86	144	166	134	47	52	-16	-15	-8	17	-6	-11	37	86	4.32	4.20	4.18	4.79	4.71	3.40	3.61	2.81	2.72	1.59	3.02	2.74	2.36	3.19	4.25
6/7/2019 3:40	97	74	106	132	109	68	54	-14	-10	-7	0	-6	-5	66	109	4.11	4.14	3.69	4.22	4.40	3.60	3.56	2.82	3.01	1.72	2.68	2.47	2.83	3.75	4.65
6/7/2019 3:50	97	72	95	122	68	68	53	20	28	-7	-7	-9	3	79	110	4.13	4.01	3.62	4.02	3.42	3.64	3.42	3.55	3.42	1.78	1.63	2.37	2.71	3.94	4.60
6/7/2019 4:00	74	58	74	77	39	36	13	-13	-8	-6	-7	-7	-10	19	30	3.43	3.80	3.23	3.55	3.12	3.12	2.66	2.71	2.79	1.36	2.25	1.33	1.93	3.11	3.68
6/7/2019 4:10	21	1	23	26	-13	-10	-9	-10	-12	-6	-9	-5	-7	30	35	2.95	2.79	2.78	3.13	2.32	1.52	1.31	2.15	2.29	1.40	2.00	1.57	2.15	3.28	3.93
6/7/2019 4:20	-12	-10	-6	-9	-11	-6	-6	-8	-8	-7	-7	-5	-7	-6	-9	1.95	1.46	1.59	1.42	1.10	0.96	0.76	1.79	1.75	0.91	1.49	1.49	2.00	2.51	2.78
6/7/2019 4:30	-9	-6	-4	-7	-7	-6	-7	-8	-5	-7	-6	-6	-7	-10	-8	0.70	0.64	0.00	0.92	0.74	0.61	0.40	1.85	1.56	0.97	1.23	1.10	1.46	1.78	1.29
6/7/2019 4:40	-6	-5	-4	-6	-5	-6	-6	-7	-6	-6	-7	-6	-6	-6	-6	0.42	0.42	0.00	0.77	0.54	0.69	0.53	1.35	1.13	1.36	1.35	1.26	0.88	1.01	0.60
6/7/2019 4:50	-6	-5	-4	-6	-5	-6	-7	-10	-6	-6	-6	-5	-7	-4	-6	1.10	0.66	0.00	0.67	0.42	0.81	0.98	0.83	1.34	0.85	1.38	1.79	0.84	0.89	0.78
6/7/2019 5:00	-6	-6	-6	-5	-6	-6	-6	-10	-6	-5	-6	-5	-6	-6	-6	0.72	0.86	0.00	0.80	1.03	0.83	0.82	0.93	1.08	1.39	1.83	1.42	1.43	0.61	1.41
6/7/2019 5:10	-7	-6	-6	-5	-6	-5	-5	-10	-6	-7	-5	-5	-6	-5	-5	0.86	1.24	0.72	1.08	0.76	1.24	1.37	0.98	1.41	0.93	1.66	1.20	1.19	1.53	2.16
6/7/2019 5:20	-6	-5	-6	-5	-6	-5	-6	-9	-5	-6	-5	-5	-6	-4	-5	1.12	1.39	1.27	1.36	1.42	1.40	2.08	2.24	1.47	2.11	1.98	1.97	1.48	1.66	2.43
6/7/2019 5:30	-5	-6	-7	-6	-6	-6	-8	-9	-6	-6	-6	-5	-6	-4	-6	1.38	1.80	2.05	1.43	1.70	1.76	1.31	2.16	1.56	1.52	1.63	1.21	1.31	1.05	1.94
6/7/2019 5:40	-7	-6	-6	-7	-5	-6	-8	-10	-7	-6	-5	-5	-5	-4	-5	0.70	1.22	1.52	1.02	1.05	1.21	1.62	1.25	1.14	0.93	1.35	1.86	2.12	1.53	1.58
6/7/2019 5:50	-7	-7	-6	-6	-5	-5	-9	-9	-6	-6	-5	-5	-5	-5	-5	0.69	1.04	1.11	1.06	1.33	1.03	1.87	1.76	1.80	1.23	1.48	2.12	1.97	1.52	1.53
6/7/2019 6:00	-4	-6	-6	-6	-6	-5	-7	-9	-6	-6	-6	-5	-6	-4	-5	0.78	1.12	0.78	1.41	1.91	1.46	1.50	1.94	2.11	1.56	1.74	1.57	1.82	1.27	1.68
6/7/2019 6:10	-6	-6	-7	-6	-5	-5	-6	-8	-7	-6	-6	-6	-6	-4	-6	1.01	1.87	1.38	1.36	1.76	1.93	2.65	2.21	1.88	2.10	1.95	1.32	1.34	1.25	1.55
6/7/2019 6:20	-6	-6	-7	-5	-5	-6	-7	-10	-6	-7	-6	-6	-6	-5	-7	1.53	1.70	1.68	1.65	1.17	1.27	1.80	1.47	2.57	2.35	2.16	1.67	1.48	1.53	1.36
6/7/2019 6:30	-7	-6	-6	-6	-5	-6	-9	-8	-7	-7	-7	-6	-6	-7	-6	1.39	1.09	1.85	2.01	1.96	1.14	1.03	2.49	3.08	3.24	3.10	2.12	1.62	1.33	2.20
6/7/2019 6:40	-7	-6	-6	-6	-5	-5	-7	-9	-7	-10	-3	-6	-7	-7	-6	0.98	1.05	1.88	1.76	1.65	2.01	2.29	2.09	2.81	2.70	2.29	2.26	2.50	2.54	2.57
6/7/2019 6:50	-6	-6	-6	-6	-6	-6	-8	-5	12	-6	-5	-7	-5	-6	-7	1.11	1.11	1.72	1.38	1.62	1.01	1.31	2.83	3.02	2.29	2.61	2.63	2.19	2.31	2.97
6/7/2019 7:00	11	-6	-6	-6	-5	-5	-6	-12	-11	-2	4	-7	-7	-6	-7	2.35	1.19	2.61	2.08	2.11	2.21	1.83	2.52	2.31	2.70	3.03	2.67	2.54	2.34	2.89
6/7/2019 7:10	67	18	3	-5	-6	-5	-8	-12	-8	-3	-10	-6	-6	-3	9	3.61	3.42	2.97	1.92	2.42	2.49	3.03	2.24	2.27	2.34	3.37	2.08	2.17	2.67	2.75
6/7/2019 7:20	19	64	-4	4	16	-6	-6	-10	32	-9	26	0	-7	15	16	3.19	3.55	3.80	3.16	3.51	2.54	3.15	2.40	3.32	2.93	3.36	2.83	2.34	2.34	2.92
6/7/2019 7:30	19	45	-4	-8	-3	-7	-1	45	38	41	71	35	45	8	92	3.22	3.24	3.00	2.23	1.87	2.74	3.69	3.68	2.92	3.50	3.72	3.29	3.53	2.90	4.32
6/7/2019 7:40	25	94	-4	46	-9	-6	-10	-9	-10	-7	-3	-9	-9	2	-5	3.80	4.36	4.23	3.19	2.97	1.93	2.00	2.82	3.10	2.74	2.45	2.52	2.38	2.49	2.92
6/7/2019 7:50	59	59	-4	18	12	10	27	51	88	25	-9	18	-9	2	-8	3.15	3.45	3.33	2.55	2.31	2.62	3.26	3.50	3.93	3.43	2.66	3.44	3.07	2.73	2.79
6/7/2019 8:00	-8	32	-4	1	26	-9	-10	3	-1	14	14	21	22	34	42	2.16	3.03	2.54	2.56	2.97	2.22	2.16	2.46	2.48	2.51	2.82	2.83	2.76	2.98	3.69
6/7/2019 8:10	-7	-9	-4	-8	-9	-4	-8	-12	30	-10	-7	-8	-9	-6	-8	2.11	2.75	4.72	2.29	2.55	2.43	2.95	2.56	3.46	2.49	2.00	2.14	2.36	1.54	1.95
6/7/2019 8:20	37	-6	-4	23	-7	-9	-8	91	81	-8	-7	2	-4	-4	-6	3.34	3.33	4.50	3.10	1.89	2.39	2.58	4.06	4.00	3.20	3.13	3.04	2.93	2.13	2.59
6/7/2019 8:30	-8	89	-4	25	-7	15	-4	74	43	28	29	-8	-4	-5	-7	2.65	3.91	3.89	2.84	2.99	3.44	3.41	3.50	3.35	3.76	3.72	3.00	2.95	1.98	2.55
6/7/2019 8:40	-7	-8	-8	-5	-6	10	23	65	39	50	18	17	-8	-4	-6	1.25	1.75	1.19	1.97	2.15	2.54	2.63	3.48	3.96	3.74	2.95	2.87	2.72	2.30	2.70
6/7/2019 8:50	-4	9	-5	-6	-7	-8	-8	80	39	39	11	-5	6	-5	-6	2.62	2.87	3.48	2.11	1.75	1.83	1.79	3.83	3.44	3.54	3.38	2.81	2.89	2.10	2.13
6/7/2019 9:00	-7	-6	-3	-5	3	-6	-1	29	125	107	53	79	132	9	29	2.07	2.80	3.33	2.94	2.69	1.94	3.18	3.95	4.38	4.21	4.01	4.28	4.36	3.34	3.65
6/7/2019 9:10	-8	130	-3	-4	41	5	28	139	309	366	292	170	213	184	166	3.32	4.70	5.57	3.77	3.58	3.19	3.71	4.91	5.73	5.90	5.47	4.63	4.92	4.60	4.63
6/7/2019 9:20	88	94	-3	-4	113	151	203	337	195	186	167	200	127	141	142	3.65	3.79	6.11	4.70	4.48	4.58	4.87	5.50	4.78	4.62	4.43	4.73	4.27	4.14	4.48
6/7/2019 9:30	84	20	-8	76	64	89	172	256	233	191	182	102	87	49	139	3.95	4.31	5.96	4.55	3.98	4.17	4.70	5.42	5.10	4.85	4.70	4.20	3.99	3.63	4.43
6/7/2019 9:40	109	142	-8	267	236	220	257	195	42	129	62	111	99	42	124	4.43	4.90	5.91	5.69	5.35	5.15	5.63	4.89	4.06	4.48	3.58	4.20	4.00	2.95	4.14
6/7/2019 9:50	125	173	-5	336	234	293	247	71	202	145	159	142	122	26	148	4.63	5.22	6.29	6.26	5.40	5.60	5.65	3.98	4.86	4.45	4.64	4.39	4.08	3.41	4.38
6/7/2019 10:00	286	290	116	144	265	260	315	269	210	185	202	131	148	139	102	5.64	5.51	4.96	4.36	5.41	5.19	5.61	5.05	4.96	4.83	4.89	4.27	4.30	4.15	4.06
6/7/2019 10:10	245	202	229	209	165	126	128																							

6/7/2019 12:30	332	523	679	565	494	540	358	497	538	528	573	631	655	615	606	6.59	7.21	7.16	6.83	6.37	6.52	6.20	6.48	6.75	6.68	6.75	6.81	6.90	6.91	6.89
6/7/2019 12:40	388	393	418	307	284	340	256	428	360	397	376	265	220	179	227	6.02	6.08	6.09	5.84	5.73	6.03	7.19	6.09	5.89	6.22	6.03	5.43	5.06	4.30	4.91
6/7/2019 12:50	175	363	494	355	397	398	451	453	429	490	573	472	337	389	430	4.86	6.45	6.64	6.18	6.37	6.47	6.80	6.12	6.18	6.45	6.64	6.45	5.69	6.14	6.25
6/7/2019 13:00	387	407	573	446	428	462	460	588	376	434	417	399	317	347	590	6.22	6.53	6.95	6.65	6.79	6.46	6.56	6.75	5.74	6.20	6.03	5.92	5.58	5.52	6.71
6/7/2019 13:10	486	452	564	596	584	674	677	388	333	301	422	411	427	124	513	7.00	6.45	6.91	7.29	7.26	7.73	7.87	5.98	5.86	5.83	6.23	6.41	6.11	5.07	6.43
6/7/2019 13:20	592	522	578	379	486	420	495	397	380	467	544	449	471	402	468	7.44	7.63	6.74	6.09	6.94	6.11	6.68	6.07	5.75	6.02	6.41	6.45	6.05	5.73	6.33
6/7/2019 13:30	499	681	946	824	634	630	401	573	471	588	638	613	430	420	420	7.35	8.24	8.29	8.01	7.49	7.43	6.35	6.69	6.45	6.96	7.12	7.07	6.76	6.01	6.08
6/7/2019 13:40	436	441	476	462	418	323	387	758	820	756	619	529	446	373	640	6.96	6.96	6.72	6.67	6.31	6.06	6.57	7.36	7.64	7.45	6.83	6.46	6.42	6.10	6.92
6/7/2019 13:50	312	527	688	633	614	671	645	388	359	322	371	509	420	460	484	5.81	7.13	7.24	7.29	7.19	7.40	7.53	5.96	5.90	5.66	5.85	6.60	6.11	6.28	6.41
6/7/2019 14:00	522	363	285	320	342	434	355	752	421	568	603	366	419	326	444	7.01	6.19	5.59	6.09	6.04	6.58	6.13	7.36	6.17	6.67	6.97	5.91	5.90	5.55	6.02
6/7/2019 14:10	551	362	388	427	330	176	159	405	359	262	485	497	186	210	390	7.10	6.38	6.30	6.59	6.01	4.72	5.47	6.04	6.09	5.26	6.34	6.50	4.86	5.10	6.09
6/7/2019 14:20	369	353	579	588	615	559	522	671	377	437	573	320	232	294	537	6.25	6.24	6.92	7.24	7.40	7.16	7.45	7.25	6.25	6.36	6.80	5.67	5.27	5.12	6.54
6/7/2019 14:30	574	552	661	557	591	556	610	455	368	464	393	420	410	399	560	7.15	7.35	7.32	7.23	7.31	6.65	7.48	6.38	5.77	6.43	6.04	6.31	6.03	5.88	6.76
6/7/2019 14:40	424	488	562	375	403	456	542	443	372	547	602	464	362	262	391	6.21	7.02	6.72	6.16	6.48	6.83	6.76	6.26	5.86	6.82	6.89	6.36	5.72	4.98	5.89
6/7/2019 14:50	428	620	669	625	628	634	624	275	233	192	331	323	304	296	304	6.80	7.49	7.46	7.26	7.43	7.14	7.50	5.40	5.28	5.18	5.85	5.89	5.55	5.40	5.61
6/7/2019 15:00	422	425	321	368	553	530	604	473	391	226	424	309	338	268	362	6.22	6.77	5.81	6.46	7.54	7.26	8.12	6.41	6.16	5.24	6.15	5.52	5.66	5.13	5.82
6/7/2019 15:10	282	251	376	367	444	468	545	458	573	490	299	256	298	370	454	5.76	5.67	5.93	6.01	6.63	6.57	7.34	6.43	6.92	6.48	5.44	5.55	5.30	5.70	6.24
6/7/2019 15:20	186	307	372	279	262	244	304	469	457	231	336	203	195	185	365	4.99	5.86	5.85	5.66	5.40	5.28	5.83	6.40	6.38	5.15	5.77	4.98	4.98	4.67	5.79
6/7/2019 15:30	306	251	153	165	160	192	262	423	240	368	389	289	347	244	437	5.66	5.68	4.45	4.75	4.90	5.24	5.93	6.20	5.14	6.11	6.19	5.54	5.92	5.18	6.28
6/7/2019 15:40	278	234	245	299	298	348	401	473	341	490	422	356	514	291	512	5.99	5.71	5.10	5.97	5.91	6.19	6.51	6.56	5.81	6.62	6.24	5.95	6.65	5.48	6.52
6/7/2019 15:50	411	332	325	239	224	292	303	412	396	440	490	295	276	278	270	6.19	5.90	5.58	5.59	5.48	5.76	6.10	6.03	6.12	6.41	6.20	5.43	5.51	5.37	5.36
6/7/2019 16:00	262	267	267	307	332	255	302	375	360	263	453	320	249	337	369	5.62	6.11	5.39	6.27	6.33	5.33	5.89	6.08	5.93	5.46	6.27	5.84	5.14	5.76	6.03
6/7/2019 16:10	300	288	345	258	254	330	444	241	268	335	348	364	267	344	438	6.19	6.16	6.16	5.81	5.69	5.99	7.00	5.26	5.41	6.01	5.81	6.13	5.35	5.57	6.28
6/7/2019 16:20	339	361	503	458	470	446	450	386	348	180	284	312	286	248	306	5.97	6.73	6.66	6.34	7.10	6.65	6.56	6.06	5.93	4.90	5.51	5.83	5.57	5.33	5.51
6/7/2019 16:30	332	306	417	363	416	347	324	408	259	265	331	265	318	269	187	6.65	6.30	6.25	5.84	6.91	6.27	6.27	6.33	5.55	5.64	5.80	5.27	5.83	5.31	4.83
6/7/2019 16:40	357	302	277	259	274	260	285	495	354	372	289	225	295	311	413	6.80	6.38	5.30	5.22	5.93	5.75	5.92	6.68	5.93	6.26	5.49	5.16	5.70	5.58	6.32
6/7/2019 16:50	376	357	425	319	358	319	334	560	440	412	246	278	333	384	413	6.95	6.78	6.28	5.73	6.63	6.21	6.39	6.93	6.38	6.41	5.23	5.52	5.82	5.88	6.18
6/7/2019 17:00	364	373	459	416	411	410	433	537	433	422	528	447	382	447	499	6.87	6.86	6.40	6.24	6.95	6.95	6.91	6.71	6.26	6.42	6.63	6.39	6.01	6.14	6.57
6/7/2019 17:10	444	418	550	493	520	471	468	588	475	493	614	552	473	474	519	7.42	7.18	6.87	6.57	7.69	7.34	7.43	6.84	6.43	6.71	6.77	6.75	6.39	6.22	6.62
6/7/2019 17:20	566	508	635	542	549	493	464	686	545	612	728	625	563	543	595	8.18	7.76	7.24	6.91	7.77	7.46	7.14	7.20	6.70	7.22	7.18	7.00	6.72	6.50	6.89
6/7/2019 17:30	562	464	572	518	592	540	525	822	648	640	720	677	626	655	751	7.94	7.37	6.83	6.71	7.86	7.60	7.50	7.62	7.05	7.30	7.15	7.14	6.89	6.93	7.40
6/7/2019 17:40	638	468	588	502	546	460	447	855	686	706	814	691	611	651	779	8.42	7.50	6.95	6.62	7.73	7.24	7.19	7.67	7.25	7.59	7.48	7.23	6.88	6.92	7.52
6/7/2019 17:50	752	576	685	583	658	585	555	894	721	745	860	751	682	707	845	8.92	8.09	7.31	6.86	8.19	7.81	7.68	7.82	7.41	7.71	7.60	7.44	7.13	7.09	7.74
6/7/2019 18:00	783	635	744	651	720	665	697	982	826	891	995	901	840	902	1,016	9.17	8.50	7.61	7.35	8.52	8.28	8.50	8.01	7.72	8.14	7.98	7.88	7.62	7.74	8.20
6/7/2019 18:10	808	580	823	688	782	701	659	1,092	929	947	1,083	1,011	1,020	1,041	1,127	9.25	7.98	8.11	7.61	8.79	8.52	8.26	8.38	7.95	8.34	8.12	8.14	8.08	8.11	8.39
6/7/2019 18:20	851	694	892	784	906	817	826	1,258	1,027	1,078	1,185	1,100	1,089	1,043	1,119	9.45	8.70	8.25	7.95	9.28	8.89	8.99	8.74	8.08	8.66	8.29	8.32	8.19	8.16	8.34
6/7/2019 18:30	840	683	897	798	893	839	902	1,247	1,041	1,058	1,194	1,079	973	992	1,128	9.30	8.59	8.29	7.88	9.07	9.00	9.18	8.77	8.21	8.58	8.40	8.28	7.93	8.01	8.38
6/7/2019 18:40	856	742	882	791	959	923	936	1,264	1,070	1,038	1,270	1,004	910	1,060	1,157	9.36	8.77	8.13	7.95	9.31	9.23	9.26	8.72	8.27	8.58	8.64	8.15	7.75	8.21	8.44
6/7/2019 18:50	780	688	827	741	939	909	981	1,123	957	862	1,061	888	776	872	999	8.88	8.40	8.16	7.78	9.22	9.00	9.32	8.40	7.99	7.97	8.15	7.79	7.44	7.67	8.16
6/7/2019 19:00	702	575	786	739	882	848	935	1,101	880	851	911	758	659	729	814	8.65	8.06	7.98	7.67	8.97	8.72	9.10	8.33	7.78	8.06	7.75	7.47	7.16	7.36	7.64
6/7/2019 19:10	864	682	841	717	895	853	947	937	797	808	918	633	582	679	824	9.16	8.44	7.97	7.36	8.80	8.46	8.96	7.94	7.53	7.92	7.77	6.99	6.84	7.13	7.64
6/7/2019 19:20	870	679	792	675	808	743	803	860	668	667	789	561	472	551	708	8.98	8.38	7.78	7.53	8.38	8.00	8.36	7.82	7.23	7.45	7.43	6.82	6.52	7.03	7.30
6/7/2019 19:30	638	397	612	514	606	574	622	759	583	528	563	351	266	391	467	7.75	6.63	7.20	7.20	7.61	7.39	7.89	7.43	6.99	6.97	6.77	6.03	5.47	6.08	6.48
6/7/2019 19:40	628	518	591	519	595	545	613	553	446	425	443	256	167	270	297	6.89	7.12	7.13	6.72	7.89	7.26	7.60	6.66	6.33	6.46	6.33	5.58	4.86	5.46	5.95
6/7/2019 19:50	466	343	342	279	304	3																								

6/7/2019 22:50	792	546	859	688	1,150	1,612	1,703	479	591	327	915	579	312	1,000	1,143	7.71	7.54	8.21	7.13	9.56	10.96	11.38	6.59	7.04	5.31	8.31	7.40	5.57	8.57	8.84
6/7/2019 23:00	847	541	937	586	1,138	1,747	1,838	738	780	601	1,275	757	410	1,249	1,353	8.94	7.42	8.56	6.10	9.10	11.32	11.69	7.38	7.71	7.40	9.08	7.87	6.22	9.13	9.17
6/7/2019 23:10	927	606	980	612	1,182	1,679	1,775	892	986	651	1,390	854	625	1,490	1,668	9.29	7.72	8.55	6.10	9.36	11.04	11.26	7.70	8.18	7.34	9.23	8.20	7.09	9.55	9.80
6/7/2019 23:20	841	529	887	365	1,174	1,602	1,648	790	995	642	1,313	734	629	1,244	1,337	8.77	7.47	8.69	4.83	9.39	10.99	11.32	7.44	8.16	7.29	8.94	7.37	7.17	8.89	9.05
6/7/2019 23:30	917	563	849	320	1,327	1,554	1,475	800	782	664	1,185	438	793	1,197	1,274	9.01	7.89	8.52	4.90	10.12	11.32	11.84	7.63	7.70	7.69	8.74	6.31	7.84	8.94	9.36
6/7/2019 23:40	948	656	992	368	1,324	1,682	1,604	787	840	631	1,298	823	653	1,335	1,402	9.26	8.36	8.98	4.72	9.93	11.83	12.47	7.54	7.87	7.45	8.97	8.34	7.40	9.30	9.98
6/7/2019 23:50	864	559	867	262	1,446	1,614	1,542	666	729	507	1,167	751	568	1,235	1,315	8.87	7.80	8.59	5.00	10.67	11.46	12.08	7.07	7.41	6.47	8.62	7.93	6.81	8.88	9.61
6/8/2019 0:00	789	506	774	219	1,307	1,435	1,376	508	644	497	1,017	596	569	959	1,097	8.71	7.62	8.26	4.87	9.99	10.33	10.78	6.55	7.18	6.94	8.16	6.97	6.97	8.10	8.93
6/8/2019 0:10	720	432	613	172	1,195	1,253	1,230	434	557	527	905	352	641	894	1,038	8.11	7.35	7.74	4.66	9.53	9.76	10.21	6.35	6.95	7.13	8.00	5.88	7.17	8.01	8.74
6/8/2019 0:20	563	331	445	193	1,086	1,286	1,307	397	433	491	805	411	589	930	1,123	7.08	6.61	6.86	4.70	9.68	9.96	10.45	6.18	6.44	6.72	7.67	6.12	6.99	8.47	8.88
6/8/2019 0:30	461	173	276	240	1,153	1,357	1,354	449	406	486	836	550	748	930	1,065	6.70	4.63	5.27	5.02	10.10	10.01	10.53	6.50	6.36	6.73	7.83	6.58	7.53	8.52	8.72
6/8/2019 0:40	428	60	299	312	1,117	1,296	1,295	346	419	494	760	530	686	809	903	7.13	2.86	5.81	5.51	10.00	9.89	10.37	6.01	6.41	6.74	7.43	6.70	7.24	7.94	8.11
6/8/2019 0:50	456	67	315	308	1,134	1,248	1,231	227	273	320	545	422	613	746	889	7.22	2.90	5.59	5.46	10.02	9.72	10.06	5.28	5.68	5.80	6.76	6.31	7.06	7.87	8.10
6/8/2019 1:00	441	86	299	240	1,055	1,165	1,165	166	207	250	488	416	495	656	874	7.13	3.48	5.94	4.87	9.74	9.40	9.91	4.87	5.20	5.42	6.49	6.27	6.50	7.49	8.08
6/8/2019 1:10	430	145	360	126	973	1,081	1,075	93	104	155	284	357	375	494	661	6.94	5.03	6.45	4.15	9.47	9.08	9.53	4.32	4.49	4.86	5.60	6.35	6.08	6.72	7.28
6/8/2019 1:20	451	135	319	134	915	955	893	160	151	216	346	429	435	537	767	6.88	4.82	6.08	4.25	9.19	8.61	8.63	4.90	4.87	5.29	6.03	6.69	6.37	6.83	7.70
6/8/2019 1:30	458	115	323	161	989	1,046	883	130	160	211	204	351	371	545	649	6.81	4.23	5.90	4.46	9.54	8.95	9.25	4.61	4.94	5.23	4.96	6.12	5.97	6.81	7.23
6/8/2019 1:40	404	138	332	115	860	899	753	68	76	121	219	277	286	371	520	6.68	4.86	6.28	4.01	9.07	8.39	8.64	4.12	4.25	4.67	5.43	5.87	5.50	5.90	6.71
6/8/2019 1:50	398	95	255	112	831	799	720	55	31	72	246	268	258	334	449	6.51	3.82	5.43	3.89	8.92	8.01	8.37	3.98	3.69	4.08	5.46	5.69	5.40	5.78	6.47
6/8/2019 2:00	313	61	150	61	591	531	520	1	1	26	211	207	220	303	411	6.05	3.64	5.54	3.32	7.82	7.33	7.43	3.25	3.29	3.47	5.18	5.32	5.20	5.53	6.30
6/8/2019 2:10	239	25	65	41	390	327	339	-11	-15	-14	127	153	137	218	331	5.21	2.57	3.07	2.98	6.42	6.01	6.18	2.74	2.67	2.69	4.71	4.92	4.73	5.06	5.91
6/8/2019 2:20	175	-11	-15	135	246	289	263	13	4	3	112	66	68	168	241	5.24	1.82	2.01	4.46	5.82	5.54	5.91	3.45	3.29	3.23	4.49	3.97	4.01	4.77	5.46
6/8/2019 2:30	130	-8	14	91	241	381	389	44	14	41	153	86	55	97	172	4.63	1.78	2.48	3.83	5.87	6.29	6.90	3.92	3.33	3.75	4.81	4.23	3.99	4.23	5.00
6/8/2019 2:40	161	-10	-10	147	288	357	332	48	64	4	108	76	75	125	202	5.02	1.90	2.36	4.44	6.21	6.16	6.45	3.82	4.13	3.19	4.46	4.18	4.17	4.27	5.13
6/8/2019 2:50	115	-10	18	139	253	276	280	71	117	59	111	73	82	139	226	4.30	2.10	2.82	4.29	5.97	5.71	6.03	3.95	4.63	3.77	4.35	4.11	4.30	4.44	5.42
6/8/2019 3:00	51	-7	10	109	222	282	236	19	22	35	40	61	63	137	279	3.42	2.08	2.48	4.32	5.59	5.71	5.70	3.46	3.34	3.66	3.41	4.03	3.94	4.61	5.93
6/8/2019 3:10	113	8	35	134	191	234	206	-5	-10	5	47	41	44	154	265	4.23	2.57	2.98	4.57	5.37	5.50	5.53	2.85	2.61	3.34	3.51	3.59	3.61	4.57	5.76
6/8/2019 3:20	39	-11	-9	116	211	271	244	22	3	25	119	132	93	171	255	3.32	1.54	2.05	4.34	5.62	5.84	5.60	3.36	2.95	3.44	4.40	4.69	4.21	4.90	5.48
6/8/2019 3:30	65	-11	18	125	216	213	196	22	31	49	104	119	125	213	271	3.57	1.68	2.69	4.45	5.37	5.35	5.22	3.51	3.65	4.00	4.29	4.52	4.48	5.00	5.58
6/8/2019 3:40	94	-8	47	173	205	216	212	20	2	34	132	148	160	199	229	3.98	2.03	3.22	4.85	5.45	5.28	5.31	3.46	3.26	3.73	4.55	4.73	4.74	4.76	5.20
6/8/2019 3:50	61	-7	46	170	219	225	272	50	69	103	120	136	149	217	279	3.59	2.07	3.26	4.80	5.57	5.22	5.56	3.93	4.18	4.56	4.41	4.59	4.68	4.89	5.74
6/8/2019 4:00	106	2	60	133	234	186	158	25	32	36	143	108	154	188	285	3.98	2.50	3.32	4.43	5.52	4.75	4.50	3.42	3.45	3.62	4.67	4.29	4.77	4.83	5.73
6/8/2019 4:10	58	-1	43	128	225	130	122	14	24	4	132	171	150	215	243	3.45	2.37	3.20	4.41	5.48	4.18	4.12	3.41	3.42	3.02	4.54	5.08	4.56	4.93	5.34
6/8/2019 4:20	78	26	33	100	117	134	132	46	38	23	212	208	242	205	210	3.56	3.30	3.16	3.87	4.10	4.25	4.36	3.89	3.79	3.26	5.02	5.07	5.29	4.97	5.07
6/8/2019 4:30	57	7	32	123	87	174	164	83	47	63	294	200	138	127	99	3.42	2.82	2.88	4.26	4.15	4.79	4.76	4.08	3.64	3.67	5.64	4.82	4.34	4.09	4.06
6/8/2019 4:40	46	11	75	145	136	135	171	53	58	25	114	85	32	73	82	3.09	2.81	3.65	4.65	4.61	4.38	4.77	3.67	3.74	3.31	4.23	4.02	3.23	3.62	4.00
6/8/2019 4:50	73	16	84	154	231	248	312	-2	42	-2	85	72	109	126	63	3.49	2.94	3.71	4.68	5.39	5.41	5.98	2.96	3.48	3.04	3.86	3.85	4.24	4.09	3.65
6/8/2019 5:00	179	96	120	196	315	333	360	2	-9	58	24	85	128	45	114	4.78	4.23	4.10	5.07	5.88	6.17	6.13	2.90	2.17	3.93	3.23	3.98	4.37	3.16	4.35
6/8/2019 5:10	241	157	120	266	289	410	283	-8	-8	12	91	153	118	82	92	5.33	4.85	4.09	5.66	5.96	6.43	5.56	2.84	2.54	3.16	4.16	4.52	4.14	3.68	3.88
6/8/2019 5:20	174	97	119	205	312	289	392	99	17	47	45	92	94	30	43	4.64	4.03	4.03	4.95	6.06	5.48	6.41	4.24	3.12	3.74	3.68	4.09	4.03	3.18	3.53
6/8/2019 5:30	95	50	170	209	214	219	248	4	40	9	63	71	16	70	67	4.11	3.24	4.77	5.10	5.23	5.22	5.34	2.90	3.51	3.16	3.78	3.93	3.17	3.56	3.87
6/8/2019 5:40	89	15	92	143	152	157	158	-14	-13	-9	19	26	19	12	28	4.08	3.44	3.91	4.43	4.69	4.57	4.72	2.47	2.43	2.53	3.24	3.42	3.11	2.90	3.23
6/8/2019 5:50	22	12	44	103	67	81	92	-11	-10	-11	8	15	33	44	25	3.23	3.51	3.29	4.12	3.66	3.82	3.99	2.63	3.14	2.51	3.09	3.24	3.43	3.34	3.50
6/8/2019 6:00	8	-3	17	11	35	11	40	-6	-11	-7	17	-2	-4	-3	-4	2.48	2.27	2.84	2.95	3.16	2.66	3.29	2.92	2.45	2.81	3.34	2.62	2.79	2.66	2.86
6/8/2019 6:10	1	-12	-13	-12	2	5	-8	-10	-1	-5	-5	9	-2	-7	-11	2.45	2.03	3.09	2.87	2.75	2.73	2.63	2.70	2.71	2.80	2.70	3.41	3.07	2.59	

6/8/2019 9:10	-11	7	9	7	121	142	134	-12	-8	-12	-9	-11	-13	14	-3	2.70	2.78	3.10	3.26	4.42	4.26	4.56	2.31	2.46	2.40	2.02	2.08	3.06	2.93	2.98
6/8/2019 9:20	42	-12	-13	-9	36	0	-12	-11	-11	-10	-8	-9	-10	-10	-11	3.89	2.73	2.54	2.64	3.18	3.10	2.71	1.75	1.52	1.32	1.84	1.56	1.72	1.69	1.85
6/8/2019 9:30	8	-11	-10	-1	12	13	36	-13	-10	-10	-9	-8	-9	-9	-11	2.19	2.22	2.24	2.17	2.48	2.89	4.20	2.32	2.92	2.43	2.19	2.61	3.05	2.54	3.25
6/8/2019 9:40	-12	-9	8	-7	-11	-12	-13	97	109	-11	-9	-11	-10	-1	-10	1.87	2.20	2.89	3.22	2.42	1.64	1.97	4.32	4.43	3.61	3.13	2.61	3.21	2.92	3.15
6/8/2019 9:50	6	-5	-11	-2	-10	-9	-11	47	115	7	14	-8	28	96	89	2.75	2.82	2.52	2.95	2.30	1.93	2.80	3.56	4.13	3.33	3.89	3.31	3.67	3.87	4.30
6/8/2019 10:00	115	59	54	-2	7	41	13	22	33	22	4	13	43	36	19	4.58	3.96	3.28	3.16	3.01	3.32	4.20	3.09	3.47	3.39	3.31	3.21	3.49	3.07	3.72
6/8/2019 10:10	105	117	138	-2	105	104	-9	-5	-13	-14	-7	-12	11	36	63	4.17	4.34	4.45	3.83	4.13	3.92	3.28	2.42	3.40	3.18	3.25	2.69	2.48	2.77	3.55
6/8/2019 10:20	73	88	89	24	72	91	13	25	-10	-4	11	-12	-12	5	-12	3.64	3.85	3.88	4.43	3.96	4.06	3.58	3.64	2.49	3.01	3.12	2.75	1.58	2.75	3.30
6/8/2019 10:30	7	-10	7	4	-1	38	49	161	91	-6	-6	-11	-11	106	107	3.25	2.52	2.92	2.88	2.75	3.66	4.19	4.69	4.36	3.52	3.45	3.69	3.21	3.42	3.76
6/8/2019 10:40	13	16	60	60	87	117	184	41	126	32	72	19	-1	40	21	2.60	2.94	3.68	3.92	4.18	4.56	4.89	3.25	4.27	3.08	3.85	3.79	3.66	3.78	3.74
6/8/2019 10:50	99	73	112	71	36	0	4	11	59	21	85	4	9	27	54	4.12	3.83	4.04	3.82	3.24	3.05	3.45	3.18	3.59	3.20	3.94	3.49	3.98	3.36	3.82
6/8/2019 11:00	93	74	147	123	103	51	26	36	25	6	34	-3	6	-6	46	3.94	3.87	4.25	4.18	4.11	3.38	3.81	3.76	3.37	2.97	3.35	2.82	3.20	2.75	3.63
6/8/2019 11:10	31	36	21	14	57	57	50	68	32	9	29	-14	-7	19	36	3.29	3.49	2.99	2.96	3.49	3.60	3.83	3.57	3.86	3.37	3.22	3.09	3.16	2.88	3.32
6/8/2019 11:20	82	118	26	20	61	32	44	60	-4	3	32	16	5	8	45	4.20	4.27	4.32	3.42	3.87	3.70	3.76	3.68	2.98	2.76	3.15	3.35	3.58	3.39	3.84
6/8/2019 11:30	112	117	143	121	75	95	84	18	38	13	25	20	-7	52	73	4.09	4.30	4.28	4.23	3.87	4.00	4.11	2.77	3.26	3.40	3.70	3.23	2.78	3.14	3.70
6/8/2019 11:40	42	-11	-4	19	38	52	38	-16	-11	-12	-11	-10	-7	13	29	3.16	2.53	2.84	3.04	3.01	2.91	3.74	3.03	2.26	2.41	2.21	2.38	2.46	2.82	3.45
6/8/2019 11:50	22	66	65	4	113	80	70	44	15	-11	-10	36	-14	31	26	3.85	3.91	3.78	3.60	4.46	4.32	4.51	3.70	3.62	3.13	3.09	3.13	2.45	2.71	2.74
6/8/2019 12:00	33	-12	-12	-7	8	44	72	-16	14	-11	5	9	10	22	14	3.08	2.38	2.22	2.59	3.35	3.26	4.18	2.38	2.91	2.28	2.71	2.57	3.07	3.01	2.88
6/8/2019 12:10	22	-2	-12	4	-11	-14	-11	3	-11	-10	-10	-10	-13	-7	0	2.32	2.18	2.45	2.82	2.62	2.37	2.22	2.99	2.42	2.13	1.68	1.77	2.43	2.85	3.04
6/8/2019 12:20	-10	-11	-10	-10	-9	-10	-9	1	-2	-10	-9	-9	-11	26	26	2.43	2.40	2.15	1.84	1.44	1.30	2.23	2.60	3.91	3.20	2.81	2.19	2.74	3.49	3.68
6/8/2019 12:30	15	-3	-8	-4	-9	-6	-9	-16	62	41	59	-9	-8	5	-13	2.93	2.93	2.85	3.25	2.15	2.24	2.28	3.02	3.42	3.37	4.14	2.72	3.32	3.04	2.62
6/8/2019 12:40	-8	0	15	-2	-11	-12	-9	-12	-11	-11	-12	-9	-11	-8	-11	2.22	2.66	2.74	3.27	2.45	2.31	2.53	1.30	2.38	1.89	1.61	1.80	2.02	2.43	3.02
6/8/2019 12:50	-10	-10	-12	-2	-11	-11	-9	-13	4	-10	-9	-9	-9	-11	-9	1.70	1.62	1.41	1.68	2.09	2.16	2.52	3.19	3.43	3.31	2.55	2.70	2.24	1.52	1.80
6/8/2019 13:00	-9	-8	-10	-2	-10	-11	-9	-13	12	23	45	25	39	-10	-9	1.40	2.29	2.25	1.24	2.06	1.76	1.79	2.83	3.02	3.58	3.87	3.86	3.81	2.49	1.86
6/8/2019 13:10	-9	-9	-9	-2	-8	-9	-10	-14	46	24	75	93	71	26	10	1.26	1.24	1.45	1.82	1.54	1.48	1.84	2.65	3.55	3.88	3.87	4.03	3.88	3.24	3.25
6/8/2019 13:20	-10	-9	43	-2	-9	-9	-9	-8	17	46	93	143	125	69	134	1.33	2.79	3.81	3.17	2.66	1.34	1.80	3.14	3.37	4.00	4.13	4.61	4.51	3.68	4.66
6/8/2019 13:30	-7	93	205	-2	97	-9	-2	9	68	90	112	188	269	217	281	3.32	4.38	4.96	4.87	4.34	3.04	3.88	3.71	4.31	4.26	4.40	5.05	5.36	5.10	5.58
6/8/2019 13:40	170	206	237	-3	158	91	78	32	269	315	225	262	320	155	293	4.78	5.18	5.07	5.09	4.90	4.08	4.21	3.08	5.41	5.76	5.16	5.56	5.59	4.47	5.32
6/8/2019 13:50	252	240	288	-4	201	228	245	166	256	223	290	351	393	377	530	5.43	5.75	5.57	2.72	5.42	5.36	5.76	4.63	5.42	5.30	5.57	5.97	5.86	5.89	6.54
6/8/2019 14:00	418	401	492	-6	325	258	227	248	269	293	354	410	331	388	364	6.21	6.52	6.32	1.97	6.23	5.29	5.50	5.36	5.43	5.60	6.09	6.31	5.88	5.83	5.82
6/8/2019 14:10	448	375	372	-9	241	206	218	292	253	225	125	378	371	349	349	6.60	6.47	5.98	1.94	5.52	5.02	5.35	5.49	5.41	5.23	4.68	5.99	6.00	5.77	5.77
6/8/2019 14:20	221	208	233	-11	200	194	272	296	362	313	374	408	428	329	271	5.34	5.40	5.08	1.92	5.02	4.96	5.84	5.57	5.98	5.71	5.93	6.35	6.26	5.78	5.26
6/8/2019 14:30	262	282	274	172	193	163	168	356	275	336	348	464	313	253	292	5.63	5.87	5.21	4.97	4.97	4.65	5.11	5.88	5.51	5.85	5.87	6.23	5.74	5.25	5.59
6/8/2019 14:40	308	261	295	196	89	110	163	178	189	234	272	208	196	124	247	5.76	5.62	5.29	4.86	3.66	3.97	4.91	4.60	4.79	5.18	5.52	4.92	4.71	4.20	5.38
6/8/2019 14:50	205	239	182	151	84	107	58	141	171	161	135	142	130	123	219	5.37	5.50	4.78	4.85	4.02	4.20	4.99	4.40	4.83	4.71	4.48	4.49	4.35	4.24	5.27
6/8/2019 15:00	164	179	226	170	81	115	120	237	183	163	101	97	121	118	155	4.74	5.10	5.09	4.81	3.85	4.22	4.44	5.26	4.86	4.63	4.24	4.13	4.37	4.11	4.67
6/8/2019 15:10	176	217	190	132	111	110	100	177	122	164	152	155	104	91	150	4.92	5.34	4.88	4.69	4.57	4.24	4.44	4.64	4.39	4.67	4.59	4.61	4.30	3.90	4.53
6/8/2019 15:20	30	120	153	117	114	152	162	160	76	121	136	118	77	69	177	3.49	4.66	4.65	4.30	4.48	4.82	5.08	4.71	3.75	4.43	4.46	4.38	3.82	3.52	4.80
6/8/2019 15:30	71	115	132	119	119	95	136	97	72	53	84	94	70	81	95	3.85	4.49	4.28	4.08	4.39	3.93	4.71	4.06	4.00	3.54	3.93	4.10	4.06	3.91	4.07
6/8/2019 15:40	81	131	152	130	121	117	161	55	52	0	-3	-10	3	27	69	3.80	4.78	4.38	4.37	4.27	4.26	5.01	3.73	3.66	3.24	2.80	2.66	2.69	2.99	3.93
6/8/2019 15:50	45	81	60	39	34	44	77	-8	-1	-11	-11	-12	-13	-12	-13	3.17	3.79	3.35	3.02	3.09	3.18	3.87	2.74	3.04	2.94	2.55	2.16	1.83	2.29	2.37
6/8/2019 16:00	36	4	36	31	-1	6	24	-11	-15	-13	-8	-9	-9	-10	-11	2.93	3.06	2.99	3.22	2.67	2.52	3.46	2.48	2.73	2.74	2.60	1.89	2.58	2.85	2.51
6/8/2019 16:10	66	53	-5	15	-6	20	37	60	24	18	10	-8	-10	2	-12	3.45	3.70	2.30	2.59	2.20	2.91	3.30	3.92	3.22	3.42	3.18	2.46	2.15	2.59	2.06
6/8/2019 16:20	41	31	23	7	-6	-5	27	145	82	52	43	-8	-7	81	11	3.03	3.25	2.94	2.59	2.35	2.91	3.41	4.58	3.90	3.83	3.50	2.58	3.27	3.72	2.78
6/8/2019 16:30	110	74	100	63	61	60	58	120	110	-3	16	-9	22	133	82	4.01	4.01	4.00	3.64	3.66	3.54	3.81	4.38	4.33	2.63	2.96	2.42	3.16	4.20	3.84
6/8/2019 16:40	148	116	166	163	201	128	163	107	61	1	27	-9	98	196	176	4.35	4.68	4.58	4.49	5.42	4.37	4.89	4.27	3.86	2.80	3.15	3.02	4.31	4.78	5.15
6/8/2019 16:50	176	103	148	152	168	147	177	134	135	-16	44	117	185	227	245	4.78	4.33	4.50	4.88	5.03	4.72	5.15								

6/8/2019 19:30	-8	-8	-6	-5	-9	-9	-9	-11	-8	-8	-8	-8	-8	-4	-7	4.68	4.72	4.88	5.07	4.83	4.88	4.81	3.83	3.91	4.03	4.34	4.02	3.83	4.27	4.36
6/8/2019 19:40	-9	-9	-6	-5	-8	-9	-8	-11	-9	-9	-8	-8	-8	-5	-8	5.40	5.34	5.54	5.63	5.21	5.41	5.12	3.61	4.07	4.27	4.88	4.61	4.34	4.76	5.00
6/8/2019 19:50	-9	-8	-6	-6	-8	-8	-8	-11	-8	-9	-8	-8	-9	-5	-8	5.32	5.38	5.48	5.72	5.47	5.53	5.24	3.96	4.39	4.46	5.24	4.42	4.51	5.03	5.18
6/8/2019 20:00	-8	-8	-6	-5	-8	-9	-8	-11	-8	-8	-8	-8	-8	-5	-9	5.29	5.35	5.47	5.54	4.98	5.16	4.94	4.04	4.36	4.54	5.24	4.72	4.84	5.03	5.09
6/8/2019 20:10	-8	-8	-6	-5	-8	-8	-8	-11	-8	-9	-8	-8	-8	-5	-8	5.21	5.15	5.47	5.51	4.93	4.93	4.66	3.35	3.94	4.16	5.07	4.79	4.74	4.99	4.85
6/8/2019 20:20	-8	-8	-6	-6	-7	-7	-9	-11	-8	-9	-8	-8	-9	-5	-8	4.97	5.14	5.26	5.21	4.43	4.49	4.51	3.39	4.15	4.31	5.17	4.93	4.86	4.76	4.68
6/8/2019 20:30	-6	-8	-6	-5	-6	-6	-8	-11	-8	-9	-7	-9	-9	-5	-8	5.75	5.65	5.74	5.70	5.22	5.43	5.23	3.63	4.01	4.59	5.02	4.89	5.03	4.88	4.82
6/8/2019 20:40	-6	-8	-6	-6	-5	-6	-8	-12	-8	-8	-8	-8	-9	-5	-9	5.38	5.34	5.40	5.50	4.95	4.95	4.89	3.71	4.35	4.50	5.36	4.83	5.22	5.15	5.28
6/8/2019 20:50	-6	-8	-6	-5	-5	-6	-9	-11	-8	-8	-8	-8	-9	-4	-6	5.39	5.54	5.63	5.74	5.16	5.23	4.99	3.91	4.31	4.35	5.30	5.03	5.40	5.51	5.44
6/8/2019 21:00	-5	-8	-6	-5	-5	-5	-8	-11	-9	-8	-9	-8	-9	-4	-5	5.04	5.21	5.28	5.40	4.73	4.91	4.85	3.55	4.34	4.65	5.70	5.04	5.27	5.22	5.30
6/8/2019 21:10	-5	-8	-6	-5	-5	-5	-8	-12	-8	-9	-8	-8	-6	-6	-6	5.38	5.41	5.63	5.63	5.05	5.09	4.87	3.94	4.51	4.93	5.68	5.36	5.43	5.53	5.40
6/8/2019 21:20	-5	-8	-7	-6	-5	-6	-8	-10	-8	-9	-8	-8	-6	-5	-5	5.20	5.27	5.36	5.31	4.82	5.05	4.82	3.73	4.59	4.79	5.72	5.22	5.20	5.28	5.14
6/8/2019 21:30	-5	-8	-6	-6	-5	-5	-9	-12	-8	-9	-8	-8	-5	-5	-6	5.38	5.58	5.57	5.72	5.29	5.53	5.35	3.85	4.67	4.75	5.58	4.88	5.10	5.52	5.45
6/8/2019 21:40	-5	-8	-6	-5	-5	-6	-8	-11	-8	-9	-8	-8	-6	-5	-5	6.10	5.60	6.11	6.48	5.94	6.03	5.93	4.01	4.77	4.97	5.66	5.12	5.39	5.98	6.02
6/8/2019 21:50	-6	-8	-7	-6	-6	-5	-5	-9	-8	-9	-7	-8	-6	-5	-6	5.84	5.68	6.03	6.30	5.81	5.84	5.70	3.17	4.30	4.77	5.36	5.11	5.31	5.73	5.75
6/8/2019 22:00	-5	-8	-6	-6	-5	-7	-5	-8	-8	-9	-5	-6	-6	-5	-5	5.68	5.59	5.65	6.03	5.39	5.58	5.55	3.28	4.22	4.28	5.19	5.24	5.33	5.70	5.92
6/8/2019 22:10	-6	-7	-6	-6	-5	-5	-5	-8	-8	-9	-6	-6	-6	-5	-6	5.79	5.76	5.99	6.23	5.54	5.59	5.55	3.58	4.11	4.09	5.01	4.74	4.99	5.38	5.73
6/8/2019 22:20	-5	-5	-6	-6	-5	-5	-6	-8	-8	-9	-5	-6	-6	-5	-5	5.27	5.47	5.70	5.98	5.54	5.71	5.53	3.59	4.49	4.59	5.59	5.26	5.32	5.57	5.76
6/8/2019 22:30	-5	-5	-6	-6	-5	-6	-5	-9	-9	-9	-5	-5	-6	-4	-5	5.88	5.77	5.87	6.06	5.33	5.45	5.50	3.58	4.94	5.08	5.60	5.29	5.30	5.63	5.96
6/8/2019 22:40	-5	-5	-6	-5	-6	-6	-6	-9	-8	-7	-4	-6	-6	-4	-5	5.69	5.80	5.79	5.84	5.01	5.06	5.13	4.77	5.44	5.44	5.51	5.37	5.27	5.40	5.94
6/8/2019 22:50	-5	-5	-6	-6	-5	-5	-5	-8	-5	-5	-5	-5	-6	-5	-6	5.78	5.87	5.82	5.92	5.23	5.40	5.58	5.04	5.62	5.44	5.41	5.18	5.11	5.45	5.79
6/8/2019 23:00	-5	-5	-6	-6	-6	-5	-6	-8	-6	-6	-5	-5	-6	-5	-5	6.28	6.27	6.52	6.56	5.91	6.15	6.09	4.62	5.82	5.89	6.37	6.03	5.89	5.93	6.17
6/8/2019 23:10	-5	-5	-6	-5	-5	-6	-5	-8	-5	-6	-5	-6	-5	-5	-6	7.01	6.81	7.21	7.39	6.87	7.17	7.27	4.85	6.07	6.14	6.91	6.75	6.67	6.73	6.98
6/8/2019 23:20	-5	-6	-6	-6	-5	-6	-5	-9	-6	-6	-5	-6	-6	-6	-5	7.00	6.92	7.31	7.69	7.00	7.29	7.13	5.56	6.61	6.60	7.72	7.37	7.35	7.70	7.81
6/8/2019 23:30	-6	-5	-6	-6	-6	-5	-6	-8	-5	-6	-5	-5	-6	-6	-5	7.38	7.48	7.55	7.96	7.30	7.54	7.49	5.78	6.90	7.04	7.65	7.11	7.22	8.19	8.46
6/8/2019 23:40	-5	-5	-6	-6	-5	-5	-5	-8	-6	-6	-5	-5	-6	-5	-5	6.89	7.02	7.16	7.56	6.79	7.11	7.23	6.34	7.32	7.32	7.92	7.31	7.41	7.64	7.66
6/8/2019 23:50	-5	-6	-6	-6	-4	-6	-6	-8	-5	-6	-4	-5	-6	-5	-6	7.45	7.52	7.95	8.07	7.42	7.54	7.50	5.69	6.82	6.39	7.42	7.22	7.62	7.97	8.14
6/9/2019 0:00	-6	-5	-6	-6	-5	-5	-5	-8	-5	-6	-5	-5	-6	-5	-6	8.02	7.95	8.17	8.55	7.89	8.36	8.18	5.56	6.66	6.93	7.59	7.34	7.75	8.14	8.32

APPENDIX F – ATTENDED MEASUREMENT OBSERVER LOGS

This appendix provides the observer logs from the attended measurements which were conducted from 10:00 PM on May 21, 2019 until 1:45 AM on May 22, 2019. During the attended measurements, two turbine-operation curtailments occurred. The appendix provides the logs from Sites A, B, and C in that order.

**Deerfield Wind Compliance Monitoring
CSA J2018-1170**

Date: May 21 - May 22, 2019
Site: A
Personnel: J. Montoya

Note: "1" indicates loudest (dominant) source, "2" indicates secondary (audible) source

Summary:

Airplane 1 = 34 seconds 85 milliseconds
Airplane 2 = 4 minutes 0 seconds
Car/truck 1 = 32 minutes 1 second
Car/truck 2 = 2 minutes 6 seconds
Insects/birds 2 = 1 hour 35 minutes 38 seconds
Other = 3 minutes 3 seconds
Turbines 1 = 1 hour 16 minutes 41 seconds
Turbines 2 = 16 minutes 7 seconds
Wind 1 = 33 minutes 36 seconds
Wind 2 = 11 minutes 32 seconds

Observation Date/Time		Noise Source		Duration		
20190521	22:03:33	Wind	1	4 seconds	235	milliseconds.
20190521	22:03:47	Wind	1	3 seconds	418	milliseconds.
20190521	22:04:09	Wind	1	3 seconds	181	milliseconds.
20190521	22:04:27	Turbines	1	5 seconds	50	milliseconds.
20190521	22:04:37	Turbines	1	2 seconds	849	milliseconds.
20190521	22:04:42	Turbines	1	8 seconds	185	milliseconds.
20190521	22:05:23	Turbines	1	3 seconds	502	milliseconds.
20190521	22:05:32	Wind	1	4 seconds	434	milliseconds.
20190521	22:05:48	Turbines	1	2 seconds	115	milliseconds.
20190521	22:05:53	Car/truck	1	14 seconds	564	milliseconds.
20190521	22:06:10	Car/truck	2	14 seconds	700	milliseconds.
20190521	22:06:30	Turbines	1	58 seconds	852	milliseconds.
20190521	22:06:42	Car/truck	1	13 seconds	533	milliseconds.
20190521	22:07:25	Car/truck	1	21 seconds	869	milliseconds.
20190521	22:07:52	Wind	1	8 seconds	616	milliseconds.
20190521	22:08:13	Wind	1	15 seconds	400	milliseconds.
20190521	22:08:53	Wind	1	7 seconds	82	milliseconds.
20190521	22:08:58	Turbines	1	42 seconds	183	milliseconds.
20190521	22:10:17	Turbines	1	8 seconds	366	milliseconds.
20190521	22:10:47	Wind	1	18 seconds	635	milliseconds.
20190521	22:10:54	Insects/birds	2	12 seconds	635	milliseconds.
20190521	22:11:31	Wind	1	35 seconds	101	milliseconds.

20190521	22:13:30	Wind	1	19 seconds	799 milliseconds.
20190521	22:14:24	Turbines	2	8 seconds	732 milliseconds.
20190521	22:14:35	Turbines	1	10 seconds	199 milliseconds.
20190521	22:14:47	Wind	1	13 seconds	667 milliseconds.
20190521	22:15:22	Wind	1	7 seconds	500 milliseconds.
20190521	22:15:33	Car/truck	1	22 seconds	915 milliseconds.
20190521	22:16:03	Wind	1	10 seconds	351 milliseconds.
20190521	22:16:18	Car/truck	1	10 seconds	849 milliseconds.
20190521	22:16:32	Insects/birds	2	53 seconds	133 milliseconds.
20190521	22:16:32	Car/truck	2	5 seconds	666 milliseconds.
20190521	22:16:38	Car/truck	1	11 seconds	217 milliseconds.
20190521	22:16:48	Turbines	2	9 seconds	749 milliseconds.
20190521	22:17:39	Turbines	1	14 seconds	582 milliseconds.
20190521	22:17:56	Turbines	1	14 seconds	483 milliseconds.
20190521	22:18:04	Car/truck	2	1 second	634 milliseconds.
20190521	22:18:06	Car/truck	1	29 seconds	401 milliseconds.
20190521	22:18:11	Turbines	2	17 seconds	467 milliseconds.
20190521	22:18:50	Turbines	1	4 seconds	167 milliseconds.
20190521	22:18:56	Car/truck	1	21 seconds	984 milliseconds.
20190521	22:18:56	Turbines	2	24 seconds	817 milliseconds.
20190521	22:19:22	Turbines	1	25 seconds	484 milliseconds.
20190521	22:20:08	Turbines	1	10 seconds	199 milliseconds.
20190521	22:20:46	Wind	1	26 seconds	435 milliseconds.
20190521	22:21:21	Wind	1	10 seconds	550 milliseconds.
20190521	22:22:05	Wind	2	28 seconds	870 milliseconds.
20190521	22:22:07	Turbines	1	28 seconds	784 milliseconds.
20190521	22:22:34	Wind	1	22 seconds	633 milliseconds.
20190521	22:22:36	Turbines	2	16 seconds	716 milliseconds.
20190521	22:22:59	Wind	2	20 seconds	735 milliseconds.
20190521	22:23:00	Car/truck	1	20 seconds	950 milliseconds.
20190521	22:23:53	Turbines	1	12 seconds	366 milliseconds.
20190521	22:24:12	Turbines	1	38 seconds	685 milliseconds.
20190521	22:24:21	Wind	2	21 seconds	568 milliseconds.
20190521	22:25:10	Airplane	-	29 seconds	852 milliseconds.
20190521	22:26:09	Car/truck	1	48 seconds	236 milliseconds.
20190521	22:27:01	Insects/birds	2	11 minutes	20 seconds.
20190521	22:27:10	Car/truck	1	30 seconds	183 milliseconds.
20190521	22:27:12	Turbines	2	52 seconds	769 milliseconds.
20190521	22:27:42	Car/truck	1	24 seconds	549 milliseconds.
20190521	22:28:28	Turbines	1	25 seconds	869 milliseconds.
20190521	22:28:37	Wind	2	10 seconds	784 milliseconds.
20190521	22:29:17	Car/truck	1	35 seconds	485 milliseconds.
20190521	22:29:32	Wind	2	12 seconds	500 milliseconds.

20190521	22:29:45	Wind	1	16	seconds	767	milliseconds.
20190521	22:30:02	Car/truck	1	21	seconds	401	milliseconds.
20190521	22:30:12	Wind	2	13	seconds	333	milliseconds.
20190521	22:30:25	Wind	1	9	seconds	602	milliseconds.
20190521	22:31:05	Wind	1	15	seconds	367	milliseconds.
20190521	22:31:37	Wind	1	6	seconds	466	milliseconds.
20190521	22:31:46	Car/truck	1	10	seconds	649	milliseconds.
20190521	22:32:04	Turbines	1	32	seconds	535	milliseconds.
20190521	22:32:34	Car/truck	1	18	seconds	783	milliseconds.
20190521	22:32:37	Turbines	2	19	seconds	600	milliseconds.
20190521	22:32:57	Turbines	1	42	seconds	585	milliseconds.
20190521	22:33:53	Car/truck	1	21	seconds	335	milliseconds.
20190521	22:34:15	Wind	2	14	seconds	518	milliseconds.
20190521	22:34:19	Turbines	1	7	seconds	948	milliseconds.
20190521	22:34:34	Turbines	1	27	seconds	735	milliseconds.
20190521	22:35:38	Turbines	1	17	seconds	465	milliseconds.
20190521	22:36:09	Car/truck	1	40	seconds	953	milliseconds.
20190521	22:36:15	Wind	2	4	seconds	982	milliseconds.
20190521	22:36:27	Turbines	2	25	seconds	285	milliseconds.
20190521	22:36:52	Turbines	1	35	seconds	184	milliseconds.
20190521	22:37:32	Wind	1	9	seconds	615	milliseconds.
20190521	22:37:59	Turbines	1	19	seconds	102	milliseconds.
20190521	22:38:01	Airplane	2	7	seconds	400	milliseconds.
20190521	22:38:57	Turbines	1	1	minute	8	seconds.
20190521	22:40:12	Car/truck	1	2	minutes	24	seconds.
20190521	22:40:31	Wind	2	20	seconds	700	milliseconds.
20190521	22:41:18	Airplane	2	3	minutes	18	seconds.
20190521	22:41:22	Wind	1	13	seconds	415	milliseconds.
20190521	22:41:53	Wind	1	31	seconds	599	milliseconds.
20190521	22:42:39	Car/truck	1	27	seconds	951	milliseconds.
20190521	22:43:08	Turbines	1	1	minute	39	seconds.
20190521	22:44:43	Car/truck	1	23	seconds	784	milliseconds.
20190521	22:44:49	Turbines	2	20	seconds	167	milliseconds.
20190521	22:45:09	Turbines	1	21	seconds	785	milliseconds.
20190521	22:45:31	Turbines	2	1	182	milliseconds.	
20190521	22:45:32	Turbines	1	816	milliseconds.		
20190521	22:45:33	Turbines	2	21	seconds	665	milliseconds.
20190521	22:45:34	Car/truck	1	18	seconds	635	milliseconds.
20190521	22:45:56	Turbines	1	1	minute	5	seconds.
20190521	22:46:29	Other	-	3	seconds	564	milliseconds.
20190521	22:47:00	Car/truck	1	25	seconds	784	milliseconds.
20190521	22:47:01	Turbines	2	20	seconds	918	milliseconds.
20190521	22:47:21	Wind	2	9	seconds	518	milliseconds.

20190521	22:47:31	Wind	1	8 seconds	299 milliseconds.
20190521	22:47:40	Turbines	1	22 seconds	417 milliseconds.
20190521	22:48:06	Car/truck	1	17 seconds	352 milliseconds.
20190521	22:48:43	Wind	2	17 seconds	432 milliseconds.
20190521	22:48:46	Turbines	1	30 seconds	218 milliseconds.
20190521	22:49:35	Wind	1	11 seconds	235 milliseconds.
20190521	22:49:53	Wind	1	47 seconds	384 milliseconds.
20190521	22:50:13	Airplane	2	25 seconds	567 milliseconds.
20190521	22:51:27	Turbines	1	28 seconds	366 milliseconds.
20190521	22:51:56	Turbines	2	16 seconds	335 milliseconds.
20190521	22:51:59	Car/truck	1	47 seconds	968 milliseconds.
20190521	22:52:56	Car/truck	1	27 seconds	967 milliseconds.
20190521	22:53:17	Turbines	2	9 seconds	868 milliseconds.
20190521	22:53:27	Turbines	1	45 seconds	85 milliseconds.
20190521	22:53:41	Wind	2	19 seconds	534 milliseconds.
20190521	22:54:17	Wind	1	12 seconds	834 milliseconds.
20190521	22:54:49	Wind	1	5 seconds	534 milliseconds.
20190521	22:55:06	Turbines	1	22 seconds	316 milliseconds.
20190521	22:55:14	Wind	2	16 seconds	51 milliseconds.
20190521	22:55:53	Wind	1	1 minute	7 seconds.
20190521	22:56:12	Other		9 seconds	366 milliseconds.
20190521	22:57:36	Wind	1	25 seconds	318 milliseconds.
20190521	22:58:02	Turbines	1	10 seconds	950 milliseconds.
20190521	22:58:09	Wind	2	1 minute	2 seconds.
20190521	22:58:13	Turbines	2	24 seconds	985 milliseconds.
20190521	22:58:14	Car/truck	1	22 seconds	834 milliseconds.
20190521	22:58:39	Turbines	1	16 seconds	81 milliseconds.
20190521	22:59:21	Wind	1	38 seconds	401 milliseconds.
20190521	22:59:56	Car/truck	1	5 seconds	402 milliseconds.
20190521	23:00:27	Car/truck	1	43 seconds	619 milliseconds.
20190521	23:00:54	Other	-	5 seconds	182 milliseconds.
20190521	23:01:33	Turbines	2	11 seconds	49 milliseconds.
20190521	23:01:36	Car/truck	1	7 seconds	500 milliseconds.
20190521	23:01:45	Turbines	1	16 seconds	968 milliseconds.
20190521	23:02:12	Turbines	1	15 seconds	465 milliseconds.
20190521	23:02:26	Car/truck	1	17 seconds	767 milliseconds.
20190521	23:02:28	Turbines	2	434 milliseconds.	
20190521	23:02:28	Turbines	1	1 second	648 milliseconds.
20190521	23:02:31	Turbines	2	15 seconds	218 milliseconds.
20190521	23:03:21	Wind	1	37 seconds	967 milliseconds.
20190521	23:04:11	Car/truck	1	30 seconds	651 milliseconds.
20190521	23:05:06	Car/truck	1	12 seconds	185 milliseconds.
20190521	23:05:24	Car/truck	1	22 seconds	358 milliseconds.

20190521	23:05:48	Wind	1	6	seconds	417	milliseconds.
20190521	23:06:30	Car/truck	1	17	seconds	935	milliseconds.
20190521	23:07:19	Car/truck	1	27	seconds	634	milliseconds.
20190521	23:07:51	Wind	1	9	seconds	117	milliseconds.
20190521	23:08:54	Car/truck	1	12	seconds	184	milliseconds.
20190521	23:09:16	Other		2	seconds	666	milliseconds.
20190521	23:11:13	Wind	1	5	seconds	51	milliseconds.
20190521	23:12:48	Wind	1	11	seconds	383	milliseconds.
20190521	23:14:18	Wind	1	6	seconds	865	milliseconds.
20190521	23:14:58	Wind	1	6	seconds	800	milliseconds.
20190521	23:15:24	Wind	1	14	seconds	135	milliseconds.
20190521	23:15:34	Airplane		1	second	516	milliseconds.
20190521	23:17:34	Wind	1	16	seconds	350	milliseconds.
20190521	23:19:36	Wind	1	36	seconds	200	milliseconds.
20190521	23:20:49	Car/truck	1	21	seconds	448	milliseconds.
20190521	23:21:21	Wind	2	16	seconds	383	milliseconds.
20190521	23:21:37	Wind	1	8	seconds	454	milliseconds.
20190521	23:22:06	Turbines	1	10	seconds	185	milliseconds.
20190521	23:22:18	Wind	1	2	minutes	5	seconds.
20190521	23:22:31	Turbines	1	12	seconds	183	milliseconds.
20190521	23:23:07	Turbines	1	34	seconds	613	milliseconds.
20190521	23:23:53	Turbines	1	16	seconds	149	milliseconds.
20190521	23:24:29	Airplane		2	seconds	716	milliseconds.
20190521	23:24:33	Wind	1	41	seconds	20	milliseconds.
20190521	23:25:06	Other		2	minutes	32	seconds.
20190521	23:25:39	Wind	2	11	seconds	50	milliseconds.
20190521	23:25:41	Car/truck	1	10	seconds	150	milliseconds.
20190521	23:26:35	Car/truck	1	27	seconds	887	milliseconds.
20190521	23:27:16	Wind	1	5	seconds	716	milliseconds.
20190521	23:28:24	Turbines	1	15	seconds	467	milliseconds.
20190521	23:28:42	Wind	1	14	seconds	849	milliseconds.
20190521	23:29:18	Turbines	1	1	minute	3	seconds.
20190521	23:30:10	Wind	2	5	seconds	850	
20190521	23:30:49	Turbines	1	1	minute	12	seconds.
20190521	23:32:13	Wind	1	38	seconds	453	milliseconds.
20190521	23:32:36	Turbines	1	1	minute	14	seconds.
20190521	23:34:05	Turbines	1	1	minute	11	seconds.
20190521	23:35:22	Turbines	1	35	seconds	84	milliseconds.
20190521	23:36:01	Car/truck	1	33	seconds	201	milliseconds.
20190521	23:36:04	Turbines	2	25	seconds	467	milliseconds.
20190521	23:36:30	Turbines	1	24	seconds	399	milliseconds.
20190521	23:37:14	Turbines	1	2	minutes	19	seconds.
20190521	23:37:54	Wind		9	seconds	817	milliseconds.

20190521	23:40:03	Car/truck	1	35	seconds	783	milliseconds.
20190521	23:40:13	Turbines	2	27	seconds	166	milliseconds.
20190521	23:40:30	Wind	2	9	seconds	233	milliseconds.
20190521	23:40:40	Turbines	1	18	seconds	119	milliseconds.
20190521	23:40:51	Wind	2	8	seconds	266	milliseconds.
20190521	23:40:59	Wind	1	23	seconds	583	milliseconds.
20190521	23:42:18	Turbines	1	9	seconds	182	milliseconds.
20190521	23:42:27	Turbines	2	33	seconds	169	milliseconds.
20190521	23:42:28	Car/truck	1	26	seconds	749	milliseconds.
20190521	23:43:22	Wind	1	35	seconds	266	milliseconds.
20190521	23:43:34	Turbines	1	16	seconds	882	milliseconds.
20190521	23:44:00	Wind	1	47	seconds	536	milliseconds.
20190521	23:44:59	Car/truck	1	31	seconds	269	milliseconds.
20190521	23:45:41	Wind	1	6	seconds	232	milliseconds.
20190521	23:45:50	Wind	2	10	seconds	402	milliseconds.
20190521	23:45:55	Turbines	1	4	seconds	334	milliseconds.
20190521	23:46:01	Wind	1	25	seconds	135	milliseconds.
20190521	23:46:58	Wind	1	14	seconds	367	milliseconds.
20190521	23:47:58	Wind	1	19	seconds	249	milliseconds.
20190521	23:48:31	Wind	1	15	seconds	100	milliseconds.
20190521	23:48:50	Other		2	seconds	665	milliseconds.
20190521	23:48:57	Wind	1	18	seconds	716	milliseconds.
20190521	23:50:33	Car/truck	1	19	seconds	66	milliseconds.
20190521	23:50:37	Turbines	2	12	seconds	582	milliseconds.
20190521	23:50:55	Turbines	1	1	minute	22	seconds.
20190521	23:52:20	Wind	1	13	seconds	317	milliseconds.
20190521	23:53:18	Turbines	1	29	seconds	1	millisecond.
20190521	23:53:51	Turbines	2	18	seconds	533	milliseconds.
20190521	23:54:02	Wind	1	6	seconds	665	milliseconds.
20190521	23:54:11	Wind	1	13	seconds	266	milliseconds.
20190521	23:54:13	Turbines	2	8	seconds	265	milliseconds.
20190521	23:55:28	Turbines	1	43	seconds	566	milliseconds.
20190521	23:56:19	Turbines	1	1	minute	21	seconds.
20190521	23:58:03	Turbines	1	9	seconds	800	milliseconds.
20190521	23:58:15	Turbines	2	27	seconds	783	milliseconds.
20190521	23:58:16	Car/truck	1	23	seconds	567	milliseconds.
20190521	23:58:43	Turbines	1	10	seconds	215	milliseconds.
20190521	23:58:54	Turbines	2	14	seconds	553	milliseconds.
20190521	23:58:56	Wind	1	1	minute	10	seconds.
20190521	23:59:10	Turbines	1	54	seconds	281	milliseconds.
20190522	0:00:20	Turbines	1	4	seconds	568	milliseconds.
20190522	0:00:25	Turbines	2	8	seconds	433	milliseconds.
20190522	0:00:26	Wind	1	7	seconds	316	milliseconds.

20190522	0:00:33	Turbines	1	23	seconds	753	milliseconds.
20190522	0:00:57	Turbines	1	16	seconds	932	milliseconds.
20190522	0:00:59	Car/truck		14	seconds	149	milliseconds.
20190522	0:01:15	Wind	1	51	seconds	101	milliseconds.
20190522	0:01:27	Turbines	2	27	seconds	201	milliseconds.
20190522	0:01:35	Other		3	seconds	500	milliseconds.
20190522	0:02:05	Turbines	2	15	seconds	967	milliseconds.
20190522	0:02:15	Wind	1	23	seconds	102	milliseconds.
20190522	0:03:01	Wind	1	9	seconds	534	milliseconds.
20190522	0:03:12	Car/truck	1	29	seconds	317	milliseconds.
20190522	0:03:43	Wind	1	37	seconds	355	milliseconds.
20190522	0:04:25	Wind	1	1	minute	4	seconds.
20190522	0:05:41	Wind	1	9	seconds	165	milliseconds.
20190522	0:05:51	Turbines	1	1	second	368	milliseconds.
20190522	0:05:52	Turbines	2	1	second	598	milliseconds.
20190522	0:05:54	Turbines	1	30	seconds	86	milliseconds.
20190522	0:06:24	Turbines	2	31	seconds	800	milliseconds.
20190522	0:06:25	Car/truck	1	1	minute	14	seconds.
20190522	0:06:57	Wind	1	21	seconds	882	milliseconds.
20190522	0:07:20	Turbines	1	17	seconds	916	milliseconds.
20190522	0:07:38	Turbines	2	29	seconds	386	milliseconds.
20190522	0:07:43	Car/truck	1	2	minutes	26	seconds.
20190522	0:09:33	Wind	1	33	seconds	269	milliseconds.
20190522	0:10:12	Car/truck	1	1	minute	11	seconds.
20190522	0:11:28	Wind	1	6	seconds	81	milliseconds.
20190522	0:11:52	Wind	1	8	seconds	332	milliseconds.
20190522	0:12:02	Wind	-	23	seconds	884	milliseconds.
20190522	0:12:06	Car/truck	1	15	seconds	917	milliseconds.
20190522	0:12:41	Wind	1	1	second	202	milliseconds.
20190522	0:12:44	Turbines	1	24	seconds	418	milliseconds.
20190522	0:13:08	Turbines	2	28	seconds	567	milliseconds.
20190522	0:13:09	Car/truck	1	28	seconds	366	milliseconds.
20190522	0:13:51	Turbines	1	15	seconds	400	milliseconds.
20190522	0:14:54	Turbines	1	4	minutes	15	seconds.
20190522	0:19:07	Wind	1	12	seconds	300	milliseconds.
20190522	0:19:09	Turbines	2	14	seconds	118	milliseconds.
20190522	0:19:23	Turbines	1	1	minute	16	seconds.
20190522	0:21:16	Wind	1	14	seconds	451	milliseconds.
20190522	0:22:08	Turbines	1	1	minute	42	seconds.
20190522	0:23:51	Turbines	2	11	seconds	316	milliseconds.
20190522	0:23:53	Wind	1	10	seconds	268	milliseconds.
20190522	0:24:04	Turbines	1	12	seconds	416	milliseconds.
20190522	0:24:20	Wind	1	29	seconds	299	milliseconds.

20190522	0:24:59	Wind	1	8 seconds	19 milliseconds.
20190522	0:25:08	Car/truck	1	12 seconds	847 milliseconds.
20190522	0:25:11	Wind	2	9 seconds	265 milliseconds.
20190522	0:25:42	Turbines	1	1 minute	25 seconds.
20190522	0:27:07	Turbines	2	1 minute	1 second.
20190522	0:27:20	Wind	1	49 seconds	235 milliseconds.
20190522	0:28:23	Car/truck	1	22 seconds	301 milliseconds.
20190522	0:29:08	Turbines	1	19 seconds	666 milliseconds.
20190522	0:29:28	Turbines		1 minute	5 seconds.
20190522	0:29:29	Car/truck	1	35 seconds	33 milliseconds.
20190522	0:30:35	Wind	1	9 seconds	199 milliseconds.
20190522	0:30:46	Turbines	1	23 seconds	751 milliseconds.
20190522	0:31:13	Turbines	1	34 seconds	49 milliseconds.
20190522	0:31:13	Wind	2	30 seconds	784 milliseconds.
20190522	0:31:45	Wind	1	1 minute	4 seconds.
20190522	0:31:47	Turbines	2	1 minute	5 seconds.
20190522	0:32:54	Turbines	1	36 seconds	570 milliseconds.
20190522	0:33:34	Wind	1	37 seconds	367 milliseconds.
20190522	0:34:44	Car/truck	1	40 seconds	333 milliseconds.
20190522	0:36:17	Wind	1	17 seconds	219 milliseconds.
20190522	0:36:53	Car/truck	1	31 seconds	680 milliseconds.
20190522	0:37:44	Turbines	1	1 minute	17 seconds.
20190522	0:39:05	Car/truck	1	19 seconds	233 milliseconds.
20190522	0:39:16	Turbines	2	9 seconds	201 milliseconds.
20190522	0:39:26	Turbines	1	1 minute	20 seconds.
20190522	0:41:07	Turbines	1	2 minutes	47 seconds.
20190522	0:44:09	Turbines	1	2 minutes	2 seconds.
20190522	0:45:15	Wind	2	4 seconds	266 milliseconds.
20190522	0:45:37	Wind	2	33 seconds	16 milliseconds.
20190522	0:46:17	Wind	1	30 seconds	468 milliseconds.
20190522	0:47:06	Wind	1	13 seconds	965 milliseconds.
20190522	0:47:46	Turbines	1	53 seconds	69 milliseconds.
20190522	0:48:45	Car/truck	1	18 seconds	235 milliseconds.
20190522	0:49:05	Turbines	1	48 seconds	836 milliseconds.
20190522	0:50:07	Wind	1	6 seconds	250 milliseconds.
20190522	0:50:30	Wind	1	1 minute	5 seconds.
20190522	0:51:13	Car/truck	2	401 milliseconds.	
20190522	0:51:13	Car/truck	1	1 second	66 milliseconds.
20190522	0:51:32	Turbines	1	2 minutes	44 seconds.
20190522	0:54:34	Turbines	1	18 seconds	168 milliseconds.
20190522	0:54:52	Turbines	2	15 seconds	217 milliseconds.
20190522	0:54:53	Wind	1	12 seconds	933 milliseconds.
20190522	0:55:07	Turbines	1	1 minute	31 seconds.

20190522	0:56:41	Wind	1	27	seconds	607	milliseconds.
20190522	1:04:13	Turbines	1	1	minute	42	seconds.
20190522	1:04:45	Wind	2	1	minute	6	seconds.
20190522	1:06:11	Turbines	1	8	seconds	867	milliseconds.
20190522	1:06:20	Turbines	2	26	seconds	233	milliseconds.
20190522	1:06:24	Car/truck	1	20	seconds	534	milliseconds.
20190522	1:07:43	Car/truck	1	5	seconds	751	milliseconds.
20190522	1:08:28	Turbines	1	34	seconds	734	milliseconds.
20190522	1:09:27	Turbines	1	48	seconds	134	milliseconds.
20190522	1:10:27	Turbines	1	1	minute	40	seconds.
20190522	1:11:17	Wind	2	6	seconds	66	milliseconds.
20190522	1:12:08	Turbines	2	25	seconds	499	milliseconds.
20190522	1:12:09	Wind	1	25	seconds	135	milliseconds.
20190522	1:12:52	Turbines	1	3	minutes	52	seconds.
20190522	1:13:40	Wind	2	41	seconds	817	milliseconds.
20190522	1:17:31	Turbines	1	26	seconds	618	milliseconds.
20190522	1:17:45	Wind	2	13	seconds	636	milliseconds.
20190522	1:18:32	Turbines	1	1	minute	49	seconds.
20190522	1:21:15	Turbines	1	6	seconds	518	milliseconds.
20190522	1:21:21	Turbines	2	13	seconds	683	milliseconds.
20190522	1:21:24	Car/truck	1	10	seconds	498	milliseconds.
20190522	1:21:37	Turbines	1	54	seconds	736	milliseconds.
20190522	1:26:15	Wind	1	4	seconds	599	milliseconds.
20190522	1:31:11	Wind	2	3	seconds	283	milliseconds.
20190522	1:31:34	Wind	1	10	seconds	54	milliseconds.
20190522	1:33:05	Wind	1	38	seconds	84	milliseconds.
20190522	1:33:37	Car/truck	1	12	seconds	417	milliseconds.
20190522	1:35:31	Wind	1	6	seconds	500	milliseconds.
20190522	1:38:25	Car/truck	1	20	seconds	251	milliseconds.
20190522	1:39:47	Car/truck	1	31	seconds	398	milliseconds.
20190522	1:40:37	Car/truck	1	15	seconds	199	milliseconds.
20190522	1:41:29	Turbines	1	1	minute	32	seconds.
20190522	1:41:53	Wind	2	28	seconds	86	milliseconds.
20190522	1:43:02	Wind	1	25	seconds	931	milliseconds.
20190522	1:43:30	Turbines	1	38	seconds	85	milliseconds.
20190522	1:43:46	Wind	2	1	minute	28	seconds.
20190522	1:46:01	Car/truck	2	22	seconds	82	milliseconds.
20190522	1:46:23	Car/truck	1	18	seconds	216	milliseconds.
20190522	1:46:33	Turbines	2	15	seconds	283	milliseconds.
20190522	1:47:01	Turbines	1	2	seconds	984	milliseconds.
20190522	1:47:05	Car/truck	1	10	seconds	50	milliseconds.
20190522	1:48:27	Turbines	1	20	seconds	385	milliseconds.
20190522	1:50:09	Turbines	1	39	seconds	533	milliseconds.

20190522	1:50:48	Other		4	seconds	82	milliseconds.
20190522	1:54:45	Turbines	1	29	seconds	135	milliseconds.
20190522	1:57:01	Turbines	1	1	minute	22	seconds.
20190522	1:58:42	Turbines	1	33	seconds	684	milliseconds.
20190522	1:59:00	Car/truck	1	13	seconds	368	milliseconds.
20190522	1:59:02	Airplane	2	2	seconds	653	milliseconds.
20190522	1:59:44	Turbines	1	30	seconds	251	milliseconds.
20190522	2:00:15	Car/truck	2	1	minute	22	seconds.
20190522	2:00:59	Turbines	1	28	seconds	116	milliseconds.

**Deerfield Wind Compliance Monitoring
CSA J2018-1170**

Date: May 21 - May 22, 2019

Site: B

Personnel: H. Singleton

Note: "1" indicates loudest (dominant) source, "2" indicates secondary (audible) source

Summary:

Aircraft 1 = 53 seconds 903 milliseconds
Aircraft 2 = 5 minutes 29 seconds
Car/truck 1 = 3 minutes 33 seconds
Car/truck 2 = 2 minutes 5 seconds
Insect/birds 1 = 3 seconds 400 milliseconds
Insect/birds 2 = 2 minutes 58 seconds
Turbines 1 = 1 hour 0 minutes 57 seconds
Turbines 2 = 1 hour 46 minutes 49 seconds
Wind 1 = 1 hour 37 minutes 59 seconds
Wind 2 = 2 hours 8 minutes 48 seconds

Observation Date/Time		Noise Source		Duration			
20190521	21:59:51	Turbines	2	12	seconds	833	milliseconds.
20190521	21:59:51	Wind	2	12	seconds	816	milliseconds.
20190521	22:00:04	Wind	1	1	second	916	milliseconds.
20190521	22:00:05	Turbines	1	1	minute	44	seconds.
20190521	22:00:20	Insect/birds	1	3	seconds	400	milliseconds.
20190521	22:00:24	Insect/birds	2	1	minute	24	seconds.
20190521	22:01:28	Wind	2	4	seconds	150	milliseconds.
20190521	22:01:49	Car/truck	1	1	second	766	milliseconds.
20190521	22:01:51	Car/truck	1	18	seconds	998	milliseconds.
20190521	22:02:02	Turbines	2	8	seconds	681	milliseconds.

20190521	22:02:11	Wind	1	29	seconds	935	milliseconds.
20190521	22:02:41	Wind	2	21	seconds	534	milliseconds.
20190521	22:02:42	Turbines	1	20	seconds	884	milliseconds.
20190521	22:03:03	Wind	1	1	minute	36	seconds.
20190521	22:03:17	Insect/birds	2	12	seconds	266	milliseconds.
20190521	22:03:31	Turbines	2	11	seconds	300	milliseconds.
20190521	22:04:27	Turbines	2	12	seconds	284	milliseconds.
20190521	22:04:39	Turbines	1	23	seconds	668	milliseconds.
20190521	22:04:39	Wind	2	6	seconds	699	milliseconds.
20190521	22:04:47	Insect/birds	2	10	seconds	932	milliseconds.
20190521	22:04:59	Wind	2	3	seconds	933	milliseconds.
20190521	22:05:02	Wind	1	1	minute	3	seconds.
20190521	22:05:03	Turbines	2	1	minute	57	seconds.
20190521	22:06:06	Wind	2	15	seconds	550	milliseconds.
20190521	22:06:22	Wind	1	2	minutes	17	seconds.
20190521	22:07:32	Turbines	2	1	minute	6	seconds.
20190521	22:08:39	Turbines	1	49	seconds	652	milliseconds.
20190521	22:08:39	Wind	2	1	minute	10	seconds.
20190521	22:09:20	Aircraft	2	9	seconds	484	milliseconds.
20190521	22:09:30	Aircraft	1	16	seconds	967	milliseconds.
20190521	22:09:47	Aircraft	2	53	seconds	502	milliseconds.
20190521	22:09:49	Turbines	2	23	seconds	383	milliseconds.
20190521	22:10:13	Wind	2	53	seconds	485	milliseconds.
20190521	22:10:43	Turbines	2	23	seconds	501	milliseconds.
20190521	22:11:06	Wind	1	59	seconds	3	milliseconds.
20190521	22:11:22	Turbines	2	52	seconds	888	milliseconds.
20190521	22:12:05	Wind	2	2	minutes	18	seconds.
20190521	22:12:15	Turbines	1	1	minute	59	seconds.
20190521	22:14:15	Turbines	2	1	minute	0	seconds.
20190521	22:14:24	Wind	1	3	minutes	39	seconds.
20190521	22:16:24	Turbines	2	5	seconds	898	milliseconds.
20190521	22:17:41	Turbines	2	24	seconds	284	milliseconds.
20190521	22:18:03	Wind	2	2	minutes	59	seconds.
20190521	22:18:05	Turbines	1	42	seconds	69	milliseconds.
20190521	22:18:47	Turbines	2	24	seconds	749	milliseconds.
20190521	22:20:47	Turbines	2	22	seconds	485	milliseconds.
20190521	22:21:03	Wind	1	1	minute	10	seconds.
20190521	22:21:46	Turbines	2	36	seconds	134	milliseconds.
20190521	22:22:13	Wind	2	3	minutes	7	seconds.
20190521	22:22:22	Turbines	1	15	seconds	567	milliseconds.
20190521	22:22:38	Turbines	2	13	seconds	50	milliseconds.
20190521	22:23:14	Turbines	2	1	minute	12	seconds.
20190521	22:23:32	Car/truck	2	25	seconds	467	milliseconds.

20190521	22:24:05	Aircraft	1	1 second	550 milliseconds.
20190521	22:24:09	Aircraft	1	4 seconds	684 milliseconds.
20190521	22:24:14	Aircraft	2	1 minute	4 seconds.
20190521	22:25:20	Wind	1	42 seconds	452 milliseconds.
20190521	22:25:23	Turbines	2	1 minute	5 seconds.
20190521	22:26:03	Wind	2	33 seconds	68 milliseconds.
20190521	22:26:28	Turbines	1	8 seconds	500 milliseconds.
20190521	22:26:36	Wind	1	18 seconds	534 milliseconds.
20190521	22:26:54	Car/truck	1	28 seconds	386 milliseconds.
20190521	22:26:54	Wind	2	1 minute	33 seconds.
20190521	22:27:21	Turbines	1	1 minute	6 seconds.
20190521	22:28:28	Turbines	2	27 seconds	84 milliseconds.
20190521	22:28:28	Wind	1	23 seconds	750 milliseconds.
20190521	22:28:52	Wind	2	5 seconds	50 milliseconds.
20190521	22:28:55	Turbines	1	30 seconds	568 milliseconds.
20190521	22:29:16	Wind	2	47 seconds	669 milliseconds.
20190521	22:29:25	Turbines	2	18 seconds	484 milliseconds.
20190521	22:29:34	Aircraft	2	52 seconds	652 milliseconds.
20190521	22:30:04	Wind	1	37 seconds	919 milliseconds.
20190521	22:30:39	Turbines	1	2 seconds	133 milliseconds.
20190521	22:30:41	Turbines	2	12 seconds	950 milliseconds.
20190521	22:30:42	Wind	2	1 minute	27 seconds.
20190521	22:30:54	Turbines	1	1 minute	0 seconds.
20190521	22:31:55	Turbines	2	9 seconds	549 milliseconds.
20190521	22:32:10	Wind	1	19 seconds	802 milliseconds.
20190521	22:32:29	Wind	2	16 seconds	833 milliseconds.
20190521	22:32:30	Turbines	1	17 seconds	517 milliseconds.
20190521	22:32:46	Wind	1	14 seconds	350 milliseconds.
20190521	22:33:00	Turbines	2	10 seconds	601 milliseconds.
20190521	22:33:00	Wind	2	1 minute	38 seconds.
20190521	22:33:11	Turbines	1	1 minute	57 seconds.
20190521	22:34:56	Wind	2	17 seconds	167 milliseconds.
20190521	22:35:07	Car/truck	1	15 seconds	650 milliseconds.
20190521	22:35:13	Turbines	2	1 minute	19 seconds.
20190521	22:35:23	Car/truck	2	8 seconds	265 milliseconds.
20190521	22:35:32	Wind	2	1 minute	1 second.
20190521	22:36:33	Turbines	2	468 milliseconds.	
20190521	22:36:33	Turbines	1	1 minute	24 seconds.
20190521	22:36:37	Wind	2	2 minutes	39 seconds.
20190521	22:37:58	Turbines	2	18 seconds	683 milliseconds.
20190521	22:38:17	Turbines	1	39 seconds	384 milliseconds.
20190521	22:38:56	Turbines	2	16 seconds	34 milliseconds.
20190521	22:39:12	Turbines	1	1 second	450 milliseconds.

20190521	22:39:17	Wind	1	24	seconds	220	milliseconds.
20190521	22:39:41	Wind	2	3	minutes	16	seconds.
20190521	22:39:42	Turbines	2	3	minutes	17	seconds.
20190521	22:40:12	Aircraft	2	1	minute	2	seconds.
20190521	22:42:58	Wind	1	733	milliseconds.		
20190521	22:42:58	Wind	2	8	seconds	900	milliseconds.
20190521	22:42:59	Turbines	1	7	seconds	983	milliseconds.
20190521	22:43:07	Turbines	2	35	seconds	319	milliseconds.
20190521	22:43:07	Wind	1	1	minute	12	seconds.
20190521	22:44:07	Turbines	2	16	seconds	82	milliseconds.
20190521	22:44:20	Wind	2	6	minutes	3	seconds.
20190521	22:44:23	Turbines	1	1	minute	9	seconds.
20190521	22:45:32	Turbines	2	1	minute	33	seconds.
20190521	22:47:06	Turbines	1	1	minute	32	seconds.
20190521	22:48:38	Turbines	2	2	minutes	15	seconds.
20190521	22:49:11	Aircraft	1	2	seconds	200	milliseconds.
20190521	22:49:13	Aircraft	2	56	seconds	104	milliseconds.
20190521	22:50:23	Wind	1	1	minute	8	seconds.
20190521	22:51:31	Turbines	2	47	seconds	853	milliseconds.
20190521	22:51:31	Wind	2	1	minute	35	seconds.
20190521	22:52:19	Turbines	1	20	seconds	550	milliseconds.
20190521	22:52:39	Turbines	2	6	seconds	984	milliseconds.
20190521	22:52:46	Turbines	1	21	seconds	667	milliseconds.
20190521	22:53:07	Wind	1	19	seconds	100	milliseconds.
20190521	22:53:16	Turbines	2	17	seconds	834	milliseconds.
20190521	22:53:26	Wind	2	47	seconds	702	milliseconds.
20190521	22:53:34	Turbines	1	1	minute	14	seconds.
20190521	22:54:48	Wind	2	3	seconds	951	milliseconds.
20190521	22:54:48	Turbines	2	2	seconds	985	milliseconds.
20190521	22:54:52	Wind	1	32	seconds	468	milliseconds.
20190521	22:55:08	Turbines	2	57	seconds	786	milliseconds.
20190521	22:55:24	Wind	2	1	minute	14	seconds.
20190521	22:56:06	Turbines	1	28	seconds	634	milliseconds.
20190521	22:56:34	Turbines	2	8	seconds	950	milliseconds.
20190521	22:56:39	Wind	1	1	minute	36	seconds.
20190521	22:57:31	Turbines	2	50	seconds	151	milliseconds.
20190521	22:58:15	Wind	2	4	minutes	2	seconds.
20190521	22:58:21	Turbines	1	20	seconds	767	milliseconds.
20190521	22:58:42	Turbines	2	3	minutes	19	seconds.
20190521	23:02:18	Wind	1	25	minutes	47	seconds.
20190521	23:23:17	Turbines	2	32	seconds	668	milliseconds.
20190521	23:24:31	Turbines	2	25	seconds	450	milliseconds.
20190521	23:25:06	Turbines	2	20	seconds	151	milliseconds.

20190521	23:25:41	Turbines	2	1 minute	2 seconds.
20190521	23:26:49	Turbines	2	1 minute	55 seconds.
20190521	23:28:00	Car/truck	1	12 seconds	539 milliseconds.
20190521	23:28:06	Wind	2	8 seconds	83 milliseconds.
20190521	23:28:14	Wind	1	55 seconds	169 milliseconds.
20190521	23:28:49	Turbines	2	2 minutes	51 seconds.
20190521	23:29:09	Wind	2	29 seconds	335 milliseconds.
20190521	23:29:38	Wind	1	16 seconds	700 milliseconds.
20190521	23:29:55	Wind	2	22 seconds	251 milliseconds.
20190521	23:30:17	Wind	1	2 minutes	34 seconds.
20190521	23:32:26	Turbines	2	2 minutes	49 seconds.
20190521	23:32:52	Wind	2	48 seconds	570 milliseconds.
20190521	23:33:40	Wind	1	41 seconds	551 milliseconds.
20190521	23:34:22	Wind	2	7 minutes	47 seconds.
20190521	23:35:15	Turbines	1	45 seconds	520 milliseconds.
20190521	23:36:01	Turbines	2	11 seconds	116 milliseconds.
20190521	23:36:12	Turbines	1	9 seconds	82 milliseconds.
20190521	23:36:21	Turbines	2	25 seconds	752 milliseconds.
20190521	23:36:47	Turbines	1	27 seconds	617 milliseconds.
20190521	23:37:14	Turbines	2	29 seconds	102 milliseconds.
20190521	23:37:43	Turbines	1	1 minute	11 seconds.
20190521	23:38:55	Turbines	2	42 seconds	84 milliseconds.
20190521	23:39:37	Turbines	1	46 seconds	789 milliseconds.
20190521	23:40:24	Turbines	2	1 minute	7 seconds.
20190521	23:41:31	Turbines	1	36 seconds	137 milliseconds.
20190521	23:42:07	Turbines	2	1 minute	45 seconds.
20190521	23:42:10	Wind	1	55 seconds	352 milliseconds.
20190521	23:43:04	Car/truck	1	9 seconds	300 milliseconds.
20190521	23:43:06	Wind	2	2 minutes	31 seconds.
20190521	23:43:53	Turbines	1	12 seconds	218 milliseconds.
20190521	23:44:06	Turbines	2	24 seconds	51 milliseconds.
20190521	23:44:30	Turbines	1	18 seconds	499 milliseconds.
20190521	23:44:48	Turbines	2	1 minute	10 seconds.
20190521	23:45:26	Car/truck	1	9 seconds	382 milliseconds.
20190521	23:45:37	Wind	1	47 seconds	886 milliseconds.
20190521	23:46:25	Wind	2	55 seconds	719 milliseconds.
20190521	23:46:25	Turbines	2	43 seconds	169 milliseconds.
20190521	23:46:34	Car/truck	2	14 seconds	451 milliseconds.
20190521	23:46:49	Car/truck	1	16 seconds	533 milliseconds.
20190521	23:47:21	Wind	1	28 seconds	284 milliseconds.
20190521	23:47:42	Car/truck	2	7 seconds	734 milliseconds.
20190521	23:47:49	Wind	2	11 seconds	434 milliseconds.
20190521	23:47:50	Car/truck	1	11 seconds	267 milliseconds.

20190521	23:48:00	Wind	1	2 minutes	35 seconds.
20190521	23:48:47	Turbines	2	27 seconds	201 milliseconds.
20190521	23:49:53	Turbines	2	3 minutes	30 seconds.
20190521	23:50:36	Wind	2	12 seconds	34 milliseconds.
20190521	23:50:48	Wind	1	31 seconds	835 milliseconds.
20190521	23:51:20	Wind	2	21 seconds	718 milliseconds.
20190521	23:51:42	Wind	1	38 seconds	18 milliseconds.
20190521	23:52:20	Wind	2	1 minute	3 seconds.
20190521	23:53:23	Wind	1	2 minutes	8 seconds.
20190521	23:55:18	Turbines	2	27 seconds	951 milliseconds.
20190521	23:55:32	Wind	2	1 minute	23 seconds.
20190521	23:55:46	Turbines	1	18 seconds	301 milliseconds.
20190521	23:56:04	Turbines	2	56 seconds	986 milliseconds.
20190521	23:56:55	Wind	1	1 minute	39 seconds.
20190521	23:57:44	Turbines	2	1 minute	14 seconds.
20190521	23:58:35	Wind	2	3 minutes	42 seconds.
20190521	23:58:58	Turbines	1	28 seconds	118 milliseconds.
20190521	23:59:26	Turbines	2	47 seconds	567 milliseconds.
20190522	0:00:14	Turbines	1	48 seconds	488 milliseconds.
20190522	0:01:02	Turbines	2	19 seconds	134 milliseconds.
20190522	0:01:02	Car/truck	1	16 seconds	916 milliseconds.
20190522	0:01:21	Turbines	1	30 seconds	786 milliseconds.
20190522	0:01:52	Turbines	2	1 minute	40 seconds.
20190522	0:02:17	Wind	1	53 seconds	120 milliseconds.
20190522	0:03:10	Wind	2	2 minutes	6 seconds.
20190522	0:03:33	Turbines	1	42 seconds	551 milliseconds.
20190522	0:04:15	Turbines	2	33 seconds	502 milliseconds.
20190522	0:04:49	Turbines	1	25 seconds	885 milliseconds.
20190522	0:05:15	Turbines	2	35 seconds	702 milliseconds.
20190522	0:05:17	Wind	1	27 seconds	985 milliseconds.
20190522	0:05:45	Wind	2	2 minutes	29 seconds.
20190522	0:05:51	Turbines	1	7 seconds	266 milliseconds.
20190522	0:05:58	Turbines	2	24 seconds	817 milliseconds.
20190522	0:06:23	Turbines	1	49 seconds	86 milliseconds.
20190522	0:07:12	Turbines	2	14 seconds	166 milliseconds.
20190522	0:07:26	Turbines	1	43 seconds	355 milliseconds.
20190522	0:08:09	Turbines	2	2 minutes	23 seconds.
20190522	0:08:14	Wind	1	1 minute	39 seconds.
20190522	0:09:53	Wind	2	1 minute	45 seconds.
20190522	0:10:33	Turbines	1	31 seconds	635 milliseconds.
20190522	0:11:04	Turbines	2	6 seconds	267 milliseconds.
20190522	0:11:11	Turbines	1	2 seconds	499 milliseconds.
20190522	0:11:13	Turbines	2	1 minute	35 seconds.

20190522	0:11:14	Car/truck	1	24	seconds	367	milliseconds.
20190522	0:11:39	Wind	1	1	minute	10	seconds.
20190522	0:12:49	Turbines	1	20	seconds	19	milliseconds.
20190522	0:12:49	Wind	2	28	seconds	101	milliseconds.
20190522	0:13:09	Turbines	2	3	minutes	43	seconds.
20190522	0:13:17	Wind	1	35	seconds	285	milliseconds.
20190522	0:13:52	Wind	2	52	seconds	53	milliseconds.
20190522	0:14:44	Wind	1	1	minute	51	seconds.
20190522	0:16:36	Wind	2	4	minutes	0	seconds.
20190522	0:16:53	Turbines	1	57	seconds	502	milliseconds.
20190522	0:17:50	Turbines	2	1	minute	0	seconds.
20190522	0:18:50	Turbines	1	1	minute	21	seconds.
20190522	0:20:12	Turbines	2	1	minute	9	seconds.
20190522	0:20:37	Wind	1	1	minute	42	seconds.
20190522	0:21:38	Turbines	2	4	minutes	23	seconds.
20190522	0:22:19	Wind	2	52	seconds	235	milliseconds.
20190522	0:23:12	Wind	1	9	seconds	835	milliseconds.
20190522	0:23:21	Wind	2	1	minute	5	seconds.
20190522	0:24:27	Wind	1	5	seconds	567	milliseconds.
20190522	0:24:32	Wind	2	16	seconds	317	milliseconds.
20190522	0:24:48	Wind	1	36	seconds	235	milliseconds.
20190522	0:25:25	Wind	2	4	minutes	37	seconds.
20190522	0:26:01	Turbines	1	14	seconds	1	millisecond.
20190522	0:26:15	Turbines	2	24	seconds	52	milliseconds.
20190522	0:26:39	Turbines	1	49	seconds	834	milliseconds.
20190522	0:27:29	Turbines	2	1	minute	9	seconds.
20190522	0:28:38	Turbines	1	45	seconds	119	milliseconds.
20190522	0:29:24	Turbines	2	2	minutes	21	seconds.
20190522	0:30:02	Wind	1	23	seconds	267	milliseconds.
20190522	0:30:25	Wind	2	5	minutes	25	seconds.
20190522	0:31:46	Turbines	1	3	minutes	47	seconds.
20190522	0:35:33	Turbines	2	1	minute	1	second.
20190522	0:35:50	Wind	1	43	seconds	602	milliseconds.
20190522	0:36:34	Wind	2	34	seconds	985	milliseconds.
20190522	0:36:34	Turbines	1	5	seconds	666	milliseconds.
20190522	0:36:40	Turbines	2	4	minutes	28	seconds.
20190522	0:37:09	Wind	1	1	minute	29	seconds.
20190522	0:38:38	Wind	2	6	minutes	27	seconds.
20190522	0:41:09	Turbines	1	28	seconds	785	milliseconds.
20190522	0:41:38	Turbines	2	2	minutes	2	seconds.
20190522	0:43:40	Turbines	1	19	seconds	568	milliseconds.
20190522	0:43:59	Turbines	2	5	minutes	15	seconds.
20190522	0:45:05	Wind	1	17	seconds	567	milliseconds.

20190522	0:45:23	Wind	2	43 seconds	952 milliseconds.
20190522	0:46:07	Wind	1	35 seconds	268 milliseconds.
20190522	0:46:42	Wind	2	1 minute	30 seconds.
20190522	0:48:13	Wind	1	59 seconds	971 milliseconds.
20190522	0:49:13	Wind	2	1 minute	22 seconds.
20190522	0:49:15	Turbines	1	49 seconds	286 milliseconds.
20190522	0:50:04	Turbines	2	1 minute	39 seconds.
20190522	0:50:36	Wind	1	27 seconds	350 milliseconds.
20190522	0:51:03	Wind	2	3 minutes	37 seconds.
20190522	0:51:44	Turbines	1	29 seconds	825 milliseconds.
20190522	0:52:14	Turbines	2	32 seconds	236 milliseconds.
20190522	0:52:46	Turbines	1	27 seconds	235 milliseconds.
20190522	0:53:13	Turbines	2	30 seconds	784 milliseconds.
20190522	0:53:44	Turbines	1	9 seconds	817 milliseconds.
20190522	0:53:54	Turbines	2	8 seconds	83 milliseconds.
20190522	0:54:02	Turbines	1	34 seconds	584 milliseconds.
20190522	0:54:36	Turbines	2	25 seconds	19 milliseconds.
20190522	0:54:41	Wind	1	20 seconds	418 milliseconds.
20190522	0:55:01	Wind	2	1 minute	18 seconds.
20190522	0:55:01	Turbines	1	34 seconds	418 milliseconds.
20190522	0:55:36	Turbines	2	1 minute	24 seconds.
20190522	0:56:20	Wind	1	22 seconds	136 milliseconds.
20190522	0:56:42	Wind	2	1 minute	58 seconds.
20190522	0:57:01	Turbines	1	44 seconds	52 milliseconds.
20190522	0:57:45	Turbines	2	8 seconds	266 milliseconds.
20190522	0:57:53	Turbines	1	13 seconds	17 milliseconds.
20190522	0:58:06	Turbines	2	20 seconds	284 milliseconds.
20190522	0:58:26	Turbines	1	9 seconds	868 milliseconds.
20190522	0:58:36	Turbines	2	2 minutes	30 seconds.
20190522	0:58:41	Wind	1	2 minutes	20 seconds.
20190522	1:01:01	Wind	2	2 minutes	52 seconds.
20190522	1:01:07	Turbines	1	38 seconds	518 milliseconds.
20190522	1:01:45	Turbines	2	17 seconds	784 milliseconds.
20190522	1:02:03	Turbines	1	31 seconds	819 milliseconds.
20190522	1:02:35	Turbines	2	23 seconds	317 milliseconds.
20190522	1:02:58	Turbines	1	45 seconds	19 milliseconds.
20190522	1:03:43	Turbines	2	51 seconds	351 milliseconds.
20190522	1:03:54	Wind	1	21 seconds	884 milliseconds.
20190522	1:04:16	Wind	2	9 minutes	13 seconds.
20190522	1:04:35	Turbines	1	6 seconds	551 milliseconds.
20190522	1:04:41	Turbines	2	1 minute	2 seconds.
20190522	1:05:44	Turbines	1	10 seconds	700 milliseconds.
20190522	1:05:55	Turbines	2	14 seconds	969 milliseconds.

20190522	1:06:10	Turbines	1	1	minute	4	seconds.
20190522	1:07:14	Turbines	2	40	seconds	301	milliseconds.
20190522	1:07:54	Turbines	1	23	seconds	151	milliseconds.
20190522	1:08:17	Turbines	2	19	seconds	800	milliseconds.
20190522	1:08:37	Turbines	1	29	seconds	300	milliseconds.
20190522	1:09:07	Turbines	2	4	seconds	801	milliseconds.
20190522	1:09:11	Turbines	1	29	seconds	601	milliseconds.
20190522	1:09:41	Turbines	2	10	seconds	400	milliseconds.
20190522	1:09:51	Turbines	1	57	seconds	186	milliseconds.
20190522	1:10:49	Turbines	2	32	seconds	400	milliseconds.
20190522	1:11:21	Turbines	1	1	minute	16	seconds.
20190522	1:12:38	Turbines	2	3	minutes	33	seconds.
20190522	1:13:29	Wind	1	1	minute	12	seconds.
20190522	1:14:42	Wind	2	34	seconds	935	milliseconds.
20190522	1:15:17	Wind	1	42	seconds	585	milliseconds.
20190522	1:15:59	Wind	2	2	minutes	11	seconds.
20190522	1:16:11	Turbines	1	1	minute	5	seconds.
20190522	1:17:16	Turbines	2	40	seconds	752	milliseconds.
20190522	1:17:57	Turbines	1	6	seconds	967	milliseconds.
20190522	1:18:04	Turbines	2	1	minute	5	seconds.
20190522	1:18:10	Wind	1	50	seconds	303	milliseconds.
20190522	1:19:01	Wind	2	3	minutes	2	seconds.
20190522	1:19:10	Turbines	1	2	minutes	54	seconds.
20190522	1:22:03	Wind	1	8	minutes	36	seconds.
20190522	1:30:38	Aircraft	1	28	seconds	500	milliseconds.
20190522	1:30:39	Wind	2	40	seconds	69	milliseconds.
20190522	1:31:06	Aircraft	2	22	seconds	634	milliseconds.
20190522	1:31:19	Wind	1	5	minutes	6	seconds.
20190522	1:31:36	Aircraft	2	7	seconds	535	milliseconds.
20190522	1:35:30	Car/truck	2	11	seconds	615	milliseconds.
20190522	1:35:56	Car/truck	2	27	seconds	684	milliseconds.
20190522	1:36:24	Car/truck	1	12	seconds	983	milliseconds.
20190522	1:36:26	Wind	2	16	seconds	732	milliseconds.
20190522	1:36:37	Car/truck	2	4	seconds	517	milliseconds.
20190522	1:36:50	Wind	1	1	minute	24	seconds.
20190522	1:36:58	Insect/birds	2	1	minute	10	seconds.
20190522	1:38:13	Car/truck	1	35	seconds	354	milliseconds.
20190522	1:38:15	Wind	2	49	seconds	701	milliseconds.
20190522	1:38:48	Car/truck	2	25	seconds	834	milliseconds.
20190522	1:39:04	Wind	1	2	minutes	18	seconds.
20190522	1:41:10	Turbines	2	12	seconds	67	milliseconds.
20190522	1:41:22	Turbines	1	5	minutes	10	seconds.
20190522	1:41:23	Wind	2	6	minutes	58	seconds.

20190522	1:46:33	Turbines	2	8 seconds	549 milliseconds.
20190522	1:46:41	Turbines	1	1 minute	39 seconds.
20190522	1:48:21	Turbines	2	30 seconds	418 milliseconds.
20190522	1:48:22	Wind	1	30 seconds	368 milliseconds.
20190522	1:48:51	Turbines	1	22 seconds	418 milliseconds.
20190522	1:48:52	Wind	2	53 seconds	486 milliseconds.
20190522	1:49:14	Turbines	2	12 seconds	750 milliseconds.
20190522	1:49:27	Turbines	1	18 seconds	467 milliseconds.
20190522	1:49:45	Turbines	2	16 seconds	735 milliseconds.
20190522	1:49:46	Wind	1	6 seconds	900 milliseconds.
20190522	1:49:53	Wind	2	38 seconds	152 milliseconds.
20190522	1:50:02	Turbines	1	8 seconds	783 milliseconds.
20190522	1:50:31	Wind	1	26 seconds	102 milliseconds.

**Deerfield Wind Compliance Monitoring
CSA J2018-1170**

Date: May 21 - May 22, 2019

Site: C

Personnel: D. Barrett

Note: "1" indicates loudest (dominant) source, "2" indicates secondary (audible) source

Summary:

Aircraft 2 = 2 minutes 8 seconds
 Birds/Insects 1 = 33 seconds 935 milliseconds
 Birds/Insects 2 = 2 hours 28 minutes 53 seconds
 Car/Truck 1 = 3 minutes 40 seconds
 Car/Truck 2 = 36 seconds 79 milliseconds
 East Turbines 1 = 1 hour 20 minutes 47 seconds
 East Turbines 2 = 2 hours 19 minutes 36 seconds
 Other 2 = 30 seconds 293 milliseconds
 West Turbines 1 = 10 minutes 0 seconds
 West Turbines 2 = 2 hours 51 minutes 50 seconds
 Wind 1 = 1 minutes 40 seconds
 Wind 2 = 9 minutes 9 seconds

Observation Date/Time		Noise Source	Duration
20190521	22:02:06	West Turbines 1	9 minutes 30 seconds.
20190521	22:02:18	East Turbines 2	9 minutes 16 seconds.
20190521	22:02:23	Birds/Insects 2	43 minutes 20 seconds.
20190521	22:11:34	East Turbines 1	8 minutes 54 seconds.

20190521	22:11:36	West Turbines	2	8	minutes	50	seconds.
20190521	22:20:27	West Turbines	1	30	seconds	177	milliseconds.
20190521	22:20:28	East Turbines	2	27	seconds	928	milliseconds.
20190521	22:20:56	East Turbines	1	19	seconds	434	milliseconds.
20190521	22:20:57	West Turbines	2	40	minutes	44	seconds.
20190521	22:21:16	East Turbines	2	1	minute	8	seconds.
20190521	22:22:24	East Turbines	1	37	seconds	586	milliseconds.
20190521	22:23:02	East Turbines	2	1	minute	10	seconds.
20190521	22:23:50	Wind	2	4	seconds	159	milliseconds.
20190521	22:24:12	East Turbines	1	1	minute	38	seconds.
20190521	22:24:40	Aircraft	2	29	seconds	301	milliseconds.
20190521	22:25:50	East Turbines	2	50	seconds	537	milliseconds.
20190521	22:26:41	East Turbines	1	8	minutes	50	seconds.
20190521	22:27:57	Car/Truck	1	23	seconds	268	milliseconds.
20190521	22:28:20	Car/Truck	2	5	seconds	734	milliseconds.
20190521	22:34:02	Car/Truck	1	18	seconds	85	milliseconds.
20190521	22:35:31	East Turbines	2	1	minute	35	seconds.
20190521	22:36:34	Aircraft	2	19	seconds	434	milliseconds.
20190521	22:37:07	East Turbines	1	31	seconds	618	milliseconds.
20190521	22:37:38	East Turbines	2	14	seconds	224	milliseconds.
20190521	22:37:53	East Turbines	1	24	seconds	778	milliseconds.
20190521	22:38:17	East Turbines	2	1	minute	38	seconds.
20190521	22:39:56	East Turbines	1	17	seconds	600	milliseconds.
20190521	22:40:14	East Turbines	2	1	minute	57	seconds.
20190521	22:40:22	Aircraft	2	16	seconds	300	milliseconds.
20190521	22:41:07	Wind	2	10	seconds	913	milliseconds.
20190521	22:42:12	East Turbines	1	14	seconds	93	milliseconds.
20190521	22:42:26	East Turbines	2	37	seconds	18	milliseconds.
20190521	22:42:47	Wind	2	18	seconds	17	milliseconds.
20190521	22:43:03	East Turbines	1	3	minutes	10	seconds.
20190521	22:44:47	Wind	2	45	seconds	798	milliseconds.
20190521	22:46:13	East Turbines	2	2	minutes	32	seconds.
20190521	22:46:51	Birds/Insects	2	1	minute	39	seconds.
20190521	22:48:34	Birds/Insects	2	5	minutes	20	seconds.
20190521	22:48:45	East Turbines	1	17	seconds	267	milliseconds.
20190521	22:49:02	East Turbines	2	1	minute	54	seconds.
20190521	22:49:21	Aircraft	2	16	seconds	25	milliseconds.
20190521	22:50:00	Aircraft	2	16	seconds	742	milliseconds.
20190521	22:50:57	East Turbines	1	34	seconds	967	milliseconds.
20190521	22:51:32	East Turbines	2	1	minute	42	seconds.
20190521	22:53:15	East Turbines	1	1	minute	29	seconds.
20190521	22:54:15	Birds/Insects	2	3	minutes	37	seconds.
20190521	22:54:22	Wind	2	25	seconds	551	milliseconds.

20190521	22:54:45	East Turbines	2	25	seconds	257	milliseconds.
20190521	22:55:10	East Turbines	1	2	minutes	12	seconds.
20190521	22:55:55	Wind	2	1	minute	2	seconds.
20190521	22:57:23	East Turbines	2	3	minutes	4	seconds.
20190521	22:58:19	Birds/Insects	2	2	minutes	42	seconds.
20190521	23:00:27	East Turbines	1	12	minutes	46	seconds.
20190521	23:00:56	Wind	2	18	seconds	767	milliseconds.
20190521	23:01:29	Wind	2	30	seconds	909	milliseconds.
20190521	23:02:02	Birds/Insects	2	616	milliseconds.		
20190521	23:02:25	Wind	2	33	seconds	909	milliseconds.
20190521	23:02:29	Birds/Insects	2	3	minutes	43	seconds.
20190521	23:07:02	Birds/Insects	2	6	minutes	10	seconds.
20190521	23:09:00	Wind	2	5	seconds	84	milliseconds.
20190521	23:12:08	Wind	2	24	seconds	817	milliseconds.
20190521	23:13:13	Birds/Insects	1	33	seconds	935	milliseconds.
20190521	23:13:14	East Turbines	2	35	seconds	993	milliseconds.
20190521	23:13:50	East Turbines	1	1	minute	9	seconds.
20190521	23:13:59	Birds/Insects	2	8	seconds	891	milliseconds.
20190521	23:14:56	Wind	1	17	seconds	534	milliseconds.
20190521	23:14:59	East Turbines	2	20	seconds	709	milliseconds.
20190521	23:15:13	Wind	2	18	seconds	134	milliseconds.
20190521	23:15:16	Birds/Insects	2	2	minutes	25	seconds.
20190521	23:15:20	East Turbines	1	5	minutes	21	seconds.
20190521	23:15:59	Wind	2	16	seconds	1	millisecond.
20190521	23:19:07	Birds/Insects	2	7	minutes	35	seconds.
20190521	23:20:40	Wind	1	24	seconds	628	milliseconds.
20190521	23:20:41	East Turbines	2	24	seconds	551	milliseconds.
20190521	23:21:06	East Turbines	1	5	minutes	33	seconds.
20190521	23:21:20	West Turbines	2	47	minutes	13	seconds.
20190521	23:25:02	Wind	2	29	seconds	697	milliseconds.
20190521	23:26:39	East Turbines	2	8	minutes	52	seconds.
20190521	23:27:24	Birds/Insects	2	1	minute	44	seconds.
20190521	23:28:52	Car/Truck	1	15	seconds	309	milliseconds.
20190521	23:29:08	Birds/Insects	2	1	second	132	milliseconds.
20190521	23:29:44	Wind	2	11	seconds	976	milliseconds.
20190521	23:29:56	Wind	1	7	seconds	757	milliseconds.
20190521	23:30:04	Wind	2	1	second	950	milliseconds.
20190521	23:30:31	Birds/Insects	2	7	minutes	45	seconds.
20190521	23:31:55	Wind	2	11	seconds	40	milliseconds.
20190521	23:34:38	Wind	2	3	seconds	258	milliseconds.
20190521	23:34:42	Wind	1	39	seconds	244	milliseconds.
20190521	23:35:32	East Turbines	1	2	minutes	42	seconds.
20190521	23:38:14	East Turbines	2	1	minute	48	seconds.

20190521	23:38:25	Birds/Insects	2	16	seconds	301	milliseconds.
20190521	23:38:51	Birds/Insects	2	2	minutes	48	seconds.
20190521	23:40:03	East Turbines	1	43	seconds	960	milliseconds.
20190521	23:40:43	Wind	2	9	seconds	566	milliseconds.
20190521	23:40:47	East Turbines	2	1	minute	44	seconds.
20190521	23:40:53	Wind	1	11	seconds	299	milliseconds.
20190521	23:41:04	Wind	2	34	seconds	294	milliseconds.
20190521	23:42:31	East Turbines	1	38	seconds	139	milliseconds.
20190521	23:42:48	Birds/Insects	2	1	minute	33	seconds.
20190521	23:43:09	East Turbines	2	6	minutes	16	seconds.
20190521	23:43:52	Car/Truck	1	21	seconds	275	milliseconds.
20190521	23:44:47	Birds/Insects	2	10	seconds	817	milliseconds.
20190521	23:45:01	Birds/Insects	2	22	seconds	417	milliseconds.
20190521	23:45:45	Birds/Insects	2	2	minutes	37	seconds.
20190521	23:46:03	Wind	2	8	seconds	917	milliseconds.
20190521	23:46:13	Car/Truck	1	17	seconds	467	milliseconds.
20190521	23:47:44	Car/Truck	1	20	seconds	418	milliseconds.
20190521	23:48:15	Car/Truck	2	7	seconds	84	milliseconds.
20190521	23:48:39	Car/Truck	1	18	seconds	709	milliseconds.
20190521	23:48:59	Car/Truck	2	8	seconds	959	milliseconds.
20190521	23:49:25	East Turbines	1	23	seconds	743	milliseconds.
20190521	23:49:49	East Turbines	2	18	minutes	44	seconds.
20190521	23:51:02	Birds/Insects	2	1	minute	50	seconds.
20190521	23:54:14	Birds/Insects	2	4	minutes	30	seconds.
20190521	23:59:27	Birds/Insects	2	55	seconds	744	milliseconds.
20190522	0:00:28	Birds/Insects	2	1	minute	23	seconds.
20190522	0:01:58	Car/Truck	1	17	seconds	558	milliseconds.
20190522	0:03:32	Birds/Insects	2	2	minutes	27	seconds.
20190522	0:07:32	Birds/Insects	2	1	minute	1	second.
20190522	0:10:04	West Turbines	2	1	hour 12 minutes 31	seconds.	
20190522	0:10:05	East Turbines	2	16	minutes	44	seconds.
20190522	0:10:06	Birds/Insects	2	2	minutes	24	seconds.
20190522	0:10:19	Car/Truck	1	21	seconds	462	milliseconds.
20190522	0:18:45	Birds/Insects	2	1	minute	33	seconds.
20190522	0:20:34	Birds/Insects	2	3	seconds	551	milliseconds.
20190522	0:20:53	Birds/Insects	2	1	minute	20	seconds.
20190522	0:24:10	Birds/Insects	2	1	minute	52	seconds.
20190522	0:24:33	Wind	2	6	seconds	465	milliseconds.
20190522	0:24:50	Wind	2	7	seconds	133	milliseconds.
20190522	0:26:50	East Turbines	1	15	seconds	234	milliseconds.
20190522	0:27:05	East Turbines	2	1	minute	5	seconds.
20190522	0:28:10	East Turbines	1	54	seconds	545	milliseconds.
20190522	0:28:29	Birds/Insects	2	1	minute	23	seconds.

20190522	0:29:05	East Turbines	2	3	minutes	34	seconds.
20190522	0:31:51	Birds/Insects	2	1	minute	37	seconds.
20190522	0:32:39	East Turbines	1	36	seconds	353	milliseconds.
20190522	0:33:15	East Turbines	2	12	minutes	7	seconds.
20190522	0:37:05	Birds/Insects	2	22	seconds	292	milliseconds.
20190522	0:41:09	Birds/Insects	2	4	minutes	4	seconds.
20190522	0:43:32	Wind	2	1	minute	28	seconds.
20190522	0:45:23	East Turbines	1	21	seconds	692	milliseconds.
20190522	0:45:45	East Turbines	2	23	minutes	15	seconds.
20190522	0:47:01	Birds/Insects	2	1	minute	25	seconds.
20190522	0:50:21	Birds/Insects	2	3	minutes	4	seconds.
20190522	0:56:24	Birds/Insects	2	6	minutes	21	seconds.
20190522	1:04:27	Birds/Insects	2	13	seconds	843	milliseconds.
20190522	1:05:13	Birds/Insects	2	7	seconds	341	milliseconds.
20190522	1:05:51	Birds/Insects	2	14	seconds	868	milliseconds.
20190522	1:08:32	Birds/Insects	2	1	minute	4	seconds.
20190522	1:09:00	East Turbines	1	6	seconds	983	milliseconds.
20190522	1:09:07	East Turbines	2	7	minutes	30	seconds.
20190522	1:11:13	Birds/Insects	2	1	minute	34	seconds.
20190522	1:14:43	Birds/Insects	2	18	seconds	534	milliseconds.
20190522	1:15:50	Wind	2	23	seconds	225	milliseconds.
20190522	1:16:33	Birds/Insects	2	1	minute	6	seconds.
20190522	1:16:37	East Turbines	1	15	seconds	6	milliseconds.
20190522	1:16:52	Aircraft	2	8	seconds	565	milliseconds.
20190522	1:16:52	East Turbines	2	5	minutes	46	seconds.
20190522	1:17:49	Birds/Insects	2	6	seconds	668	milliseconds.
20190522	1:18:05	Birds/Insects	2	2	minutes	30	seconds.
20190522	1:22:24	Birds/Insects	2	26	seconds	718	milliseconds.
20190522	1:22:39	East Turbines	1	19	minutes	27	seconds.
20190522	1:25:49	Birds/Insects	2	44	seconds	36	milliseconds.
20190522	1:29:30	Birds/Insects	2	6	seconds	793	milliseconds.
20190522	1:29:52	Birds/Insects	2	1	minute	59	seconds.
20190522	1:30:20	Other	2	30	seconds	293	milliseconds.
20190522	1:30:47	Aircraft	2	22	seconds	233	milliseconds.
20190522	1:33:44	Birds/Insects	2	9	seconds	777	milliseconds.
20190522	1:34:47	Birds/Insects	2	1	minute	48	seconds.
20190522	1:37:01	Car/Truck	2	14	seconds	300	milliseconds.
20190522	1:37:15	Car/Truck	1	46	seconds	893	milliseconds.
20190522	1:39:41	Birds/Insects	2	4	minutes	33	seconds.
20190522	1:41:45	West Turbines	2	2	minutes	28	seconds.
20190522	1:42:06	East Turbines	2	2	minutes	7	seconds.

APPENDIX G – EXCLUDED DATA: INITIAL FILTERING

This appendix provides the results of the initial filtering of each curtailment attempt to determine viable intervals for further filtering and analysis. This filtering, or screening, was conducted using data collected at the Site B weather station (temperature, precipitation, wind speed, and wind direction) and data from the wind monitors at Site A and Site C (wind speed and wind direction). Section 3.3.2 of the report describes the overall filtering process in greater detail.

Table G.1 provides the screening results for each of the 22 curtailments attempted during the five-week measurement period. For each curtailment, the table shows the six 10-minute “turbine-on” intervals immediately preceding the curtailment (i.e. up to one hour before) and the six 10-minute intervals immediately following the curtailment (i.e. up to one hour after). Note that although the “turbine-off” periods were nominally 20 minutes, the actual durations varied. In addition, there were transition periods while the turbines were shut down and when they were restarted. For these reasons, the time elapsed between the one-hour “turbine-on” periods before and after each curtailment may vary.

For each 10-minute “turbine-on” interval, the table shows whether the interval was excluded or included for further analysis. If the interval was excluded, the table provides the disqualifying factor. These include the following:

- “Wind Direction” was the most common reason for exclusion of data. This indicates that there was an upwind vector component to the nearest turbines for at least a portion of the 10-minute interval.
- “Weather (precipitation)” indicates that rain was recorded at the Site B weather station during at least a portion of the interval. Relatively few periods were excluded for this reason because Avangrid attempted not to conduct curtailments during periods of precipitation.
- “Wind Speed > 5 m/s” indicates that the maximum wind speed *at the measurement site* exceeded 5 m/s for a substantial portion of the 10-minute interval. In cases where the wind speed was greater than 5 m/s for a smaller portion of the interval, the period was carried forward, but flagged for further analysis during the secondary filtering of data. (This exclusionary criterion should not be confused with the requirement that *hub-height* wind speeds were at least 6 m/s during the curtailments.) In addition, although not shown here, intervals with wind speeds between 4 m/s and 5 m/s were flagged for further screening.
- As required by the Protocol, the data sets also were screened for temperatures below 14° F, although no temperatures that low were recorded during the spring 2019 measurements.
- Because the measurements at Site A and Site B concluded before those at Site C, some intervals are labeled “Measurement Concluded” for those two sites.

The 10-minute intervals that were not excluded for any reason during the initial filtering are identified in the table with the word “Include.” These intervals were carried forward for further filtering as described in Appendix I.

Table G.1 Excluded Data: Initial Screening Using 10-minute Intervals

Curtailment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
1	On	5/17/19	22:10:00	Wind Direction	Wind Direction	Wind Direction
1	On	5/17/19	22:20:00	Wind Direction	Wind Direction	Wind Direction
1	On	5/17/19	22:30:00	Wind Direction	Wind Direction	Wind Direction
1	On	5/17/19	22:40:00	Wind Direction	(Include)	Wind Direction
1	On	5/17/19	22:50:00	Wind Direction	(Include)	(Include)
1	On	5/17/19	23:00:00	Wind Direction	(Include)	(Include)
1	Off	5/17/19	23:11:00			
1	On	5/17/19	23:40:00	Wind Direction	(Include)	(Include)
1	On	5/17/19	23:50:00	Wind Direction	(Include)	(Include)
1	On	5/18/19	0:00:00	Wind Direction	(Include)	(Include)
1	On	5/18/19	0:10:00	Wind Direction	(Include)	(Include)
1	On	5/18/19	0:20:00	(Include)	(Include)	Wind Direction
1	On	5/18/19	0:30:00	(Include)	(Include)	Wind Direction
2	On	5/18/19	0:30:00	(Include)	(Include)	Wind Direction
2	On	5/18/19	0:40:00	Wind Direction	(Include)	Wind Direction
2	On	5/18/19	0:50:00	Wind Direction	(Include)	(Include)
2	On	5/18/19	1:00:00	Wind Direction	(Include)	(Include)
2	On	5/18/19	1:10:00	Wind Direction	(Include)	(Include)
2	On	5/18/19	1:20:00	Wind Direction	(Include)	(Include)
2	Off	5/18/19	1:31:00			
2	On	5/18/19	2:10:00	Wind Direction	(Include)	Wind Direction
2	On	5/18/19	2:20:00	Wind Direction	(Include)	Wind Direction
2	On	5/18/19	2:30:00	Wind Direction	(Include)	Wind Direction
2	On	5/18/19	2:40:00	Wind Direction	(Include)	Wind Dir./Speed > 5 m/s
2	On	5/18/19	2:50:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
2	On	5/18/19	3:00:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	2:50:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	3:00:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	3:10:00	Wind Direction	(Include)	Wind Direction
3	On	5/18/19	3:20:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	3:30:00	Wind Direction	(Include)	Wind Direction
3	On	5/18/19	3:40:00	Wind Direction	(Include)	Wind Direction
3	Off	5/18/19	3:51:00			
3	On	5/18/19	4:30:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	4:40:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	4:50:00	Wind Direction	Wind Direction	Wind Direction

Curtail- ment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
3	On	5/18/19	5:00:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	5:10:00	Wind Direction	Wind Direction	Wind Direction
3	On	5/18/19	5:20:00	Wind Direction	Wind Direction	Wind Direction
4	On	5/19/19	4:20:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	4:30:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	4:40:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	4:50:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	5:00:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	5:10:00	(Include)	Wind Direction	(Include)
4	Off	5/19/19	5:25:00			
4	On	5/19/19	6:00:00	Wind Direction	Wind Direction	(Include)
4	On	5/19/19	6:10:00	Wind Direction	Wind Direction	(Include)
4	On	5/19/19	6:20:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	6:30:00	Wind Direction	Wind Direction	(Include)
4	On	5/19/19	6:40:00	(Include)	Wind Direction	(Include)
4	On	5/19/19	6:50:00	Traffic Contamination	Wind Direction	Wind Direction
5	On	5/19/19	22:00:00	Wind Direction	Wind Direction	Wind Direction
5	On	5/19/19	22:10:00	(Include)	Wind Direction	Wind Direction
5	On	5/19/19	22:20:00	Wind Direction	Wind Direction	Wind Direction
5	On	5/19/19	22:30:00	(Include)	Wind Direction	Wind Direction
5	On	5/19/19	22:40:00	(Include)	Wind Direction	Wind Direction
5	On	5/19/19	22:50:00	(Include)	Wind Direction	Wind Direction
5	Off	5/19/19	23:01:00			
5	On	5/19/19	23:30:00	Wind Direction	Wind Direction	Wind Direction
5	On	5/19/19	23:40:00	(Include)	Wind Direction	Wind Direction
5	On	5/19/19	23:50:00	(Include)	Wind Direction	Wind Direction
5	On	5/20/19	0:00:00	Wind Direction	Wind Direction	Wind Direction
5	On	5/20/19	0:10:00	Wind Direction	Wind Direction	Wind Direction
5	On	5/20/19	0:20:00	Wind Direction	Wind Direction	Wind Direction
6	On	5/20/19	2:40:00	Turbines offline	Turbines offline	Turbines offline
6	On	5/20/19	2:50:00	Turbines offline	Turbines offline	Turbines offline
6	On	5/20/19	3:00:00	Turbines offline	Turbines offline	Turbines offline
6	On	5/20/19	3:10:00	Turbines offline	Turbines offline	Turbines offline
6	On	5/20/19	3:20:00	Turbines offline	Turbines offline	Turbines offline
6	On	5/20/19	3:30:00	Turbines offline	Turbines offline	Turbines offline
6	Off	5/20/19	3:45:00			

Curtailment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
6	On	5/20/19	4:10:00	Wind Direction	Wind Direction	Wind Direction
6	On	5/20/19	4:20:00	Wind Direction	Wind Direction	Wind Direction
6	On	5/20/19	4:30:00	Weather (precipitation)	Weather (precipitation)	Weather (precipitation)
6	On	5/20/19	4:40:00	Weather (precipitation)	Weather (precipitation)	Weather (precipitation)
6	On	5/20/19	4:50:00	Weather (precipitation)	Weather (precipitation)	Weather (precipitation)
6	On	5/20/19	5:00:00	Weather (precipitation)	Weather (precipitation)	Weather (precipitation)
7	On	5/20/19	22:00:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/20/19	22:10:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/20/19	22:20:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/20/19	22:30:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/20/19	22:40:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/20/19	22:50:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	Off	5/20/19	23:03:00			
7	On	5/20/19	23:40:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/20/19	23:50:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/21/19	0:00:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/21/19	0:10:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/21/19	0:20:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
7	On	5/21/19	0:30:00	Wind Speed > 5 m/s	Wind Speed > 5 m/s	Wind Speed > 5 m/s
8	On	5/21/19	0:10:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	0:20:00	Wind Direction	Wind Dir./Speed > 5 m/s	Wind Dir./Speed > 5 m/s
8	On	5/21/19	0:30:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	0:40:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	0:50:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	1:00:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	Off	5/21/19	1:20:00			
8	On	5/21/19	1:50:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	2:00:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	2:10:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	2:20:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	2:30:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
8	On	5/21/19	2:40:00	Wind Direction	Wind Direction	Wind Dir./Speed > 5 m/s
9	On	5/21/19	2:40:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Direction
9	On	5/21/19	2:50:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Direction
9	On	5/21/19	3:00:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Direction
9	On	5/21/19	3:10:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Direction

Curtailment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
9	On	5/21/19	3:20:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Direction
9	On	5/21/19	3:30:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Direction
9	Off	5/21/19	3:45:00			
9	On	5/21/19	4:10:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Dir./Speed > 5 m/s
9	On	5/21/19	4:20:00	Wind Dir./Speed > 5 m/s	(Include)	Wind Dir./Speed > 5 m/s
9	On	5/21/19	4:30:00	Wind Dir./Speed > 5 m/s	Wind Dir./Speed > 5 m/s	Wind Direction
9	On	5/21/19	4:40:00	Wind Dir./Speed > 5 m/s	Wind Direction	Wind Dir./Speed > 5 m/s
9	On	5/21/19	4:50:00	Wind Dir./Speed > 5 m/s	(Include)	Wind Direction
9	On	5/21/19	5:00:00	Wind Dir./Speed > 5 m/s	(Include)	Wind Direction
10	On	5/21/19	22:00:00	Wind Direction	(Include)	Wind Direction
10	On	5/21/19	22:10:00	Wind Direction	Wind Speed > 5 m/s	Wind Direction
10	On	5/21/19	22:20:00	Wind Direction	(Include)	Wind Direction
10	On	5/21/19	22:30:00	Wind Direction	Wind Speed > 5 m/s	Wind Direction
10	On	5/21/19	22:40:00	Wind Direction	Wind Speed > 5 m/s	Wind Direction
10	On	5/21/19	22:50:00	Wind Direction	(Include)	Wind Direction
10	Off	5/21/19	23:00:00			
10	On	5/21/19	23:30:00	Wind Direction	(Include)	Wind Direction
10	On	5/21/19	23:40:00	Wind Direction	(Include)	Wind Direction
10	On	5/21/19	23:50:00	Wind Direction	(Include)	Wind Direction
10	On	5/22/19	0:00:00	Wind Direction	Wind Speed > 5 m/s	Wind Direction
10	On	5/22/19	0:10:00	Wind Direction	Wind Speed > 5 m/s	Wind Direction
10	On	5/22/19	0:20:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	0:20:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	0:30:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	0:40:00	Wind Direction	Wind Direction	Wind Direction
11	On	5/22/19	0:50:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	1:00:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	1:10:00	Wind Direction	(Include)	Wind Direction
11	Off	5/22/19	1:20:00			
11	On	5/22/19	1:50:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	2:00:00	Wind Direction	Wind Direction	Wind Direction
11	On	5/22/19	2:10:00	Wind Direction	Wind Direction	Wind Direction
11	On	5/22/19	2:20:00	Wind Direction	Wind Direction	Wind Direction
11	On	5/22/19	2:30:00	Wind Direction	(Include)	Wind Direction
11	On	5/22/19	2:40:00	Wind Direction	Wind Direction	Wind Direction
12	On	5/22/19	2:40:00	Wind Direction	Wind Direction	Wind Direction

Curtailment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
12	On	5/22/19	2:50:00	Wind Direction	Wind Direction	Wind Direction
12	On	5/22/19	3:00:00	Wind Direction	(Include)	Wind Direction
12	On	5/22/19	3:10:00	Wind Direction	(Include)	Wind Direction
12	On	5/22/19	3:20:00	Wind Direction	(Include)	Wind Direction
12	On	5/22/19	3:30:00	Wind Direction	(Include)	Wind Direction
12	Off	5/22/19	3:42:00			
12	On	5/22/19	4:10:00	Wind Direction	(Include)	Wind Direction
12	On	5/22/19	4:20:00	Wind Direction	Wind Direction	Wind Direction
12	On	5/22/19	4:30:00	Wind Direction	(Include)	Wind Direction
12	On	5/22/19	4:40:00	Wind Direction	Wind Direction	Wind Direction
12	On	5/22/19	4:50:00	Wind Direction	(Include)	Wind Direction
12	On	5/22/19	5:00:00	Wind Direction	(Include)	Wind Direction
13	On	5/23/19	0:20:00	Wind Direction	(Include)	Wind Direction
13	On	5/23/19	0:30:00	Wind Direction	(Include)	Wind Direction
13	On	5/23/19	0:40:00	Wind Direction	(Include)	Wind Direction
13	On	5/23/19	0:50:00	Wind Direction	(Include)	Wind Direction
13	On	5/23/19	1:00:00	Wind Direction	(Include)	Wind Direction
13	On	5/23/19	1:10:00	(Include)	(Include)	Wind Direction
13	Off	5/23/19	1:24:00			
13	On	5/23/19	1:50:00	(Include)	(Include)	(Include)
13	On	5/23/19	2:00:00	(Include)	(Include)	(Include)
13	On	5/23/19	2:10:00	Wind Direction	(Include)	(Include)
13	On	5/23/19	2:20:00	Wind Direction	(Include)	(Include)
13	On	5/23/19	2:30:00	(Include)	(Include)	(Include)
13	On	5/23/19	2:40:00	Wind Direction	(Include)	(Include)
14	On	5/23/19	2:40:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	2:50:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	3:00:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	3:10:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	3:20:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	3:30:00	No curtailment	No curtailment	No curtailment
14	Off	5/23/19	3:44:00			
14	On	5/23/19	4:10:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	4:20:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	4:30:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	4:40:00	No curtailment	No curtailment	No curtailment
14	On	5/23/19	4:50:00	No curtailment	No curtailment	No curtailment

Curtailment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
14	On	5/23/19	5:00:00	No curtailment	No curtailment	No curtailment
15	On	5/25/19	23:00:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/25/19	23:10:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/25/19	23:20:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/25/19	23:30:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/25/19	23:40:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/25/19	23:50:00	No curtailment	Measurement Concluded	No curtailment
15	Off	5/26/19	0:08:00			
15	On	5/26/19	0:40:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/26/19	0:50:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/26/19	1:00:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/26/19	1:10:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/26/19	1:20:00	No curtailment	Measurement Concluded	No curtailment
15	On	5/26/19	1:30:00	No curtailment	Measurement Concluded	No curtailment
16	On	5/30/19	4:10:00	Weather (precipitation)	Measurement Concluded	Weather (precipitation)
16	On	5/30/19	4:20:00	Weather (precipitation)	Measurement Concluded	Weather (precipitation)
16	On	5/30/19	4:30:00	Wind Direction	Measurement Concluded	(Include)
16	On	5/30/19	4:40:00	Weather (precipitation)	Measurement Concluded	Weather (precipitation)
16	On	5/30/19	4:50:00	Weather (precipitation)	Measurement Concluded	Weather (precipitation)
16	On	5/30/19	5:00:00	Weather (precipitation)	Measurement Concluded	Weather (precipitation)
16	Off	5/30/19	5:16:00			
16	On	5/30/19	5:40:00	Wind Direction	Measurement Concluded	Wind Direction
16	On	5/30/19	5:50:00	Wind Direction	Measurement Concluded	(Include)
16	On	5/30/19	6:00:00	Wind Direction	Measurement Concluded	Wind Direction
16	On	5/30/19	6:10:00	Wind Direction	Measurement Concluded	(Include)
16	On	5/30/19	6:20:00	Wind Direction	Measurement Concluded	(Include)
16	On	5/30/19	6:30:00	Wind Direction	Measurement Concluded	(Include)
17	On	5/31/19	3:10:00	Turbines offline	Measurement Concluded	Turbines offline
17	On	5/31/19	3:20:00	Turbines offline	Measurement Concluded	Turbines offline
17	On	5/31/19	3:30:00	Turbines offline	Measurement Concluded	Turbines offline
17	On	5/31/19	3:40:00	Turbines offline	Measurement Concluded	Turbines offline
17	On	5/31/19	3:50:00	Turbines offline	Measurement Concluded	Turbines offline
17	On	5/31/19	4:00:00	Turbines offline	Measurement Concluded	Turbines offline
17	Off	5/31/19	4:11:00			
17	On	5/31/19	4:40:00	Wind Direction	Measurement Concluded	(Include)
17	On	5/31/19	4:50:00	Wind Direction	Measurement Concluded	Wind Direction

Curtailment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
17	On	5/31/19	5:00:00	Wind Direction	Measurement Concluded	Wind Direction
17	On	5/31/19	5:10:00	Wind Direction	Measurement Concluded	(Include)
17	On	5/31/19	5:20:00	Wind Direction	Measurement Concluded	(Include)
17	On	5/31/19	5:30:00	Wind Direction	Measurement Concluded	(Include)
18	On	5/31/19	22:20:00	Wind Direction	Measurement Concluded	(Include)
18	On	5/31/19	22:30:00	Wind Direction	Measurement Concluded	(Include)
18	On	5/31/19	22:40:00	Wind Direction	Measurement Concluded	(Include)
18	On	5/31/19	22:50:00	Wind Direction	Measurement Concluded	(Include)
18	On	5/31/19	23:00:00	(Include)	Measurement Concluded	(Include)
18	On	5/31/19	23:10:00	Wind Direction	Measurement Concluded	(Include)
18	Off	5/31/19	23:26:00			
18	On	6/1/19	0:00:00	(Include)	Measurement Concluded	(Include)
18	On	6/1/19	0:10:00	(Include)	Measurement Concluded	(Include)
18	On	6/1/19	0:20:00	(Include)	Measurement Concluded	(Include)
18	On	6/1/19	0:30:00	(Include)	Measurement Concluded	Wind Direction
18	On	6/1/19	0:40:00	(Include)	Measurement Concluded	(Include)
18	On	6/1/19	0:50:00	(Include)	Measurement Concluded	(Include)
19	On	6/3/19	0:20:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	0:30:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	0:40:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	0:50:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	1:00:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	1:10:00	Measurement Concluded	Measurement Concluded	(Include)
19	Off	6/3/19	1:24:00			
19	On	6/3/19	1:50:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	2:00:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	2:10:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	2:20:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	2:30:00	Measurement Concluded	Measurement Concluded	Wind Direction
19	On	6/3/19	2:40:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	0:30:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	0:40:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	0:50:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	1:00:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	1:10:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	1:20:00	Measurement Concluded	Measurement Concluded	Wind Direction

Curtail- ment No.	Turbine On/Off	Date	Start of Interval	Reason for Excluding Interval		
				SITE A	SITE B	SITE C
20	Off	6/5/19	1:30:00			
20	On	6/5/19	2:10:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	2:20:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	2:30:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	2:40:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	2:50:00	Measurement Concluded	Measurement Concluded	Wind Direction
20	On	6/5/19	3:00:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	3:30:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	3:40:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	3:50:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	4:00:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	4:10:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	4:20:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	Off	6/5/19	4:35:00			
21	On	6/5/19	5:10:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	5:20:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	5:30:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	5:40:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	5:50:00	Measurement Concluded	Measurement Concluded	Wind Direction
21	On	6/5/19	6:00:00	Measurement Concluded	Measurement Concluded	Wind Direction
22	On	6/7/19	22:30:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/7/19	22:40:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/7/19	22:50:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/7/19	23:00:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/7/19	23:10:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/7/19	23:20:00			
22	Off	6/7/19	23:34:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/8/19	0:00:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/8/19	0:10:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/8/19	0:20:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/8/19	0:30:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/8/19	0:40:00	Measurement Concluded	Measurement Concluded	(Include)
22	On	6/8/19	0:50:00	Measurement Concluded	Measurement Concluded	(Include)

APPENDIX H – EXCLUDED DATA: ADDITIONAL FILTERING, “TURBINE-OFF” PERIODS

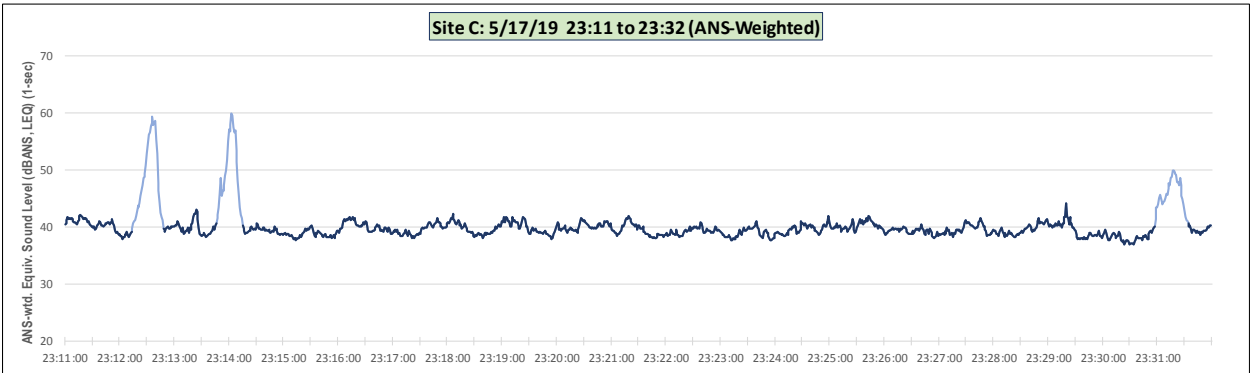
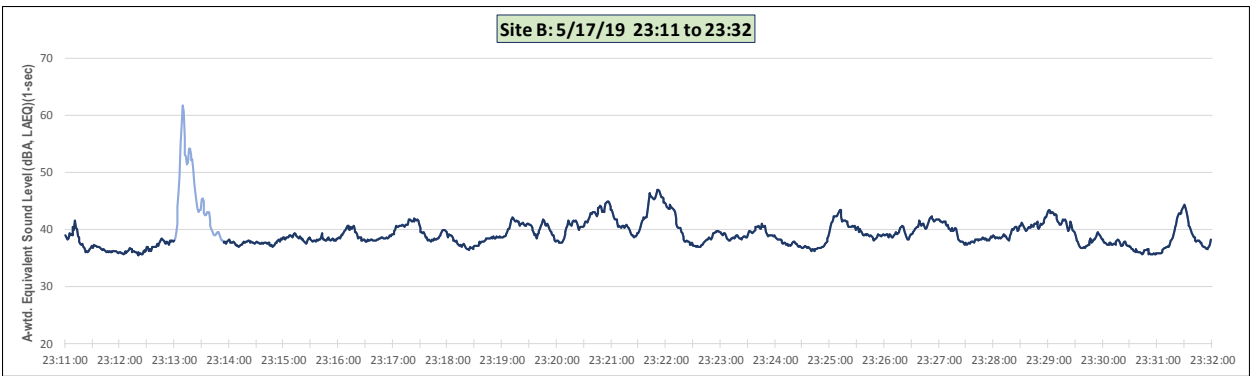
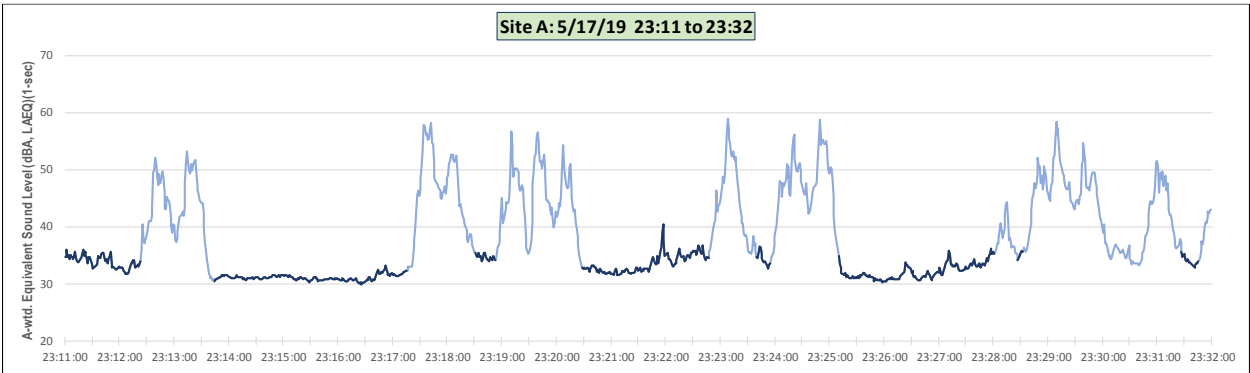
This appendix provides the additional filtering analysis conducted for each of the “turbine-off” intervals carried forward after the initial filtering described in Appendix G. Based on the initial filtering, for some of the 22 curtailment attempts, no “turbine-on” intervals at any of the measurement sites qualified for further analysis. For other curtailment attempts, viable 10-minute intervals were identified at one, two, or all three measurement sites. For any curtailment when at least one viable 10-minute “turbine-on” period was identified, the adjacent “turbine-off” period was evaluated at the corresponding measurement site or sites.

This appendix provides the analysis for each curtailment attempt which qualified for further filtering. For each curtailment attempt, at each applicable measurement site, the following are included:

- A graph showing the 1-second sound level time history during the “turbine-off” period. On each graph, the sections identified with a lighter blue line show periods that were excluded due to contaminating events such as traffic on nearby roads, aircraft overflights, all wind gusts exceeding 5 m/s, and some wind gusts below 5 m/s. Other natural sounds, such as frogs, insects, and birds, typically were filtered by applying ANS-weighting (see Section 3.3.4). For the sites and curtailments where ANS-weighting was used, the graphs show the ANS-weighted sound level, as indicated on the graph. The darker blue line sections on each figure indicates the periods that remained after filtering and that were used to compute the “turbine-off” L_{eq} for the curtailment.
- A table with entries corresponding to each excluded period shown on the graph, along with the reason for excluding the data. In some cases, the tables include events that were examined but not excluded from the data set.

The appendix is organized with the graphs and tables in order by curtailment number.

CURTAILMENT 1 (0517) SITES A, B, & C
May 17, 2019 23:11 to 23:32

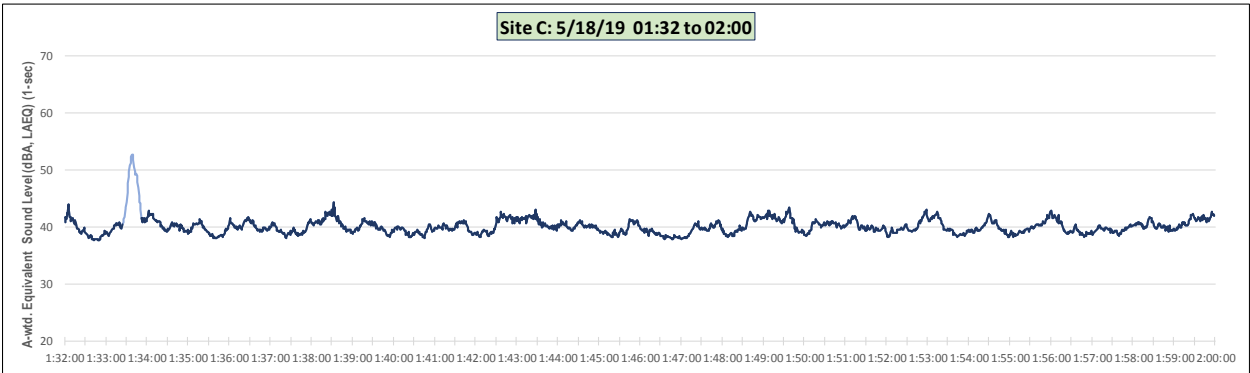
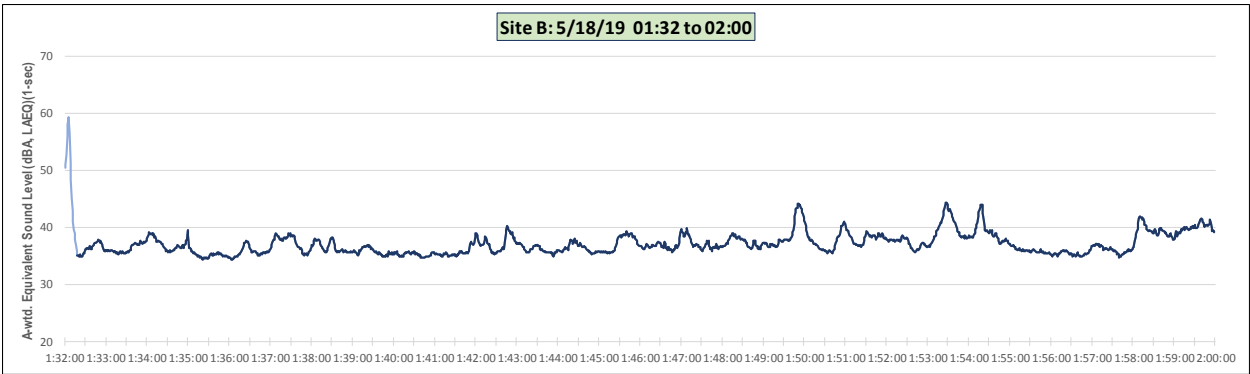
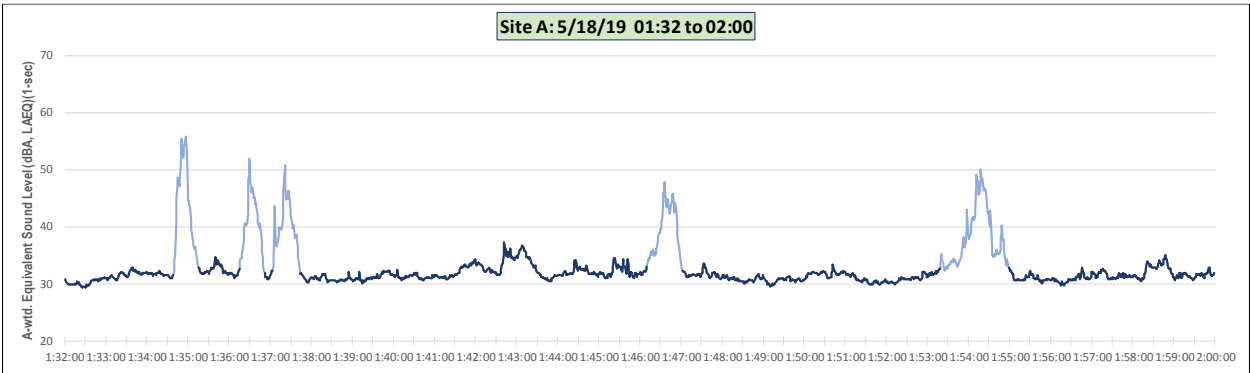


0517 Site A									
<u>Exceedance</u>		<u>WAV file</u>		<u>WAV file</u>		<u>Period to Exclude</u>		<u>Time</u>	
<u>Time</u>	<u>WAV file</u>	<u>Start of</u>	<u>Elapsed</u>	<u>Time</u>	<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Excluded</u>	
1	23:12:40 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:27:33	Traffic		23:12:24	23:13:43	0:01:19	
2	23:17:38 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:32:31	Traffic		23:17:16	23:18:30	0:01:14	
3	23:19:10 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:34:03	Traffic		23:18:54	23:19:32	0:00:38	
4	23:19:38 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:34:31	Traffic		23:19:38	23:20:27	0:00:49	
5	23:20:07 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:35:00	Traffic		Removed with previous section			
6	23:23:08 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:38:01	Traffic		23:22:48	23:23:39	0:00:51	
7	23:24:10 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:39:03	Traffic		23:23:56	23:25:09	0:01:13	
8	23:28:15 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:43:08	Traffic		23:28:13	23:28:26	0:00:13	
9	23:28:56 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:43:49	Traffic		23:28:41	23:31:26	0:02:45	
10	23:31:57 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	7:46:50	Traffic		23:31:56	23:31:59	0:00:03	

0517 Site B									
<u>Exceedance</u>		<u>WAV file</u>		<u>WAV file</u>		<u>Period to Exclude</u>		<u>Time</u>	
<u>Time</u>	<u>WAV file</u>	<u>Start of</u>	<u>Elapsed</u>	<u>Time</u>	<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Excluded</u>	
1	23:13:10 2019-05-15_SLM_000_Audio_FS110.8dB(PK)_04	13:51:51	9:21:19	Traffic		23:13:01	23:13:53	0:00:52	
2	23:20:58 2019-05-15_SLM_000_Audio_FS110.8dB(PK)_04	13:51:51	9:29:07	Wind in Trees/Leaves Rustling (do not exclude)					
3	23:21:53 2019-05-15_SLM_000_Audio_FS110.8dB(PK)_04	13:51:51	9:30:02	Wind in Trees/Leaves Rustling (do not exclude)					
4	23:31:30 2019-05-15_SLM_000_Audio_FS110.8dB(PK)_04	13:51:51	9:39:39	Wind in Trees/Leaves Rustling (do not exclude)					

0517 Site C									
<u>Exceedance</u>		<u>WAV file</u>		<u>WAV file</u>		<u>Period to Exclude</u>		<u>Time</u>	
<u>Time</u>	<u>WAV file</u>	<u>Start of</u>	<u>Elapsed</u>	<u>Time</u>	<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Excluded</u>	
1	23:12:38 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	8:01:53	Traffic		23:12:14	23:12:47	0:00:33	
2	23:14:04 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	8:03:19	Traffic		23:13:47	23:14:14	0:00:27	
3	23:31:19 2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	8:20:34	Traffic		23:30:58	23:31:33	0:00:35	

CURTAILMENT 2 (0518A) SITES A, B, & C
May 18, 2019 01:32 to 02:00

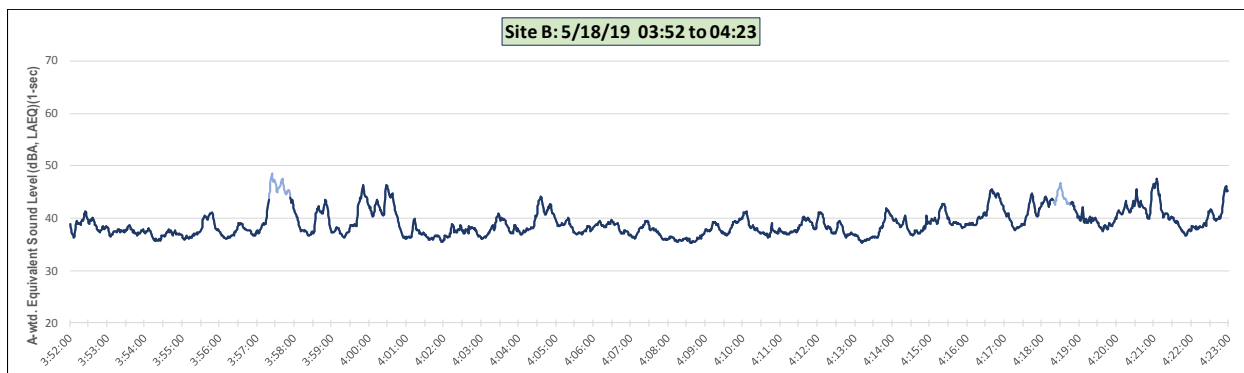


0518A Site A								Period to Exclude		
	<u>Exceedance</u>		<u>WAV file</u>	<u>WAV file</u>		<u>Elapsed</u>	<u>Type of Event</u>	<u>Time</u>		
	<u>Time</u>	<u>WAV file</u>		<u>Start of</u>	<u>Time</u>			<u>Start</u>	<u>End</u>	<u>Excluded</u>
1	1:34:55	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	9:49:48	Traffic	1:34:39	1:35:14	0:00:35		
2	1:36:30	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	9:51:23	Traffic	1:36:16	1:36:51	0:00:35		
3	1:37:21	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	9:52:14	Traffic	1:37:04	1:37:43	0:00:39		
4	1:46:36	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	10:01:29	Traffic	1:46:11	1:47:01	0:00:50		
5	1:54:20	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:45:07	10:09:13	Traffic	1:53:19	1:54:58	0:01:39		

0518A Site B								Period to Exclude		
	<u>Exceedance</u>		<u>WAV file</u>	<u>WAV file</u>		<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Time Excluded</u>	
	<u>Time</u>			<u>Start of WAV file</u>	<u>Elapsed Time</u>					
1	1:32:06	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_04	13:51:51	11:40:15	Traffic	1:32:00	1:32:17	0:00:17		
2	1:49:55	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_04	13:51:51	11:58:04	Wind in Trees/Leaves Rustling (do not exclude)					
3	1:53:32	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05	1:51:51	0:01:41	Wind in Trees/Leaves Rustling (do not exclude)					
4	1:58:14	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05	1:51:51	0:06:23	Wind in Trees/Leaves Rustling (do not exclude)					

0518A Site C											Period to Exclude			
							<u>WAV</u>							
							<u>file</u>							
	<u>Exceedance</u>						<u>Start of</u>	<u>Elapsed</u>						
	<u>Time</u>			<u>WAV file</u>			<u>WAV file</u>	<u>Time</u>		<u>Type of Event</u>		<u>Start</u>	<u>End</u>	<u>Time</u>
1	1:33:37	2019-05-15	SLM 002	Audio FS110.4dB(PK)	04		15:10:45	10:22:52	Traffic			1:33:25	1:33:51	0:00:26

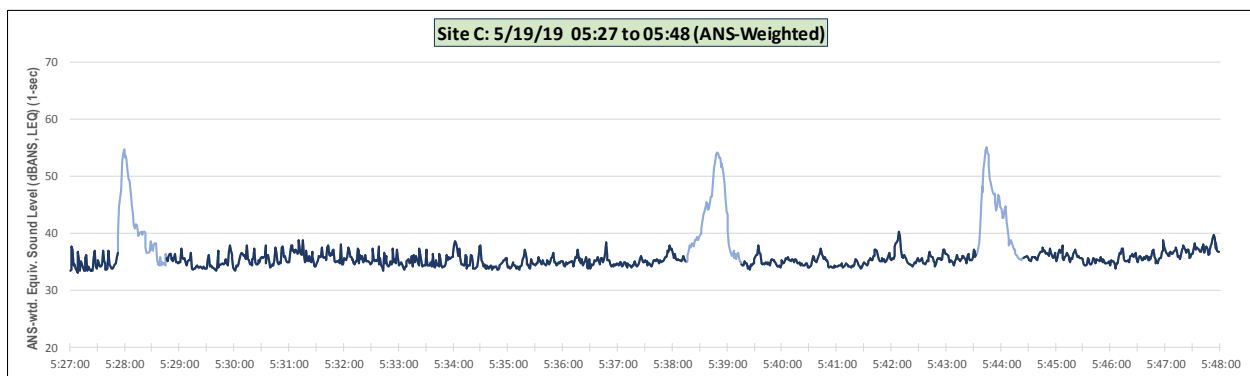
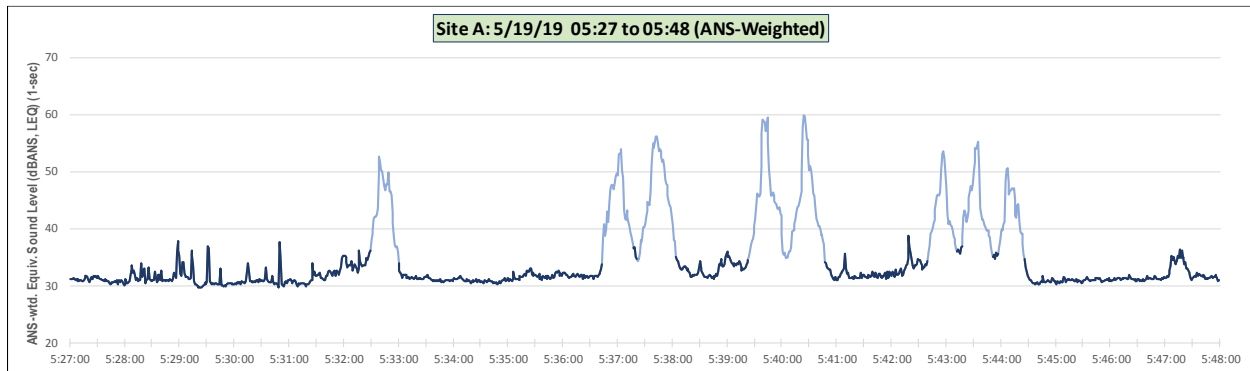
CURTAILMENT 3 (0518B) SITE B
May 18, 2019 03:52 to 04:23



0518B Site B						Period to Exclude		
<u>Exceedance</u>		<u>WAV file</u>	<u>WAV file</u>		<u>Type of Event</u>	<u>Period to Exclude</u>		
<u>Time</u>			<u>Start of</u>	<u>Elapsed</u>		<u>Start</u>	<u>End</u>	<u>Time Excluded</u>
			<u>WAV file</u>	<u>Time</u>				
1	3:57:20	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05	1:51:51	2:05:29	Wind gust	3:57:20	3:57:53	0:00:33
2	4:16:44	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05	1:51:51	2:24:53	Wind gust =>3.5 m/s (do not exclude)			0:00:00
3	4:18:20	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05	1:51:51	2:26:29	Wind gust, wind chimes	4:18:20	4:18:46	0:00:26

CURTAILMENT 4 (0519A) SITES A & C

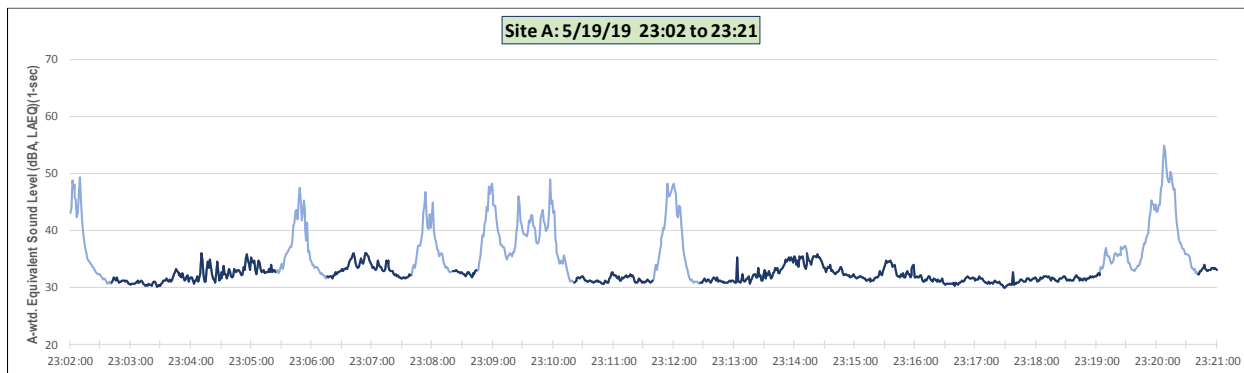
May 19, 2019 05:27 to 05:48



0519A Site A						Period to Exclude		
Exceedance	Time	WAV file	WAV file		Type of Event	Start	End	Time Excluded
			Start of	Elapsed				
1	5:32:40	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:47:33	Cars/Trucks	5:32:30	5:32:59	0:00:29
2	5:37:03	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:51:56	Cars/Trucks	5:36:44	5:37:16	0:00:32
3	5:37:46	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:52:39	Cars/Trucks	5:37:22	5:38:03	0:00:41
4	5:39:43	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:54:36	Cars/Trucks	5:39:24	5:40:03	0:00:39
5	5:40:24	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:55:17	Cars/Trucks	5:40:04	5:40:46	0:00:42
6	5:42:58	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:57:51	Cars/Trucks	5:42:40	5:43:12	0:00:32
7	5:43:35	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:58:28	Cars/Trucks	5:43:18	5:43:51	0:00:33
8	5:44:07	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:45:07	1:59:00	Cars/Trucks	5:43:58	5:44:25	0:00:27

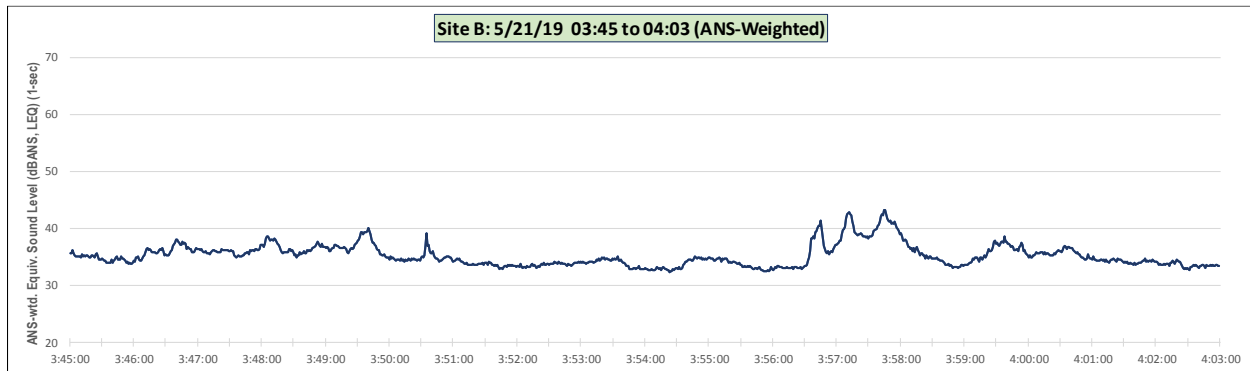
0519A Site C						Period to Exclude		
Exceedance	Time	WAV file	WAV file		Type of Event	Start	End	Time Excluded
			Start of	Elapsed				
1	5:28:01	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:10:45	2:17:16	Cars/Trucks	5:27:53	5:28:45	0:00:52
4	5:38:52	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:10:45	2:28:07	Cars/Trucks	5:38:15	5:39:15	0:01:00
5	5:43:43	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07	3:10:45	2:32:58	Cars/Trucks	5:43:34	5:44:24	0:00:50

CURTAILMENT 5 (0519B) SITE A
May 19, 2019 23:02 to 23:21



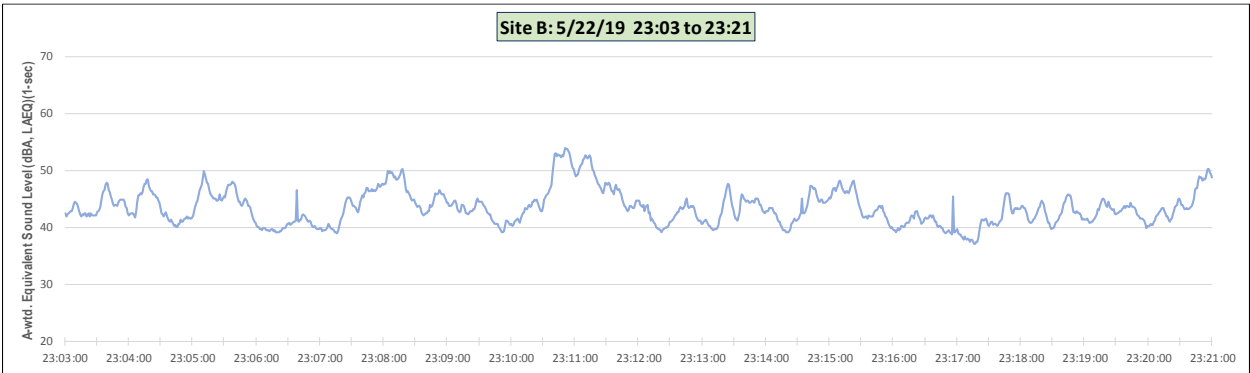
0519B Site A						Period to Exclude		
Exceedance		WAV file	WAV file		Type of Event	Time		Time Excluded
Time			Start of	Elapsed		Start	End	
1	23:01:20	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	8:58:00	Cars/Trucks	23:01:20	23:02:40	0:01:20
2	23:04:15	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:00:55	Aircraft? (Do not exclude)			
3	23:05:25	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:02:05	Cars/Trucks	23:05:25	23:06:15	0:00:50
4	23:06:45	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:03:25	Wind gust (Do not exclude)			
5	23:07:40	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:04:20	Cars/Trucks	23:07:40	23:08:20	0:00:40
6	23:08:45	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:05:25	Cars/Trucks	23:08:45	23:10:20	0:01:35
7	23:11:40	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:08:20	Cars/Trucks	23:11:40	23:12:25	0:00:45
8	23:13:50	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:10:30	Wind gust (Do not exclude)			
9	23:15:25	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:12:05	Wind gust (Do not exclude)			
10	23:19:05	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:15:45	Cars/Trucks	23:19:05	23:19:40	0:00:35
11	23:19:40	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.	14:03:20	9:16:20	Cars/Trucks	23:19:40	23:20:40	0:01:00

CURTAILMENT 9 (0521B) SITE B
May 21, 2019 03:45 to 04:03



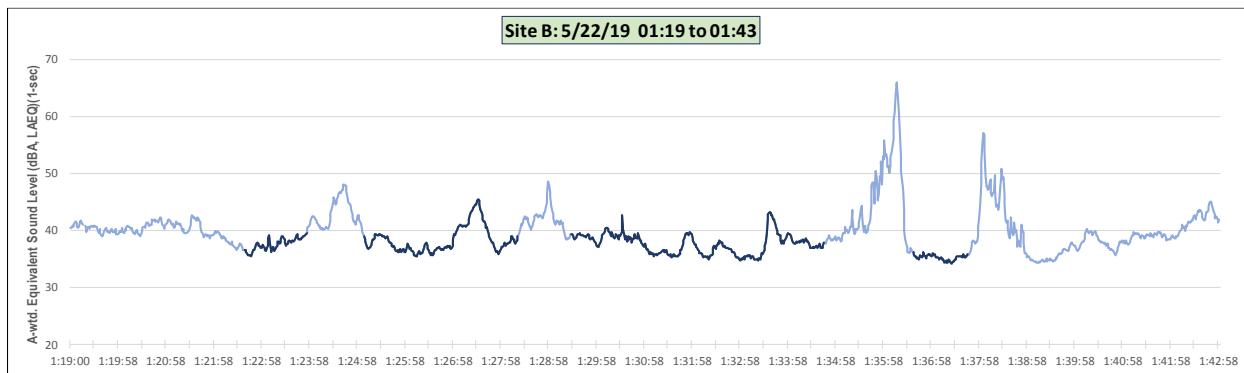
0521B Site B				Period to Exclude			
Exceedance		WAV file		WAV file		Time	
Time	WAV file	Start of WAV file	Elapsed Time	Type of Event	Start	End	Excluded
1 3:49:40	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03	1:29:36	2:20:04	Wind in Trees/Leaves Rustling (do not exclude)			0:00:00
2 3:56:45	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03	1:29:36	2:27:09	Wind in Trees/Leaves Rustling (do not exclude)			0:00:00
3 3:57:13	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03	1:29:36	2:27:37	Wind in Trees/Leaves Rustling (do not exclude)			0:00:00
4 3:57:44	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03	1:29:36	2:28:08	Wind in Trees/Leaves Rustling (do not exclude)			0:00:00

CURTAILMENT 10 (0521C) SITE B
May 22, 2019 23:03 to 23:21



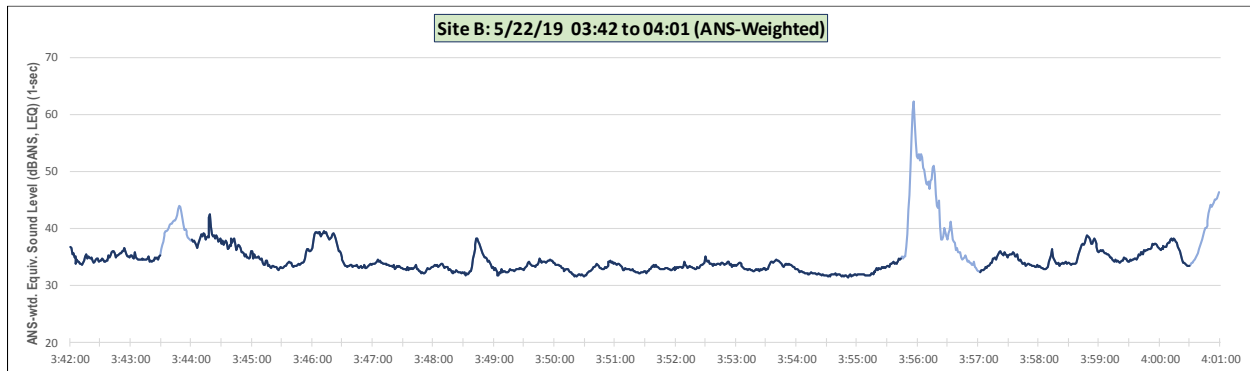
0521C Site B				Period to Exclude				
Exceedance		WAV file	WAV file		Type of Event			
Time			Start of WAV file	Elapsed Time		Start	End	Time Excluded
		2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04	13:29:36					
		Entire curtailment excluded due to wind gusts.						

CURTAILMENT 11 (0522A) SITE B
May 22, 2019 01:19 to 01:43



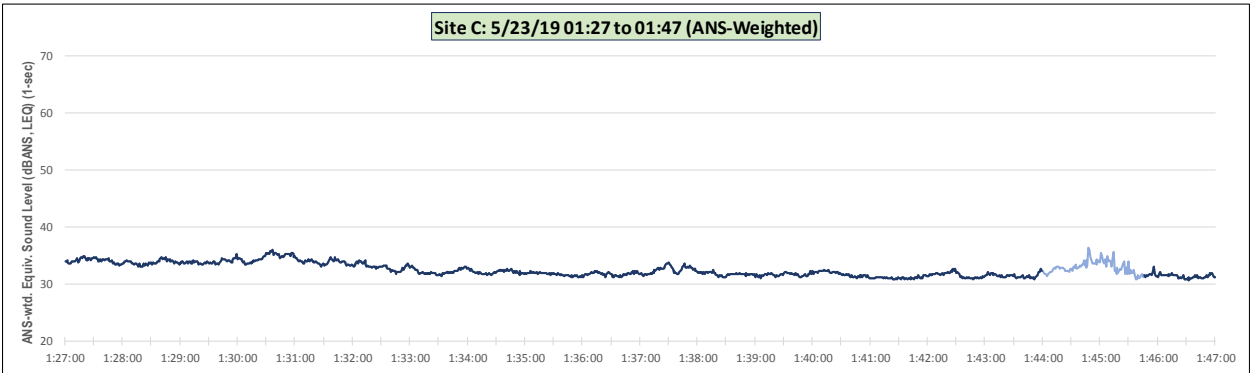
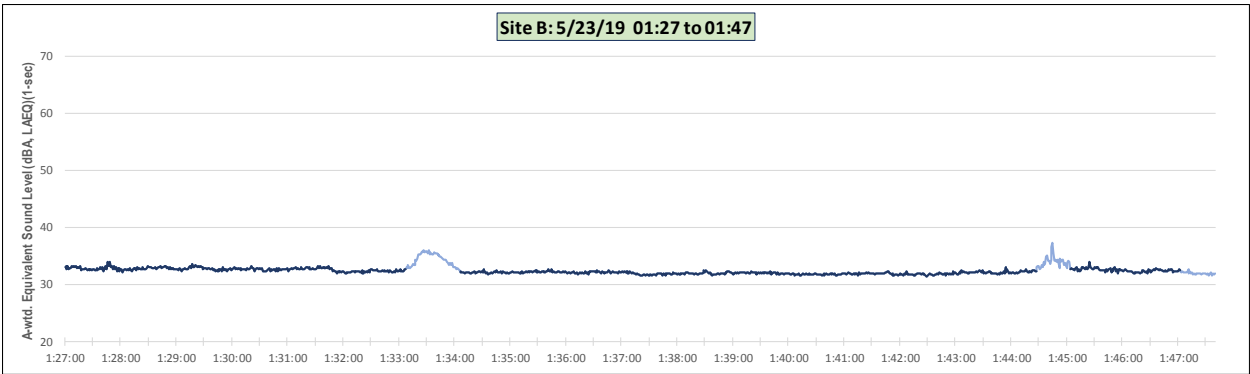
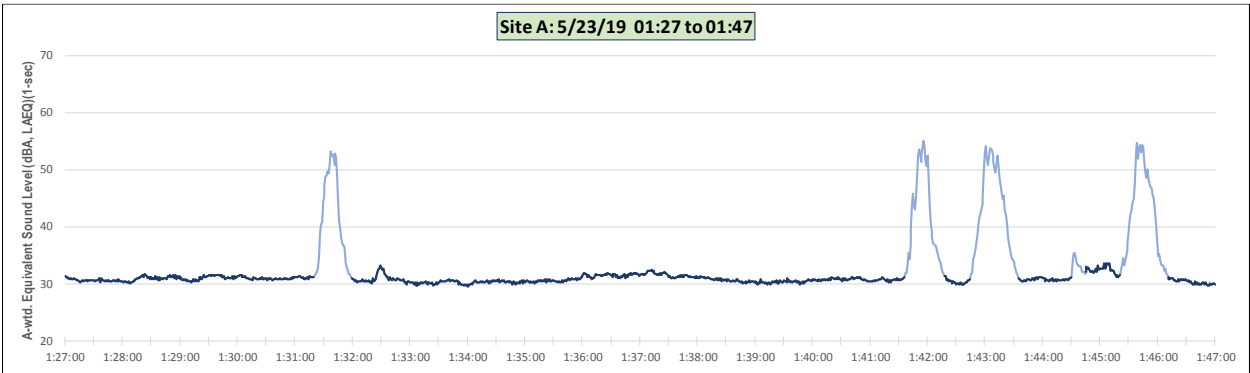
0522A Site B						Period to Exclude		
Exceedance		WAV file	Start of	WAV file	Type of Event	Start	End	Time
Time			WAV file	Elapsed Time				Excluded
1	1:19:00	2019-05-19_SLM_001_Audio_FS110.8(PK)_04	13:29:36	11:49:24	Wind gust	1:19:00	1:22:36	0:03:36
2	1:24:45	2019-05-19_SLM_001_Audio_FS110.8(PK)_04	13:29:36	11:55:09	Wind gust	1:23:56	1:25:06	0:01:10
3	1:26:55	2019-05-19_SLM_001_Audio_FS110.8(PK)_04	13:29:36	11:57:19	Wind gust (do not exclude)	1:26:55	1:28:00	
4	1:28:00	2019-05-19_SLM_001_Audio_FS110.8(PK)_04	13:29:36	11:58:24	Wind gust	1:28:21	1:29:26	0:01:05
5	1:34:45	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	0:05:09	Car/Truck	1:34:45	1:36:35	0:01:50
6	1:37:45	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	0:08:09	Car/Truck	1:37:45	1:39:10	0:01:25
7	1:39:10	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	0:09:34	Wind gust	1:39:10	1:43:00	0:03:50

CURTAILMENT 12 (0522B) SITE B
May 22, 2019 03:42 to 04:01



0522B Site B				WAV file				Period to Exclude		
Exceedance		WAV file	Start of	WAV file		Type of Event	Start	End	Excluded	Time
Time				WAV file	Time					
1	3:43:30	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:13:54	Wind gust		3:43:30	3:44:00	0:00:30	
2	3:44:19	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:14:43	Wind in Trees/Leaves Rustling (do not exclude)				0:00:00	
3	3:46:07	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:16:31	Wind in Trees/Leaves Rustling (do not exclude)				0:00:00	
4	3:48:45	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:19:09	Wind in Trees/Leaves Rustling (do not exclude)				0:00:00	
5	3:55:56	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:26:20	Car/Truck		3:55:45	3:57:02	0:01:17	
6	3:56:53	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:27:17	Car/Truck		removed with previous section			
7	3:58:45	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:29:09	Wind in Trees/Leaves Rustling (do not exclude)				0:00:00	
8	4:00:31	2019-05-19_SLM_000_Audio_FS110.8dB(PK)_05	1:29:36	2:30:55	Wind gust		4:00:31	4:01:00	0:00:29	

CURTAILMENT 13 (0523A) SITES A, B, & C
May 23, 2019 01:27 to 01:47

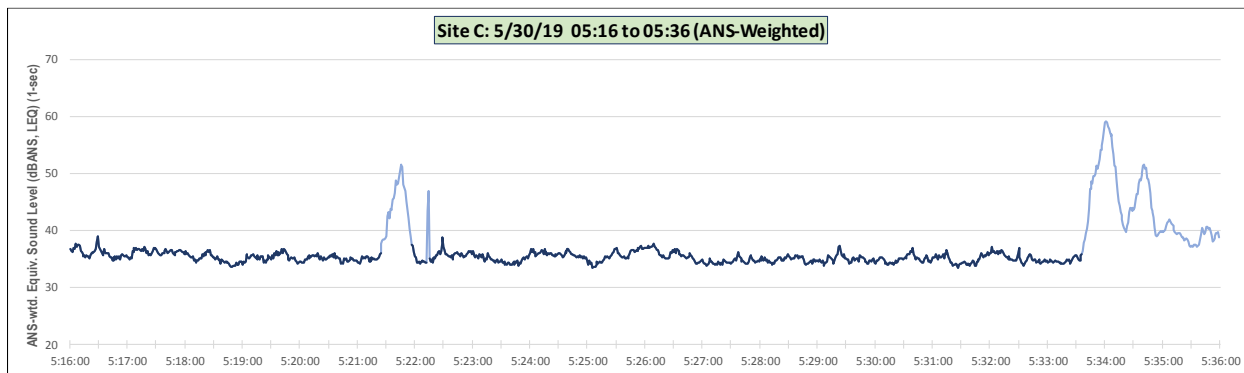


0523A Site A							Period to Exclude		
	<u>Exceedance</u>		<u>Start of</u>	<u>WAV file</u>		<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Time</u>
	<u>Time</u>	<u>WAV file</u>		<u>WAV file</u>	<u>Elapsed</u>				<u>Excluded</u>
1	1:31:39	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00	14:16:54	11:14:45	Cars/Trucks		1:31:21	1:31:59	0:00:38
2	1:41:57	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00	14:16:54	11:25:03	Cars/Trucks		1:41:37	1:42:17	0:00:40
3	1:43:06	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00	14:16:54	11:26:12	Cars/Trucks		1:42:45	1:43:35	0:00:50
4	1:44:32	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00	14:16:54	11:27:38	Aircraft		1:44:31	1:44:45	0:00:14
5	1:45:41	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00	14:16:54	11:28:47	Cars/Trucks		1:45:22	1:46:10	0:00:48

0523A Site B							Period to Exclude		
	<u>Exceedance</u>		<u>Start of</u>	<u>WAV file</u>		<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Time</u>
	<u>Time</u>	<u>WAV file</u>		<u>WAV file</u>	<u>Elapsed</u>				
1	1:33:28	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00	13:55:44	11:37:44	Water	1:33:08	1:34:06	0:00:58	
2	1:44:45	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00	13:55:44	11:49:01	Motor	1:44:28	1:45:04	0:00:36	

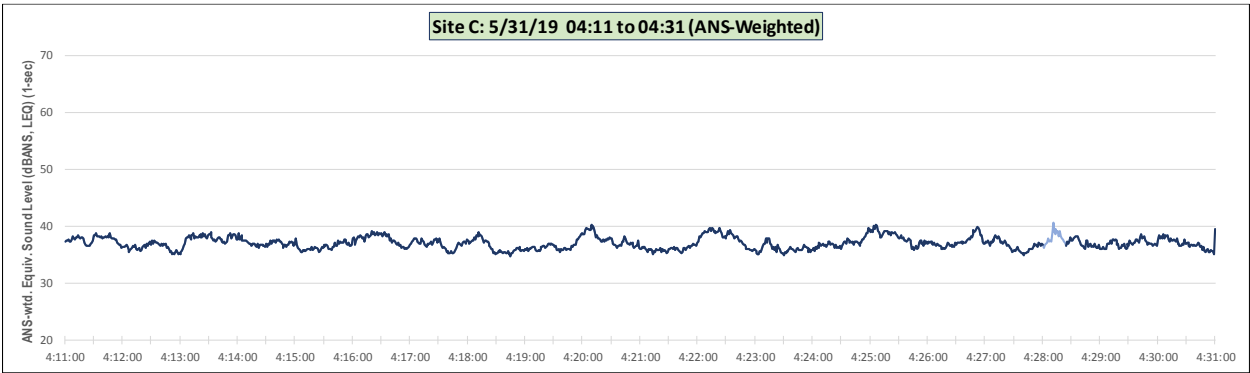
0523A Site C											<u>Period to Exclude</u>		
<u>Exceedance</u>							<u>Start of</u>	<u>WAV file</u>		<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Time</u> <u>Excluded</u>
<u>Time</u>	<u>WAV file</u>						<u>WAV file</u>	<u>Elapsed</u>					
1:44:00	2019-05-22_SLM_001_Audio_FS110.5dB(PK)_01						0:56:35	0:47:25	frogs		1:44:00	1:45:45	0:01:45

CURTAILMENT 16 (0530) SITE C
May 30, 2019 05:16 to 05:36



0530 Site C						Period to Exclude		
Exceedance		WAV file	WAV file		Type of Event	Start		Time
Time			WAV file	Time		Start	End	
1	5:21:47	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03	3:10:22	2:11:25	Cars/Trucks	5:21:25	5:21:57	0:00:32
2	5:22:13	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03	3:10:22	2:11:51	Crow	5:22:13	5:22:14	0:00:01
3	5:34:03	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03	3:10:22	2:23:41	Cars/Trucks	5:33:37	5:34:52	0:01:15
4	5:34:42	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03	3:10:22	2:24:20	Cars/Trucks	Removed with previous segment		
5	5:35:00	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03	3:10:22	2:24:38	Unidentified	5:34:53	5:36:00	0:01:07

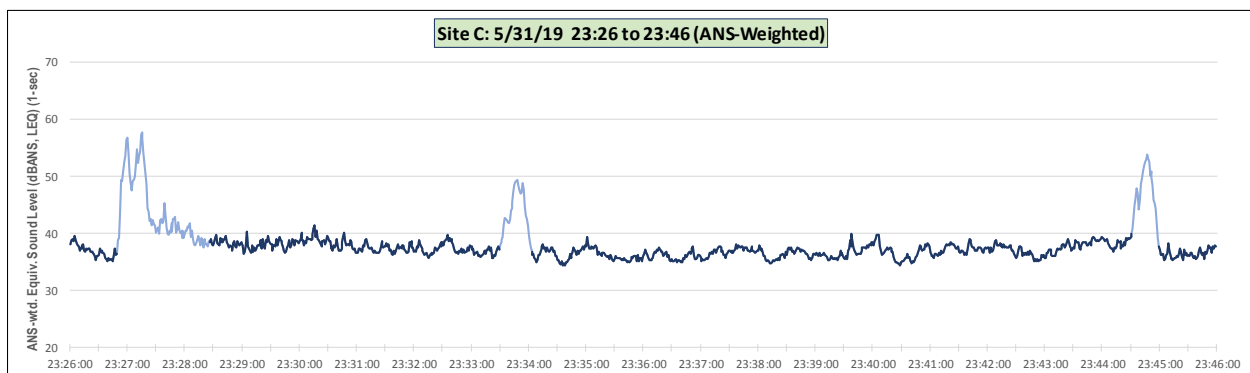
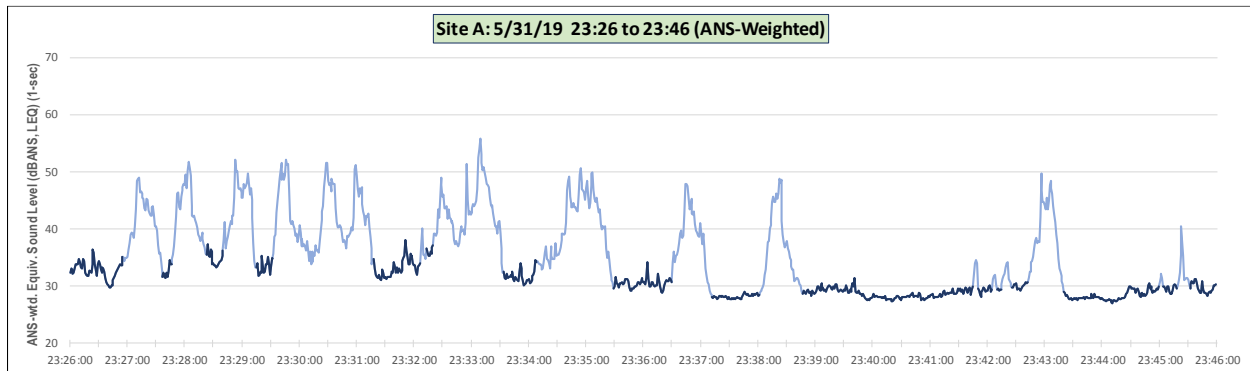
CURTAILMENT 17 (0531A) SITE C
May 31, 2019 23:11 to 23:32



0531A Site C						Period to Exclude		
Exceedance		WAV file	WAV file		Type of Event	Start	End	Time Excluded
Time			Start of WAV file	Elapsed Time				
1	4:17:27	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01	1:26:18	2:51:09	Other wind turbines (do not exclude)			
2	4:20:11	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01	1:26:18	2:53:53	Other wind turbines (do not exclude)			
3	4:28:11	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01	1:26:18	3:01:53	Aircraft	4:28:01	4:28:25	0:00:24

CURTAILMENT 18 (0531B) SITES A & C

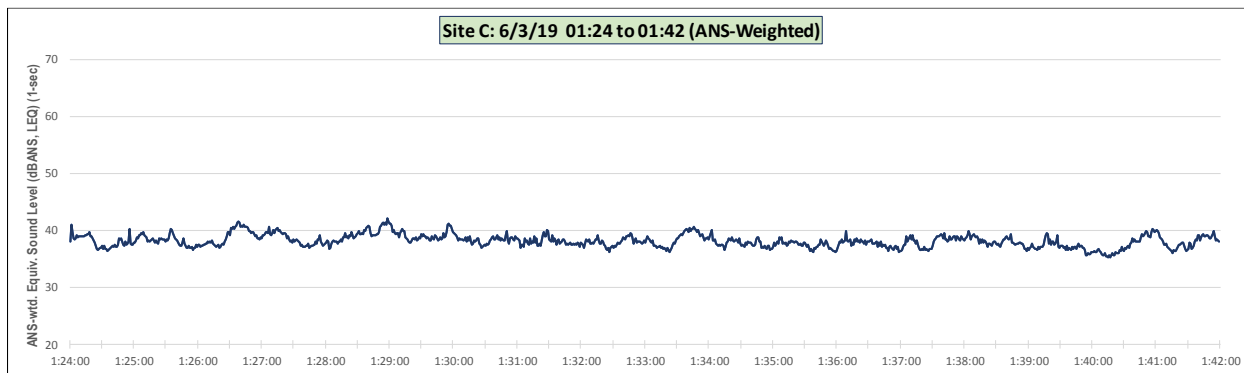
May 31, 2019 23:26 to 23:46



0531B Site A										Period to Exclude		
Exceedance		WAV file		WAV file		Type of Event	Start		End		Time	
				Start of	Elapsed							
	Time			WAV file	Time							
1	23:27:12	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:10:48	Cars/Trucks		23:26:56	23:27:36		0:00:40	
2	23:28:04	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:11:40	Cars/Trucks		23:27:47	23:28:22		0:00:35	
3	23:28:53	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:12:29	Cars/Trucks		23:28:41	23:29:14		0:00:33	
4	23:29:47	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:13:23	Cars/Trucks		23:29:33	23:30:09		0:00:36	
5	23:30:28	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:14:04	Cars/Trucks		23:30:09	23:31:17		0:01:08	
6	23:30:58	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:14:34	Cars/Trucks		removed with previous segment				
7	23:32:09	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:15:45	Cars/Trucks		23:32:07	23:32:12		0:00:05	
8	23:32:28	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:16:04	Cars/Trucks		23:32:21	23:33:33		0:01:12	
9	23:34:42	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:18:18	Cars/Trucks		23:34:09	23:35:28		0:01:19	
10	23:36:46	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:20:22	Cars/Trucks		23:36:30	23:37:11		0:00:41	
11	23:38:24	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:22:00	Cars/Trucks		23:38:02	23:38:47		0:00:45	
12	23:41:49	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:25:25	Cars/Trucks		23:41:46	23:41:49		0:00:03	
13	23:42:08	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:25:44	Cars/Trucks		23:42:06	23:42:09		0:00:03	
14	23:42:20	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:25:56	Cars/Trucks		23:42:15	23:42:25		0:00:10	
15	23:42:56	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:26:32	Cars/Trucks		23:42:43	23:43:19		0:00:36	
16	23:45:02	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:28:38	Cars/Trucks		23:45:00	23:45:03		0:00:03	
17	23:45:23	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02		14:16:24	9:28:59	Cars/Trucks		23:45:19	23:45:31		0:00:12	

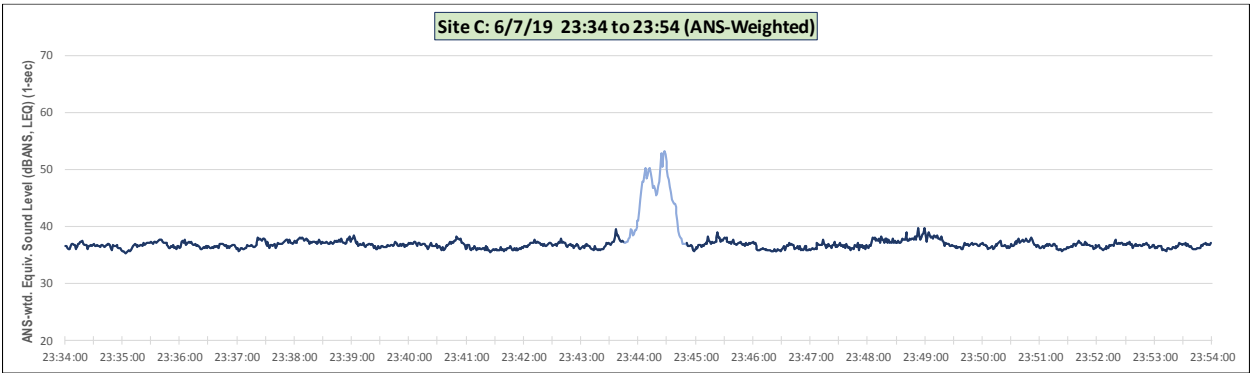
0531B Site C							Period to Exclude		
<u>Exceedance</u>			<u>Start of</u>	<u>WAV file</u>	<u>Elapsed</u>	<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Time</u>
<u>Time</u>	<u>WAV file</u>	<u>WAV file</u>	<u>Time</u>		<u>Excluded</u>				
1	23:27:00	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02	13:26:18	10:00:42	Cars/Trucks		23:26:51	23:28:25	0:01:34
2	23:27:39	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02	13:26:18	10:01:21	Cars/Trucks		removed with previous segment		
3	23:33:54	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02	13:26:18	10:07:36	Cars/Trucks		23:33:30	23:34:03	0:00:33
4	23:39:38	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02	13:26:18	10:13:20	Other wind turbines (do not exclude)				
5	23:44:48	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02	13:26:18	10:18:30	Cars/Trucks		23:44:32	23:44:58	0:00:26

CURTAILMENT 19 (0603) SITE C
June 3, 2019 01:24 to 01:42



0603 Site C				Period to Exclude			
Exceedance		WAV file		WAV file		Time	
Time		WAV file	Start of WAV file	Elapsed Time	Type of Event	Start	End
1	1:26:38	2019-06-02_SLM_000_Audio_FS110.3dB(PK)_01	1:11:03	0:15:35	Other turbines (do not exclude)		
2	1:29:58	2019-06-02_SLM_000_Audio_FS110.3dB(PK)_01	1:11:03	0:18:55	Wind in Trees/Leaves Rustling (do not exclude)		
3	1:33:46	2019-06-02_SLM_000_Audio_FS110.3dB(PK)_01	1:11:03	0:22:43	Other turbines (do not exclude)		
4	1:41:00	2019-06-02_SLM_000_Audio_FS110.3dB(PK)_01	1:11:03	0:29:57	Other turbines (do not exclude)		

CURTAILMENT 22 (0607) SITE C
June 7, 2019 23:34 to 23:54



0607 Site C						Period to Exclude		
Exceedance		WAV file	WAV file		Type of Event	Start	End	Time Excluded
Time			Start of WAV file	Elapsed Time				
1	23:44:07	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00	13:25:12	10:18:55	Car	23:43:45	23:44:50	0:01:05
2	23:48:10	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00	13:25:12	10:22:58	Other Turbines (do not exclude)			

APPENDIX I – EXCLUDED DATA: ADDITIONAL FILTERING, “TURBINE-ON” PERIODS

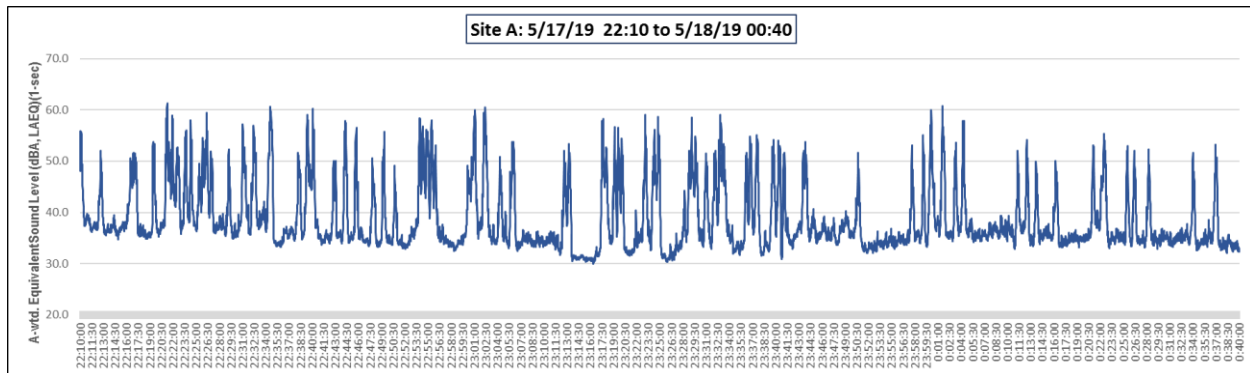
This appendix provides the additional filtering analysis conducted for each of the “turbine-on” intervals carried forward after the initial filtering described in Appendix G. For each curtailment attempt with viable periods for further analysis, the following are included:

- A graph showing the entire 1-second sound level time history starting one hour before the beginning and extending to one hour after the curtailment’s “turbine-off” period. For curtailments when ANS-weighting was used, this graph shows the ANS-weighted sound level for the entire period.
- A table with entries corresponding to each period that was excluded during the additional filtering, along with the reason for excluding the data. The most common events excluded were traffic on nearby roads, especially at Site A due to its proximity to VT Route 9. Other contaminating events included aircraft overflights, all wind gusts exceeding 5 m/s, and some wind gusts below 5 m/s. As with the “turbine-off” filtering described in Appendix H, other natural sounds, such as frogs, insects, and birds, typically were filtered by applying ANS-weighting (see Section 3.3.4 of the main report). In some cases, the tables include events that were examined but not excluded from the data set.
- A table showing the computed L_{eq} and residual time for the remaining portion of each 10-minute interval after all filtering. The filtered L_{eq} for the adjacent “turbine-off” period is shown in a red font immediately above this table. Any of the “turbine-on” intervals that exceed the “turbine-off” L_{eq} by at least 3 dB are highlighted in green. The green-highlighted values met all screening criteria and, therefore, were included in the computation of the overall “turbine-on” L_{eq} for that measurement site. Any “turbine-on” intervals not exceeding the adjacent “turbine-off” L_{eq} by at least 3 dB were not included in the final computations (see Section 3.3.2 of the main report for additional details). In cases where the table indicates that an entire 10-minute interval was excluded by the weather screening described in Appendix G, no L_{eq} is shown for that interval.
- Graphs showing the 1-second sound level time histories during each of the 10-minute “turbine-on” periods extending one hour before and one hour after the turbine curtailment. The graphs with red-shaded title blocks indicate 10-minute intervals that were excluded by the initial weather screening described in Appendix G. Although the graphs are provided here, the sound level data from these intervals were not included in the analysis. The remaining graphs, with green-shaded title blocks, include data that passed the initial screening. On each graph, the sections identified with a lighter blue line show periods that were excluded either due to contaminating events (corresponding to the entries in the preceding the tables) or not meeting weather screening requirements. The darker blue line sections on these figures indicate periods that remained after the additional filtering and that were used to compute the “turbine-on” L_{eq} for the interval.

The appendix is organized with the graphs and tables in order first by measurement site, and then by curtailment as follows:

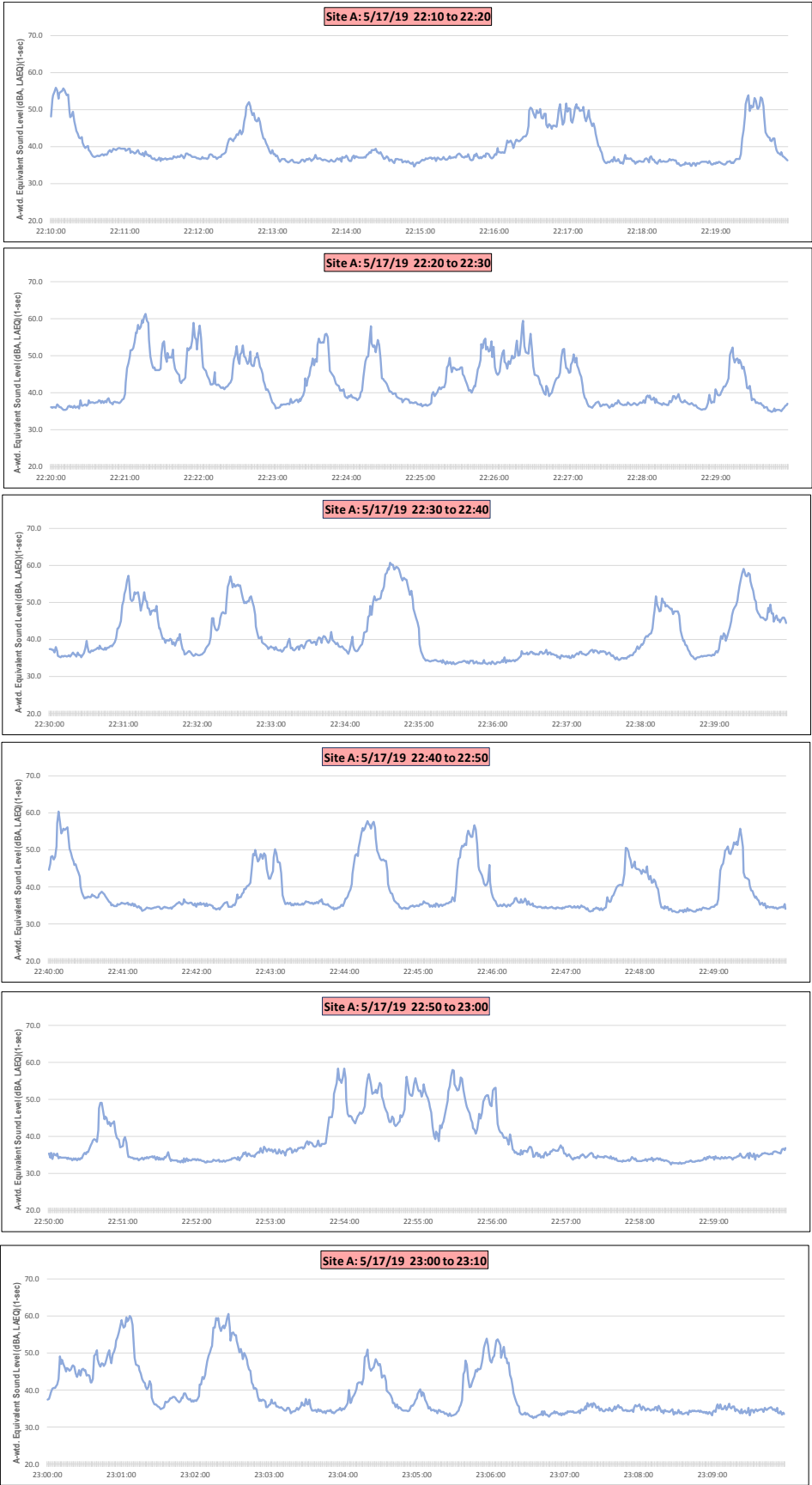
- Site A, Curtailment Numbers 1, 2, 4, 5, 13, and 18.
- Site B, Curtailment Numbers 1, 2, 3, 9, 10, 11, 12, and 13.
- Site C, Curtailment Numbers 1, 2, 4, 13, 16, 17, 18, 19, and 22.

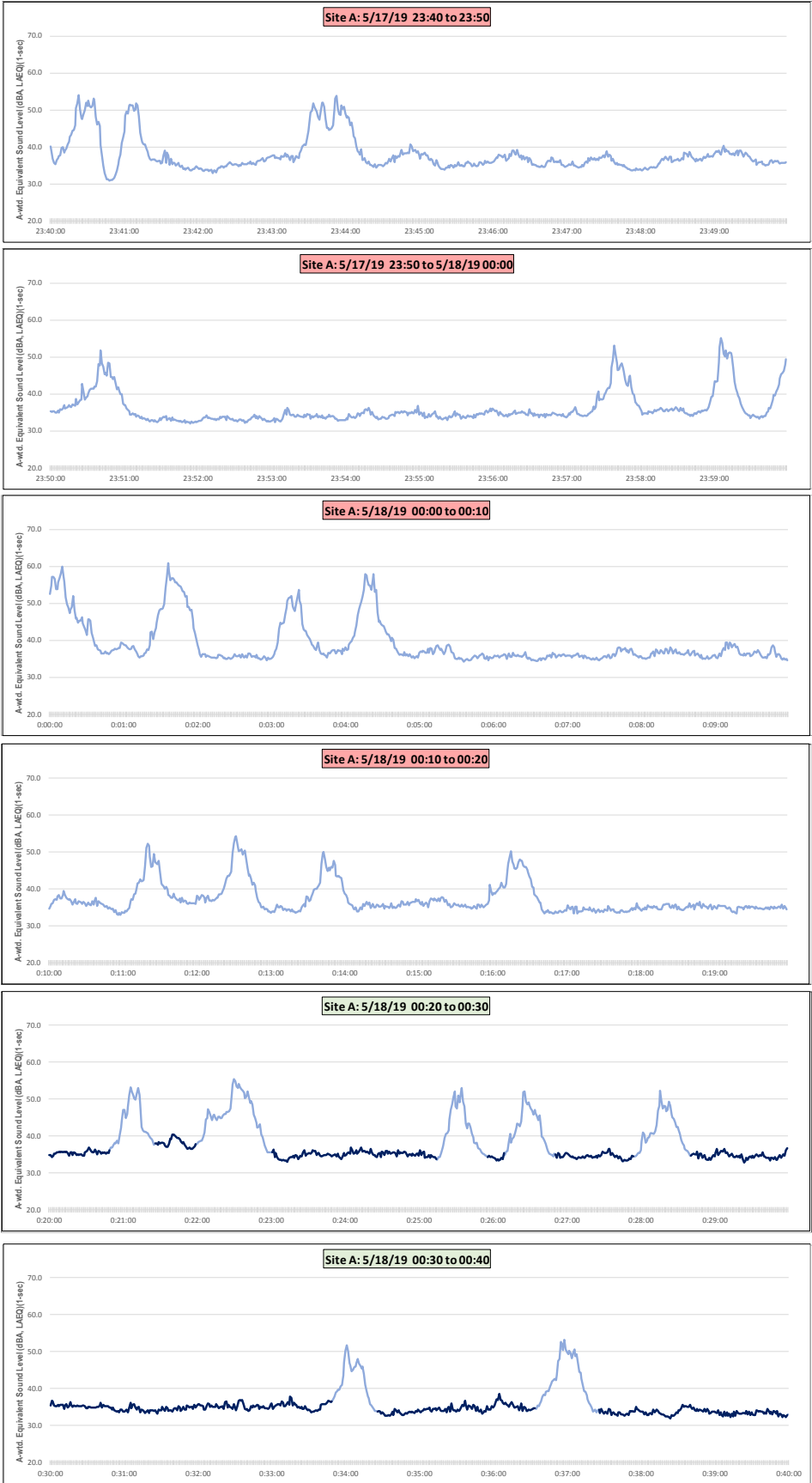
CURTAILMENT 1 - SITE A May 17, 2019 22:10 to May 18, 2019 00:40 (0517SiteA)



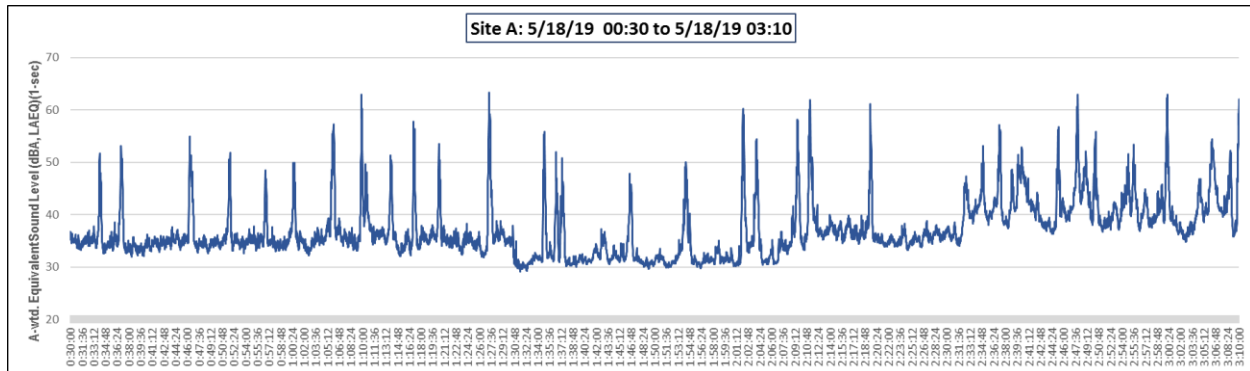
0517 Site A							Period to Exclude		
<u>Exceedance</u>		<u>WAV file</u>	<u>WAV file</u>		<u>Type of Event</u>	<u>Start</u>	<u>End</u>	<u>Time Excluded</u>	
<u>Time</u>			<u>Start of</u>	<u>Elapsed</u>					
			<u>WAV file</u>	<u>Time</u>					
1	0:20:50	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:35:44	Car/Truck	0:20:50	0:21:25	0:00:35	
2	0:21:25	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:36:19	Car/Truck	0:22:00	0:23:00	0:01:00	
3	0:25:15	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:40:09	Car/Truck	0:25:15	0:25:55	0:00:40	
4	0:26:10	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:41:04	Car/Truck	0:26:10	0:26:50	0:00:40	
5	0:27:55	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:42:49	Car/Truck	0:27:55	0:28:40	0:00:45	
6	0:33:50	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:48:44	Car/Truck	0:33:50	0:34:25	0:00:35	
7	0:36:35	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:06	8:51:29	Car/Truck	0:36:35	0:37:25	0:00:50	
Note: Wind = > 3.5 m/s during 23:57 interval only									
						Total Excluded:	0:05:05		

5/17/2019	23:11:00 off	32.9						
Time	Leq	Duration						
22:10:00		0.0	EXCLUDED BY WEATHER SCREENING					
22:20:00		0.0	EXCLUDED BY WEATHER SCREENING					
22:30:00		0.0	EXCLUDED BY WEATHER SCREENING					
22:40:00		0.0	EXCLUDED BY WEATHER SCREENING					
22:50:00		0.0	EXCLUDED BY WEATHER SCREENING					
23:00:00		0.0	EXCLUDED BY WEATHER SCREENING					
23:10:00		0.0	EXCLUDED BY WEATHER SCREENING					
23:20:00		0.0	EXCLUDED BY WEATHER SCREENING					
23:30:00		0.0	EXCLUDED BY WEATHER SCREENING					
23:40:00		0.0	EXCLUDED BY WEATHER SCREENING					
23:50:00		0.0	EXCLUDED BY WEATHER SCREENING					
0:00:00		0.0	EXCLUDED BY WEATHER SCREENING					
0:10:00		0.0	EXCLUDED BY WEATHER SCREENING					
0:20:00	35.3	6.3						
0:30:00	34.6	8.6						
		888	Total remaining		14.8	minutes		



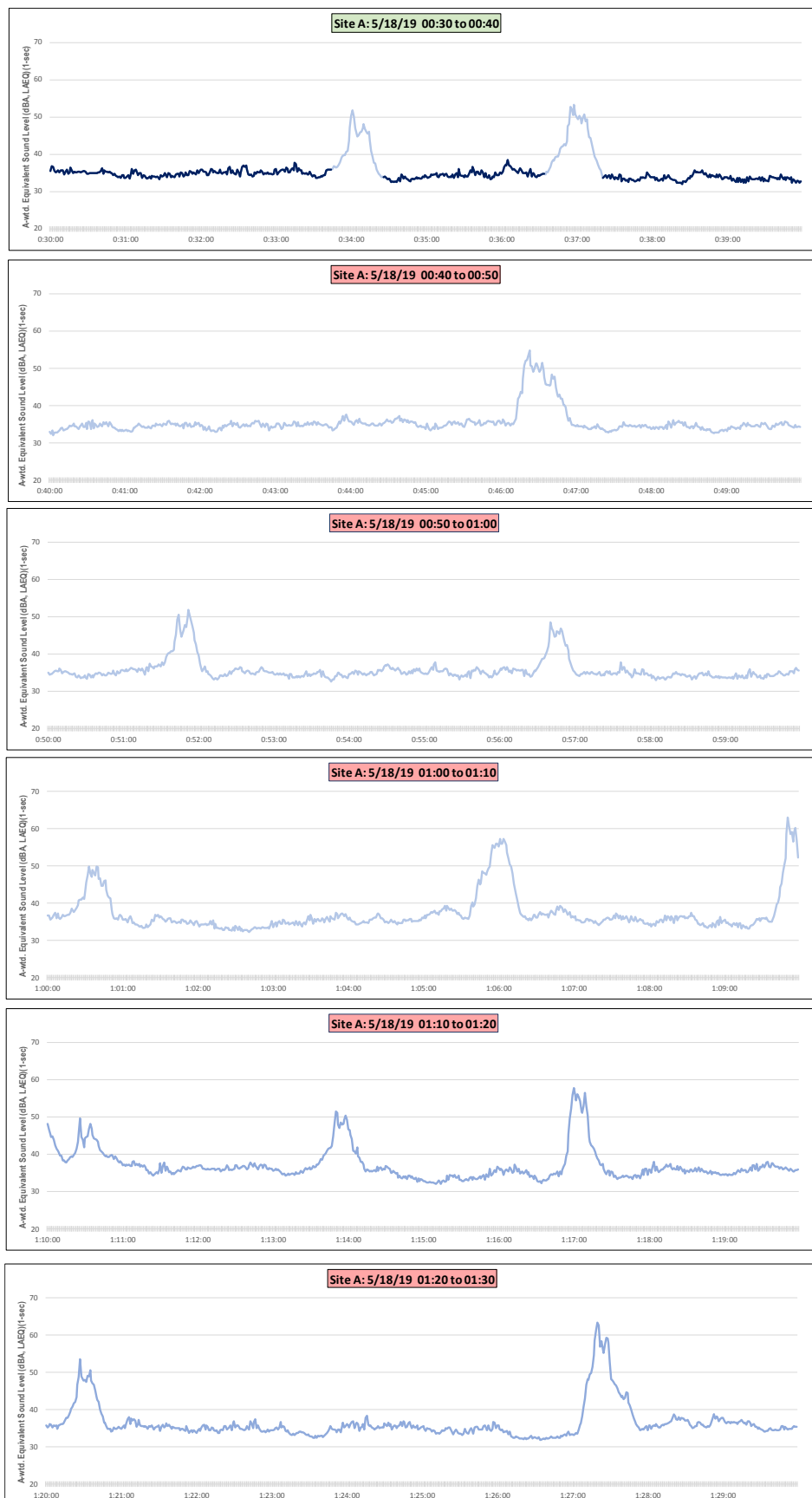


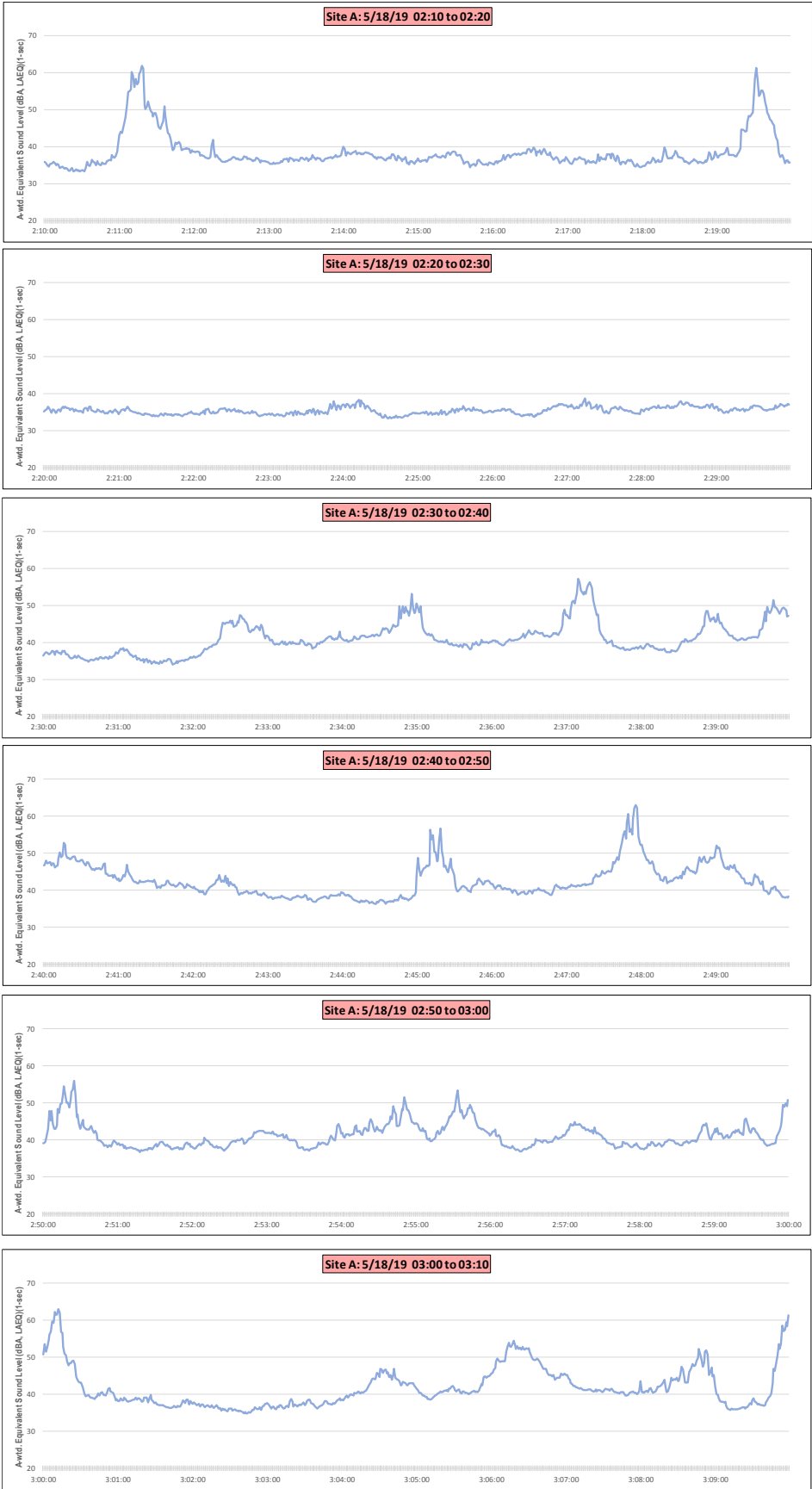
CURTAILMENT 2 - SITE A May 18, 2019 00:30 to May 18, 2019 03:10 (0518ASiteA)



0518A Site A				WAV file				Period to Exclude		
Exceedance		WAV file	Start of WAV file	WAV file		Type of Event	Start	End	Time Excluded	
Time				Time						
1	0:33:45	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:07	8:48:38	Car/Truck		0:33:45	0:34:25	0:00:40	
2	0:36:35	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04.wav	15:45:07	8:51:28	Car/Truck		0:36:35	0:37:20	0:00:45	
Note: No wind = > 3.5 m/s during entire period										
Total Excluded:									0:01:25	

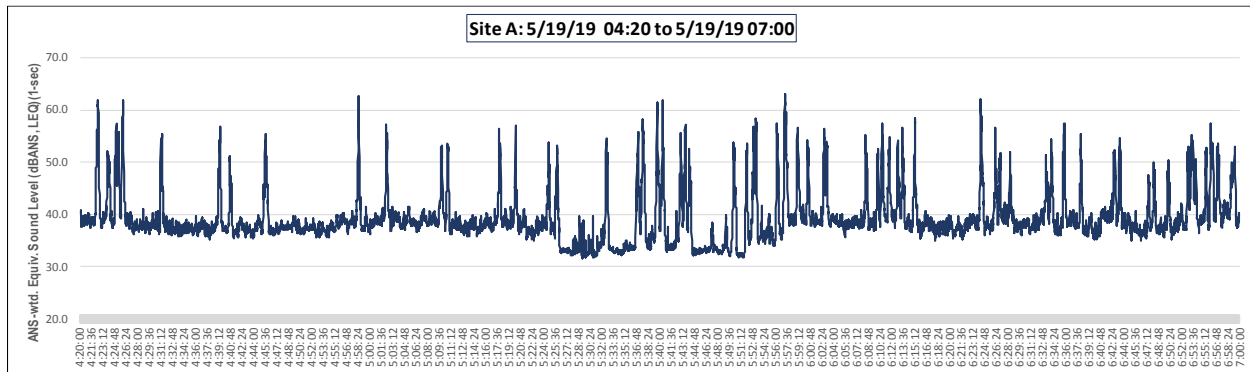
5/18/2019	1:31:00 off	31.7								
Time	Leq	Duration								
0:30:00	34.5	8.6								
0:40:00		0.0	EXCLUDED BY WEATHER SCREENING							
0:50:00		0.0	EXCLUDED BY WEATHER SCREENING							
1:00:00		0.0	EXCLUDED BY WEATHER SCREENING							
1:10:00		0.0	EXCLUDED BY WEATHER SCREENING							
1:20:00		0.0	EXCLUDED BY WEATHER SCREENING							
2:10:00		0.0	EXCLUDED BY WEATHER SCREENING							
2:20:00		0.0	EXCLUDED BY WEATHER SCREENING							
2:30:00		0.0	EXCLUDED BY WEATHER SCREENING							
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING							
2:50:00		0.0	EXCLUDED BY WEATHER SCREENING							
3:00:00		0.0	EXCLUDED BY WEATHER SCREENING							
		513 Total remaining	8.6 minutes							





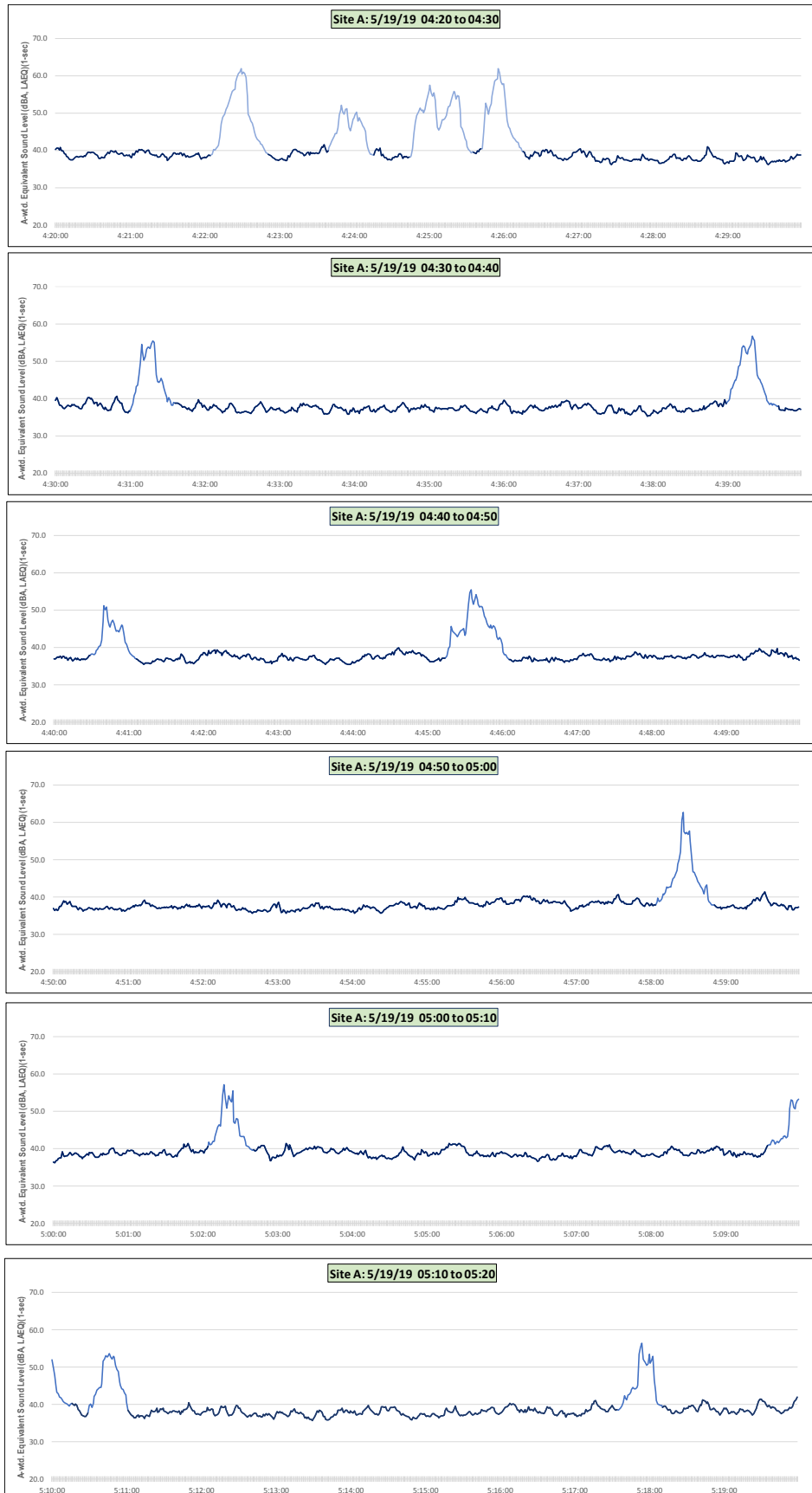
CURTAILMENT 4 - SITE A May 19, 2019 04:20 to May 19, 2019 07:00 (0519ASiteA)

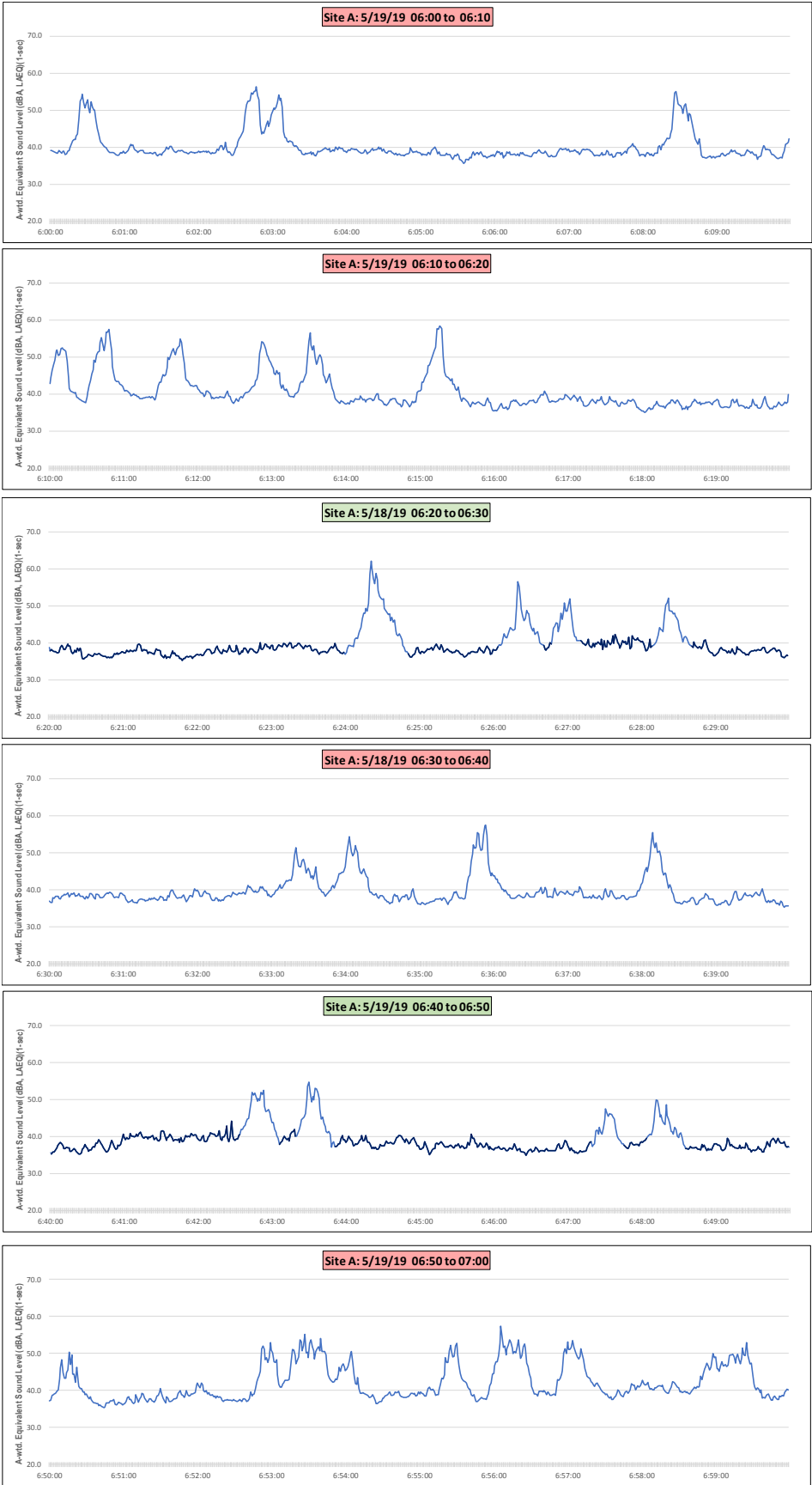
Note: All data for this shutdown ANS weighted.

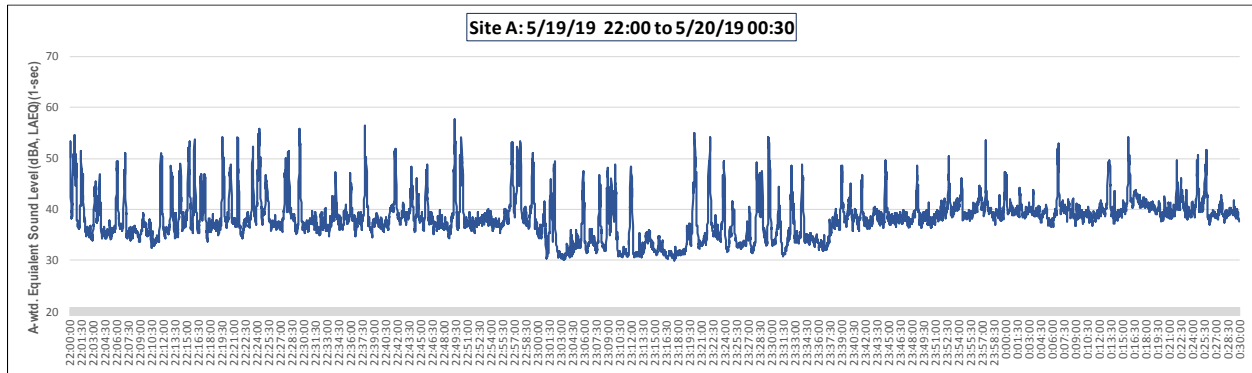


0519A Site A						Period to Exclude		
Exceedance	Time	WAV file	WAV file		Type of Event	Start	End	Time
			Start of	Elapsed				
1	4:22:05	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:36:59	Car/Truck	4:22:05	4:22:50	0:00:45
2	4:23:40	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:38:34	Car/Truck	4:23:40	4:24:15	0:00:35
3	4:24:45	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:39:39	Car/Truck	4:24:45	4:25:35	0:00:50
4	4:25:43	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:40:37	Car/Truck	4:25:43	4:26:15	0:00:32
5	4:31:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:45:54	Car/Truck	4:31:00	4:31:35	0:00:35
6	4:39:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:53:54	Car/Truck	4:39:00	4:39:40	0:00:40
7	4:40:30	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	0:55:24	Car/Truck	4:40:30	4:41:05	0:00:35
8	4:45:15	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	1:00:09	Car/Truck	4:45:15	4:46:05	0:00:50
9	4:58:05	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	1:12:59	Car/Truck	4:58:05	4:58:50	0:00:45
10	5:02:05	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	1:16:59	Car/Truck	5:02:05	5:02:40	0:00:35
11	5:09:35	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	1:24:29	Car/Truck	5:09:35	5:10:15	0:00:40
12	5:10:30	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	1:25:24	Car/Truck	5:10:30	5:11:00	0:00:30
13	5:17:35	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	1:32:29	Car/Truck	5:17:35	5:18:10	0:00:35
14	6:24:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	2:38:54	Car/Truck	6:24:00	6:24:50	0:00:50
15	6:26:05	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	2:40:59	Car/Truck	6:26:05	6:26:40	0:00:35
16	6:26:48	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	2:41:42	Car/Truck	6:26:48	6:27:10	0:00:22
17	6:28:10	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	2:43:04	Car/Truck	6:28:10	6:28:40	0:00:30
18	6:42:35	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	2:57:29	Car/Truck	6:42:35	6:43:05	0:00:30
19	6:43:20	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	2:58:14	Car/Truck	6:43:20	6:43:50	0:00:30
20	6:47:20	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	3:02:14	Car/Truck	6:47:20	6:47:45	0:00:25
21	6:48:05	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	3:02:59	Car/Truck	6:48:05	6:48:35	0:00:30
22	6:50:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:45:06	3:04:54	Exclude entire 10 minutes due to traffic	6:50:00	7:00:00	0:10:00
Note: No wind => > 3.5 m/s during entire period								
						Total Excluded:		0:22:39

5/19/2019	5:27:00 off	34.0	ANS WEIGHTED		
Time	Leq	Duration			
4:20:00	38.6	7.2			
4:30:00	37.5	8.7			
4:40:00	37.4	8.6			
4:50:00	37.8	9.2			
5:00:00	38.9	9.0			
5:10:00	38.2	8.6			
6:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
6:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
6:20:00	38.2	7.6			
6:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
6:40:00	38.2	8.0			
6:50:00		0.0	Entire interval excluded due to traffic		
		4018	Total remaining	67.0	minutes

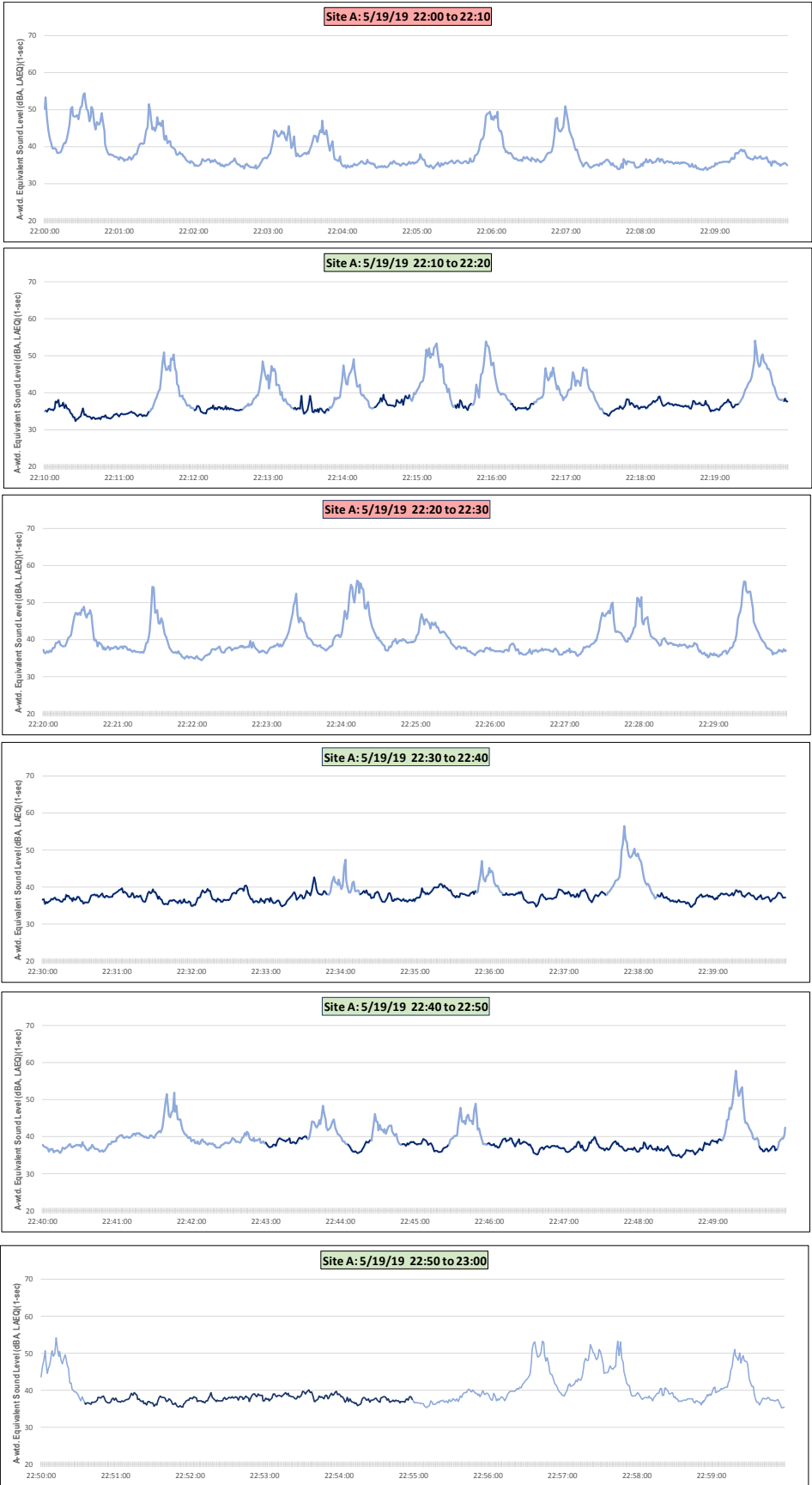


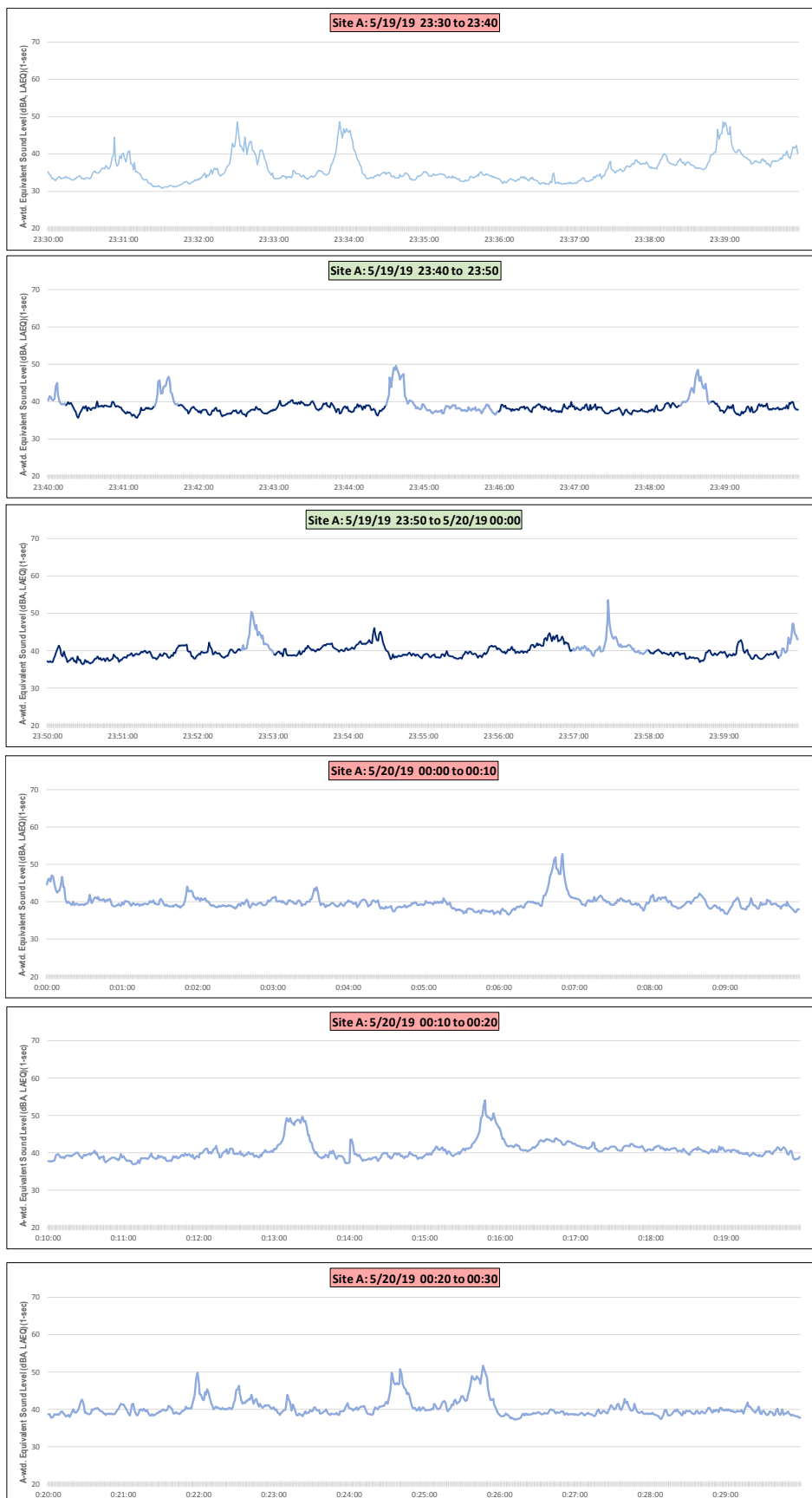


CURTAILMENT 5 - SITE A May 19, 2019 22:00 to May 20, 2019 00:30 (0519BSiteA)

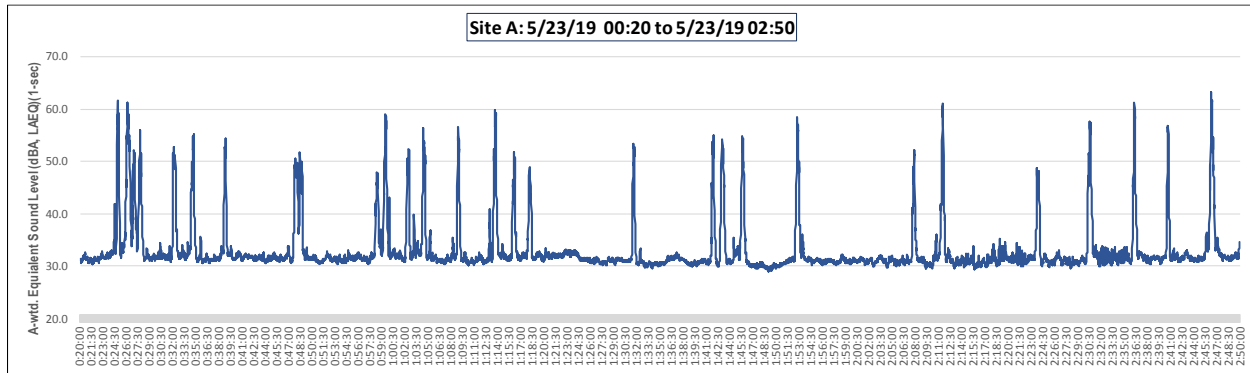
0519 Site A						Period to Exclude		
Exceedance		WAV file		WAV file		Time		
Time		WAV file	Start of WAV file	Elapsed Time	Type of Event	Start	End	Excluded
1	22:11:25	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:08:05	Car/Truck	22:11:25	22:12:00	0:00:35
2	22:12:40	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:09:20	Car/Truck	22:12:40	22:13:20	0:00:40
3	22:13:50	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:10:30	Car/Truck	22:13:50	22:14:25	0:00:35
4	22:14:55	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:11:35	Car/Truck	22:14:55	22:15:30	0:00:35
5	22:15:45	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:12:25	Car/Truck	22:15:45	22:16:15	0:00:30
6	22:16:35	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:13:15	Car/Truck	22:16:35	22:17:30	0:00:55
7	22:19:20	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:16:00	Car/Truck	22:19:20	22:19:55	0:00:35
8	22:33:50	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:30:30	Car/Truck	22:33:50	22:34:05	0:00:15
9	22:34:05	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:30:45	Unidentified	22:34:05	22:34:15	0:00:10
10	22:35:05	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:31:45	Turbine (Do not exclude)			
11	22:35:50	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:32:30	Car/Truck	22:35:50	22:36:10	0:00:20
12	22:37:35	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:34:15	Car/Truck	22:37:35	22:38:15	0:00:40
13	22:40:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:36:40	Exclude because of wind direction	22:40:00	22:43:00	0:03:00
14	22:43:34	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:40:14	Car/Truck	22:43:34	22:44:05	0:00:31
15	22:44:25	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:41:05	Car/Truck	22:44:25	22:44:49	0:00:24
16	22:45:28	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:42:08	Car/Truck	22:45:28	22:45:58	0:00:30
17	22:49:08	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:45:48	Car/Truck	22:49:08	22:49:37	0:00:29
18	22:49:53	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:46:33	Car/Truck	22:49:53	22:50:34	0:00:41
19	22:55:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	8:51:40	Exclude because of wind direction	22:55:00	23:00:00	0:05:00
20	23:40:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:36:40	Car/Truck	23:40:00	23:40:14	0:00:14
21	23:41:25	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:38:05	Car/Truck	23:41:25	23:41:44	0:00:19
22	23:43:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:39:40	Turbine (Do not exclude)			
23	23:44:30	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:41:10	Car/Truck	23:44:30	23:45:00	0:00:30
24	23:45:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:41:40	Exclude because of wind direction	23:45:00	23:45:59	0:00:59
25	23:48:25	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:45:05	Car/Truck	23:48:25	23:48:50	0:00:25
26	23:50:05	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:46:45	Turbine (Do not exclude)			
27	23:51:40	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:48:20	Turbine (Do not exclude)			
28	23:52:35	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:49:15	Car/Truck	23:52:35	23:53:00	0:00:25
29	23:53:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:49:40	Turbine (Do not exclude)			
30	23:55:50	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:52:30	Turbine (Do not exclude)			
31	23:57:00	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:53:40	Exclude because of wind direction	23:57:00	23:57:59	0:00:59
32	23:57:23	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:54:03	Car/Truck (included with above)			
33	23:59:10	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:55:50	Turbine (Do not exclude)			
34	23:59:45	2019-05-19_SLM_000_Audio_FS110.2dB(PK)_00.wav	14:03:20	9:56:25	Car/Truck	23:59:45	24:00:00	0:00:15
						Total Excluded:		0:20:31

5/19/2019	23:01:00 off	32.3			
Time	Leq	Duration			
22:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:10:00	36.1	5.5			
22:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:30:00	37.6	8.5			
22:40:00	37.5	4.9			
22:50:00	37.7	4.4			
23:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
23:40:00	38.3	7.5			
23:50:00	39.9	8.3			
0:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
		2350	Total remaining	39.2	minutes



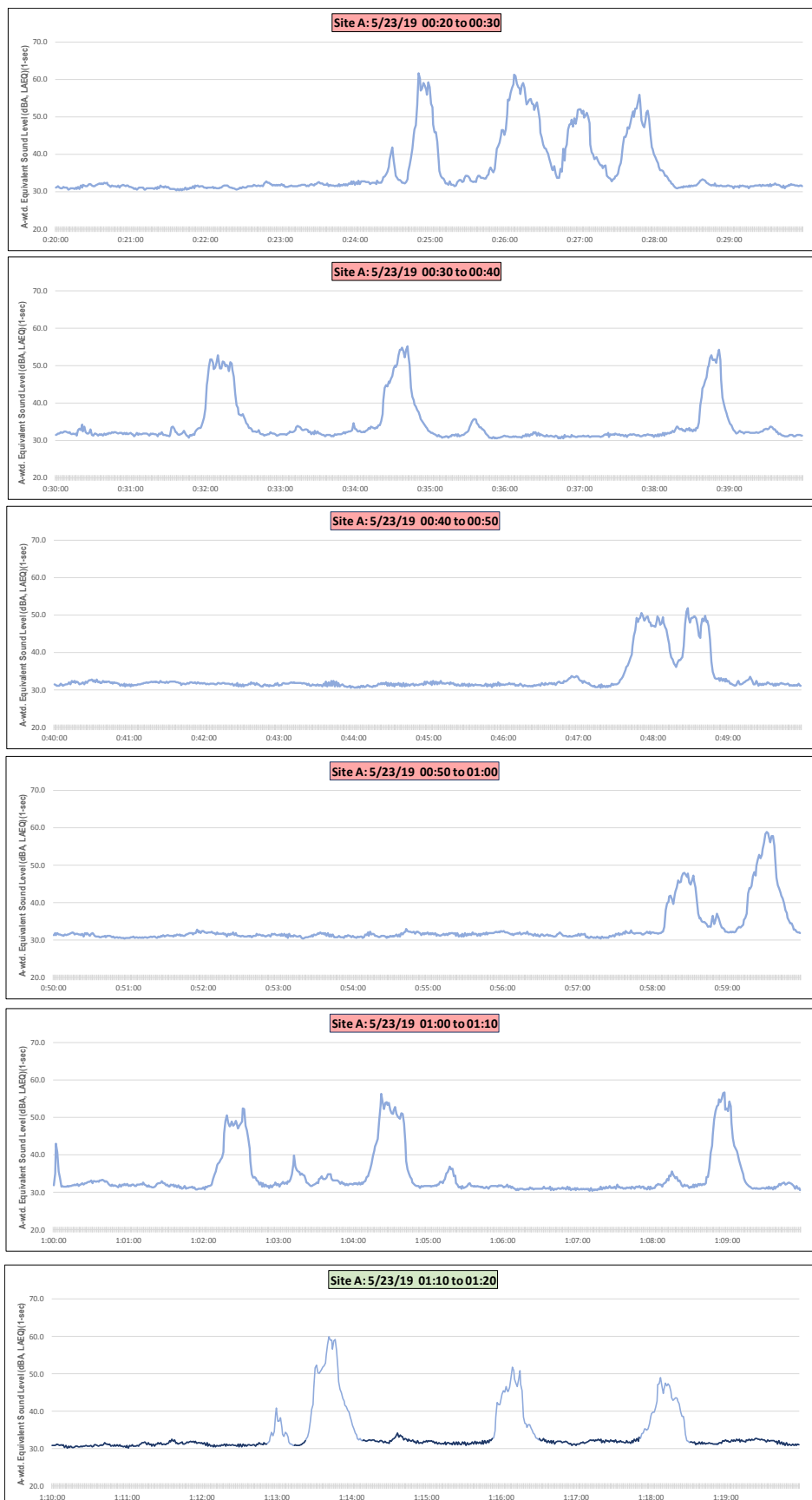


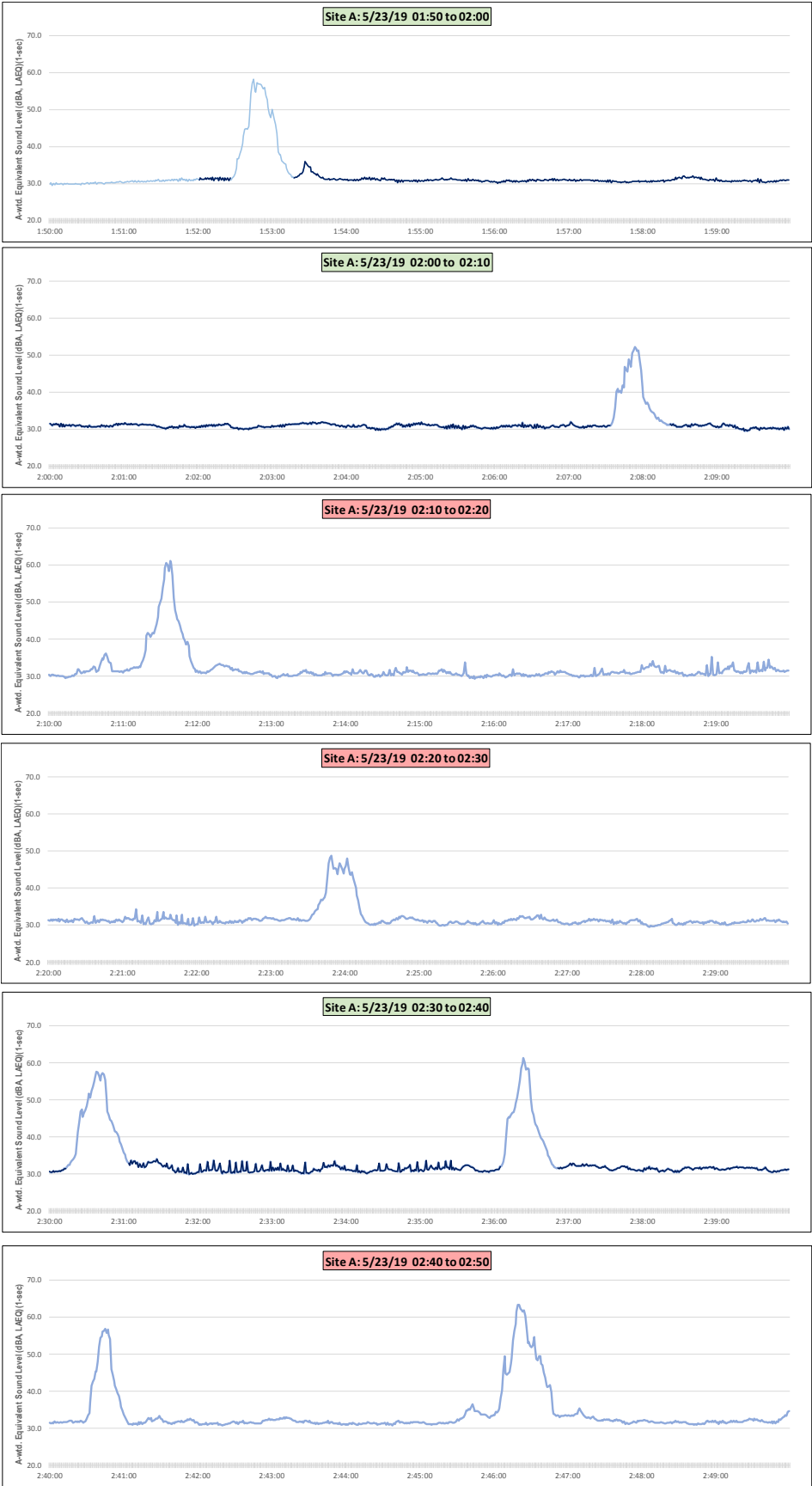
CURTAILMENT 13 - SITE A May 23, 2019 00:20 to May 23, 2019 02:50 (0523ASiteA)



0523A Site A						Period to Exclude		
	Exceedance		Start of	WAV file				
	Time	WAV file	WAV file	Elapsed Time	Type of Event	Start	End	Time Excluded
1	1:12:53	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	10:55:59	Car/Truck	1:12:53	1:13:13	0:00:20
2	1:13:24	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	10:56:30	Car/Truck	1:13:24	1:14:08	0:00:44
3	1:15:54	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	10:59:00	Car/Truck	1:15:54	1:16:30	0:00:36
4	1:17:52	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	11:00:58	Car/Truck	1:17:52	1:18:31	0:00:39
5	1:50:00	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	11:33:06	Turbines turning back on	1:50:00	1:52:00	0:02:00
6	1:52:27	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	11:35:33	Car/Truck	1:52:27	1:53:17	0:00:50
7	2:07:35	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	11:50:41	Car/Truck	2:07:35	2:08:22	0:00:47
8	2:30:14	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	12:13:20	Car/Truck	2:30:14	2:31:04	0:00:50
9	2:36:06	2019-05-22_SLM_001_Audio_FS110.4dB(PK)_00.wav	14:16:54	12:19:12	Car/Truck	2:36:06	2:36:51	0:00:45
						Total Excluded:		0:07:31

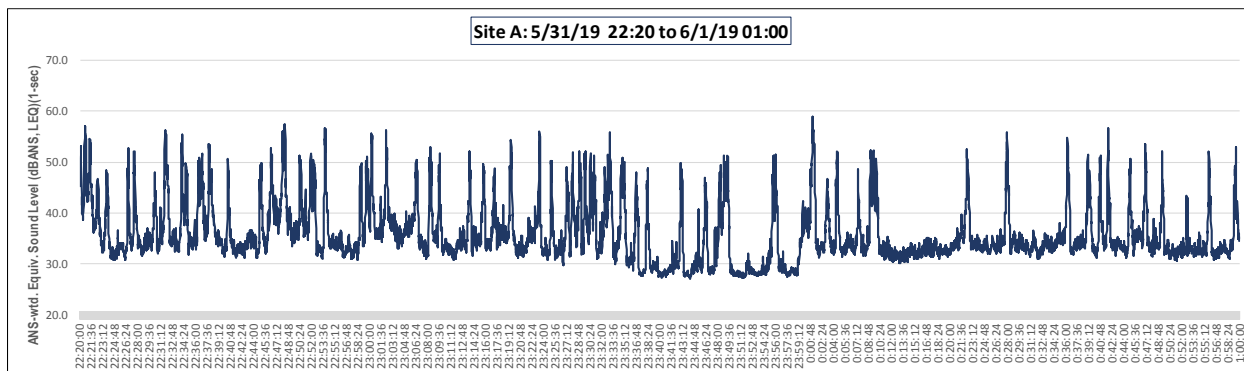
5/23/2019	1:24:00 off	30.9				
Time	Leq	Duration				
0:20:00		0.0	EXCLUDED BY WEATHER SCREENING			
0:30:00		0.0	EXCLUDED BY WEATHER SCREENING			
0:40:00		0.0	EXCLUDED BY WEATHER SCREENING			
0:50:00		0.0	EXCLUDED BY WEATHER SCREENING			
1:00:00		0.0	EXCLUDED BY WEATHER SCREENING			
1:10:00	31.6	7.6				
1:50:00	31.1	7.1				
2:00:00	30.9	9.2				
2:10:00		0.0	EXCLUDED BY WEATHER SCREENING			
2:20:00		0.0	EXCLUDED BY WEATHER SCREENING			
2:30:00	31.5	8.4				
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING			
			1941 Total remaining	32.4 minutes		





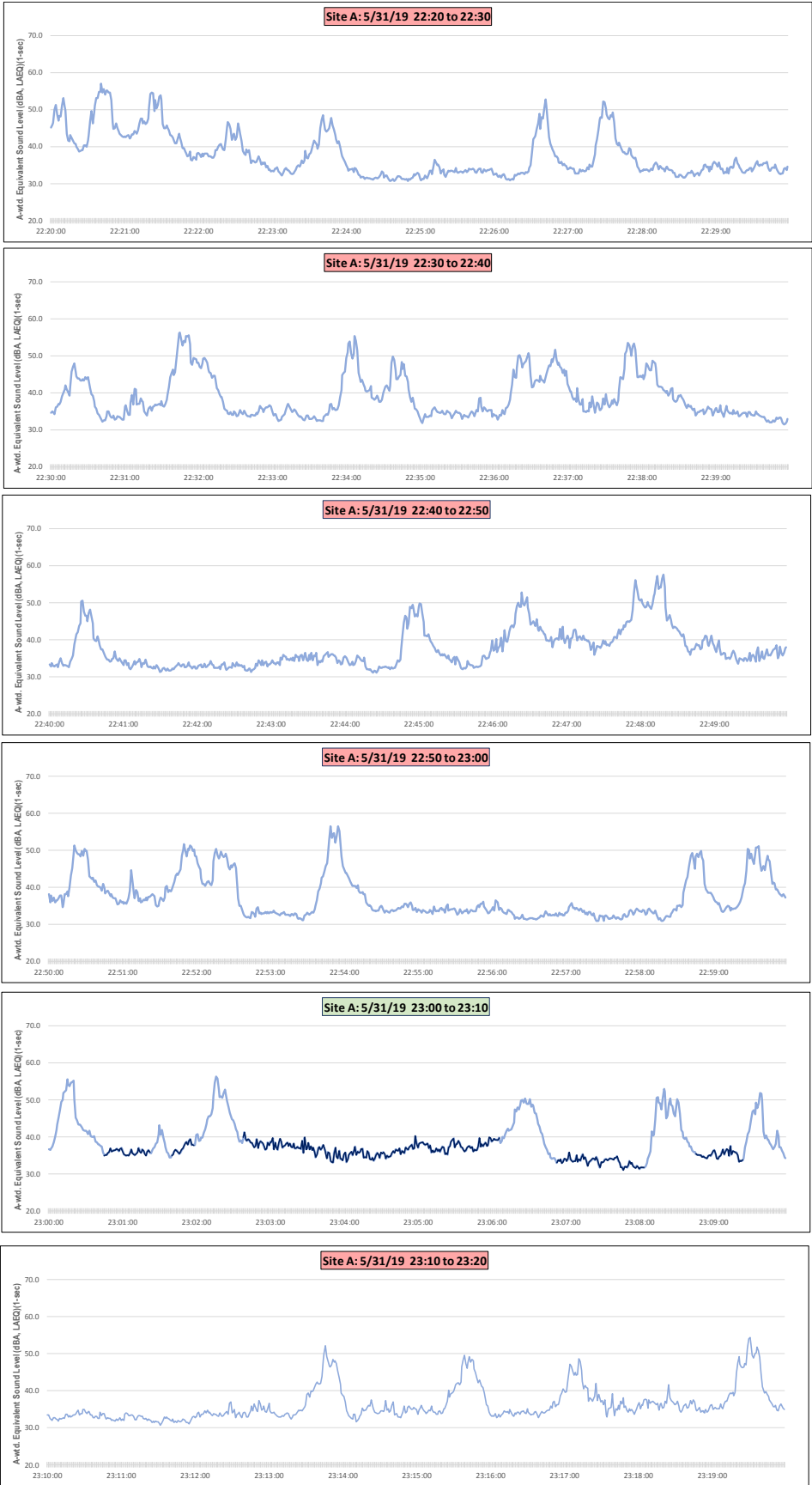
CURTAILMENT 18 - SITE A May 31, 2019 22:20 to June 1, 2019 01:00 (0531BSiteA)

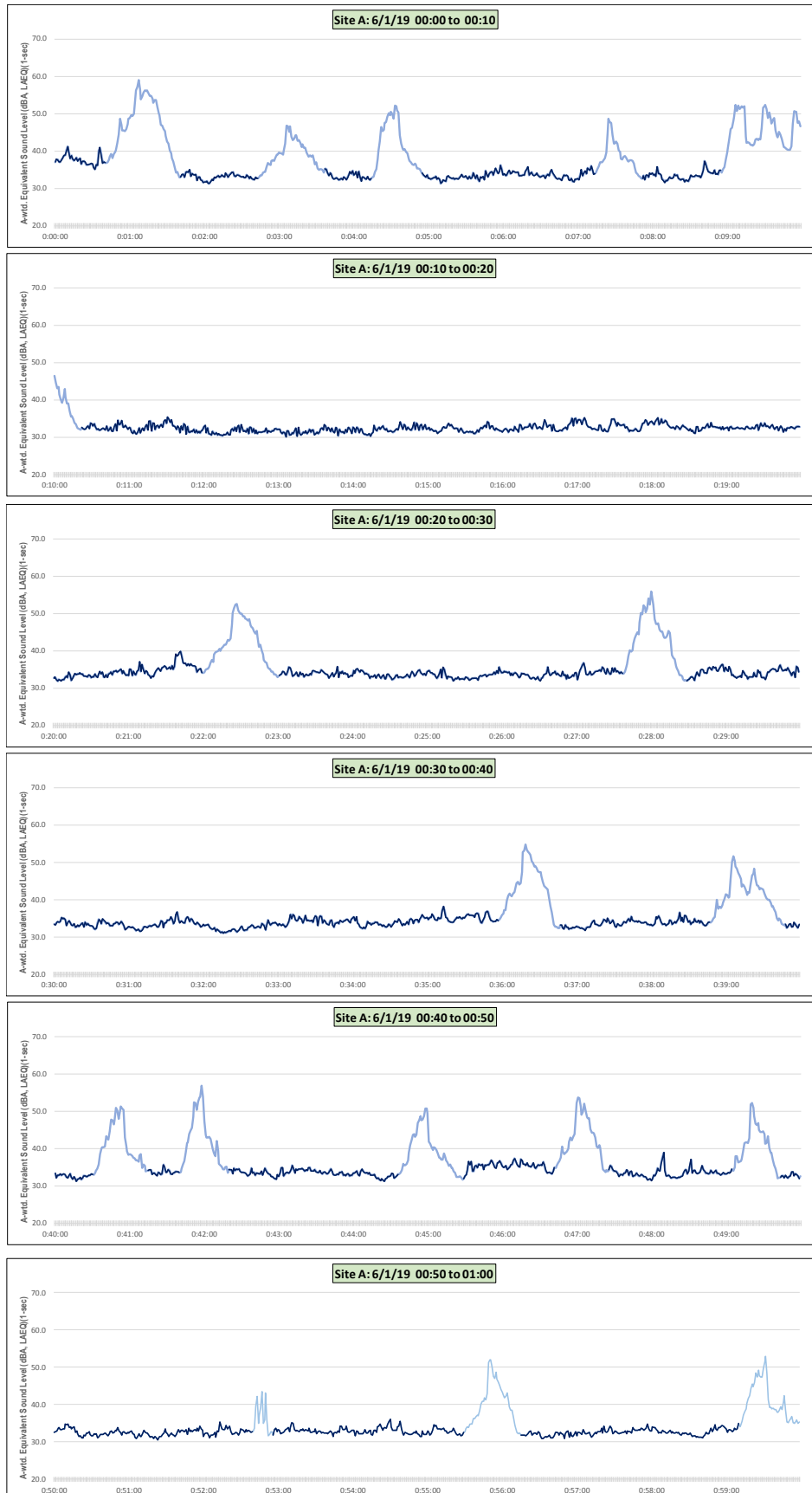
Note: All data for this shutdown ANS weighted.



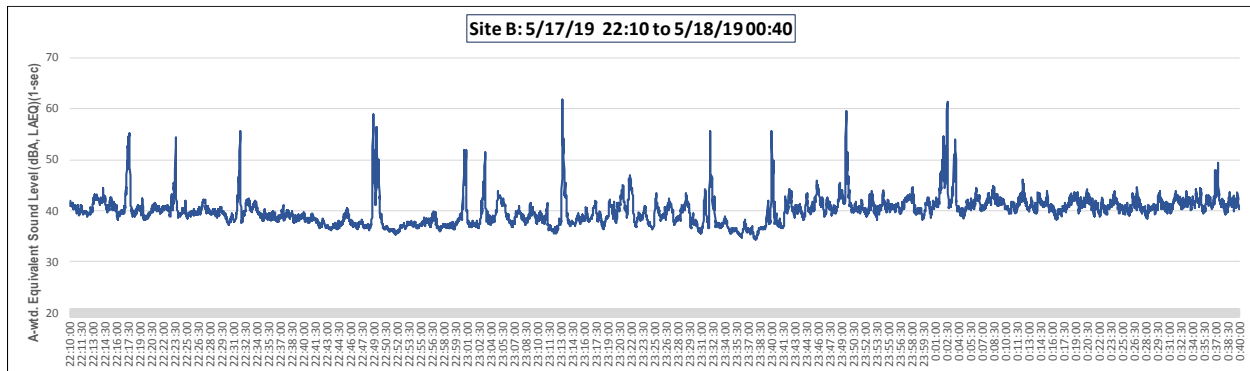
0531B Site A						Period to Exclude		
Exceedance		WAV file	WAV file		Type of Event	Start	End	Time Excluded
Time			Start of	Elapsed				
1	23:00:00	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	8:43:36	Car/Truck	23:00:00	23:00:44	0:00:44
2	23:01:23	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	8:44:59	Car/Truck	23:01:23	23:01:39	0:00:16
3	23:01:59	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	8:45:35	Car/Truck	23:01:59	23:02:37	0:00:38
4	23:06:07	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	8:49:43	Car/Truck	23:06:07	23:06:52	0:00:45
5	23:08:05	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	8:51:41	Car/Truck	23:08:05	23:08:45	0:00:40
6	23:09:25	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	8:53:01	Car/Truck	23:09:25	23:10:00	0:00:35
7	0:00:41	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	9:44:17	Car/Truck	0:00:41	0:01:40	0:00:59
8	0:02:44	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	9:46:20	Car/Truck	0:02:44	0:03:36	0:00:52
9	0:04:15	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	9:47:51	Car/Truck	0:04:15	0:04:54	0:00:39
10	0:07:15	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	9:50:51	Car/Truck	0:07:15	0:07:51	0:00:36
11	0:08:56	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	9:52:32	Car/Truck	0:08:56	0:10:21	0:01:25
12	0:22:00	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:05:36	Car/Truck	0:22:00	0:23:00	0:01:00
13	0:27:38	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:11:14	Car/Truck	0:27:38	0:28:28	0:00:50
14	0:35:58	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:19:34	Car/Truck	0:35:58	0:36:46	0:00:48
15	0:38:48	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:22:24	Car/Truck	0:38:48	0:39:47	0:00:59
16	0:40:31	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:24:07	Car/Truck	0:40:31	0:41:14	0:00:43
17	0:41:41	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:25:17	Car/Truck	0:41:41	0:42:19	0:00:38
18	0:44:37	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:28:13	Car/Truck	0:44:37	0:45:28	0:00:51
19	0:46:43	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:30:19	Car/Truck	0:46:43	0:47:25	0:00:42
20	0:49:06	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:32:42	Car/Truck	0:49:06	0:49:43	0:00:37
21	0:52:40	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:36:16	Animal	0:52:40	0:52:55	0:00:15
22	0:55:30	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:39:06	Car/Truck	0:55:30	0:56:14	0:00:44
23	0:59:11	2019-05-30_SLM_001_Audio_FS110.4dB(PK)_02.wav	14:16:24	10:42:47	Car/Truck	0:59:11	1:00:00	0:00:49
						Total Excluded:		0:17:05

5/31/2019	23:26:00 off	30.9	ANS WEIGHTED		
Time	Leq	Duration			
22:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
23:00:00	36.4	6.3			
23:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:00:00	34.3	5.8			
0:10:00	32.5	9.6			
0:20:00	34.1	8.1			
0:30:00	33.9	8.2			
0:40:00	33.9	6.4			
0:50:00	32.8	8.2			
		3154	Total remaining	52.6	minutes



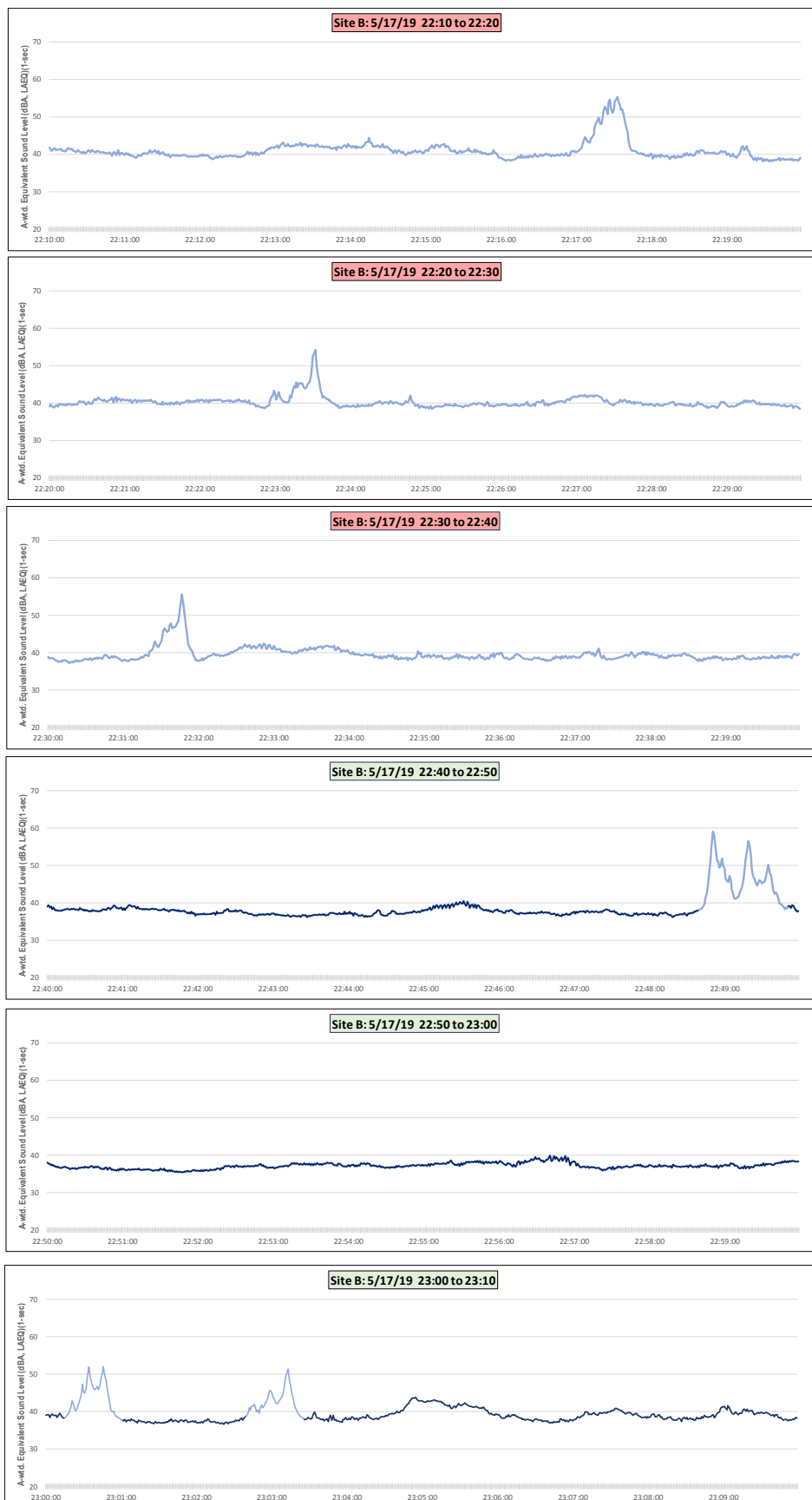


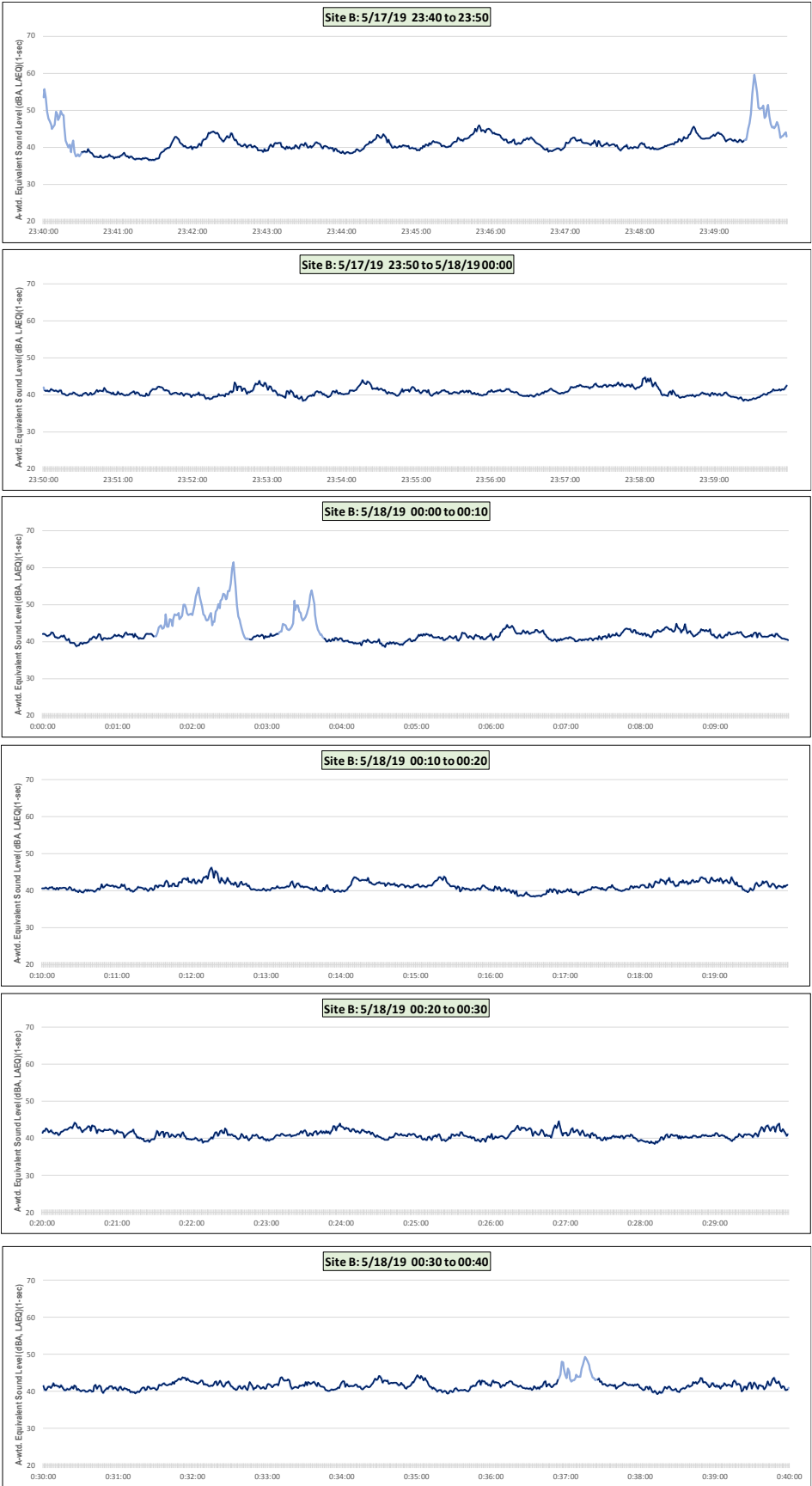
CURTAILMENT 1 - SITE B May 17, 2019 22:10 to May 18, 2019 00:40 (0517SiteB)



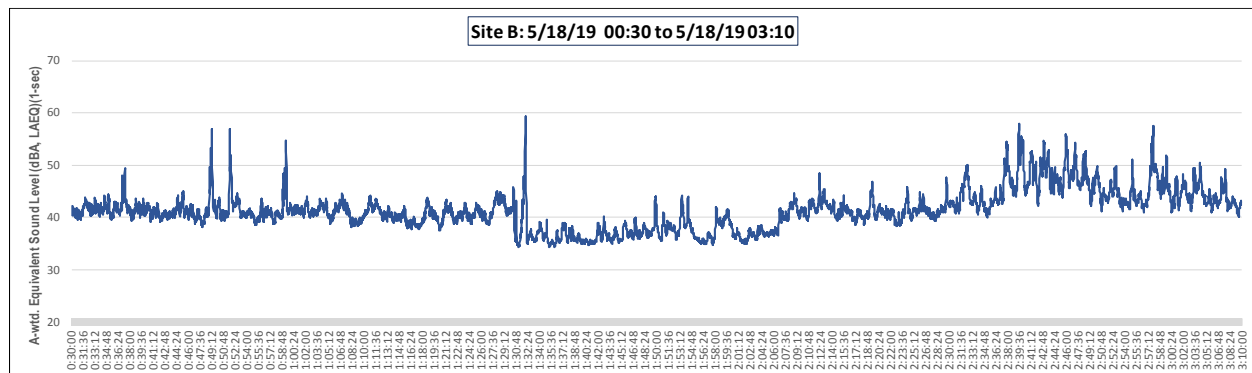
0517 Site B							Period to Exclude		
Exceedance	Time	WAV file	WAV file		Type of Event		Start	End	Time Excluded
			Start of	Elapsed					
			WAV file	Time					
1	22:48:40	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	8:56:50	Car/Truck		22:48:40	22:49:50	0:01:10
2	23:00:15	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:08:25	Car/Truck		23:00:15	23:01:00	0:00:45
3	23:02:40	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:10:50	Car/Truck		23:02:40	23:03:25	0:00:45
4	23:04:35	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:12:45	Turbines (do not exclude)		23:04:35	23:06:00	
5	23:07:30	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:15:40	Turbines (do not exclude)		23:07:30	23:07:40	
6	23:08:55	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:17:05	Turbines (do not exclude)		23:08:55	23:09:25	
7	23:40:00	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:48:10	Car/Truck		23:40:00	23:40:30	0:00:30
8	23:42:00	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:50:10	Turbines + wind in trees, wind does not mask turbines (do not exclude)		23:42:00	23:49:00	
9	23:49:25	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	9:57:35	Car/Truck		23:49:25	23:50:00	0:00:35
10	0:01:30	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:09:40	Car/Truck		0:01:30	0:02:45	0:01:15
11	0:03:10	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:11:20	Car/Truck		0:03:10	0:03:45	0:00:35
12	0:36:55	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:45:05	Car/Truck		0:36:55	0:37:25	0:00:30
Note: No wind => > 3.5 m/s during any intervals									
							Total Excluded:		0:06:05

5/17/2019	23:11:00	off	39.6						
Time	Leq	Duration							
22:10:00		0.0	EXCLUDED BY WEATHER SCREENING						
22:20:00		0.0	EXCLUDED BY WEATHER SCREENING						
22:30:00		0.0	EXCLUDED BY WEATHER SCREENING						
22:40:00	37.7	8.8							
22:50:00	37.2	10.0							
23:00:00	39.2	8.5							
23:10:00	41.1	8.9							
23:20:00	40.9	10.0							
0:00:00	41.5	8.1							
0:10:00	41.3	10.0							
0:20:00	41.1	10.0							
0:30:00	41.6	9.5							
5027 Total remaining			83.8 minutes						



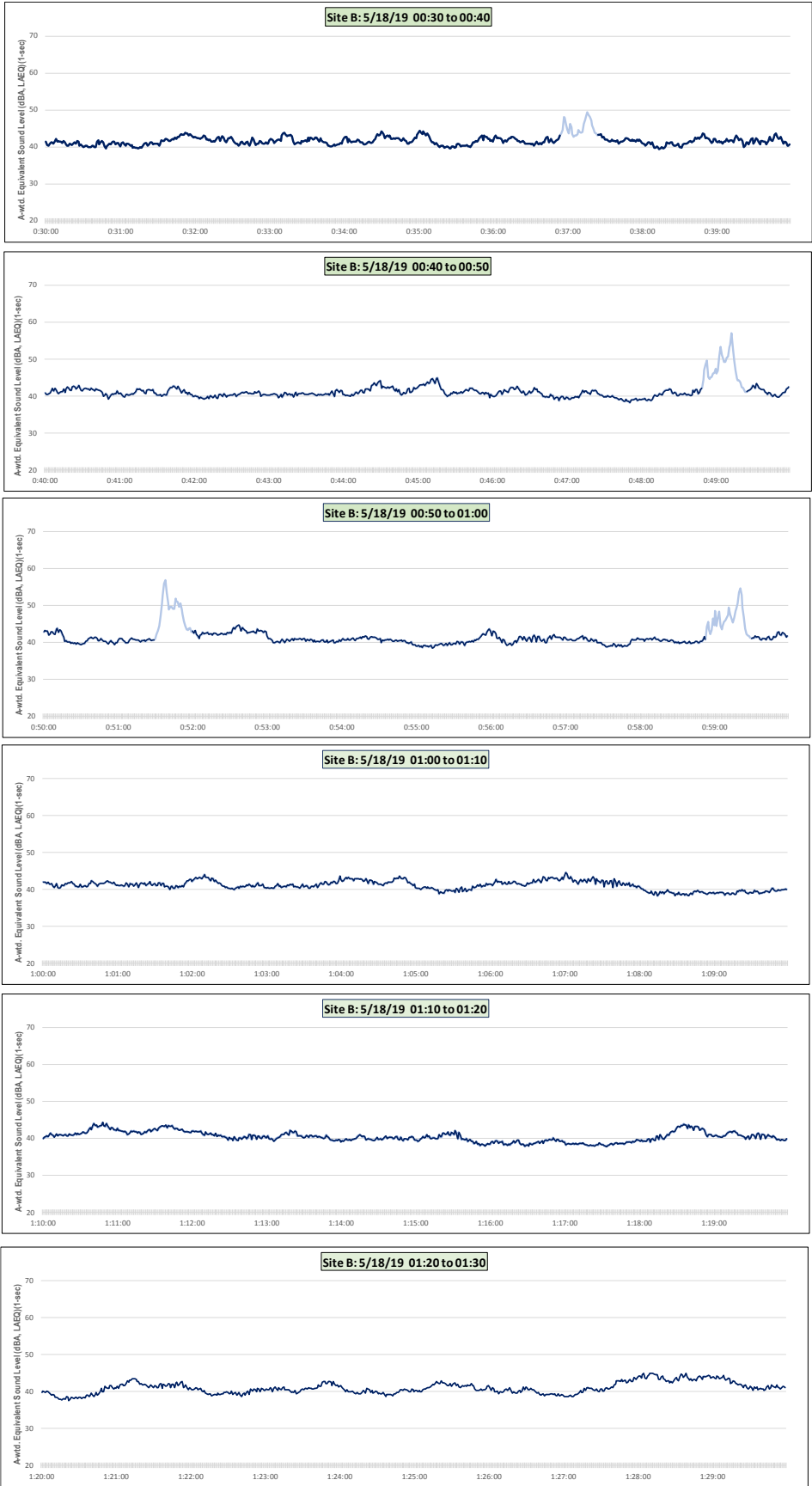


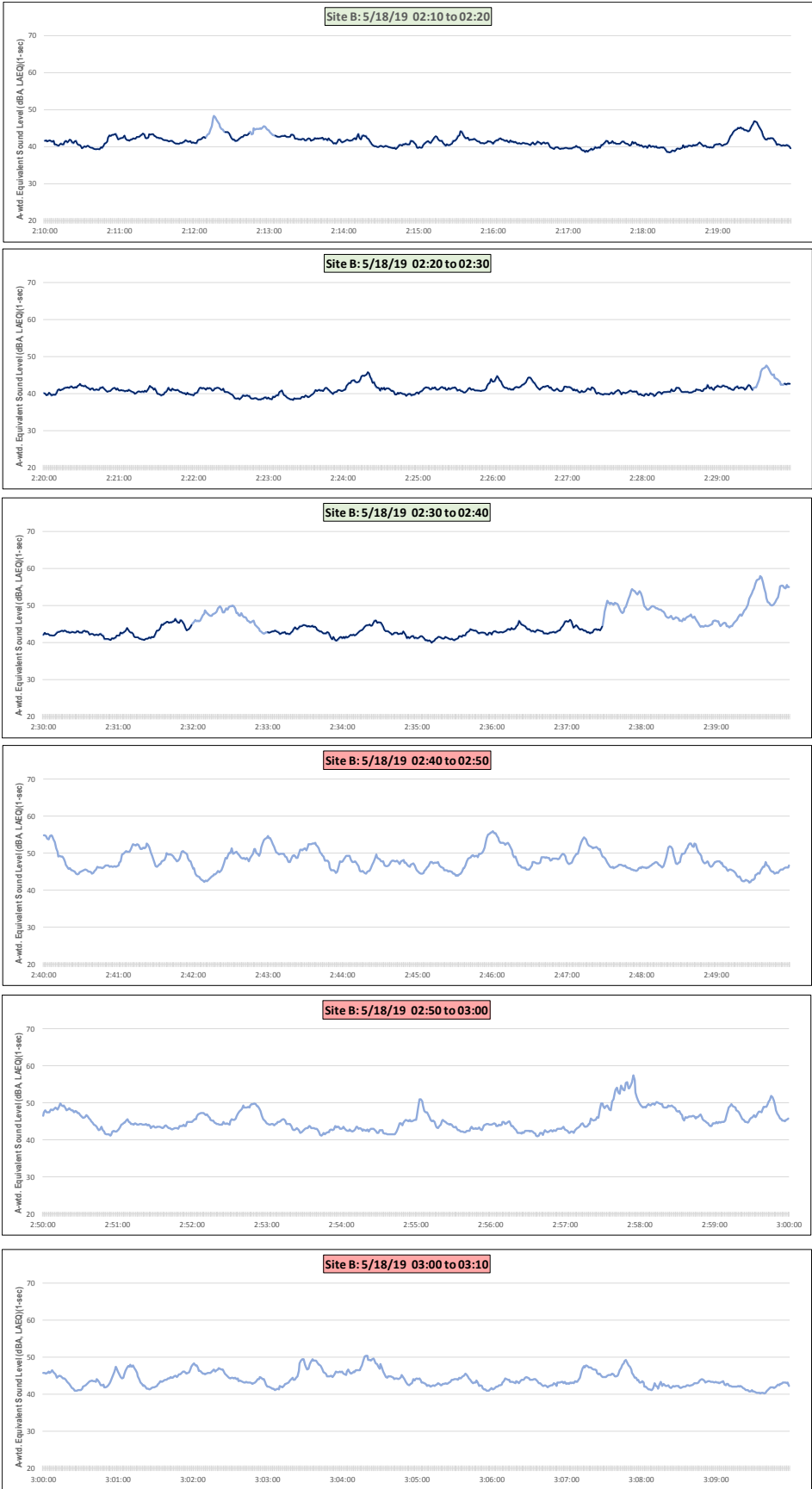
CURTAILMENT 2 - SITE B May 18, 2019 00:30 to May 18, 2019 03:10 (0518ASiteB)



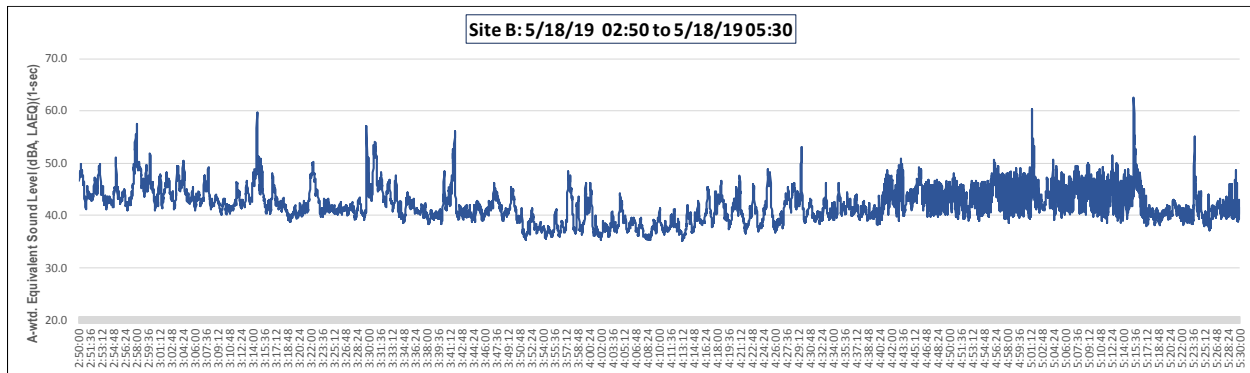
0518A Site B						Period to Exclude		
Exceedance	Time	WAV file	WAV file		Type of Event	Start	End	Time Excluded
			Start of	Elapsed				
1	0:36:55	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:45:05	Car/Truck	0:36:55	0:37:25	0:00:30
2	0:44:15	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:52:25	Turbines (do not exclude)	0:44:15	0:45:20	
3	0:48:50	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:57:00	Car/Truck	0:48:50	0:49:25	0:00:35
4	0:51:30	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	10:59:40	Car/Truck	0:51:30	0:52:00	0:00:30
5	0:58:54	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	13:51:50	11:07:04	Car/Truck	0:58:54	0:59:30	0:00:36
6	2:12:10	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:20:20	Wind gust, wind chime?	2:12:10	2:12:25	0:00:15
7	2:12:45	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:20:55	Wind gust, wind chime?	2:12:45	2:13:05	0:00:20
8	2:19:10	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:27:20	Turbines (do not exclude)	2:19:10	2:19:50	
9	2:24:00	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:32:10	Turbines (do not exclude)	2:24:00	2:24:35	
10	2:32:00	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:40:10	Wind gust	2:32:00	2:33:00	0:01:00
11	2:29:30	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:37:40	Wind gust, wind chime?	2:29:30	2:29:50	0:00:20
12	2:31:30	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:39:40	Turbines (do not exclude)	2:31:30	2:32:55	
13	2:37:30	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:45:40	Wind gust > 5 m/s	2:37:30	2:40:00	0:02:30
14	2:40:00	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	1:51:50	0:48:10	Wind gusts > 5 m/s (exclude entire 10-min interval)	2:40:00	2:50:00	
						Total Excluded:		0:06:36

5/18/2019	1:31:00 off	37.5			
Time	Leq	Duration			
0:30:00	41.6	9.5			
0:40:00	41.0	9.4			
0:50:00	41.0	8.9			
1:00:00	41.2	10.0			
1:10:00	40.7	10.0			
1:20:00	41.2	10.0			
2:10:00	41.6	9.4			
2:20:00	41.1	9.6			
2:30:00	43.1	6.5			
2:40:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND		
2:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
		4999 Total remaining	83.3 minutes		



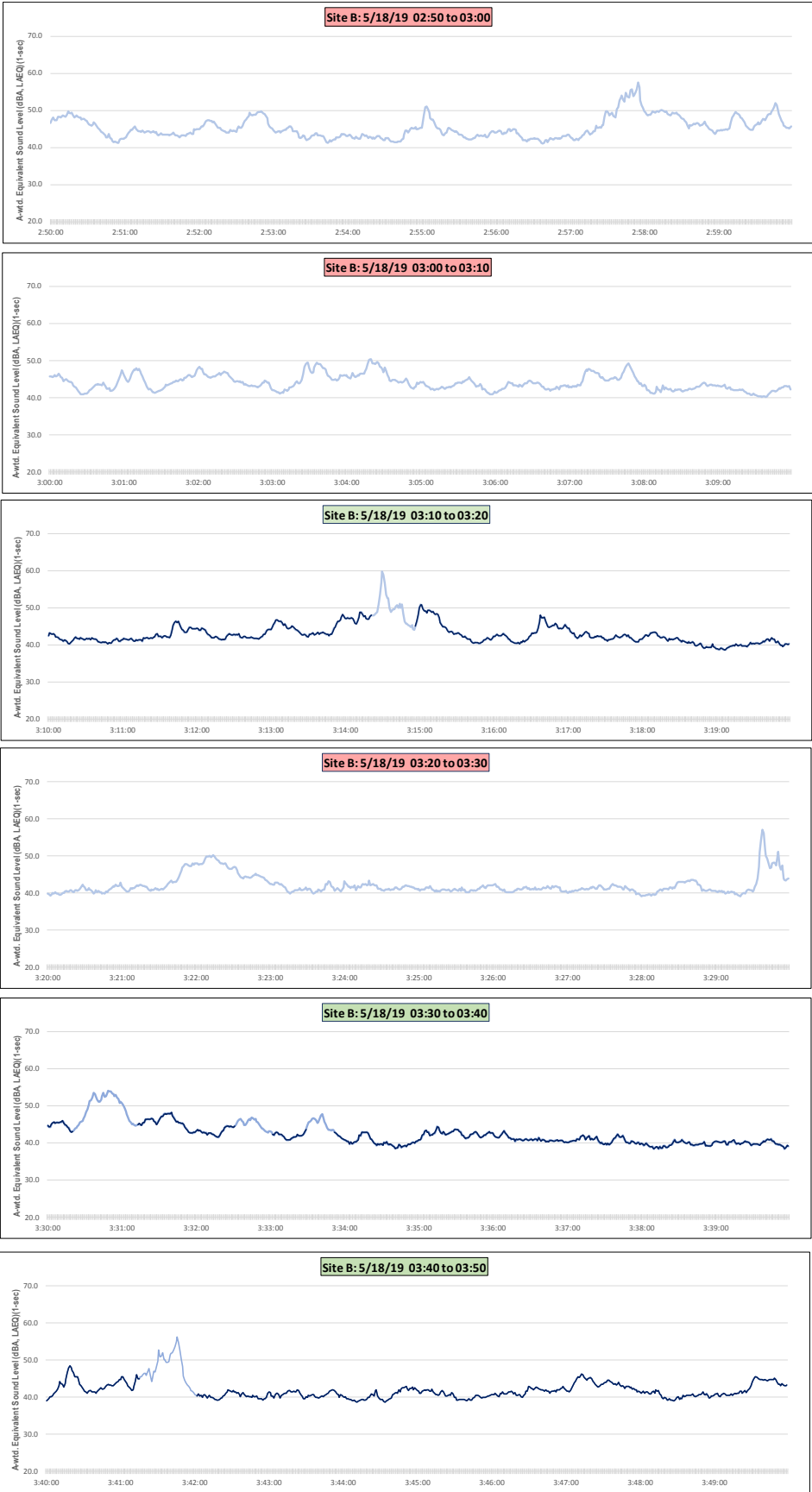


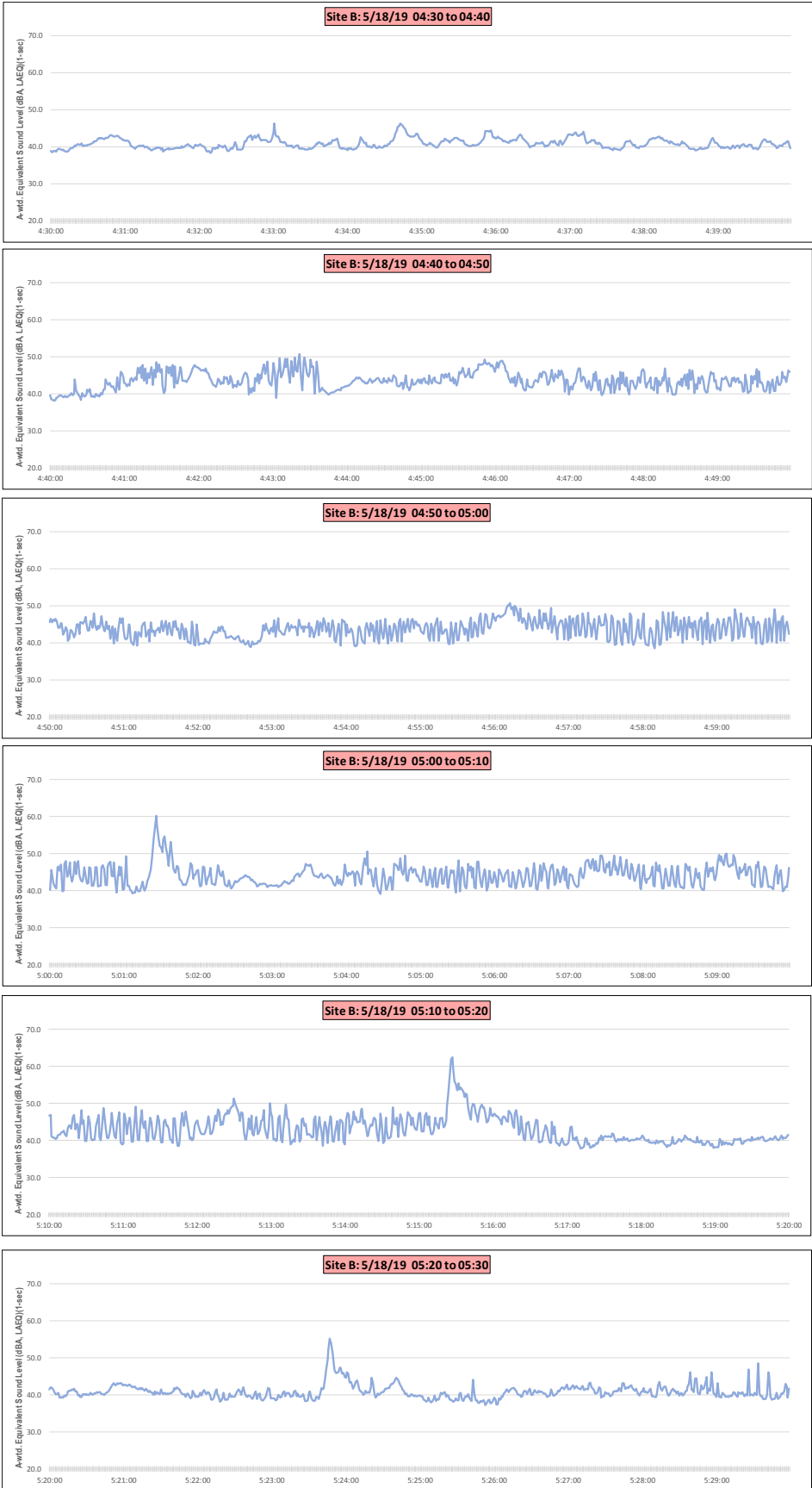
CURTAILMENT 3 - SITE B May 18, 2019 02:50 to May 18, 2019 05:30 (0518BSiteB)



0518B Site B					Period to Exclude			
Exceedance		WAV file	WAV file		Type of Event	Start		Time
Time	Time		Start of	Elapsed		Start	End	
1	3:11:38	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:19:47	Wind in trees, below 3.5 m/s (do not exclude)			
2	3:14:28	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:22:37	Wind chimes + Car/Truck	3:14:22	3:14:56	0:00:34
3	3:14:56	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:23:05	Wind in trees, below 3.5 m/s (do not exclude)			
4	3:16:35	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:24:44	Wind in trees, below 3.5 m/s (do not exclude)			
5	3:30:20	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:38:29	Wind gust => 5.5 m/s	3:30:20	3:31:12	0:00:52
6	3:32:32	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:40:41	Wind gust => 3.5 m/s	3:32:32	3:33:01	0:00:29
7	3:33:30	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:41:39	Wind gust => 3.5 m/s	3:33:30	3:33:51	0:00:21
8	3:40:21	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:48:30	Wind in trees, below 3.5 m/s (do not exclude)			
9	3:41:16	2019-05-15_SLM_000_Audio_FS110.8dB(PK)_05.wav	1:51:51	1:49:25	Car/Truck + wind gust => 3.5 m/s	3:41:16	3:42:01	0:00:45
						Total Excluded:		0:03:01

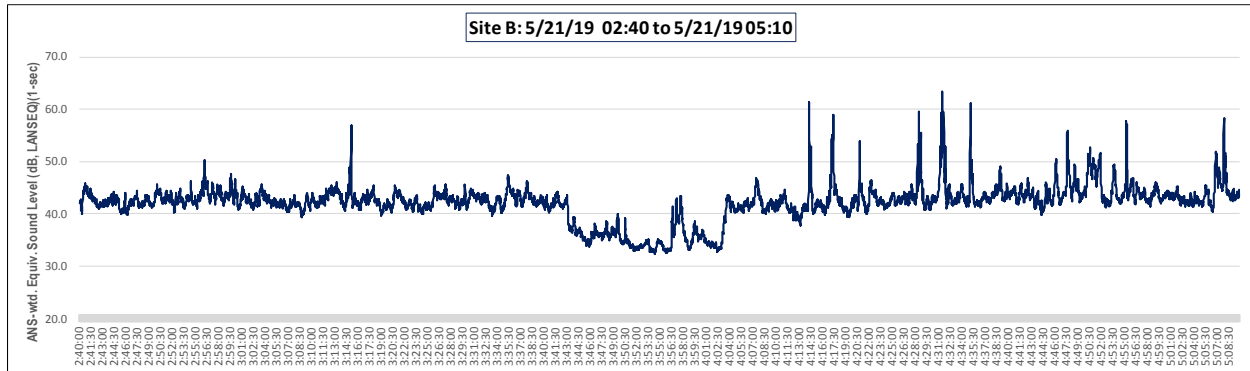
5/18/2019	3:52:00 off	39.5						
Time	Leq	Duration						
2:50:00		0.0	EXCLUDED BY WEATHER SCREENING					
3:00:00		0.0	EXCLUDED BY WEATHER SCREENING					
3:10:00	43.4	9.4						
3:20:00		0.0	EXCLUDED BY WEATHER SCREENING					
3:30:00	42.1	8.3						
3:40:00	41.9	9.2						
4:30:00		0.0	EXCLUDED BY WEATHER SCREENING					
4:40:00		0.0	EXCLUDED BY WEATHER SCREENING					
4:50:00		0.0	EXCLUDED BY WEATHER SCREENING					
5:00:00		0.0	EXCLUDED BY WEATHER SCREENING					
5:10:00		0.0	EXCLUDED BY WEATHER SCREENING					
5:20:00		0.0	EXCLUDED BY WEATHER SCREENING					
		1614	Total remaining		26.9	minutes		





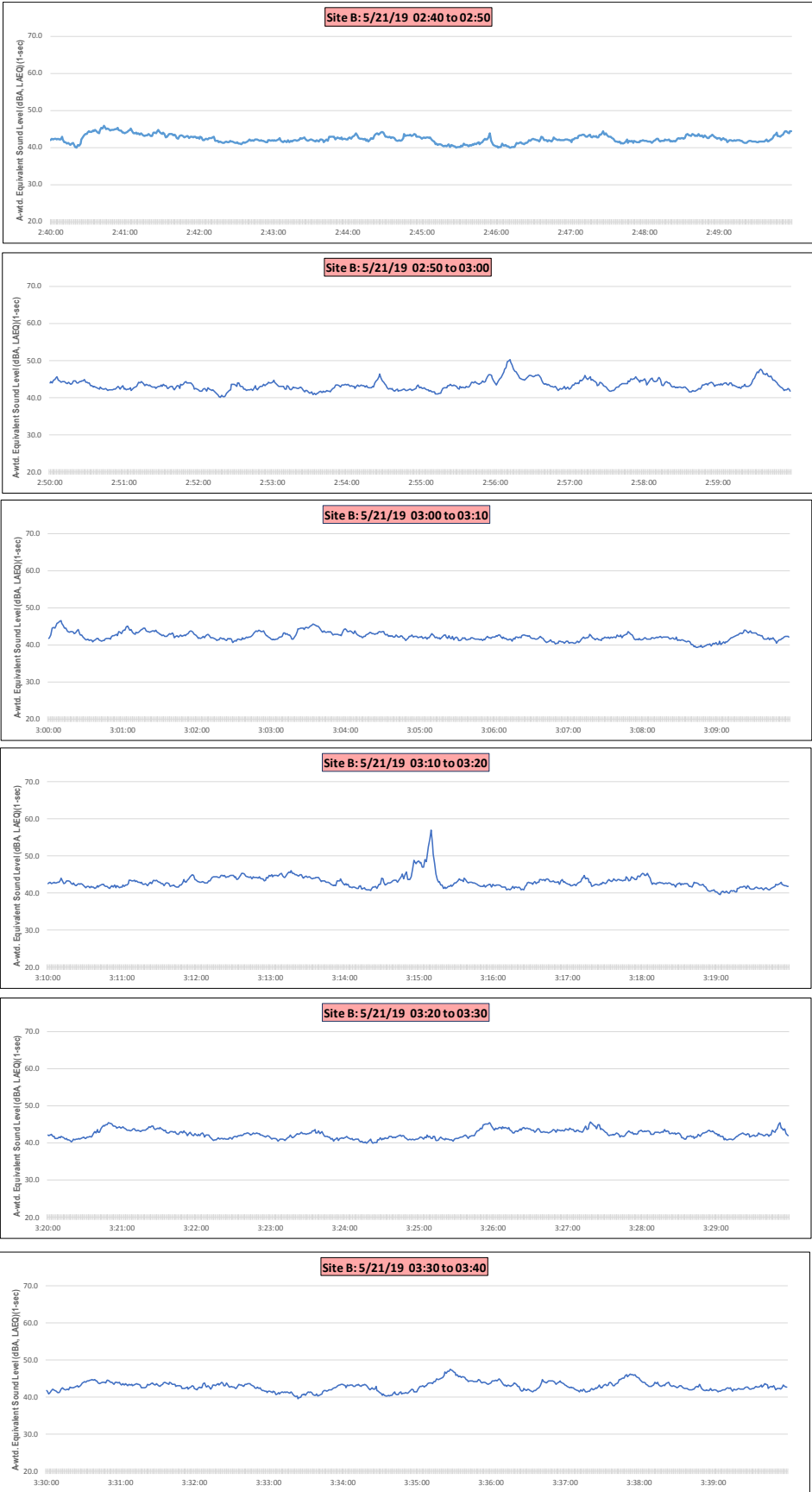
CURTAILMENT 9 - SITE B May 21, 2019 02:40 to May 21, 2019 05:10 (0521BSiteB)

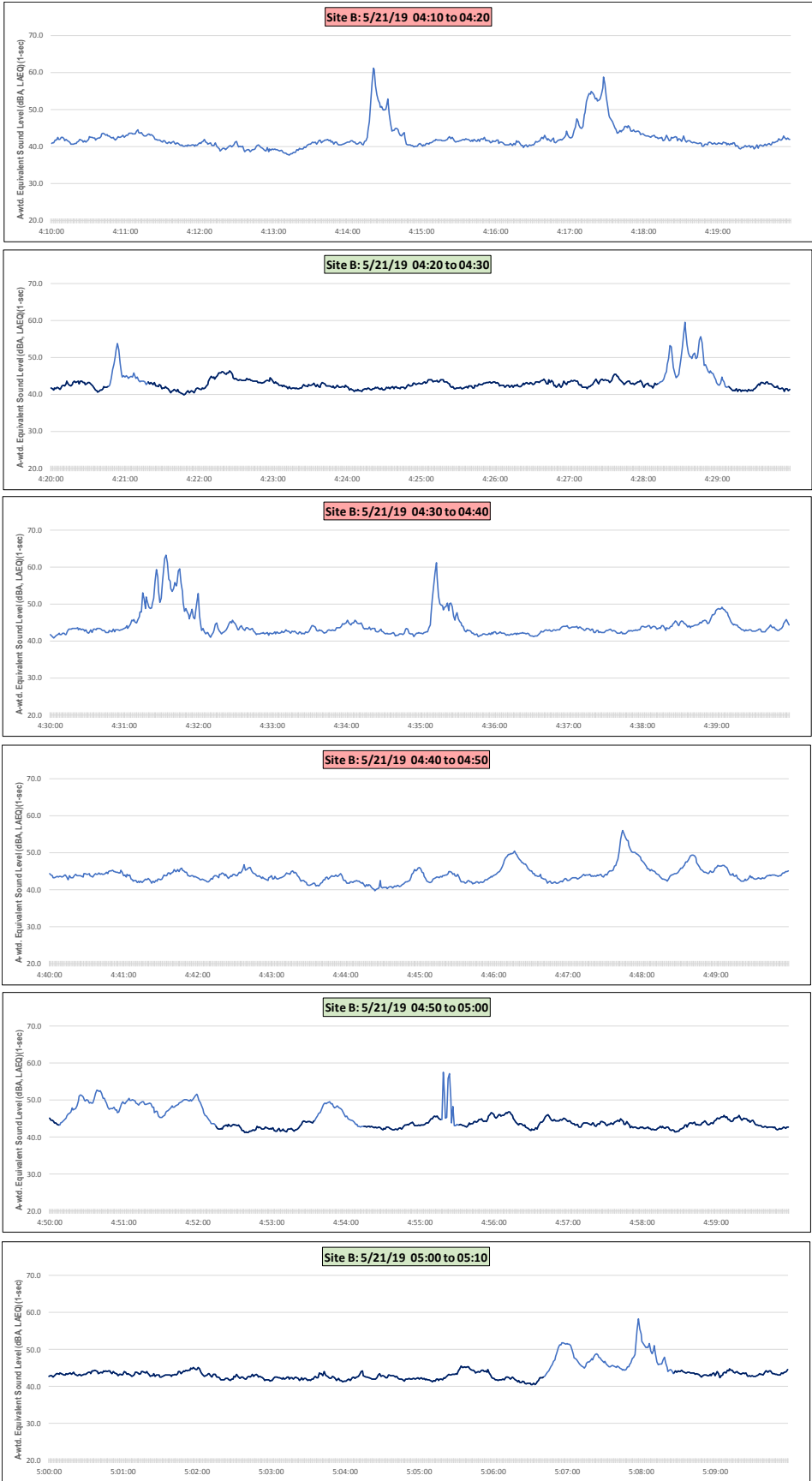
Note: All data for this shutdown ANS weighted.



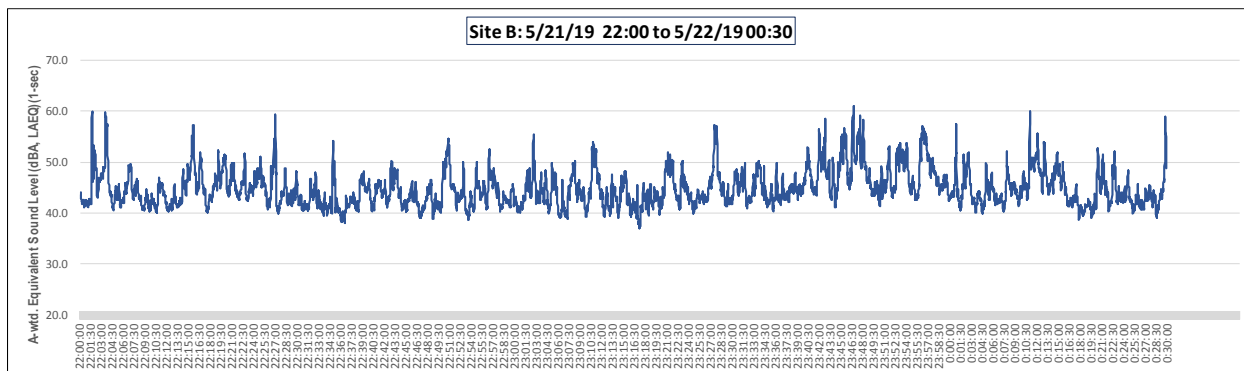
0521B Site B					Period to Exclude			
Exceedance	WAV file	Start of	WAV file	Time	Type of Event	Start	End	Time
Time		WAV file	Elapsed					Excluded
1	4:20:47 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	2:51:11	Car/Truck		4:20:47	4:21:18	0:00:31
2	4:22:06 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	2:52:30	Wind in trees/leaves rustling (do not exclude)		4:22:06	4:23:15	
3	4:28:13 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	2:58:37	Car/Truck		4:28:13	4:29:09	0:00:56
4	4:50:08 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	3:20:32	Wind gusts => 5.5 m/s		4:50:08	4:52:14	0:02:06
5	4:53:21 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	3:23:45	Wind gust		4:53:35	4:54:14	0:00:39
6	4:55:18 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	3:25:42	Dog barking		4:55:18	4:55:31	0:00:13
7	5:06:34 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	3:36:58	Wind gust		5:06:42	5:07:14	0:00:32
8	5:07:15 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	3:37:39	Wind gust		5:07:15	5:07:48	0:00:33
9	5:07:49 2019-05-19_SLM_001_Audio_FS110.9dB(PK)_03.wav	1:29:36	3:38:13	Car/Truck		5:07:49	5:08:26	0:00:37
						Total Excluded:		0:06:07

5/21/2019	3:45:00 off	35.7	ANS WEIGHTED		
Time	Leq	Duration			
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
2:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:20:00	42.7	8.5			
4:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:50:00	43.6	7.0			
5:00:00	43.1	8.3			
1425 Total remaining			23.8 minutes		



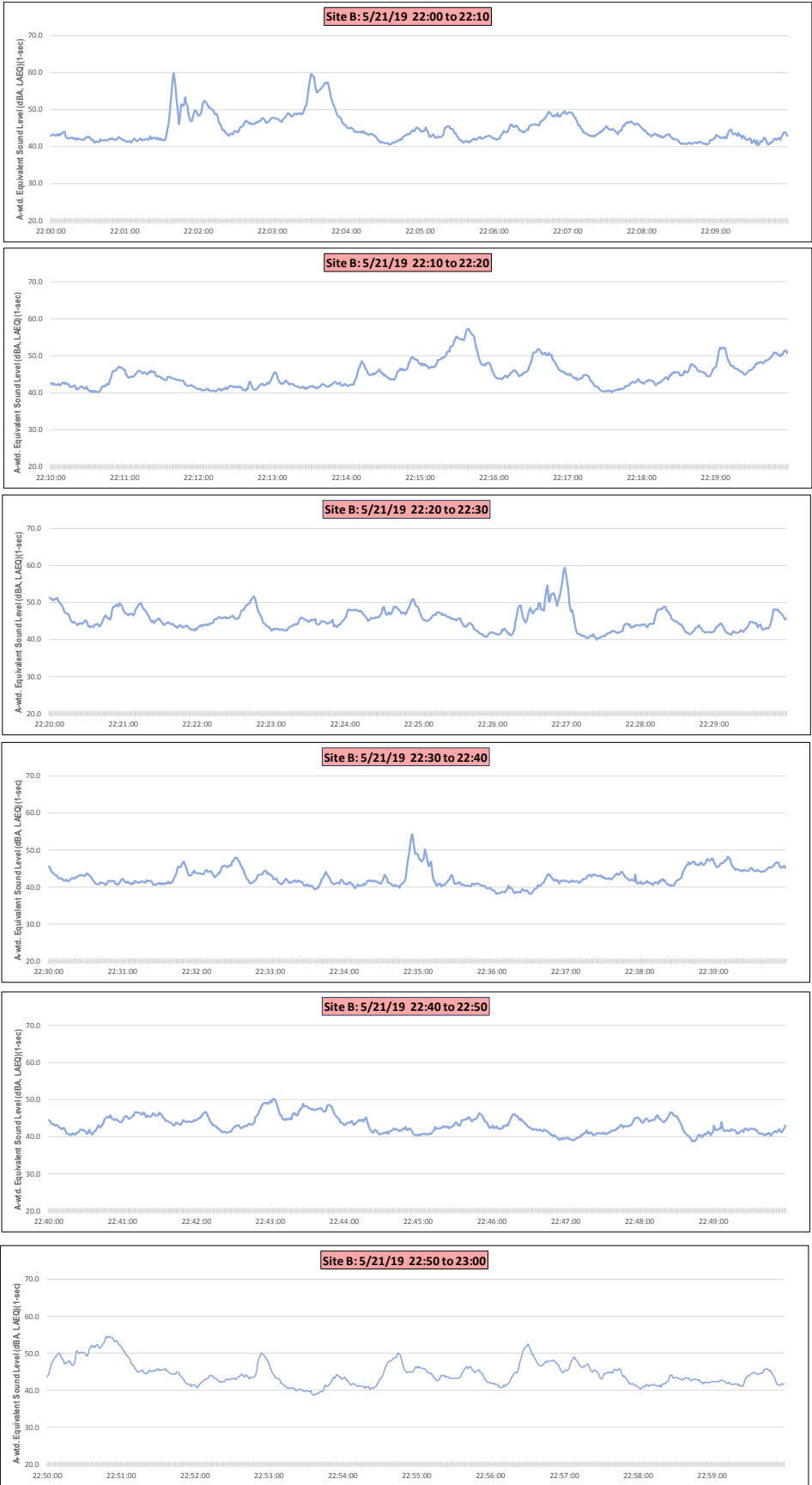


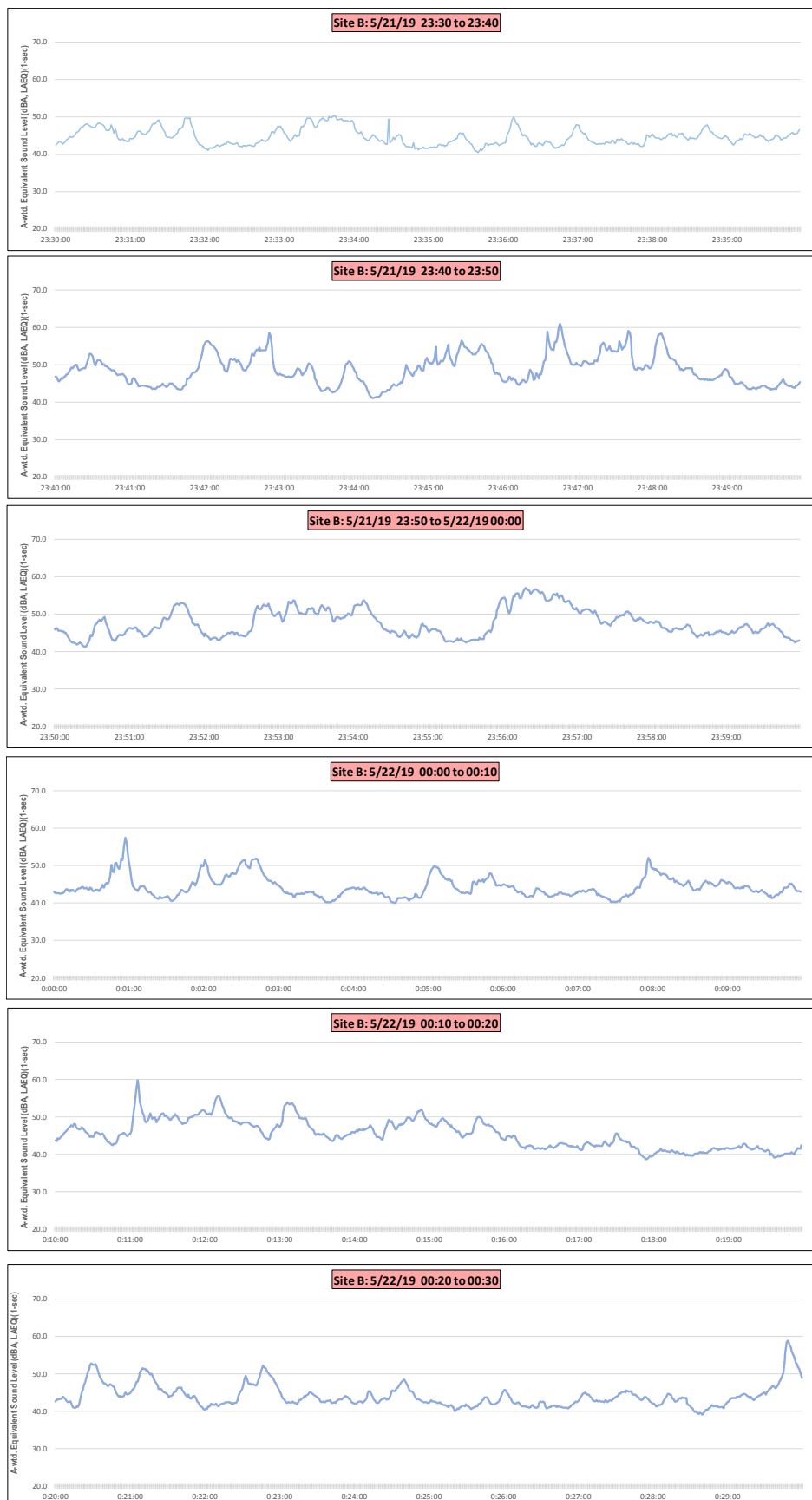
CURTAILMENT 10 - SITE B May 21, 2019 22:00 to May 22, 2019 00:30 (0521CSiteB)



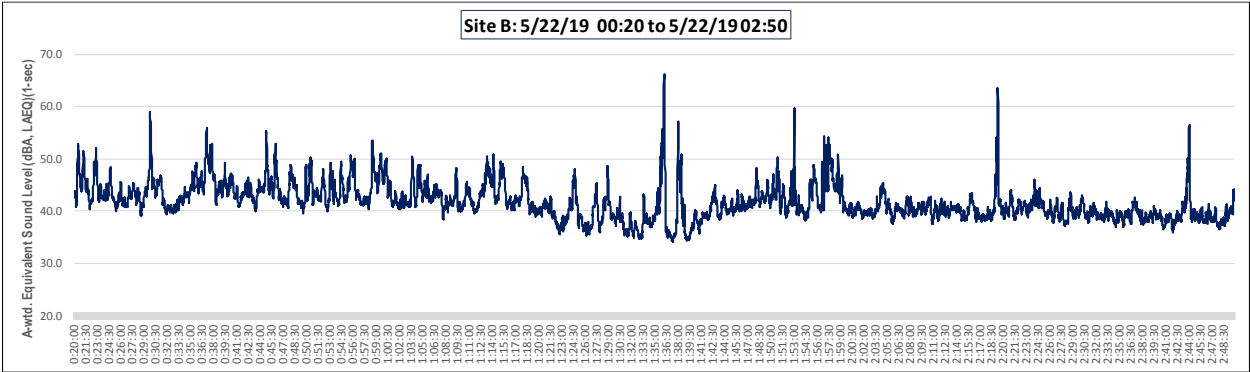
0521C Site B			WAV file		Period to Exclude		
Exceedance Time	WAV file	Start of WAV file	Elapsed Time	Type of Event	Start	End	Time Excluded
All intervals excluded because of wind gusts.							
Total Excluded:						0:00:00	

5/21/2019	23:03:00 off	44.6					
Time	Leq	Duration					
22:00:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
22:10:00		0.0	EXCLUDED BY WEATHER SCREENING				
22:20:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
22:30:00		0.0	EXCLUDED BY WEATHER SCREENING				
22:40:00		0.0	EXCLUDED BY WEATHER SCREENING				
22:50:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
23:00:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
23:10:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
23:20:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
23:30:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
23:40:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
23:50:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
0:00:00		0.0	EXCLUDED BY WEATHER SCREENING				
0:10:00		0.0	EXCLUDED BY WEATHER SCREENING				
0:20:00		0.0	ENTIRE INTERVAL EXCLUDED DUE TO WIND				
		0 Total remaining	0.0 minutes				



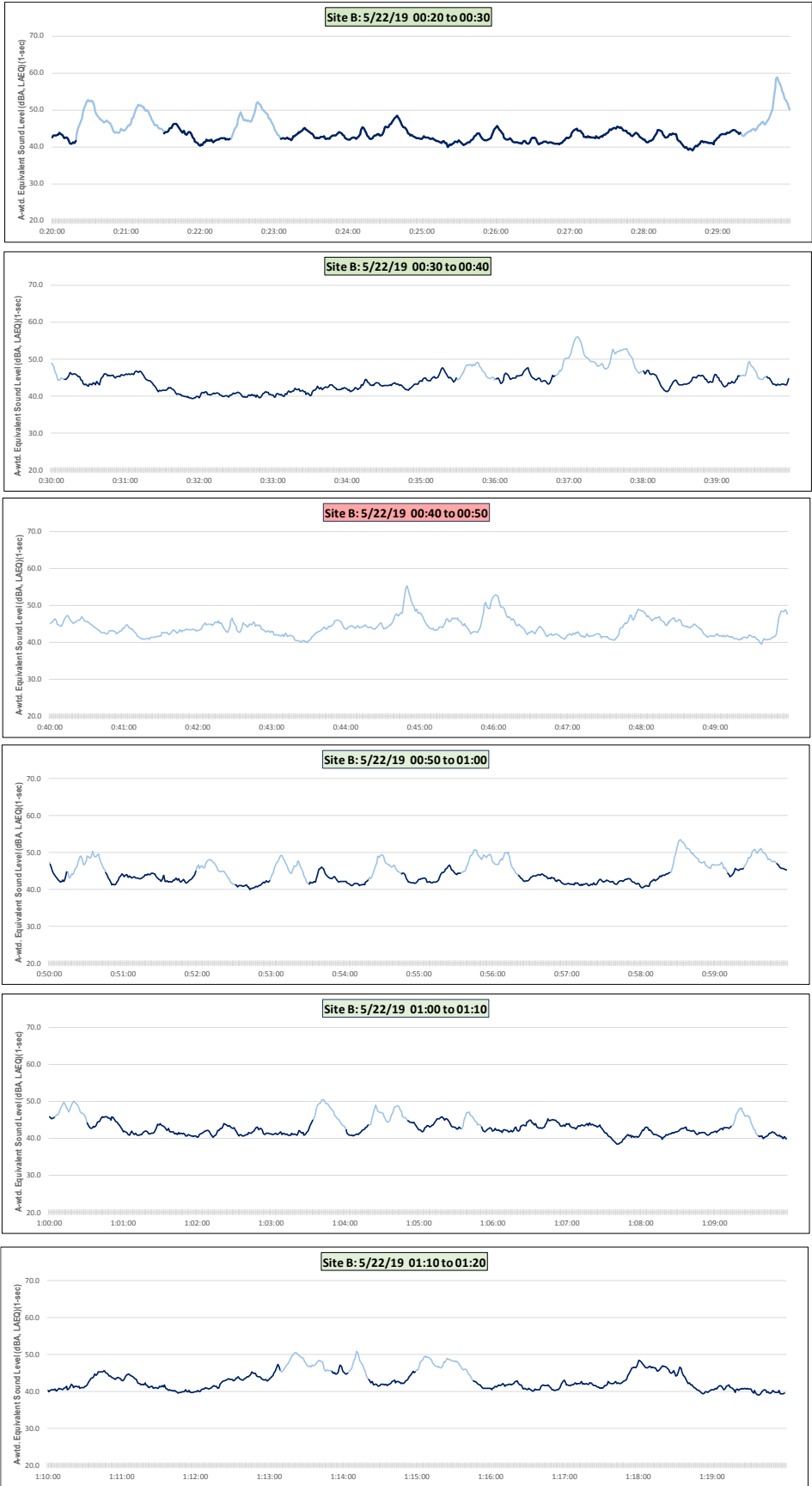


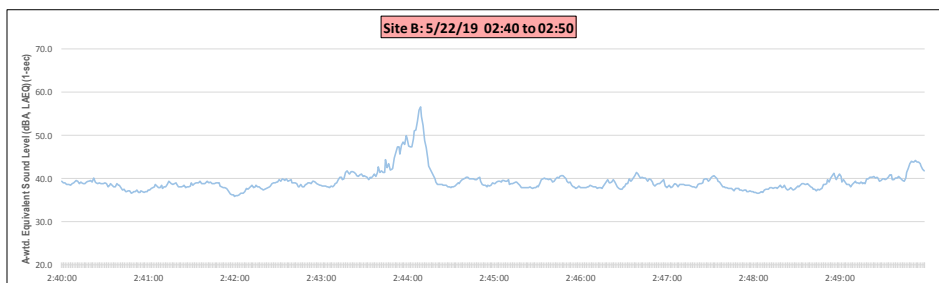
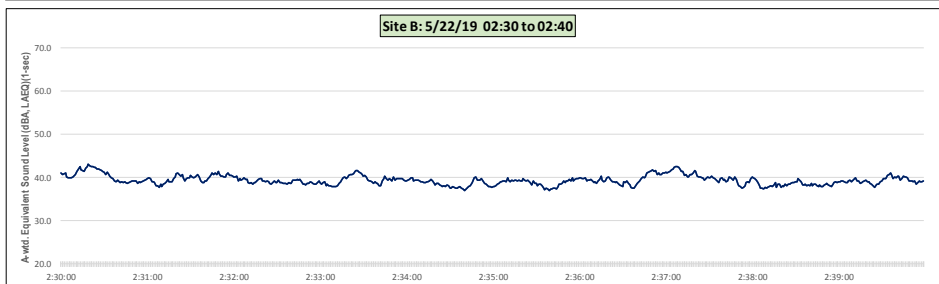
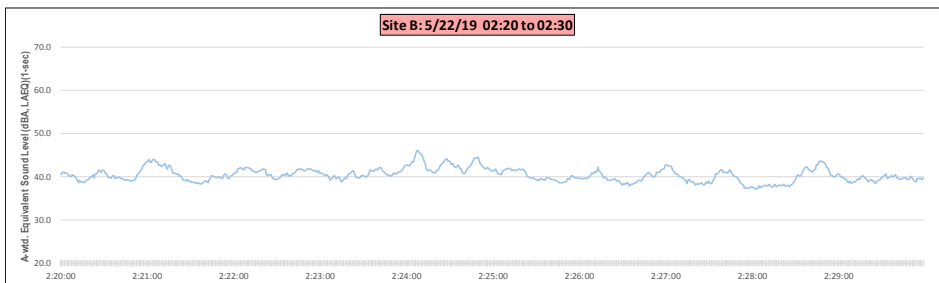
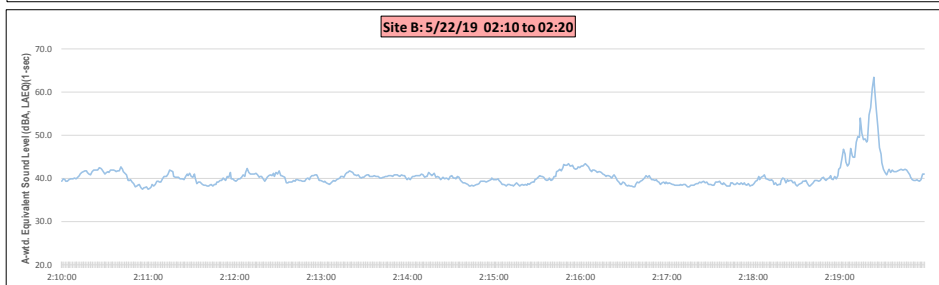
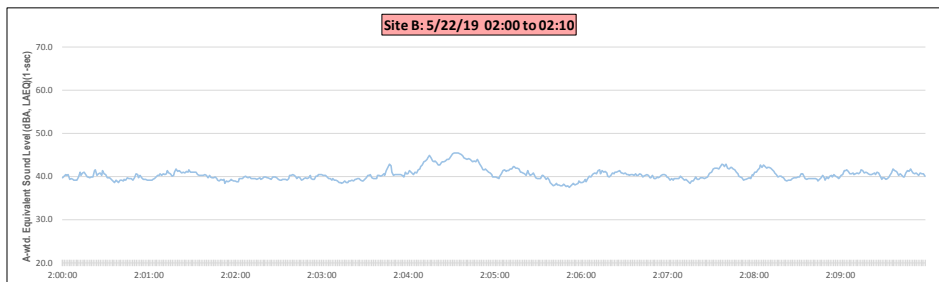
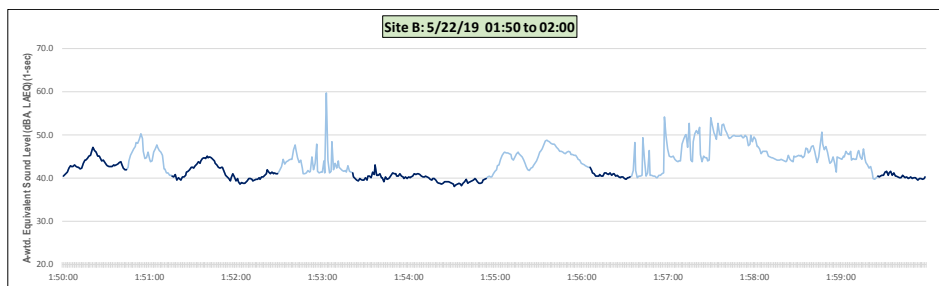
CURTAILMENT 11 - SITE B May 22, 2019 00:20 to May 22, 2019 02:50 (0522ASiteB)



0522A Site B					Period to Exclude			
	Exceedance	WAV file	Start of WAV file	WAV file	Type of Event	Start	End	Time Excluded
	Time			Elapsed Time				
1	0:20:33	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:50:57	Wind gust	0:20:20	0:21:30	0:01:10
2	0:21:13	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:51:37	Wind gust (included with above)			
3	0:21:43	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:52:07	Wind in trees, leaves rustling (do not exclude)			
4	0:22:48	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:53:12	Wind gust	0:22:25	0:23:05	0:00:40
5	0:24:41	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:55:05	Wind in trees, leaves rustling (do not exclude)			
6	0:26:04	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:56:28	Wind in trees, leaves rustling (do not exclude)			
7	0:27:38	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	10:58:02	Wind in trees, leaves rustling (do not exclude)			
8	0:29:51	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:00:15	Wind gust	0:29:20	0:30:10	0:00:50
9	0:30:39	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:01:03	Turbine (do not exclude)			
10	0:35:20	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:05:44	Wind in trees, leaves rustling (do not exclude)			
11	0:35:55	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:06:19	Wind gust	0:35:30	0:36:00	0:00:30
12	0:37:09	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:07:33	Wind gust	0:36:50	0:38:00	0:01:10
13	0:37:45	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:08:09	Wind gust (included with above)			
14	0:39:29	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:09:53	Wind gust	0:39:20	0:39:40	0:00:20
15	0:50:30	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:20:54	Leaves rustling, observer	0:50:15	0:50:45	0:00:30
16	0:52:10	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:22:34	Wind gust	0:52:00	0:52:30	0:00:30
17	0:53:10	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:23:34	Wind gust	0:53:00	0:53:30	0:00:30
18	0:53:45	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:24:09	Wind in trees, leaves rustling (do not exclude)			
19	0:54:30	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:24:54	Wind gust	0:54:20	0:54:45	0:00:25
20	0:55:50	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:26:14	Wind gust	0:55:35	0:56:20	0:00:45
21	0:58:30	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:28:54	Wind gust	0:58:25	0:59:10	0:00:45
22	0:59:35	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:29:59	Wind gust	0:59:25	0:59:50	0:00:25
23	1:00:15	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:30:39	Wind gust	1:00:05	1:00:30	0:00:25
24	1:00:50	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:31:14	Wind in trees, leaves rustling (do not exclude)			
25	1:03:40	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:34:04	Wind gust	1:03:35	1:04:00	0:00:25
26	1:04:25	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:34:49	Wind gust	1:04:20	1:04:50	0:00:30
27	1:05:20	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:35:44	Wind in trees, leaves rustling (do not exclude)			
28	1:05:40	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:36:04	Wind gust	1:05:35	1:05:50	0:00:15
29	1:09:20	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:39:44	Wind gust	1:09:15	1:09:35	0:00:20
30	1:10:50	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:41:14	Wind in trees, leaves rustling (do not exclude)			
31	1:13:20	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:43:44	Wind gust	1:13:10	1:13:50	0:00:40
32	1:14:13	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:44:37	Wind gust	1:14:05	1:14:20	0:00:15
33	1:15:13	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:45:37	Wind gust	1:15:00	1:15:45	0:00:45
34	1:18:06	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_04.wav	13:29:36	11:48:30	Wind in trees, leaves rustling (do not exclude)			
35	1:50:20	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:20:44	Wind in trees, leaves rustling (do not exclude)			
36	1:50:55	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:21:19	Car arriving at site	1:50:45	1:51:15	0:00:30
37	1:51:45	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:22:09	Wind in trees, leaves rustling (do not exclude)			
38	1:52:47	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:23:11	Observer activity	1:52:30	1:53:20	0:00:50
39	1:53:03	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:23:27	Observer activity (included with above)			
40	1:55:00	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:25:24	Wind gust	1:54:55	1:56:05	0:01:10
41	1:55:37	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:26:01	Wind gust (included with above)			
42	1:56:37	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:27:01	Observers, cars leaving site	1:56:35	1:59:25	0:02:50
43	1:57:42	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:28:06	Observers, cars leaving site (included with above)			
44	1:58:48	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	0:29:12	Observers, cars leaving site (included with above)			
						Total Excluded:		0:17:25

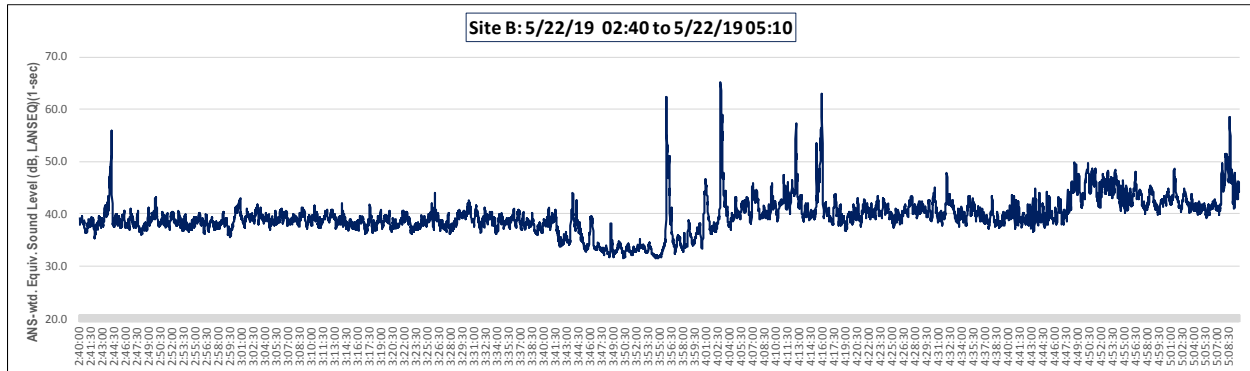
5/22/2019	1:20:00 off	38.1				
Time	Leq	Duration				
0:20:00	43.0	7.5				
0:30:00	43.6	7.8				
0:40:00		0.0	EXCLUDED BY WEATHER SCREENING			
0:50:00	43.0	6.0				
1:00:00	42.5	8.0				
1:10:00	42.8	8.3				
1:50:00	40.5	4.6				
2:00:00		0.0	EXCLUDED BY WEATHER SCREENING			
2:10:00		0.0	EXCLUDED BY WEATHER SCREENING			
2:20:00		0.0	EXCLUDED BY WEATHER SCREENING			
2:30:00	39.5	10.0				
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING			
		3129	Total remaining		52.2 minutes	





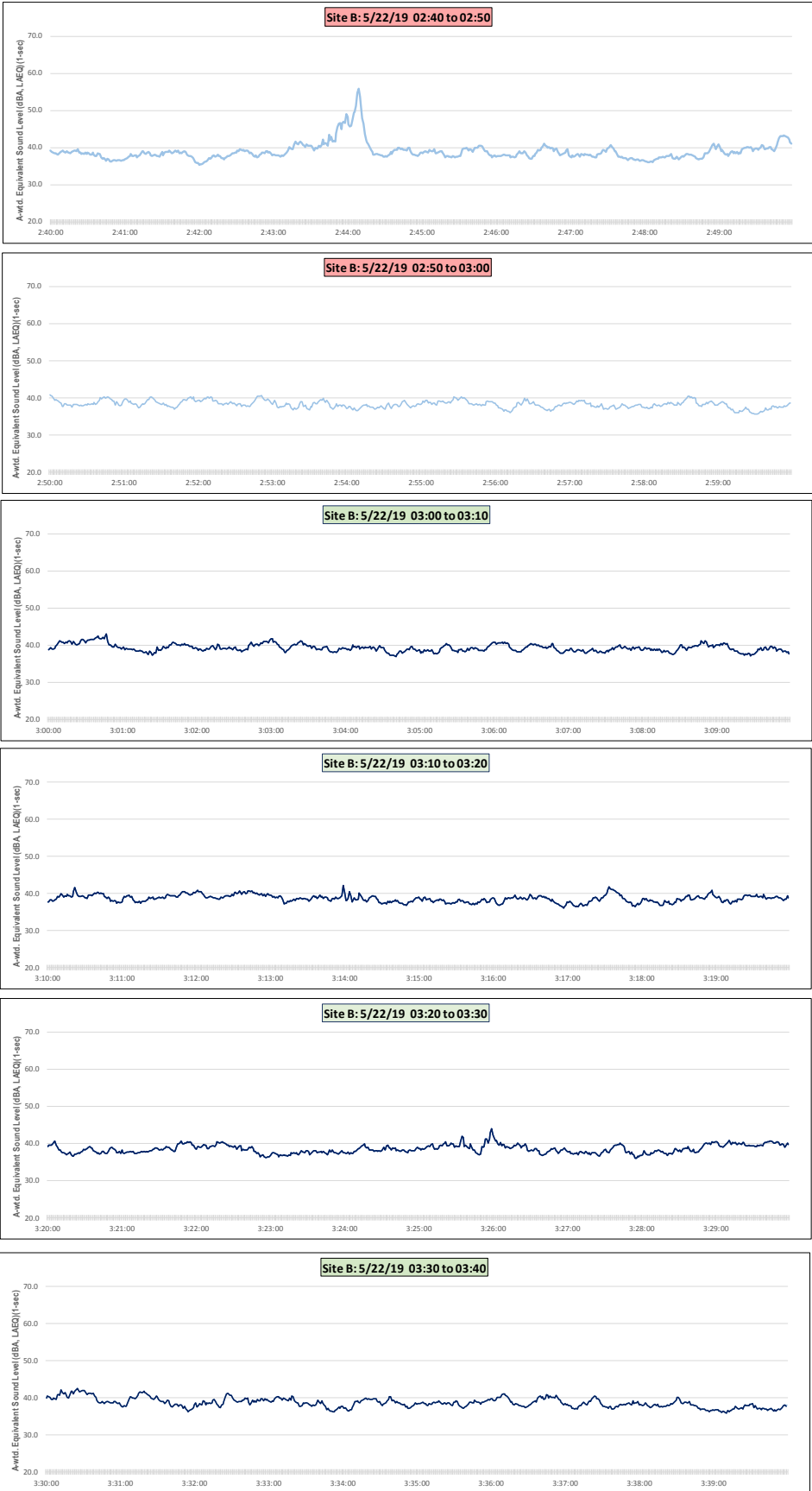
CURTAILMENT 12 - SITE B May 22, 2019 02:40 to May 22, 2019 05:10 (0522B SiteB)

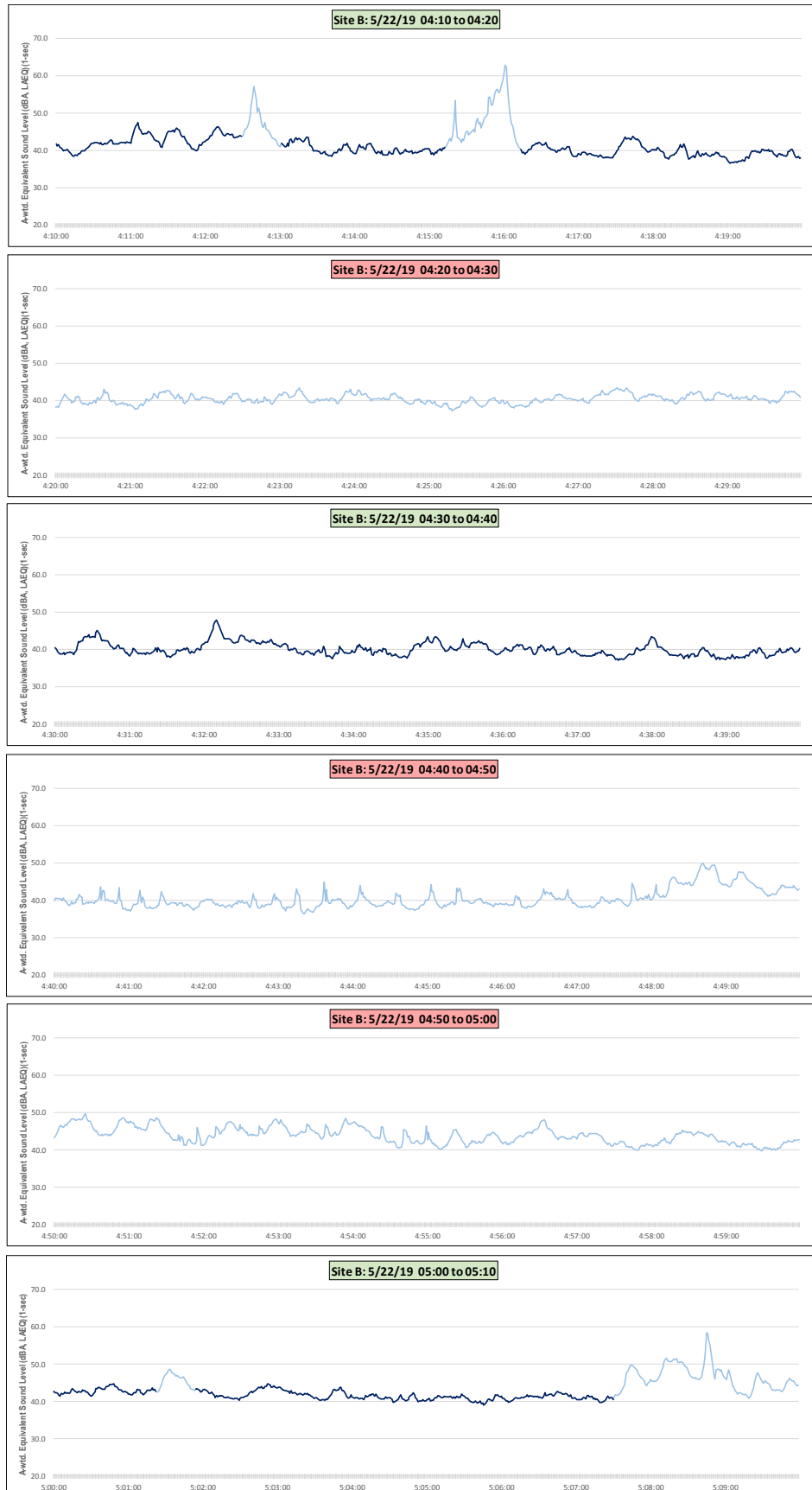
Note: All data for this shutdown ANS weighted.



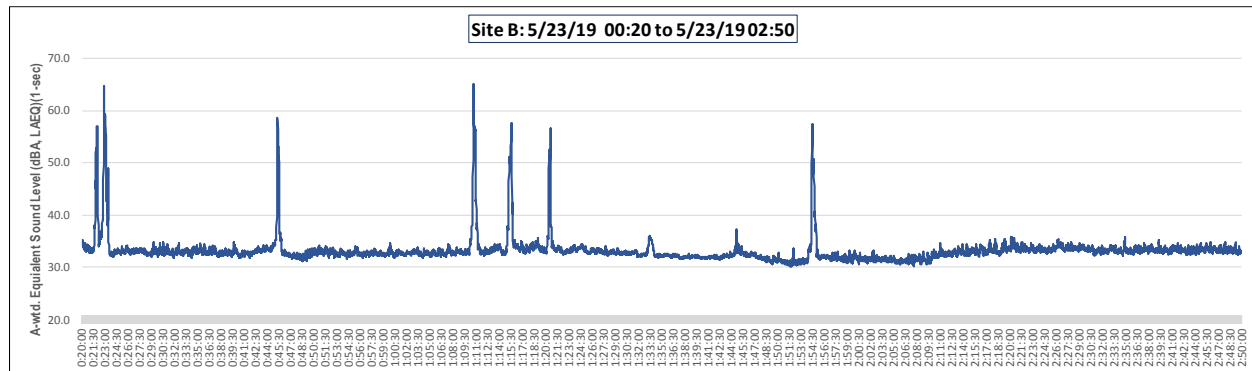
0522B SiteB				Period to Exclude				
Exceedance		WAV file		Start of	WAV file	Type of Event		Time
Time				WAV file	Time		Start	End
1	4:11:00	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:41:24	Wind in trees/leaves rustling (do not exclude)		4:11:00	4:11:25
2	4:11:25	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:41:49	Wind in trees/leaves rustling (do not exclude)		4:11:25	4:11:53
3	4:11:53	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:42:17	Wind in trees/leaves rustling (do not exclude)		4:11:53	4:12:30
4	4:12:30	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:42:54	Car/Truck		4:12:30	4:13:00
5	4:15:14	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:45:38	Car/Truck		4:15:14	4:15:28
6	4:15:28	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:45:52	Car/Truck		4:15:28	4:16:13
7	4:17:30	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	2:47:54	Wind in trees/leaves rustling (do not exclude)		4:17:30	4:17:56
8	4:50:00	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	3:20:24	Exclude entire 10-min period due to wind gusts		4:50:00	5:00:00
9	5:01:23	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	3:31:47	Car/Truck		5:01:23	5:01:53
10	5:07:31	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	3:37:55	Wind gust + Car/Truck		5:07:31	5:09:10
11	5:09:20	2019-05-19_SLM_001_Audio_FS110.9dB(PK)_05.wav	1:29:36	3:39:44	Wind gust		5:09:20	5:10:00
							Total Excluded:	0:14:18

5/22/2019	3:42:00 off	34.6	ANS WEIGHTED		
Time	Leq	Duration			
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
2:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:00:00	39.4	10.0			
3:10:00	38.7	10.0			
3:20:00	38.7	10.0			
3:30:00	38.8	10.0			
4:10:00	41.3	8.5			
4:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:30:00	40.4	10.0			
4:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:50:00		0.0	EXCLUDE ENTIRE INTERVAL DUE TO WIND		
5:00:00	41.9	7.0			
		3929	Total remaining	65.5	minutes



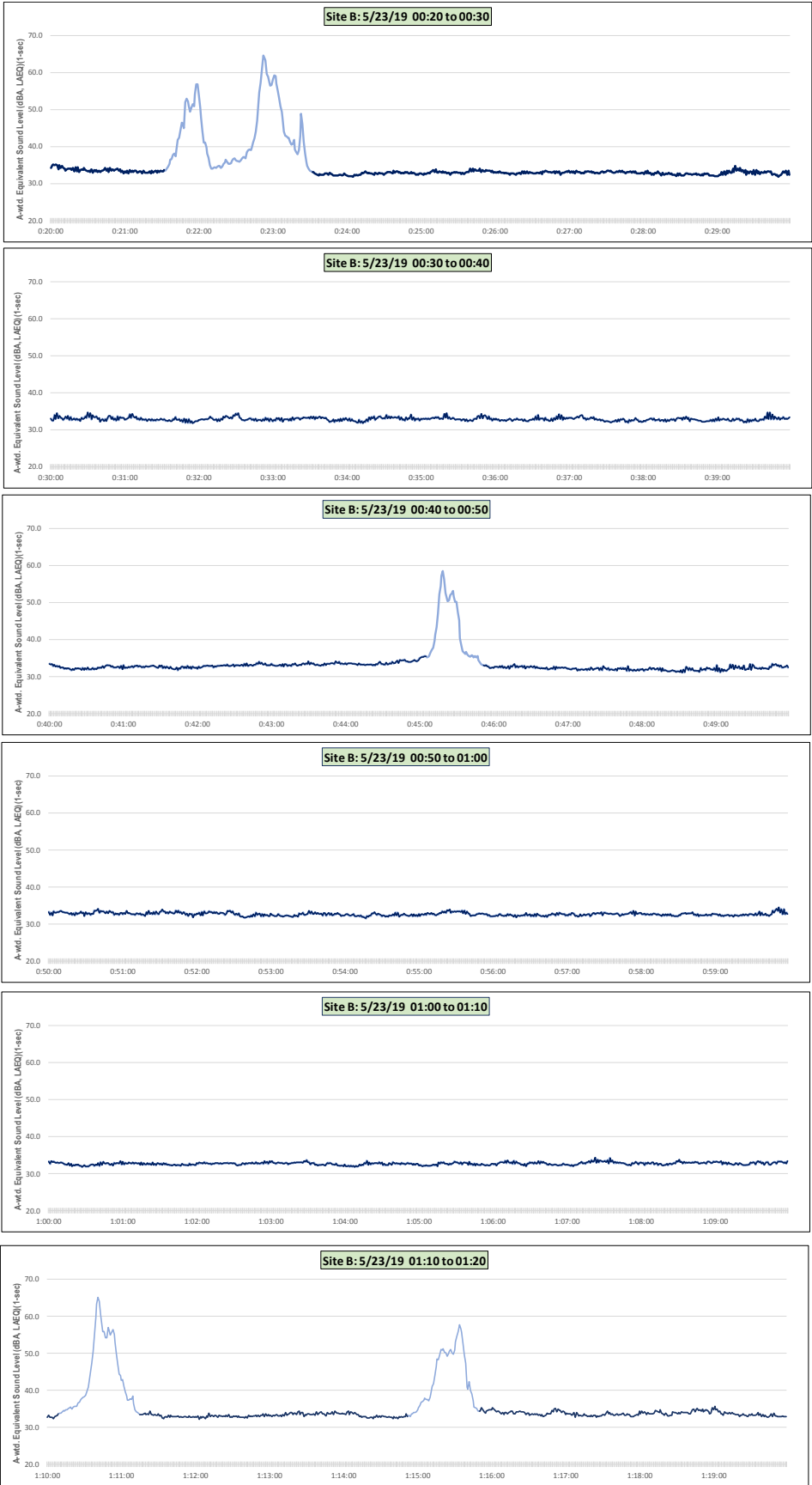


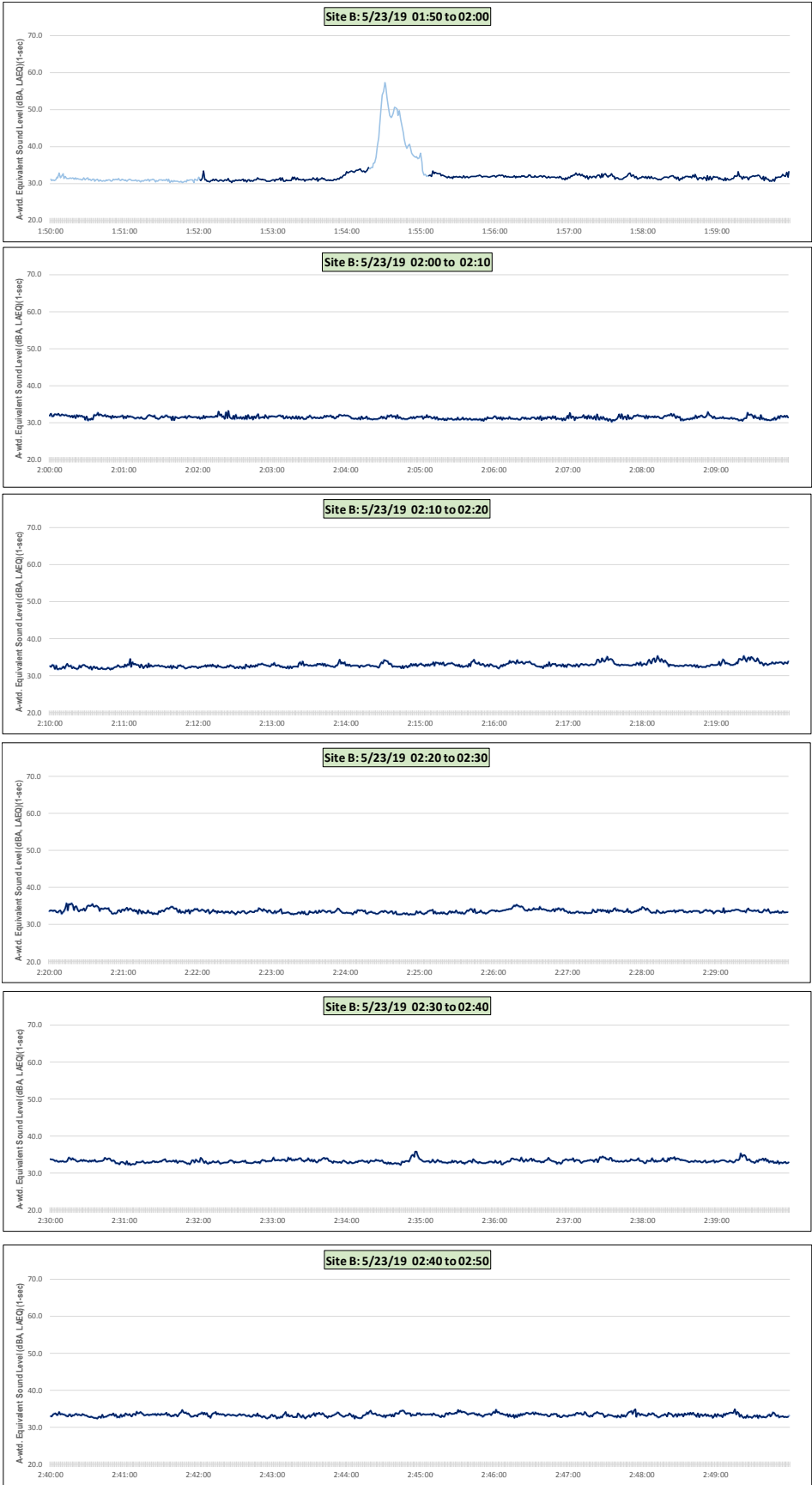
CURTAILMENT 13 - SITE B May 23, 2019 00:20 to May 23, 2019 02:50 (0523ASiteB)



0523A Site B						Period to Exclude		
Exceedance		WAV file	Start of	WAV file	Type of Event	Time		Excluded
Time			WAV file	Elapsed Time				
1	0:21:33	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00.wav	13:55:44	10:25:49	Car/Truck	0:21:33	0:23:31	0:01:58
2	0:45:06	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00.wav	13:55:44	10:49:22	Car/Truck	0:45:06	0:45:51	0:00:45
3	1:10:10	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00.wav	13:55:44	11:14:26	Car/Truck	1:10:10	1:11:14	0:01:04
4	1:14:53	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00.wav	13:55:44	11:19:09	Car/Truck	1:14:53	1:15:49	0:00:56
5	1:50:00	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00.wav	13:55:44	11:54:16	Turbines turning back on	1:50:00	1:52:00	0:02:00
6	1:54:19	2019-05-22_SLM_001_Audio_FS110.8dB(PK)_00.wav	13:55:44	11:58:35	Car/Truck	1:54:19	1:55:06	0:00:47
						Total Excluded:		0:07:30

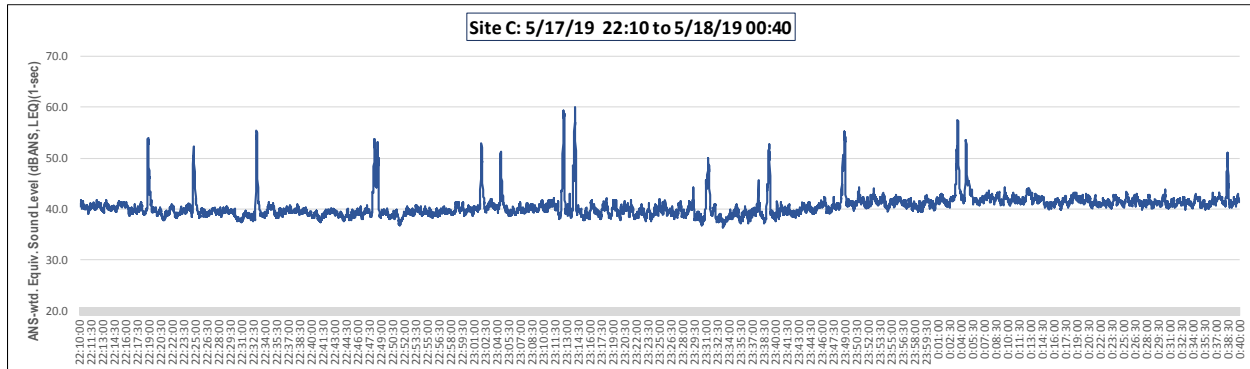
5/23/2019	1:24:00 off	32.3			
Time	Leq	Duration			
0:20:00	33.1	8.0			
0:30:00	32.9	10.0			
0:40:00	32.7	9.2			
0:50:00	32.7	10.0			
1:00:00	32.7	10.0			
1:10:00	33.5	8.0			
1:50:00	31.7	7.2			
2:00:00	31.5	10.0			
2:10:00	33.0	10.0			
2:20:00	33.7	10.0			
2:30:00	33.3	10.0			
2:40:00	33.5	10.0			
		6744	Total remaining	112.4	minutes





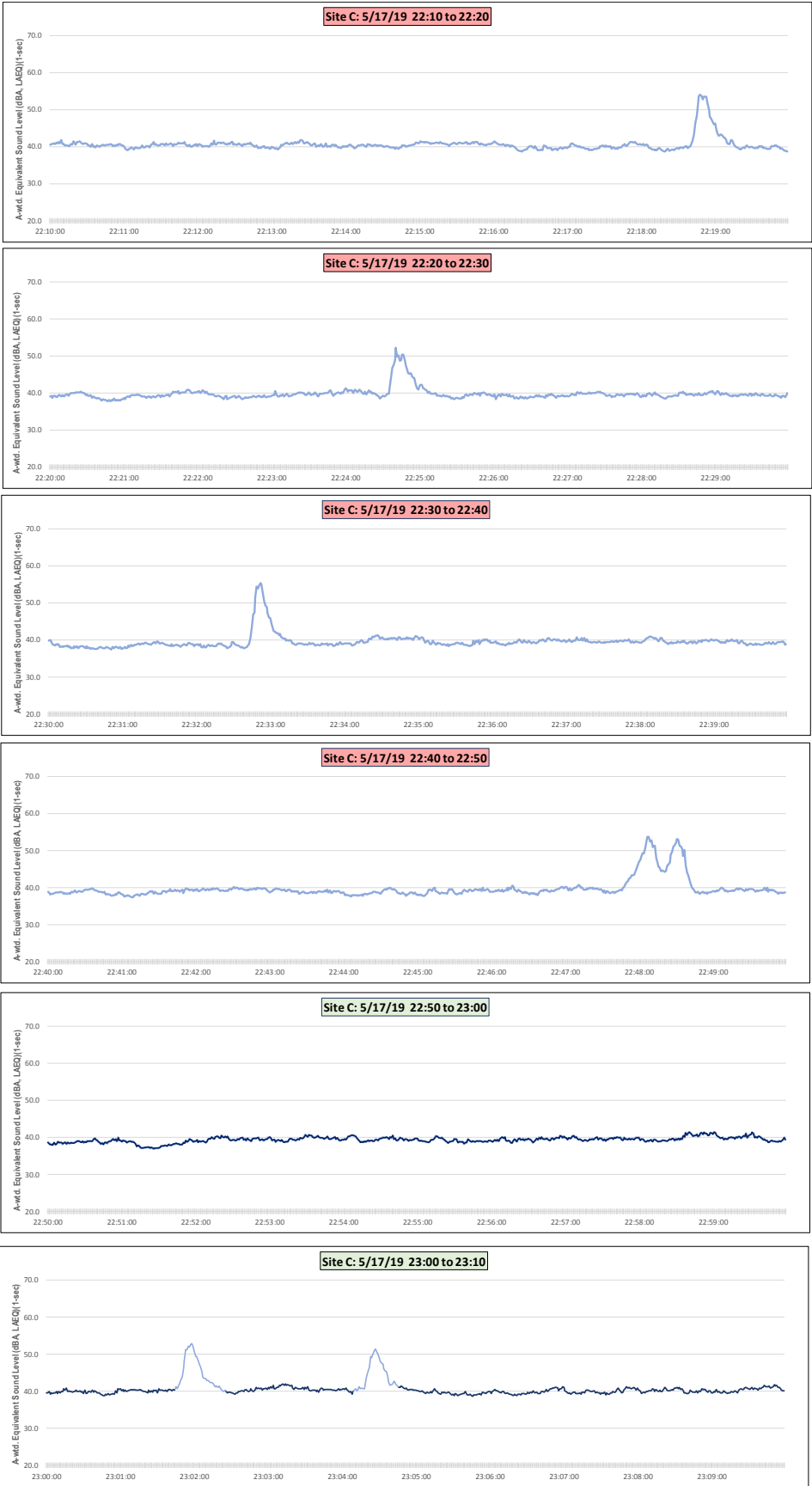
CURTAILMENT 1 - SITE C May 17, 2019 22:10 to May 18, 2019 00:40 (0517SiteC)

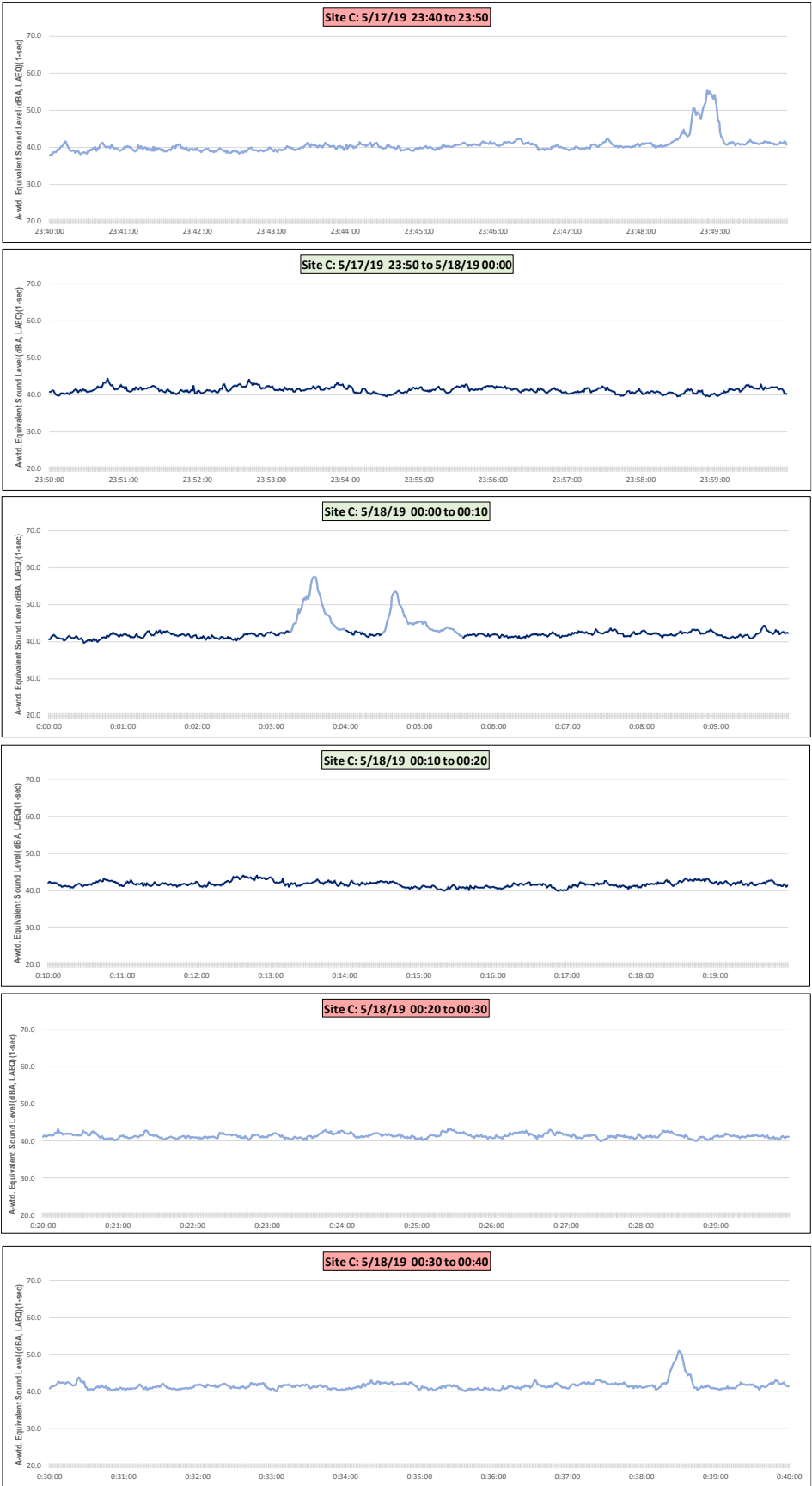
Note: All data for this shutdown ANS weighted.



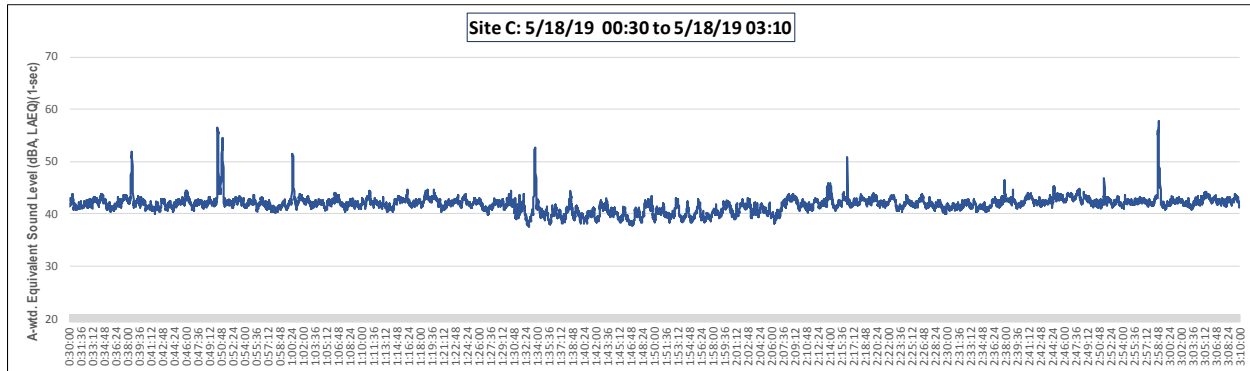
0517 Site C						Period to Exclude		
Exceedance Time		WAV file	Start of WAV file	WAV file Elapsed Time	Type of Event	Start	End	Time Excluded
1	23:01:45	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	7:51:00	Car/Truck	23:01:45	23:02:25	0:00:40
2	23:04:10	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	7:53:25	Car/Truck	23:04:10	23:04:45	0:00:35
3	0:03:15	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	8:52:30	Car/Truck	0:03:15	0:04:00	0:00:45
4	0:04:30	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_04	15:10:45	8:53:45	Car/Truck	0:04:30	0:05:35	0:01:05
Note: No wind => > 3.5 m/s during any intervals								
						Total Excluded:		0:03:05

5/17/2019	23:11:00 off	39.7	ANS WEIGHTED		
Time	Leq	Duration			
22:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
22:50:00	39.4	10.0			
23:00:00	40.1	8.7			
23:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
23:50:00	41.3	10.0			
0:00:00	41.8	8.1			
0:10:00	41.8	10.0			
0:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
		2811	Total remaining	46.9	minutes



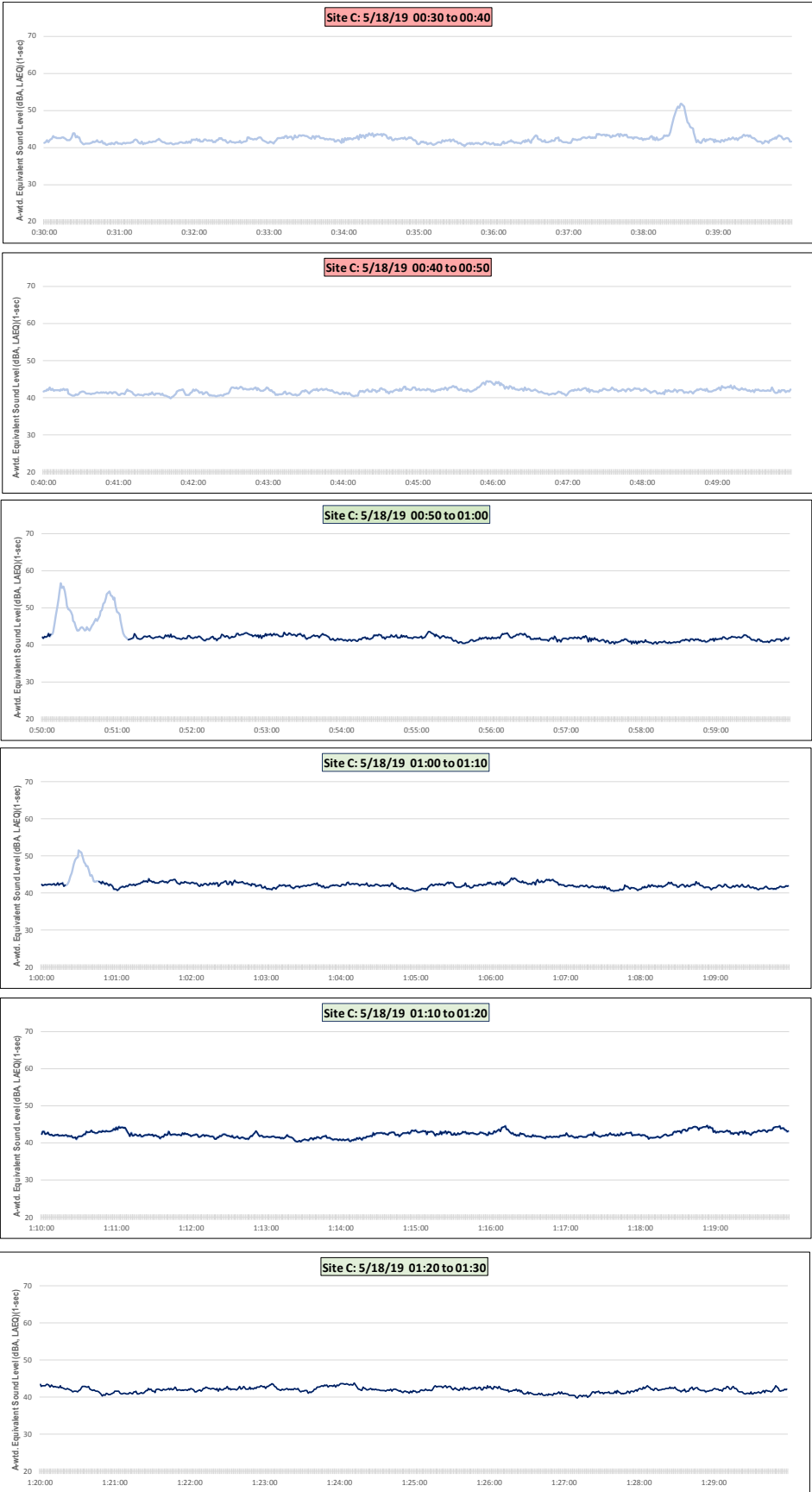


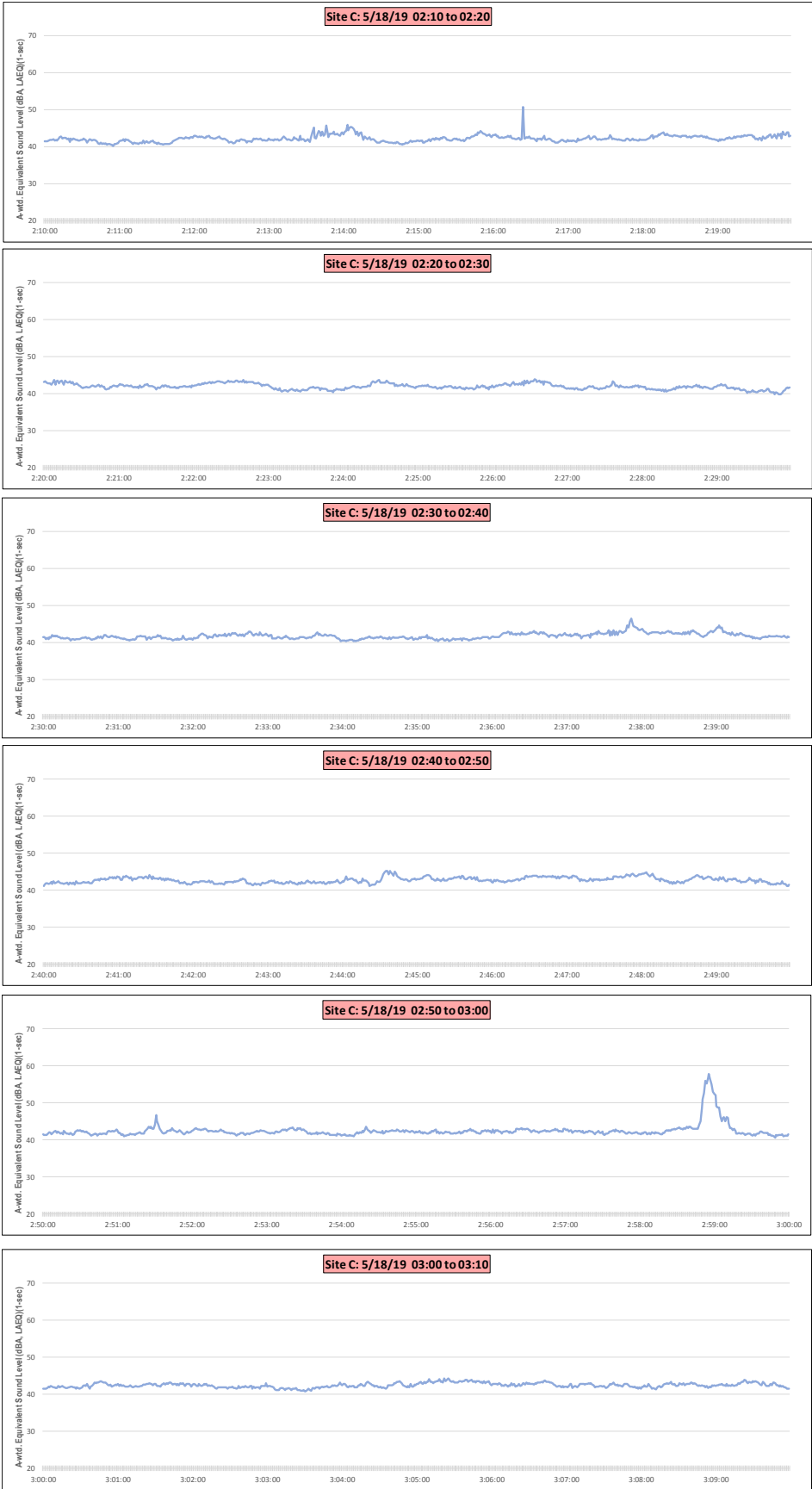
CURTAILMENT 2 - SITE C May 18, 2019 00:30 to May 18, 2019 03:10 (0518ASiteC)



0518A Site C				WAV file				Period to Exclude		
Exceedance		WAV file	Start of WAV file	WAV file		Type of Event	Start	End	Excluded	Time
Time				Time	Elapsed					
1	0:50:08	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	15:10:44	9:39:24	Car/Truck		0:50:08	0:51:08	0:01:00	
2	1:00:20	2019-05-15_SLM_000_Audio_FS110.8(PK)_04.wav	15:10:44	9:49:36	Car/Truck		1:00:20	1:00:45	0:00:25	
Total Excluded:									0:01:25	

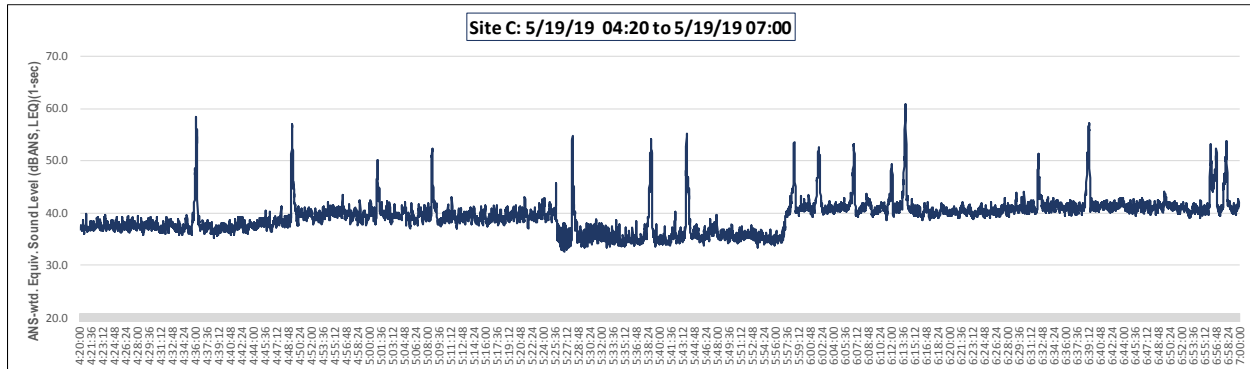
5/18/2019	1:31:00	off	40.2						
Time	Leq	Duration							
0:30:00		0.0	EXCLUDED BY WEATHER SCREENING						
0:40:00		0.0	EXCLUDED BY WEATHER SCREENING						
0:50:00	41.9	9.0							
1:00:00	42.1	9.6							
1:10:00	42.4	10.0							
1:20:00	42.0	10.0							
2:10:00		0.0	EXCLUDED BY WEATHER SCREENING						
2:20:00		0.0	EXCLUDED BY WEATHER SCREENING						
2:30:00		0.0	EXCLUDED BY WEATHER SCREENING						
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING						
2:50:00		0.0	EXCLUDED BY WEATHER SCREENING						
3:00:00		0.0	EXCLUDED BY WEATHER SCREENING						
2313 Total remaining				38.6 minutes					





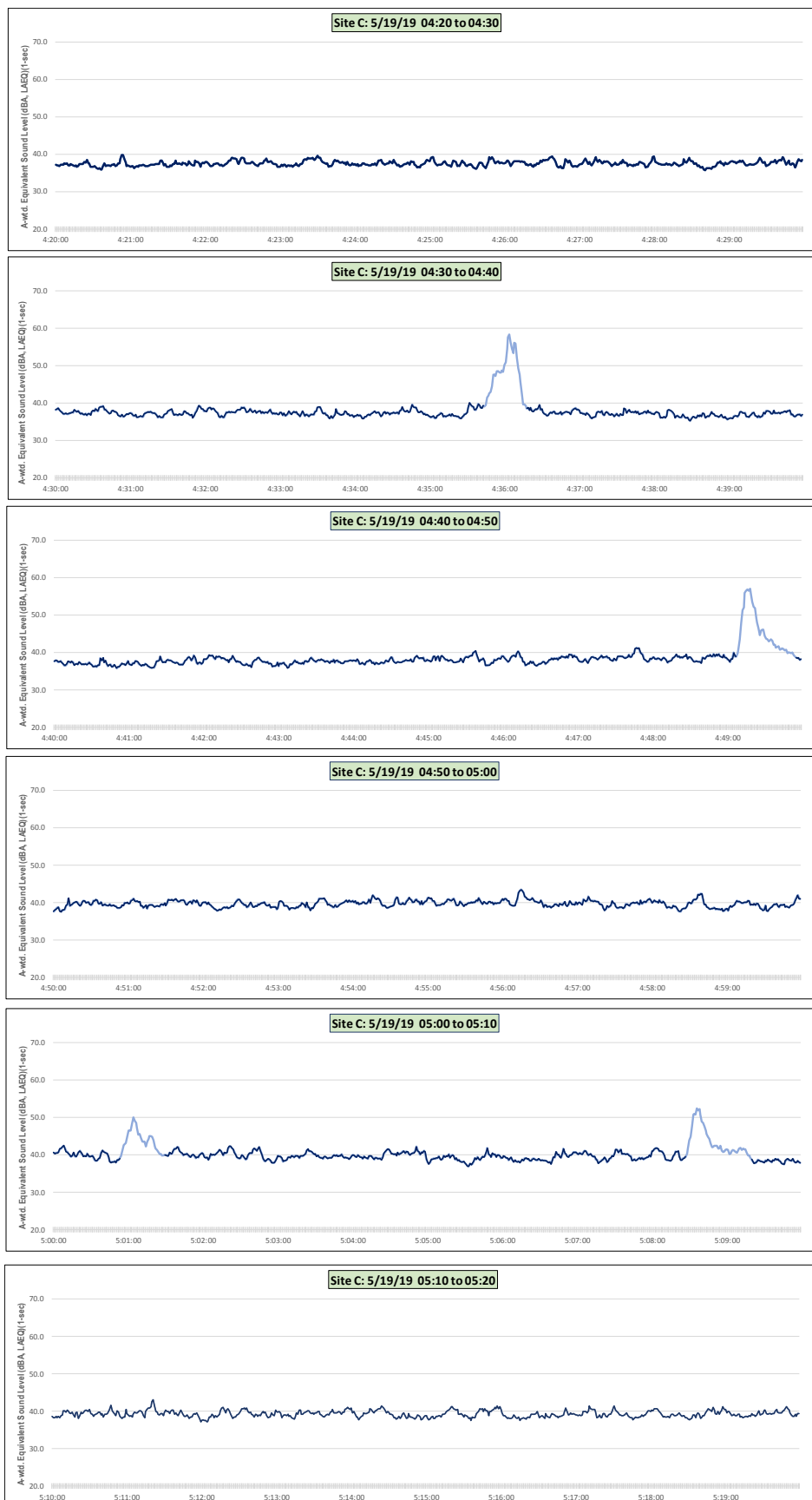
CURTAILMENT 4 - SITE C May 19, 2019 04:20 to May 19, 2019 07:00 (0519ASiteC)

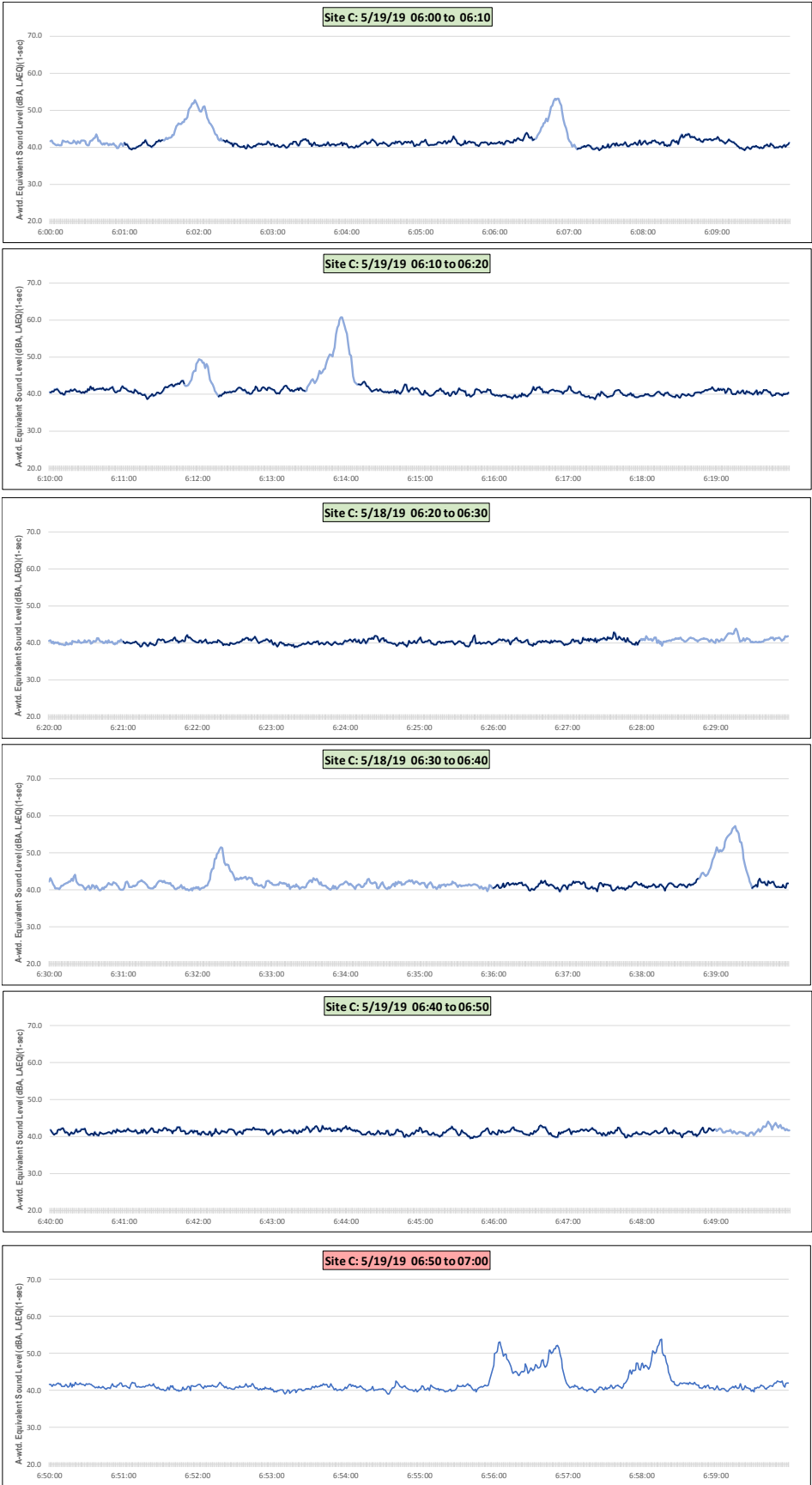
Note: All data for this shutdown ANS weighted.



0519A SiteC						Period to Exclude		
Exceedance		WAV file		WAV file		Time		
Time		WAV file	Start of	Elapsed	Type of Event	Start	End	Excluded
1	4:35:44	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	1:24:59	Car/Truck	4:35:44	4:36:17	0:00:33
2	4:49:08	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	1:38:23	Car/Truck	4:49:08	4:49:54	0:00:46
3	5:00:54	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	1:50:09	Car/Truck	5:00:54	5:01:28	0:00:34
4	5:08:28	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	1:57:43	Car/Truck	5:08:28	5:09:19	0:00:51
5	6:11:50	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:01:05	Car/Truck	6:11:50	6:12:16	0:00:26
6	6:13:28	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:02:43	Car/Truck	6:13:28	6:14:09	0:00:41
6/24/2019 DEB								
1	6:00:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	2:49:15	Exclude because of wind direction	6:00:00	6:00:59	0:00:59
2	6:01:32	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	2:50:47	Car/Truck	6:01:32	6:02:19	0:00:47
3	6:06:33	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	2:55:48	Car/Truck	6:06:33	6:07:06	0:00:33
4	6:20:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:09:15	Exclude because of wind direction	6:20:00	6:20:59	0:00:59
5	6:28:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:17:15	Exclude because of wind direction	6:28:00	6:29:59	0:01:59
6	6:30:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:19:15	Exclude because of wind direction	6:30:00	6:35:59	0:05:59
7	6:38:47	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:28:02	Car/Truck	6:38:47	6:39:30	0:00:43
8	6:49:00	2019-05-15_SLM_002_Audio_FS110.4dB(PK)_07.wav	3:10:45	3:38:15	Exclude because of wind direction	6:49:00	6:49:59	0:00:59
Note: No wind => 3.5 m/s during entire period								
						Total Excluded:		
						0:16:49		

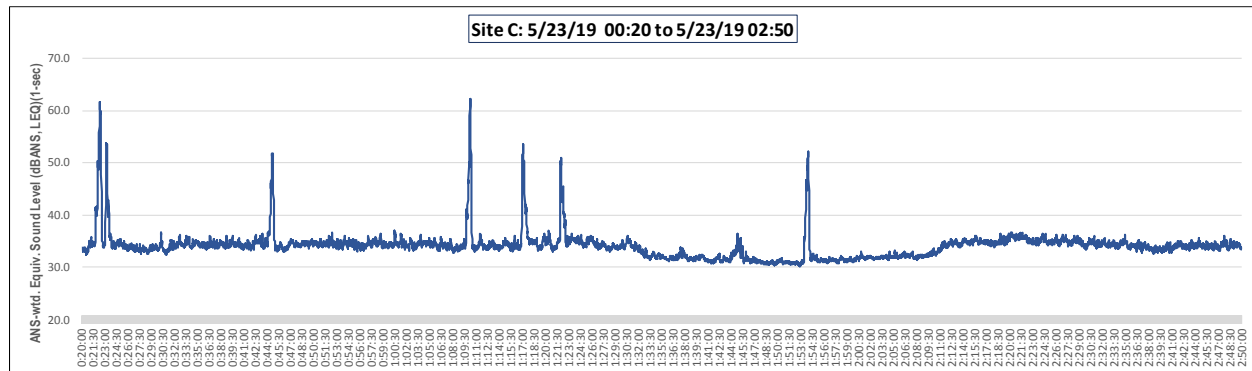
5/19/2019	5:27:00 off	35.5	ANS WEIGHTED		
Time	Leq	Duration			
4:20:00	37.6	10.0			
4:30:00	37.3	9.4			
4:40:00	38.0	9.2			
4:50:00	39.8	10.0			
5:00:00	39.7	8.6			
5:10:00	39.4	10.0			
6:00:00	41.0	7.6			
6:10:00	40.6	8.9			
6:20:00	40.3	7.0			
6:30:00	41.1	3.3			
6:40:00	41.3	9.0			
6:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
		5578	Total remaining	93.0 minutes	





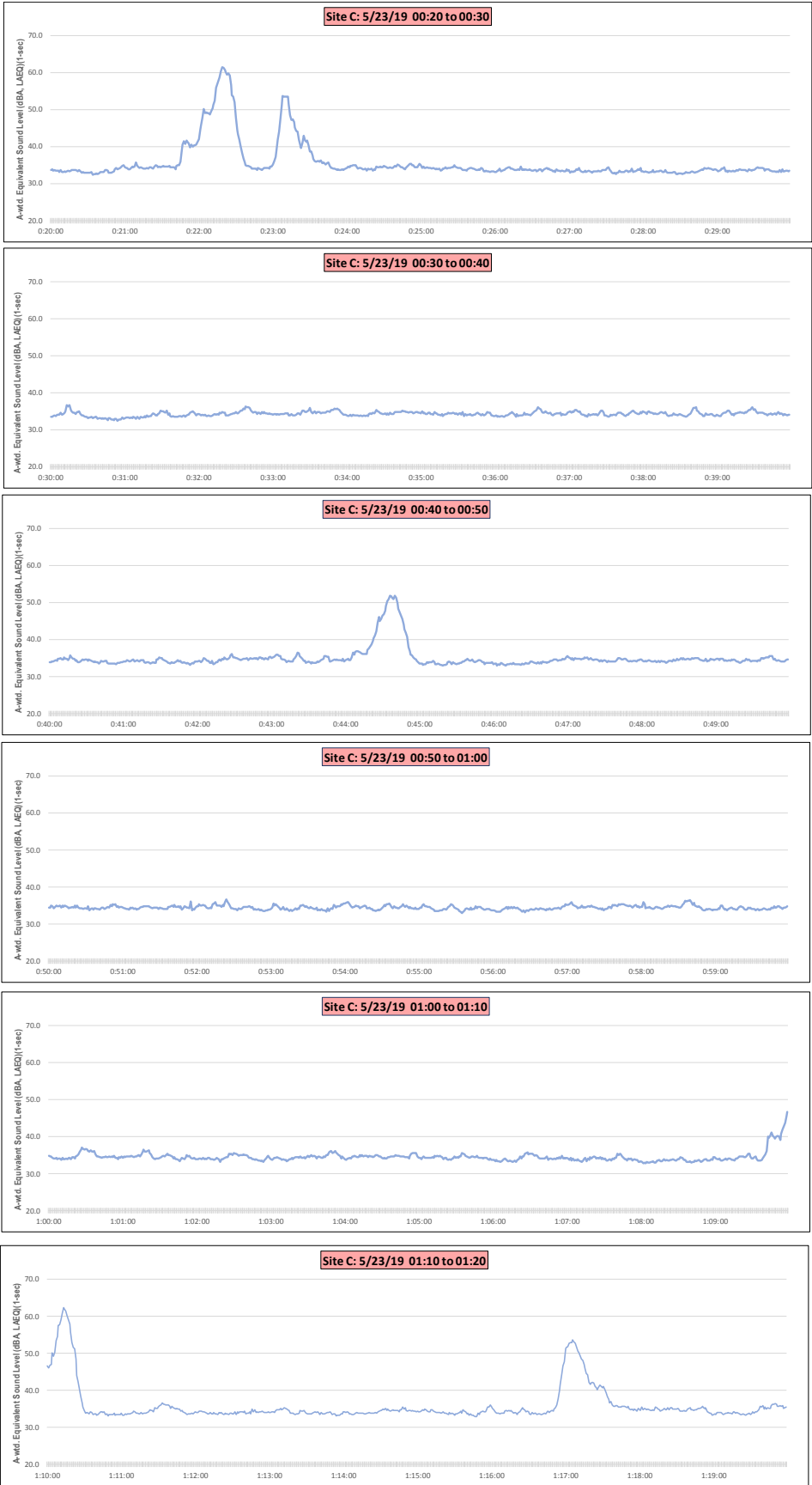
CURTAILMENT 13 - SITE C May 23, 2019 00:20 to May 23, 2019 02:50 (0523ASiteC)

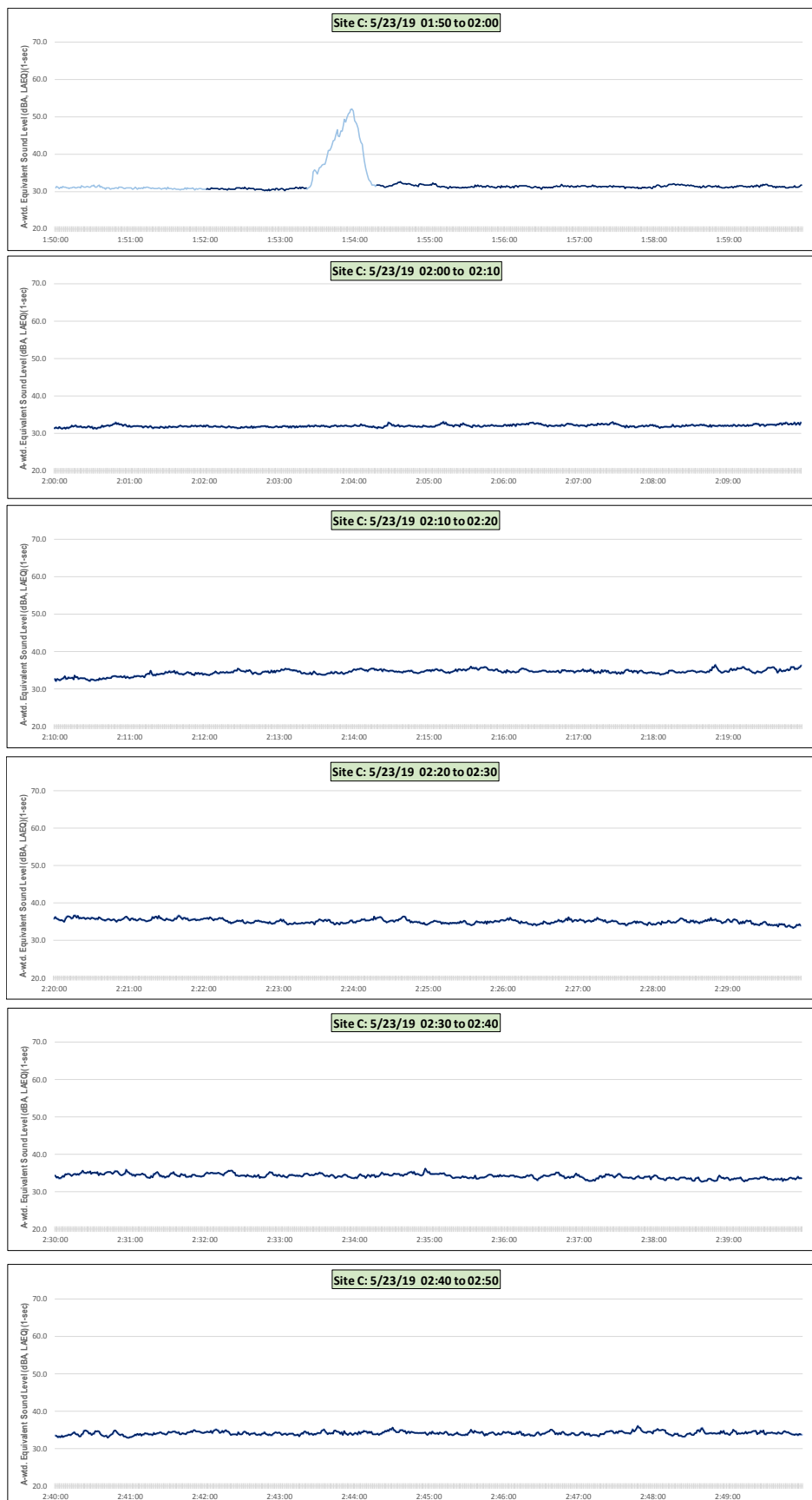
Note: All data for this shutdown ANS weighted.



0523A Site C							
Exceedance			Start of WAV file	WAV file		Period to Exclude	
	Time	WAV file		Elapsed Time	Type of Event	Start	End
1	1:50:00	2019-05-22_SLM_001_Audio_FS110.5dB(PK)_01.wav	0:56:35	0:53:25	Turbines turning back on	1:50:00	1:52:00
2	1:53:22	2019-05-22_SLM_001_Audio_FS110.5dB(PK)_01.wav	0:56:35	0:56:47	Car/Truck	1:53:22	1:54:17
Total Excluded:							0:02:55

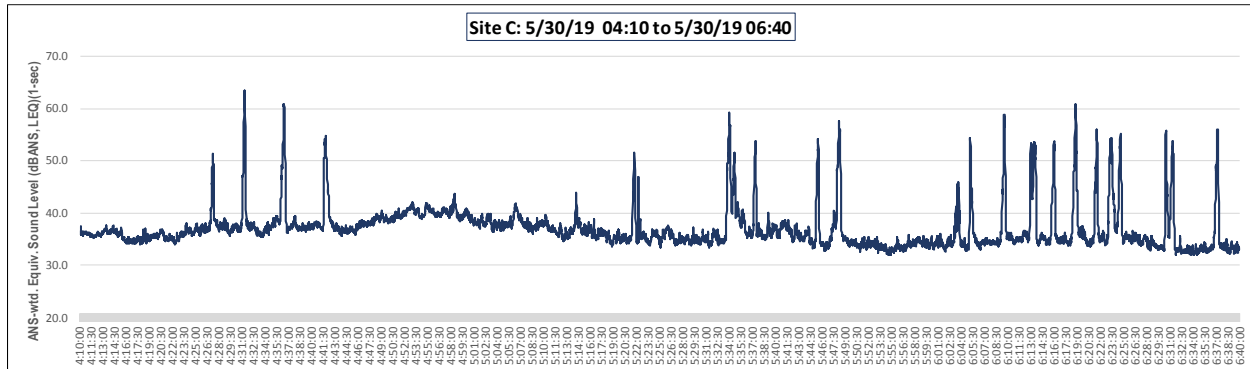
5/23/2019	1:24:00 off	32.6	ANS WEIGHTED		
Time	Leq	Duration			
0:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
0:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
1:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
1:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
1:50:00	31.3	7.1			
2:00:00	32.0	10.0			
2:10:00	34.6	10.0			
2:20:00	35.2	10.0			
2:30:00	34.2	10.0			
2:40:00	34.1	10.0			
3423 Total remaining			57.1 minutes		





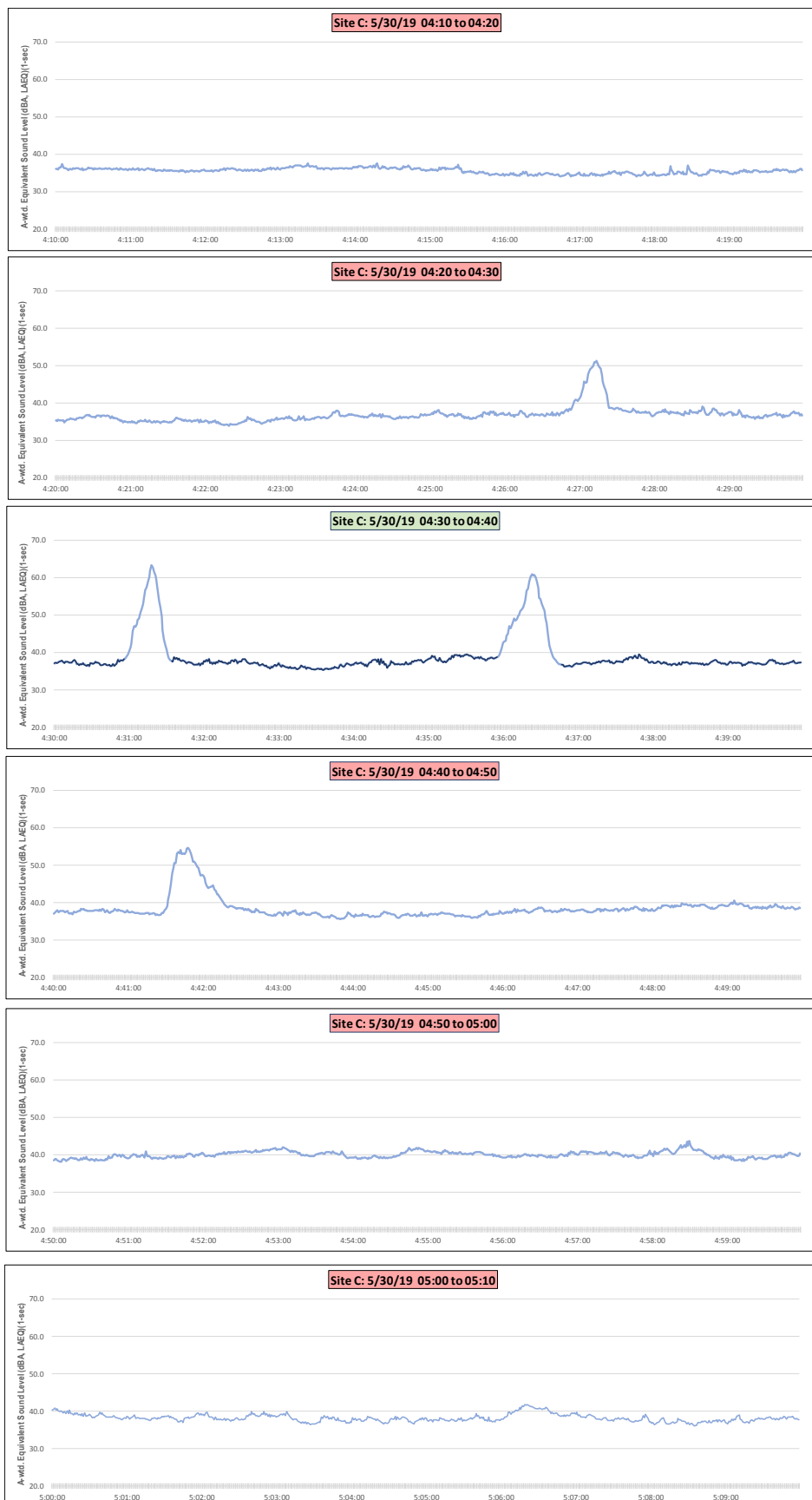
CURTAILMENT 16 - SITE C May 30, 2019 04:10 to May 30, 2019 06:40 (0530SiteC)

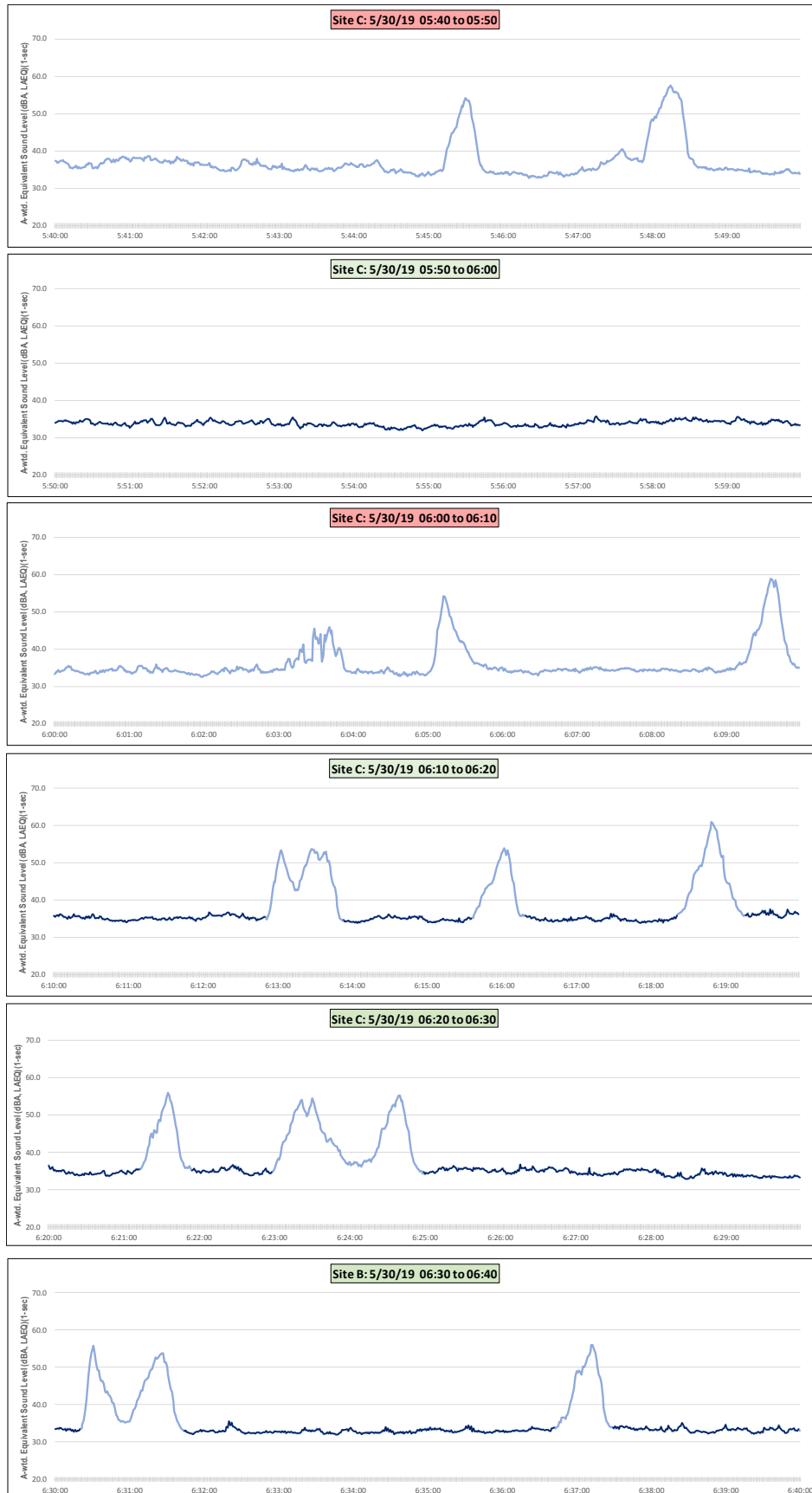
Note: All data for this shutdown ANS weighted.



0530 Site C						Period to Exclude		
Exceedance		WAV file		WAV file		Time		
Time		WAV file	Start of	Elapsed	Type of Event	Start	End	Excluded
1	4:30:57	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	1:20:35	Car/Truck	4:30:57	4:31:33	0:00:36
2	4:35:56	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	1:25:34	Car/Truck	4:35:56	4:36:46	0:00:50
3	6:12:51	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:02:29	Car/Truck	6:12:51	6:13:52	0:01:01
4	6:15:37	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:05:15	Car/Truck	6:15:37	6:16:18	0:00:41
5	6:18:22	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:08:00	Car/Truck	6:18:22	6:19:15	0:00:53
6	6:21:13	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:10:51	Car/Truck	6:21:13	6:21:53	0:00:40
7	6:22:59	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:12:37	Car/Truck	6:22:59	6:24:58	0:01:59
8	6:30:21	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:19:59	Car/Truck	6:30:21	6:31:43	0:01:22
9	6:36:43	2019-05-28_SLM_000_Audio_FS110.4dB(PK)_03.wav	3:10:22	3:26:21	Car/Truck	6:36:43	6:37:28	0:00:45
Note: No wind => 3.5 m/s during any intervals								
						Total Excluded:	0:08:47	

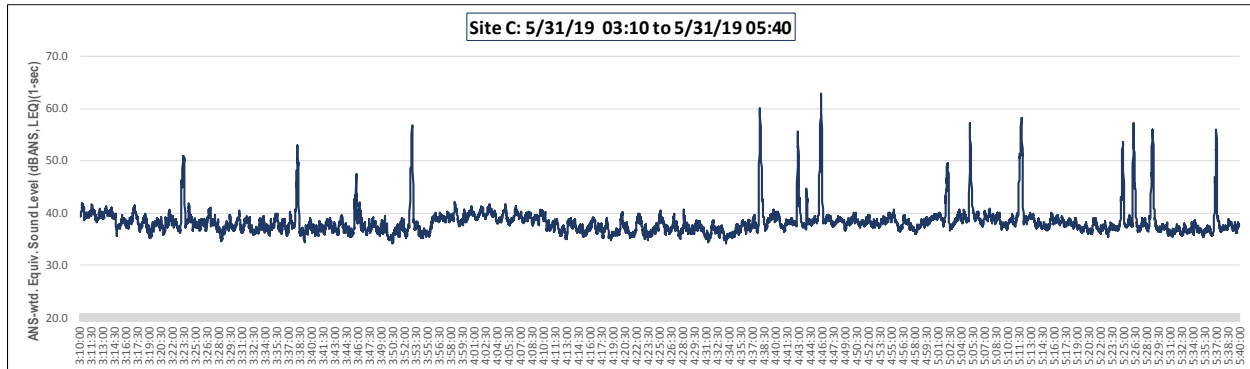
5/30/2019	5:16:00 off	35.4	ANS WEIGHTED		
Time	Leq	Duration			
4:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:30:00	37.3	8.5			
4:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
5:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
5:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
5:50:00	33.9	10.0			
6:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
6:10:00	35.1	7.4			
6:20:00	34.7	7.3			
6:30:00	33.1	7.9			
		2464	Total remaining	41.1 minutes	





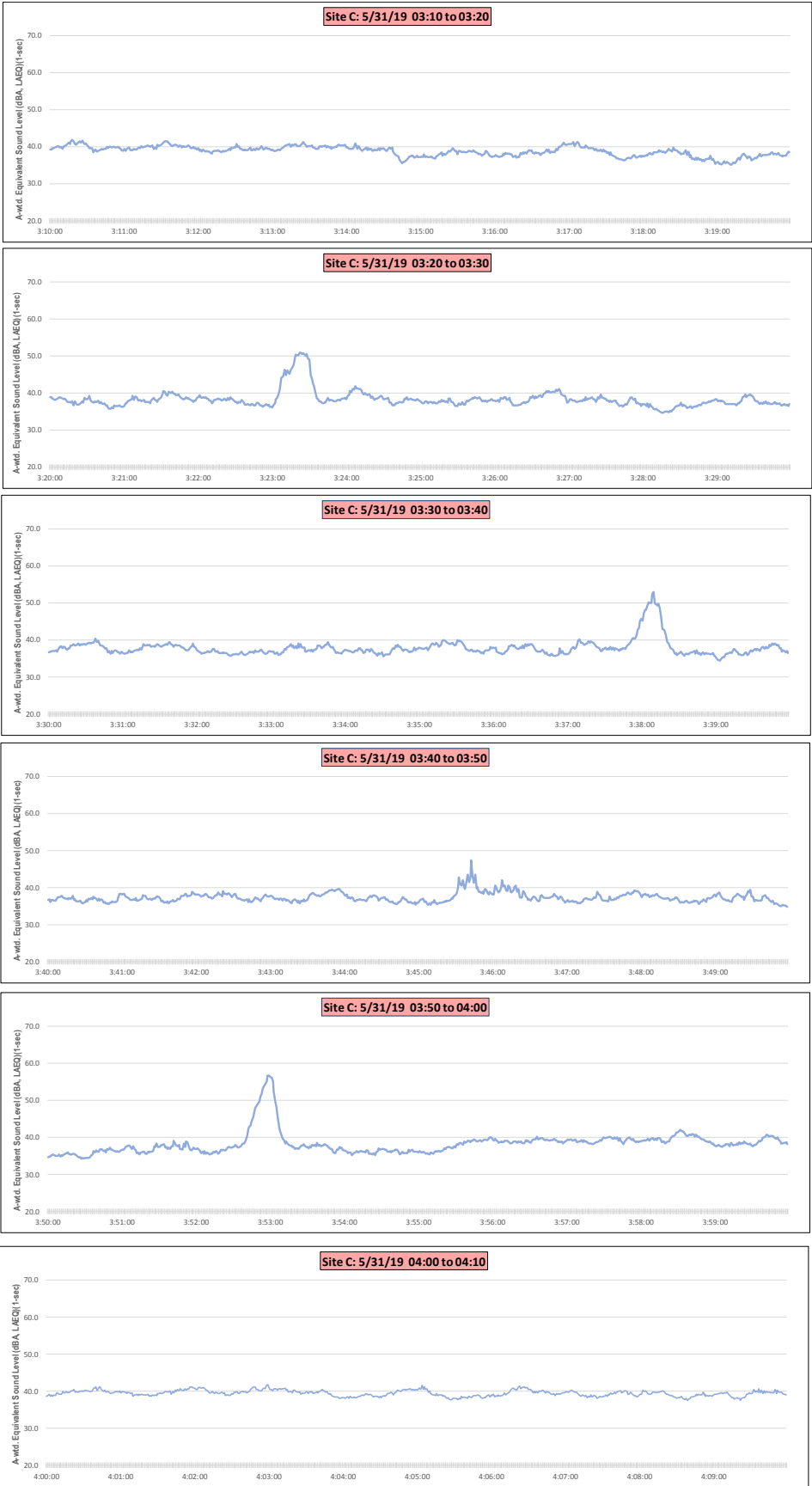
CURTAILMENT 17 - SITE C May 31, 2019 03:10 to May 31, 2019 05:40 (0531ASiteC)

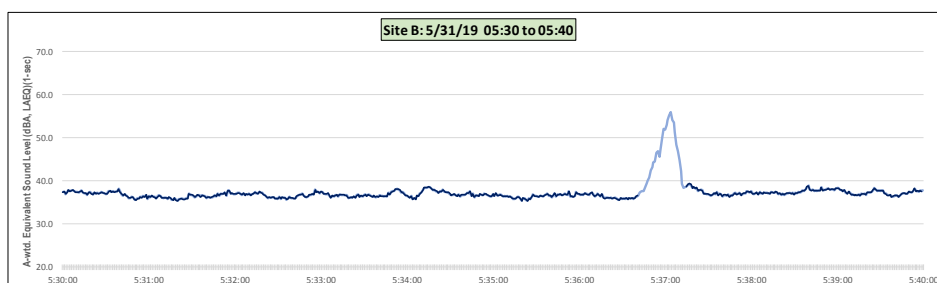
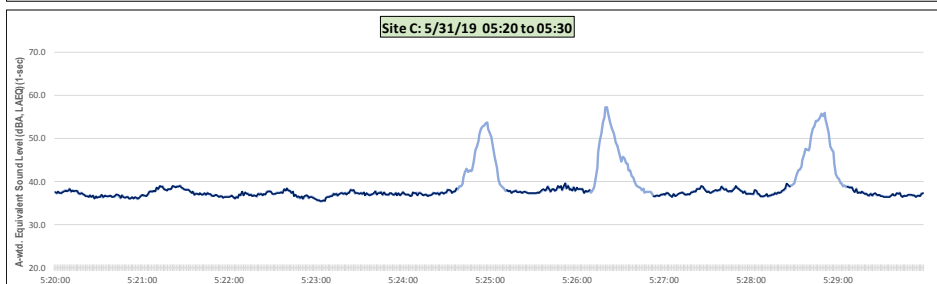
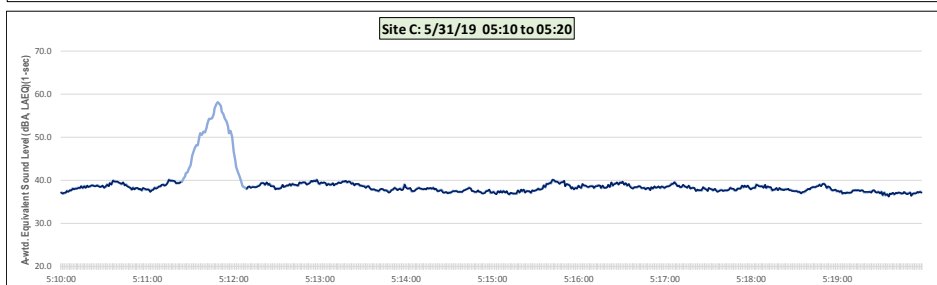
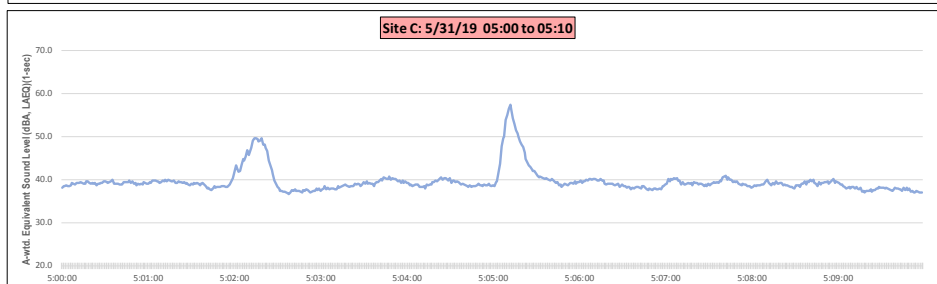
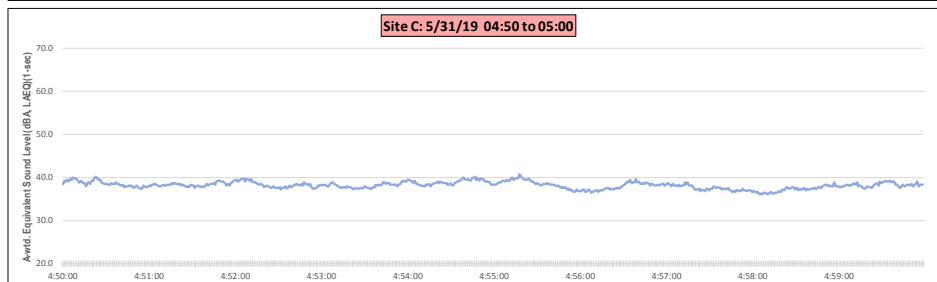
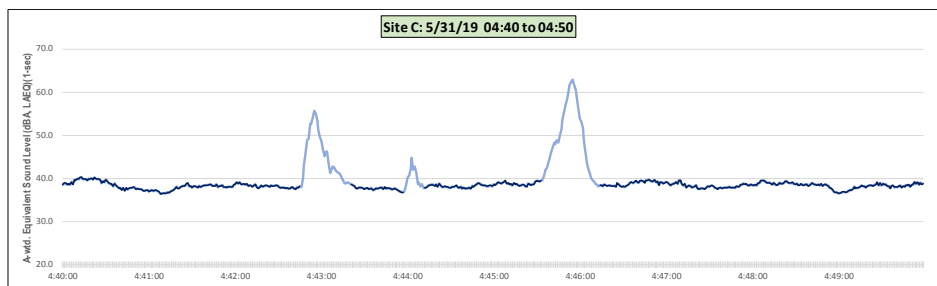
Note: All data for this shutdown ANS weighted.



0531A Site C						Period to Exclude		
Exceedance		WAV file		WAV file		Time		
Time				Start of	Elapsed	Type of Event	Start	End
1	4:42:46	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	3:16:28	Car/Truck	4:42:46	4:43:20
2	4:43:58	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	3:17:40	Car/Truck	4:43:58	4:44:11
3	4:45:34	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	3:19:16	Car/Truck	4:45:34	4:46:13
4	5:11:24	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	3:45:06	Car/Truck	5:11:24	5:12:08
5	5:24:38	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	3:58:20	Car/Truck	5:24:38	5:25:11
6	5:26:10	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	3:59:52	Car/Truck	5:26:10	5:26:52
7	5:28:28	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	4:02:10	Car/Truck	5:28:28	5:29:06
8	5:36:42	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_01.wav		1:26:18	4:10:24	Car/Truck	5:36:42	5:37:14
Note: No wind => 3.5 m/s during any intervals								
						Total Excluded:	0:04:35	

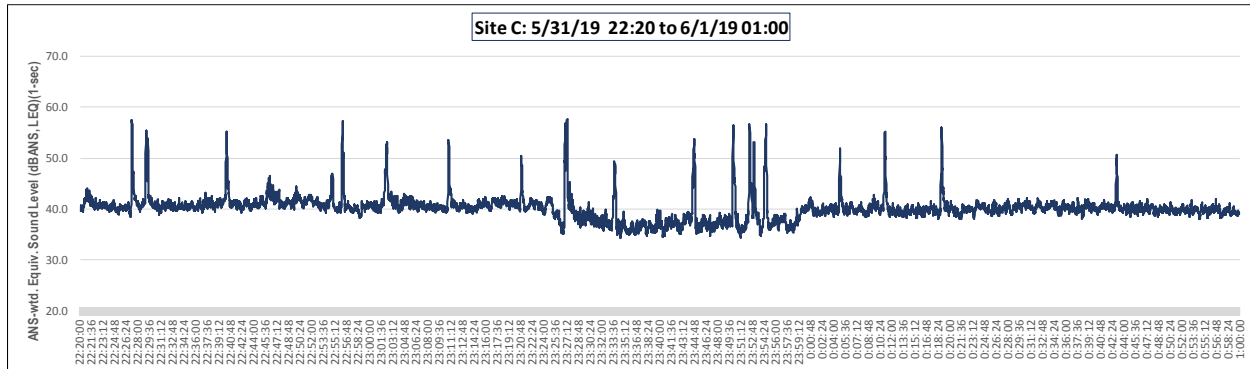
5/31/2019	4:11:00 off	37.2	ANS WEIGHTED		
Time	Leq	Duration			
3:10:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:20:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:30:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:40:00		0.0	EXCLUDED BY WEATHER SCREENING		
3:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
4:40:00	38.3	8.5			
4:50:00		0.0	EXCLUDED BY WEATHER SCREENING		
5:00:00		0.0	EXCLUDED BY WEATHER SCREENING		
5:10:00	38.2	9.3			
5:20:00	37.4	8.1			
5:30:00	37.0	9.5			
		2117	Total remaining	35.3	minutes





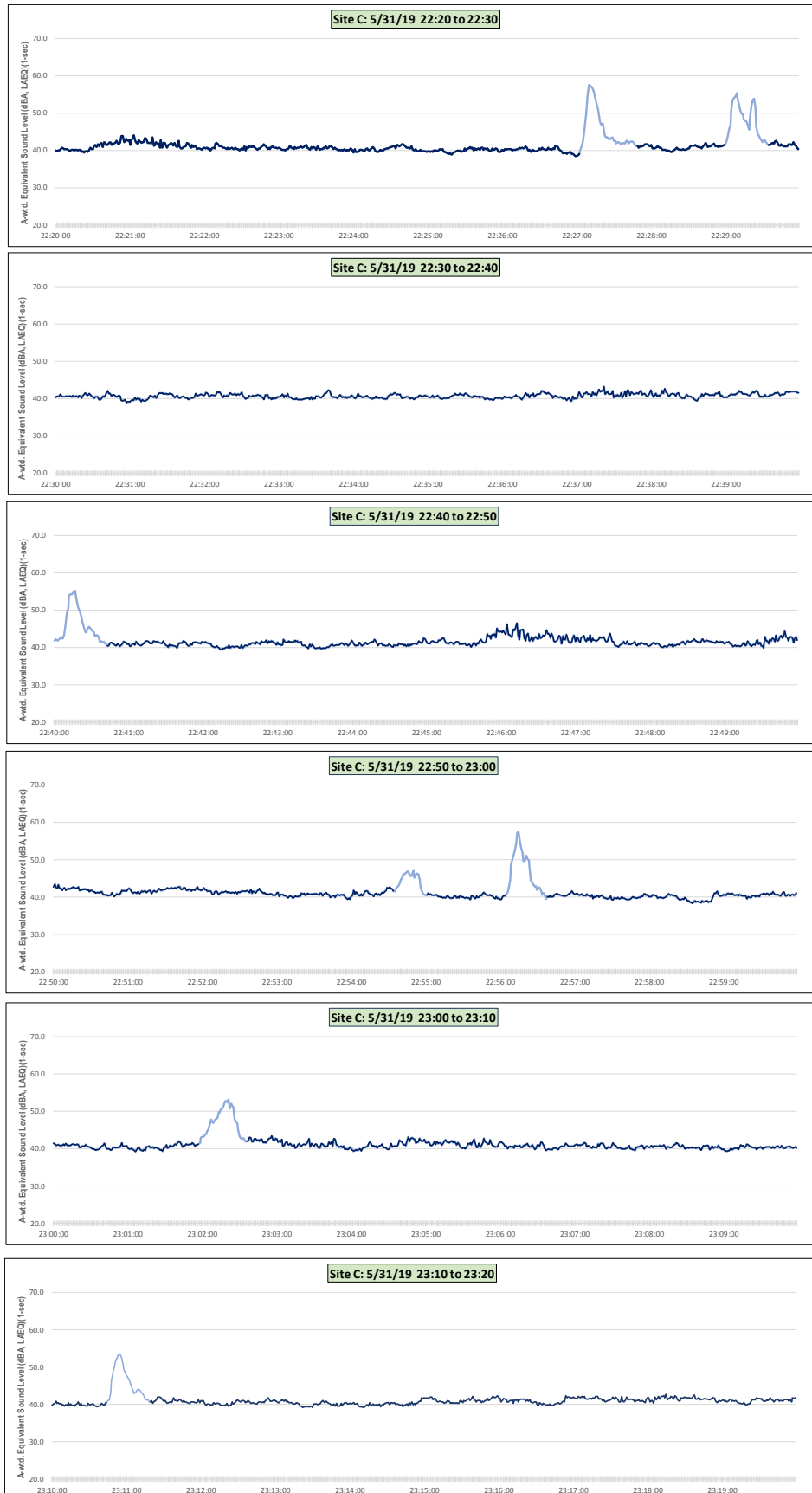
CURTAILMENT 18 - SITE C May 31, 2019 22:20 to June 1, 2019 01:00 (0531BSiteC)

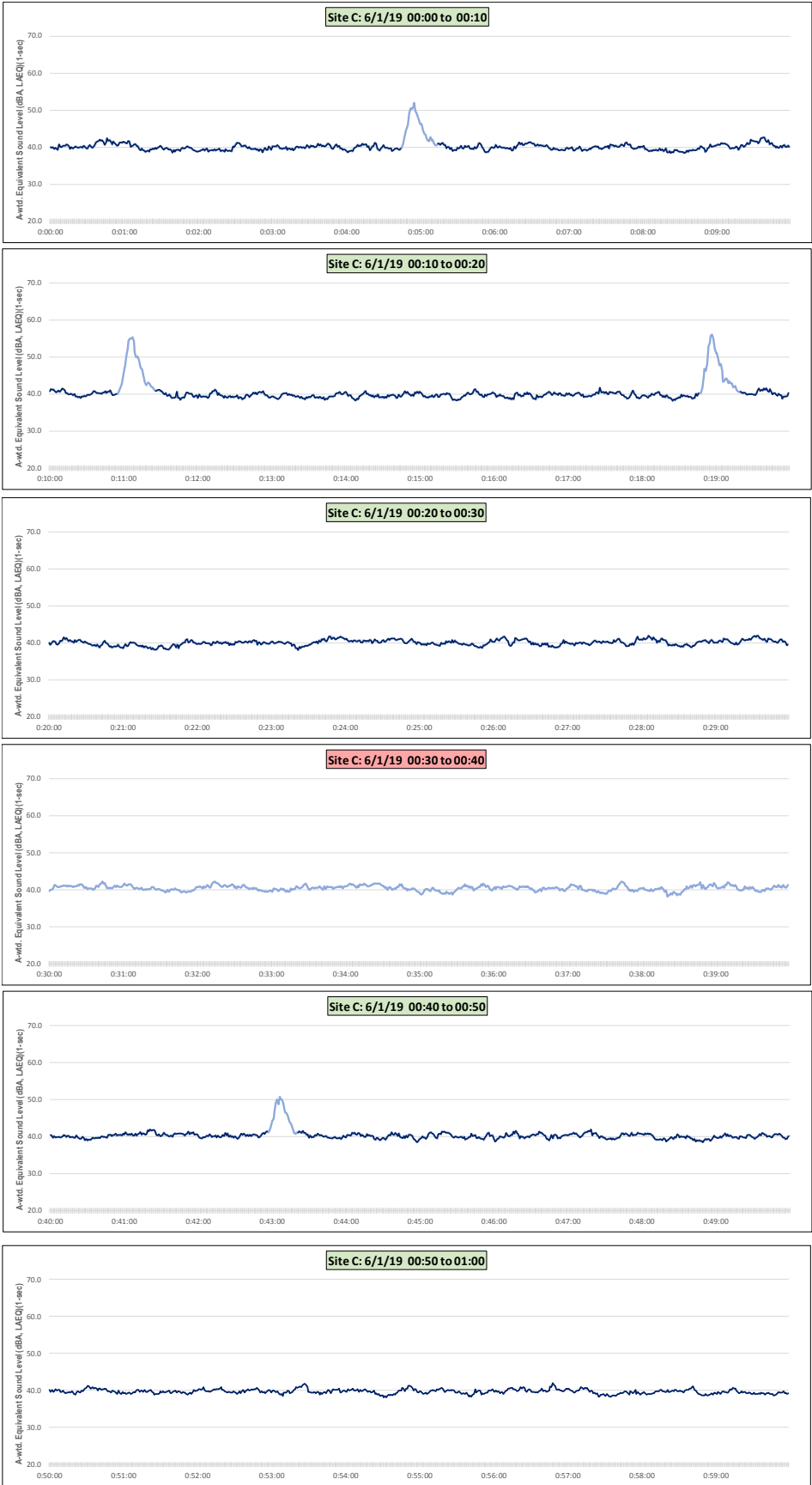
Note: All data for this shutdown ANS weighted.



0531B Site C						Period to Exclude		
Exceedance		WAV file		WAV file		Time		
Time			Start of	Elapsed	Type of Event	Start	End	Excluded
1	22:27:03	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:00:45	Car/Truck	22:27:03	22:27:48	0:00:45
2	22:29:00	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:02:42	Car/Truck	22:29:00	22:29:34	0:00:34
3	22:40:07	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:13:49	Car/Truck	22:40:07	22:40:42	0:00:35
4	22:46:00	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:19:42	Wind turbines (do not exclude)	22:46:00	22:48:00	
5	22:54:35	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:28:17	Car/Truck	22:54:35	22:55:00	0:00:25
6	22:56:05	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:29:47	Car/Truck	22:56:05	22:56:37	0:00:32
7	23:01:58	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:35:40	Car/Truck	23:01:58	23:02:35	0:00:37
8	23:10:45	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	9:44:27	Car/Truck	23:10:45	23:11:18	0:00:33
9	0:04:45	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	10:38:27	Car/Truck	0:04:45	0:05:13	0:00:28
10	0:10:55	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	10:44:37	Car/Truck	0:10:55	0:11:25	0:00:30
11	0:18:47	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	10:52:29	Car/Truck	0:18:47	0:19:19	0:00:32
12	0:42:57	2019-05-30_SLM_000_Audio_FS110.3dB(PK)_02.wav	13:26:18	11:16:39	Car/Truck	0:42:57	0:43:20	0:00:23
Note: No wind => 3.5 m/s during entire period								
						Total Excluded:		0:05:54

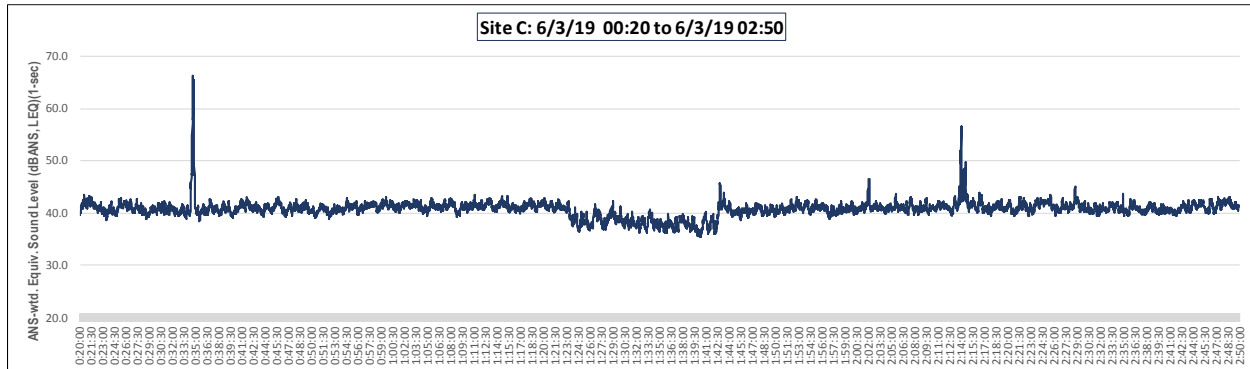
5/31/2019	23:26:00	off	37.2	ANS WEIGHTED		
Time	Leq	Duration				
22:20:00	40.8	8.7				
22:30:00	40.8	10.0				
22:40:00	41.5	9.3				
22:50:00	40.8	9.0				
23:00:00	40.8	9.4				
23:10:00	40.8	9.4				
0:00:00	40.0	9.5				
0:10:00	39.8	8.9				
0:20:00	40.1	10.0				
0:30:00		0.0	EXCLUDED BY WEATHER SCREENING			
0:40:00	40.1	9.6				
0:50:00	39.8	10.0				
		6228	Total remaining	103.8	minutes	





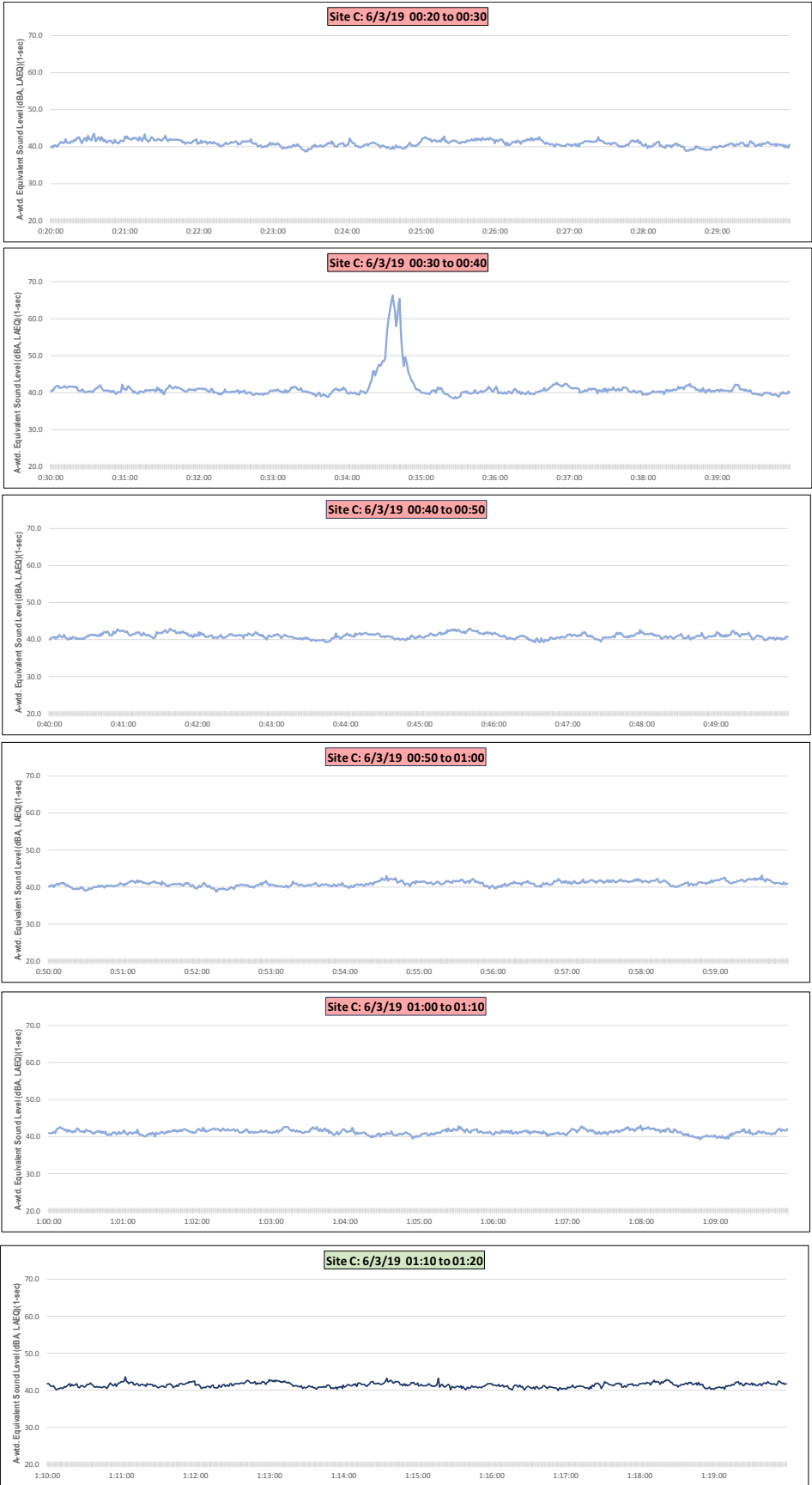
CURTAILMENT 19 - SITE C June 3, 2019 00:20 to June 3, 2019 02:50 (0603SiteC)

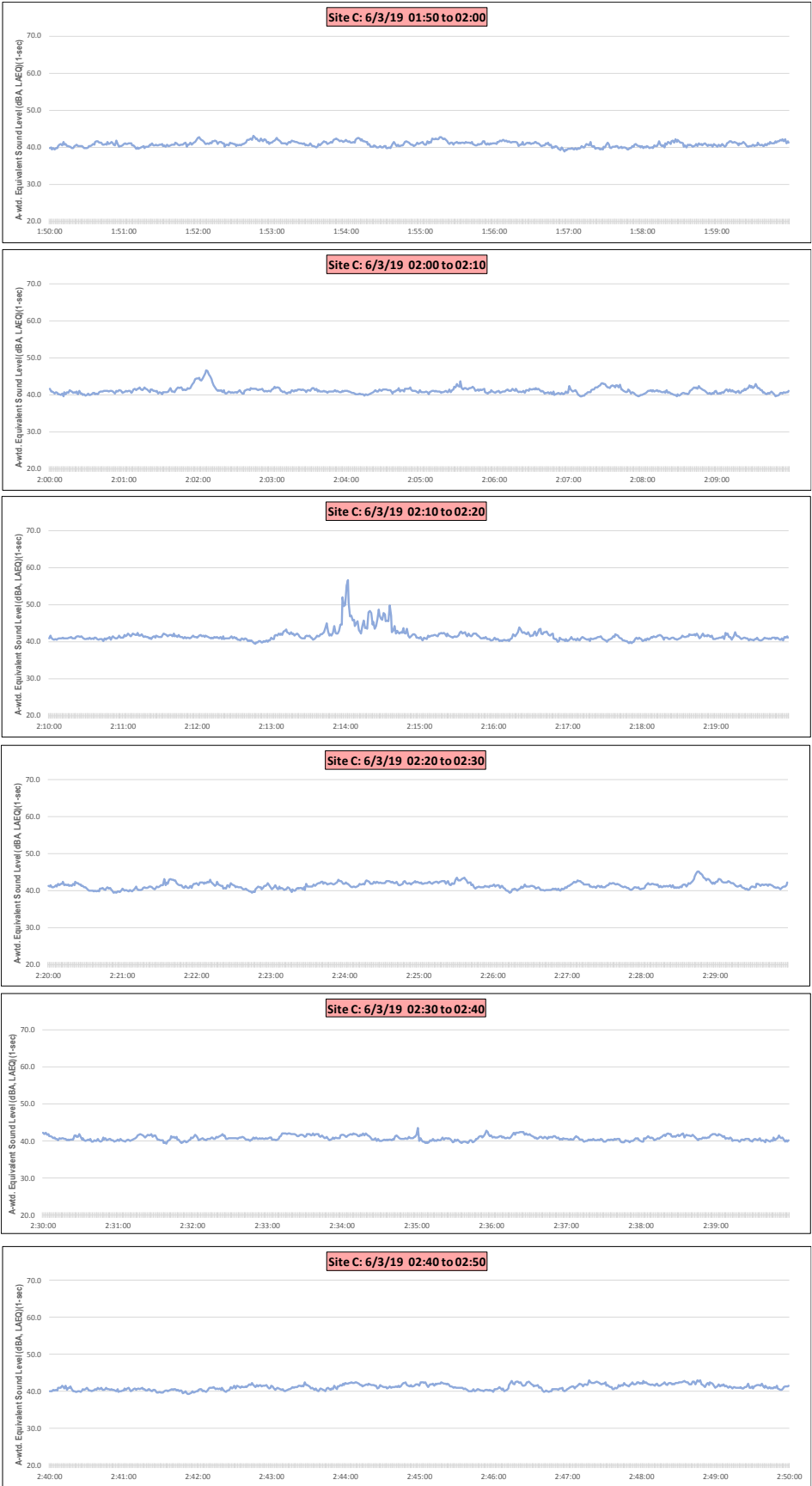
Note: All data for this shutdown ANS weighted.



0603 Site C			WAV file		Period to Exclude	
Exceedance Time	WAV file	Start of WAV file	Elapsed Time	Type of Event	Start	End
Note: No wind => 3.5 m/s during any intervals						
Total Excluded:						0:00:00

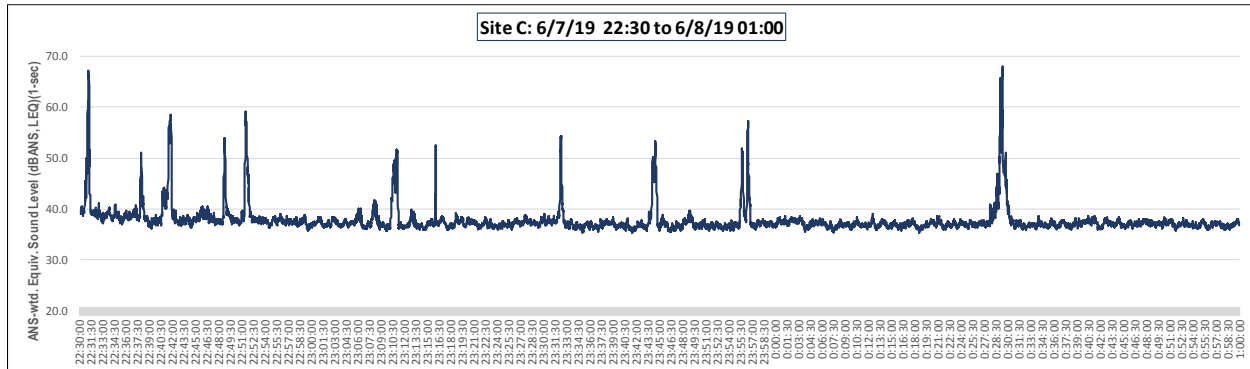
6/3/2019 23:34:00 PM off		38.3	ANS WEIGHTED	
Time	Leq	Duration		
0:20:00		0.0	EXCLUDED BY WEATHER SCREENING	
0:30:00		0.0	EXCLUDED BY WEATHER SCREENING	
0:40:00		0.0	EXCLUDED BY WEATHER SCREENING	
0:50:00		0.0	EXCLUDED BY WEATHER SCREENING	
1:00:00		0.0	EXCLUDED BY WEATHER SCREENING	
1:10:00	41.4	10.0		
1:50:00		0.0	EXCLUDED BY WEATHER SCREENING	
2:00:00		0.0	EXCLUDED BY WEATHER SCREENING	
2:10:00		0.0	EXCLUDED BY WEATHER SCREENING	
2:20:00		0.0	EXCLUDED BY WEATHER SCREENING	
2:30:00		0.0	EXCLUDED BY WEATHER SCREENING	
2:40:00		0.0	EXCLUDED BY WEATHER SCREENING	
		600 Total remaining	10.0 minutes	





CURTAILMENT 22 - SITE C June 7, 2019 22:30 to June 8, 2019 01:00 (0607SiteC)

Note: All data for this shutdown ANS weighted.



0607 Site C						Period to Exclude		
Exceedance		WAV file	WAV file		Type of Event	Start		Time Excluded
Time			Start of	Elapsed		End		
1	22:30:35	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:05:23	Car/Truck	22:30:35	22:31:23	0:00:48
2	22:37:46	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:12:34	Car/Truck	22:37:46	22:38:25	0:00:39
3	22:40:29	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:15:17	Aircraft + Car/Truck	22:40:29	22:42:00	0:01:31
4	22:48:34	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:23:22	Car/Truck	22:48:34	22:49:00	0:00:26
5	22:51:16	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:26:04	Car/Truck	22:51:16	22:52:00	0:00:44
6	23:10:11	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:44:59	Car/Truck	23:10:11	23:11:19	0:01:08
7	23:15:57	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	9:50:45	Aircraft (?) + Car/Truck	23:15:57	23:16:10	0:00:13
8	0:27:47	2019-06-07_SLM_000_Audio_FS110.4dB(PK)_00.wav	13:25:12	11:02:35	Car/Truck	0:27:47	0:30:29	0:02:42
Note: No wind => 3.5 m/s during any intervals								
						Total Excluded:		0:08:11

6/7/2019 23:34:00 PM off		36.8	ANS WEIGHTED		
Time	Leq	Duration			
22:30:00	38.7	8.5			
22:40:00	38.1	8.0			
22:50:00	37.7	9.3			
23:00:00	37.5	10.0			
23:10:00	37.1	8.6			
23:20:00	37.2	10.0			
0:00:00	37.2	10.0			
0:10:00	36.9	10.0			
0:20:00	37.1	7.8			
0:30:00	37.0	9.5			
0:40:00	37.3	10.0			
0:50:00	37.0	10.0			
		6700 Total remaining		111.7 minutes	

