APPENDIX L

MONTHLY AIR MONITORING REPORTS

EMILCOTT

Submitted to:
JCRA
Jersey City, NJ

Submitted by:
Emilcott
190 Park Avenue
Morristown, NJ 07960

Final Air Monitoring Report
Berry Lane Park, Sites 121 & 207
Jersey City, New Jersey

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Prepared By: David Tomsey

Reviewed By: Bruce Groves
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Executive Summary

Air monitoring conducted at the Berry Lane Park, Sites 121 and 207, was completed in accordance with the Site Specific Air Monitoring Plan (AMP), and included sampling and analysis for 8 hour integrated hexavalent chromium (Cr6) and total dust, as well as real time continuous monitoring for PM_{10} at nine (9) Air Monitoring Stations (AMS) (5 at the Site perimeter and 4 at the perimeter of the exclusion zone). In addition to the air monitoring conducted in accordance with the AMP, 24 hour Cr6 sampling with lab analysis was also conducted at two fenceline stations. This program was designed to measure various aspects of air quality at the Site to ensure that remedial activities at the Site did not have an adverse effect on Site workers and the surrounding community.

Results of the integrated Cr6 sampling and analysis indicate that project average airborne Cr6 concentrations were significantly below the Acceptable Air Concentration (AAC) at each of the AMS locations. The results and calculations document compliance with the AAC set by the New Jersey Department of Environmental Protection (NJDEP), confirming that dust control measures were effective, and indicate that the levels of Cr6 in dust generated at the Site did not generate an emission source of Cr6 sufficient to create potential offsite exposure to Cr6 at or exceeding the AAC.

1.0 Introduction

This final air monitoring report includes both tabular information and written discussions summarizing the ambient air quality data collected in accordance with the Air Monitoring Plan (AMP) at the Berry Lane Park, Sites 121 and 207 (referred herein as Site), in Jersey City, New Jersey.

This final report is designed to provide a summary of the air monitoring data collected between the baseline period and the end of the project. This final report includes final summaries of the following:

- Integrated hexavalent chromium (Cr6) analytical results;
- Integrated total dust analytical results;
- Real time 15 minute average PM_{10} concentrations; and
- Meteorological conditions.

Results have been evaluated and compared to the Site specific Acceptable Air Concentration (AAC) and the Action Levels in accordance with the AMP.

2.0 Air Monitoring

This report summarizes air monitoring at the Site performed between the baseline period and the end of the project. The baseline period includes data measured between July 12, 2012 and July 16, 2012. Routine sampling began on July 23, 2012 with the start of ground intrusive activities and was completed on February 26, 2013.

Nine Air Monitoring Stations (AMS) installed at the Site provided two layers of protection in terms of air monitoring. The first level of air monitoring (used as an early warning indicator) included 4 portable air monitoring (PAM) stations located at the boundary of the exclusion zone (active work area). The second level of air monitoring was conducted at 5 fixed air monitoring (FAM) stations at the fenceline of the Site. Figure 2-1 provides an overview of the Site and a typical configuration of the air monitoring stations. Daily air monitoring station locations are provided in Appendix A. Table 2-1 provides an overview of the air monitoring approach at each of the AMS.

Air monitoring results have confirmed protection of the community, and the effectiveness of the program. Concentrations measured at each AMS compared to the Site specific AAC for Cr6 have confirmed the effectiveness of the program.

Air monitoring data collected at the Site includes:

- 8 hour integrated Cr6 and total dust sample collection at the fenceline and the perimeter of the exclusion zone and associated laboratory analysis;
- 24 hour and 72 hour integrated Cr6 samples collected at the fenceline and laboratory analysis; and
- Real time 15 minute average PM_{10}, readings measured at the perimeter of the exclusion zone and fenceline;

This section outlines the types of data collected, frequency of collection, and the corresponding locations.

Figure 2-1: Site Overview

Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

Table 2-1: Air Monitoring Approach

		Integrated Air Monitoring	Real Time Air Monitoring
Fenceline	**FAM 1,2,3,4,5**	• Integrated 8 hour Cr6 and total dust sampling and analysis during work days (Typically Monday – Friday). 24 hour and 72 hour Cr6 sampling and analysis at 2 of the FAM stations (FAM 2 and FAM 4) 7 days per week.	15 minute average PM_{10} readings measured during a typical work day.
Exclusion Zone	**PAM 1,2,3,4**	• Integrated 8 hour Cr6 and total dust sampling and analysis during work days (Typically Monday – Friday).	• 15 minute average PM_{10} readings measured during a typical work day.

2.1 Integrated Air Sampling

Integrated Cr6 and total dust samples were collected at each of the fenceline and exclusion zone perimeter AMS for an 8 hour to 10 hour duration each working day (Typically Monday – Friday) at each of the nine AMS. Samples were collected on a preweighed polyvinyl chloride (PVC) 37mm filter cassette for both Cr6 and total dust. Sampling pumps operated at 2 liters per minute and were calibrated at the beginning and end of each sampling run.

2.1.1 Integrated Cr6 Sampling

The exposed Cr6 filters were shipped to an American Industrial Hygiene Association (AIHA) Industrial Hygiene Laboratory Accreditation Program (IHLAP) certified analytical laboratory for Cr6 analysis using Modified OSHA ID 215. The sample weights were provided by the laboratory with a laboratory detection limit of 20.0 ng. The flow information (carefully documented in the field) were utilized to calculate 8 to 10 hour integrated Cr6 air concentrations in nanograms per cubic meter of air (ng/m^3). Samples reported as non-detect are included in the concentration calculation at one half the laboratory detection limit for data reporting purposes.

In addition to sampling performed during working hours, 24 hour and 72 hour Cr6 sampling and analysis were also performed at 2 fenceline AMS. These longer duration samples showed Cr6 concentrations during overnight and weekend periods. The 24 hour samples were collected daily from 6AM to 6AM Monday through Thursday, and a single 72 hour sample was collected from 6AM Friday through 6AM Monday from each of the 2 AMS (FAM 2 and FAM 4).

2.1.2 Integrated Total Dust Sampling

The exposed total dust filters were shipped to an American Industrial Hygiene Association (AIHA) Industrial Hygiene Laboratory Accreditation Program (IHLAP) certified analytical laboratory for total particulate analysis using NIOSH method 0500. The sample weights were provided by the laboratory with a laboratory detection limit of 100 ug. The flow information (carefully documented in the field) was utilized to calculate 8 to 10 hour total dust concentrations in micrograms per cubic meter of air ($\mu g/m^3$). Samples reported as non-detect are included in the concentration calculation at one half the laboratory detection limit for data reporting purposes.

2.2 Real Time Air Monitoring

Real time air monitoring is divided into three types of monitoring including: fenceline air monitoring (at the Site property fenceline), exclusion zone monitoring (at the perimeter of the exclusion zone), and meteorological monitoring (at multiple fenceline locations). Each monitoring type is described in more detail in the following sections.

2.2.1 Fenceline

Fenceline air monitoring was performed at 5 FAM stations. Real time 15 minute average PM_{10} readings were measured at each of the five fenceline locations (All FAM stations operated 8 - 10 hours during remedial activities, Monday through Friday);

2.2.2 Exclusion Zone Perimeter

Exclusion zone perimeter air monitoring was performed at 4 PAM stations. Real time 15 minute average PM_{10} readings were measured at each of the four exclusion zone perimeter locations (PAM stations operated 8 - 10 hours during remedial activities, Monday through Friday);

2.2.3 Meteorological Measurements

Meteorological measurements of 15 minute average wind speed and direction, relative humidity, pressure, and temperature are recorded onsite at FAM 2.

3.0 Site Specific Acceptable Air Concentration and Real Time Action Levels

Site specific AAC and real time Action Levels have been developed for Cr6 and real time PM_{10} concentrations by NJDEP as part of the approved AMP, in compliance with risk assessment procedures. The AAC and real time Action Levels have been developed to protect off site receptors from potential adverse health impacts from Cr6 and particulates over the duration of the intrusive remediation activities.

Real time monitoring and integrated results were compared against the AAC and the real time Action Levels to alert Site management of the potential need to enhance control of emissions and curtail operations to maintain concentrations at levels below the specified criteria. The AAC and real time Action Levels for integrated Cr6 concentrations and real time PM_{10} are outlined in the following sections.

3.1 Integrated Cr6 Acceptable Air Concentration

The Site specific Cr6 AAC was developed by NJDEP to protect off site receptors from potential adverse health impacts due to potential exposure to Cr6 in dust. The AAC for Cr6 was developed to represent the maximum allowable average concentration of Cr6 in dust at each AMS over the project duration. In accordance with New Jersey regulatory requirements, the AAC represents a maximum level corresponding to a one in one million (1E-06) excess cancer risk to nearby residents due to potential exposure to Cr6 emanating from the Site.

The AAC of 49 ng/m^3 was applicable at the Site fenceline and represented the maximum allowable average concentration measured over the project duration and was developed to ensure the protection of human health. This AAC also provided a value to evaluate the effectiveness of dust control over the course of the project.

To ensure ongoing compliance with the AAC, shorter duration rolling averages were utilized to provide for the early and regular assessment of performance trends and, if necessary, allow for responsive corrective measures to be implemented to ensure that emissions of Cr6 were maintained well below the AAC over the duration of the project, and were minimized to the greatest extent practical. These shorter duration average concentrations metrics included: program to date, 90 day, 60 day, and 30 day running averages where the average Cr6 concentration over the previous 90 day, 60 day, and 30 day periods are calculated for each sample day. Sampling days are considered days where routine sampling was conducted (typically Monday – Friday). The shorter term average concentrations are compared against the list of metrics provided in Table 3-1 which also depicts respective response actions.

Table 3-1: Running Cr6 Metrics

Metric Observation	Response Action
30 day[1] Cr6 average concentration greater than or equal to 45 ng/m3	External meeting to review levels, evaluate activities each day when elevated concentrations were observed, and trigger corrective action if required.
60 day1 Cr6 average concentration greater than or equal to 40 ng/m3	
90 day1 Cr6 average concentration greater than or equal to 35 ng/m3	
[1] Sampling days.	

3.2 Real-Time Alert and Action Levels

Real time Alert and Action Levels were designed to monitor and assist in control of Site emissions to ensure protection of human health, and represent an important aspect of the remedial program at the Site. The real time Alert and Action Levels used on Site are shown in Table 3-2.

Table 3-2: Site Specific Alert and Action Levels

Parameter	Alert Level (15 min TWA)	Action Level (15 min TWA)
PM_{10}	250 µg/m^3	333 µg/m^3

4.0 Air Sampling and Monitoring Results

Results of air sampling and monitoring conducted between July 23, 2012 and February 26, 2013 are summarized herein. The following sections present both tabular and written discussions of the air sampling and monitoring results for the reporting period including:

Project integrated and real time results;

- Integrated and real time statistics;
- Evaluation of program success versus the Site specific AAC and Action Levels; and
- Meteorological results.

Air sampling and monitoring results are presented in detail in the Appendices of this report. Appendix A includes summary of the air sampling and monitoring results for each month of the project. Appendix B includes program statistics.

4.1 Integrated Air Sampling Results

Results of the integrated Cr6 and total dust sampling and analysis are presented in the following sections.

4.1.1 Cr6 Sampling Results

Individual integrated 8 hour Cr6 concentrations measured at the fenceline and exclusion zone perimeter for the project are presented in Table A-1. Any elevated concentration data during the project are listed and discussed in Table A-3.

Sampling and analytical statistics for integrated 8 hour Cr6 results are shown in Table B-1 and include various metrics relative to Cr6 analytical data. Monthly average 8 hour Cr6 concentration results are shown in Table B-2 for each AMS location.

A snapshot of the program to date, 30, 60, and 90 day running Cr6 average concentrations are shown in Table 4-1 and indicate that the Cr6 concentrations were well below the maximum acceptable Cr6 metrics for the project.

Table 4-1: Short Term Average 8 Hour Integrated Cr6 Metrics

Running Cr6 Metrics[1]		Fenceline					Exclusion Zone Perimeter			
	Metric (ng/m^3)	FAM 1 (ng/m^3)	FAM 2 (ng/m^3)	FAM 3 (ng/m^3)	FAM 4 (ng/m^3)	FAM 5 (ng/m^3)	PAM 1 (ng/m^3)	PAM 2 (ng/m^3)	PAM 3 (ng/m^3)	PAM 4 (ng/m^3)
30 day[2]	45	8.7	3.4	8.2	3.3	8.2	8.0	7.5	8.9	11.4
60 day[2]	40	8.7	3.4	8.2	3.3	8.2	NA	NA	9.0	11.8
90 day[2]	35	8.7	3.2	8.2	3.1	8.2	NA	NA	9.1	11.4
Project Completion		8.9	4.1	8.6	3.9	9.2	9.3	9.0	8.8	9.4

ng/m^3 – nanograms per cubic meter

[1] Running Cr6 metrics are utilized to provide for the early and regular assessment of performance trends and, if necessary, allow for responsive corrective measures to be implemented ensuring that emissions of Cr6 are maintained well below the AAC over the duration of the project, and are minimized to the greatest extent practical. The running Cr6 metrics are designed to evaluate the program success on short duration intervals (monthly) and do not represent the long term (program) ending success.

[2] Running Cr6 metrics are valid on the last day in the report period and include the previous 30, 60, or 90 days of sample results.

4.1.2 Total Dust Sampling Results

Individual integrated 8 hour total dust concentrations measured at the fenceline and exclusion zone perimeter during the reporting period are presented in Table A-2.

Sampling and analytical statistics for integrated total particulate are shown in Table B-3 and include various metrics relative to total dust analytical data. Monthly average total dust concentration results are shown in Table B-4 for each AMS.

4.1.3 Integrated Air Sampling Results Summary

There have been a total of 145 sample days between July 23, 2012 and February 26, 2013. The results of the sample analysis for the fenceline and the exclusion zone perimeter are summarized in the following sections.

Fenceline Air Monitoring

The program through the entire chrome remediation shows the 8 hour Cr6 average concentrations, based upon lab analytical results at each fenceline AMS, were less than 18.7% of the AAC, demonstrating that the dust control measures were effective.

Exclusion Zone Perimeter Air Monitoring

The program through the entire chrome remediation shows the 8 hour Cr6 average results at each exclusion zone perimeter AMS were less than 19.1% of the AAC. None of the exclusion zone Cr6 concentrations were shown to be greater than the project duration based AAC.

4.2 Real Time Air Monitoring Results

Real time air monitoring for PM_{10} was conducted at the fenceline (15 minute averages) and exclusion zone perimeter (15 minute averages) during remedial activities. The results of the real time air monitoring are presented in the following sections.

4.2.1 PM_{10} Monitoring Results

Real time fenceline and exclusion zone perimeter 15 minute PM_{10} averages measured during the project are presented in Figure A-1 and Figure A-2, respectively. Real time 15 minute PM_{10} averages were compared directly to the PM_{10} Action Level (333 $\mu g/m^3$) and averages greater than the Action Level were subject to additional evaluation. All Elevated PM_{10} averages are listed and discussed in Table A-3.

PAM stations were typically set up at cardinal directions around the current cell(s) being remediated. Cells were excavated, mixed, and loaded out in series (cell 2, 3, 4, and then 1). Cell 1 had 2 stations in use during remediation due to the light rail on the southern border and FAM 3 along Garfield Avenue. Station configuration and use is described below;

- 09.17.12 through 10.10.12 - PAM 1 not in use due to its close proximity to FAM 2;
- 11.01.12 - No Site activities due to weather;
- 11.07.12 - PAM stations not in use, nonhazardous earth work only;
- 11.22.12 & 11.23.12 - Site Holiday;
- 12.04.12 – FAM 2, 3 & PAM 3, 4 set up to monitor mixing operations if applicable. No chromium cleanup;

- 12.10.12 – Monitoring suspended due to persistent rain and snow;
- 12.21.12 – Monitoring suspended due to persistent rain and snow;
- 12.24.12 & 12.25.12 – Site Holiday;
- 12.28.12 – FAM 4 & 5 not in use due to flooding. Could not safely operate station.
- 12.31.12 – FAM 3, PAM 3 & 4 in use during mixing in Cell #1 only.
- 01.01.13 – Air monitoring suspended due to persistent rain and snow.
- 01.16.13 – Air monitoring suspended due to persistent rain and snow.
- 02.08.13 - Air monitoring suspended due to persistent rain and snow.
- 02.11.13 - Air monitoring suspended due to persistent rain and snow.
- 02.18.13 - Site Holiday

Real time PM_{10} averages are shown in Table B-5 for each AMS. Dust readings collected during the project are similar to those during the baseline period (when no intrusive activities were occurring). This indicates that dust control measures during intrusive activities have been effective.

4.3 Meteorological Monitoring Results

Time series plots for wind speed, temperature, and relative humidity for the reporting period are show in Figure A-3 through Figure A-5, respectively.

4.4 Site Activities

Real time monitoring and analytical sampling was conducted during all intrusive site activities. The start of the project required extensive tree and vegetation removal and grubbing accompanied by removal and demolition of previous occupants. In conjunction, sheet piles were installed at the limits of the canal starting with cell two. The upper layer of nonhazardous material in the cell was removed and reused for mixing or other site needs. The impacted chromium portion was mixed with overburden and a soil stabilizer then stockpiled before loading out. Excavation and processing of chrome impacted soils was almost constant with additional excavating, grading, demolition, crushing, hauling and importing of fill conducted outside the exclusion zone. Dust suppression was in place for the duration of the project but the additional activities in the nonhazardous portions of the site were the primary contributor to elevated readings across the jobsite.

Once a cell was near completion, materials were moved to the adjacent cell and the process was repeated. The sequence of chromium processing and removal was cell two, cell three, cell four, then cell one. PAM stations were moved as the work progressed to incorporate all chrome impacted activities. Once cell one, the last in the sequence, was complete, monitoring was complete on February 26, 2013. Additional earthwork outside the exclusion zone continued after this date.

4.5 Site Map(s)

Project site maps are documented and included in Figure A-6.

5.0 Conclusions

Results indicate that the air sampling and monitoring program at Berry Lane Park, Sites 121 and 207, showed average Cr6 concentrations for each fenceline and exclusion zone AMS were well below the AAC of 49 ng/m^3. The program shows the Cr6 concentrations, percent Cr6 in dust samples, and the short duration metrics demonstrate that the dust control measures were effective at maintaining concentrations of Cr6 in dust at the Site well below the AAC. These results indicate that dust generated at the Site contained very small percentages of Cr6 and did not generate an emission source of Cr6 sufficient to create potential offsite exposure to Cr6 at or exceeding the AAC.

Appendix A

Monthly Results Summaries

- Integrated 8 Hour Cr6 Concentrations
- Integrated 8 Hour Total Dust Concentrations
- Real time PM_{10} Concentrations
- Meteorological Data
- Site Map(s)

Table A- 1: Daily Integrated 8 Hour Cr6 Sampling Results

August

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
08/01/12	9.5	3.25	8.5	3.2	9	9.5	9.5	9	9.5
08/02/12	8	3.3	8	3.35	7.5	20	7.5	8	8
08/03/12	8	3.4	7.5	3.45	7.5	8	5	21	8
08/06/12	6	3.3	6.5	3.25	6.5	6.5	6.5	6	15
08/07/12	6.5	3.25	6.5	3.25	6.5	6.5	6.5	6.5	14
08/08/12	6.5	3.35	6.5	3.3	6.5	6.5	6.5	6.5	6.5
08/09/12	7.5	3.25	7.5	3.25	7.5	7.5	7.5	7.5	7.5
08/10/12	7	3.3	7.5	1.2	8	7.5	7.5	7.5	7.5
08/13/12	6.5	3.25	6	3.25	6.5	6.5	6.5	6.5	6.5
08/14/12	7.5	3.25	7.5	3.3	7.5	7.5	7.5	7.5	7.5
08/15/12	6.5	3.35	6.5	3.3	6.5	6.5	6.5	6.5	6.5
08/16/12	6	3.35	6.5	3.35	6.5	6.5	6.5	6.5	6.5
08/17/12	15	9.8	7.5	7.8	7.5	7.5	7.5	16	7.5
08/20/12	5.5	3.3	5.5	3.25	5.5	5.5	5.5	5.5	5.5
08/21/12	6.5	3.3	7	3.3	7	7	7	7	7
08/22/12	8	3.4	8	3.25	7.5	8	NA	7.5	7.5
08/23/12	7.5	3.15	7.5	7.5	7.5	7.5	7.5	7.5	7.5
08/24/12	7.5	3.25	8	6.7	8	8	8	8	8
08/27/12	7.5	3.15	8	3.15	8	8	NA	7.5	8
08/28/12	7.5	3.55	8	3.35	8	8	8	8	8
08/29/12	7.5	3.3	8.5	3.5	8	8	8	8	8
08/30/12	15	8.2	7.5	3.25	7.5	7.5	7.5	7.5	7.5
08/31/12	7.5	6.9	17	8	8.5	8	7.5	8	8

Highlighted cells indicate a detectable level of hexavalent chromium

September

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
09/04/12	7.5	3.5	8	3.35	7.5	7.5	7.5	7.5	7.5
09/05/12	7.5	7.1	8	3.35	8	NA	8	8	7.5
09/06/12	7	14	NA	NA	NA	22	7.5	7.5	7.5
09/07/12	7.5	3.25	8	3.35	8	8	7.5	7.5	7.5
09/08/12	8.5	4.8	8.5	1.52	80	8	8	18	8.5
09/10/12	6.5	3.35	7	3.5	7	7	7	7	7
09/11/12	13	3.5	7	3.5	6.5	7	7	7	7
09/12/12	18	11	7	3.45	15	25	7	7	7
09/13/12	7	19	7	3.55	7	25	7	21	16
09/14/12	7.5	3.1	8	1.15	8	18	8	8	8
09/17/12	7	3.3	7	3.55	7	NA	7.5	7	7
09/18/12	6.5	3.4	6.5	3.3	6.5	NA	7	6.5	6.5
09/19/12	7	7	25	9	8	NA	8	8	7.5
09/20/12	8	3.8	7	3.3	7	NA	6.5	21	14
09/21/12	7.5	2.65	8	11	8	NA	8	8	8
09/24/12	7	3.25	7.5	3.5	7.5	NA	7	7	7
09/25/12	16	9.9	7	7.7	14	NA	7.5	7.5	8
09/26/12	7	15	7.5	3.5	28	NA	7	7	7.5
09/27/12	7.5	3.3	7.5	3.35	7	NA	7	7	7
09/28/12	7.5	1	8.5	5	7	NA	8	8	8

Highlighted cells indicate a detectable level of hexavalent chromium

October

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
10/01/12	7	3.3	7.5	3.4	7.5	NA	7	7.5	7.5
10/02/12	8	3.25	8	3.52	7.5	NA	7.5	8	8
10/03/12	7	3	7.5	3.5	7.5	NA	7.5	8	7
10/04/12	8.5	3.51	9	2.4	8.5	NA	8.5	9	8.5
10/05/12	8	3.1	7.5	2	7.4	NA	7.4	7	7.4
10/08/12	7	3.25	16	6.2	16	NA	17	7.5	7.5
10/09/12	7.5	7.5	8.5	3.35	8	NA	8.5	8.5	20
10/10/12	7.5	9.4	8	12	7.5	NA	8	8	7.5
10/11/12	22	12	19	19	20	NA	43	21	23
10/12/12	24	2.8	17	5.1	7	9	7	6.5	19
10/15/12	8.5	3.35	8	3.15	8	8.5	8.5	8	8
10/16/12	7	3.7	7	3.55	7	7	7	7.5	18
10/17/12	8.5	3.3	7.5	3.25	8	8.5	10.5	8.5	8.5
10/18/12	8.5	3.4	8.5	3.35	8.5	8.5	8	5	7.5
10/19/12	17	1.1	2.7	1.05	27	16	13.5	27	15
10/22/12	6.5	3.4	7.5	3.2	7.5	7.5	7.5	7	8.5
10/23/12	7.5	2.25	8	3.35	8.5	8.5	8.5	NA	8
10/24/12	8	3.65	8	3.4	7.5	8	7.5	7.5	5.5
10/25/12	8	3.2	8	3.3	8.5	8	8.5	8	8
10/26/12	8	NA	8	NA	8	8	8	8	8

Highlighted cells indicate a detectable level of hexavalent chromium

November

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
11/01/12	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/02/12	8	NA	8.5	NA	8	8.5	8	8	7
11/05/12	NA	3.25	8	NA	8.5	8.5	23	8.5	8.5
11/06/12	8.5	3.35	8.5	3.35	8.5	8	8	8.5	8.5
11/07/12	10	3.2	11.5	3.25	11	NA	NA	NA	NA
11/08/12	8	3.55	8.5	3.55	8	NA	NA	8	NA
11/09/12	8	2	NA	10.5	8	9.5	9	8.5	8.5
11/12/12	8.5	3.15	8	3.55	7.5	9	8	8.5	8
11/13/12	8.5	3.45	8.5	3.25	7.5	8.5	8	8.5	7
11/14/12	8.5	3.2	9	3.3	8.5	8	7.5	9	8
11/15/12	7.5	3.25	7.5	2.2	NA	7.5	8	8	7
11/16/12	22	4.4	8	1.1	7.5	7.5	19	7.5	8
11/17/12	NA	NA	26	NA	12	NA	11	11.5	NA
11/22/12	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/26/12	8	3.25	8	7.2	8	8	7.5	8	8
11/27/12	13.5	3.2	12	3.3	13.5	14	13	13	9
11/28/12	7.5	3.15	7.5	3.2	7	7.5	7.5	7	7
11/29/12	8.5	8.1	8	2.2	9	NA	NA	8.5	8
11/30/12	7.5	1.1	8	1.05	8	NA	NA	8	8.5

Highlighted cells indicate a detectable level of hexavalent chromium

December

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
12/03/12	8	NA	8	3.15	8.6	NA	NA	7.5	7
12/04/12	NA	3.3	8	NA	NA	NA	NA	8	7
12/05/12	9	3.35	8	3.25	8	NA	NA	8	8
12/06/12	8	3.4	7.5	3.25	7	NA	NA	7.5	7
12/07/12	NA	1.1	7.5	1.05	8	NA	NA	7	7
12/10/12	8.5	3.25	7.5	3.2	8.5	NA	NA	8	7.5
12/11/12	8.5	3.05	8	3.15	8	NA	NA	8	7.5
12/12/12	9	3.35	8.5	3.2	8	NA	NA	8.5	8
12/13/12	8	1.05	7	1.1	8.5	NA	NA	8	7.5
12/14/12	8.5	3.15	8.5	3.25	8	NA	NA	8	7.5
12/17/12	8	3.25	8	3.25	7.5	NA	NA	8	8
12/18/12	8	3.1	8	3.2	8	8	7.5	NA	NA
12/19/12	9	3.3	8	3.25	8.5	NA	NA	8.5	8
12/20/12	8	3.15	8	3.25	8.5	NA	NA	8	8
12/26/12	NA	3.75	8.5	NA	8	NA	NA	8.5	8
12/27/12	8.5	NA	8.5	NA	9	NA	NA	8	NA
12/28/12	8.5	NA	8	NA	NA	NA	NA	8	NA
12/31/12	9	NA	NA	NA	NA	NA	NA	10.5	35

Highlighted cells indicate a detectable level of hexavalent chromium

January

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
01/03/13	8.5	3.4	8	3.55	8	NA	NA	32	8
01/04/13	9	3.4	8.5	3.2	8	NA	NA	17	40
01/05/13	9.5	3.85	9.5	3.1	10	NA	NA	9	8.5
01/07/13	9	3.3	8	3.3	9	NA	NA	8	16
01/08/13	9	3.2	8	3.1	8	NA	NA	8.5	7.5
01/09/13	9	3.35	8	3.2	8.5	NA	NA	8.5	7.5
01/10/13	8	3.4	8	3.3	7.5	NA	NA	7.5	7.5
01/11/13	8	1.1	8	1.1	8	NA	NA	8	23
01/14/13	8	3.25	8	3.2	8	NA	NA	8	7.5
01/15/13	8.5	3.2	8	3.1	8	NA	NA	8	7.5
01/17/13	8	3.35	8	3.25	8	NA	NA	8	8
01/18/13	8.5	1.1	8.5	1.1	8	NA	NA	8.5	8
01/21/13	8	3.15	8	3.2	8	NA	NA	8.5	8
01/22/13	8	3.15	8	3.3	8	NA	NA	8.5	8
01/23/13	7.5	3.2	7.5	3.2	7.5	NA	NA	7.5	74
01/24/13	NA	3.3	8	3.2	8	NA	NA	7.5	8
01/25/13	9	2.6	8	1.05	8.5	NA	NA	8	8
01/28/13	9	3.3	9	3.2	8	NA	NA	9	8.5
01/29/13	8	3.25	9	3.3	7.5	NA	NA	7.5	7
01/30/13	9	3.15	8	3.3	8.5	NA	NA	8	8
01/31/13	9	3.2	8.5	3.2	8	NA	NA	8	NA

Highlighted cells indicate a detectable level of hexavalent chromium

February

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
02/01/13	9	1.1	8	1.1	8.5	NA	NA	8	8
02/04/13	9.5	3.35	8.5	3.3	8	NA	NA	8	8
02/05/13	8.5	3.3	8	3.2	8	NA	NA	8	7.5
02/06/13	9	3.15	8.5	3.25	8.5	NA	NA	8	8
02/07/13	9.5	3.35	8.5	3.3	8	NA	NA	8	8
02/12/13	10	3.3	8	3.2	8.5	NA	NA	8	7.5
02/13/13	9	3.35	8.5	3.25	8.5	NA	NA	8.5	7.5
02/14/13	9	3.25	8	3.2	8.5	NA	NA	8	7.5
02/15/13	9	11	8	11	8	NA	NA	8.5	8
02/19/13	8	3.4	7.5	8	8	NA	NA	7.5	8
02/20/13	8.5	3.2	8	3.15	8	NA	NA	8	7.5
02/21/13	8.5	3.4	8	3.15	8	NA	NA	8	8.5
02/22/13	8.5	1.1	8.5	1.15	8.5	NA	NA	8.5	7.5
02/25/13	9	3.3	8	3.25	8.5	NA	NA	8	7.5
02/26/13	8.5	3.3	8.5	3.15	8.5	NA	NA	8	7.5

Highlighted cells indicate a detectable level of hexavalent chromium

Table A- 2: Daily Integrated Total Dust Sampling Results

August

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (µg/m3)	FAM 2 (µg/m3)	FAM 3 (µg/m3)	FAM 4 (µg/m3)	FAM 5 (µg/m3)	PAM 1 (µg/m3)	PAM 2 (µg/m3)	PAM 3 (µg/m3)	PAM 4 (µg/m3)
08/01/12	46.5	42	41.5	36	45	150	46.5	150	46.5
08/02/12	40.2	36	38.5	16.5	36.5	100	36.5	39	40
08/03/12	140	230	38.5	17	38	150	72	270	81
08/06/12	31	16.5	32	16	32	31.5	31	31	170
08/07/12	79	56	65	48	32.5	31.5	31.5	32	32
08/08/12	130	65	89	130	32	110	130	270	190
08/09/12	130	55	38.5	160	37.5	110	94	38	220
08/10/12	36	5.5	38.5	13	39.5	38.5	36.5	38	38
08/13/12	32	15.5	31	16	100	32	16.5	120	98
08/14/12	100	55	140	52	130	110	120	130	120
08/15/12	140	60	110	66	120	94	120	170	120
08/16/12	32	16.5	31.5	16.5	32	32	31.5	82	32
08/17/12	160	67	38.5	68	38	38.5	77	81	93
08/20/12	98	50	28.5	16	56	110	28	27	96
08/21/12	95	55	76	58	34.5	98	35	35.5	78
08/22/12	170	71	39.5	61	38	170	na	170	150
08/23/12	180	59	99	34	96	37	77	110	92
08/24/12	120	110	40	190	110	100	40	94	170
08/27/12	100	49	83	38	39.5	130	na	38.5	170
08/28/12	37	17.5	40.5	16.5	40	40	40	39.5	40
08/29/12	38	95	41.5	17.5	41	40.5	40.5	40.5	40
08/30/12	34.5	18.5	36.5	31	37	37.5	37.5	37.5	37
08/31/12	100	120	40	190	41.5	39	38.5	40	39.5

Highlighted cells indicate a detectable level of total dust

September

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (µg/m3)	FAM 2 (µg/m3)	FAM 3 (µg/m3)	FAM 4 (µg/m3)	FAM 5 (µg/m3)	PAM 1 (µg/m3)	PAM 2 (µg/m3)	PAM 3 (µg/m3)	PAM 4 (µg/m3)
09/04/12	37	39	39.5	72	38	120	38.5	37.5	37
09/05/12	38	38	39.5	49	130	NA	39.5	39.5	38.5
09/06/12	78	63	NA	NA	NA	140	36.5	37.5	37
09/07/12	75	59	38.5	36	38.5	39	38	110	38
09/08/12	120	8	41.5	24	42.5	40	40	41.5	42
09/10/12	33.5	17	36	48	34.5	110	35	35	35
09/11/12	69	35	35	45	32.5	34.5	34.5	34	34
09/12/12	110	96	34.5	91	33	94	33.5	100	82
09/13/12	140	99	35.5	87	35	200	34.5	280	35
09/14/12	280	37	39.5	18	39.5	85	110	200	39
09/17/12	34.5	34	35.5	18	36	NA	35.5	36.5	35.5
09/18/12	130	17	86	130	120	NA	220	92	140
09/19/12	34	NA	35.5	180	44.5	NA	39.5	40.5	38.5
09/20/12	39	36	39.5	48	39.5	NA	38.5	42	33
09/21/12	35.5	35	39	25	39.5	NA	39.5	39.5	39.5
09/24/12	34	35	36.5	17.5	37.5	NA	36	36	35
09/25/12	81	56	36	55	35	NA	36.5	37	34
09/26/12	85	54	37.5	49	130	NA	35	35	36.5
09/27/12	36.5	55	36.5	45	36	NA	170	35.5	35
09/28/12	38	10	43	5	35.5	NA	39	41	40.5

Highlighted cells indicate a detectable level of total dust

October

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (µg/m3)	FAM 2 (µg/m3)	FAM 3 (µg/m3)	FAM 4 (µg/m3)	FAM 5 (µg/m3)	PAM 1 (µg/m3)	PAM 2 (µg/m3)	PAM 3 (µg/m3)	PAM 4 (µg/m3)
10/01/12	36	41	37.5	45	36.5	NA	120	37.5	37.5
10/02/12	39	16	39	18.5	38	NA	36.5	40.5	110
10/03/12	35.5	52	37	49	37	NA	36.5	38.5	35
10/04/12	43.5	72	43.5	27	43	NA	43	110	42.5
10/05/12	38.5	37	37.5	24	37	NA	36.5	35.1	37
10/08/12	35.5	16.5	40.5	15.5	36.5	NA	39.5	38	36.5
10/09/12	36	16.5	42.5	16.5	36.5	NA	42.5	41.5	36.5
10/10/12	38.5	16	40.5	16.5	38.5	NA	40	40	38
10/11/12	42.5	16	41	18	41.5	NA	43.5	42	40.5
10/12/12	41.5	11	33	27	120	44.5	35.5	33.5	39.5
10/15/12	42.5	57	40	42	99	43	87	38.5	91
10/16/12	35.5	18.5	36	17.5	34.5	35	36	36	36
10/17/12	41	16.5	38	41	40	41.5	50	43	41
10/18/12	110	93	90	57	41.5	130	100	26	100
10/19/12	8.5	5.5	13.6	5	13.5	8	7	13.5	7.5
10/22/12	75	62	36	50	36.5	36.5	37	35.5	41
10/23/12	37	39	82	50	42	100	41.5	NA	40.5
10/24/12	40	60	41	17	37	79	38	38	28
10/25/12	94	15.5	39	16.5	41.5	110	41.5	40.5	40.5
10/26/12	93	NA	100	NA	39	83	89	82	210

Highlighted cells indicate a detectable level of total dust

November

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (µg/m3)	FAM 2 (µg/m3)	FAM 3 (µg/m3)	FAM 4 (µg/m3)	FAM 5 (µg/m3)	PAM 1 (µg/m3)	PAM 2 (µg/m3)	PAM 3 (µg/m3)	PAM 4 (µg/m3)
11/01/12	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/02/12	95	NA	42	NA	41	41.5	40.5	41	36
11/05/12	NA	15.5	40.5	NA	41.5	42.5	110	41.5	41.5
11/06/12	42.5	53	43.5	17	41.5	40.5	39	42.5	43
11/07/12	50	16	55	16	55	NA	NA	NA	NA
11/08/12	40.5	18	41.5	17.5	40.5	NA	NA	41	NA
11/09/12	160	240	NA	21	40.5	46.5	44	43	41.5
11/12/12	43	75	39	18	38.5	46	39.5	42	41
11/13/12	42.5	17	43	16.5	37.5	43.5	40.5	41.5	35.5
11/14/12	42	41	44	16.5	42	40.5	38	44	40
11/15/12	37.5	50	96	11	NA	38.5	39	40.5	34.5
11/16/12	98	26	89	24	38.5	37.5	110	38	39
11/17/12	NA	NA	60	NA	60	NA	55	60	NA
11/19/12	83	56	100	54	41.5	41	150	38	36
11/20/12	40.5	57	40	38	38.5	42.5	40.5	39	37
11/21/12	50	16	46.5	16	46	50	49.5	44.5	88
11/22/12	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/23/12	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/26/12	40.5	41	39.5	80	99	39.5	38	39.5	40
11/27/12	70	16	60	16.5	65	70	65	79	46
11/28/12	37.5	16	38	15.5	36	38.5	38	36	34
11/29/12	97	87	40	29	44	NA	NA	43.5	40
11/30/12	180	46	140	41	39	NA	NA	150	42

Highlighted cells indicate a detectable level of total dust

December

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
12/03/12	89	NA	41	84	41.5	NA	NA	38.5	81
12/04/12	NA	52	40.5	NA	NA	NA	NA	40.5	35.5
12/05/12	44	17	40	16	39.5	NA	NA	40.5	39.5
12/06/13	39	59	37	56	35	NA	NA	36.5	36
12/07/13	NA	21	37.5	25	39	NA	NA	35.5	34.5
12/10/13	42.5	41	38.5	16	41.5	NA	NA	39	36.5
12/11/13	42.5	32	39.5	16	39	NA	NA	40	38
12/12/13	44.5	16.5	42	16	39	NA	NA	41.5	41
12/13/13	220	64	34	31	41.5	NA	NA	39	37.5
12/14/13	43	100	41.5	52	41	NA	NA	40	38
12/17/12	39.5	16.5	41	16	38.5	NA	NA	39	39
12/18/12	39	15.5	39.5	16	39	40.5	110	NA	NA
12/19/12	45.5	16.5	40	16	41.5	NA	NA	42.5	40.5
12/20/12	41	35	41	16.5	42	NA	NA	40	39.5
12/26/12	NA	19	42.5	NA	40	NA	NA	42	120
12/27/12	42	NA	41.5	NA	44.5	NA	NA	40	NA
12/28/12	42.5	NA	40.5	NA	NA	NA	NA	85	NA
12/31/12	44.5	NA	NA	NA	NA	NA	NA	50	170

Highlighted cells indicate a detectable level of total dust

January

Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
01/02/13	44.5	100	38.5	40.5	38.5	NA	NA	120	36
01/03/13	43	52	41	42	40.5	NA	NA	120	40
01/04/13	220	58	41.5	39	41	NA	NA	85	38.5
01/05/13	46.5	19.5	110	15.5	49.5	NA	NA	46	43
01/07/13	46	54	39	64	44	NA	NA	110	39
01/08/13	220	16	41	40	39.5	NA	NA	42.5	37.5
01/09/13	45.5	75	100	46	41.5	NA	NA	97	110
01/10/13	140	42	39.5	71	38	NA	NA	38	36.5
01/11/13	40	20	40.5	18	39	NA	NA	41	40.5
01/14/13	41	39	40.5	16	40.5	NA	NA	40.5	37.5
01/15/13	42.5	16	40	15.5	39	NA	NA	39	38
01/17/13	40.5	17	39	16.5	39.5	NA	NA	40	39.5
01/18/13	42.5	15	42	5.05	40	NA	NA	41.5	39
01/21/13	41	16	40.5	16	39	NA	NA	41.5	41
01/22/13	41	15.5	41	16.5	39.5	NA	NA	41.5	41
01/23/13	38.5	16	36.5	16	100	NA	NA	38.5	92
01/24/13	NA	16.5	81	16	340	NA	NA	120	210
01/25/13	46	30	41	17	42.5	NA	NA	41	82
01/28/13	44	71	44	38	41	NA	NA	130	42
01/29/13	39	54	45	16.5	38	NA	NA	38	190
01/30/13	44	39	41	16.5	43	NA	NA	40.5	39
01/31/13	44.5	16	42.5	16	41	NA	NA	41	NA

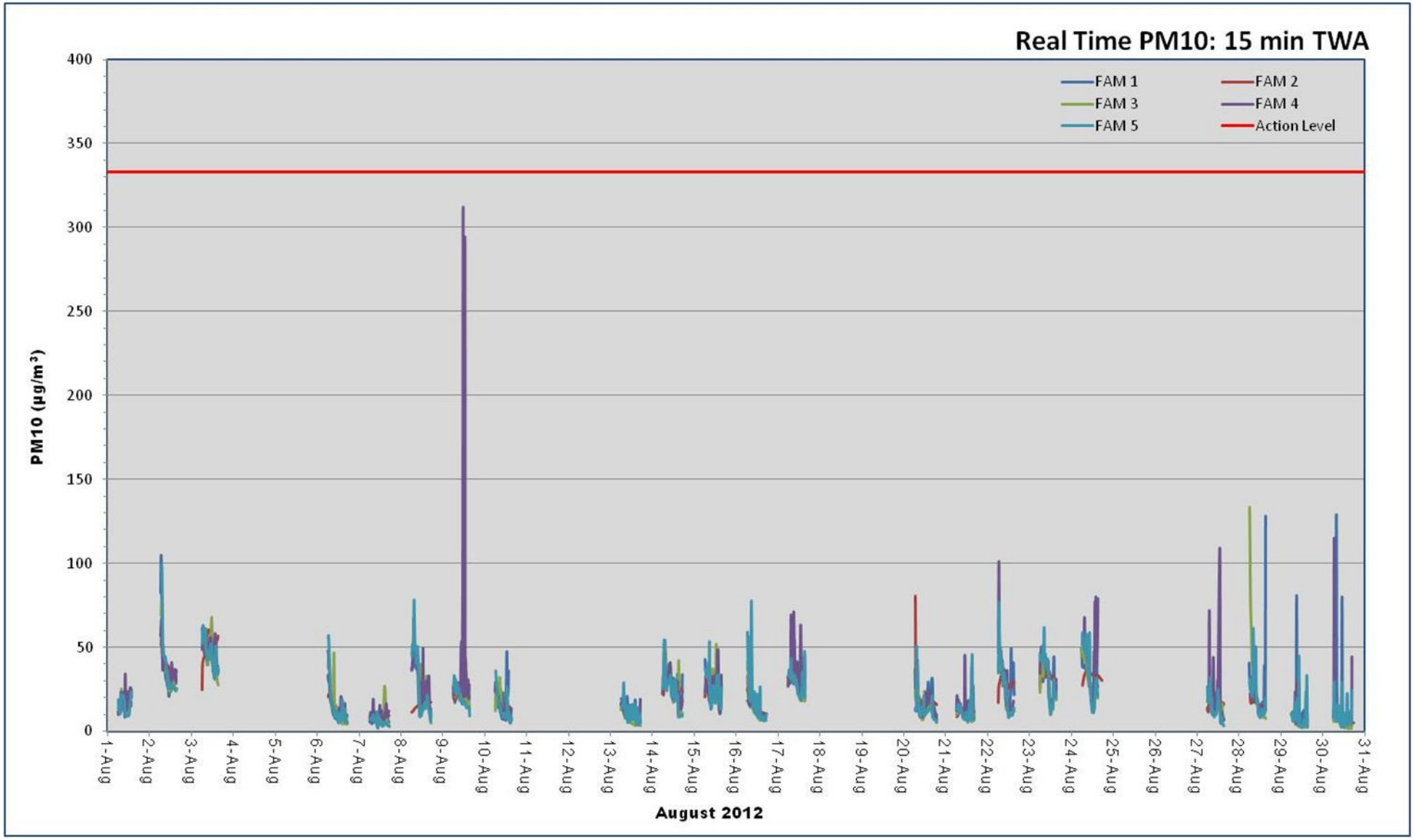
Highlighted cells indicate a detectable level of total dust

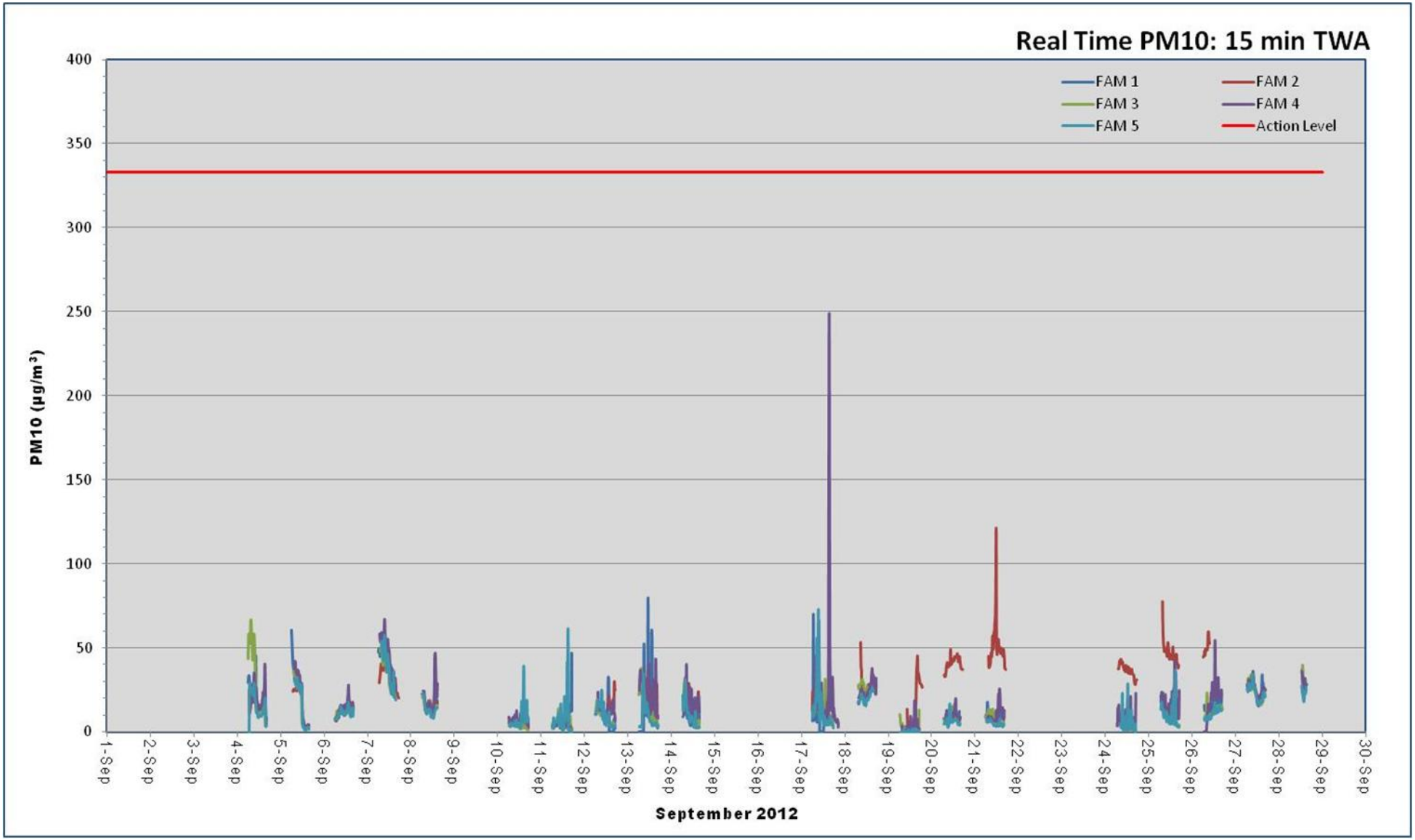
February

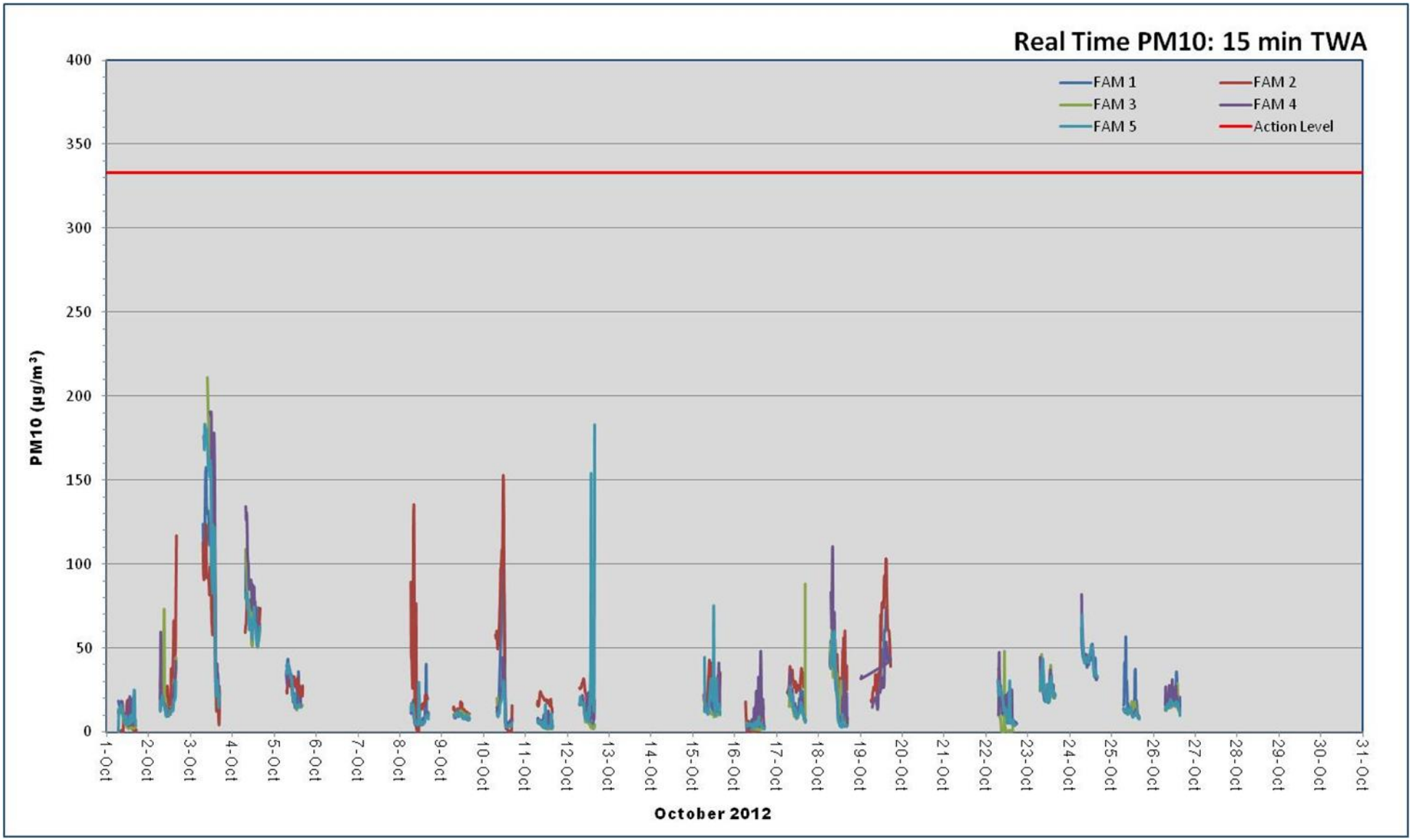
Date of Sample	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m3)	FAM 2 (ng/m3)	FAM 3 (ng/m3)	FAM 4 (ng/m3)	FAM 5 (ng/m3)	PAM 1 (ng/m3)	PAM 2 (ng/m3)	PAM 3 (ng/m3)	PAM 4 (ng/m3)
2/1/13	44	5.05	41	5.05	42.5	NA	NA	40.5	39
2/4/13	47	16.5	42.5	16.5	40.5	NA	NA	41	40
2/5/13	43.5	46	NA	16	40.5	NA	NA	39.5	38
2/6/13	44.5	16	41.5	16.5	42	NA	NA	40	39.5
2/7/13	47	16.5	42.5	34	40.5	NA	NA	41	40
2/12/13	49.5	16.5	40	16	42	NA	NA	39.5	38.5
2/13/13	46	49	97	47	41.5	NA	NA	41.5	38.5
2/14/13	45.5	46	40.5	16	42	NA	NA	40.5	38.5
2/15/13	44	5.5	40.5	5.5	40.5	NA	NA	41.5	41
2/19/13	38	18	41	16	42	NA	NA	38	40
2/20/13	43	16	39.5	15.5	39.5	NA	NA	39.5	37
2/21/13	41.5	17	40.5	16	39.5	NA	NA	40.5	43
2/22/13	42	11	42	5.5	43.5	NA	NA	42.5	38.5
2/25/13	44.5	42	40	16	42	NA	NA	40.5	38.5
2/26/13	43	16.5	42	15.5	41.5	NA	NA	40.5	38.5

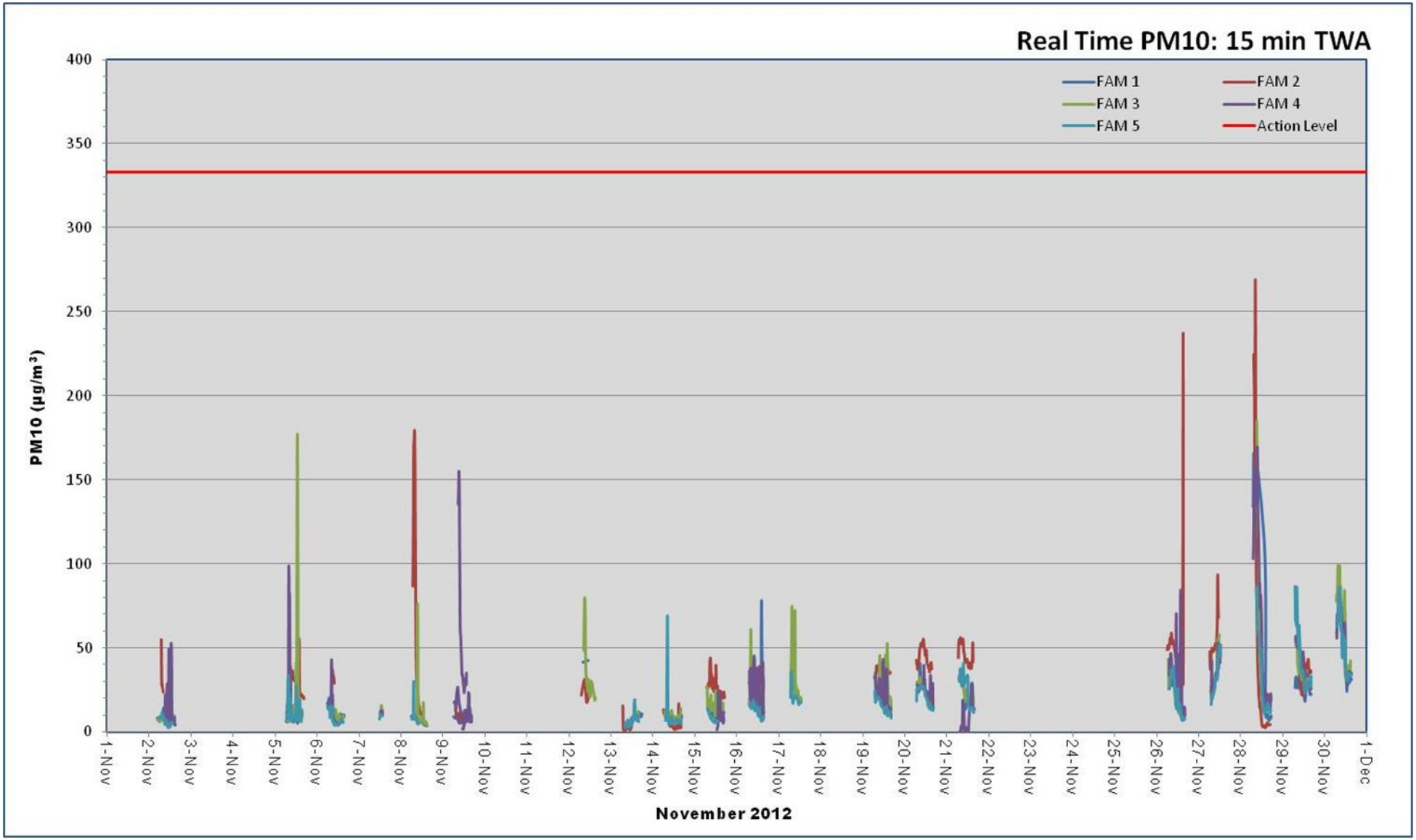
Highlighted cells indicate a detectable level of total dust

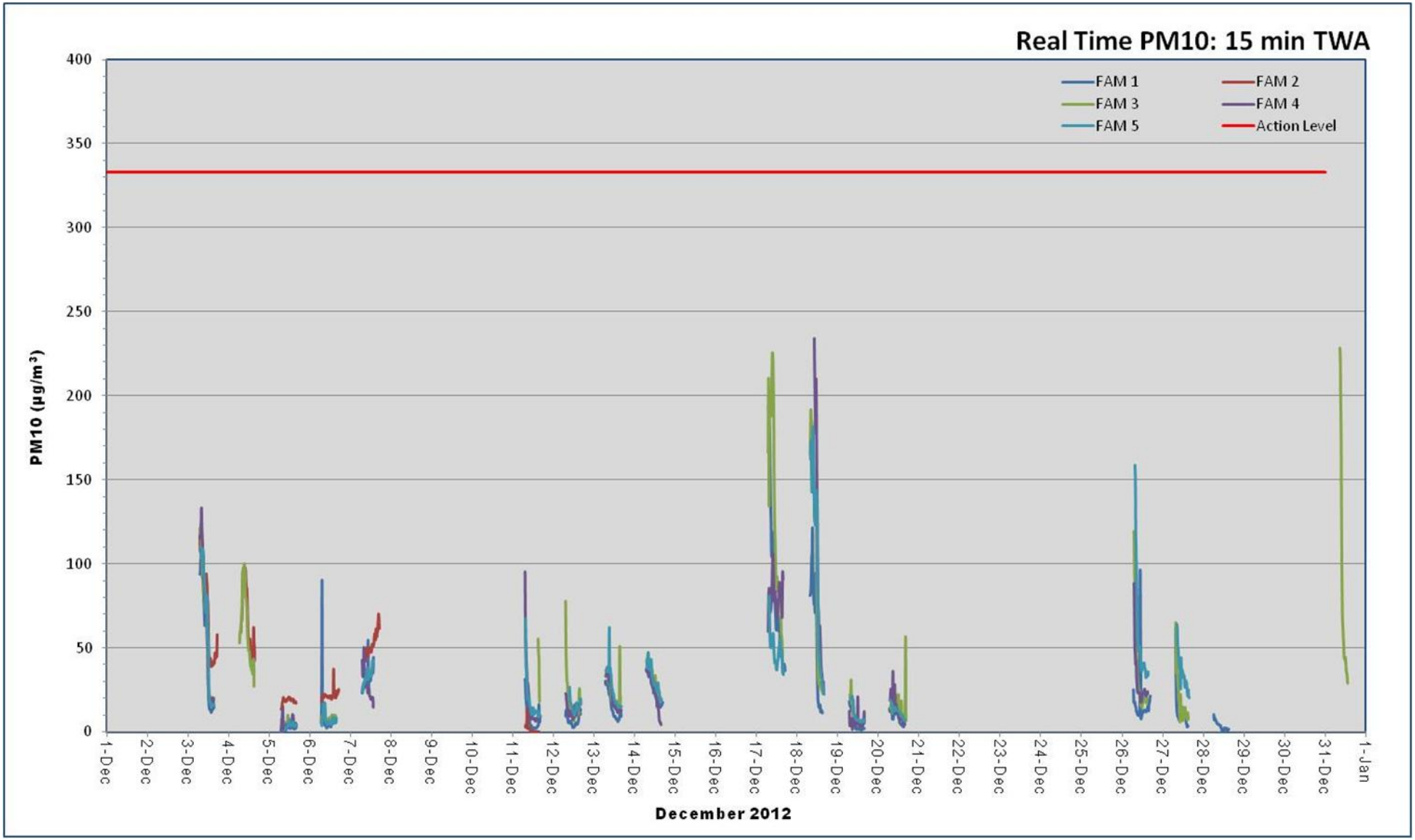
Figure A- 1: Real Time Fenceline 15 Minute Average PM_{10} Monitoring Results

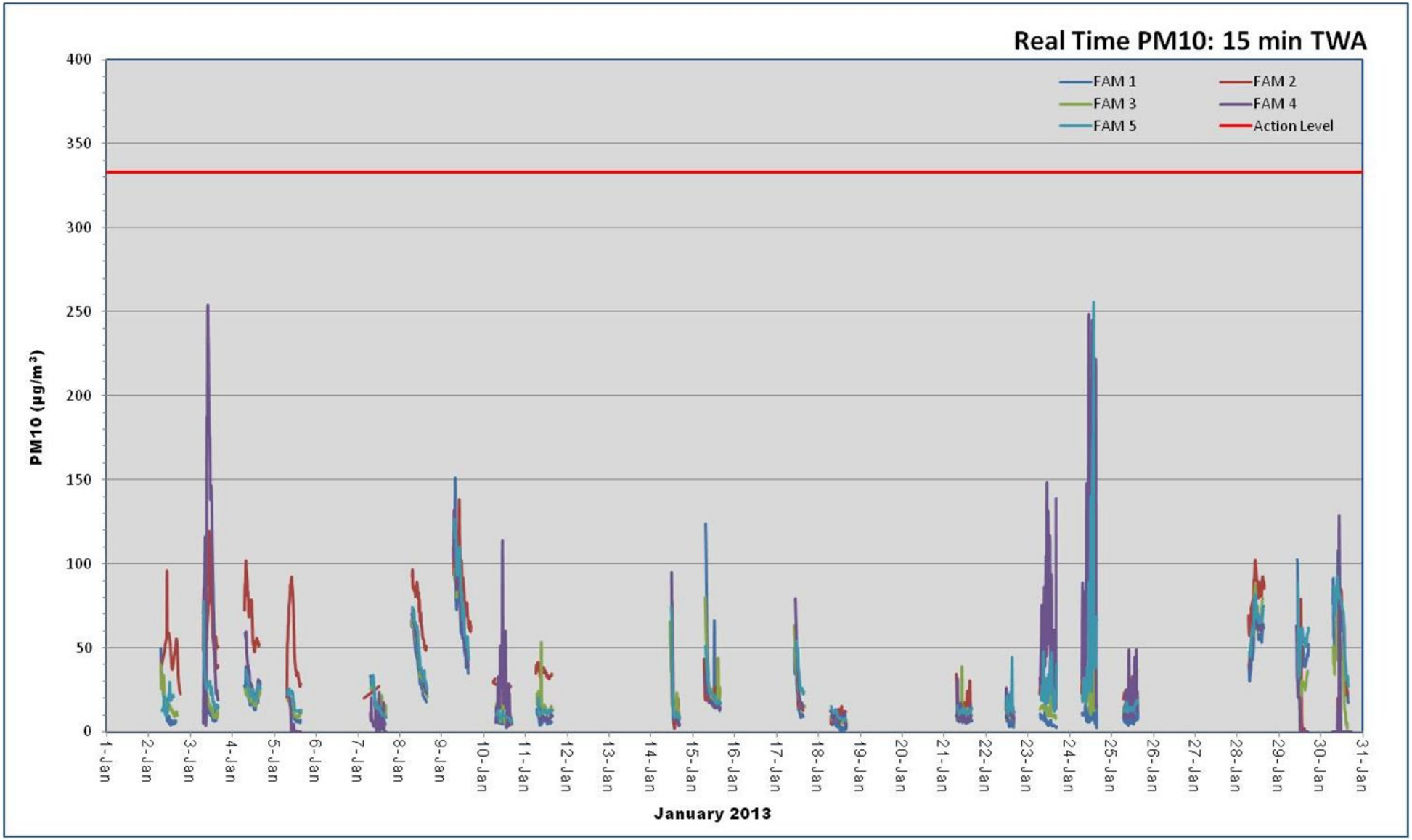



Real Time PM10: 15 min TWA
FAM 1
FAM 2
FAM 3
FAM 4
FAM 5
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Sep
2-Sep
3-Sep
4-Sep
5-Sep
6-Sep
7-Sep
8-Sep
9-Sep
10-Sep
11-Sep
12-Sep
13-Sep
14-Sep
15-Sep
16-Sep
17-Sep
18-Sep
19-Sep
20-Sep
21-Sep
22-Sep
23-Sep
24-Sep
25-Sep
26-Sep
27-Sep
28-Sep
29-Sep
30-Sep
September 2012


Real Time PM10: 15 min TWA
FAM 1
FAM 2
FAM 3
FAM 4
FAM 5
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Oct
2-Oct
3-Oct
4-Oct
5-Oct
6-Oct
7-Oct
8-Oct
9-Oct
10-Oct
11-Oct
12-Oct
13-Oct
14-Oct
15-Oct
16-Oct
17-Oct
18-Oct
19-Oct
20-Oct
21-Oct
22-Oct
23-Oct
24-Oct
25-Oct
26-Oct
27-Oct
28-Oct
29-Oct
30-Oct
31-Oct
October 2012


Real Time PM10: 15 min TWA
FAM 1
FAM 2
FAM 3
FAM 4
FAM 5
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Nov
2-Nov
3-Nov
4-Nov
5-Nov
6-Nov
7-Nov
8-Nov
9-Nov
10-Nov
11-Nov
12-Nov
13-Nov
14-Nov
15-Nov
16-Nov
17-Nov
18-Nov
19-Nov
20-Nov
21-Nov
22-Nov
23-Nov
24-Nov
25-Nov
26-Nov
27-Nov
28-Nov
29-Nov
30-Nov
1-Dec
November 2012


Real Time PM10: 15 min TWA
FAM 1
FAM 2
FAM 3
FAM 4
FAM 5
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Dec
2-Dec
3-Dec
4-Dec
5-Dec
6-Dec
7-Dec
8-Dec
9-Dec
10-Dec
11-Dec
12-Dec
13-Dec
14-Dec
15-Dec
16-Dec
17-Dec
18-Dec
19-Dec
20-Dec
21-Dec
22-Dec
23-Dec
24-Dec
25-Dec
26-Dec
27-Dec
28-Dec
29-Dec
30-Dec
31-Dec
1-Jan
December 2012


Real Time PM10: 15 min TWA
FAM 1
FAM 2
FAM 3
FAM 4
FAM 5
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Jan
2-Jan
3-Jan
4-Jan
5-Jan
6-Jan
7-Jan
8-Jan
9-Jan
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan
16-Jan
17-Jan
18-Jan
19-Jan
20-Jan
21-Jan
22-Jan
23-Jan
24-Jan
25-Jan
26-Jan
27-Jan
28-Jan
29-Jan
30-Jan
31-Jan
January 2013

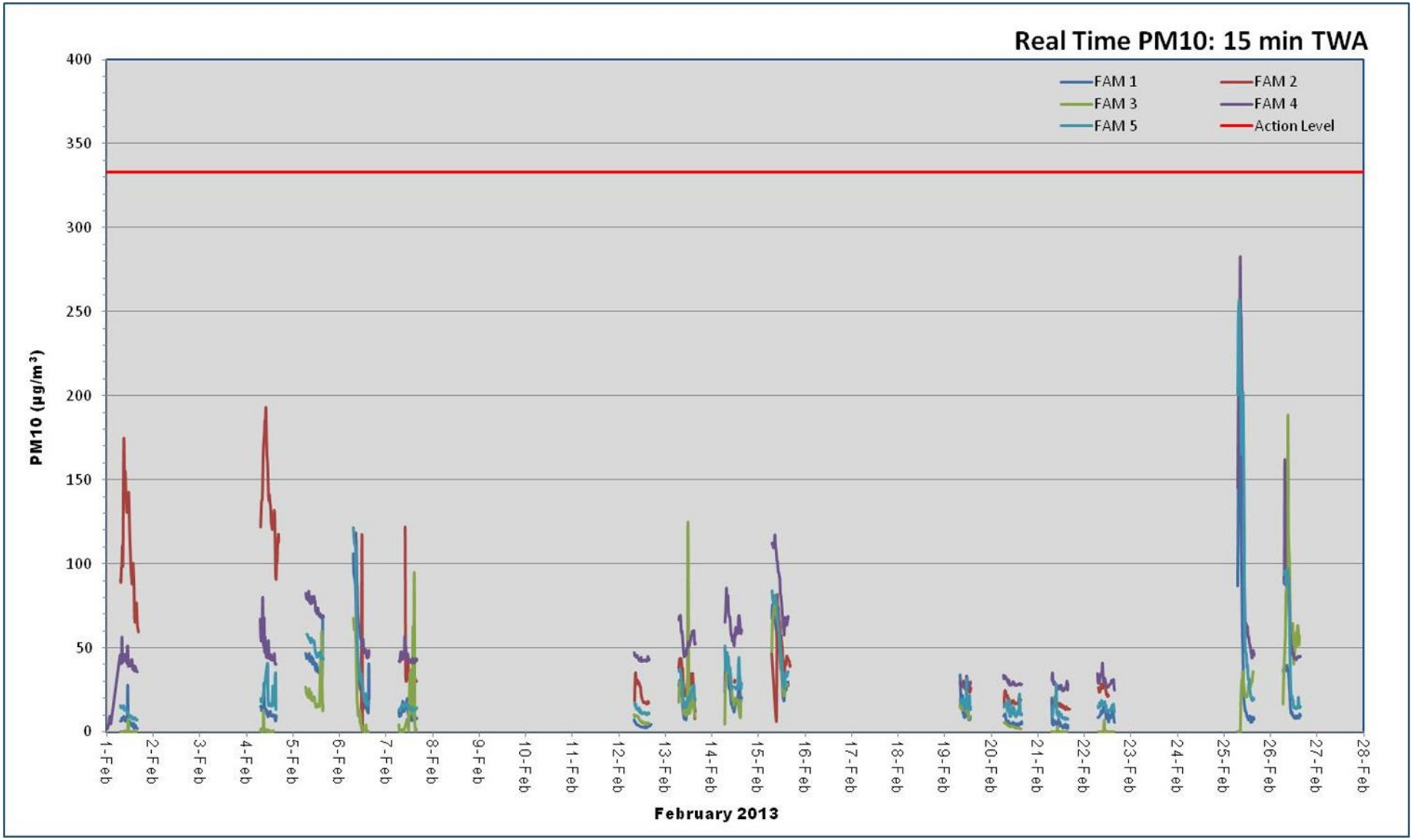
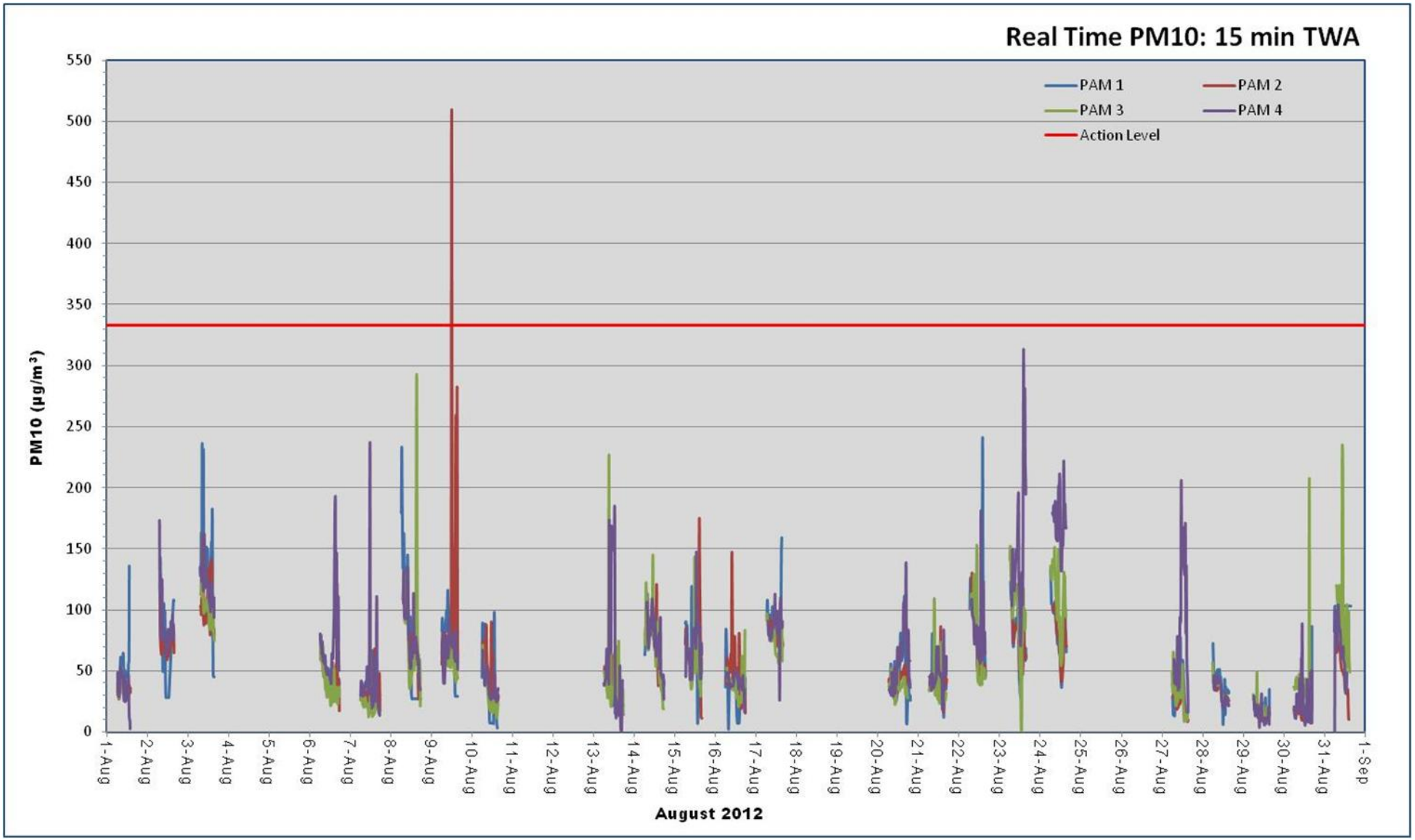
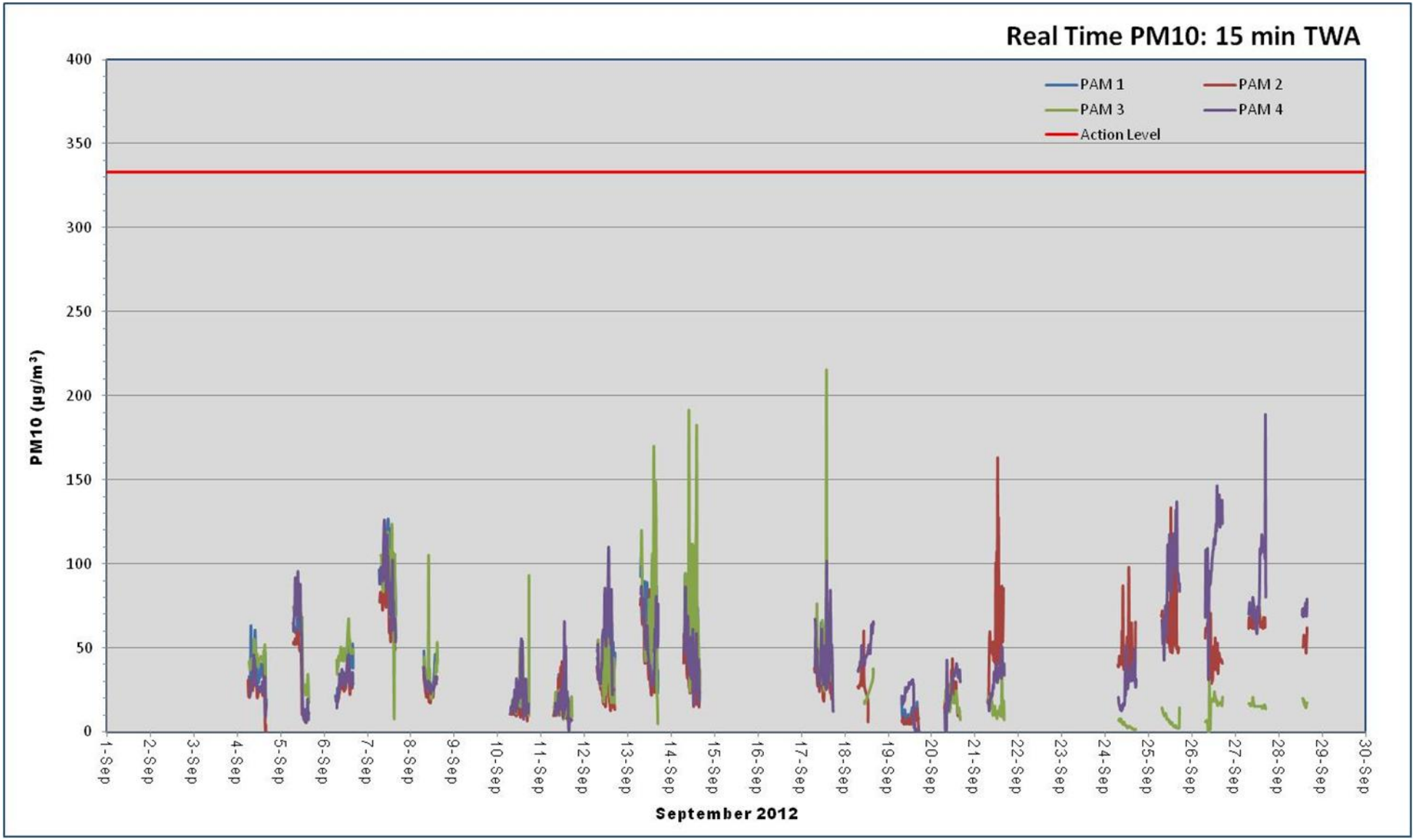
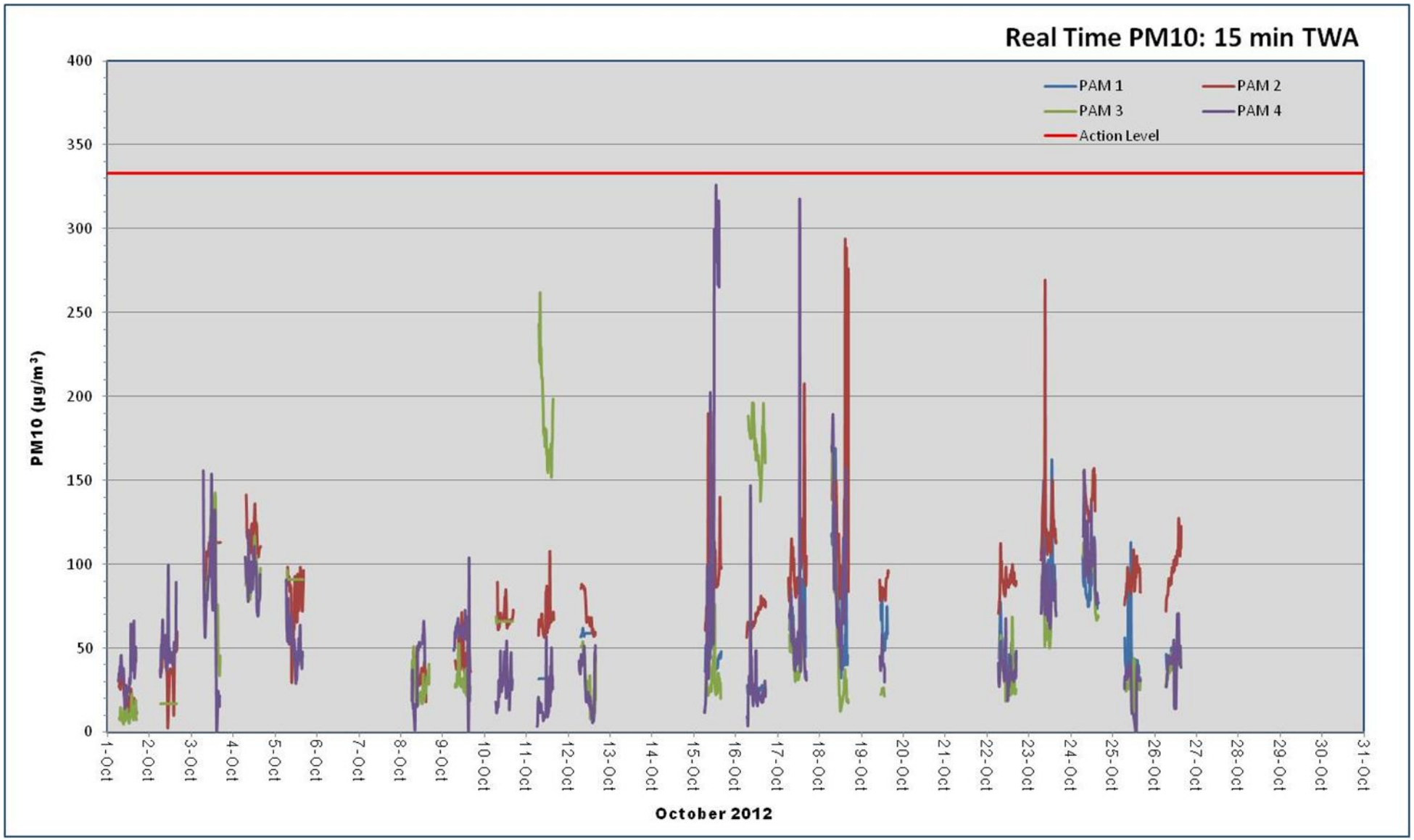
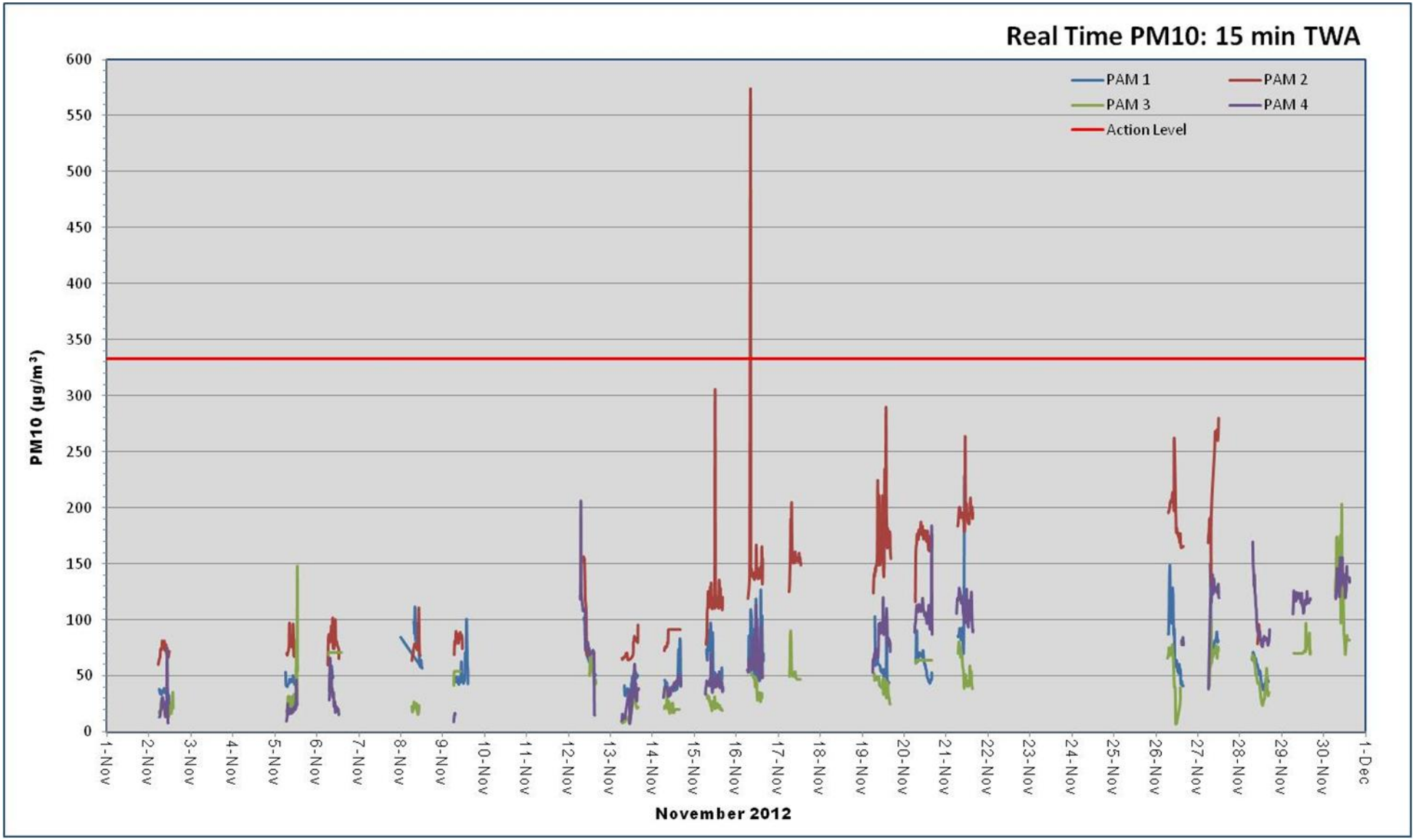

Real Time PM10: 15 min TWA
FAM 1
FAM 2
FAM 3
FAM 4
FAM 5
Action Level
PM10 (µg/m³)
0
50
100
150
200
250
300
350
400
1-Feb
2-Feb
3-Feb
4-Feb
5-Feb
6-Feb
7-Feb
8-Feb
9-Feb
10-Feb
11-Feb
12-Feb
13-Feb
14-Feb
15-Feb
16-Feb
17-Feb
18-Feb
19-Feb
20-Feb
21-Feb
22-Feb
23-Feb
24-Feb
25-Feb
26-Feb
27-Feb
28-Feb
February 2013

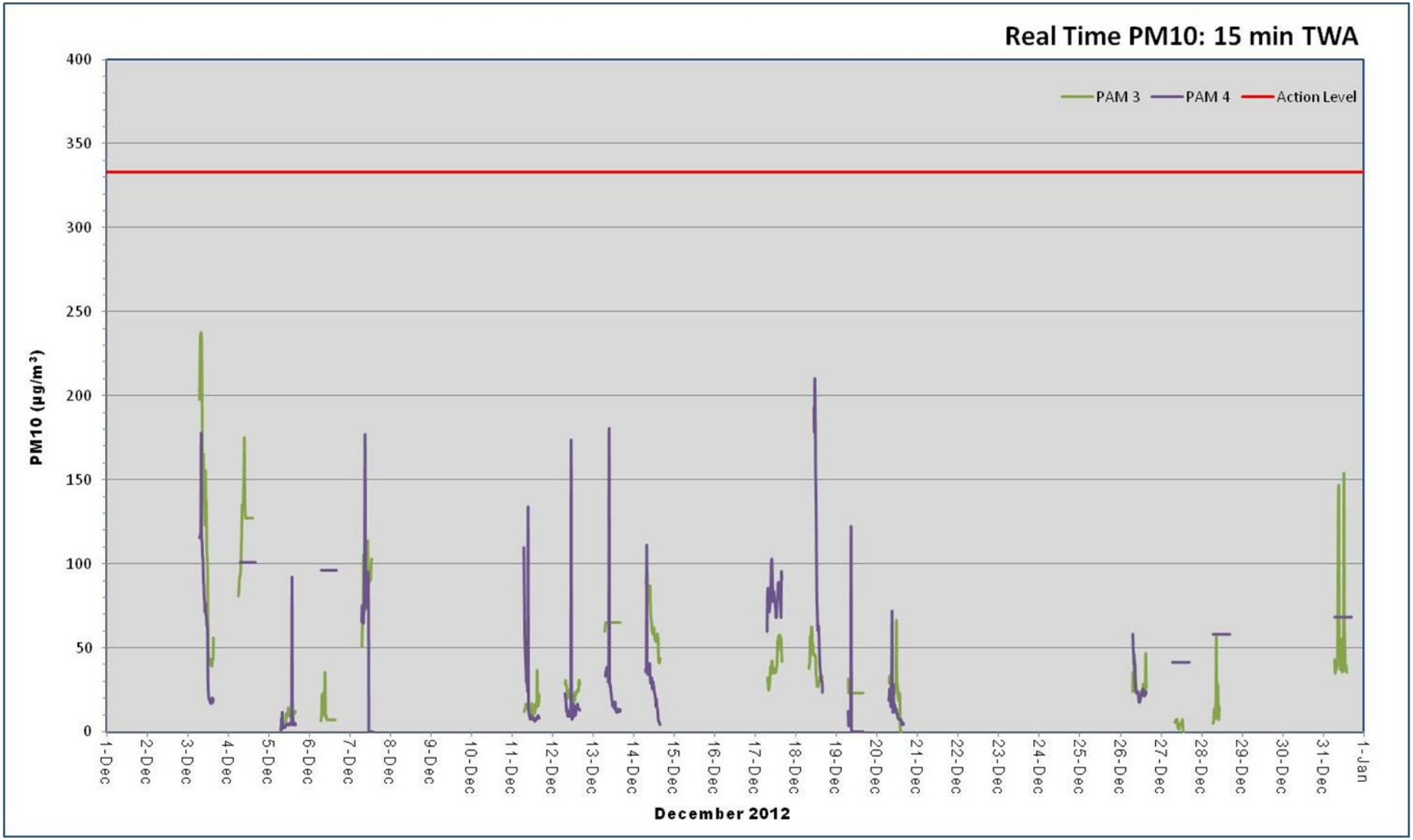
Figure A- 2: Real Time Exclusion Zone 15 Minute Average PM_{10} Monitoring Results

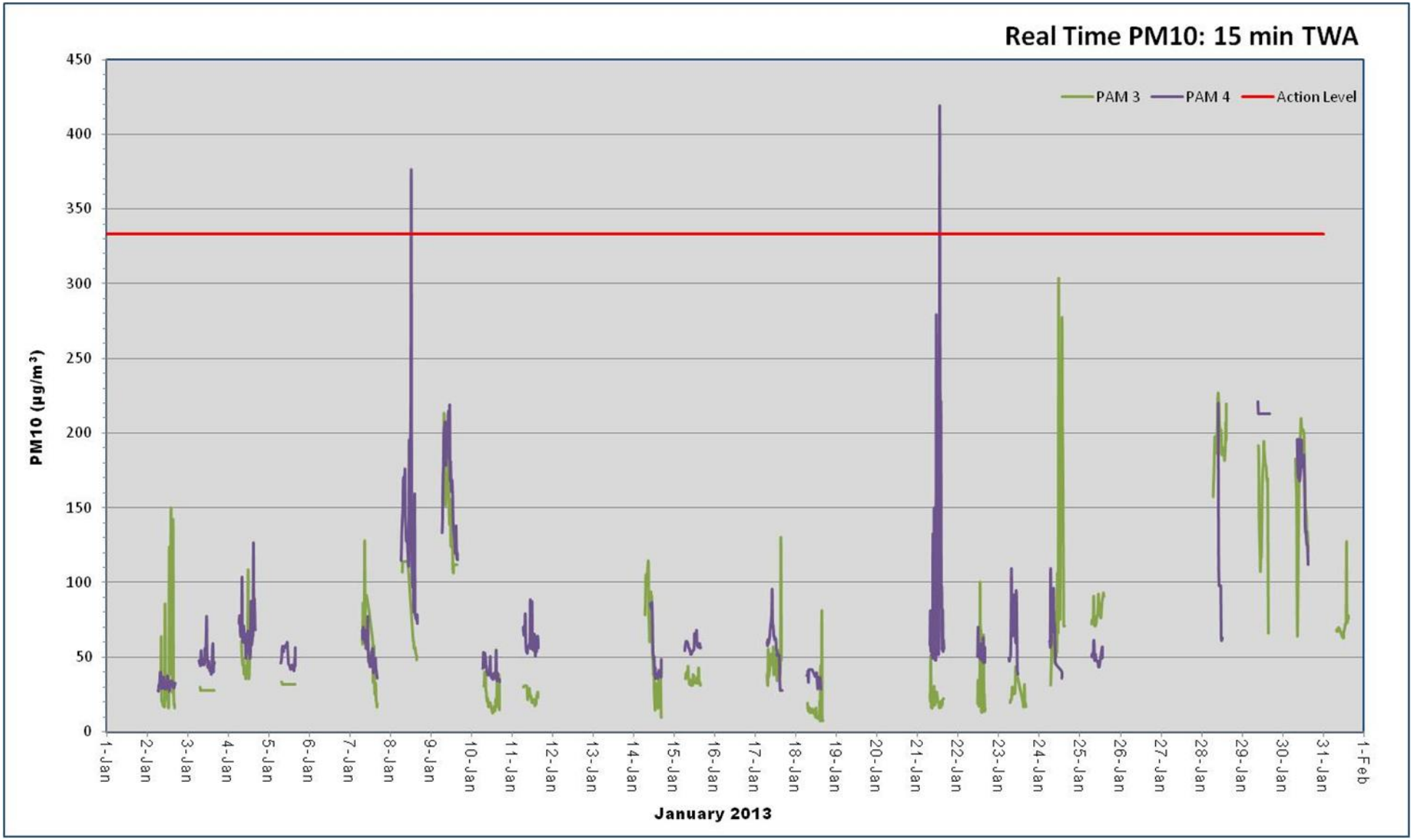



Real Time PM10: 15 min TWA
PAM 1
PAM 2
PAM 3
PAM 4
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Sep
2-Sep
3-Sep
4-Sep
5-Sep
6-Sep
7-Sep
8-Sep
9-Sep
10-Sep
11-Sep
12-Sep
13-Sep
14-Sep
15-Sep
16-Sep
17-Sep
18-Sep
19-Sep
20-Sep
21-Sep
22-Sep
23-Sep
24-Sep
25-Sep
26-Sep
27-Sep
28-Sep
29-Sep
30-Sep
September 2012


Real Time PM10: 15 min TWA
PAM 1
PAM 2
PAM 3
PAM 4
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Oct
2-Oct
3-Oct
4-Oct
5-Oct
6-Oct
7-Oct
8-Oct
9-Oct
10-Oct
11-Oct
12-Oct
13-Oct
14-Oct
15-Oct
16-Oct
17-Oct
18-Oct
19-Oct
20-Oct
21-Oct
22-Oct
23-Oct
24-Oct
25-Oct
26-Oct
27-Oct
28-Oct
29-Oct
30-Oct
31-Oct
October 2012


Real Time PM10: 15 min TWA
PAM 1
PAM 2
PAM 3
PAM 4
Action Level
PM10 (µg/m³)
600
550
500
450
400
350
300
250
200
150
100
50
0
1-Nov
2-Nov
3-Nov
4-Nov
5-Nov
6-Nov
7-Nov
8-Nov
9-Nov
10-Nov
11-Nov
12-Nov
13-Nov
14-Nov
15-Nov
16-Nov
17-Nov
18-Nov
19-Nov
20-Nov
21-Nov
22-Nov
23-Nov
24-Nov
25-Nov
26-Nov
27-Nov
28-Nov
29-Nov
30-Nov
1-Dec
November 2012


Real Time PM10: 15 min TWA
PAM 3
PAM 4
Action Level
PM10 (µg/m³)
400
350
300
250
200
150
100
50
0
1-Dec
2-Dec
3-Dec
4-Dec
5-Dec
6-Dec
7-Dec
8-Dec
9-Dec
10-Dec
11-Dec
12-Dec
13-Dec
14-Dec
15-Dec
16-Dec
17-Dec
18-Dec
19-Dec
20-Dec
21-Dec
22-Dec
23-Dec
24-Dec
25-Dec
26-Dec
27-Dec
28-Dec
29-Dec
30-Dec
31-Dec
1-Jan
December 2012


Real Time PM10: 15 min TWA
PAM 3
PAM 4
Action Level
PM10 (µg/m³)
450
400
350
300
250
200
150
100
50
0
1-Jan
2-Jan
3-Jan
4-Jan
5-Jan
6-Jan
7-Jan
8-Jan
9-Jan
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan
16-Jan
17-Jan
18-Jan
19-Jan
20-Jan
21-Jan
22-Jan
23-Jan
24-Jan
25-Jan
26-Jan
27-Jan
28-Jan
29-Jan
30-Jan
31-Jan
1-Feb
January 2013

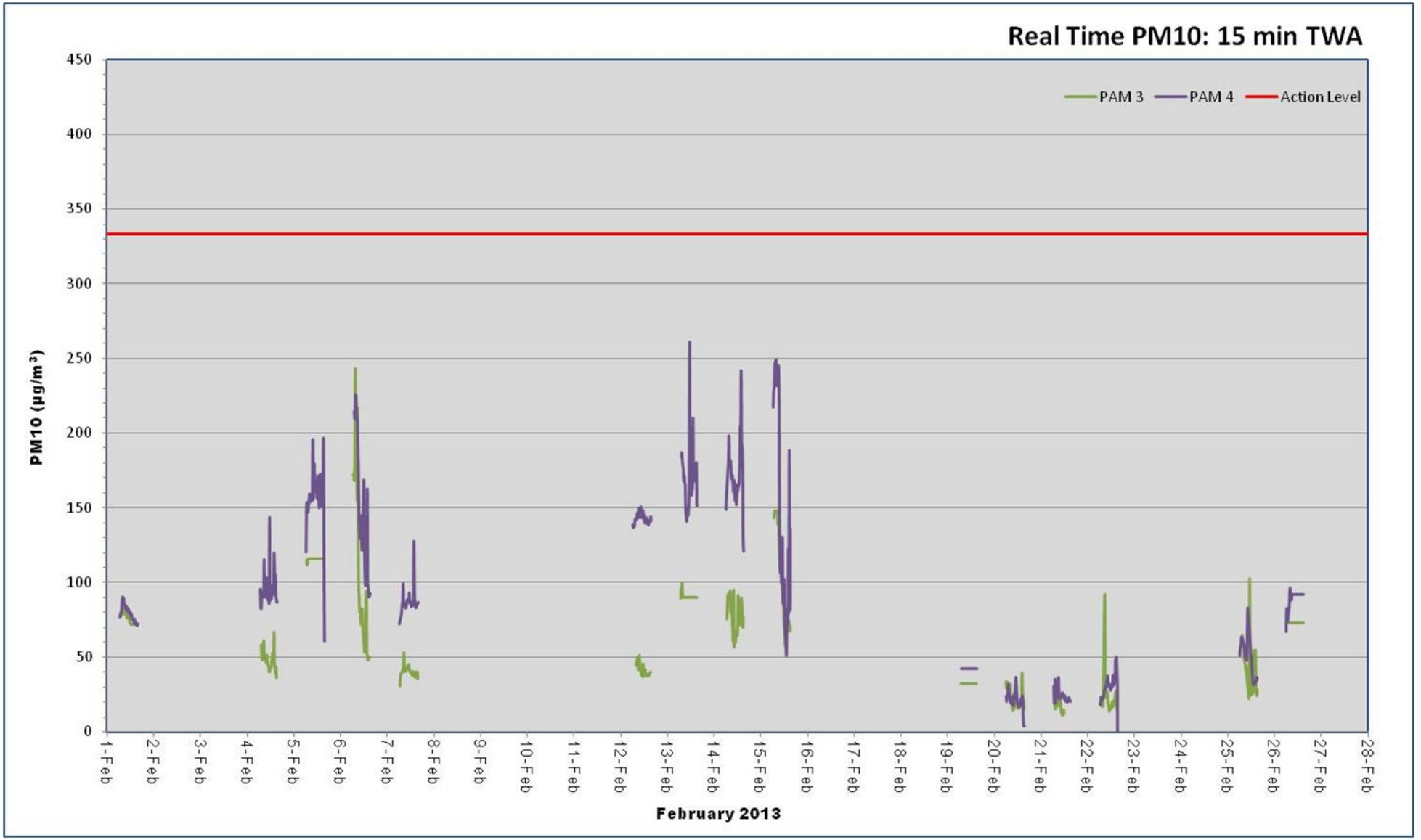

Real Time PM10: 15 min TWA
PAM 3
PAM 4
Action Level
PM10 (µg/m³)
450
400
350
300
250
200
150
100
50
0
1-Feb
2-Feb
3-Feb
4-Feb
5-Feb
6-Feb
7-Feb
8-Feb
9-Feb
10-Feb
11-Feb
12-Feb
13-Feb
14-Feb
15-Feb
16-Feb
17-Feb
18-Feb
19-Feb
20-Feb
21-Feb
22-Feb
23-Feb
24-Feb
25-Feb
26-Feb
27-Feb
28-Feb
February 2013

Table A- 3: Elevated Concentration Summary

Parameter	Date	Time	Location	Wind Conditions	Elevated Concentration	Explanation
Fenceline Air Monitoring						
Dust	NA	NA	NA	NA	NA	NA
Exclusion Zone Perimeter Air Monitoring						
Dust	08.09.12	11:42	PAM 2	6.5 mph South	507.1	Hammering concrete with excavator and attachment adjacent to PAM 2. Water in use during operation and applied immediately after spike. Next 15 minute average back to typical site averages.
Dust	11.16.12	0801	PAM 2	NNW	570.4	Station upwind of excavation. Diesel power pack associated with vibratory hammer located upwind of station blowing diesel emissions toward station.
Dust	01.08.13	1149	PAM 4	SW	375.0	Excessive Calci-Met mixing upwind of station. Process stopped and engineering controls started. Next 15 minute average back to typical site readings.
Dust	01.21.13	1307	PAM 4	SSW	417.1	Dumping dusty load of imported stone upwind of station. No water applied due to below freezing temperatures.

FAM – Fixed Air Monitoring Station

PAM – Portable Air Monitoring Station

PM10 – Respirable Particulate Matter measured in micrograms per cubic meter (µg/m3)

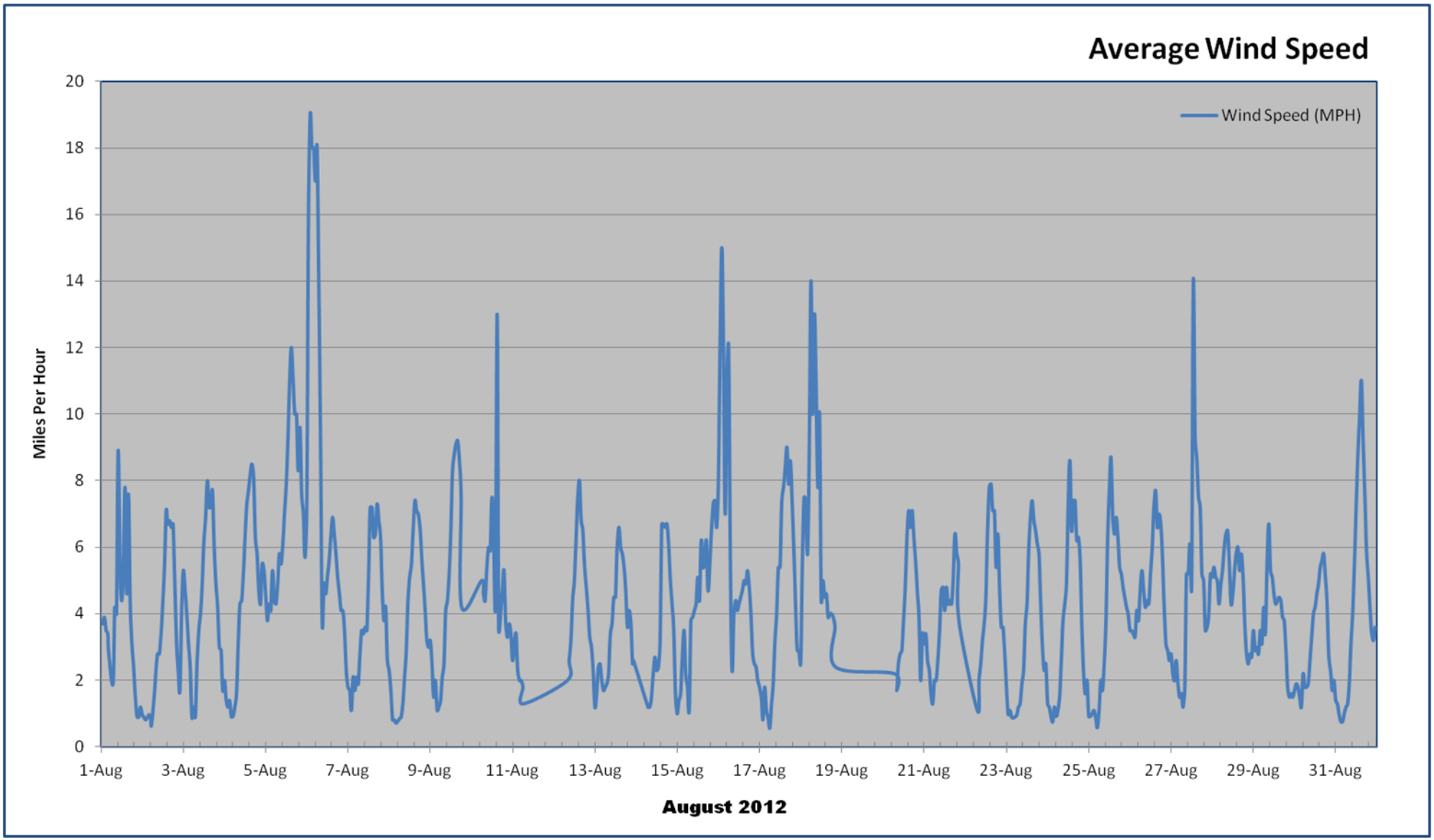
ng/m^3 – nanograms per cubic meter

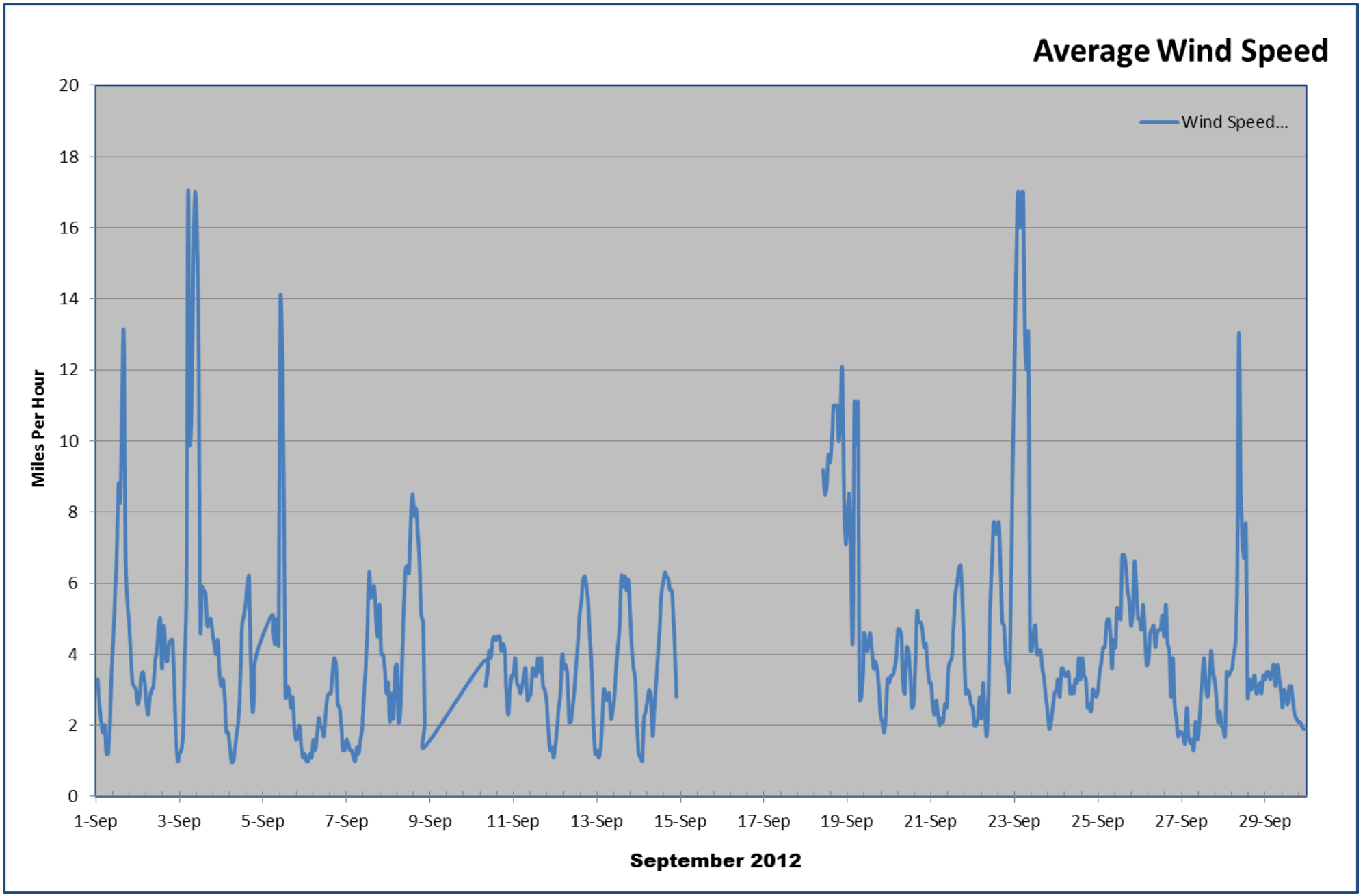
$\mu g/m^3$ – micrograms per cubic meter

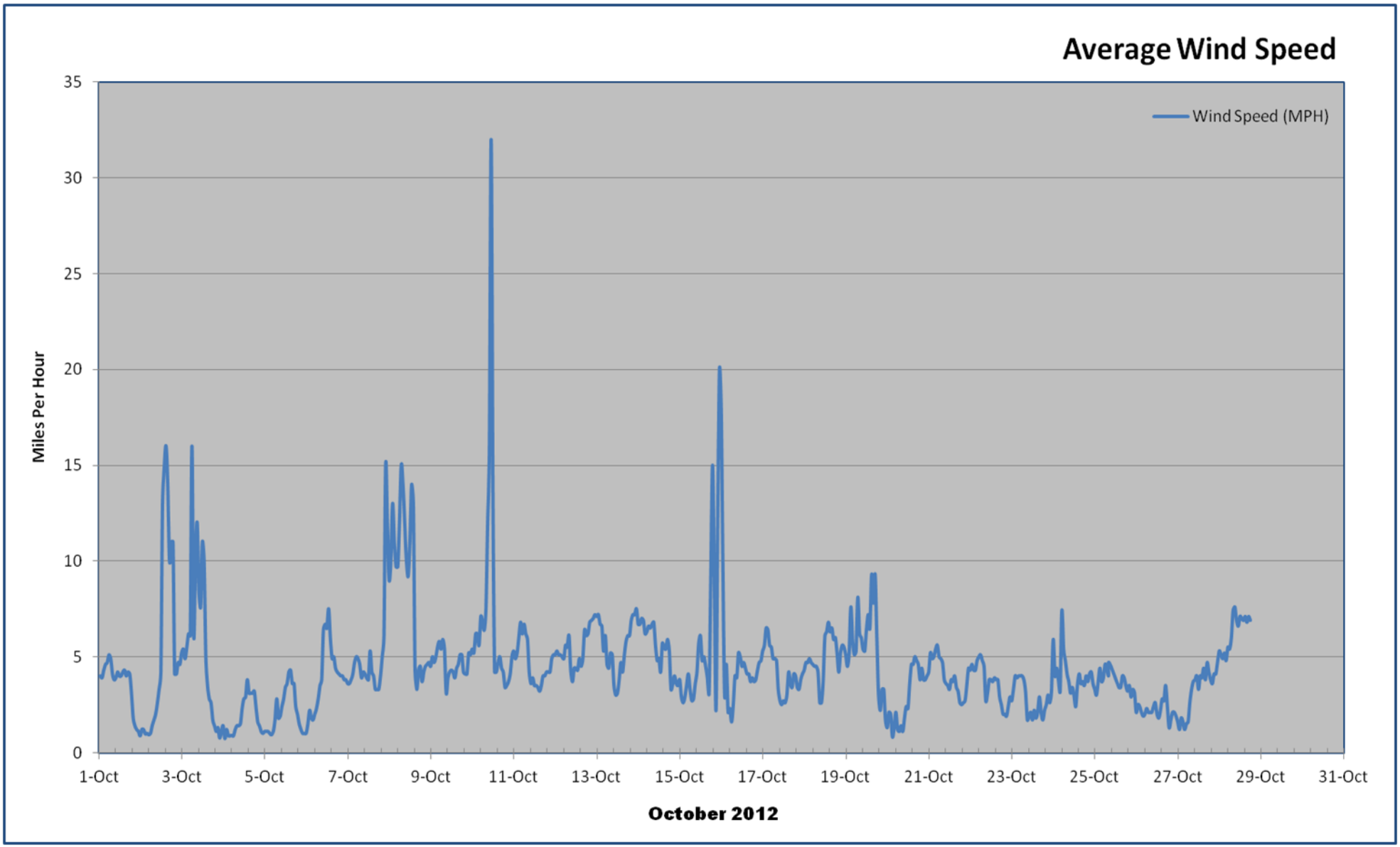
NA – Not Applicable

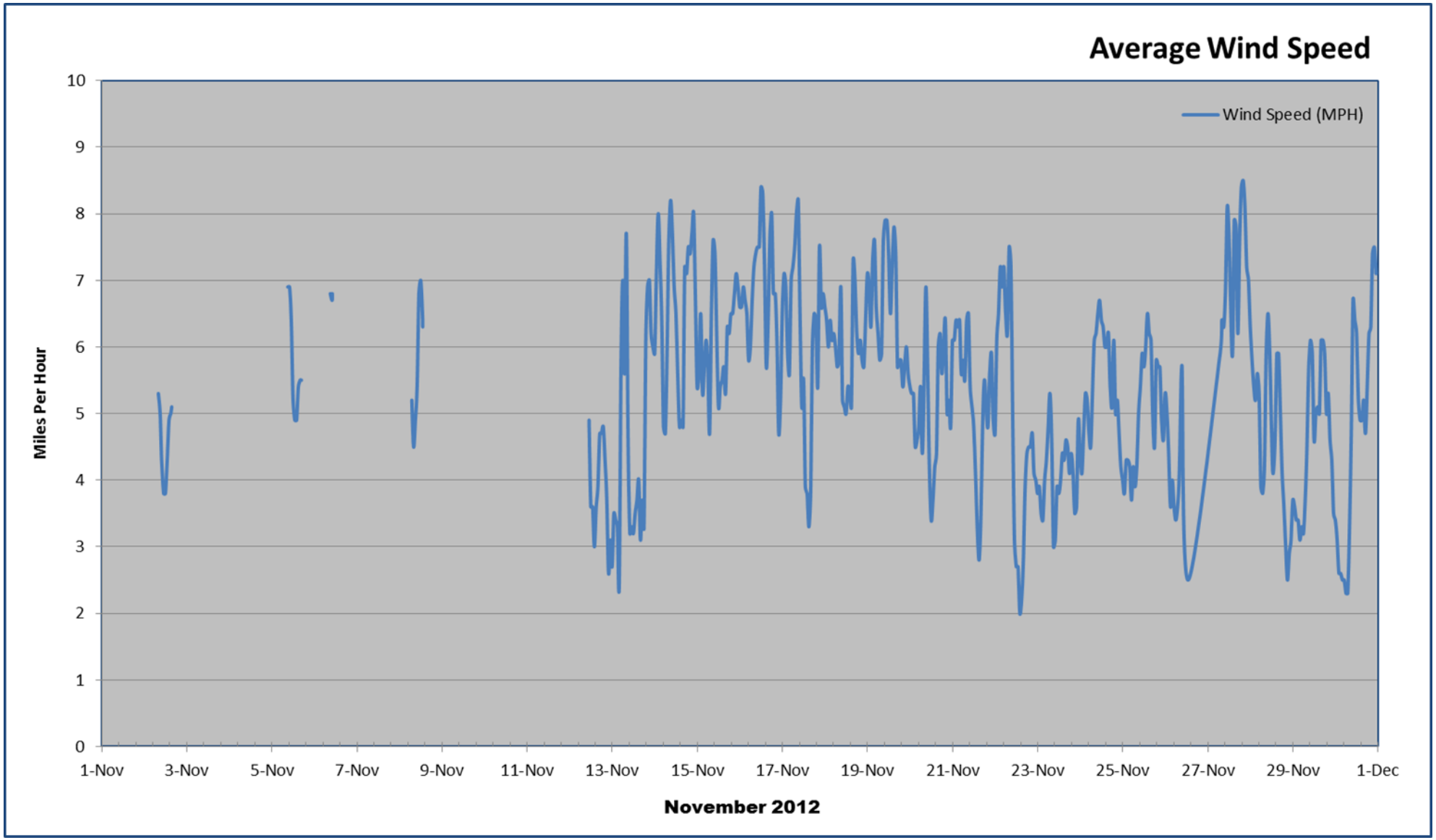
- FAM/PAM reported PM_{10} values represent 15 minute block averages at the fenceline and the perimeter of the exclusion zone, respectively.

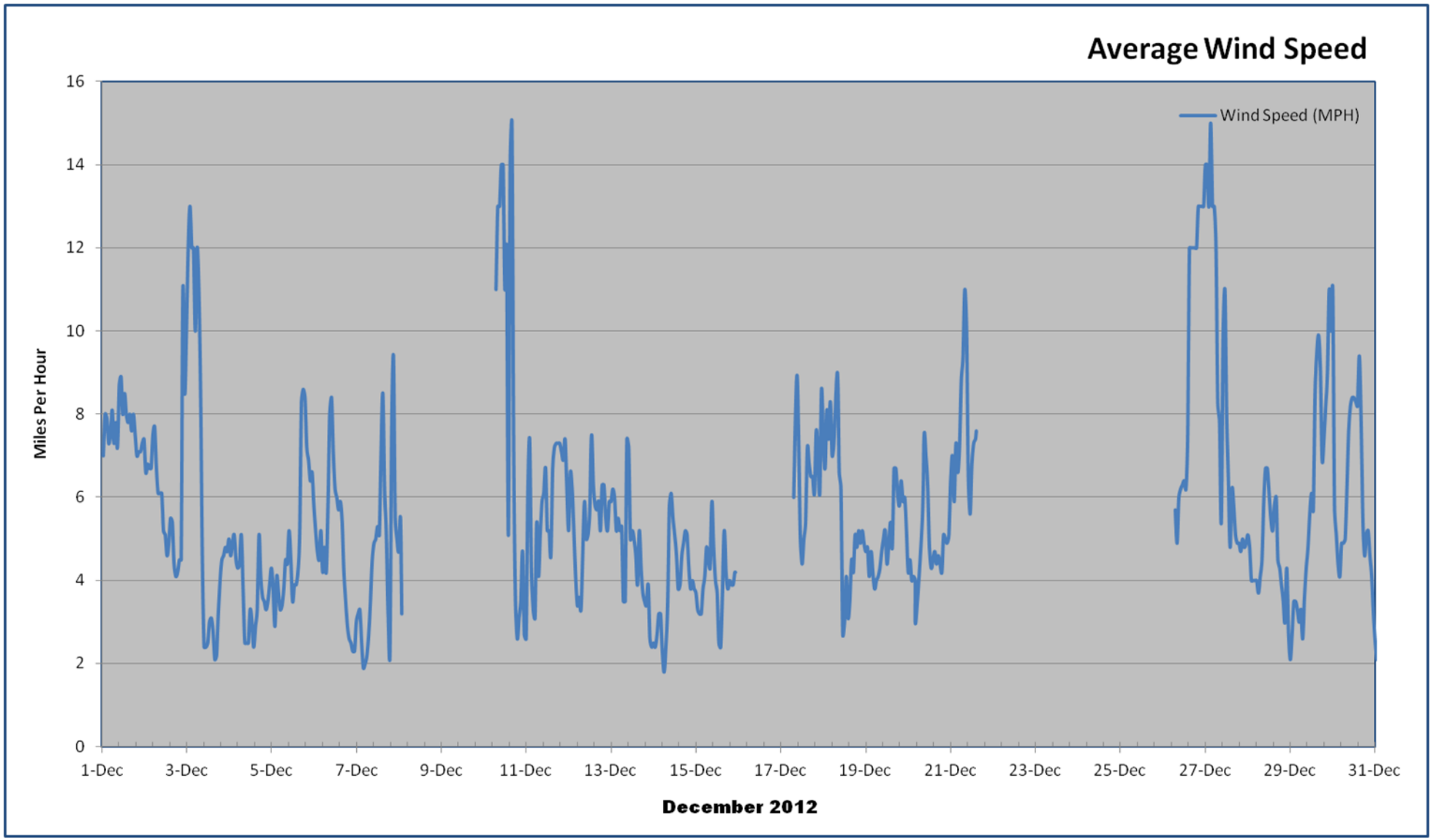
Figure A-3: Wind Speed

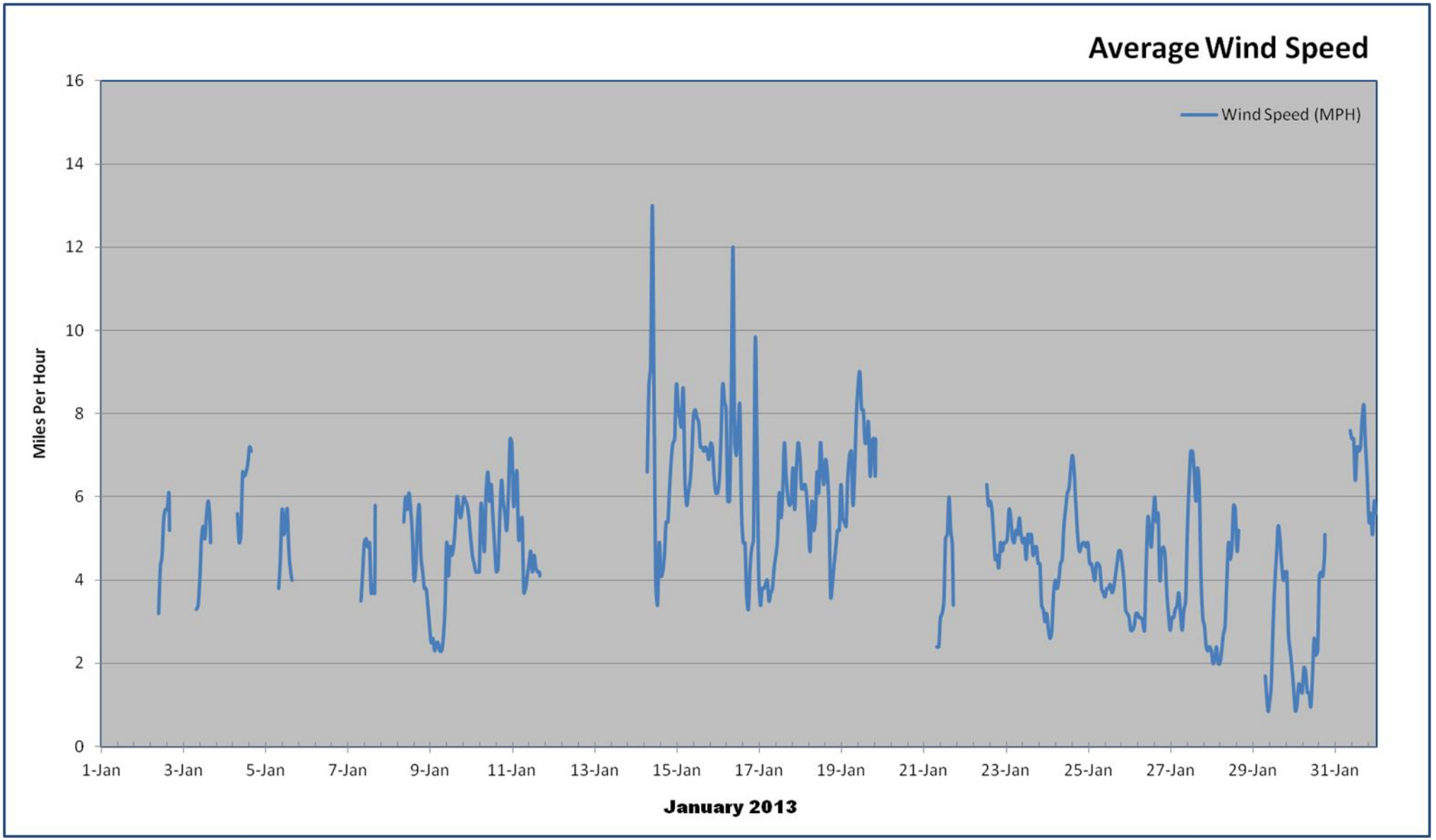



Average Wind Speed
Wind Speed...
Miles Per Hour
0
2
4
6
8
10
12
14
16
18
20
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
September 2012


Average Wind Speed
Wind Speed (MPH)
Miles Per Hour
35
30
25
20
15
10
5
0
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
October 2012


Average Wind Speed
Wind Speed (MPH)
Miles Per Hour
10
9
8
7
6
5
4
3
2
1
0
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
1-Dec
November 2012


Average Wind Speed
Wind Speed (MPH)
Miles Per Hour
0
2
4
6
8
10
12
14
16
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
13-Dec
15-Dec
17-Dec
19-Dec
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
December 2012


Average Wind Speed
Wind Speed (MPH)
Miles Per Hour
16
14
12
10
8
6
4
2
0
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
January 2013

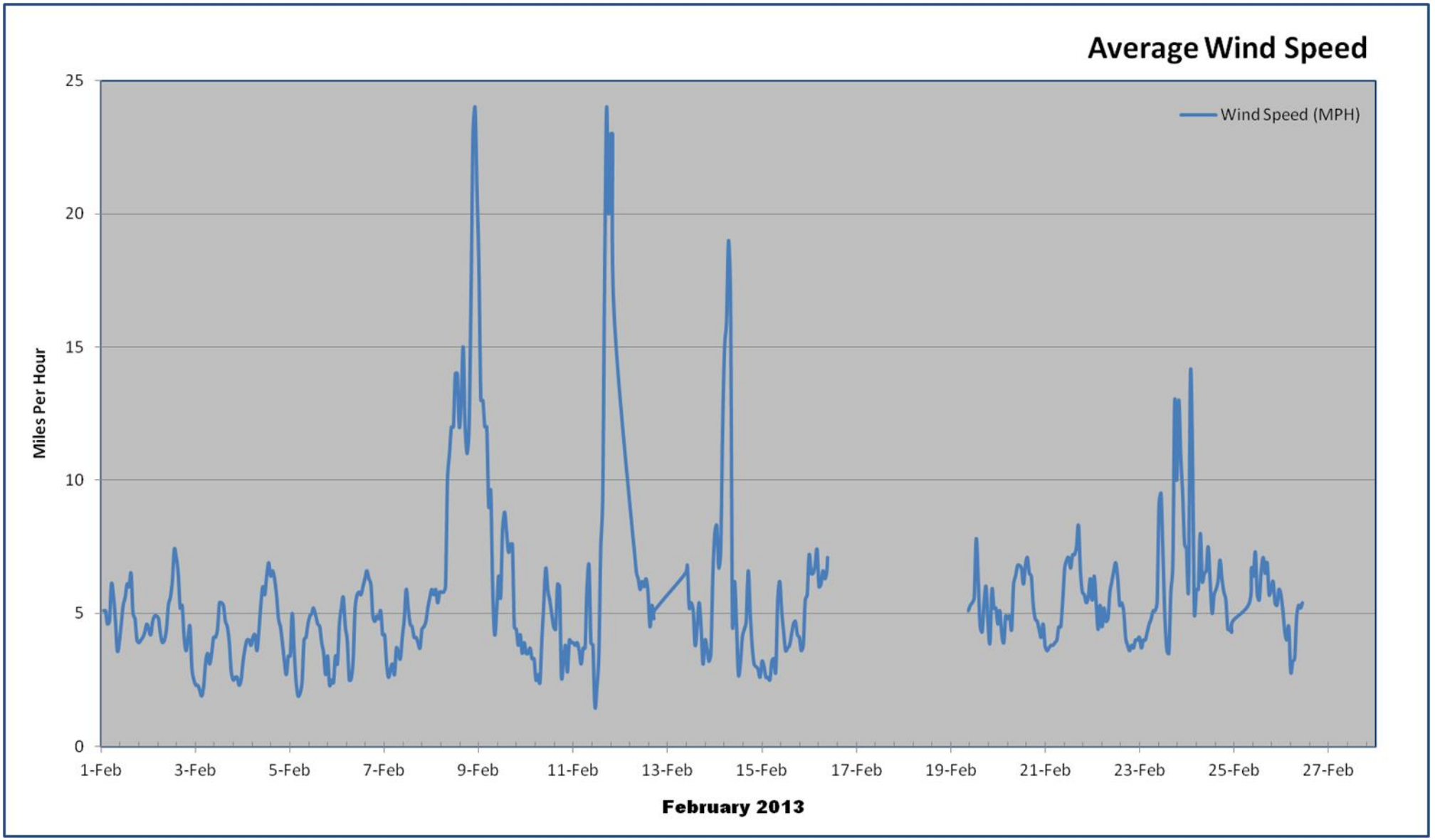
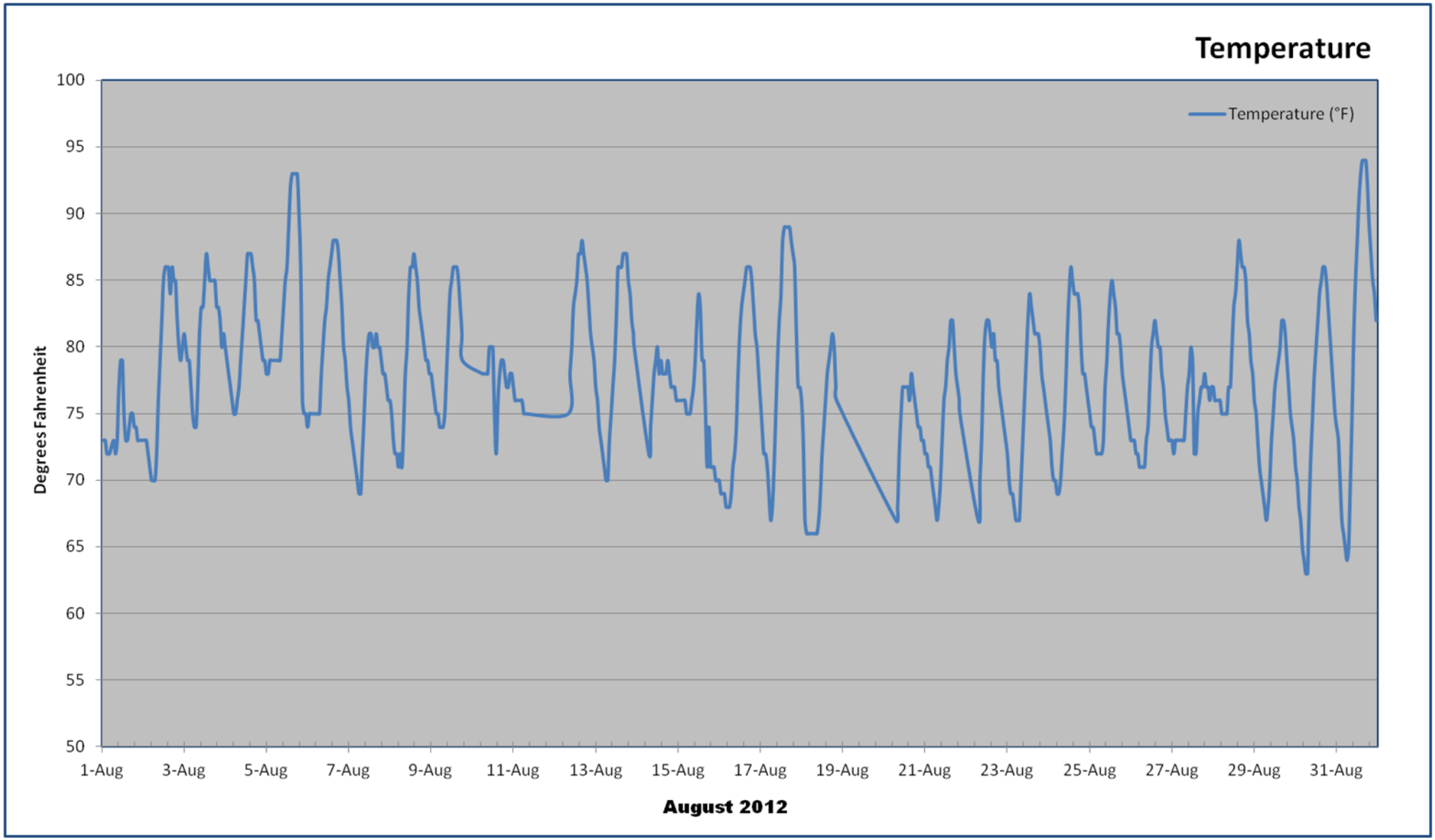
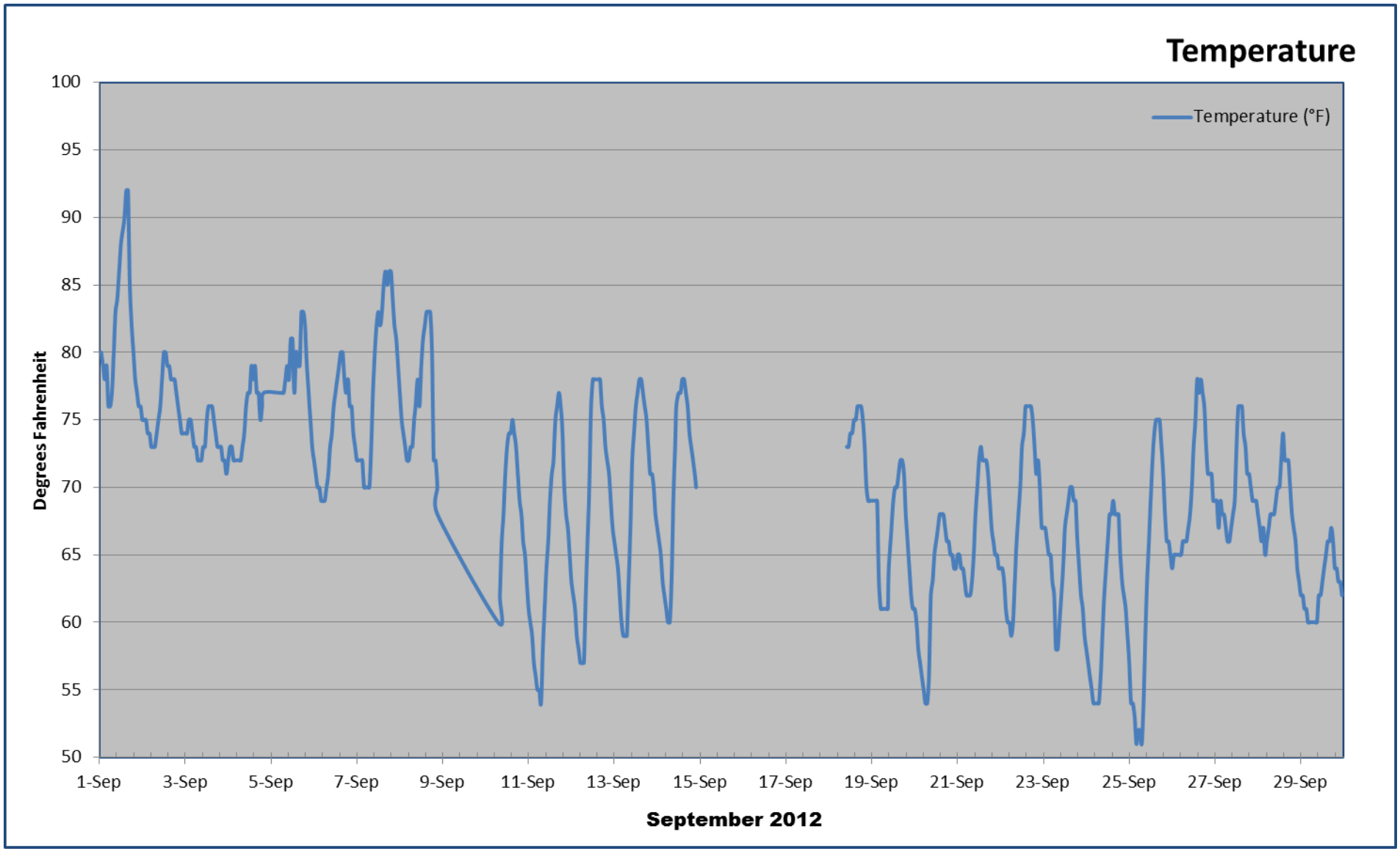
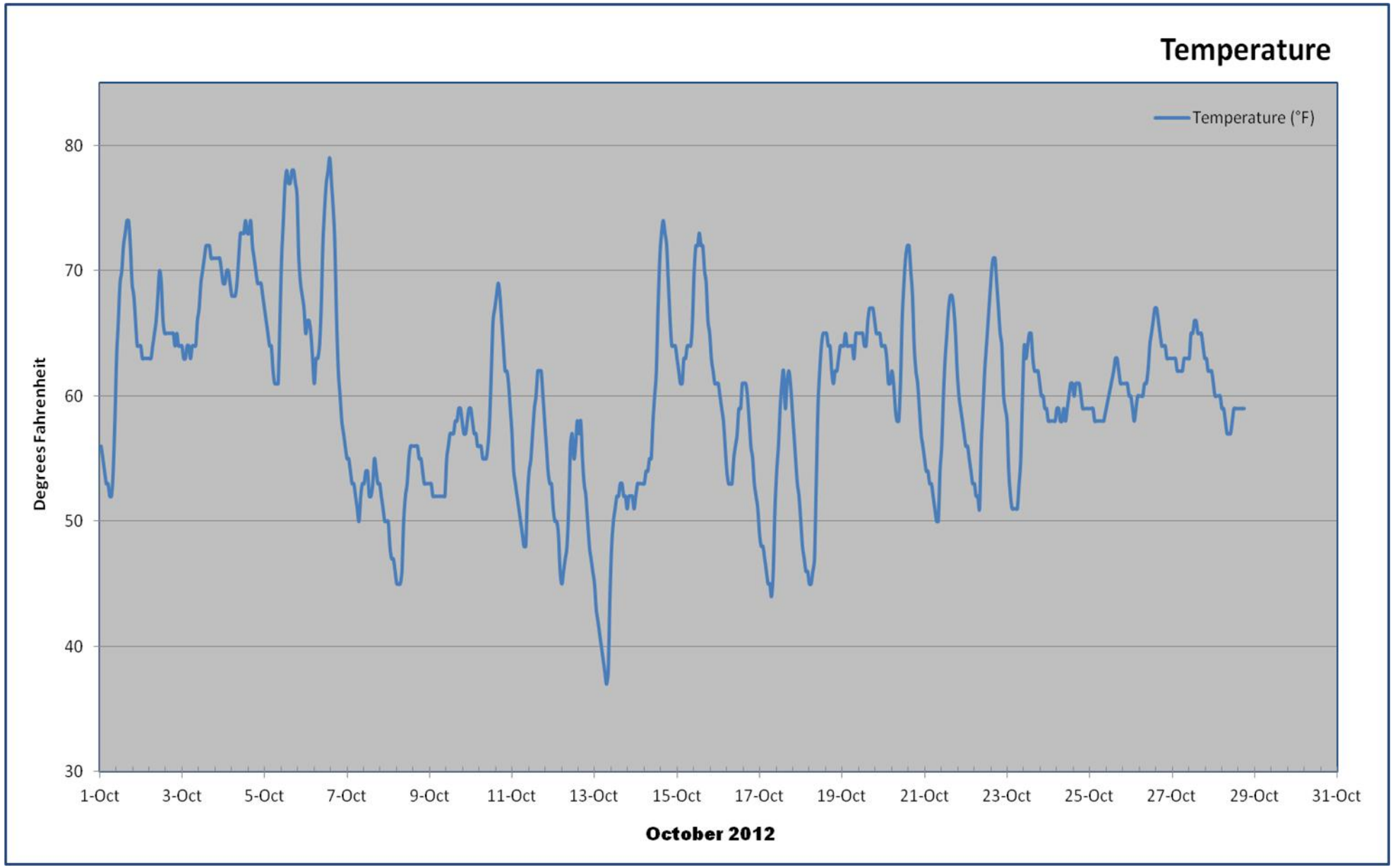
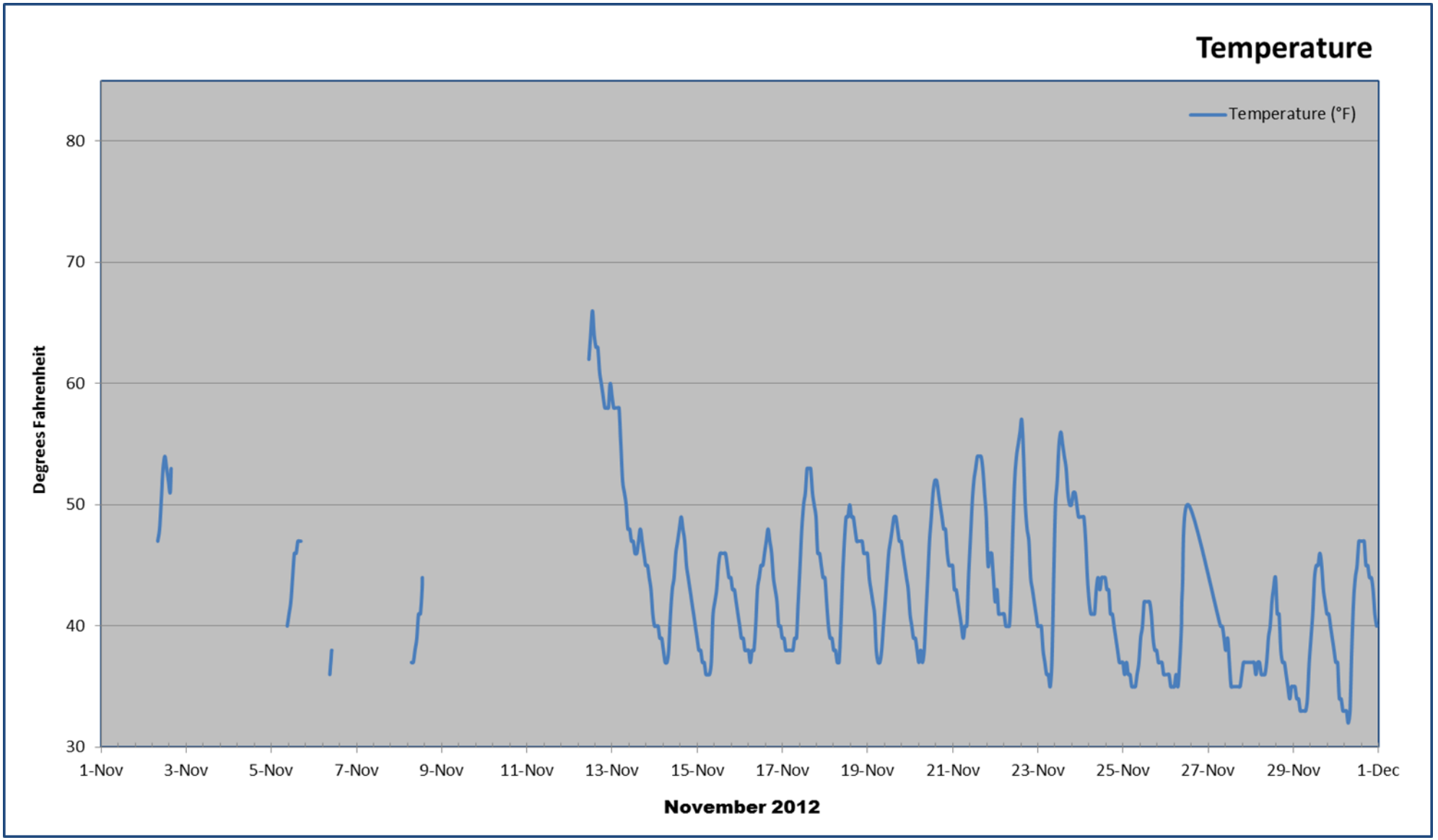

Average Wind Speed
Wind Speed (MPH)
Miles Per Hour
25
20
15
10
5
0
1-Feb
3-Feb
5-Feb
7-Feb
9-Feb
11-Feb
13-Feb
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
February 2013

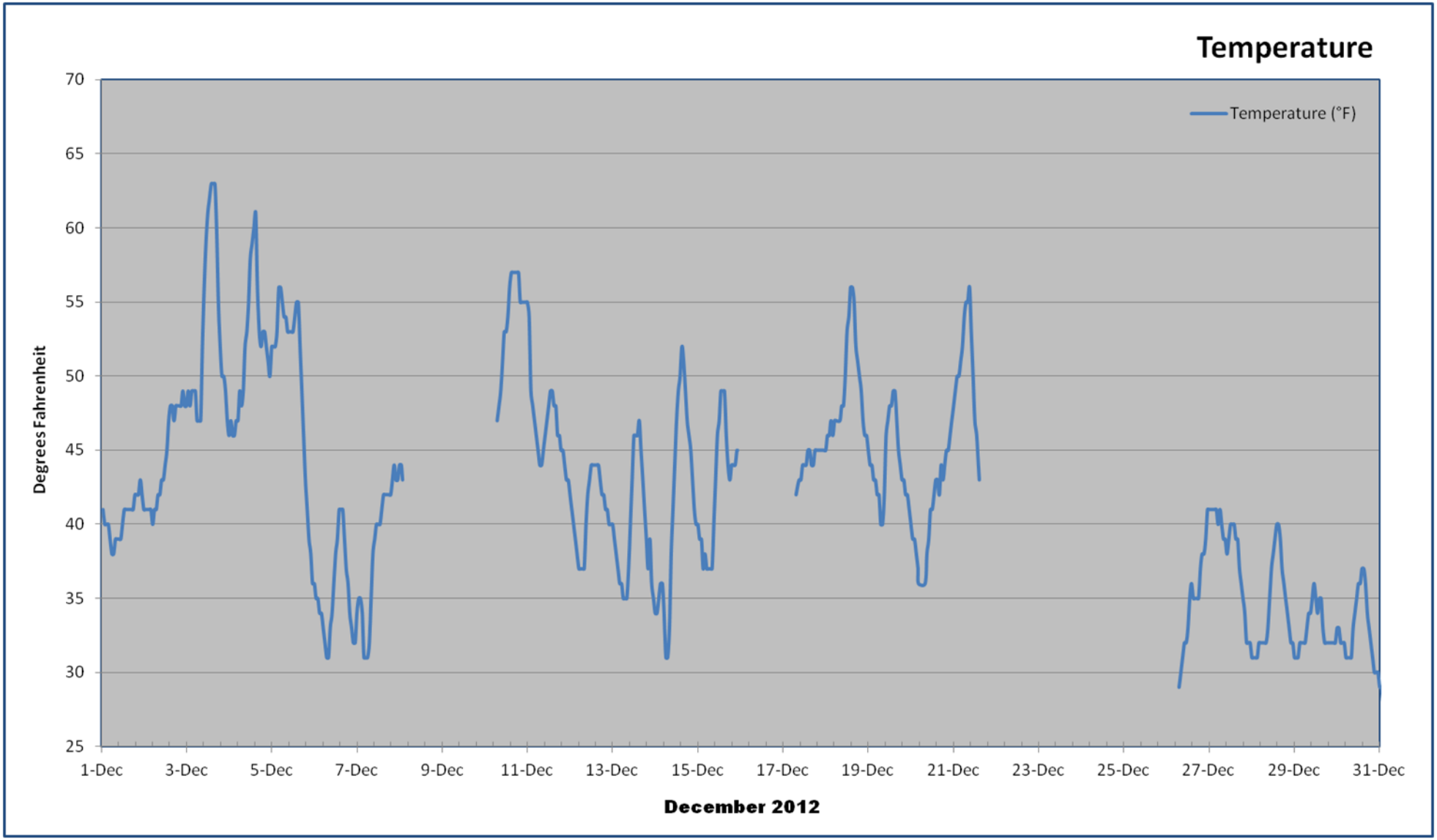
Figure A-4: Temperature

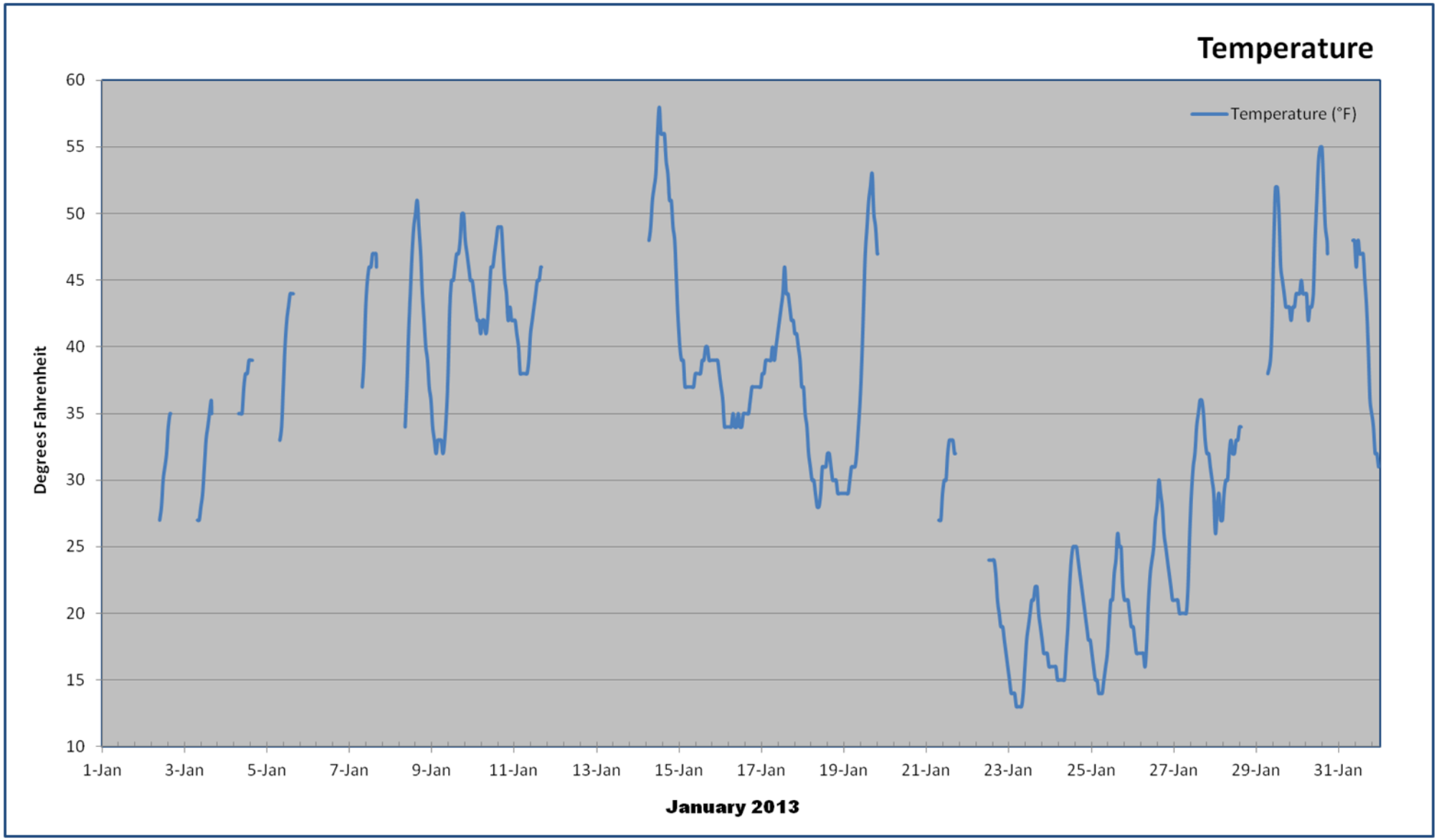



Temperature
Temperature (°F)
Degrees Fahrenheit
100
95
90
85
80
75
70
65
60
55
50
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
September 2012


Temperature
Temperature (°F)
Degrees Fahrenheit
80
70
60
50
40
30
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
October 2012


Temperature
Temperature (°F)
Degrees Fahrenheit
80
70
60
50
40
30
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
1-Dec
November 2012


Temperature
Temperature (°F)
Degrees Fahrenheit
70
65
60
55
50
45
40
35
30
25
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
13-Dec
15-Dec
17-Dec
19-Dec
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
December 2012


Temperature
Temperature (°F)
Degrees Fahrenheit
60
55
50
45
40
35
30
25
20
15
10
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
January 2013

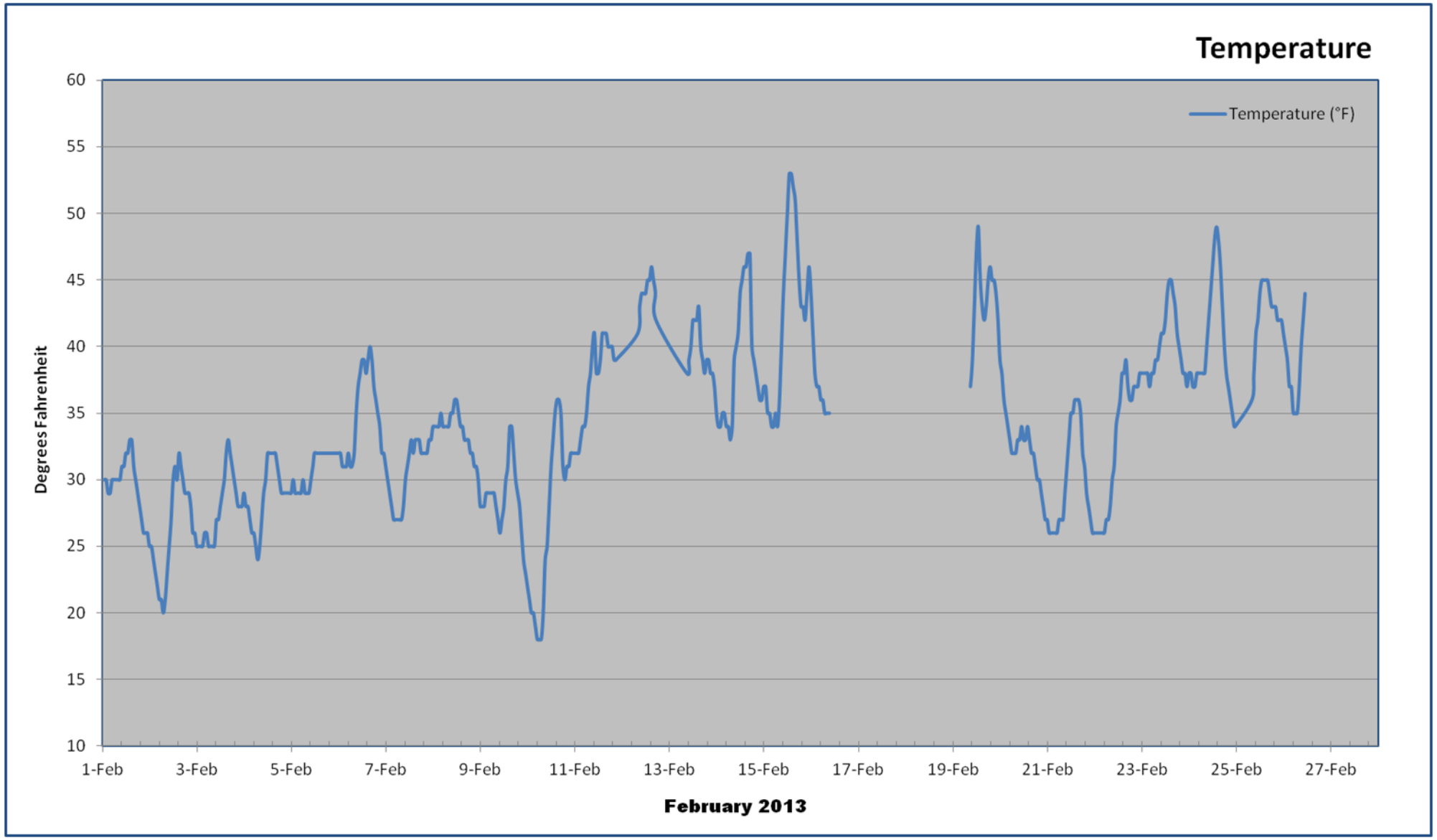
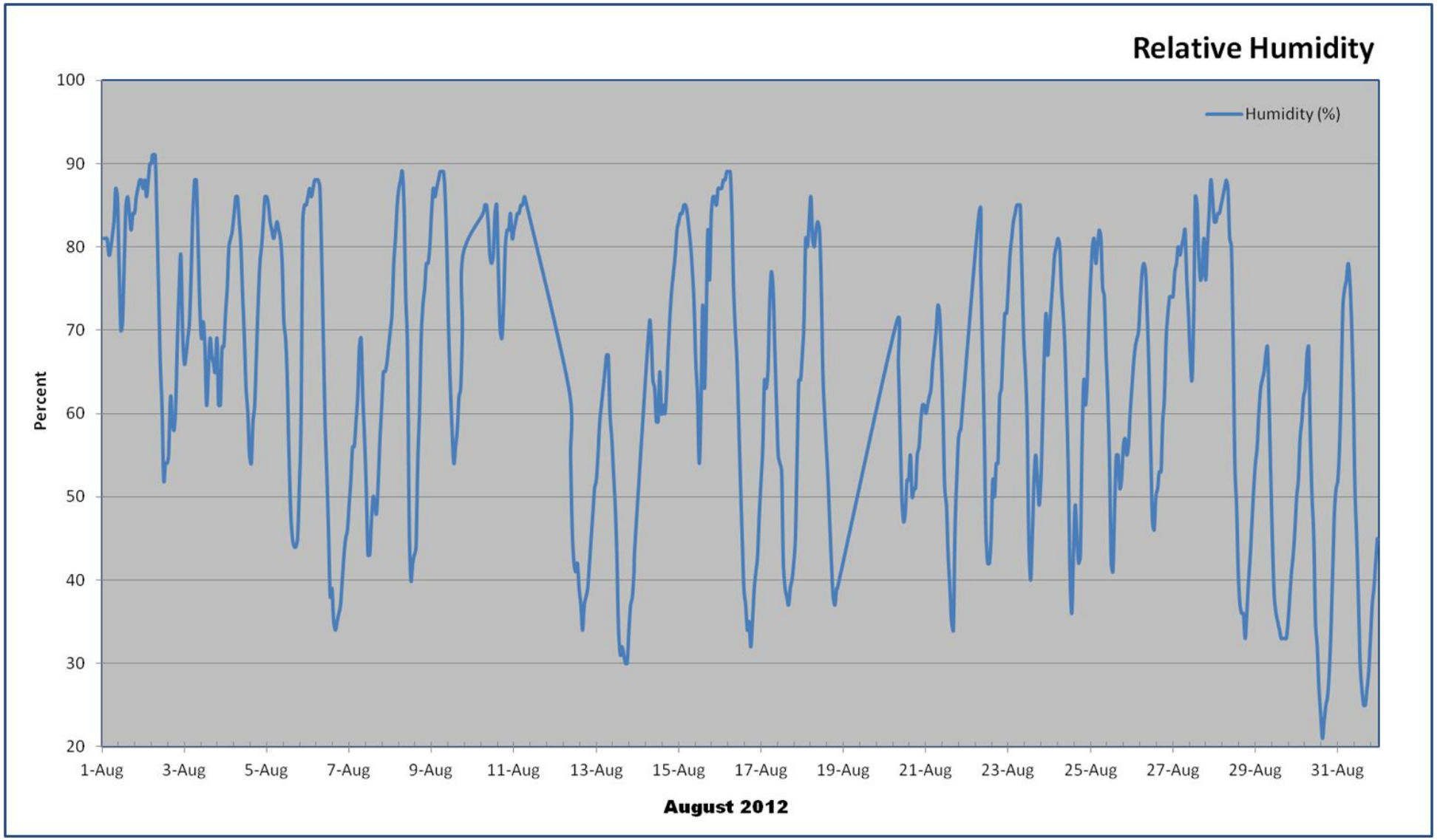
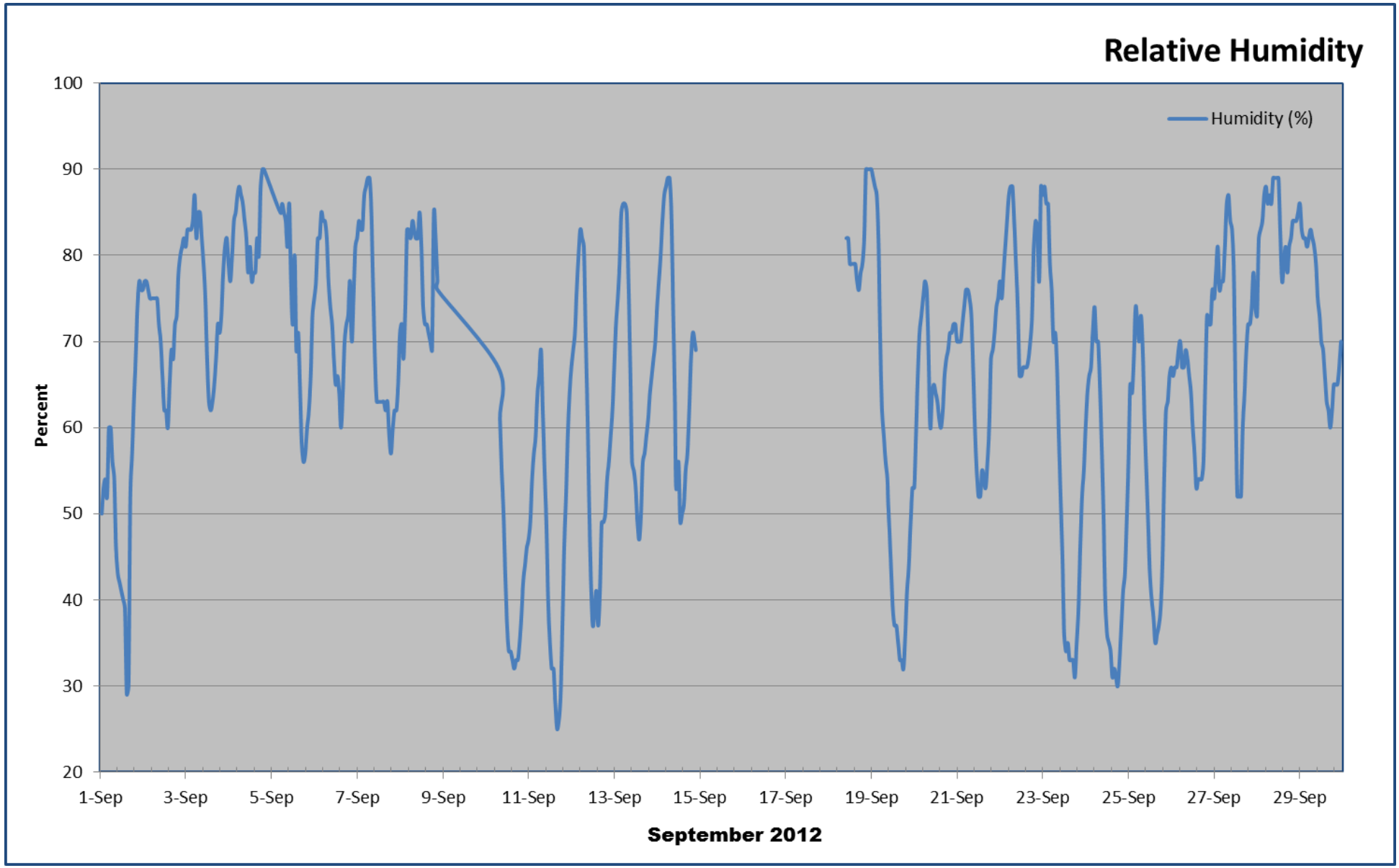
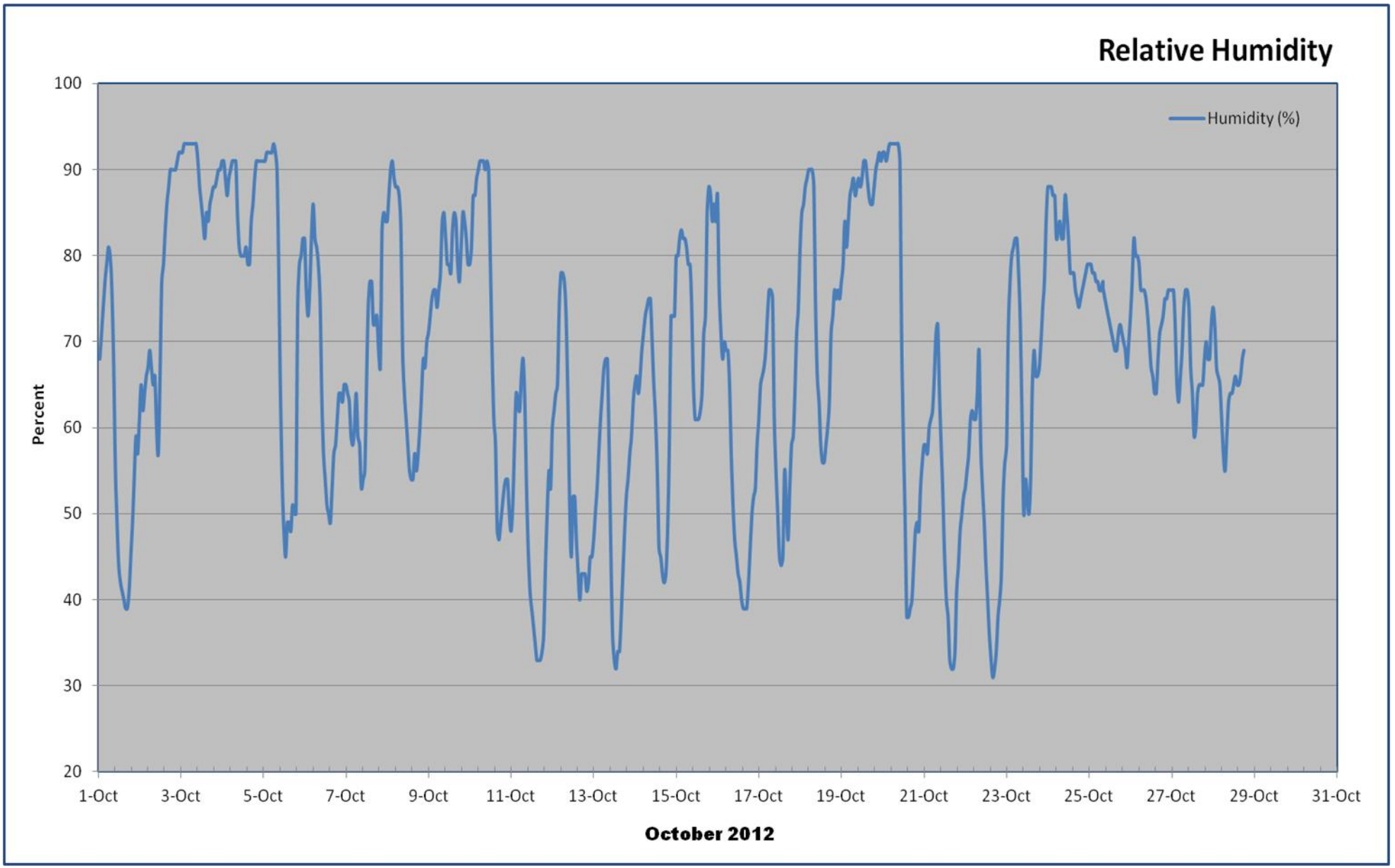
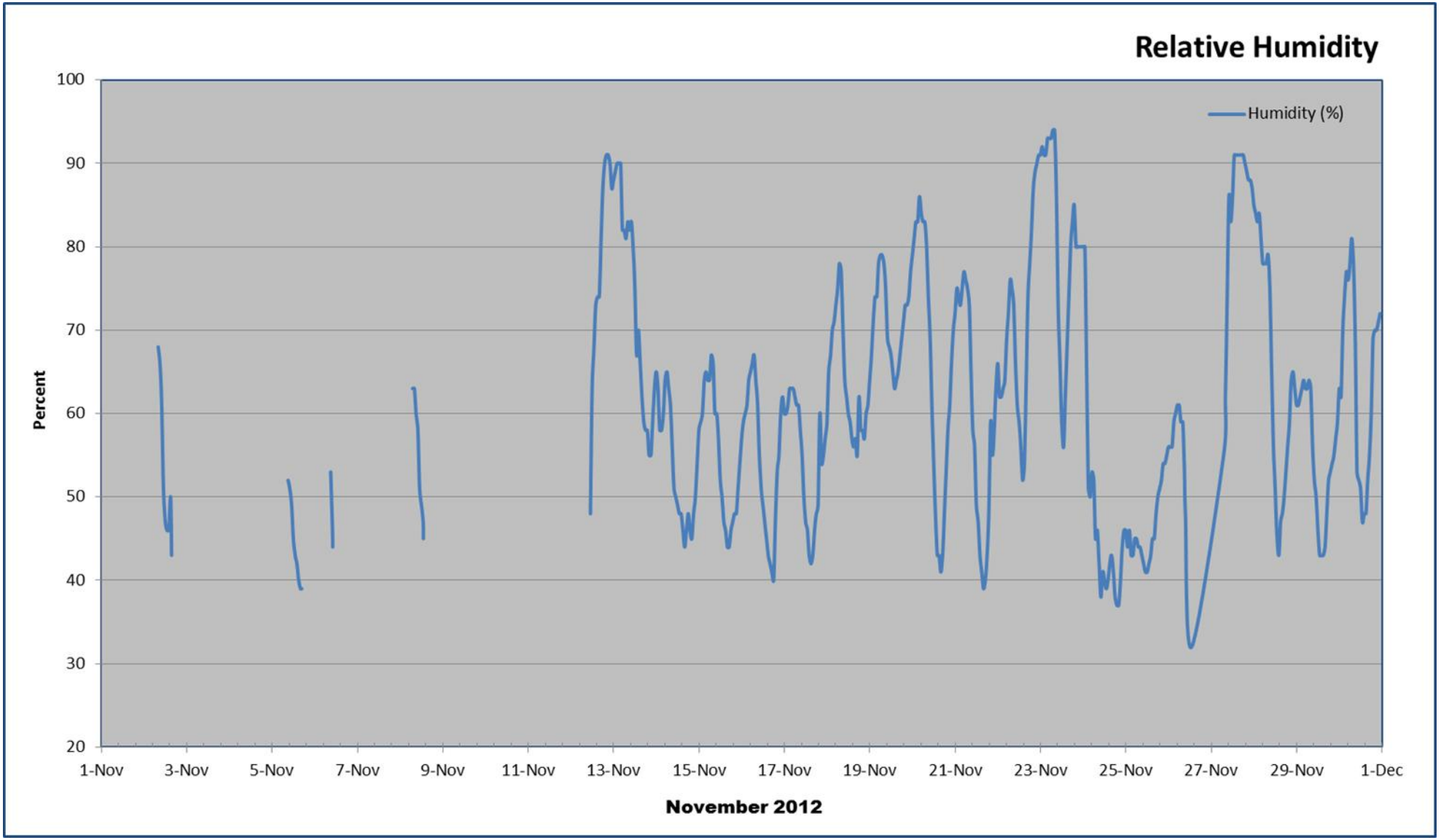

Temperature
Temperature (°F)
Degrees Fahrenheit
60
55
50
45
40
35
30
25
20
15
10
1-Feb
3-Feb
5-Feb
7-Feb
9-Feb
11-Feb
13-Feb
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
February 2013

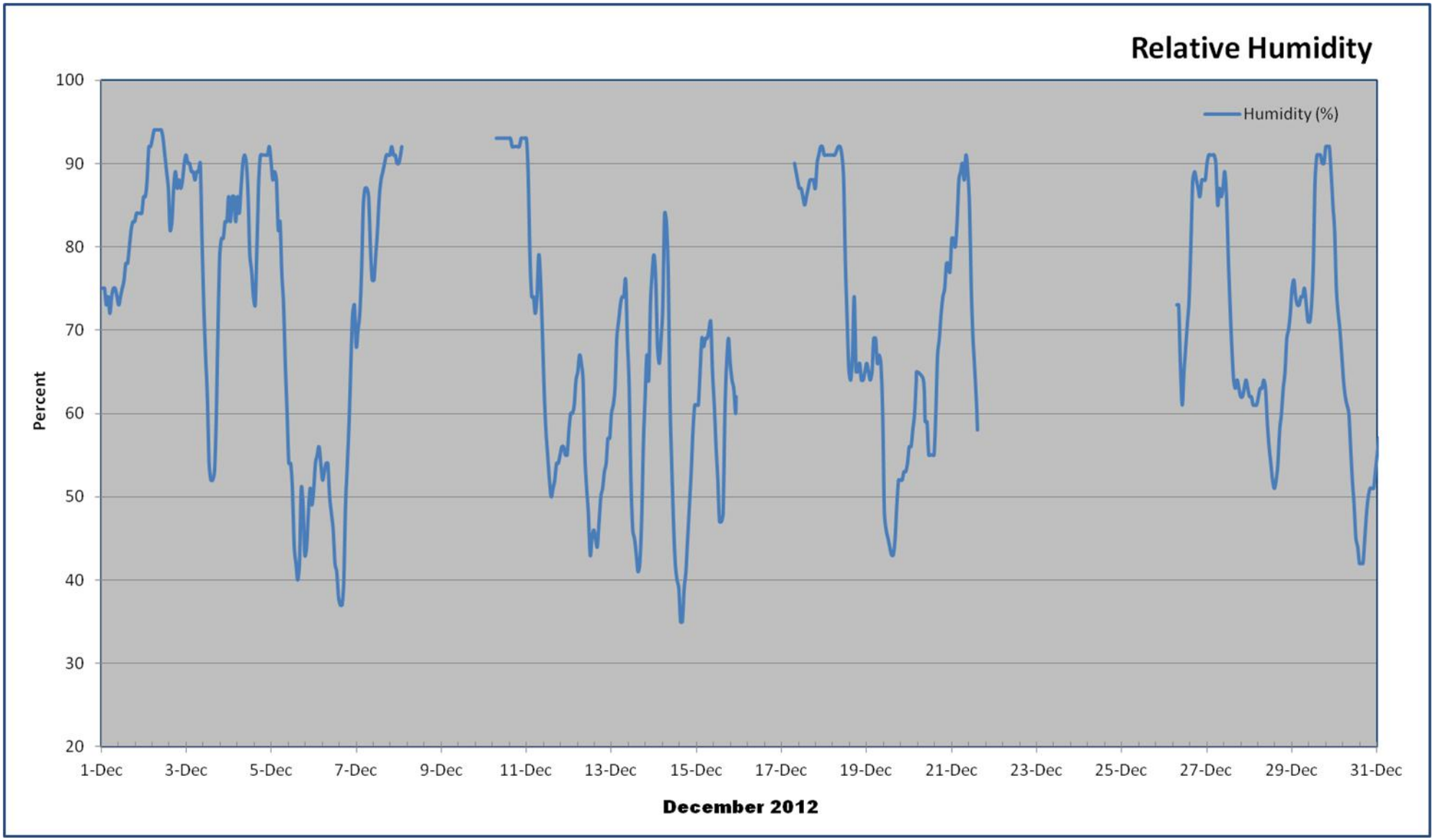
Figure A-5: Relative Humidity

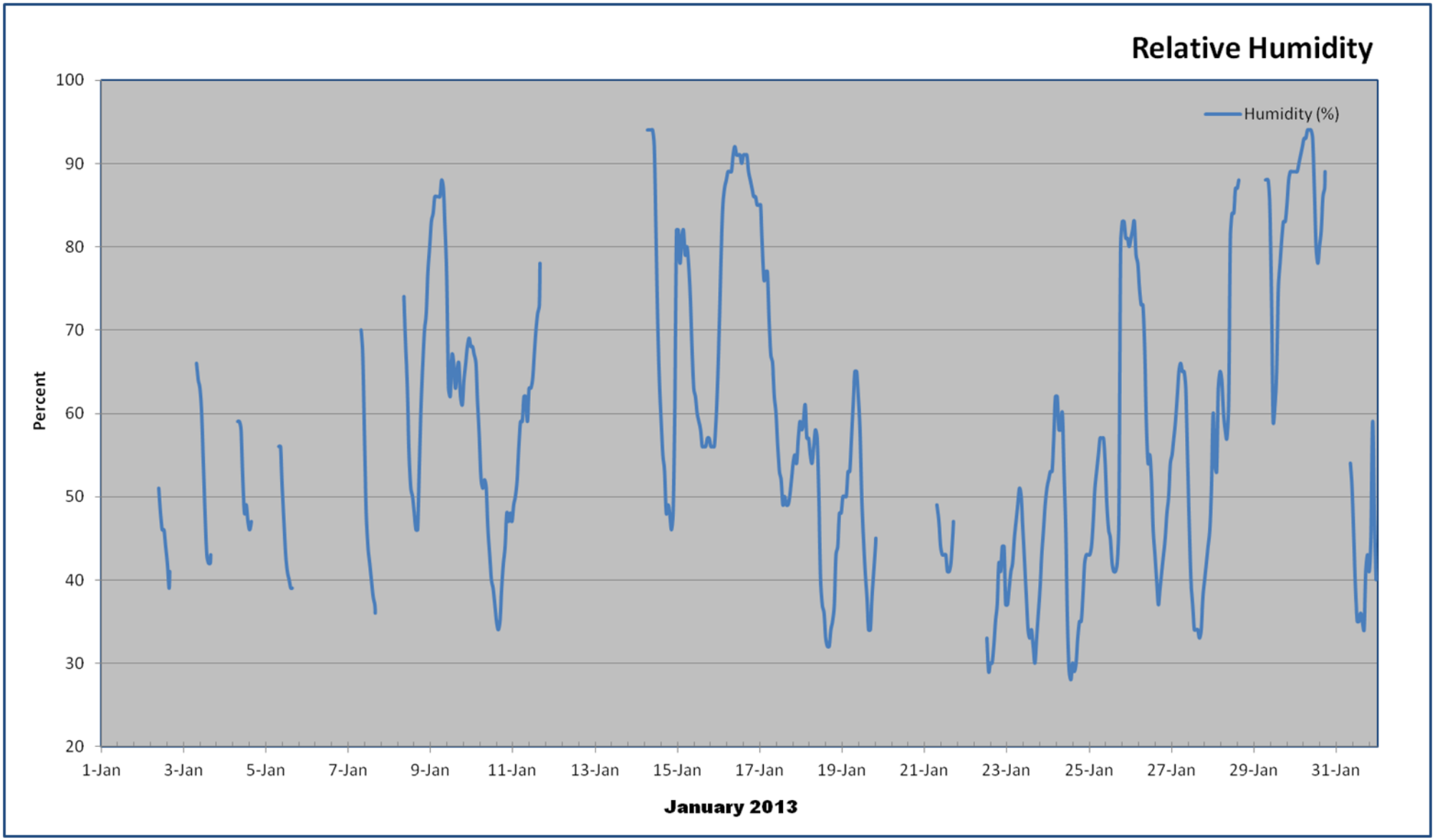



Relative Humidity
Humidity (%)
Percent
100
90
80
70
60
50
40
30
20
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
September 2012


Relative Humidity
Humidity (%)
Percent
100
90
80
70
60
50
40
30
20
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
October 2012


Relative Humidity
Humidity (%)
Percent
100
90
80
70
60
50
40
30
20
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
1-Dec
November 2012


Relative Humidity
Humidity (%)
Percent
100
90
80
70
60
50
40
30
20
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
13-Dec
15-Dec
17-Dec
19-Dec
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
December 2012


Relative Humidity
Humidity (%)
Percent
100
90
80
70
60
50
40
30
20
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
January 2013

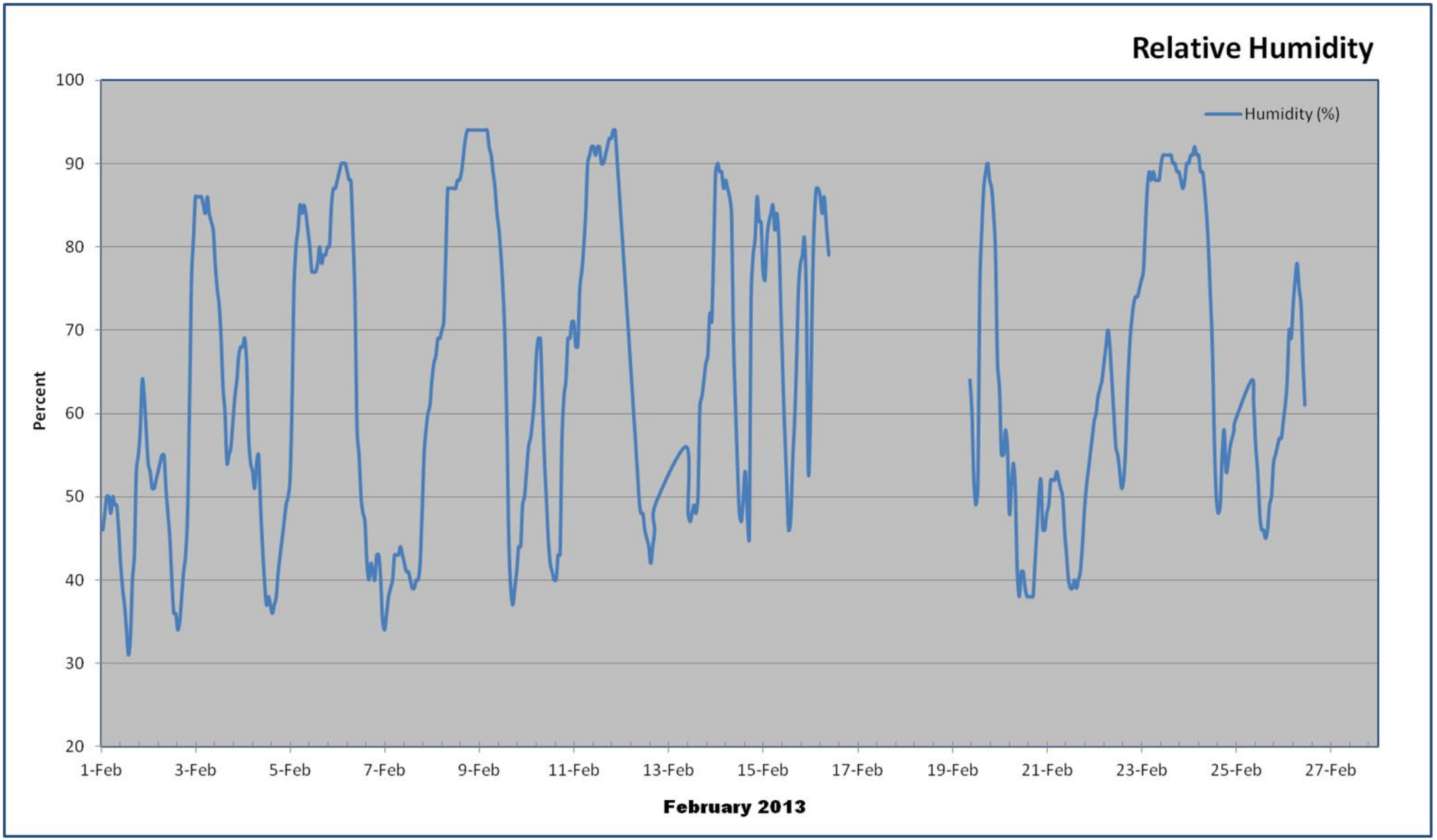
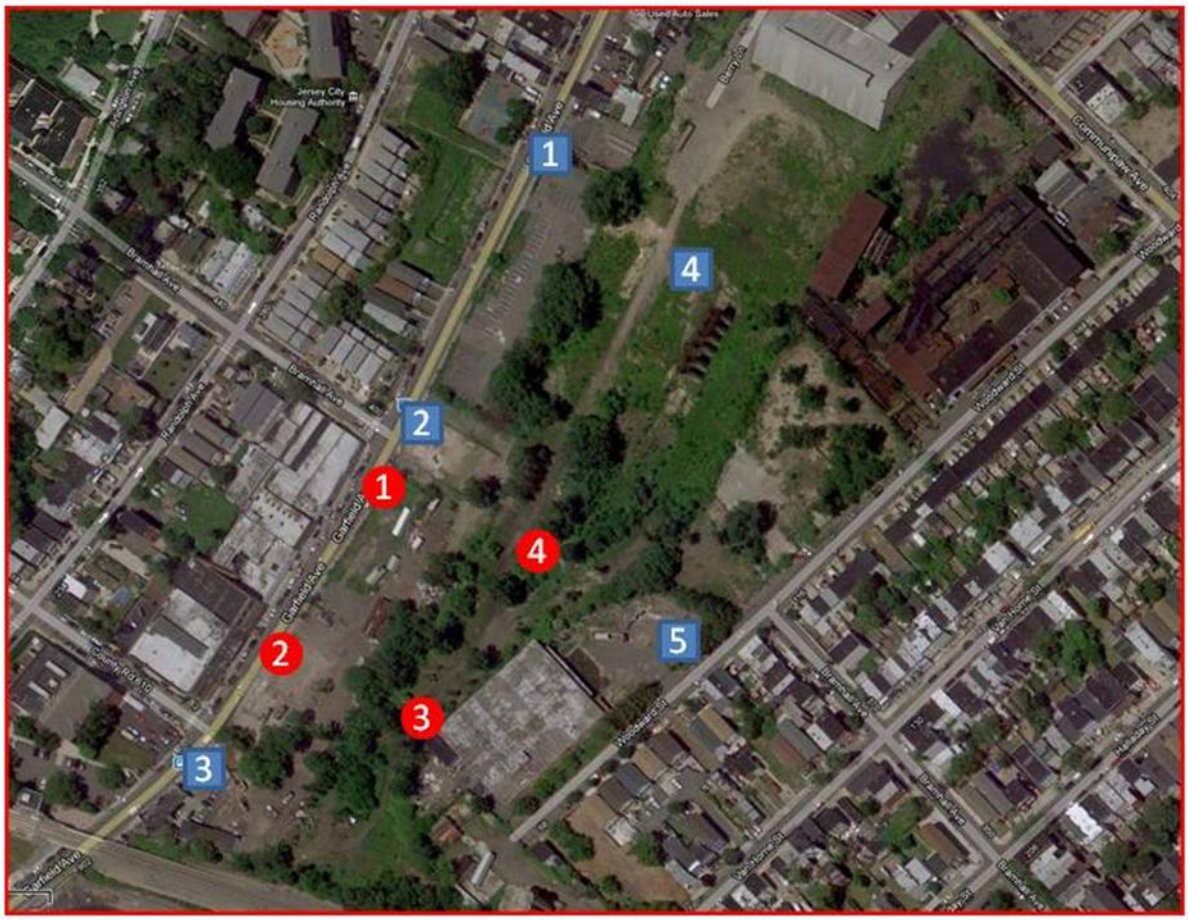

Relative Humidity
Humidity (%)
Percent
100
90
80
70
60
50
40
30
20
1-Feb
3-Feb
5-Feb
7-Feb
9-Feb
11-Feb
13-Feb
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
February 2013

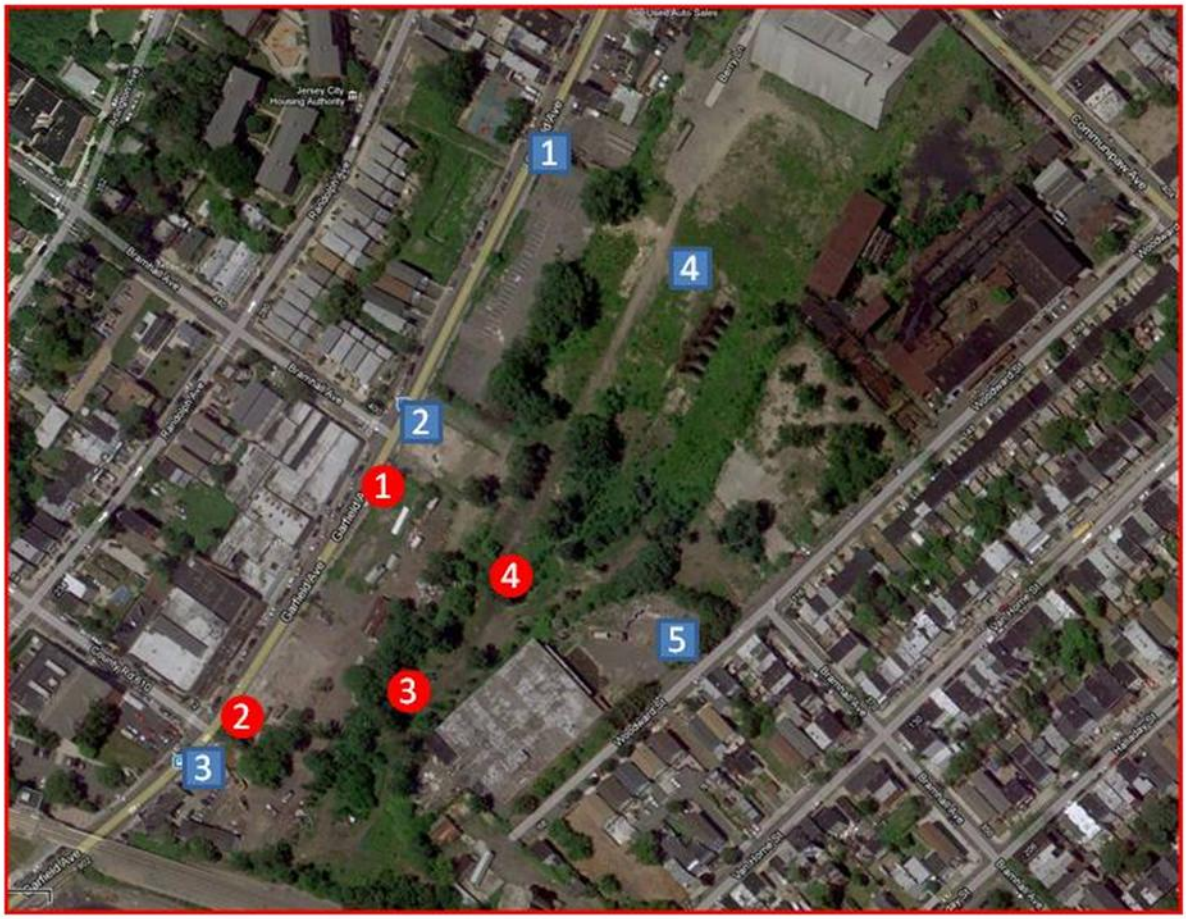
Figure A-4: Daily Site Map 07.23.13 to 08.09.13



Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

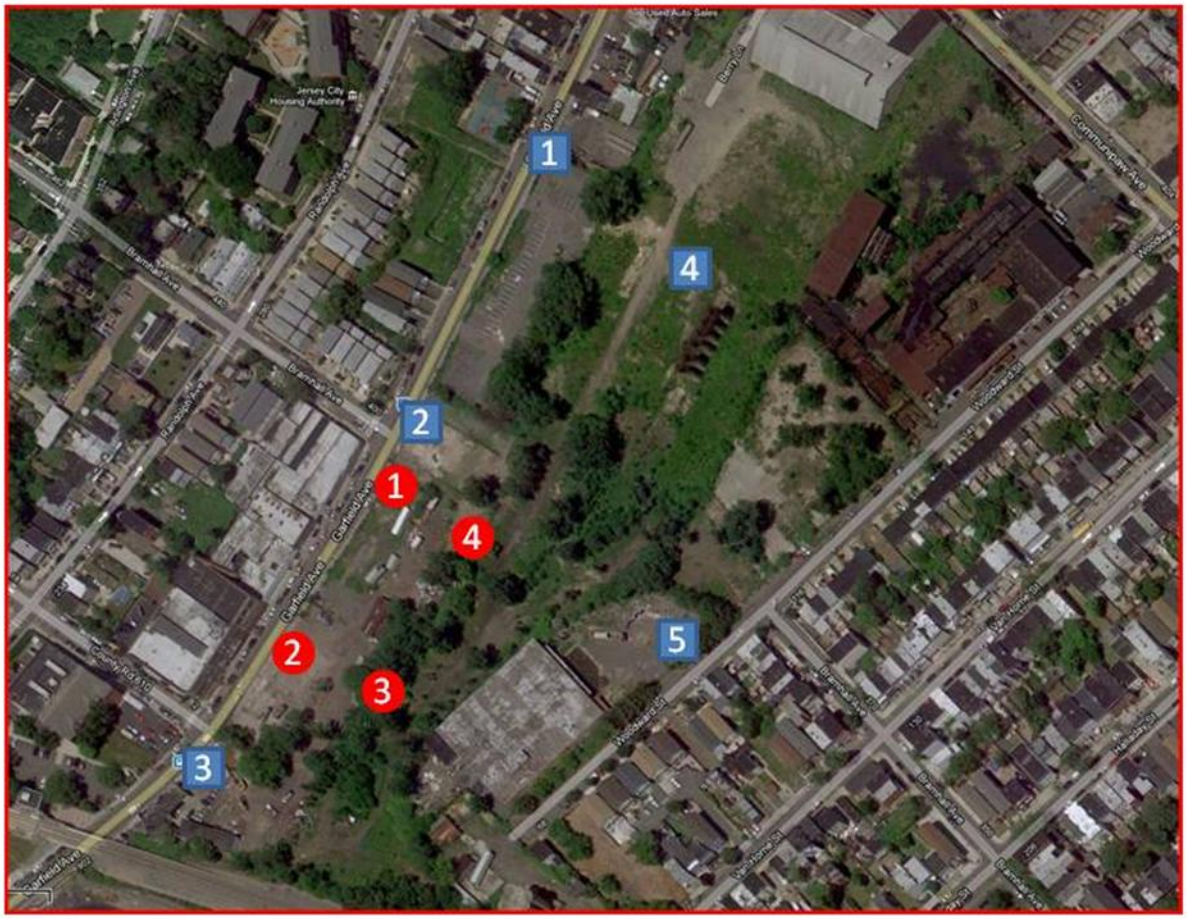
Daily Site Map 08.10.13



Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

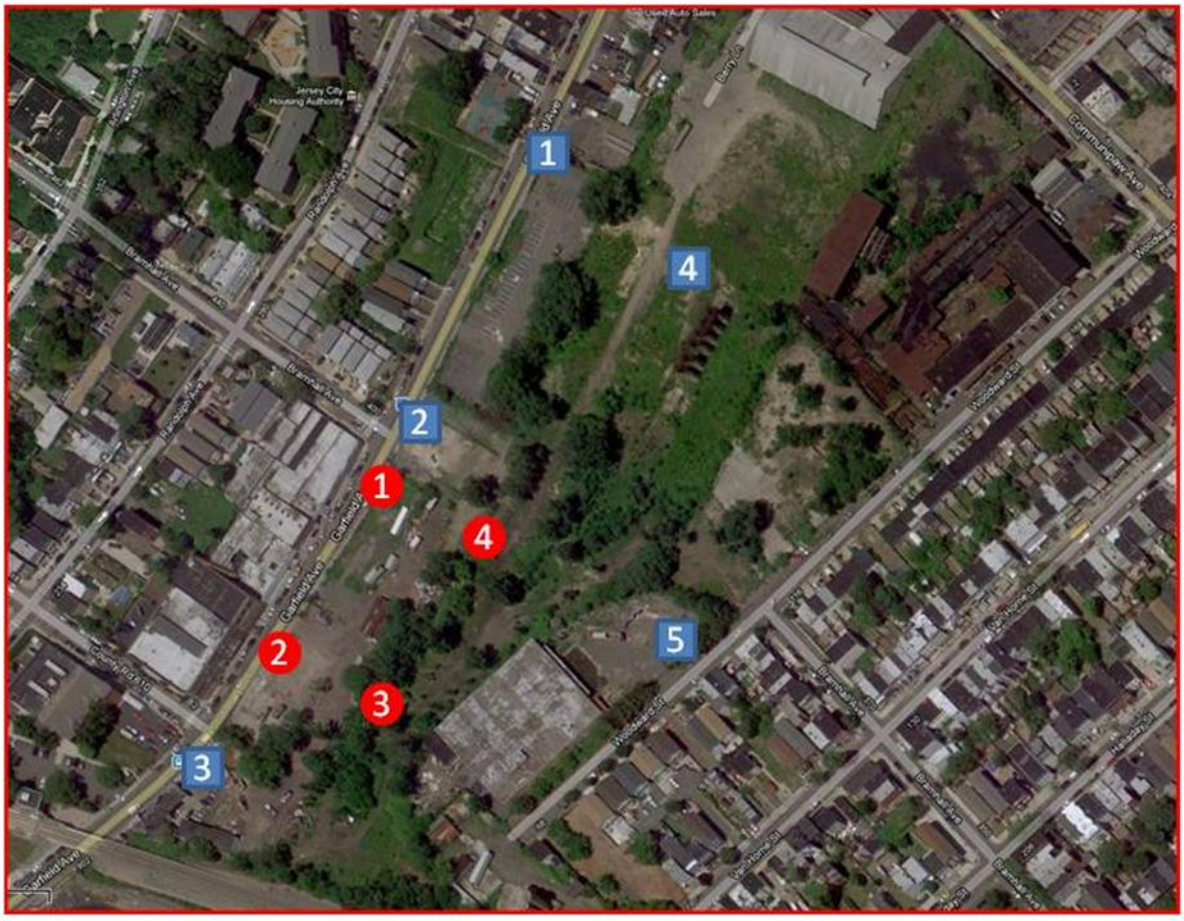
Daily Site Map 08.13.13 to 08.29.13



Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

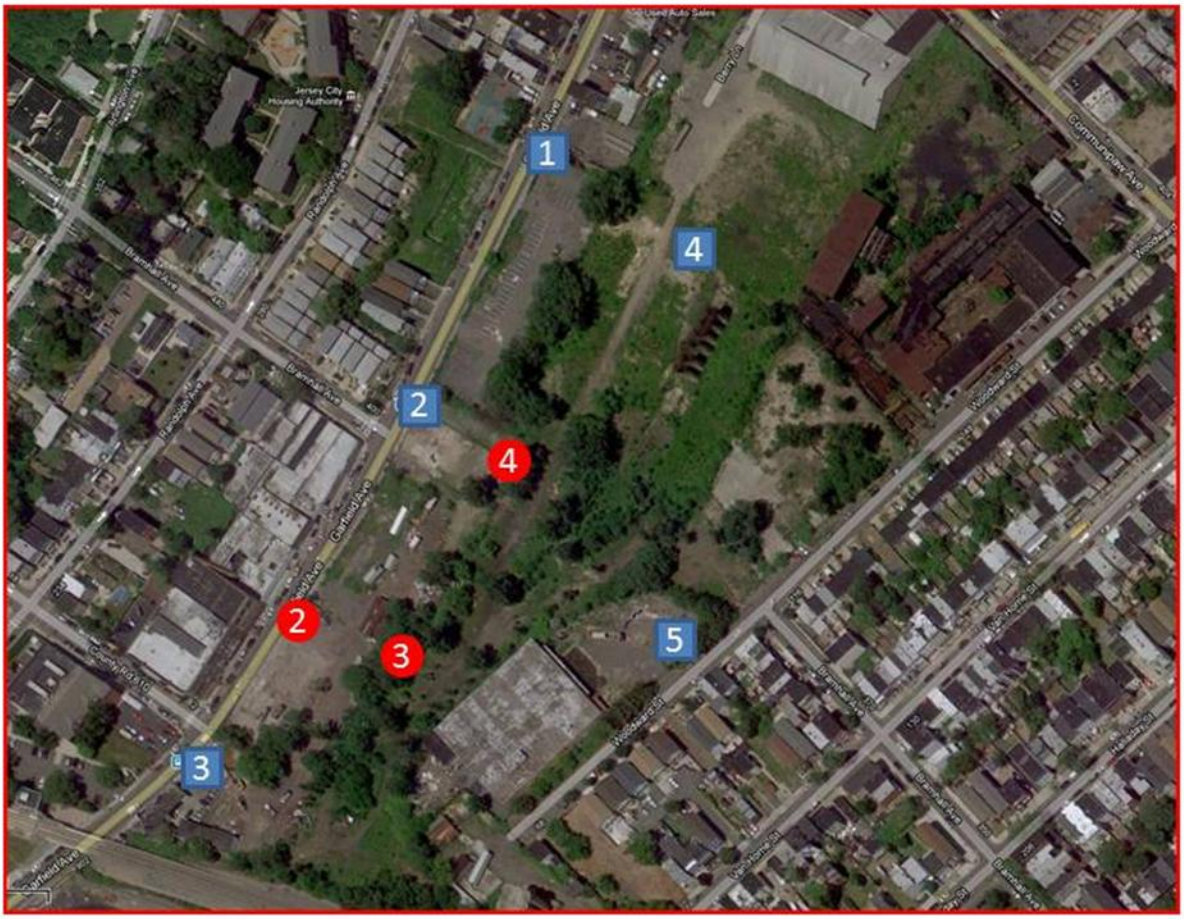
Daily Site Map 08.30.13 to 09.14.13



Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

Daily Site Map 09.17.13 to 10.05.13



Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

Daily Site Map 10.08.13 to 11.02.13

Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

Daily Site Map 11.05.13 to 11.09.13

Fenceline Fixed Air Monitoring Station (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Station (PAM)

Daily Site Map 11.12.13 to 11.16.13

Fenceline Fixed Air Monitoring Station (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Station (PAM)

Daily Site Map 11.17.13

Fenceline Fixed Air Monitoring Station (FAM)

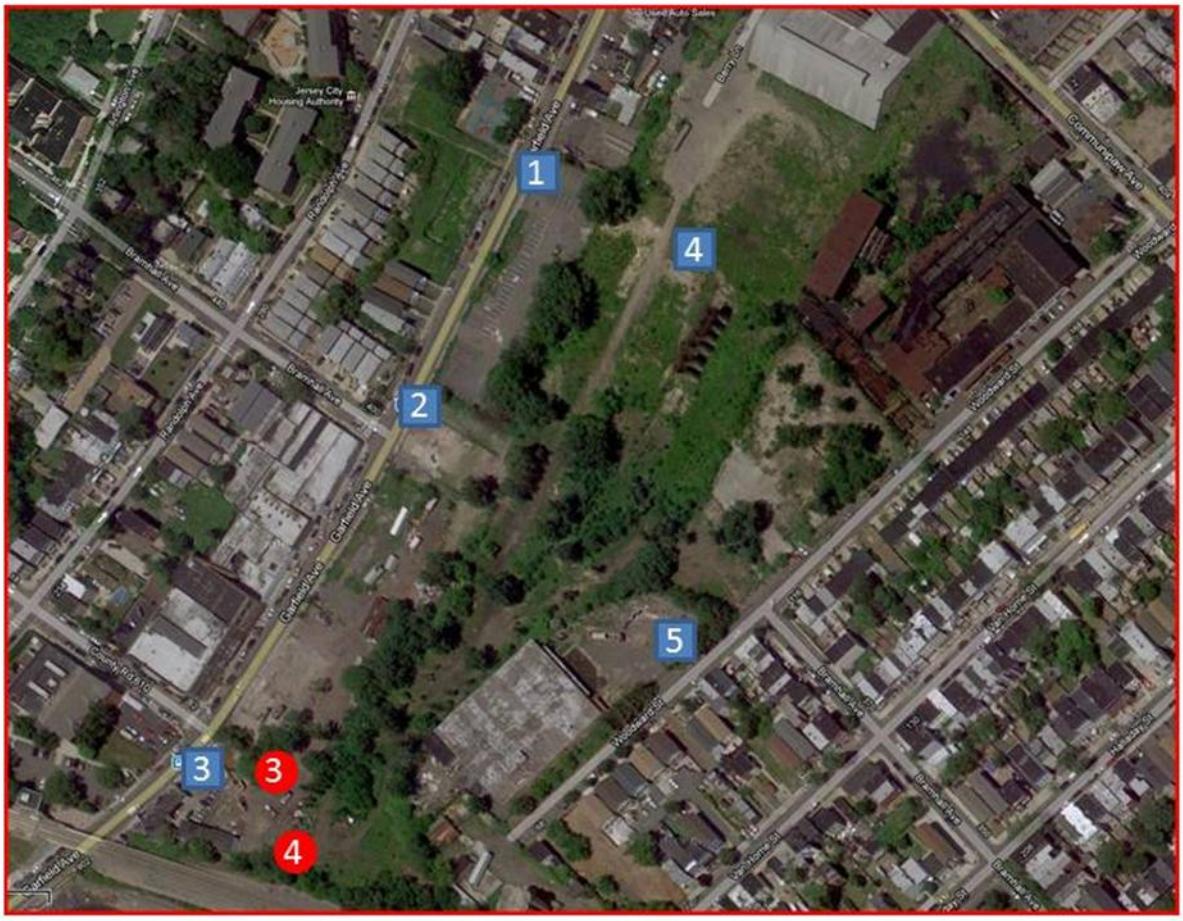
Perimeter of the Exclusion Zone Portable Air Monitoring Station (PAM)

Daily Site Map 11.19.13 to 11.30.13

Fenceline Fixed Air Monitoring Station (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Station (PAM)

Daily Site Map 12.03.13 to 02.26.13



Fenceline Fixed Air Monitoring Stations (FAM)

Perimeter of the Exclusion Zone Portable Air Monitoring Stations (PAM)

Appendix B

Program to Date Result Summaries

- Integrated 8 Hour Cr6 Concentration Summaries
- Integrated 8 Hour Total Dust Concentration Summaries
- Real-time PM_{10} Concentrations Summaries

Table B- 1: Project Integrated 8 Hour Cr6 Sampling Results Statistics

Statistics[1]	Fenceline					Exclusion Zone Perimeter			
	FAM 1	FAM 2	FAM 3	FAM 4	FAM 5	PAM 1	PAM 2	PAM 3	PAM 4
Total Number of Samples[2]	138	137	141	134	139	66	85	141	137
Rate of Data Collection	96%	95%	98%	93%	96%	94%	95%	98%	95%
Total Number of Detected Samples[3]	9	25	8	14	9	6	5	7	12
% of Cr6 Samples Greater than Laboratory Detection Limit	6.5%	18.2%	5.7%	10.4%	6.5%	9.1%	5.9%	5.0%	8.8%
Total Number of Samples Above the AAC (49 ng/m^3)	0	0	0	0	1	0	0	0	1
Average % Cr6 in Dust[4]	0.019%	0.016%	0.020%	0.014%	0.022%	0.019%	0.021%	0.019%	0.022%
Maximum % Cr6 in Dust[4]	0.2%	0.2%	0.07%	0.1%	0.2%	0.2%	0.19%	0.2%	0.2%

ng/m^3 – nanograms per cubic meter

[1] Statistics calculated based on the program start date of July 23, 2012.

[2] Total number of samples collected since July 23, 2012. Variations in the number of samples collected are specifically identified in Table A-1 within the report month of the variation. In general variations are caused by sampler malfunctions, site activities, weather conditions, etc.

[3] Total number of sample results since July 23, 2012 reported above the laboratory reporting limit.

[4] The project average and maximum percent Cr6 in dust was calculated using all the integrated Total Dust and Cr6 sample results collected since July 23, 2012.

Table B- 2: Monthly Average Integrated 8 Hour Cr6 Sampling Results

	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (ng/m^3)	**FAM 2 (ng/m^3)**	**FAM 3 (ng/m^3)**	**FAM 4 (ng/m^3)**	**FAM 5 (ng/m^3)**	**PAM 1 (ng/m^3)**	**PAM 2 (ng/m^3)**	**PAM 3 (ng/m^3)**	**PAM 4 (ng/m^3)**
Baseline[1]	10.4	10.3	10.3	10.2	10.2	NA	NA	NA	NA
July 2012	10.5	2.9	8.0	4.6	7.6	8.3	8.1	8.1	7.9
August 2012	7.8	3.9	7.7	3.7	7.3	7.9	7.1	8.2	8.1
September 2012	8.6	6.3	8.4	4.2	13.0	14.2	7.4	9.3	8.2
October 2012	9.7	4.1	9.1	4.6	9.8	8.9	10.4	9.3	10.5
November 2012	9.5	3.4	9.7	3.6	8.8	8.7	10.6	8.7	7.9
December 2012	8.4	3.0	8.0	2.9	8.1	8.0	7.5	8.1	9.4
January 2013	8.5	3.3	8.2	3.2	8.1	NA	NA	9.6	13.6
February 2013	9.0	3.5	8.2	3.5	8.3	NA	NA	8.1	7.8
Project Completion	8.9	4.1	8.6	3.9	9.2	9.3	9.0	8.8	9.4

ng/m^3 – nanograms per cubic meter

[1] Baseline – Air monitoring conducted prior to the beginning of excavation activities.

Table B- 3: Project Integrated Total Dust 8 Hour Sampling Results Statistics

Statistics[1]	Fenceline					Exclusion Zone Perimeter			
	FAM 1	FAM 2	FAM 3	FAM 4	FAM 5	PAM 1	PAM 2	PAM 3	PAM 4
Total Number of Samples[2]	138	137	141	134	139	66	85	141	137
Rate of Data Collection	96%	95%	98%	93%	96%	94%	95%	98%	95%
Total Number of Detected Samples[3]	39	80	18	65	11	23	18	25	25
% Detection	28.1%	58.4%	12.8%	48.1%	7.9%	34.8%	21.2%	17.6%	18.1%

[1] Statistics calculated based on the program start date of July 23, 2012.

[2] Total number of sample collected since July 23, 2012. Variations in the number of samples collected are specifically identified in **Table A-2** within the report month of the variation.

[3] Total number of sample results since July 23, 2012 reported above the laboratory reporting limit.

Table B- 4: Monthly Average Integrated 8 hour Total Dust Sampling Results

	Fenceline					Exclusion Zone Perimeter			
	FAM 1 (µg/m^3)	**FAM 2 (µg/m^3)**	**FAM 3 (µg/m^3)**	**FAM 4 (µg/m^3)**	**FAM 5 (µg/m^3)**	**PAM 1 (µg/m^3)**	**PAM 2 (µg/m^3)**	**PAM 3 (µg/m^3)**	**PAM 4 (µg/m^3)**
Baseline[1]	201.1	277	184.5	214.8	200.1	NA	NA	NA	NA
July 2012	51.4	32.9	44.1	42.5	37.9	36.4	48.8	50.6	38.4
August 2012	84.9	59.3	54.7	56.5	54.2	77.4	56.2	90.6	91.9
September 2012	76.4	43.3	40.2	54.9	51.4	95.8	56.5	67.5	44.3
October 2012	48.2	34.8	45.4	29.1	44.5	64.6	50.0	42.6	54.4
November 2012	69.4	49.3	57.8	26.3	46.6	43.9	58.5	49.7	42.1
December 2012	57.2	36.1	39.9	29.0	40.2	40.5	110.0	42.9	55.1
January 2013	64.3	36.3	48.4	27.2	57.0	NA	NA	63.3	62.5
February 2013	44.2	22.5	45.0	17.1	41.3	NA	NA	40.4	39.2
Project Completion	65.0	40.9	47.6	36.3	48.1	67.5	55.8	58.2	57.1

µg/m^3 – micrograms per cubic meter

[1] Baseline – Air monitoring conducted prior to the beginning of excavation activities.

Table B- 5: Monthly Average Real Time PM_{10} Monitoring Results

	Fenceline					Exclusion Zone Perimeter			
	FAM 1 ($\mu g/m^3$)	**FAM 2 ($\mu g/m^3$)**	**FAM 3 ($\mu g/m^3$)**	**FAM 4 ($\mu g/m^3$)**	**FAM 5 ($\mu g/m^3$)**	**PAM 1 ($\mu g/m^3$)**	**PAM 2 ($\mu g/m^3$)**	**PAM 3 ($\mu g/m^3$)**	**PAM 4 ($\mu g/m^3$)**
Baseline[1]	12.4	16.4	16.0	17.9	13.5	NA	NA	NA	NA
July 2012	13.5	15.9	15.3	15.6	13.9	47.2	37.9	36.5	87.1
August 2012	24.7	19.7	18.9	24.1	20.4	61.4	55.7	55.3	73.4
September 2012	23.0	31.5	15.1	19.3	14.1	42.4	42.8	34.1	49.8
October 2012	24.8	31.2	25.5	29.1	25.5	57.3	85.6	65.9	59.8
November 2012	19.9	32.9	27.0	26.7	20.3	68.1	163.6	48.8	91.3
December 2012	25.2	57.9	67.1	61.5	60.0	NA	NA	50.1	59.3
January 2013	36.9	61.8	53.2	57.6	56.4	NA	NA	71.1	93.4
February 2013	19.6	24.6	18.7	53.7	32.3	NA	NA	64.0	82.5
Project Average	26.6	44.3	29.9	35.2	30.2	56.4	74.7	54.6	60.2

$\mu g/m^3$ – micrograms per cubic meter

[1] Baseline – Air monitoring conducted prior to the beginning of excavation activities (7.12.12 to 7.16.12)