

**September / October 2019  
Air Quality Report  
Site 107, Fashionland**

Attached is a technical summary of air quality data for September & October 2019 at the Site 107 cleanup site submitted by PPG Industries' air monitoring consultant.

This report provides air monitoring information about conditions at the perimeter associated with Site 107 (Fashionland).

Also, this document notes any deviations from the monitoring plan and work schedule caused by factors beyond the control of cleanup contractors, such as inclement weather and malfunctioning equipment.

Monthly Air Monitoring Report  
Site 107, Fashionland  
Jersey City, New Jersey

Reporting Period: September / October 2019

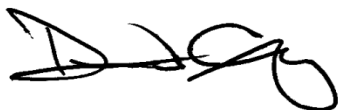
Monthly Air Monitoring Report  
Site 107, Fashionland  
Jersey City, New Jersey

Reporting Period: September / October  
2019



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November 25, 2019

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## List of Acronyms

AAC – Acceptable Air Concentration

AMP – Air Monitoring Plan

AMS – Air Monitoring Station

Cr<sup>+6</sup> – Hexavalent Chromium

FAM – Fixed Air Monitoring

LPM – Liters per Minute

ng/m<sup>3</sup> – Nanograms per Cubic Meter of Air

NJDEP – New Jersey Department of Environmental Protection

PM<sub>10</sub> – Particulate Matter 10 Microns or less in Diameter

PPG – PPG Industries, Inc.

µg/m<sup>3</sup> – Micrograms per Cubic Meter of Air

## Executive Summary

Air monitoring conducted at Site 107 was completed in accordance with the Site-Specific Air Monitoring Plan (AMP), and included sampling and analysis for 8-hour integrated hexavalent chromium ( $\text{Cr}^{+6}$ ) and total particulates, as well as real-time monitoring for  $\text{PM}_{10}$  at all air monitoring stations. In addition to the air monitoring conducted in accordance with the AMP, 24-hour  $\text{Cr}^{+6}$  and total particulate sampling with lab analysis was also conducted at one station. This program is designed to measure various aspects of air quality at the Site to ensure that remedial activities at the Site do not have an adverse effect on Site workers and the surrounding community.

Results of the integrated  $\text{Cr}^{+6}$  sampling and analysis indicate that program-to-date average airborne  $\text{Cr}^{+6}$  concentrations are significantly below the Acceptable Air Concentration (AAC) at each of the AMS locations. The results and calculations document continuing compliance with the current AAC set by the New Jersey Department of Environmental Protection (NJDEP), confirm that dust control measures continue to be effective, and indicate that the levels of  $\text{Cr}^{+6}$  in dust generated at the Site do not represent an emission source of  $\text{Cr}^{+6}$  sufficient to create potential offsite exposure to  $\text{Cr}^{+6}$  at or exceeding the AAC.

## 1.0 Introduction

This monthly air monitoring report update includes both tabular information and written discussions summarizing the ambient air quality data collected in accordance with the Air Monitoring Plan (AMP) at Site 107 (referred herein as Site), in Jersey City, New Jersey.

This monthly report is designed to provide a summary of the air monitoring data collected during the intrusive activities associated with Site 107 through the reporting period. This monthly report includes both monthly and program-to-date summaries of the following:

- Integrated hexavalent chromium analytical results;
- Integrated total particulate analytical results;
- Real-time 15-minute average PM<sub>10</sub> readings;
- Real-time 15-minute average H<sub>2</sub>S readings; 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 reporting period, with a focus on data collected during the recent month of activities. The baseline period includes data measured between April 5, 2018 and April 11, 2018.

Remedial activities began in the western portion of the Site on May 7, 2018. Air monitoring stations provided protection during intrusive work between May 7, 2018 and October 4, 2019. The site contains five ground level stations. One station collects Cr<sup>+6</sup> and total particulate samples for 24 hours during the week and 72 hours over the weekend. **Figure 2-1** provides an overview of the Site and a typical configuration of the AMS for the Site through the end of the reporting period. **Table 2-1** provides an overview of the air monitoring approach.

Air monitoring results to date have confirmed protection of the community, and the overall effectiveness of the program will be evaluated on a continuous basis. Success will ultimately be determined at the end of the remediation program when the average Cr<sup>+6</sup> concentrations at each AMS location are compared to the AAC. This monthly report has been designed to evaluate the program's effectiveness on a monthly basis and a program-to-date basis. The Cr<sup>+6</sup> average concentrations measured at each AMS will continually be compared to the site-specific AAC for Cr<sup>+6</sup> to confirm the effectiveness of the program. Thus, the monthly reports will focus largely on the integrated analytical results collected as part of the Cr<sup>+6</sup> fence-line air monitoring.

Air monitoring data collected at the Site includes:

- 8-hour integrated Cr<sup>+6</sup> and total particulate sample collection and associated laboratory analysis;
- 24-hour and 72-hour integrated Cr<sup>+6</sup> and total particulate samples collection and laboratory analysis; and
- Real-time 15-minute average PM<sub>10</sub>, readings measured at the perimeter.
- Real-time 15-minute average H<sub>2</sub>S, readings measured at the perimeter.
- Hand-held readings for PM<sub>10</sub> measured at the perimeter.
- Hand-held readings for H<sub>2</sub>S measured at the perimeter.

The following sections outline the types of data collected, frequency of collection, and the corresponding locations.

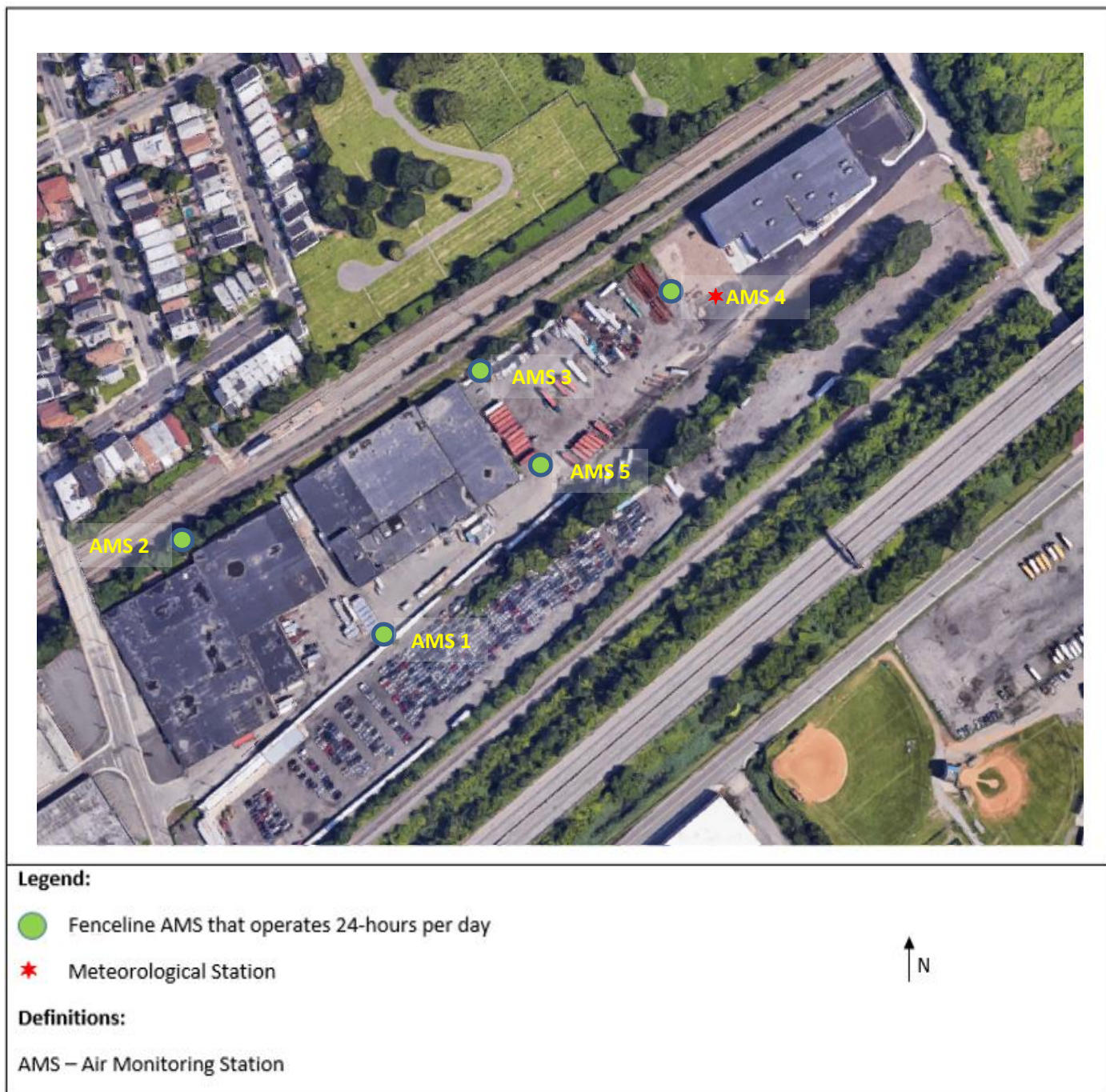
**Table 2-1: Air Monitoring Approach**

Site	Station	Integrated Air Monitoring	Real-Time Air Monitoring
Site 107	AMS1, AMS2, AMS3, AMS4, AMS5	Integrated 8-hour Cr <sup>+6</sup> and total particulate sampling and analysis during work days. One 24-hour sample during the week and 72-hour over the weekend.	15-minute average PM <sub>10</sub> readings measured for a 24-hour period. 15-minute average H <sub>2</sub> S readings measured during blending activities.

Note: 24-hour and 72-hour Cr<sup>+6</sup> sampling was conducted at station AMS4 from 5/07/18 to the present date.

### 2.1 Integrated Air Sampling

Integrated Cr<sup>+6</sup> and total particulate samples are collected at each of the AMS for an 8-hour-to-10-hour duration each working day (typically Monday – Friday). Samples are collected on a pre-weighed polyvinyl chloride 37mm filter cassette for both Cr<sup>+6</sup> and total particulate. Sampling pumps operate at or around 2 liters per minute and are calibrated at the beginning and end of each sampling run.

**Figure 2-1: Site Overview****2/1/2019 – End of Reporting Period**

### **2.1.1 Integrated Cr<sup>6</sup> Sampling**

The exposed Cr<sup>6</sup> filters are shipped to an American Industrial Hygiene Association Industrial Hygiene Laboratory Accreditation Program-certified analytical laboratory for Cr<sup>6</sup> analysis using Modified OSHA ID 215. The sample weights are provided by the laboratory with a laboratory detection limit of 20.0 ng. The sample weights and flow information are utilized to calculate 8-hour to 10-hour integrated Cr<sup>6</sup> air concentrations in nanograms per cubic meter of air (ng/m<sup>3</sup>). Filter weights 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 Cr<sup>6</sup> sampling and analysis are also performed at one AMS. These longer duration samples show Cr<sup>6</sup> concentrations during overnight and weekend periods. The 24-hour samples are typically collected daily from 7AM to 7AM Monday through Thursday, and a single 72-hour sample is collected from 7AM Friday through 7AM Monday.

### **2.1.2 Integrated Total Particulate Sampling**

The exposed total particulate filters are shipped to an American Industrial Hygiene Association Industrial Hygiene Laboratory Accreditation Program-certified analytical laboratory for total particulate analysis using NIOSH Method 0500. The sample weights are provided by the laboratory with a laboratory detection limit of 100 ug. The sample weights and flow information are utilized to calculate 8-hour-to-10-hour integrated total particulate air concentrations in micrograms per cubic meter of air (µg/m<sup>3</sup>). Filter weights 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 two types of monitoring including: perimeter monitoring and meteorological monitoring. Each monitoring type is described in more detail in the following sections.

### **2.2.1 Perimeter**

Perimeter air monitoring consists of ground level stations at the perimeter of the Site. Perimeter monitoring includes the following:

- Real-time 15-minute average  $PM_{10}$  readings at each AMS location. All AMS operate 24 hours during remedial activities, Monday through Sunday.
- Real-time 15-minute average  $H_2S$  readings at the upwind AMS location and downwind AMS location during blending operations of FerroBlack material.

### **2.2.2 Meteorological Measurements**

Meteorological measurements of 15-minute average wind speed and direction, relative humidity, pressure, and temperature are recorded onsite at station AMS-4, 24-hours a day, seven days a week.

## **2.3 Hand-held Air Monitoring**

Hand-held air monitoring consists of the collection of perimeter  $PM_{10}$  and  $H_2S$  readings. Monitoring is described in more detail in the following section.

### **2.3.1 Perimeter $PM_{10}$ Hand-held Monitoring**

Hand-held readings will be taken along the downwind perimeter of the Site periodically each day during remedial activities and logged to be reported weekly. The readings will be collected as instantaneous readings and if levels are elevated, 15-minute averages will be recorded for comparison to adjacent perimeter stations.

### **2.3.2 Perimeter $H_2S$ Hand-held Monitoring**

Hand-held readings will be taken along the downwind perimeter of the exclusion zone periodically each day during blending activities and logged to be reported weekly. The readings will be collected as instantaneous readings.

### **3.0 Site-Specific Acceptable Air Concentration and Real-Time Action Levels**

Site-specific Acceptable Air Concentration (AAC) and real-time Action Levels have been established for Cr<sup>+6</sup> and real-time PM<sub>10</sub> 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 Cr<sup>+6</sup> and particulates over the duration of the intrusive remediation activities.

Real-time monitoring and integrated results are 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 Cr<sup>+6</sup> concentrations and real-time PM<sub>10</sub> are outlined in the following sections.

#### **3.1 Integrated Cr<sup>+6</sup> Acceptable Air Concentration**

A Site-specific Cr<sup>+6</sup> AAC has been established by NJDEP to protect off-site receptors from potential adverse health impacts due to potential exposure to Cr<sup>+6</sup> in dust. The AAC for Cr<sup>+6</sup> was developed to represent the maximum allowable average concentration of Cr<sup>+6</sup> in the air at each AMS over the project duration. The AAC is protective of human health based on a carcinogenic exposure endpoint with a duration more than one calendar year for intrusive remedial activities.

The AAC of 100 ng/m<sup>3</sup> is applicable at the perimeter and represents the maximum allowable average concentration measured over the project duration and was developed to ensure the protection of human health. This AAC is also used to evaluate the effectiveness of dust control. PPG has established an operational goal of achieving a project average hexavalent chromium air concentration of 49 ng/m<sup>3</sup> to the extent practicable using best management practices throughout the duration of intrusive remedial activities at the site.

To ensure ongoing compliance with the AAC, shorter duration rolling averages are 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 Cr<sup>+6</sup> are maintained well below the AAC over the duration of the project, and are minimized to the greatest extent practicable. These shorter duration average concentrations metrics include: program-to-date, 90-day, 60-day, and 15-day running averages where the average Cr<sup>+6</sup>

concentration over the previous 90-day, 60-day, and 15-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 Cr<sup>+6</sup> Metrics**

Metric Observation	Response Action
15-day <sup>1</sup> Cr <sup>+6</sup> average concentration greater than or equal to 100 ng/m <sup>3</sup>	External meeting to review levels, evaluate activities each day when elevated concentrations were observed, and trigger corrective action if required.
60-day <sup>1</sup> Cr <sup>+6</sup> average concentration greater than or equal to 90 ng/m <sup>3</sup>	
90-day <sup>1</sup> Cr <sup>+6</sup> average concentration greater than or equal to 81 ng/m <sup>3</sup>	
<sup>1</sup> Refers to days on which samples were collected, not necessarily calendar 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 <sub>10</sub>	235 µg/m <sup>3</sup>	339 µg/m <sup>3</sup>
H <sub>2</sub> S	0.5 ppm	1 ppm

## 4.0 Air Sampling and Monitoring Results

Results of air sampling and monitoring conducted between May 7, 2018 and October 4, 2019 are summarized herein. The following sections present both tabular and written discussions of the air sampling and monitoring results for the reporting period including:

- Monthly integrated and real-time results;
- Program-to-date integrated and real-time statistics;
- Evaluation of program success versus the Site-specific AAC and action levels;
- Meteorological results; and
- Hand-held monitoring 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 the reporting period. Appendix B includes program-to-date statistics and monthly comparison of results.

### 4.1 Integrated Air Sampling Results

Results of the integrated  $\text{Cr}^{+6}$  and total particulate sampling and analysis are presented in the following sections.

#### 4.1.1 $\text{Cr}^{+6}$ Sampling Results

Results of the  $\text{Cr}^{+6}$  sampling from the reporting period and a program-to-date evaluation are discussed in the following sections.

#### Reporting Period

Individual integrated 8-hour  $\text{Cr}^{+6}$  concentrations measured during the reporting period are presented in Table A-1. If an individual sample result exceeds 80% of the project duration AAC, additional evaluation and review of relevant Site conditions and activities were performed to potentially modify procedures if necessary to reduce the potential for increasing  $\text{Cr}^{+6}$  concentration trends. Any elevated concentration data during the reporting period are listed and discussed in Table A-5.

#### Program-to-date

Sampling and analytical statistics for integrated 8-hour  $\text{Cr}^{+6}$  results are shown in Table B-1 and include various program-to-date metrics relative to  $\text{Cr}^{+6}$  analytical data. Monthly average 8-hour  $\text{Cr}^{+6}$  concentration results are shown in Table B-2 for each AMS location.



**Table 4-1: Short-Term Average 8-hour Integrated Cr<sup>+6</sup> Metrics**

Running Cr <sup>+6</sup> Metrics <sup>1</sup>		Site 107				
	Metric (ng/m <sup>3</sup> )	AMS-1 ng/m <sup>3</sup>	AMS-2 ng/m <sup>3</sup>	AMS-3 ng/m <sup>3</sup>	AMS-4 ng/m <sup>3</sup>	AMS-5 ng/m <sup>3</sup>
<b>15-day<sup>2</sup></b>	<b>100</b>	5.2	5.8	5.8	1.3	5.2
<b>60-day<sup>2</sup></b>	<b>90</b>	5.8	5.7	5.9	1.7	5.2
<b>90-day<sup>2</sup></b>	<b>81</b>	5.7	5.6	6.0	1.6	5.2
<b>PTD<sup>3</sup></b>	<b>73</b>	5.7	5.6	5.9	1.5	5.4

ng/m<sup>3</sup> – nanograms per cubic meter

1. Running Cr<sup>+6</sup> 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 Cr<sup>+6</sup> are maintained well below the AAC over the duration of the project, and are minimized to the greatest extent practicable. The running Cr<sup>+6</sup> 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 Cr<sup>+6</sup> metrics are valid on the last day in the report period and include the previous 15, 60, or 90-days of sample results.
3. Program-to-date - Air monitoring conducted from May 7, 2018 through the end of the reporting period.

#### **4.1.2 Total Particulate Sampling Results**

Results of the 8-hour integrated total particulate sampling and analysis from the reporting period and program-to-date results are discussed in the following sections.

##### **Reporting Period**

Individual integrated 8-hour total particulate concentrations measured at each station during the reporting period are presented in Table A-2.

##### **Program-to-date**

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

#### **4.1.3 Integrated Air Sampling Results Summary**

There have been 363 sample days between May 7<sup>th</sup> and the end of the reporting period for stations AMS-1 through AMS-5. The results of the sample analysis are summarized in the following sections.

##### **Air Monitoring**

The program through this reporting period shows the 8-hour Cr<sup>+6</sup> average concentrations, based upon lab analytical results at each AMS, were less than 5.86% of the AAC, demonstrating that the dust control measures continue to be effective.

#### **4.2 Real-Time Air Monitoring Results**

Real-time air monitoring for PM<sub>10</sub> is conducted during all remedial activities. The results of the real-time air monitoring are presented in the following sections.

##### **4.2.1 PM<sub>10</sub> Monitoring Results**

Results of the real-time PM<sub>10</sub> sampling for the reporting period and the start of intrusive activities are discussed in the following sections.

##### **Reporting Period**

Real-time 15-minute PM<sub>10</sub> averages measured during the reporting period are presented in Figure A-1. Real-time 15-minute PM<sub>10</sub> averages were compared directly to the PM<sub>10</sub> Action

Level ( $339 \mu\text{g}/\text{m}^3$ ) and averages greater than the action level are subject to additional evaluation. If applicable, elevated  $\text{PM}_{10}$  averages are listed and discussed in Table A-5.

### **Program-to-date**

Real-time monthly  $\text{PM}_{10}$  averages are shown in Table B-5 for each AMS. Dust readings measured during the reporting period 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.

### **4.2.2 H<sub>2</sub>S Monitoring Results**

Real-time maximum 15-minute  $\text{H}_2\text{S}$  averages measured during the reporting period are presented in Table A-4. Real-time 15-minute  $\text{H}_2\text{S}$  averages were compared directly to the  $\text{H}_2\text{S}$  Action Level (1 ppm) and averages greater than the action level are subject to additional evaluation. If applicable, elevated  $\text{H}_2\text{S}$  averages are listed and discussed in Table A-5.

### **4.3 Meteorological Monitoring Results**

Time series plots for wind speed, temperature, and relative humidity for the reporting period are shown in Figure A-2 through Figure A-4, respectively. A wind-rose for the month displaying the primary wind directions is shown in Figure A-5.

### **4.4 Hand-held Monitoring Results**

Maximum hand-held monitoring results during the reporting period are displayed in Table A-3. Readings were compared directly to the 15-Minute TWA Action Level ( $339 \mu\text{g}/\text{m}^3$ ) and averages greater than the action level are subject to additional evaluation. If applicable, elevated averages are listed and discussed in Table A-5.

### **4.5 Site Activities**

Activities which occurred on the site during the months of September & October included:

- Excavation and load out of non-hazardous soils and chromium-impacted concrete / soils;
- Backfilling open excavations.

### **4.6 Site Map(s)**

Site maps during the reporting period are documented and included in Figure A-6.

## 5.0 Conclusions

Results of the September & October 2019 reporting period for the Site 107 air sampling and monitoring program indicate that the average Cr<sup>+6</sup> concentrations for each AMS are well below the site safety goal of 49 ng/m<sup>3</sup> and below the AAC of 100 ng/m<sup>3</sup>. The Cr<sup>+6</sup> concentrations and the percent Cr<sup>+6</sup> in dust samples through this period demonstrate that the dust control measures continue to be effective at maintaining concentrations of Cr<sup>+6</sup> in airborne dust at the Site well below the AAC. These results indicate that dust generated at the Site contains very small percentages of Cr<sup>+6</sup> and does not represent an emission source of Cr<sup>+6</sup> sufficient to create potential offsite exposure to Cr<sup>+6</sup> at or exceeding the AAC.

H<sub>2</sub>S monitoring results previously indicated that there have been no emissions significantly higher than normal background conditions. The mixing of the Ferro Black material was finished prior to this reporting period and H<sub>2</sub>S monitoring was discontinued.

## **Appendix A**

### **Monthly Results Summaries**

- Integrated 8-hour Cr<sup>+6</sup> Concentrations
- Integrated 8-hour Total Particulate Concentrations
- Real-time PM<sup>10</sup> Readings
- Real-time H<sub>2</sub>S Readings
- Hand-held Readings
- Meteorological Data
- Site Map

**Table A- 1: Daily Integrated 8-hour Cr<sup>+6</sup> Sampling Results**

Date of Sample	AMS 1	AMS 2	AMS 3	AMS 4	AMS 5
Sunday, September 01, 2019				1.1	
Monday, September 02, 2019				2.9	
Tuesday, September 03, 2019	5.5	5.5	6.0	1.7	5.0
Wednesday, September 04, 2019	6.0	5.5	5.5	5.2	5.0
Thursday, September 05, 2019	6.0	5.5	5.5	3.5	5.5
Friday, September 06, 2019	6.0	5.5	6.0	1.3	5.5
Saturday, September 07, 2019				1.3	
Sunday, September 08, 2019				1.3	
Monday, September 09, 2019	5.5	5.5	5.5	1.6	5.0
Tuesday, September 10, 2019	6.0	6.0	6.0	1.7	5.5
Wednesday, September 11, 2019	6.0	5.5	5.5	1.7	5.5
Thursday, September 12, 2019	5.5	5.5	6.0	1.7	5.5
Friday, September 13, 2019	6.0	5.5	5.5	0.6	5.5
Saturday, September 14, 2019				0.6	
Sunday, September 15, 2019				0.6	
Monday, September 16, 2019	5.0	5.5	5.5	1.7	5.5
Tuesday, September 17, 2019	5.5	5.5	6.0	1.6	5.5
Wednesday, September 18, 2019	6.0	5.5	6.0	1.6	5.5
Thursday, September 19, 2019	5.5	5.0	6.0	1.6	5.5
Friday, September 20, 2019	5.5	5.5	6.0	0.5	5.5
Saturday, September 21, 2019				0.5	
Sunday, September 22, 2019				0.5	
Monday, September 23, 2019	5.5	5.0	6.0	1.5	5.0
Tuesday, September 24, 2019	5.5	5.5	5.5	NA	5.5
Wednesday, September 25, 2019	5.5	12.0	5.5	1.6	5.0
Thursday, September 26, 2019	5.5	5.0	5.5	1.6	5.0
Friday, September 27, 2019	1.0	5.0	5.5	0.6	5.0
Saturday, September 28, 2019				0.6	
Sunday, September 29, 2019				0.6	
Monday, September 30, 2019	5.5	5.0	6.0	1.7	5.5
Tuesday, October 01, 2019	5.5	5.0	6.0	4.3	5.0
Wednesday, October 02, 2019	5.5	5.0	5.5	1.6	5.0
Thursday, October 03, 2019	6.0	5.5	6.0	1.7	5.5
Friday, October 04, 2019	5.5	5.5	6.0	0.5	5.0

Results in nanograms per cubic meter. Sample on at AMS4 on 9/24/19 not able to be tested by lab due to collection error.

Highlighted cells indicate a detectable level of Cr<sup>+6</sup>. All other values are below the laboratory method detection limit (MDL).

Values below the MDL are shown in the table at one-half the MDL for data reporting purposes. This established practice is consistent with PPG's Site 114 reporting of non-detects by AECOM.

**Table A- 2: Daily Integrated 8-hour Total Particulate Sampling Results**

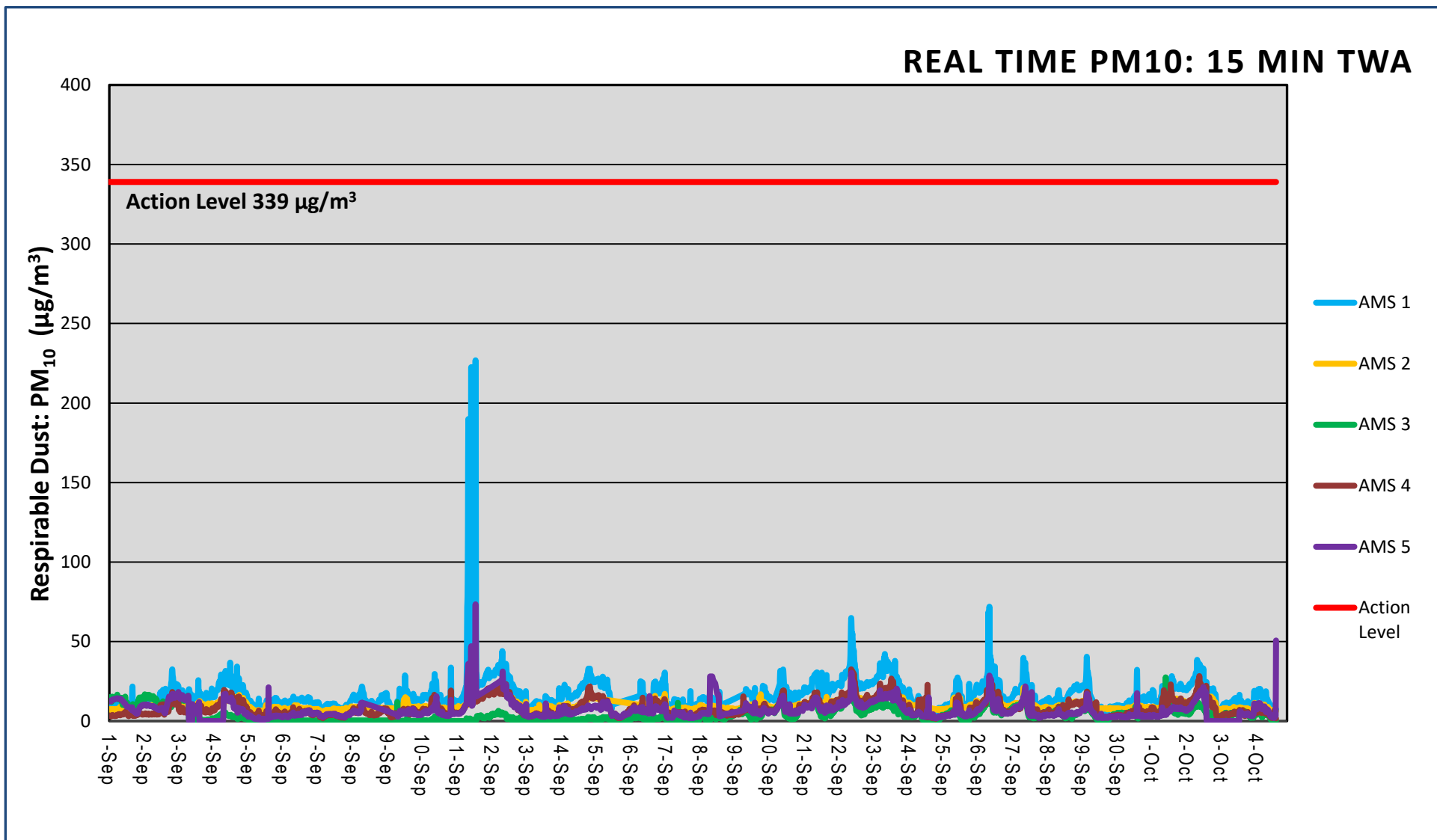
Date of Sample	AMS 1	AMS 2	AMS 3	AMS 4	AMS 5
Sunday, September 01, 2019				75.0	
Monday, September 02, 2019				27.5	
Tuesday, September 03, 2019	55.0	55.0	55.0	16.0	50.0
Wednesday, September 04, 2019	55.0	50.0	55.0	15.5	50.0
Thursday, September 05, 2019	55.0	55.0	55.0	16.0	50.0
Friday, September 06, 2019	60.0	55.0	55.0	13.0	55.0
Saturday, September 07, 2019				13.0	
Sunday, September 08, 2019				13.0	
Monday, September 09, 2019	55.0	55.0	55.0	15.5	50.0
Tuesday, September 10, 2019	55.0	55.0	55.0	16.0	55.0
Wednesday, September 11, 2019	330.0	50.0	55.0	80.0	170.0
Thursday, September 12, 2019	55.0	50.0	55.0	16.0	50.0
Friday, September 13, 2019	55.0	55.0	55.0	17.0	55.0
Saturday, September 14, 2019				17.0	
Sunday, September 15, 2019				17.0	
Monday, September 16, 2019	50.0	55.0	55.0	16.0	55.0
Tuesday, September 17, 2019	55.0	50.0	55.0	15.0	50.0
Wednesday, September 18, 2019	55.0	50.0	60.0	15.0	55.0
Thursday, September 19, 2019	55.0	50.0	55.0	15.0	50.0
Friday, September 20, 2019	55.0	50.0	60.0	30.0	55.0
Saturday, September 21, 2019				30.0	
Sunday, September 22, 2019				30.0	
Monday, September 23, 2019	110.0	50.0	55.0	58.0	50.0
Tuesday, September 24, 2019	55.0	50.0	55.0	NA	50.0
Wednesday, September 25, 2019	55.0	55.0	55.0	41.0	50.0
Thursday, September 26, 2019	55.0	50.0	55.0	36.0	49.5
Friday, September 27, 2019	9.5	50.0	55.0	24.0	50.0
Saturday, September 28, 2019				24.0	
Sunday, September 29, 2019				24.0	
Monday, September 30, 2019	55.0	50.0	55.0	16.0	50.0
Tuesday, October 01, 2019	55.0	50.0	55.0	51.0	50.0
Wednesday, October 02, 2019	55.0	49.0	55.0	52.0	50.0
Thursday, October 03, 2019	55.0	55.0	55.0	16.0	55.0
Friday, October 04, 2019	55.0	50.0	55.0	4.7	50.0

Results in micrograms per cubic meter. Sample on at AMS4 on 9/24/19 not able to be tested by lab due to collection error.

Highlighted cells indicate a detectable level of total particulate. All other values are below the laboratory method detection limit (MDL).

Values below the MDL are shown in the table at one-half the MDL for data reporting purposes. This established practice is consistent with PPG's Site 114 reporting of non-detects by AECOM.

Figure A- 1: Real-Time 15-minute average PM<sub>10</sub> Monitoring Results





**Table A-3: Daily Maximum Hand-held Monitoring Instantaneous Results**

Date of Sample	Time	Dust Reading (ug/m <sup>3</sup> )	Location
Sunday, September 01, 2019	-	-	-
Monday, September 02, 2019	N/A	N/A	N/A
Tuesday, September 03, 2019	8:00	14	AMS1
Wednesday, September 04, 2019	12:00	35	AMS3
Thursday, September 05, 2019	13:00	15	AMS2
Friday, September 06, 2019	11:00	18	AMS2
Saturday, September 07, 2019	-	-	-
Sunday, September 08, 2019	-	-	-
Monday, September 09, 2019	11:00	31	AMS5
Tuesday, September 10, 2019	11:00	28	AMS2
Wednesday, September 11, 2019	7:00	46	AMS1
Thursday, September 12, 2019	10:00	21	AMS1
Friday, September 13, 2019	13:00	18	AMS1
Saturday, September 14, 2019	-	-	-
Sunday, September 15, 2019	-	-	-
Monday, September 16, 2019	8:00	11	AMS5
Tuesday, September 17, 2019	11:00	10	AMS5
Wednesday, September 18, 2019	9:00	29	AMS5
Thursday, September 19, 2019	12:00	19	AMS1
Friday, September 20, 2019	12:00	16	AMS5
Saturday, September 21, 2019	-	-	-
Sunday, September 22, 2019	-	-	-
Monday, September 23, 2019	10:00	25	AMS2
Tuesday, September 24, 2019	12:00	14	AMS5
Wednesday, September 25, 2019	13:00	13	AMS2
Thursday, September 26, 2019	9:00	36	AMS3
Friday, September 27, 2019	7:00	14	AMS4
Saturday, September 28, 2019	-	-	-
Sunday, September 29, 2019	-	-	-
Monday, September 30, 2019	10:00	9	AMS3
Tuesday, October 01, 2019	13:00	30	AMS5
Wednesday, October 02, 2019	13:00	28	AMS1
Thursday, October 03, 2019	12:00	8	AMS2
Friday, October 04, 2019	12:00	12	AMS1

Note: Blank cells are days where no hand-held monitoring occurred. No handheld monitoring conducted on 9/2/19 due to site closure for holiday.

**Table A-4: Daily Maximum Real-Time H2S Monitoring Results**

Date of Sample	H <sub>2</sub> S Reading (ppb)	Location
Sunday, September 01, 2019	-	-
Monday, September 02, 2019	N/A	N/A
Tuesday, September 03, 2019	N/A	N/A
Wednesday, September 04, 2019	N/A	N/A
Thursday, September 05, 2019	N/A	N/A
Friday, September 06, 2019	N/A	N/A
Saturday, September 07, 2019	-	-
Sunday, September 08, 2019	-	-
Monday, September 09, 2019	N/A	N/A
Tuesday, September 10, 2019	N/A	N/A
Wednesday, September 11, 2019	N/A	N/A
Thursday, September 12, 2019	N/A	N/A
Friday, September 13, 2019	N/A	N/A
Saturday, September 14, 2019	-	-
Sunday, September 15, 2019	-	-
Monday, September 16, 2019	N/A	N/A
Tuesday, September 17, 2019	N/A	N/A
Wednesday, September 18, 2019	N/A	N/A
Thursday, September 19, 2019	N/A	N/A
Friday, September 20, 2019	N/A	N/A
Saturday, September 21, 2019	-	-
Sunday, September 22, 2019	-	-
Monday, September 23, 2019	N/A	N/A
Tuesday, September 24, 2019	N/A	N/A
Wednesday, September 25, 2019	N/A	N/A
Thursday, September 26, 2019	N/A	N/A
Friday, September 27, 2019	N/A	N/A
Saturday, September 28, 2019	-	-
Sunday, September 29, 2019	-	-
Monday, September 30, 2019	N/A	N/A
Tuesday, October 01, 2019	N/A	N/A
Wednesday, October 02, 2019	N/A	N/A
Thursday, October 03, 2019	N/A	N/A
Friday, October 04, 2019	N/A	N/A

Note: Blank cells are days where no monitoring occurred. Cells containing N/A indicate days where site work occurred but there were no mixing activities to monitor for H<sub>2</sub>S. No handheld monitoring conducted on 9/2/19 due to site closure for holiday.

**Table A- 5: Elevated Concentration Summary**

Parameter	Date	Time	Location	Wind Conditions	Elevated Concentration	Explanation
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM <sub>10</sub> – Respirable Particulate Matter measured in micrograms per cubic meter (µg/m <sup>3</sup> ) ng/m <sup>3</sup> – nanograms per cubic meter µg/m <sup>3</sup> – micrograms per cubic meter NA – Not Applicable ND –No Data						

Figure A-2: Wind Speed

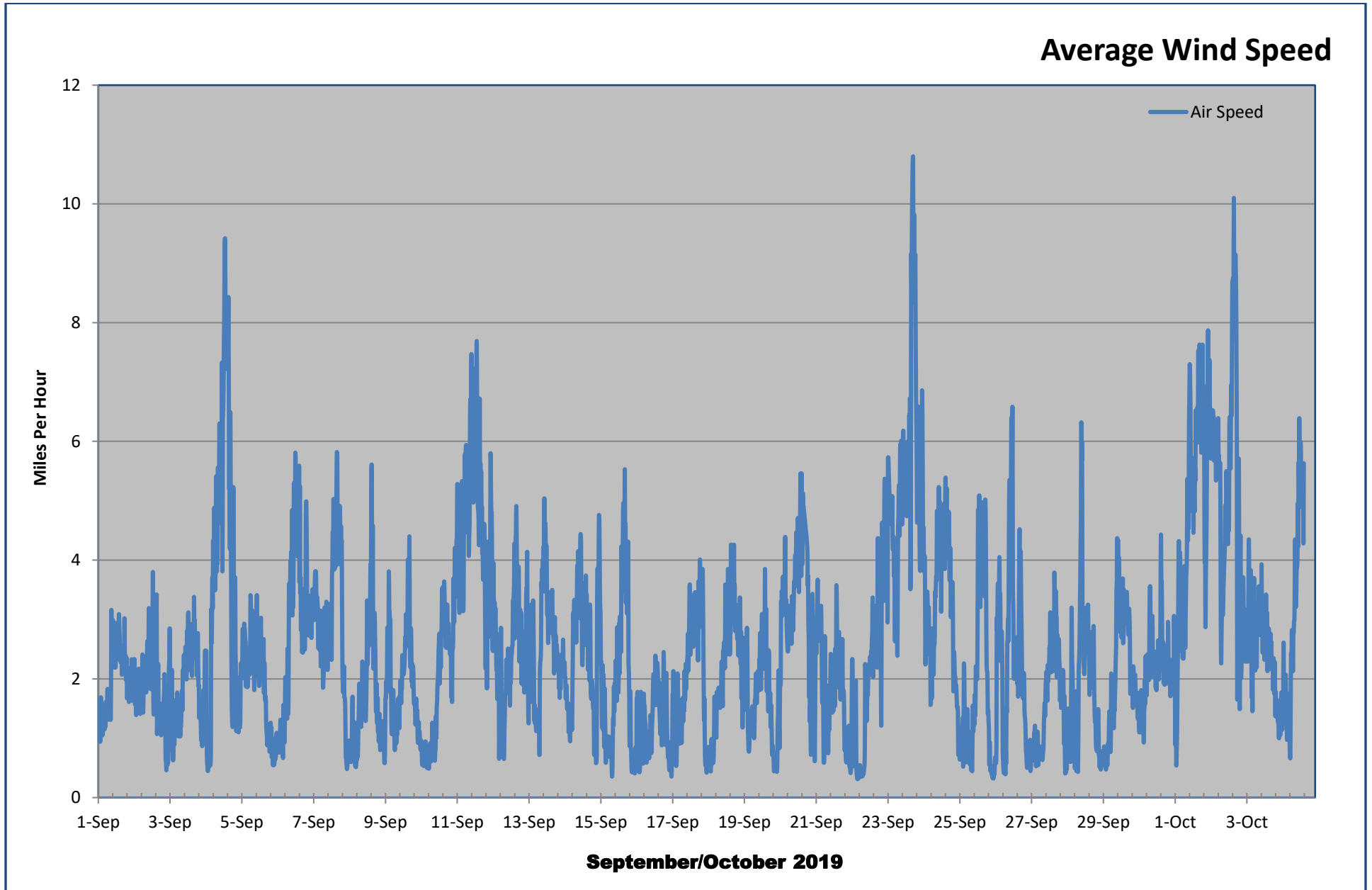


Figure A-3: Temperature

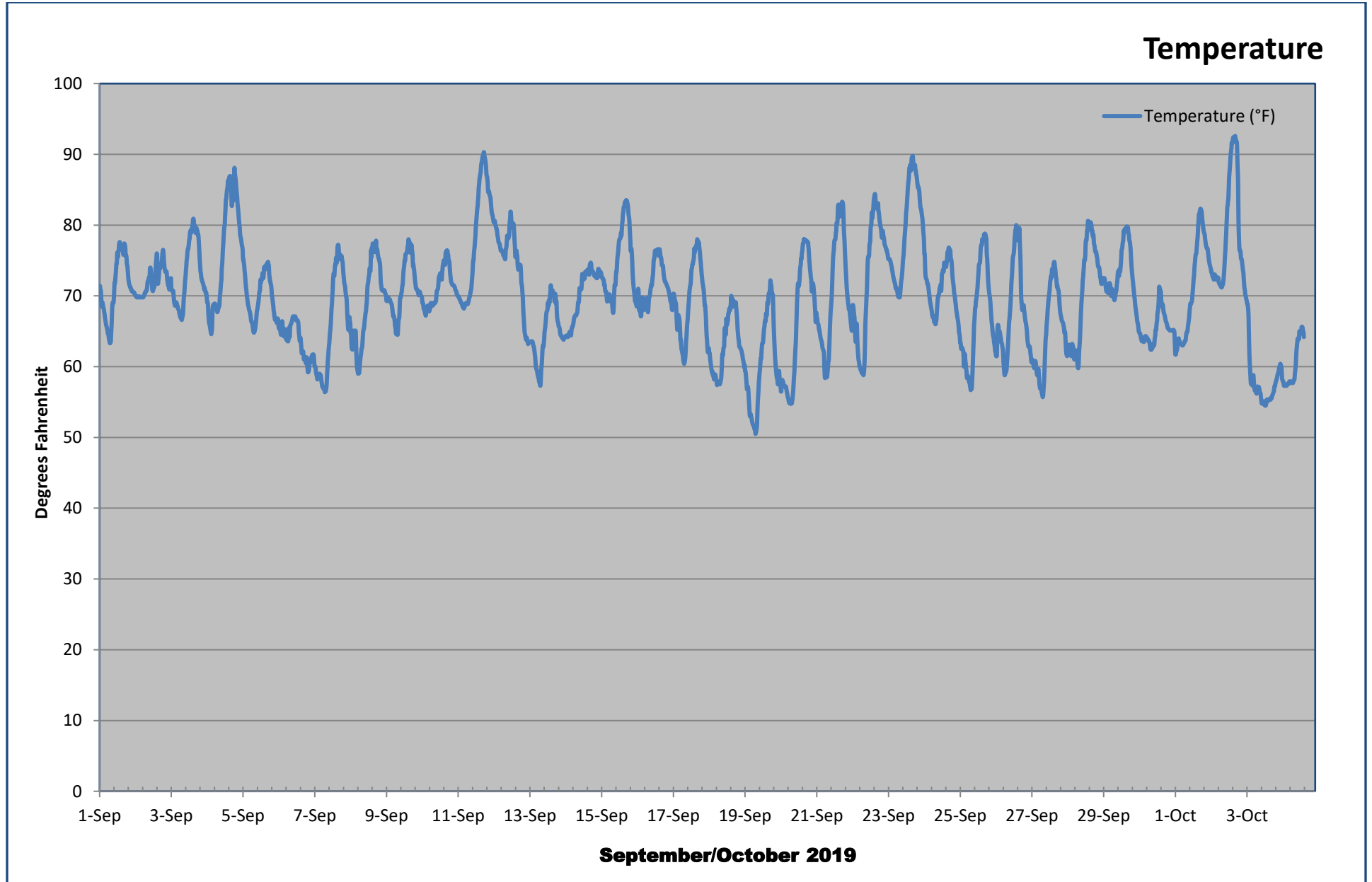


Figure A-4: Relative Humidity

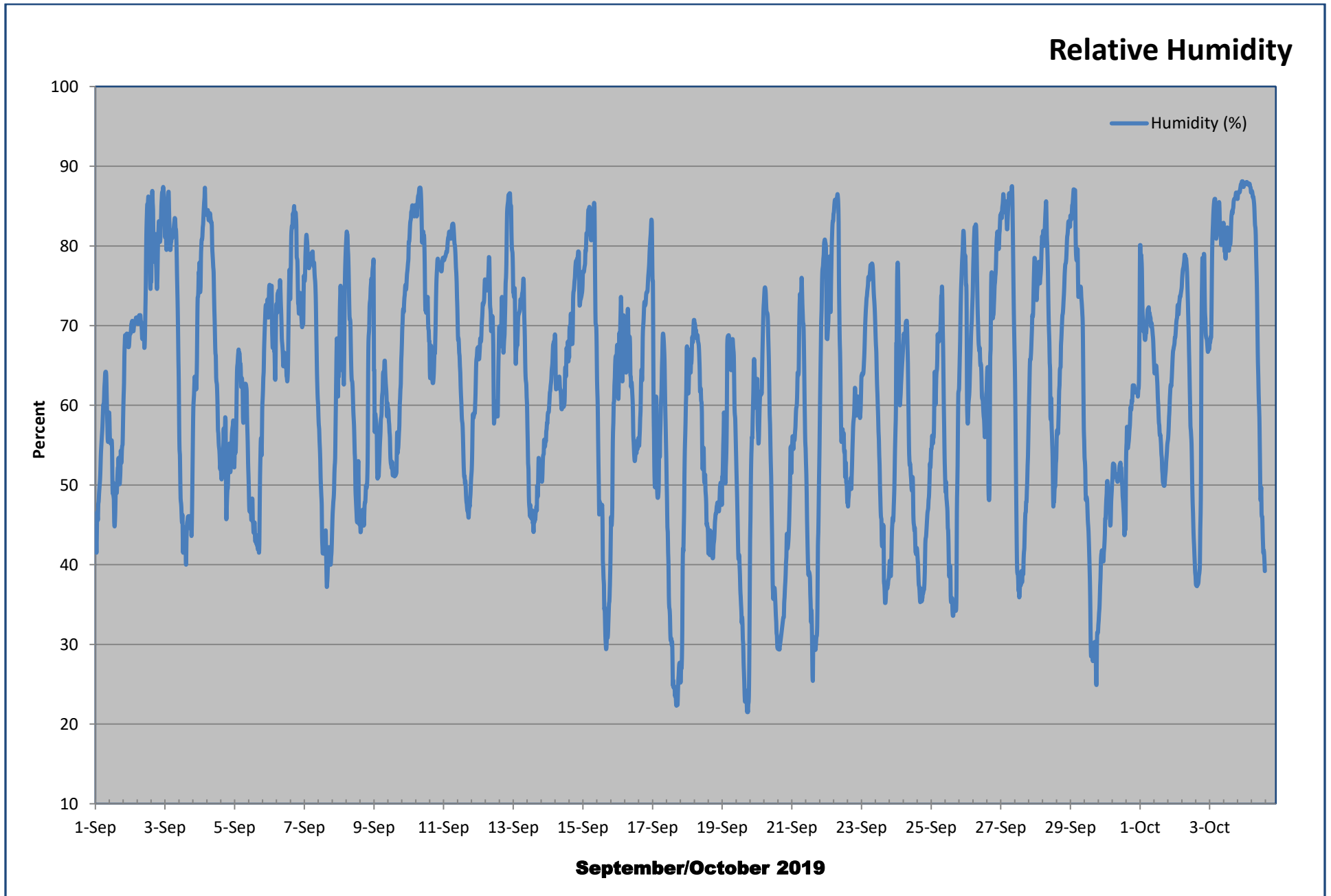


Figure A-5: Monthly Wind-Rose

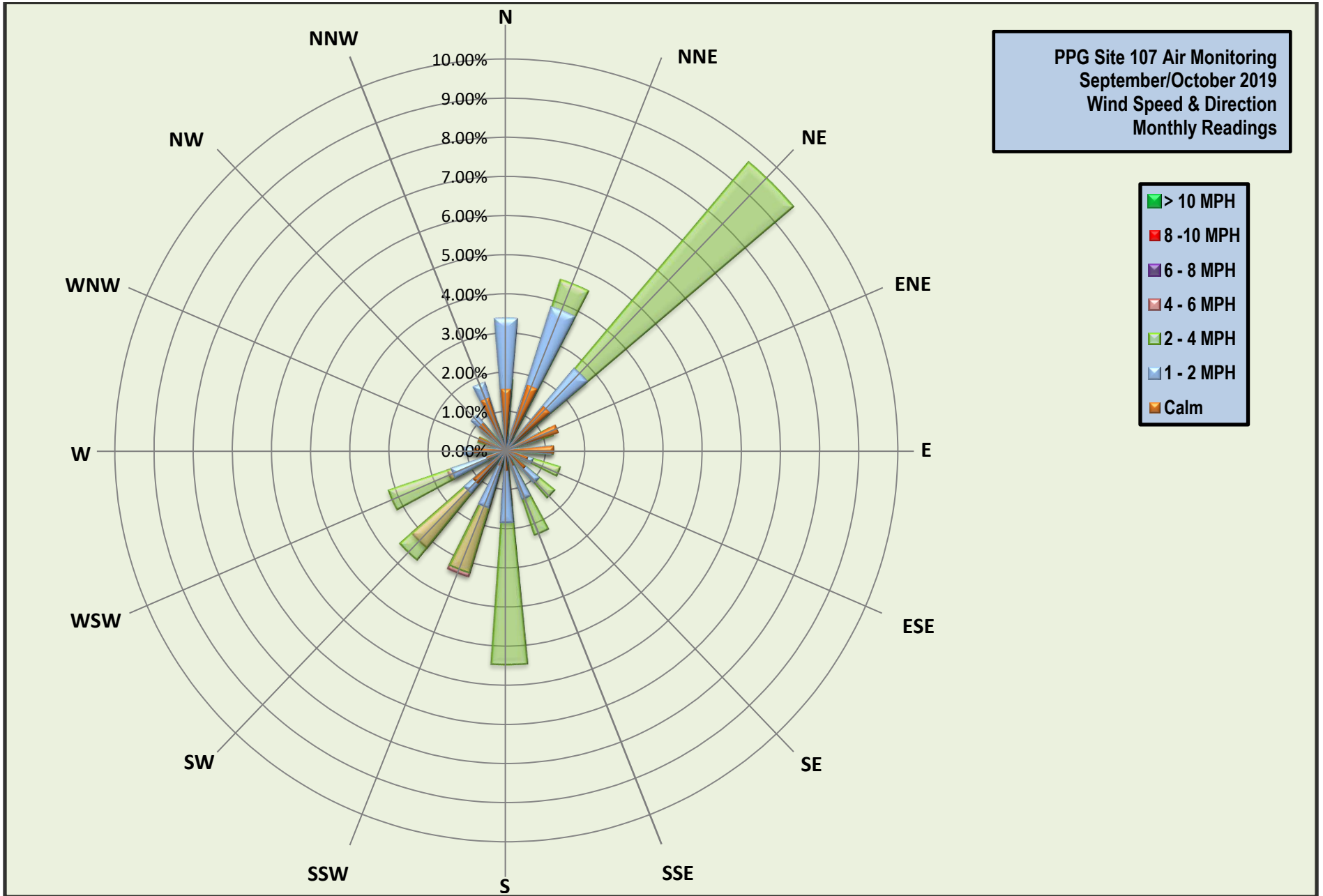


Figure A-6: Site Maps Site 107

(05.07.18 – 11.15.18)



**Legend:**

● Fenceline AMS that operates 24-hours per day

★ Meteorological Station

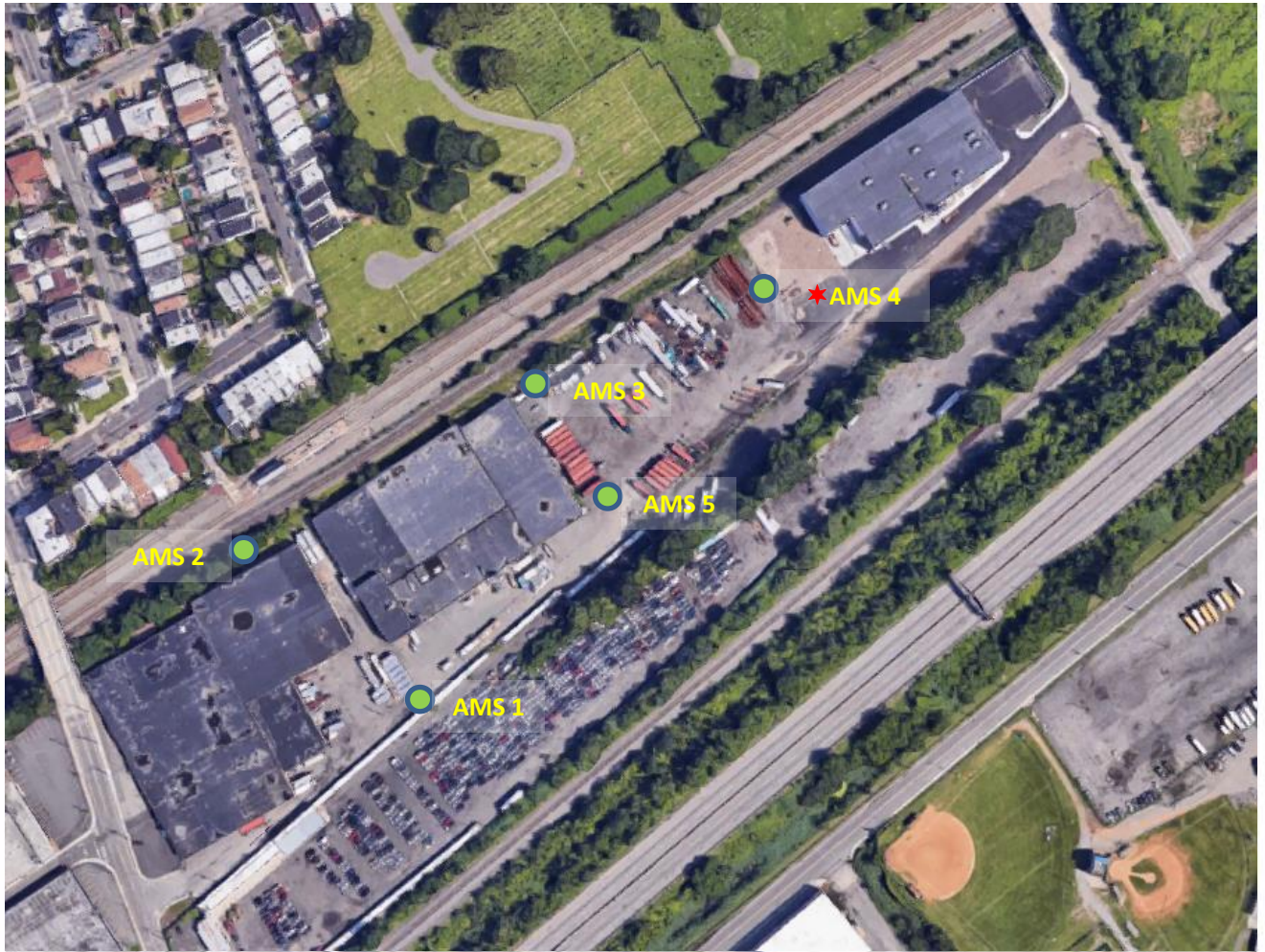


**Definitions:**

AMS – Air Monitoring Station



(11.16.18 – 12.26.18)



**Legend:**

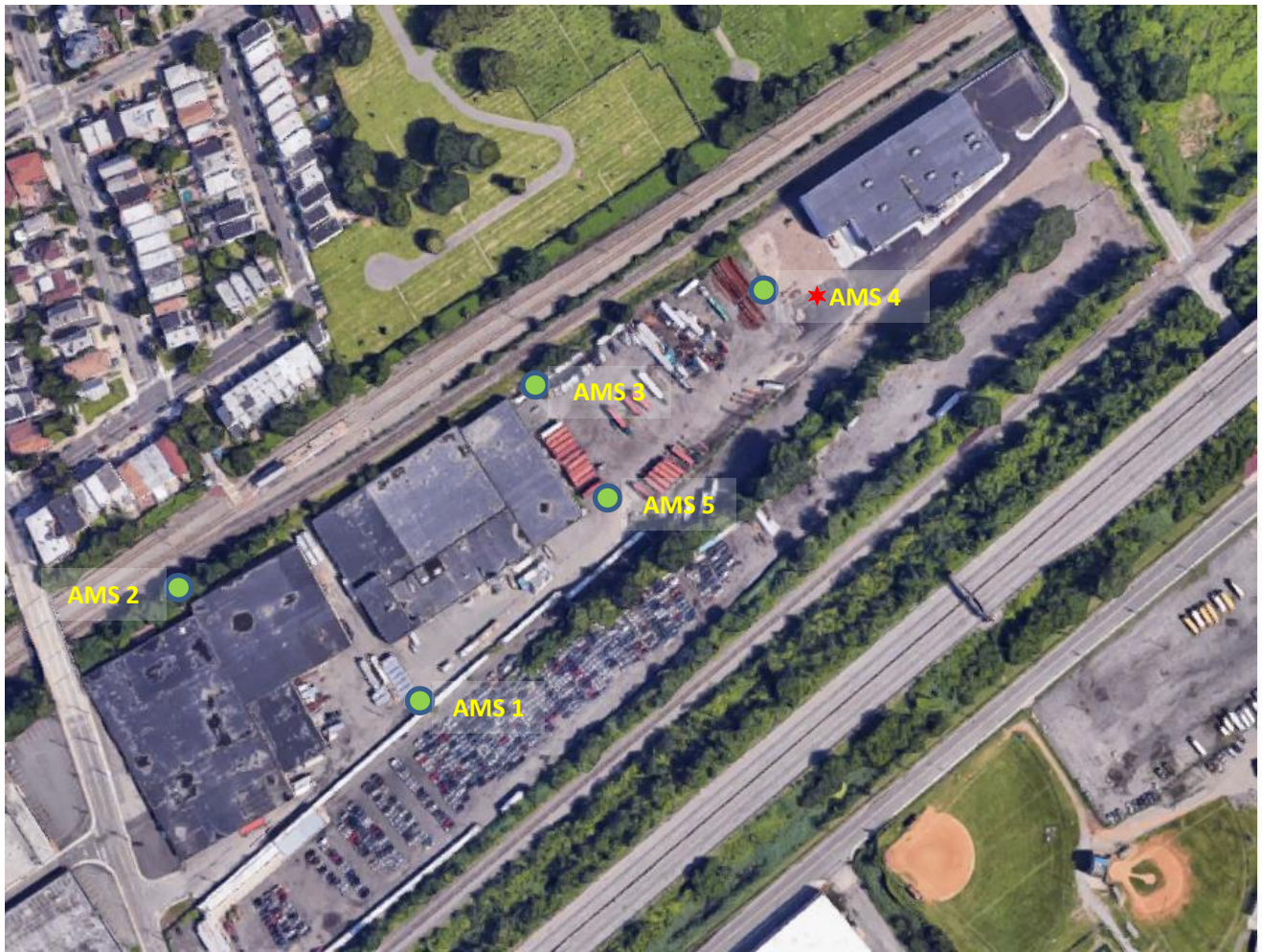
- Fenceline AMS that operates 24-hours per day
- ★ Meteorological Station

**Definitions:**

AMS – Air Monitoring Station



(12.27.18 – End of Reporting Period)



**Legend:**

● Fenceline AMS that operates 24-hours per day

★ Meteorological Station



**Definitions:**

AMS – Air Monitoring Station

## **Appendix B**

### **Program-to-date Result Summaries**

- Integrated 8-hour Cr<sup>+6</sup> Concentration Summaries
- Integrated 8-hour Total Particulate Concentration Summaries
- Real-time PM<sup>10</sup> Concentrations Summaries

**Table B- 1: Program-to-date Integrated 8-hour Cr<sup>+6</sup> Sampling Results Statistics**

Statistics <sup>1</sup>	Site 107				
	AMS 1	AMS 2	AMS 3	AMS 4	AMS 5
Total Number of Samples <sup>1</sup>	357	357	357	363	357
Rate of Data Collection	100%	100%	100%	99.7%	100%
Number of Detected Samples <sup>2</sup>	15	16	11	48	4
% of Cr <sup>+6</sup> Samples Greater than MDL	4.2%	4.5%	3.1%	13.2%	1.1%
Number of Samples Above AAC	0	0	0	0	0
Average % Cr <sup>+6</sup> in Dust <sup>3</sup>	0.010%	0.011%	0.010%	0.008%	0.010%
Maximum % Cr <sup>+6</sup> in Dust <sup>3</sup>	0.011%	0.022%	0.011%	0.034%	0.011%

Results in ng/m<sup>3</sup> – nanograms per cubic meter

<sup>1</sup> Total number of samples collected since May 7, 2018. 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.

<sup>2</sup> Total number of sample results since May 7, 2018, reported above the laboratory reporting limit.

<sup>3</sup> The program-to-date average and maximum percent Cr<sup>+6</sup> in dust was calculated using all the integrated Total Particulate and Cr<sup>+6</sup> sample results collected since May 7, 2018.

**Table B- 2: Monthly Average Integrated 8-hour Cr<sup>+6</sup> Sampling Results**

Statistics	Site 107				
	AMS 1	AMS 2	AMS3	AMS 4	AMS 5
May '18	6.0	6.5	6.1	1.5	6.0
June '18	5.1	5.4	4.9	1.4	5.5
July '18	5.0	5.7	4.6	1.4	4.9
August '18	4.9	5.1	4.8	1.2	4.9
September '18	5.6	5.7	5.0	1.4	5.4
October '18	5.1	5.6	5.3	1.4	5.3
November '18	5.3	5.0	5.6	1.1	5.7
December '18	5.4	5.4	6.4	1.4	6.1
January '19	5.1	4.7	6.5	1.9	5.4
February '19	6.6	5.1	6.1	1.7	5.3
March '19	6.4	6.6	8.3	2.0	5.2
April '19	8.0	6.1	6.7	1.7	5.9
May '19	6.1	5.9	5.7	1.3	5.2
June '19	5.5	5.6	5.9	1.3	5.1
July '19	5.7	5.5	5.7	1.3	5.1
August '19	6.0	5.7	6.5	1.9	5.2
September/October '19	5.5	5.6	5.8	1.5	5.3
Program to Date	5.7	5.6	5.9	1.5	5.4
All readings in ng/m <sup>3</sup> – nanograms per cubic meter					

**Table B- 3: Program-to-date Integrated Total Particulate 8-hour Sampling Results Statistics**

Statistics	Site 107				
	AMS 1	AMS 2	AMS 3	AMS 4	AMS 5
Total Number of Samples <sup>1</sup>	357	357	357	363	357
Rate of Data Collection	100%	100%	100%	100%	100%
Number of Detected Samples <sup>2</sup>	21	4	6	133	6
% Detection	5.9%	1.1%	1.7%	36.6%	1.7%

Results in ng/m<sup>3</sup> – nanograms per cubic meter

<sup>1</sup> Total number of samples collected since May 7, 2018. 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.

<sup>2</sup> Total number of sample results since May 7, 2018, reported above the laboratory reporting limit.

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

Statistics	Site 107				
	AMS 1	AMS 2	AMS 3	AMS 4	AMS 5
May '18	70.3	60.0	60.6	21.3	60.0
June '18	50.7	53.2	53.2	22.4	50.3
July '18	61.2	54.8	48.9	22.4	47.4
August '18	58.0	51.0	47.8	27.3	52.9
September '18	59.2	52.6	49.7	18.4	59.4
October '18	54.0	52.0	51.7	18.4	53.2
November '18	51.4	49.3	55.2	14.3	56.5
December '18	52.6	54.6	73.3	11.8	60.2
January '19	60.9	45.9	59.4	14.7	56.0
February '19	53.3	54.3	47.1	19.9	54.2
March '19	63.7	45.0	48.9	22.1	50.5
April '19	54.8	47.7	51.3	13.3	52.5
May '19	56.4	54.3	56.0	23.1	51.2
June '19	53.5	54.0	56.0	21.4	49.8
July '19	55.0	53.3	54.8	32.3	49.2
August '19	55.2	53.3	54.9	25.4	50.1
September/October '19	66.9	51.8	55.4	26.2	56.4
Program to Date	57.5	52.0	54.2	20.9	53.4

All readings in  $\mu\text{g}/\text{m}^3$  – micrograms per cubic meter

**Table B- 5: Monthly Average Real-Time PM<sub>10</sub> Monitoring Results**

Statistics	Site 107				
	AMS 1	AMS 2	AMS 3	AMS 4	AMS 5
May '18	18.9	57.4	18.9	17.9	14.4
June '18	10.2	10.7	12.4	13.6	11.8
July '18	16.1	13.3	17.2	19.3	8.0
August '18	21.1	18.8	20.6	25.1	21.3
September '18	10.6	12.1	13.5	16.1	13.7
October '18	9.3	10.1	11.6	14.8	18.9
November '18	10.6	12.6	15.7	18.1	271
December '18	12.1	16.9	21.4	23.8	36.5
January '19	57.8	14.5	18.9	22.2	9.8
February '19	21.0	17.2	20.4	29.1	10.7
March '19	19.4	16.8	18.4	31.7	21.1
April '19	18.4	16.6	16.3	32.7	11.9
May '19	22.0	29.6	18.6	39.9	32.4
June '19	18.9	12.2	15.3	37.1	16.6
July '19	23.6	15.6	6.5	16.5	8.5
August '19	20.7	12.6	15.5	9.0	9.8
September/October '19	17.0	10.1	4.0	8.0	6.8
Program to Date	19.2	17.4	15.4	21.9	16.4

All readings in  $\mu\text{g}/\text{m}^3$  – micrograms per cubic meter