

December 21, 2021

Ms. Maureen Hatfield, P.G.

Texas Commission on Environmental Quality
MC-127
VCP-CA Section, Team 1, Remediation Division
P.O. Box 13087
Austin, Texas 78711-3087

**RE: WEEKLY STATUS UPDATE – ENGLEWOOD YARD NORTH BYPASS PROJECT
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS SITE
4910 LIBERTY ROAD FACILITY, HOUSTON, TEXAS
POST-CLOSURE CARE PERMIT NO. 50343, INDUSTRIAL SWR NO. 31547**

Dear Ms. Hatfield:

Golder Associates USA Inc. (Golder), a member of WSP, on behalf of Union Pacific Railroad (UPRR), prepared this weekly status update for the Englewood Yard North By-Pass Project (the Project) that includes areas of construction within the UPRR Houston Wood Preserving Works (HWPW) site (the Site) (Post-Closure Care Permit No. 50343) located at 4910 Liberty Road, Houston, Texas. Below is a summary of the Project activities conducted at the Site for the reporting period:

Week Period: *December 13 through December 19, 2021*

- **Dust Control and Air Monitoring (summary taken from IHST Weekly Report of Air Monitoring (Attachment A))**
 - IHST conducted real time air and dust monitoring at the Site in accordance with the Air Monitoring Plan (July 8, 2021), and the results for this period are provided in Attachment A.
 - As indicated in the IHST Weekly Report (Attachment A), there were no events where PM 2.5 and PM 10 readings increased above the Take-Action Level or Stop-Work Level during the monitoring period.
 - Analytical results of Integrated Air Samples for Metals (arsenic and lead) collected on December 7 and 8, 2021, indicated that there were no exceedances of TCEQ Air Monitoring Comparison Values (AMCV) (see Attachment A for the analytical results).
 - Analytical results of Integrated Air Samples for Polycyclic Aromatic Hydrocarbons (PAH) collected on November 30, December 7, 8, 2021 indicated that there were no exceedances of TCEQ Air Monitoring Comparison Values (AMCV) (see Attachment A for the analytical results).
 - On December 1, 2021, fluoranthene and pyrene were detected at concentrations above Long-Term AMCV, but below the Short-Term AMCV at Station AMS-02. This station was upwind of site construction work, except for a period from approximately 07:30 – 09:45, when winds were from the

north and east. During this period on December 1, 2021, a trash fire located off-site and north of the Site was producing smoke that caused the particulate meters to read elevated particulate concentrations at all stations. Municipal crews were also observed performing power line installation/maintenance activities using diesel-powered boom trucks along Lee and Sudan streets, immediately upwind of station AMS-02 where this sample was collected. Given the observed conditions and lack of dust generation from the earthwork activities, it appears likely the sample location was impacted by the early morning trash fire and /or the engine exhaust from the municipal boom trucks operating in the vicinity. Samples collected at stations downwind and closer to site construction work (sample AA-1744-P047-20211201 at station AMS-06 and sample AA-1744-P048-20211201 at station AMS-08) did not show similar levels of fluoranthene and pyrene, further indicating site construction work was not the source of the elevated fluoranthene and pyrene concentrations at station AMS-02.

- As indicated in the IHST Weekly Report (Attachment A), the analyzing laboratory reported reduced precision for benzo(e)pyrene, benzo(g,h,i)perylene and dibenz(a,h)anthracene for PAH samples collected on 11/30/2021 and 12/1/2021. These analytes were not detected in any of the samples collected on these dates, nor have these analytes been detected in any other samples collected during this project to date.

- **Soil Management**

- Activities that resulted in the generation of excavated soils for this weekly period included installing two power poles on December 16 within the Railroad Ballast Cap area using air knife technology.
- Approximately 4 cubic yards (CY) of soil classified as impacted with listed hazardous waste (F034/K001) was generated and stored in roll-off containers staged at the HWPW Container Storage Area (CSA) pending disposal. Roll-off containers will be shipped to the US Ecology Texas Treatment, Storage, and Disposal Facility (TSDF) in Robstown, TX.
- Wash water that was generated during equipment decontamination activities was pumped into a roll-off vacuum box staged at the HWPW CSA.
- A sample of the wash water was collected for waste characterization analyses on December 16, 2021, and submitted to the Pace National Laboratory in Mt. Juliet, TN (Pace) for analysis.
- Pending waste characterization results, wash water will be disposed at an approved and authorized disposal facility.

- **Stormwater Management**

- There was no rainfall during this weekly period that resulted in management of stormwater within the Project area.

Planned Construction Activities for the week between **December 20 and December 23, 2021 (short week for the holidays)**:

- Per the Contractor schedule, no soil generating construction activities are planned for the week between December 20 and 23, 2021.

Please note the following Important Dates:

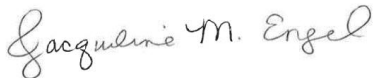
- No construction activities will be conducted at the Site between **December 23 and 27, 2021**.
 - Construction activities will **resume** between **December 28 and 30, 2021**.
- No construction activities will be conducted at the Site between **December 30, 2021 and January 2, 2022**.
 - Construction activities are anticipated to **resume** on **January 3, 2022**.

Given the holiday week, UPRR proposes to combine the weekly updates for the two week period of December 20, 2021 through December 31, 2021 and submit the update for that period on January 5, 2022.

If you have any questions or need additional information, please feel free to contact Mr. Kevin Peterburs of UPRR at (414) 267-4164.

Sincerely,

Golder Associates USA Inc.



Jacqueline M. Engel
Project Geologist



Eric Matzner
Practice Leader/ Principal

ATTACHMENT A

Weekly Report of Air Monitoring

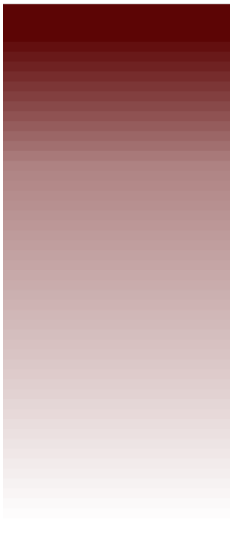


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Weekly Report of Air Monitoring

Union Pacific Railroad North Bypass Construction Project

Former Houston Wood Preserving Works Site
Houston, TX

For Period from 2021-12-13 to 2021-12-19

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Summary Results of Daily Dust Monitoring

This section provides overall summary results for perimeter dust monitoring conducted during the week specified. Dust monitoring results include the average PM 2.5 and PM 10 monitoring results over the sample period at each sample location for each day. Each day's summary provides also includes a description of the work activities performed that day, and any items, issues or occurrences of note.

The 24-hour USEPA National Ambient Air Quality Standard (NAAQS) for PM 2.5 particulate matter is 35 ug/m³, and 150 ug/m³ for PM 10 particulate matter. The Texas Department of Environmental Quality (TCEQ) has adopted these values. UPRR has established dust control levels for railroad construction activities to help ensure that particulate levels do not exceed the 24-hour NAAQS as a result of construction activities.

Overall averages provided are for the sample period specified by the start and stop times. Unless otherwise specified, the sample periods are inclusive of all potentially significant dust generating activities.

Station AMS-01 is a background reference station, continually located inside the Union Pacific Railroad (UPRR) Englewood Railyard approximately 1.1 miles from the Houston Wood Preserving Works site.

Location of air sampling stations are consistent the Dust Control and Air Monitoring Plan dated 7/8/2021 and approved by the Texas Commission on Environmental Quality (TCEQ). Minor variations in station placement may occur, based on work activities, environmental factors, observed patterns of dust dispersion and practical constraints. One sample location specified in the original plan, located on the far southwest corner of the site just southwest of Kirk Street, has not been used to date. The originally proposed location is not readily accessible for daily equipment deployment and is outside of the current excavation areas of the construction. No excavation or other dust-generating activities have taken place to date in the vicinity of this location. Construction plans include improvements to access for this location prior to the start of such activities. Air monitoring equipment will be deployed to this location once access improvements are completed and before excavation or other dust-generating activities begin in this area.

PM 2.5 and PM 10 Daily Summary Results

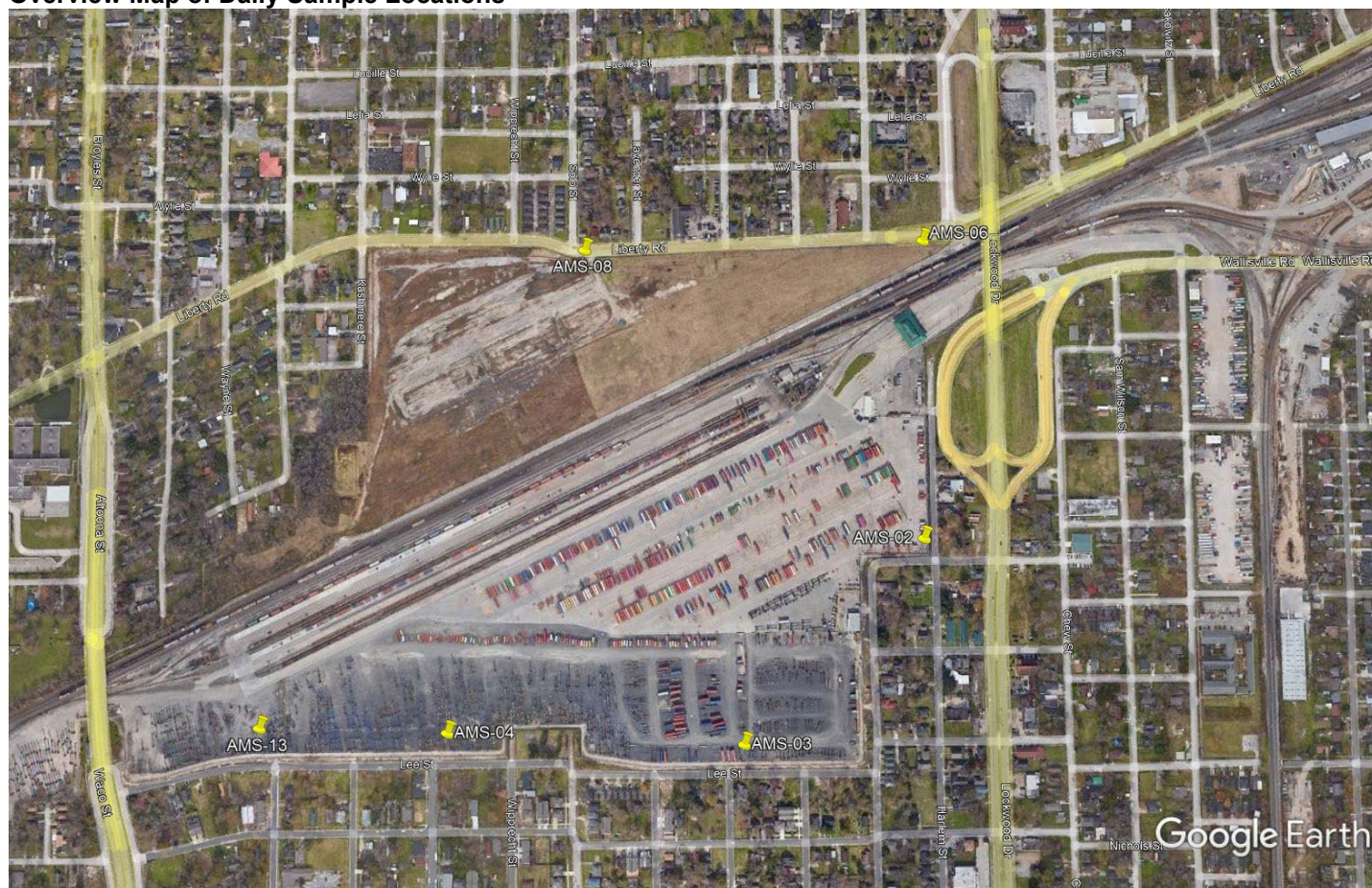
Sample Date

Dec 13, 2021

Description of Work Performed

Work plan for the day included electricians cutting, removing and staging wooden power poles. No excavation work took place this day. Some air monitoring stations were initially deployed prior to 07:00 safety meeting but were then stopped once it was clear no excavation work would take place.

Overview Map of Daily Sample Locations



Station ID	Location Description	Start	Stop	Latitude	Longitude	Overall Average PM 2.5	Overall Average PM 10
AMS-01	Yard Office	24:01	23:59	29.79009	-95.2982	17 ug/m3	45.4 ug/m3
AMS-02	IMY East - Sudan and Harlem	05:52	09:02	29.78426	-95.31687	14.8 ug/m3	40.2 ug/m3
AMS-03	IMY SE - Clementine	05:43	09:13	29.78205	-95.31913	15.9 ug/m3	41 ug/m3
AMS-04	IMY South - Schweikhardt	05:46	09:30	29.78217	-95.32281	13.2 ug/m3	36.5 ug/m3
AMS-06	HWPW - Erastus	06:26	07:58	29.78755	-95.31684	13.9 ug/m3	39.2 ug/m3
AMS-08	HWPW - Solo North	06:54	08:32	29.78744	-95.32115	12.6 ug/m3	32.9 ug/m3
AMS-13	IMY South - Waco and Lee	05:48	09:34	29.78222	-95.32514	13.2 ug/m3	34.2 ug/m3

Note: No excavation work was conducted Tuesday, 12/14/2021 through Wednesday, 12/15/2021, and no air monitoring was conducted on these days.

PM 2.5 and PM 10 Daily Summary Results

Sample Date
Dec 16, 2021

Description of Work Performed

Work plan for the day included air knifing to clean out an existing hole for one power pole east of the Lockwood overpass then setting a new pole. Two poles near the center of the north bypass service road were also pulled, and air knifing was used to deepen those holes, then new, taller poles were set. Air knifing excavation ceased by approximately 13:00. The remainder of the 07:00 – 17:30 workday was limited to electricians installing hardware on newly set poles; no excavation work was performed after 13:00. Air monitoring stations were stopped between 15:20 and 16:28.

Overview Map of Daily Sample Locations



Station ID	Location Description	Start	Stop	Latitude	Longitude	Overall Average PM 2.5	Overall Average PM 10
AMS-01	Yard Office	24:00	23:58	29.79013	-95.29821	6.7 ug/m3	19.4 ug/m3
AMS-02	IMY East - Sudan and Harlem	05:45	16:15	29.78426	-95.31687	5.6 ug/m3	16.6 ug/m3
AMS-03	IMY SE - Clementine	05:46	16:24	29.78208	-95.31911	6.3 ug/m3	16.4 ug/m3
AMS-04	IMY South - Schweikhardt	07:45	16:27	29.78222	-95.32282	5.9 ug/m3	14.3 ug/m3
AMS-06	HWPW - Erastus	06:04	16:02	29.78755	-95.31682	5.5 ug/m3	16.3 ug/m3
AMS-07	HWPW - Clementine North	06:47	15:51	29.78746	-95.31912	5.7 ug/m3	17.2 ug/m3
AMS-08	HWPW - Solo North	06:36	15:45	29.78745	-95.32116	5.1 ug/m3	14.4 ug/m3
AMS-09	HWPW - Kashmere and Liberty	06:32	15:36	29.78756	-95.32362	5.5 ug/m3	14.2 ug/m3
AMS-10a	HWPW - Eddie and Kashmere	06:30	15:30	29.78637	-95.32376	4.8 ug/m3	12.7 ug/m3
AMS-11	HWPW - Quitman East	06:14	15:20	29.78436	-95.32448	6.7 ug/m3	18.2 ug/m3
AMS-13	IMY South - Waco and Lee	05:50	16:28	29.78225	-95.3251	6.7 ug/m3	17.8 ug/m3

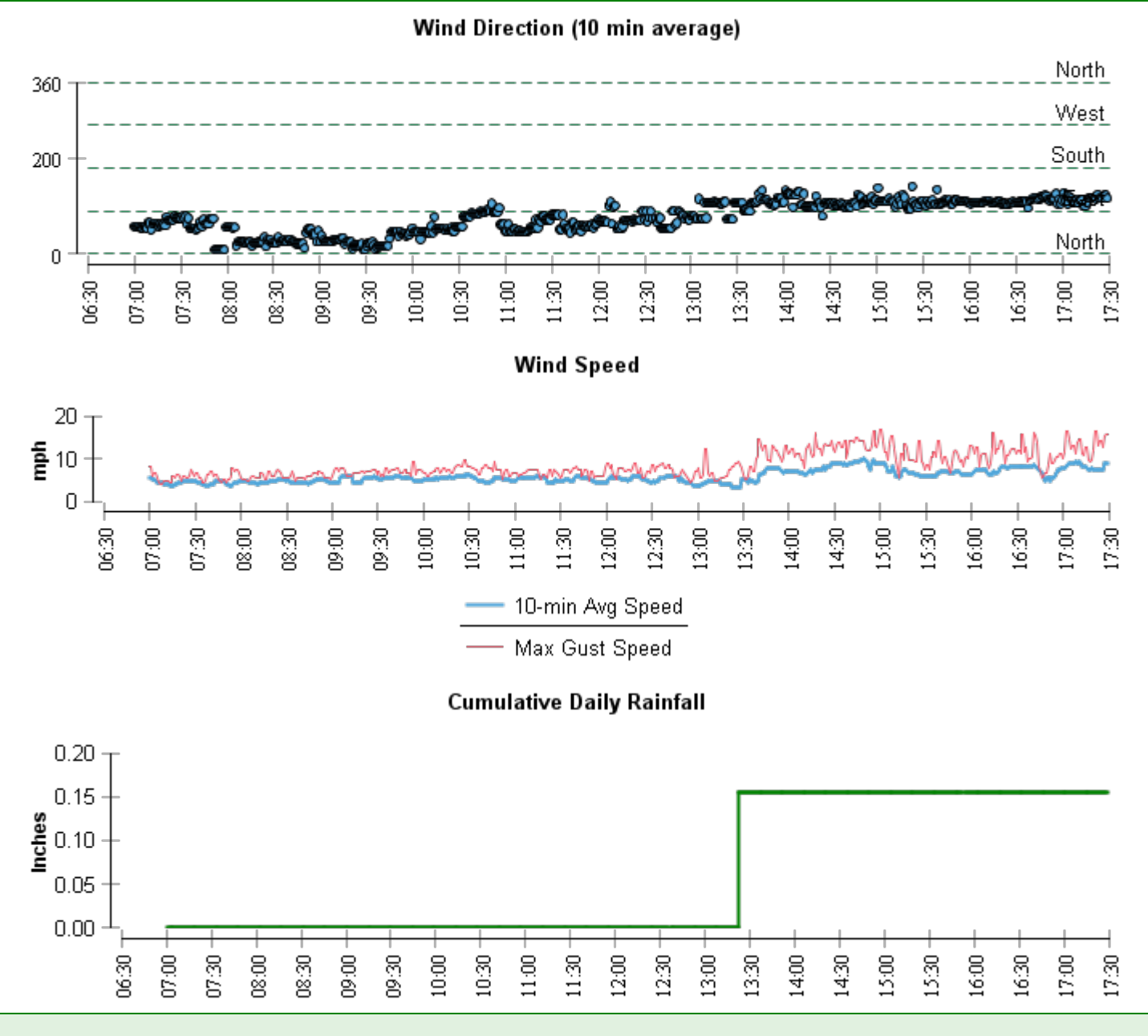
Note: No excavation work was conducted from Friday, 12/17/2021 through Sunday, 12/19/2021, and no air monitoring was conducted on these days.

Summary Results of Daily Weather Conditions

This section provides charts showing wind speed, wind direction and rainfall during each day of sampling during the specified week.

Weather Time History Data

Sample Date Dec 13, 2021

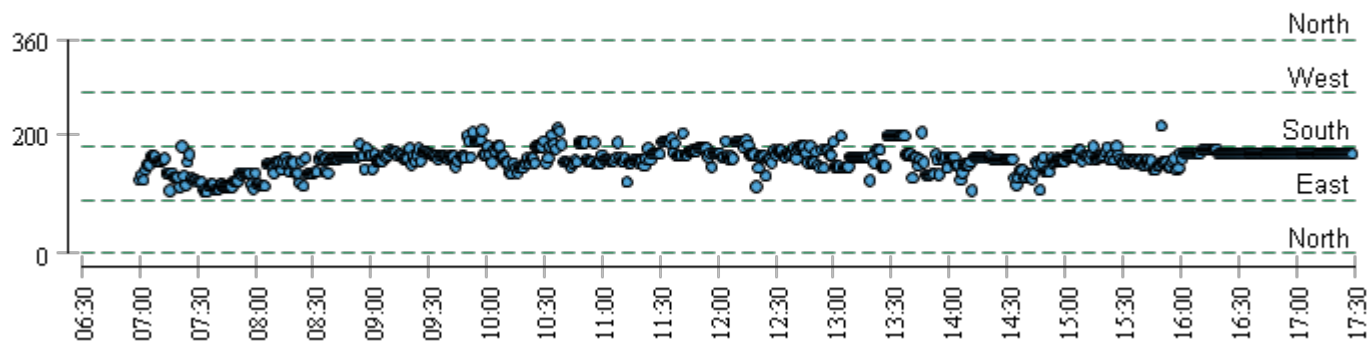


Note: No excavation work was conducted Tuesday, 12/14/2021 through Wednesday, 12/15/2021, and no air monitoring was conducted on these days.

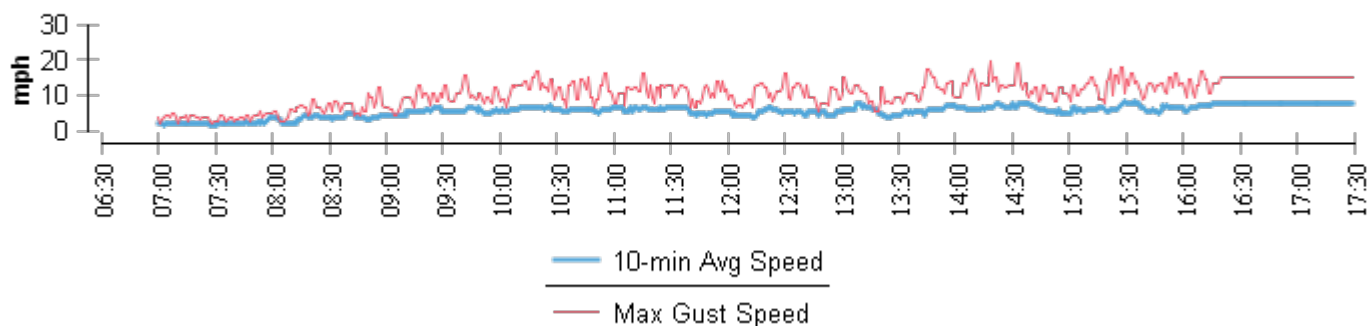
Weather Time History Data

Sample Date Dec 16, 2021

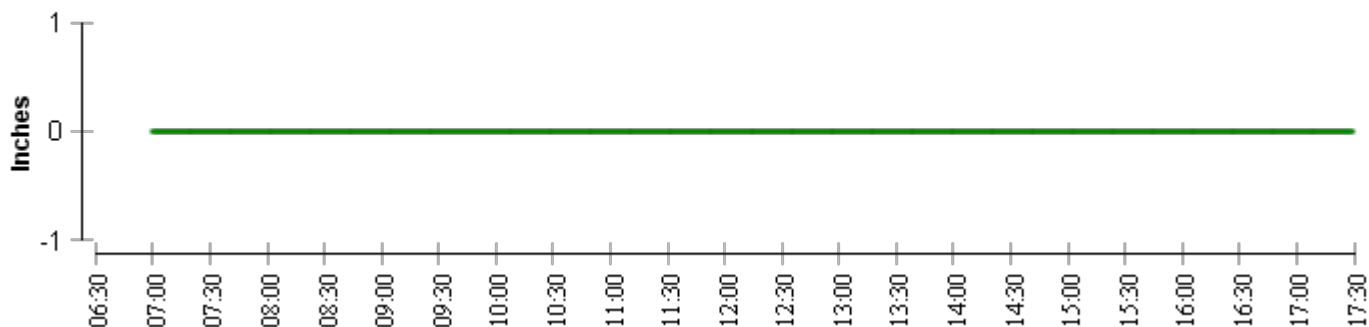
Wind Direction (10 min average)



Wind Speed



Cumulative Daily Rainfall



Note: No excavation work was conducted from Friday, 12/17/2021 through Sunday, 12/19/2021, and no air monitoring was conducted on these days.

Daily Time History Detail for PM 2.5 and PM 10 Dust Levels

This section provides charts showing the rolling thirty-minute average concentrations of PM 2.5 and PM 10 particulates measured at each location on each sample day during the specified week.

PM 2.5 and PM 10 airborne particulate levels are measured every two minutes during the active sampling period. The charts track the average particulate concentrations over the past 30 minutes at the time of the measurement.

Union Pacific Railroad (UPRR) has established control levels for airborne particulates to help ensure that construction-related dust levels are adequately controlled. These levels are explained as follows:

- Take-Action Level - 30-minute average dust concentrations $>55 \text{ ug/m}^3$ (PM 2.5) or $>150 \text{ ug/m}^3$ (PM 10)
Additional dust control measures, as outlined in the site dust control plan, will be promptly implemented to reduce levels below the Take-Action Level.
- Stop-Work Level - 30-minute average dust concentrations $>85 \text{ ug/m}^3$ (PM 2.5) or $>300 \text{ ug/m}^3$ (PM 10)
Work will be stopped immediately, as outlined in the site dust control plan, and UPRR will evaluate dust control measures. Work will not resume until UPRR has implemented additional controls that will effectively prevent generation of dust levels above the Stop-Work Level.

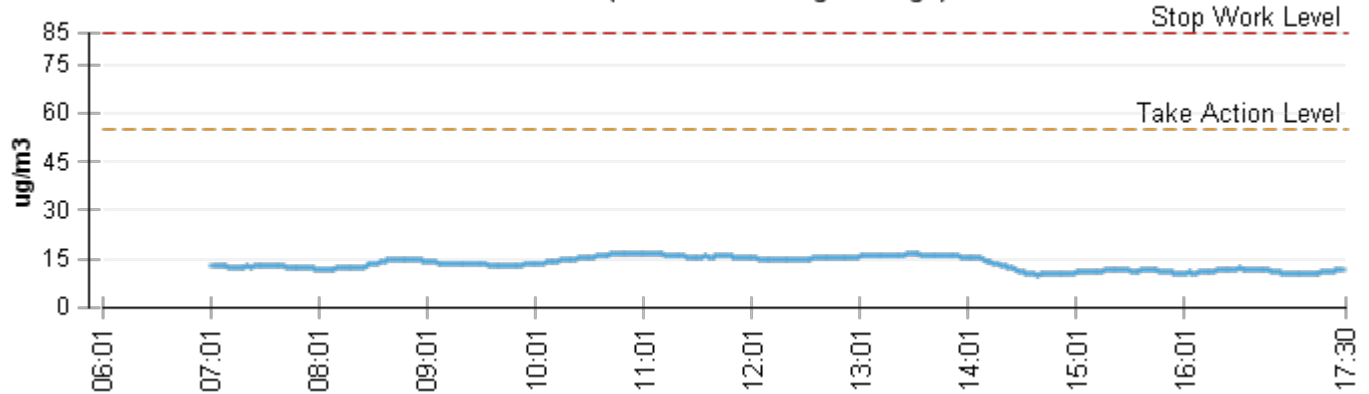
Air monitoring stations may exhibit higher than actual readings during the first 5 - 10 minutes after startup, before the instrumentation has fully warmed up. This is a known and expected behavior of the instrumentation.

PM 2.5 and PM 10 Time History Data

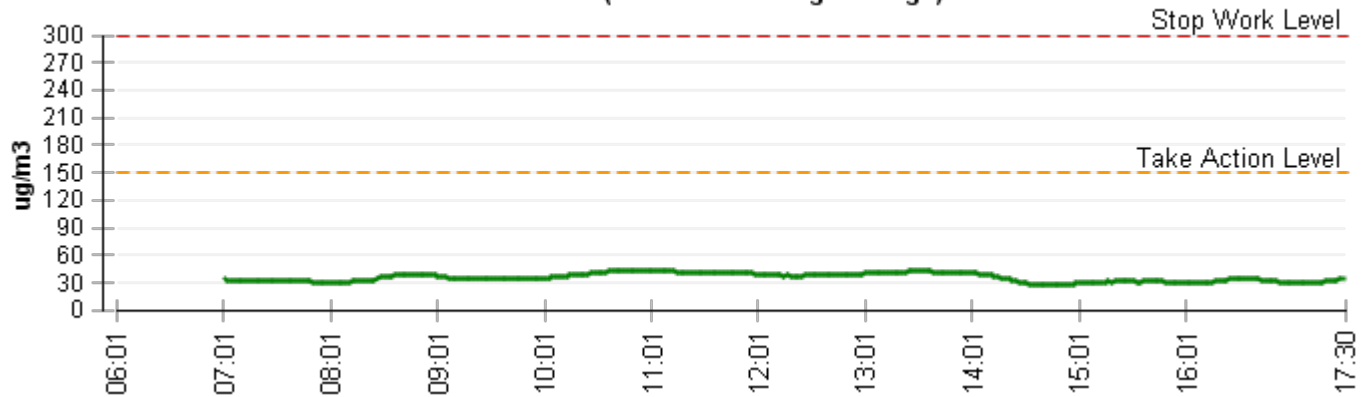
Sample Date Dec 13, 2021

Station ID AMS-01
Location Description 29.79009, -95.2982 - Yard Office

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)

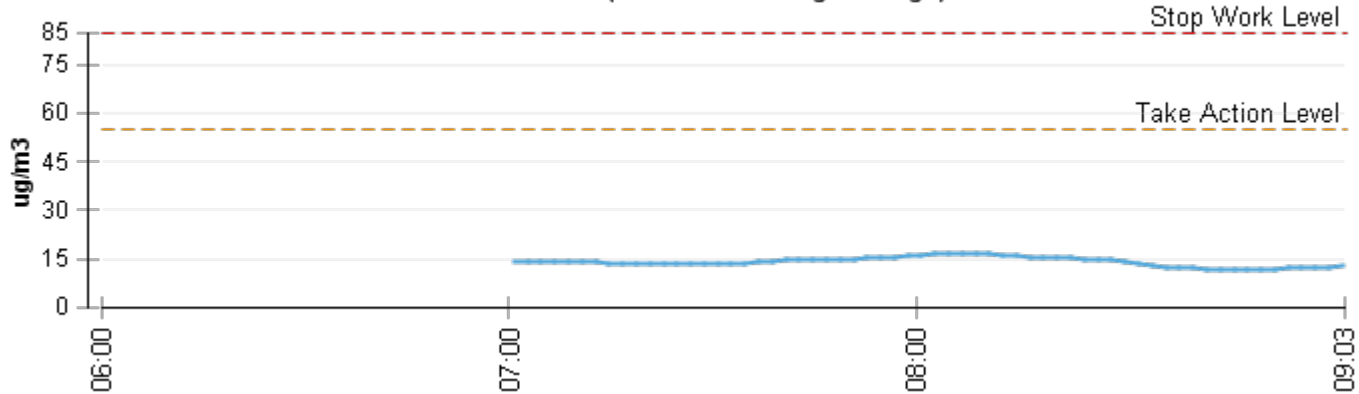


PM 2.5 and PM 10 Time History Data

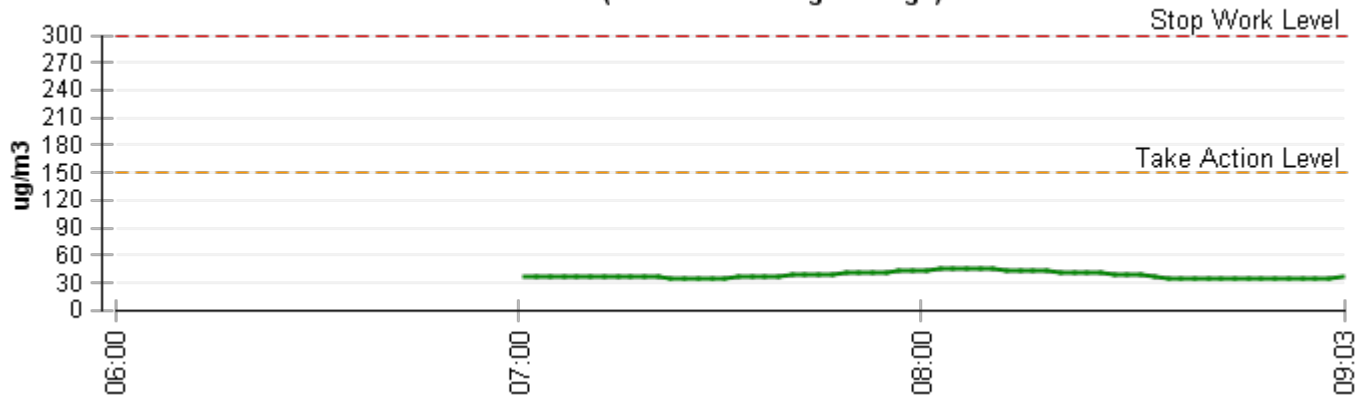
Sample Date Dec 13, 2021

Station ID AMS-02
Location Description 29.78426, -95.31687 - IMY East - Sudan and Harlem

PM 2.5 Levels (30-minute rolling average)



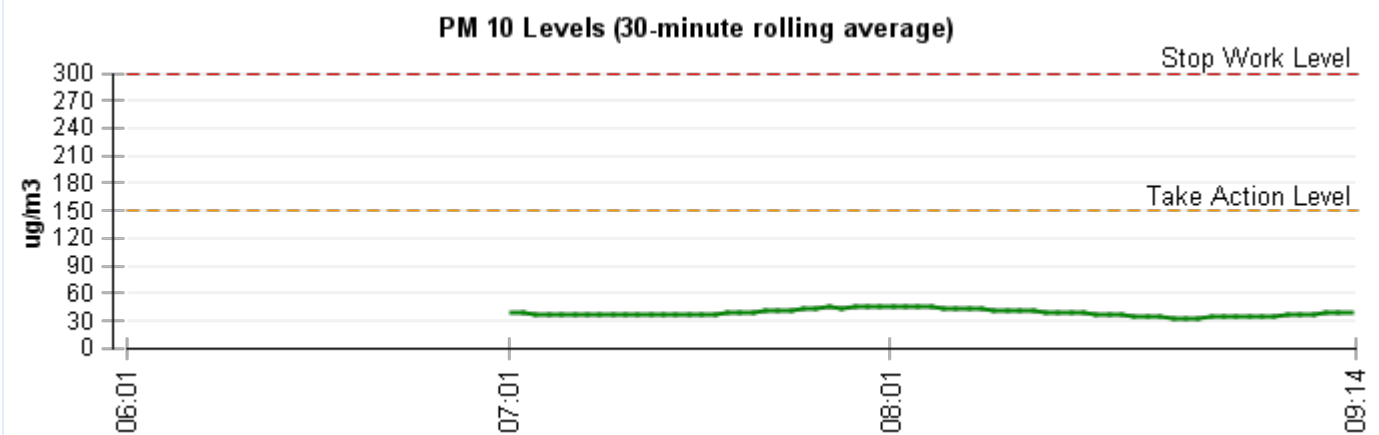
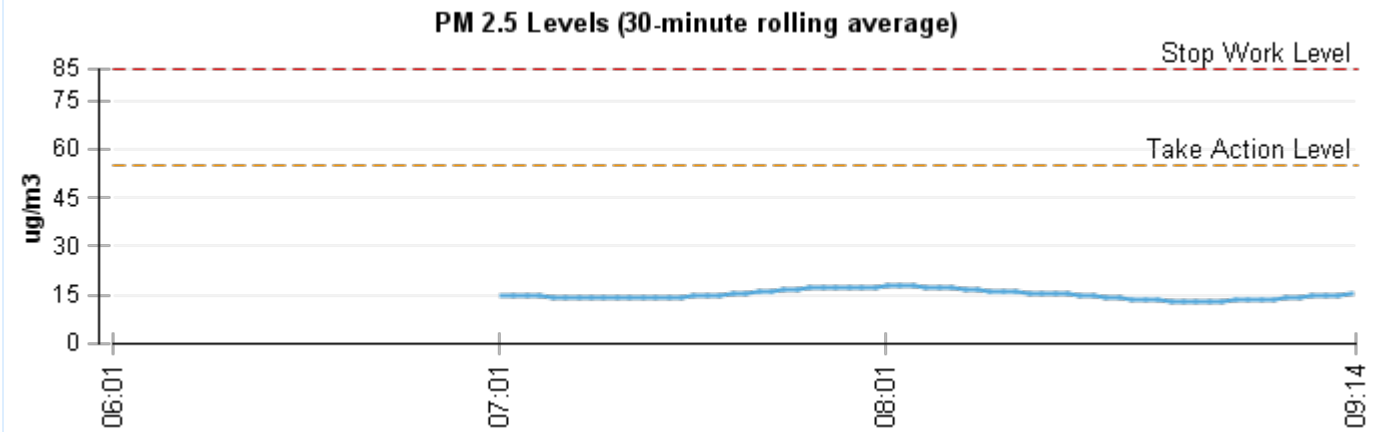
PM 10 Levels (30-minute rolling average)

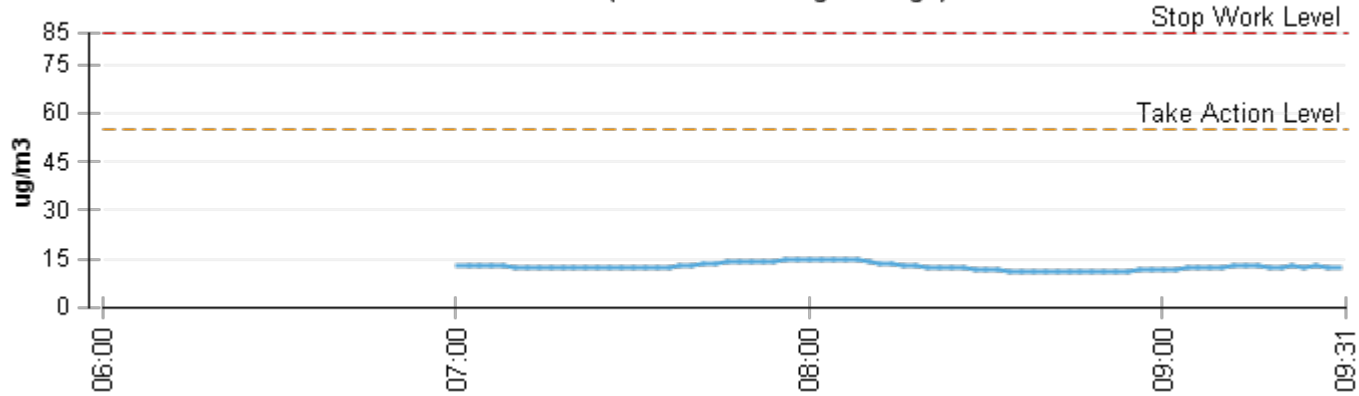
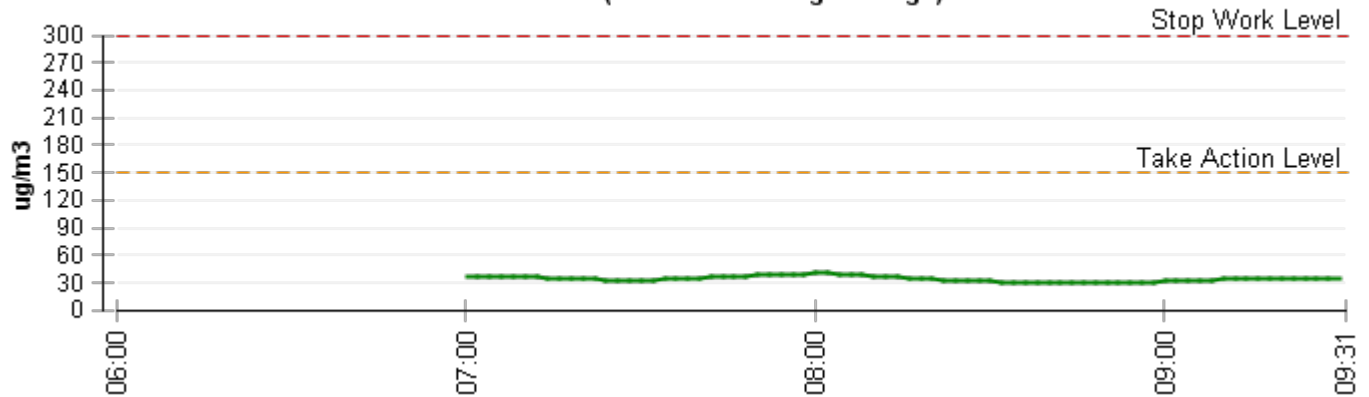


PM 2.5 and PM 10 Time History Data

Sample Date Dec 13, 2021

Station ID Location Description
AMS-03 29.78205, -95.31913 - IMY SE - Clementine

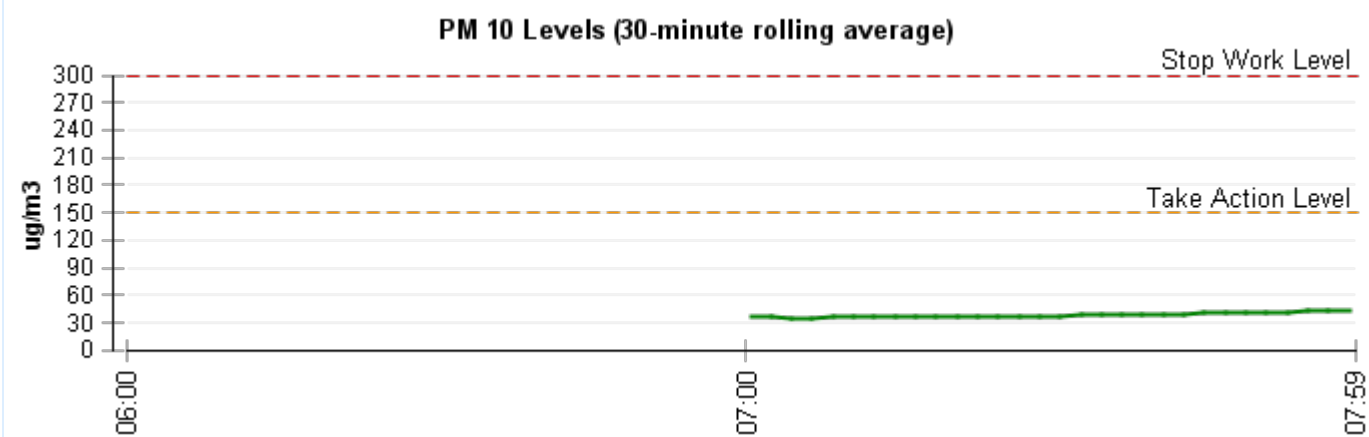
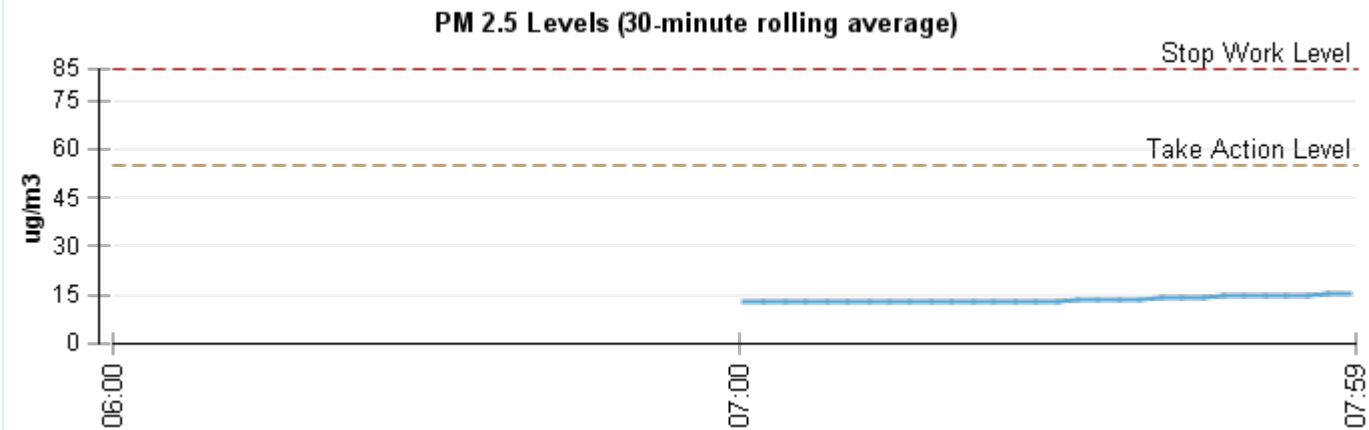


PM 2.5 and PM 10 Time History Data**Sample Date** Dec 13, 2021**Station ID** AMS-04
Location Description 29.78217, -95.32281 - IMY South - Schweikhardt**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data

Sample Date Dec 13, 2021

Station ID Location Description
AMS-06 29.78755, -95.31684 - HWPW - Erastus

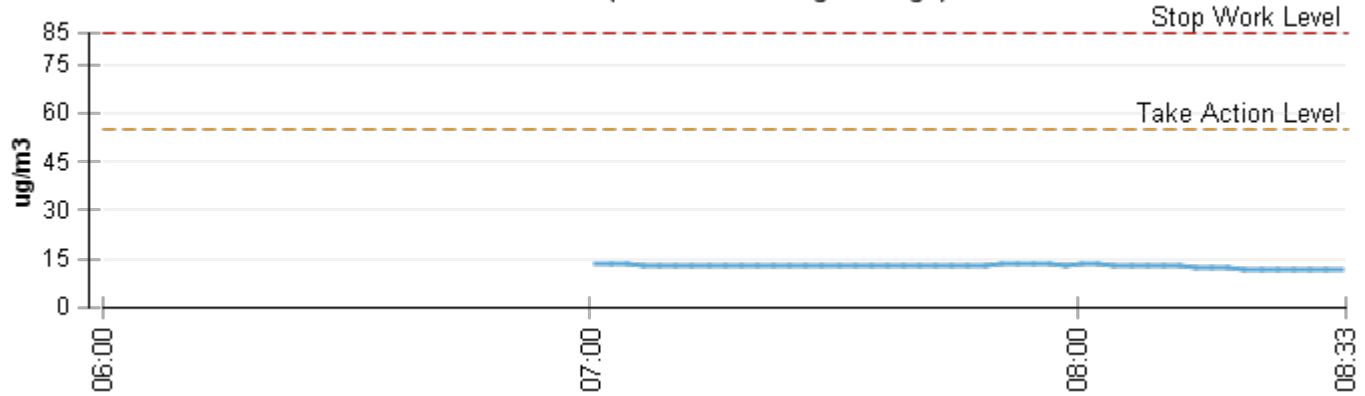


PM 2.5 and PM 10 Time History Data

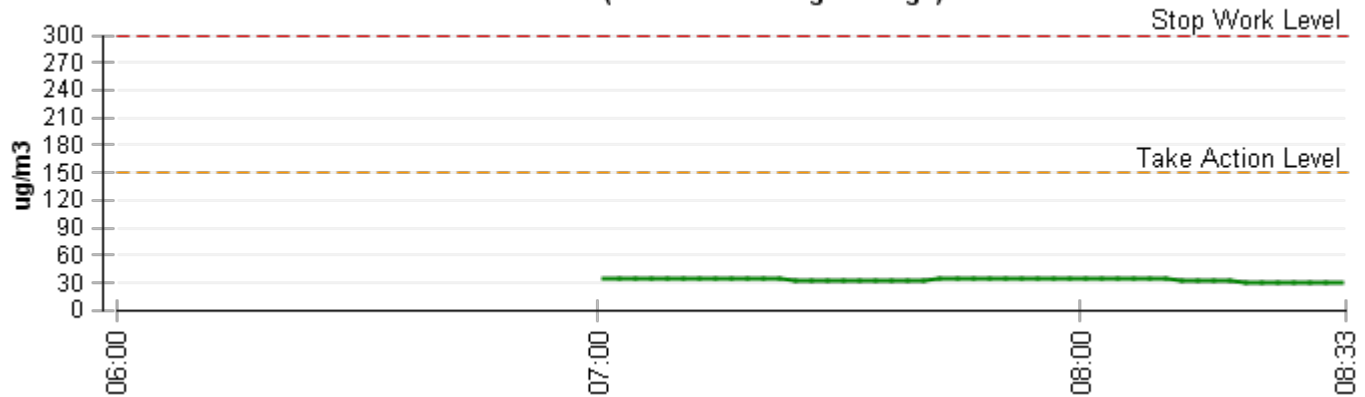
Sample Date Dec 13, 2021

Station ID AMS-08
Location Description 29.78744, -95.32115 - HWPW - Solo North

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)

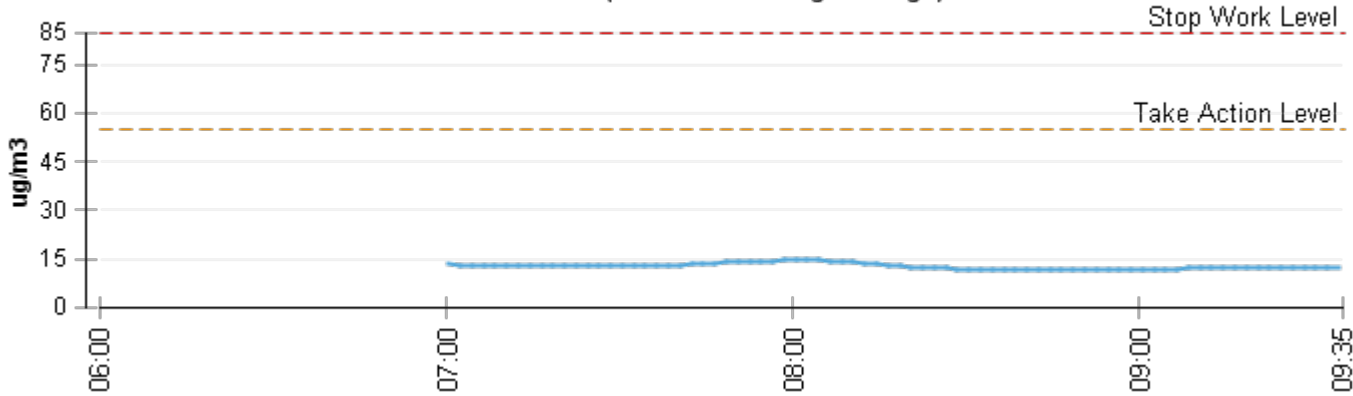


PM 2.5 and PM 10 Time History Data

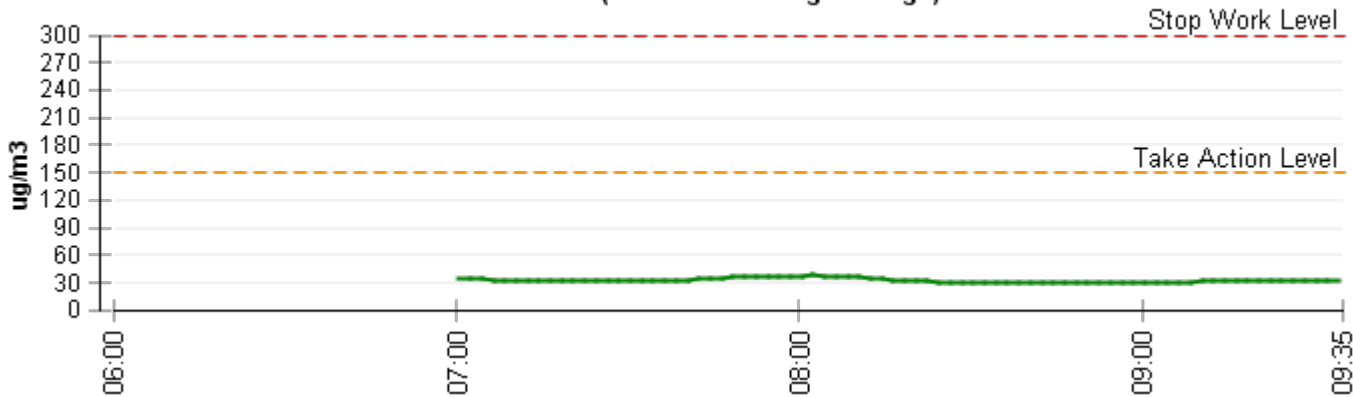
Sample Date Dec 13, 2021

Station ID AMS-13
Location Description 29.78222, -95.32514 - IMY South - Waco and Lee

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)

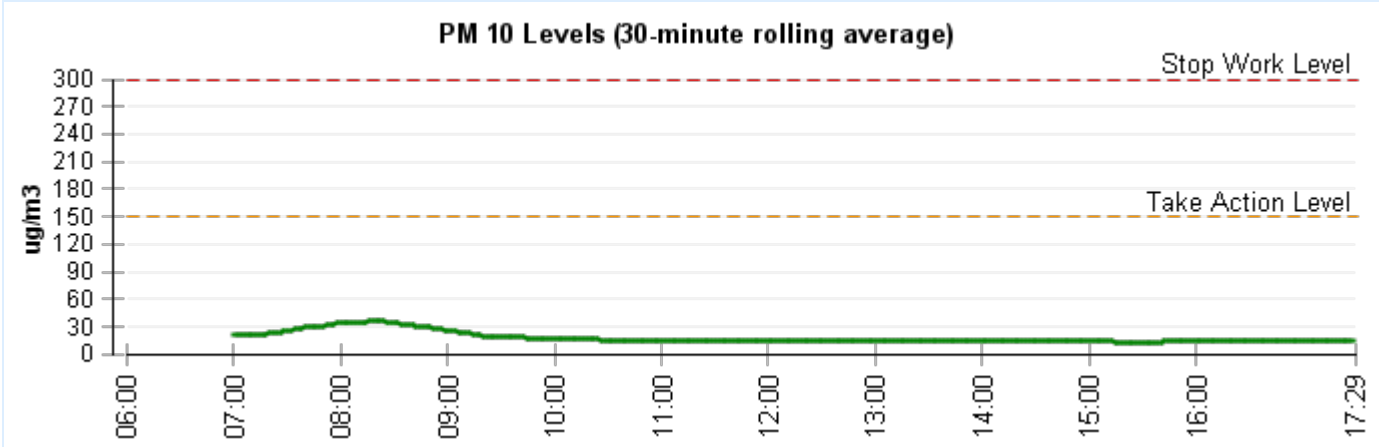
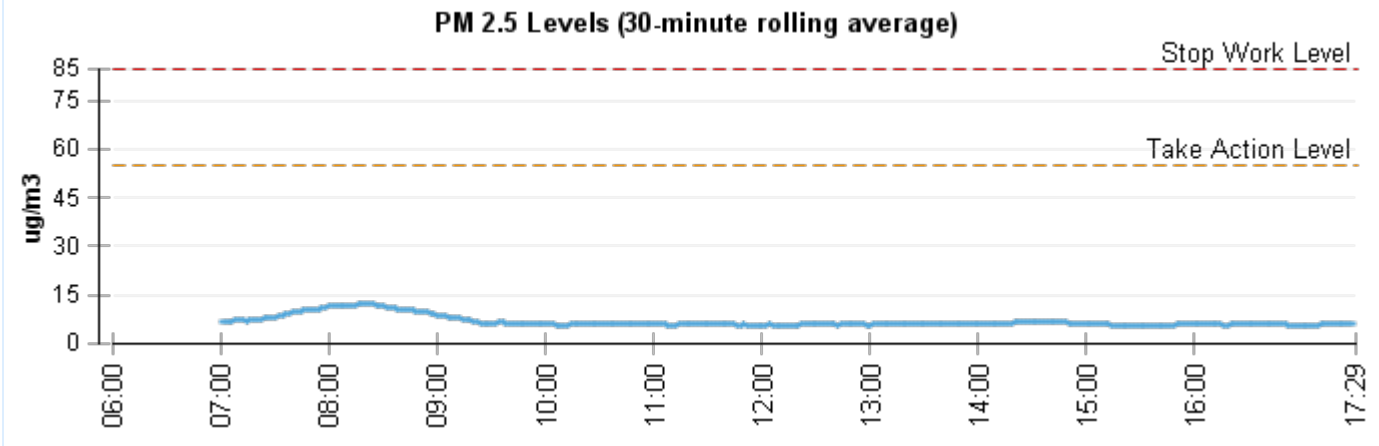


Note: No excavation work was conducted Tuesday, 12/14/2021 through Wednesday, 12/15/2021, and no air monitoring was conducted on these days.

PM 2.5 and PM 10 Time History Data

Sample Date Dec 16, 2021

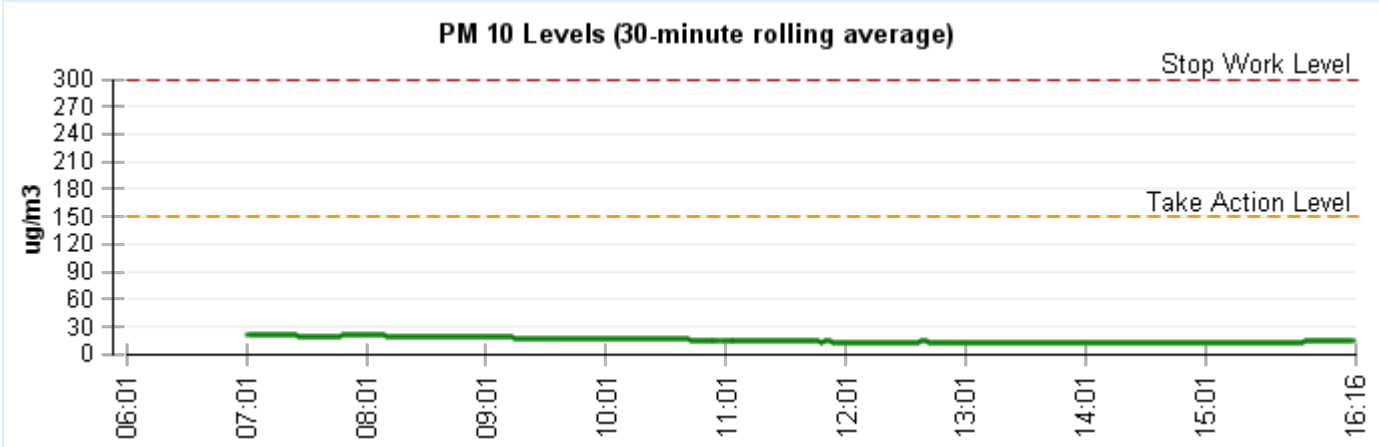
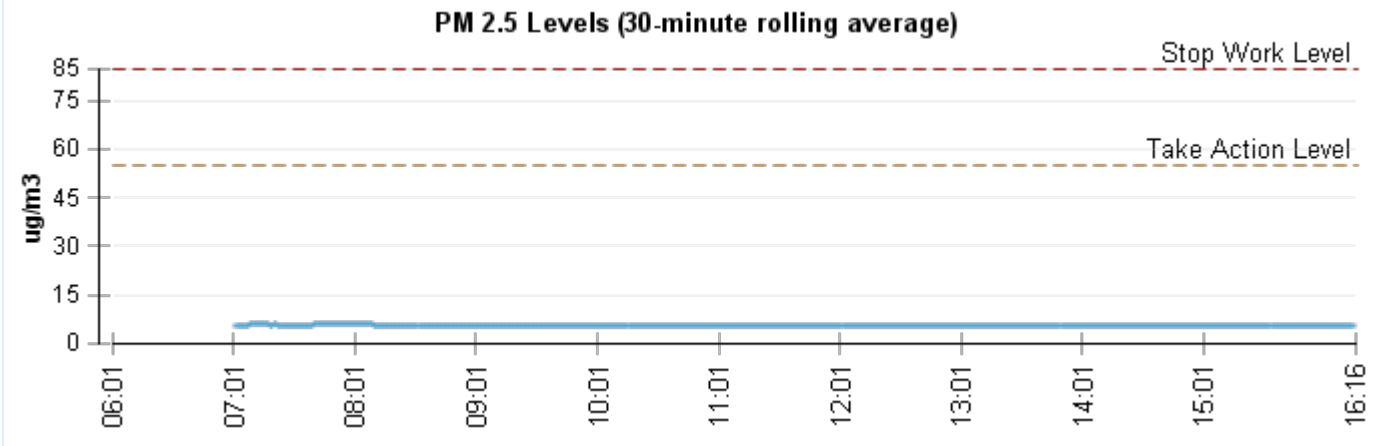
Station ID Location Description
AMS-01 29.79013, -95.29821 - Yard Office



PM 2.5 and PM 10 Time History Data

Sample Date Dec 16, 2021

Station ID Location Description
AMS-02 29.78426, -95.31687 - IMY East - Sudan and Harlem

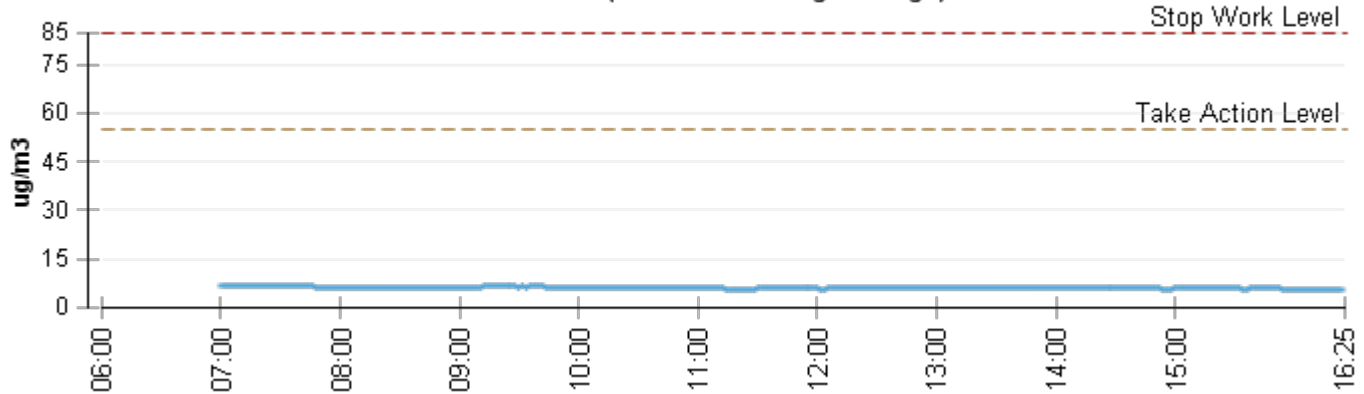


PM 2.5 and PM 10 Time History Data

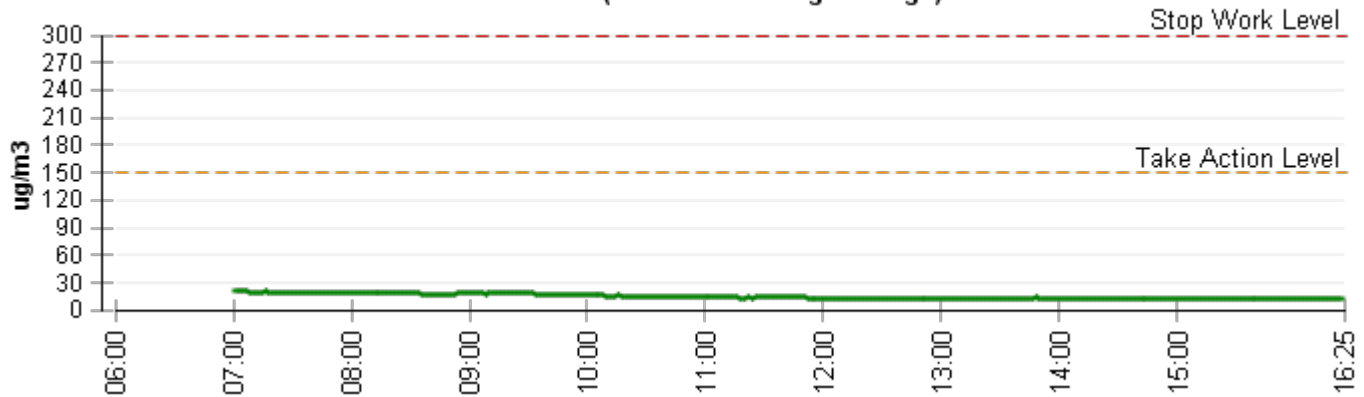
Sample Date Dec 16, 2021

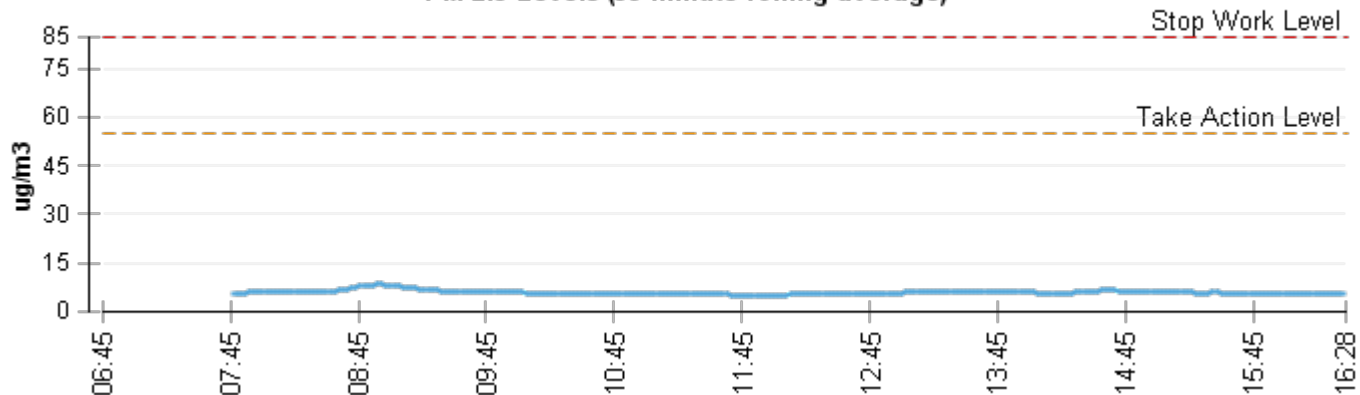
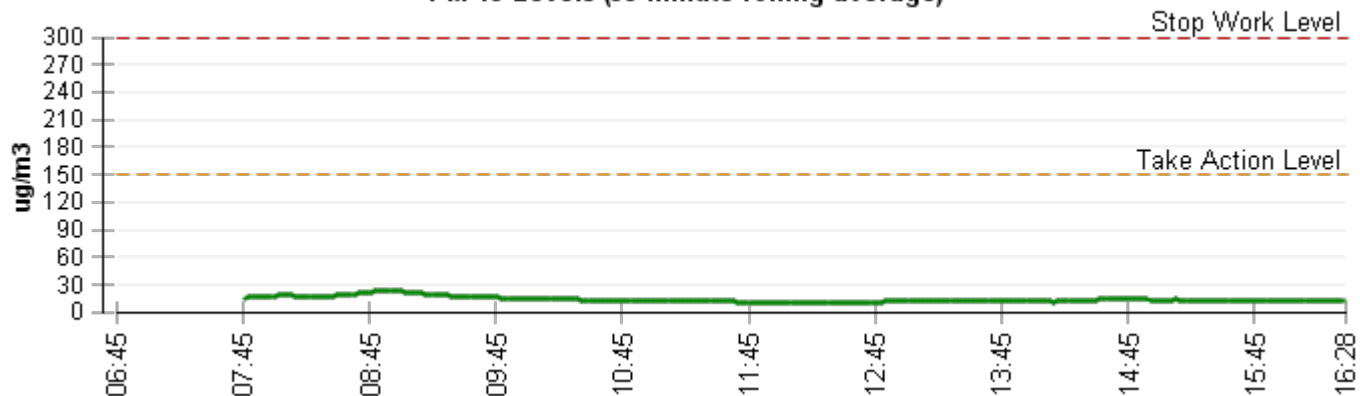
Station ID AMS-03
Location Description 29.78208, -95.31911 - IMY SE - Clementine

PM 2.5 Levels (30-minute rolling average)



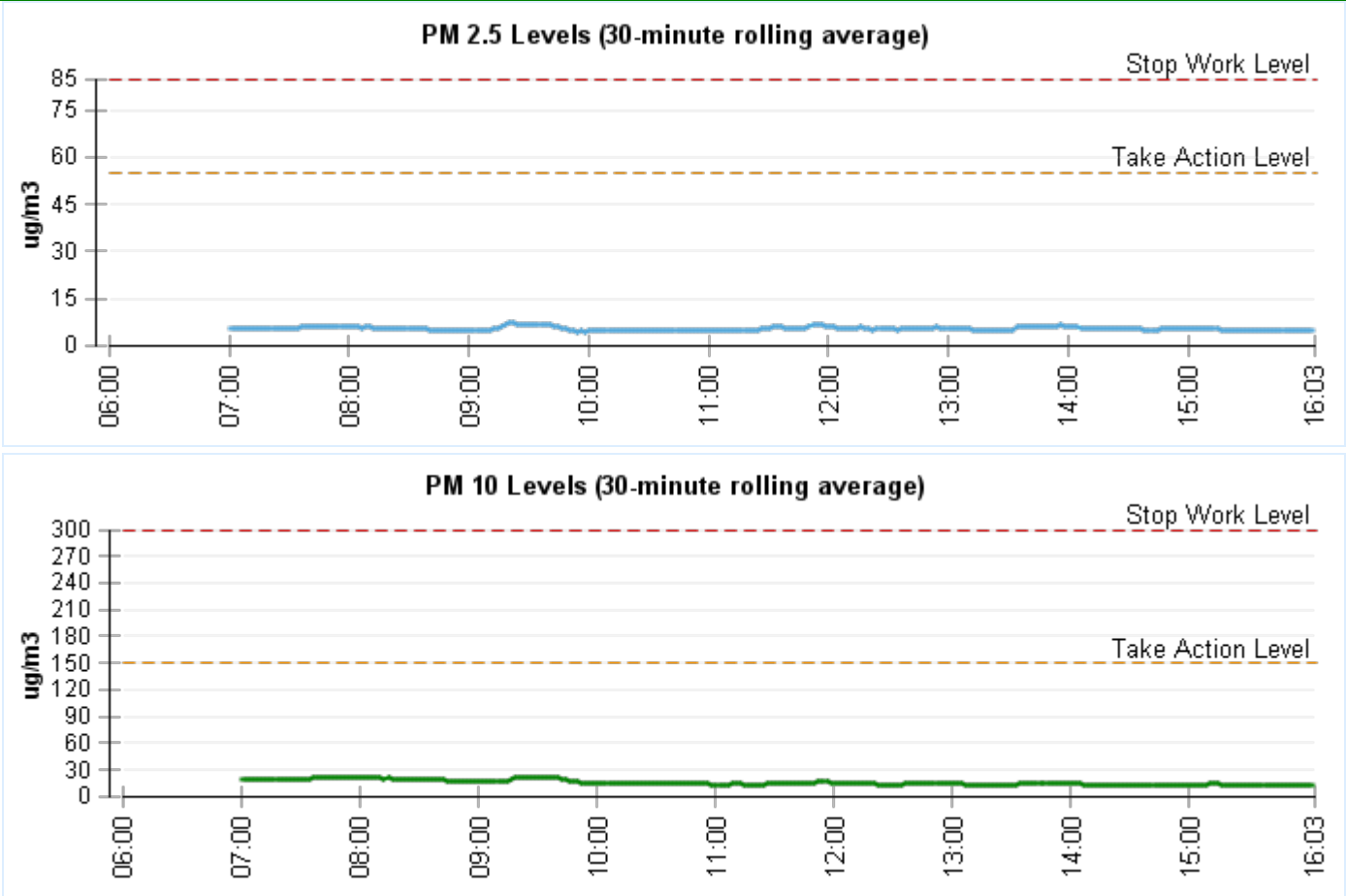
PM 10 Levels (30-minute rolling average)



PM 2.5 and PM 10 Time History Data**Sample Date** Dec 16, 2021**Station ID** AMS-04
Location Description 29.78222, -95.32282 - IMY South - Schweikhardt**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 16, 2021
Station ID	Location Description
AMS-06	29.78755, -95.31682 - HWPW - Erastus

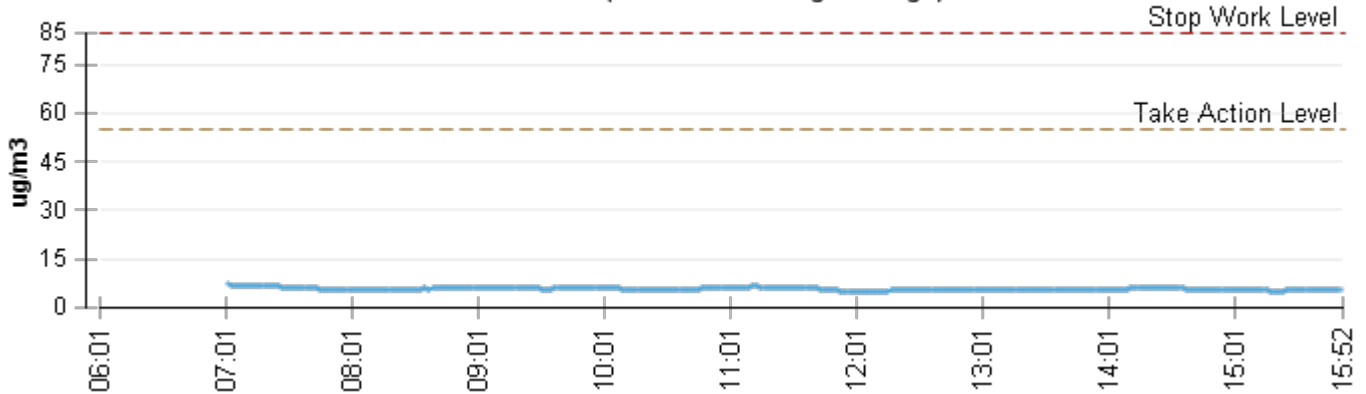


PM 2.5 and PM 10 Time History Data

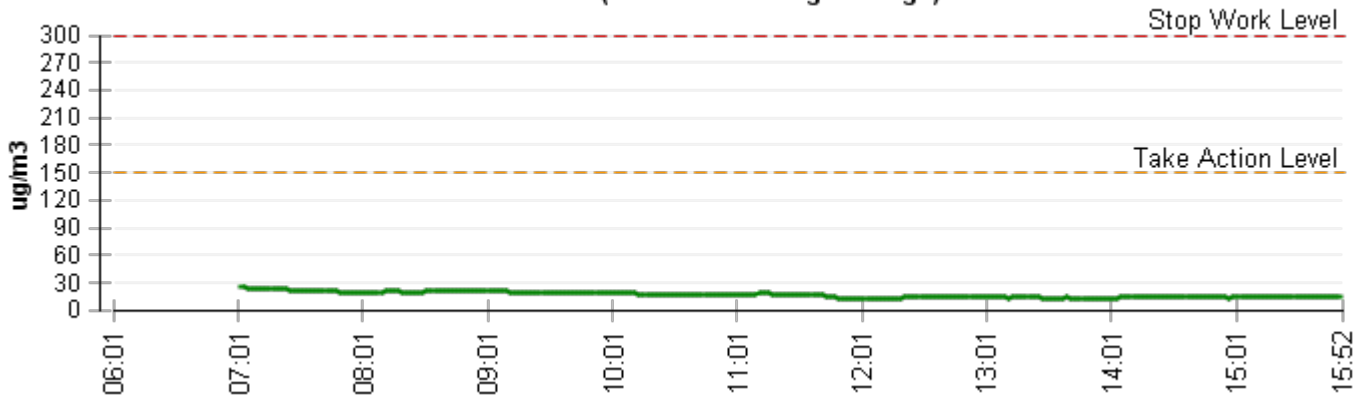
Sample Date Dec 16, 2021

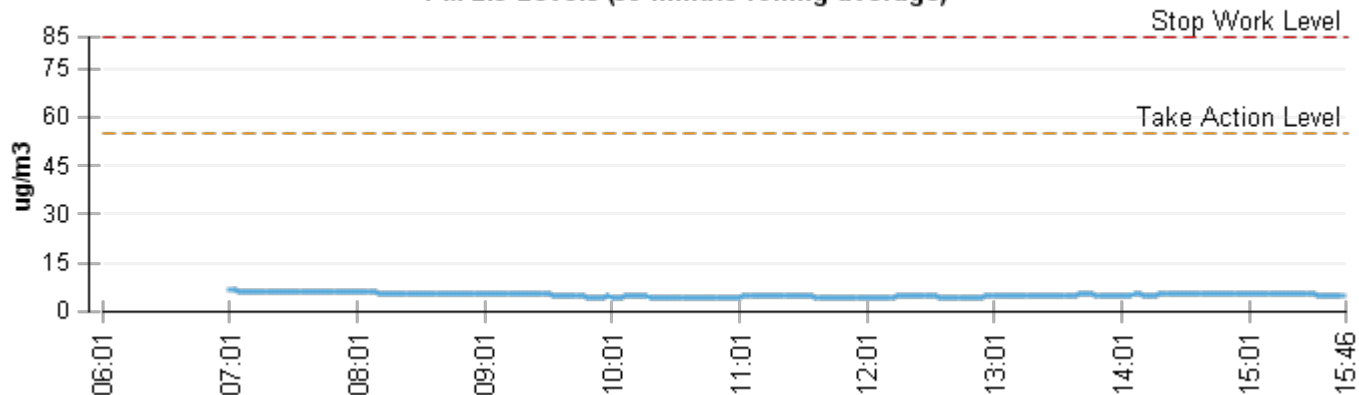
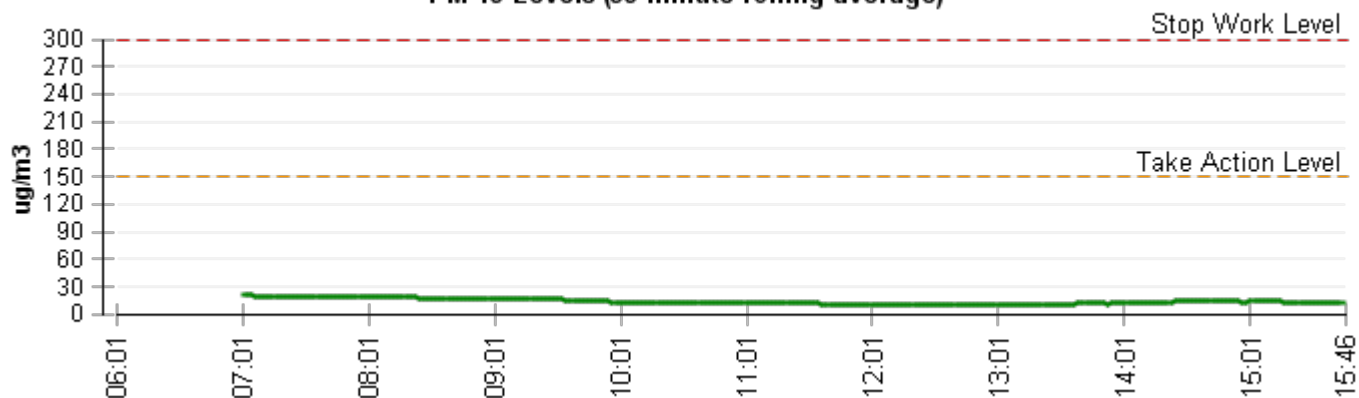
Station ID AMS-07
Location Description 29.78746, -95.31912 - HWPW - Clementine North

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)



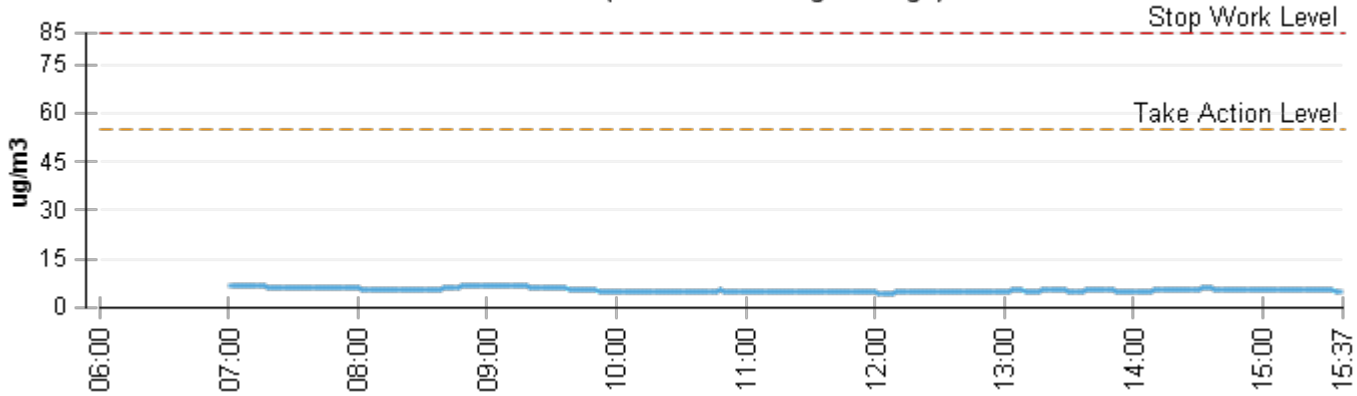
PM 2.5 and PM 10 Time History Data**Sample Date** Dec 16, 2021**Station ID** AMS-08
Location Description 29.78745, -95.32116 - HWPW - Solo North**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data

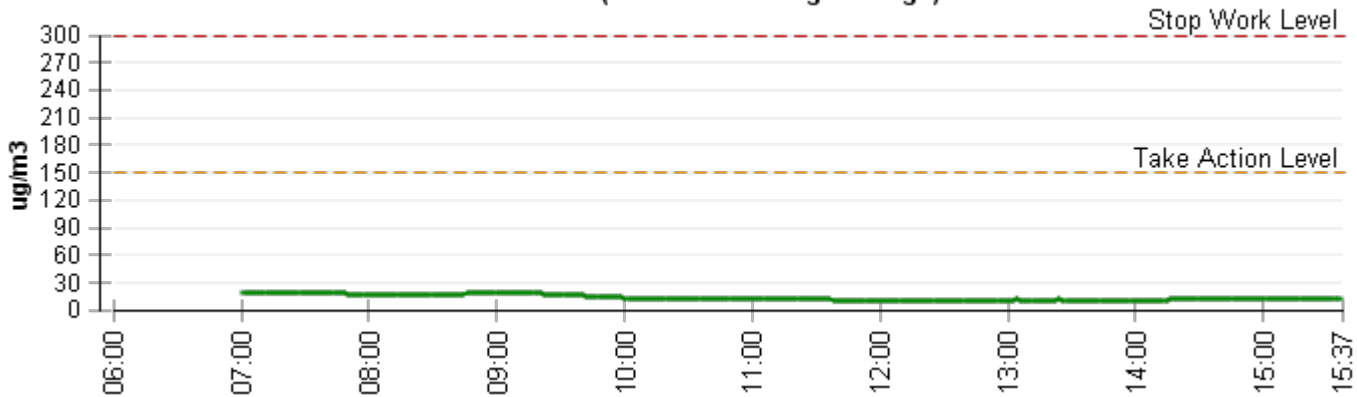
Sample Date Dec 16, 2021

Station ID AMS-09
Location Description 29.78756, -95.32362 - HWPW - Kashmere and Liberty

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)

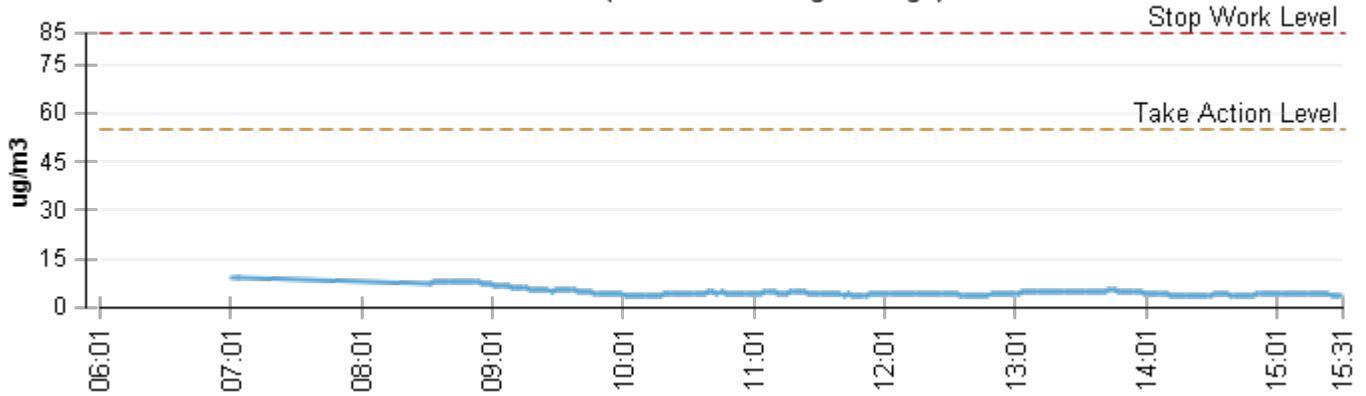


PM 2.5 and PM 10 Time History Data

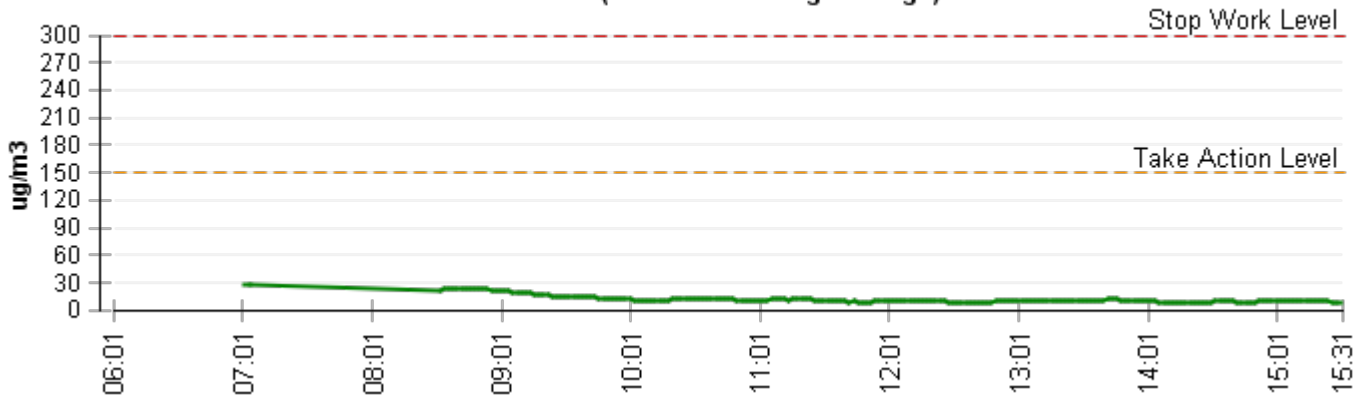
Sample Date Dec 16, 2021

Station ID AMS-10a
Location Description 29.78637, -95.32376 - HWPW - Eddie and Kashmere

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)

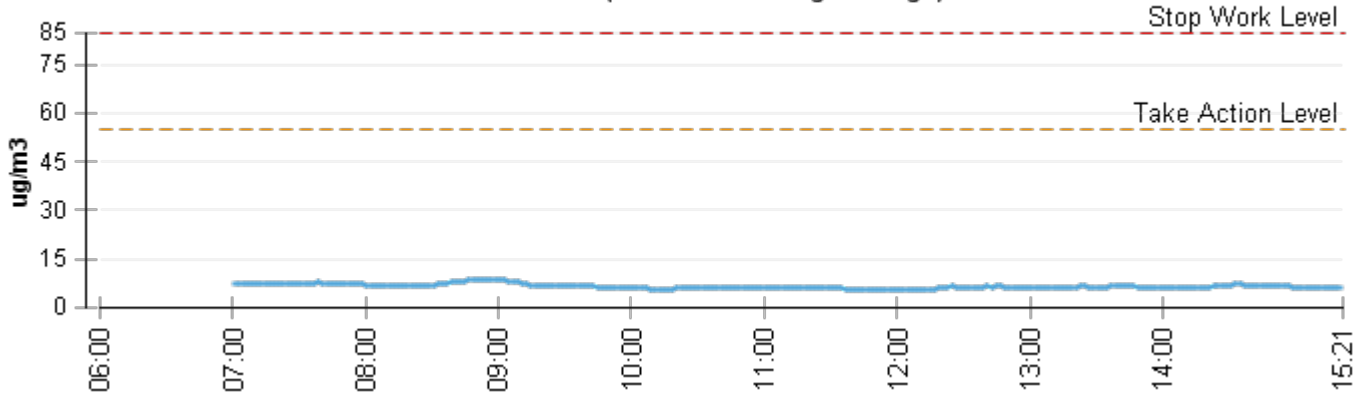


PM 2.5 and PM 10 Time History Data

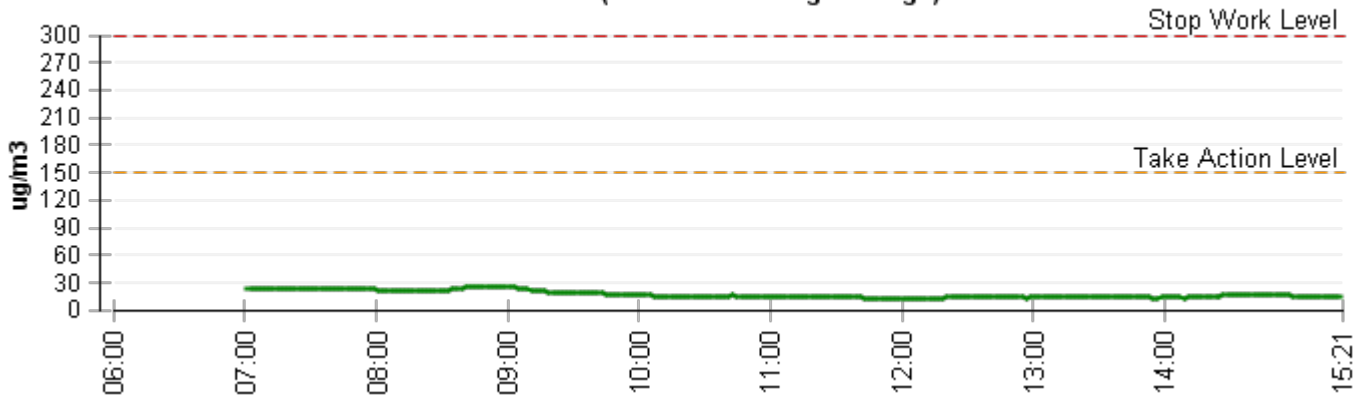
Sample Date Dec 16, 2021

Station ID AMS-11
Location Description 29.78436, -95.32448 - HWPW - Quitman East

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)

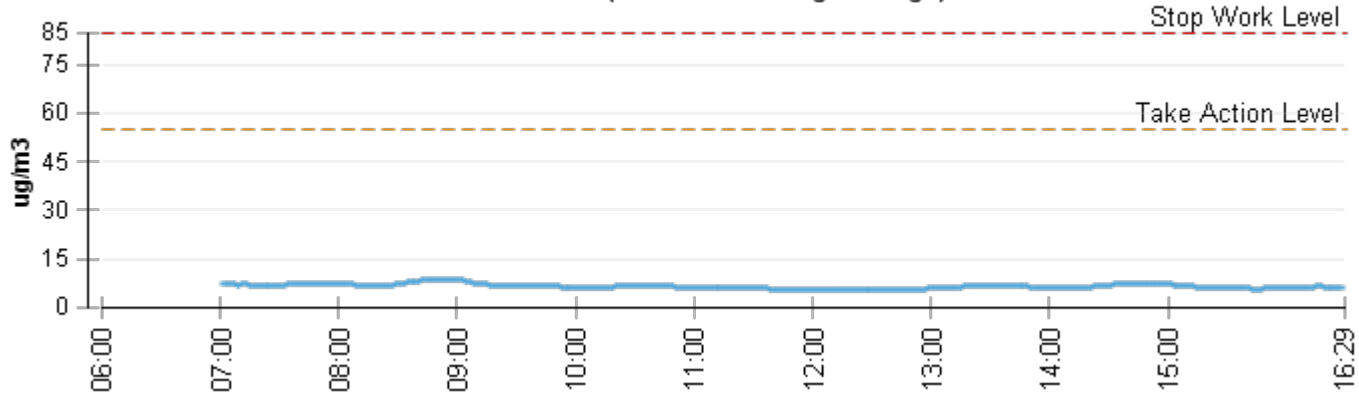


PM 2.5 and PM 10 Time History Data

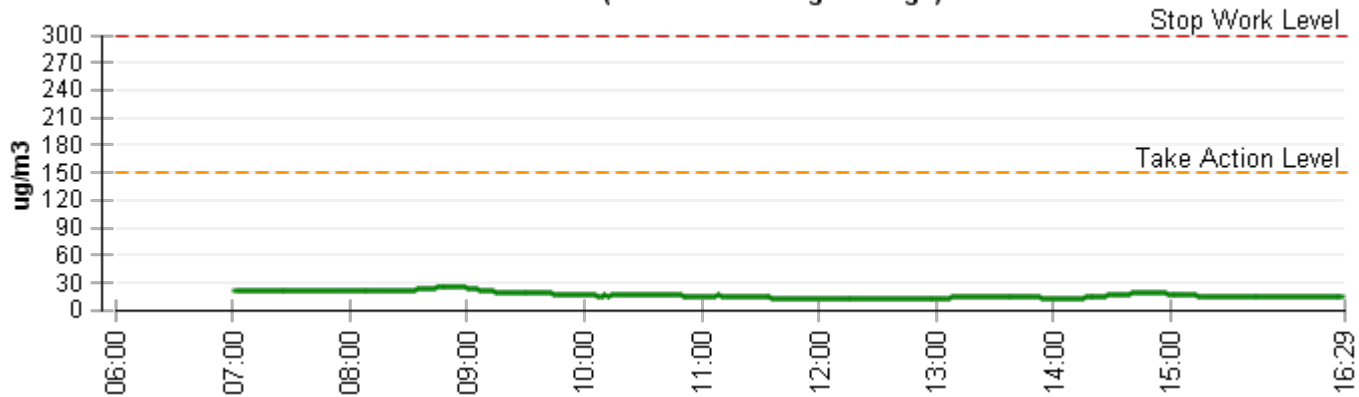
Sample Date Dec 16, 2021

Station ID AMS-13
Location Description 29.78225, -95.3251 - IMY South - Waco and Lee

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)



Note: No excavation work was conducted from Friday, 12/17/2021 through Sunday, 12/19/2021, and no air monitoring was conducted on these days.

Results of Integrated Air Samples for Metals

This section provides results of integrated air samples collected for lead and arsenic.

Integrated air samples are air samples collected by drawing a known volume of air through filters, sorbents or other media and then submitted to a qualified independent laboratory analysis. Integrated samples for selected metals (lead and arsenic) are collected and reported for this project. Integrated air sample results lag behind real-time results, due to the time required for sample collection, shipping, analysis and data validation. Results provided in this report are the results received and validated since the last weekly report.

Data items included on this report are explained as follows:

- **Sample Number:** The unique identifier for the sample.
- **Date:** The date on which the sample was collected.
- **Start:** The time at which sample collection began.
- **End:** The time at which sample collection ended.
- **Station ID:** The name of the air monitoring station where the sample was collected.
- **Location:** The geographic coordinates and general area description, indicating the location where the sample was collected.
- **Agent:** The name of the chemical substance(s) for which the sample was analyzed.
- **Airborne Concentration:** The unique identifier for the sample.
- **Short-Term AMCV:** The Short-Term Air Monitoring Comparison Value (AMCV) for the agent. N/A means no short-term AMCV has been established for the specified agent.
- **Long-Term AMCV:** The Long-Term Air Monitoring Comparison Value (AMCV) for the agent. N/A means no long-term AMCV has been established for the specified agent.

About the Air Monitoring Comparison Values (AMCV)

Air Monitoring Comparison Values (AMCV) are chemical-specific air concentrations determined by the Texas Department of Environmental Quality (TCEQ) and intended to protect human health and welfare. Exposure to an air concentration at or below the AMCVs is not likely to cause adverse health effects in the general public, including sensitive subgroups such as children, the elderly, pregnant women, and people with preexisting health conditions. They are *not* intended for use as an indicator or threshold of harm or disease. AMCV have not been established for all chemicals. TCEQ currently has AMCV's appropriate for air monitoring for approximately 120 chemicals. Both short-term and long-term AMCVs may be established. These are explained as follows:

- **Short-Term AMCV:** The short-term AMCV, based on acute exposure health and welfare data, is compared to monitored concentrations that can be *30 minutes to 1-hour*, which represent a point in time for a specific location.
- **Long-Term AMCV:** The long-term AMCV, based on chronic health and welfare data, is used to evaluate *annual* averaged monitored concentrations or annual concentrations averaged over multiple years (if available), which represent multiple points in time for specific locations.

Air samples for lead and arsenic are collected, based on the results of prior soil sampling at the Houston Wood Preserving Works site. However, soils from the former Houston Wood Preserving Works site are not the only sources of these agents. These agents may be produced by a variety of sources. Lead may be produced from ore and metals processing, piston-engined aircraft operating on leaded aviation fuel, waste incinerators, lead-acid battery manufacturers and recyclers and smelting operations. Arsenic may be produced from pesticides, ore and metals processing, semiconductor and LED manufacturing, and lead-acid battery manufacturers and recyclers. Both metals also occur naturally.

Results of Integrated Air Samples for Metals

Sample Number	Date	Start	End	Station ID	Location
AA-1744-M054-20211207	12/7/21	04:28	16:27	AMS-02	(29.78427, -95.31684) - IMY East - Sudan and Harlem
Agent		Airborne Concentration		Short-Term AMCV	Long-Term AMCV
Arsenic		< 0.052 ug/m3		N/A	0.067 ug/m3
Lead		< 0.026 ug/m3		N/A	0.15 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-M056-20211207	12/7/21	05:11	17:19	AMS-06	(29.78761, -95.31663) - HWPW - Erastus
Agent		Airborne Concentration		Short-Term AMCV	Long-Term AMCV
Arsenic		< 0.052 ug/m3		N/A	0.067 ug/m3
Lead		< 0.026 ug/m3		N/A	0.15 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-M057-20211207	12/7/21	05:35	17:44	AMS-08	(29.78742, -95.32116) - HWPW - Solo North
Agent		Airborne Concentration		Short-Term AMCV	Long-Term AMCV
Arsenic		< 0.052 ug/m3		N/A	0.067 ug/m3
Lead		< 0.026 ug/m3		N/A	0.15 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-M058-20211208	12/8/21	04:32	16:35	AMS-02	(29.78426, -95.31686) - IMY East - Sudan and Harlem
Agent		Airborne Concentration		Short-Term AMCV	Long-Term AMCV
Arsenic		< 0.052 ug/m3		N/A	0.067 ug/m3
Lead		< 0.026 ug/m3		N/A	0.15 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-M060-20211208	12/8/21	05:04	17:05	AMS-06	(29.78762, -95.31658) - HWPW - Erastus
Agent		Airborne Concentration		Short-Term AMCV	Long-Term AMCV
Arsenic		< 0.052 ug/m3		N/A	0.067 ug/m3
Lead		= 0.027 ug/m3		N/A	0.15 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-M061-20211208	12/8/21	05:31	17:40	AMS-08	(29.78747, -95.32119) - HWPW - Solo North
Agent		Airborne Concentration		Short-Term AMCV	Long-Term AMCV
Arsenic		< 0.051 ug/m3		N/A	0.067 ug/m3
Lead		= 0.036 ug/m3		N/A	0.15 ug/m3

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

This section provides results of integrated air samples collected for polynuclear aromatic hydrocarbons.

Integrated air samples are air samples collected by drawing a known volume of air through filters, sorbents or other media and then submitted to a qualified independent laboratory analysis. Integrated samples for selected metals and polynuclear aromatic hydrocarbons are collected and reported for this project. Integrated air sample results lag behind real-time results, due to the time required for sample collection, shipping, analysis and data validation. Results provided in this report are the results received and validated since the last weekly report.

Data items included on this report are explained as follows:

- **Sample Number:** The unique identifier for the sample.
- **Date:** The date on which the sample was collected.
- **Start:** The time at which sample collection began.
- **End:** The time at which sample collection ended.
- **Station ID:** The name of the air monitoring station where the sample was collected.
- **Location:** The geographic coordinates and general area description, indicating the location where the sample was collected.
- **Agent:** The name of the chemical substance(s) for which the sample was analyzed.
- **Airborne Concentration:** The unique identifier for the sample.
- **Short-Term AMCV:** The Short-Term Air Monitoring Comparison Value (AMCV) for the agent. N/A means no short-term AMCV has been established for the specified agent.
- **Long-Term AMCV:** The Long-Term Air Monitoring Comparison Value (AMCV) for the agent. N/A means no long-term AMCV has been established for the specified agent.

About the Air Monitoring Comparison Values (AMCV)

Air Monitoring Comparison Values (AMCV) are chemical-specific air concentrations determined by the Texas Department of Environmental Quality (TCEQ) and intended to protect human health and welfare. Exposure to an air concentration at or below the AMCVs is not likely to cause adverse health effects in the general public, including sensitive subgroups such as children, the elderly, pregnant women, and people with preexisting health conditions. They are *not* intended for use as an indicator or threshold of harm or disease. AMCV have not been established for all chemicals. TCEQ currently has AMCV's appropriate for air monitoring for approximately 120 chemicals. Both short-term and long-term AMCVs may be established. These are explained as follows:

- **Short-Term AMCV:** The short-term AMCV, based on acute exposure health and welfare data, is compared to monitored concentrations that can be *30 minutes to 1-hour*, which represent a point in time for a specific location.
- **Long-Term AMCV:** The long-term AMCV, based on chronic health and welfare data, is used to evaluate *annual* averaged monitored concentrations or annual concentrations averaged over multiple years (if available), which represent multiple points in time for specific locations.

Air samples for polynuclear aromatic hydrocarbons (PAHs) are collected, based on the results of prior soil sampling at the Houston Wood Preserving Works site. However, soils from the former Houston Wood Preserving Works site are not the only sources of these agents. PAHs may be produced by a variety of sources, including power generation, vehicle and aircraft exhaust, burning of wood or garbage, cement manufacturing, rubber tire manufacturing and burning, various chemical manufacturing, wildfires and application of pesticides.

Notes:

- The analyzing laboratory reported reduced precision for *benzo(e)pyrene*, *benzo(g,h,i)perylene* and *dibenz(a,h)anthracene* for PAH samples collected on 11/30/2021 and 12/1/2021. These analytes were not detected in any of the samples collected on these dates, nor have these analytes been detected in any other samples collected during this project to date.

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P042-20211130	11/30/21	05:45	18:52	AMS-06	(29.78759, -95.31688) - HWPW - Erastus
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.11 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.22 ug/m3			N/A	N/A
Acenaphthene	= 0.1 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.013 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.013 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.013 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.013 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.064 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.49 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.013 ug/m3			N/A	N/A
Phenanthrene	= 0.08 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-P043-20211130	11/30/21	06:22	19:09	AMS-08	(29.78746, -95.32116) - HWPW - Solo North
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.069 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.14 ug/m3			N/A	N/A
Acenaphthene	= 0.05 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.013 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.013 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.013 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.013 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.029 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.32 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.013 ug/m3			N/A	N/A
Phenanthrene	= 0.035 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P044-20211130	11/30/21	04:57	18:37	AMS-02	(29.7842, -95.31684) - IMY East - Sudan and Harlem
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.33 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.69 ug/m3			N/A	N/A
Acenaphthene	= 0.43 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.012 ug/m3			100 ug/m3	10 ug/m3
Anthracene	= 0.01 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.012 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.012 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.024 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.24 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 1.1 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.012 ug/m3			N/A	N/A
Phenanthrene	= 0.25 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.012 ug/m3			0.5 ug/m3	0.05 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-P046-20211201	12/1/21	04:40	16:59	AMS-02	(29.7842, -95.31684) - IMY East - Sudan and Harlem
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.55 ug/m3			N/A	N/A
2-Methylnaphthalene	= 1.1 ug/m3			N/A	N/A
Acenaphthene	= 0.94 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	= 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	= 0.043 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.013 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.013 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.11 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.55 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.013 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 2.3 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.013 ug/m3			N/A	N/A
Phenanthrene	= 0.78 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	= 0.061 ug/m3			0.5 ug/m3	0.05 ug/m3
Note: Fluoranthene and pyrene were detected at concentrations slightly above Long-Term AMCV, but below the Short-Term AMCV. This station was upwind of site construction work, except for a period from approximately 07:30 – 09:45, when winds were from the north and east. During this period, a trash fire was producing smoke that elevated particulate concentrations at all station. Municipal crews were also observed performing power line installation/maintenance activities using diesel-powered boom trucks along Lee and Sudan streets, immediately upwind of station AMS-02 where this sample was collected. Given the observed conditions, it appears likely the sample location was impacted by the early morning trash fire and /or the engine exhaust from the municipal boom trucks operating in the vicinity. Samples collected at stations downwind of site construction work and closer to that work (sample AA-1744-P047-20211201 at station AMS-06 and sample AA-1744-P048-20211201 at station AMS-08) did not show similar levels of fluoranthene and pyrene, further indicating site construction work was not the source of the elevated fluoranthene and pyrene concentrations at station AMS-02.					

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P047-20211201	12/1/21	05:26	17:28	AMS-06	(29.78759, -95.31688) - HWPW - Erastus
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.094 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.18 ug/m3			N/A	N/A
Acenaphthene	= 0.071 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.014 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.0096 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.041 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.43 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.052 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-P048-20211201	12/1/21	05:53	17:57	AMS-08	(29.78746, -95.32116) - HWPW - Solo North
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.088 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.17 ug/m3			N/A	N/A
Acenaphthene	= 0.06 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.014 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.036 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.39 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.038 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P050-20211207	12/7/21	04:30	16:30	AMS-02	(29.78427, -95.31684) - IMY East - Sudan and Harlem
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.17 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.35 ug/m3			N/A	N/A
Acenaphthene	= 0.28 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	= 0.015 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.031 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.19 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.64 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.26 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	= 0.018 ug/m3			0.5 ug/m3	0.05 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-P052-20211207	12/7/21	05:15	17:23	AMS-06	(29.78761, -95.31663) - HWPW - Erastus
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.038 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.072 ug/m3			N/A	N/A
Acenaphthene	= 0.032 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.014 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.019 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.16 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.027 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P053-20211207	12/7/21	05:37	17:45	AMS-08	(29.78742, -95.32116) - HWPW - Solo North
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.032 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.059 ug/m3			N/A	N/A
Acenaphthene	= 0.028 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.014 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.018 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.13 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.022 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-P054-20211208	12/8/21	04:34	16:36	AMS-02	(29.78426, -95.31686) - IMY East - Sudan and Harlem
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.22 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.46 ug/m3			N/A	N/A
Acenaphthene	= 0.39 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	= 0.009 ug/m3			100 ug/m3	10 ug/m3
Anthracene	= 0.017 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.034 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.23 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.78 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.31 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	= 0.024 ug/m3			0.5 ug/m3	0.05 ug/m3

Results of Integrated Air Samples for Polynuclear Aromatic Hydrocarbons (PAH)

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P056-20211208	12/8/21	05:09	17:11	AMS-06	(29.78762, -95.31658) - HWPW - Erastus
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.046 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.085 ug/m3			N/A	N/A
Acenaphthene	= 0.059 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.014 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	= 0.0097 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.035 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.19 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.05 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Sample Number	Date	Start	End	Station ID	Location
AA-1744-P057-20211208	12/8/21	05:34	17:44	AMS-08	(29.78747, -95.32119) - HWPW - Solo North
Agent	Airborne Concentration			Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.041 ug/m3			N/A	N/A
2-Methylnaphthalene	= 0.076 ug/m3			N/A	N/A
Acenaphthene	= 0.047 ug/m3			100 ug/m3	10 ug/m3
Acenaphthylene	< 0.014 ug/m3			100 ug/m3	10 ug/m3
Anthracene	< 0.014 ug/m3			1 ug/m3	0.067 ug/m3
Benzo(a)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(a)pyrene	< 0.014 ug/m3			N/A	0.017 ug/m3
Benzo(b)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(e)pyrene	< 0.014 ug/m3			N/A	N/A
Benzo(g,h,i)perylene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Benzo(k)fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Chrysene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Dibenzo(a,h)anthracene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluoranthene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Fluorene	= 0.028 ug/m3			10 ug/m3	1 ug/m3
Indeno(1,2,3-cd)pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3
Naphthalene	= 0.17 ug/m3			500 ug/m3	50 ug/m3
Perylene	< 0.014 ug/m3			N/A	N/A
Phenanthrene	= 0.033 ug/m3			8 ug/m3	0.8 ug/m3
Pyrene	< 0.014 ug/m3			0.5 ug/m3	0.05 ug/m3