



May 16, 2023

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:

WSP USA Inc. (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: *May 8 through 14, 2023*

Construction activities performed during this reporting period involved excavating within the HWPW Site using hydro-vac methods to install the Signal Bridge Foundations near the Lockwood Drive bridge.

Dust Control and Air Monitoring

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 and the period between **May 1 through May 7, 2023** are provided in **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.

Soil Management

Approximately 25 CY of soil was generated during hydro-vac activities located near the Lockwood Drive bridge within the Railroad Ballast Cap but outside of the former wood treating operations at the Site. Soils were initially contained in a truck-mounted hydro-vac tank and deposited into lined roll-off containers with secondary containment. The roll-offs are staged at the HWPW Container Storage Area (CSA) pending characterization, profiling, and disposal.

Stormwater/Hydro-Vac Water Management

Approximately 2,000 gallons of stormwater and hydro-vac water were contained during excavation activities within the Railroad Ballast Cap Area near the Lockwood Drive bridge. Stormwater and hydro-vac water were pumped into the 4,800-gallon stormwater container with secondary containment staged at the HWPW CSA pending sampling to characterize the water for disposal.

Planned Construction Activities for the period between **May 15 through 21, 2023** for the Site include continuing the installation of a signal line trench within the Railroad Ballast Cap areas near the Lockwood Drive bridge. Construction activities within the HWPW Site are anticipated to conclude in June 2023.

Dust Control and Air Monitoring

Air monitoring per the approved Air Monitoring Plan (July 8, 2021) will continue to be conducted as soil excavation activities are taking place.

Soil Management

Managing excavated soils, in the event excavated soils are generated, within the Site will follow the approved Soil Management Plan (SMP).

Stormwater Management

Stormwater management, in the event of rainfall in the area, per the approved Storm Water Pollution Prevention Plan (SWPPP) will be conducted.

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

Sincerely,

WSP USA Inc.



Anthony Reid, P.G.
Sr. Consultant Geologist



Eric Matzner, P.G.
Vice-President, Director Hydrogeologist

ATTACHMENT A

Weekly Report of Air Monitoring

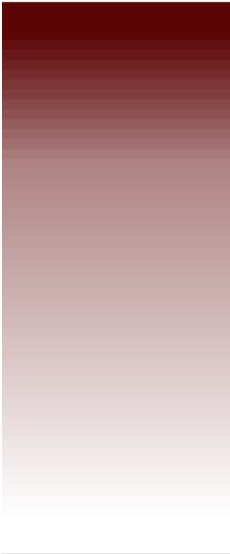


Industrial Hygiene and
Safety Technology, Inc.

2235 Keller Way
Carrollton, TX 75006
Phone: (972) 478-7415
Fax: (972) 478-7615

<http://www.ihst.com>

Leaders in
Quality, Service
and Innovation



Weekly Report of Air Monitoring

Union Pacific Railroad North Bypass Construction Project

Former Houston Wood Preserving Works Site
Houston, TX

For Period from 2023-05-01 to 2023-05-07

Contents

Summary Results of Daily Dust Monitoring 3

Summary Results of Daily Weather Conditions 6

Daily Time History Detail for PM 2.5 and PM 10 Dust Levels..... 9

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.

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 during this report period in the vicinity of this location.

Excavation activities on the capped area were performed only on Tuesday, May 2, 2023, through Wednesday, May 3, 2023. Air monitoring was conducted only during these periods when excavation on the capped area took place.

PM 2.5 and PM 10 Daily Summary Results

Sample Date

May 2, 2023

Description of Work Performed

Work in the capped area of the former Houston Wood Preserving Works site was associated with installation of signal towers. Discrete areas of asphalt and surface soil along the North Bypass Service Road were excavated to accommodate signal tower footings. Pilot holes were drilled and metal signal tower anchors inserted into those holes. Visible dust production during these activities was minimal. Work hours were from approximately 09:00 – 16:51.

Overview Map of Daily Sample Locations



Station ID	Location Description	Start	Stop	Latitude	Longitude	Overall Average PM 2.5	Overall Average PM 10
AMS-04b	HWPW - Wipprecht North	09:40	17:26	29.78743	-95.32127	3 ug/m3	11.2 ug/m3
AMS-05b	HWPW - Clementine North	09:19	17:31	29.7875	-95.31861	6.7 ug/m3	15.7 ug/m3
AMS-06b	IMY South - Gagne	06:41	17:55	29.78204	-95.3193	8.8 ug/m3	22.5 ug/m3
AMS-07	HWPW - Erastus	09:11	17:35	29.78768	-95.31662	7.6 ug/m3	18.9 ug/m3
AMS-08b	IMY SE - Fontinot	06:43	17:57	29.78206	-95.31766	8.2 ug/m3	21.9 ug/m3
AMS-09	IMY South - Waco and Lee	06:35	17:51	29.7821	-95.32498	8.3 ug/m3	19.9 ug/m3
AMS-10b	HWPW - Eddie and Amboy	08:34	17:17	29.78622	-95.3238	6.6 ug/m3	15.1 ug/m3
AMS-11	IMY South - Yates	06:38	17:52	29.78217	-95.32322	8.7 ug/m3	22.4 ug/m3
AMS-12	HWPW - Kashmere and Liberty	09:34	17:20	29.78746	-95.32374	6.4 ug/m3	14.7 ug/m3
AMS-13a	HWPW - Quitman East	08:01	17:12	29.78451	-95.32406	9.1 ug/m3	22 ug/m3

PM 2.5 and PM 10 Daily Summary Results

Sample Date

May 3, 2023

Description of Work Performed

Work in the capped area of the former Houston Wood Preserving Works site was associated with installation of signal towers. Discrete areas of asphalt and surface soil along the North Bypass Service Road were excavated to accommodate signal tower footings. Pilot holes were drilled and metal signal tower anchors inserted into those holes. Visible dust production during these activities was minimal. Work hours were from approximately 08:30 – 16:17.

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	HWPW - Kashmere and Liberty	08:43	16:25	29.78741	-95.32376	9.8 ug/m3	22 ug/m3
AMS-03a	HWPW - Eddie and Amboy	08:39	16:23	29.78623	-95.32385	8.3 ug/m3	20.7 ug/m3
AMS-06b	IMY SE - Clementine	06:49	17:31	29.78202	-95.31927	9.6 ug/m3	22.8 ug/m3
AMS-07	HWPW - Erastus	06:59	16:37	29.78758	-95.3166	11.8 ug/m3	30.4 ug/m3
AMS-08b	IMY SE - Fontinot	06:50	17:32	29.78204	-95.31768	9 ug/m3	21.8 ug/m3
AMS-09	IMY South - Waco and Lee	06:45	17:27	29.78211	-95.32498	9.9 ug/m3	22.7 ug/m3
AMS-10b	HWPW - Clementine North	09:19	17:31	29.7875	-95.31861	8.5 ug/m3	19 ug/m3
AMS-11	IMY South - Yates	06:46	11:25	29.78212	-95.32321	12 ug/m3	31.7 ug/m3
AMS-12	HWPW - Wipprecht North	09:40	17:26	29.78743	-95.32127	9.3 ug/m3	21.3 ug/m3
AMS-13a	HWPW - Quitman East	08:47	15:24	29.78451	-95.32406	10.1 ug/m3	23.2 ug/m3

Note: Station AMS-11 lost power at approximately 11:25. AMS-13a lost connectivity at 15:24 and could not be brought back online before the end of the work period.

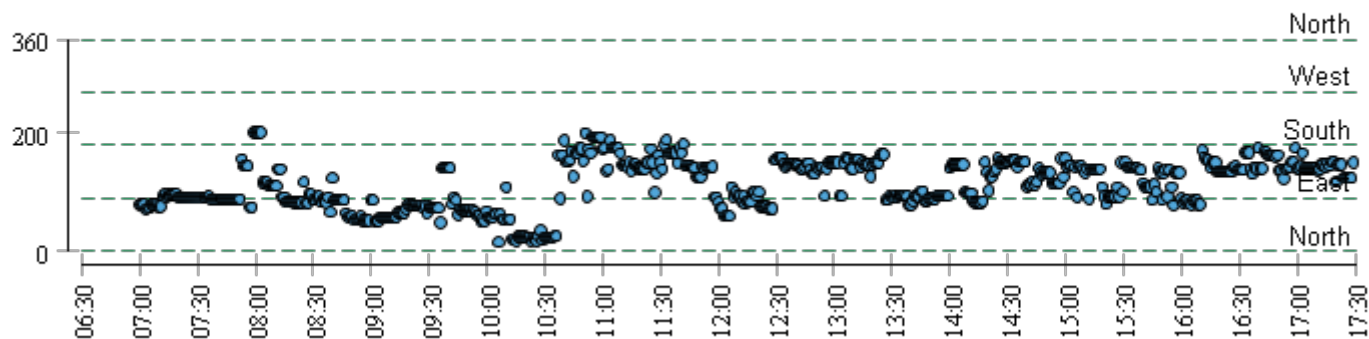
Summary Results of Daily Weather Conditions

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

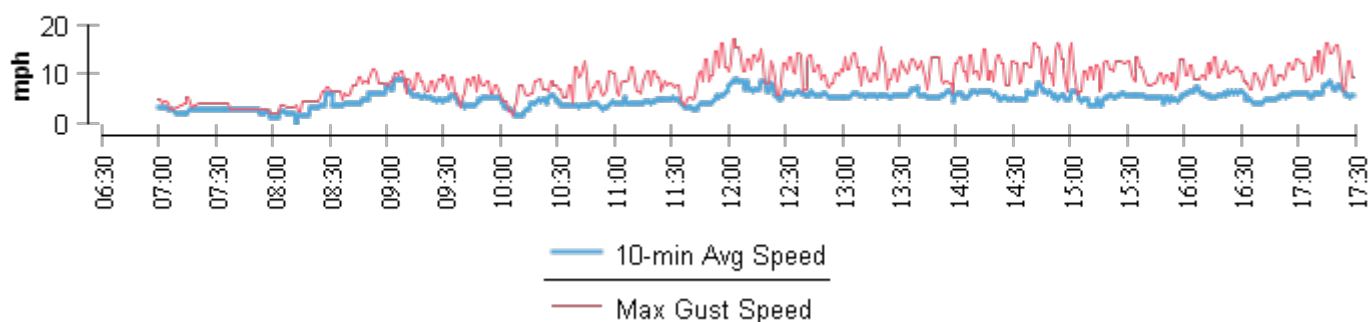
Weather Time History Data

Sample Date May 2, 2023

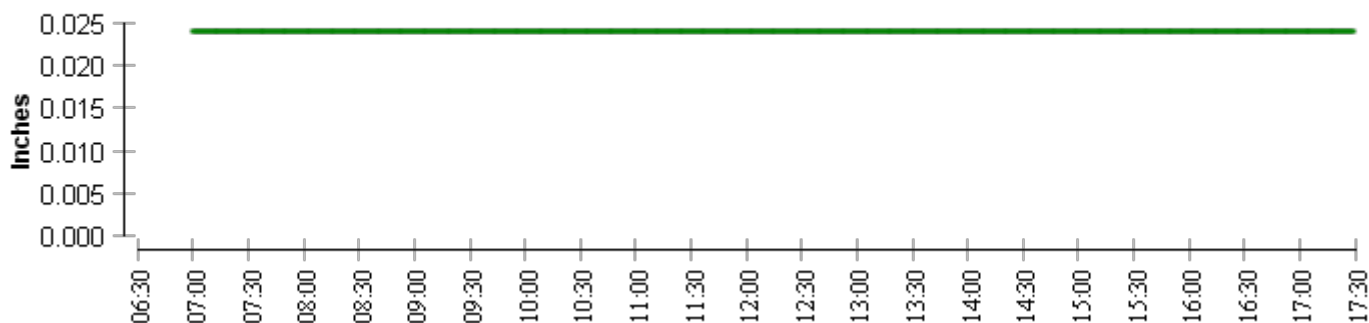
Wind Direction (10 min average)



Wind Speed



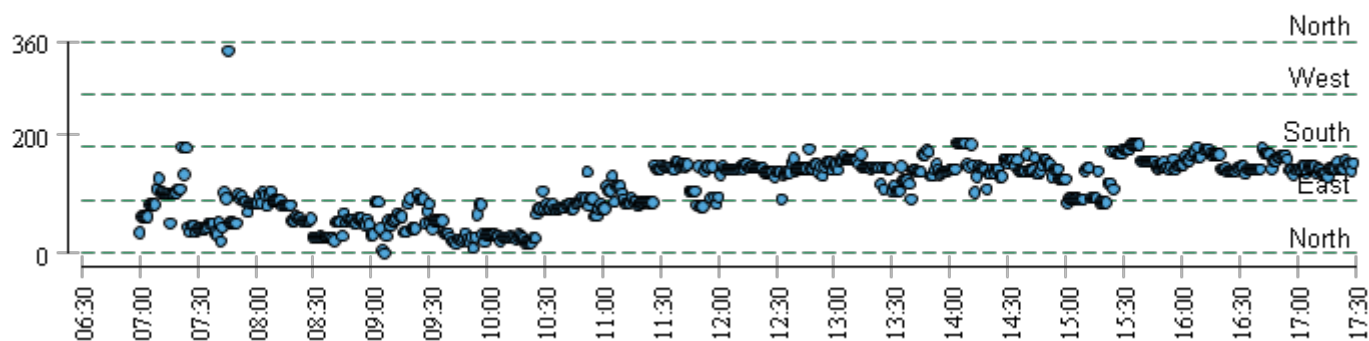
Cumulative Daily Rainfall



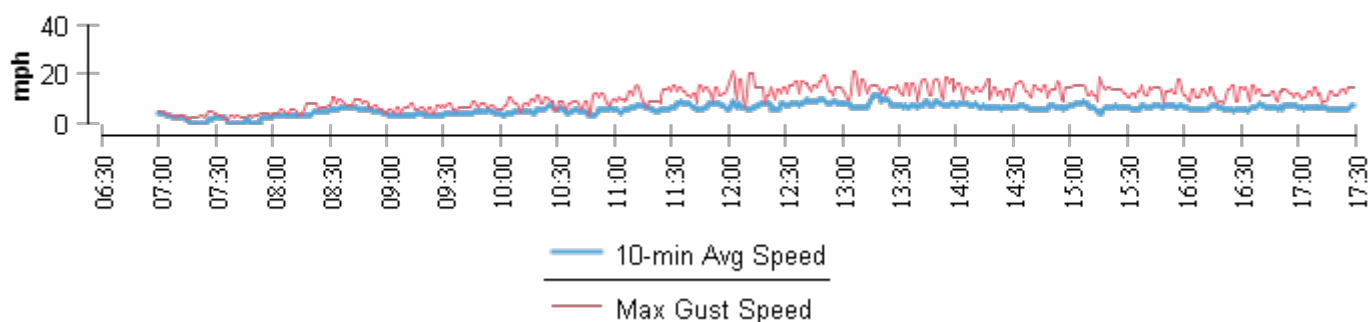
Weather Time History Data

Sample Date May 3, 2023

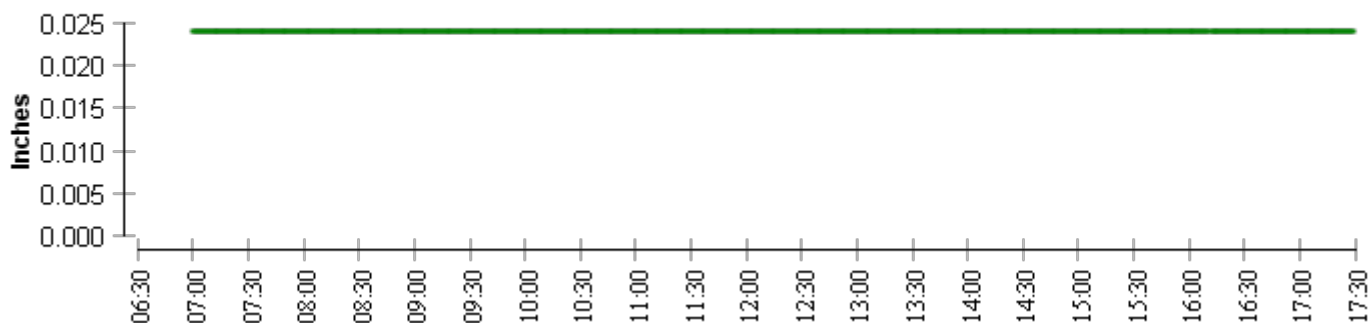
Wind Direction (10 min average)



Wind Speed



Cumulative Daily Rainfall



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

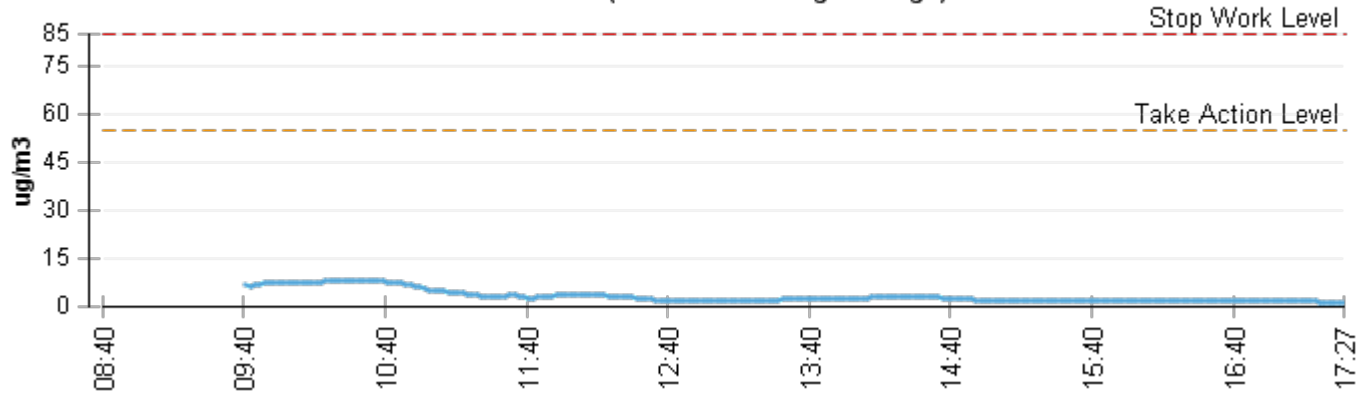
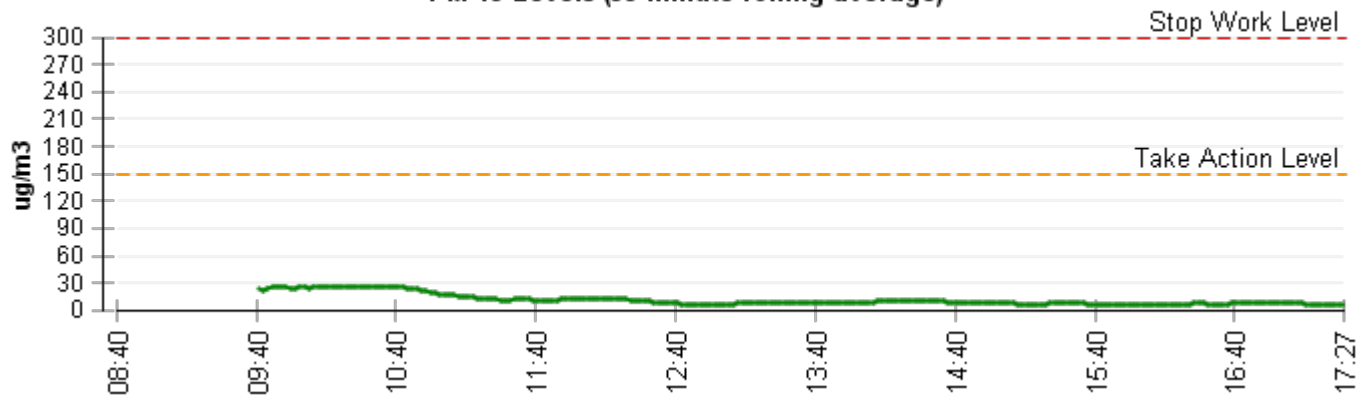
This section provides charts showing the rolling thirty-minute average concentrations of PM 2.5 and PM 10 particulates measured at each location on each sample day during the specified week.

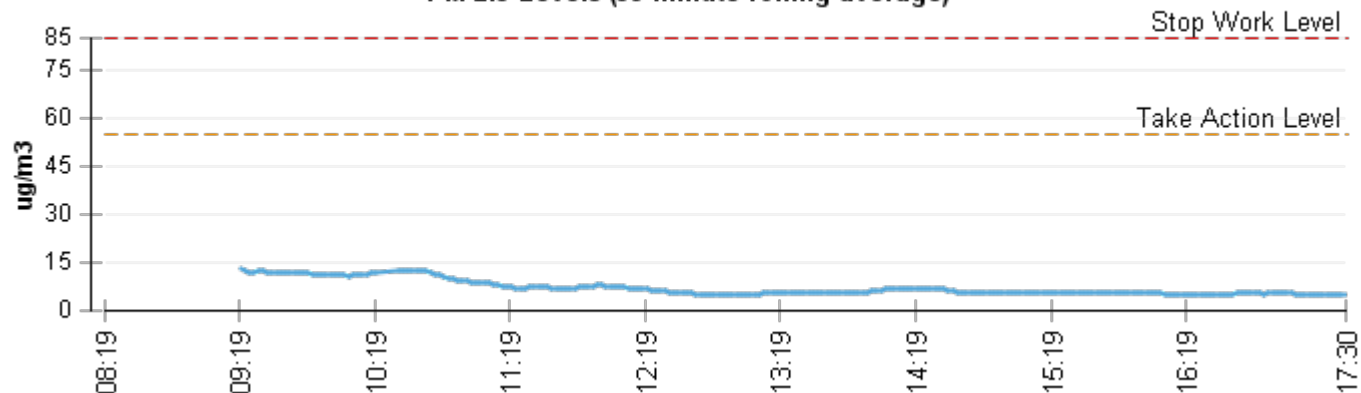
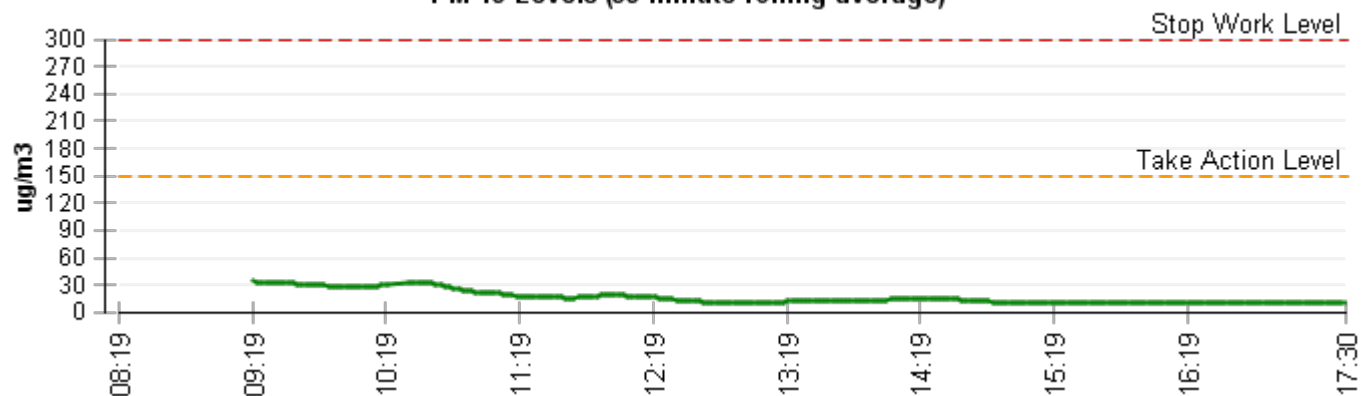
PM 2.5 and PM 10 airborne particulate levels are measured every two minutes during the active sampling period. The charts track the average particulate concentrations over the past 30 minutes at the time of the measurement.

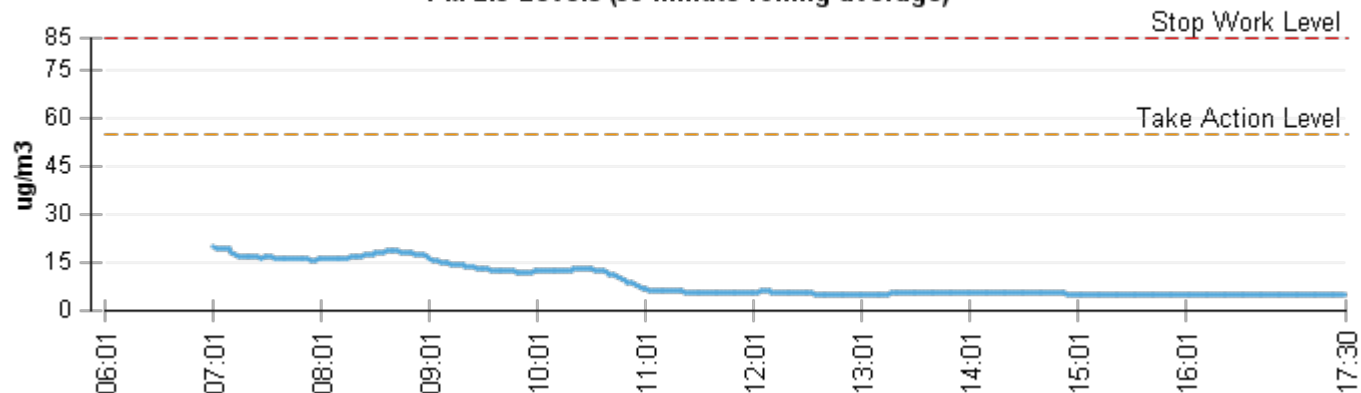
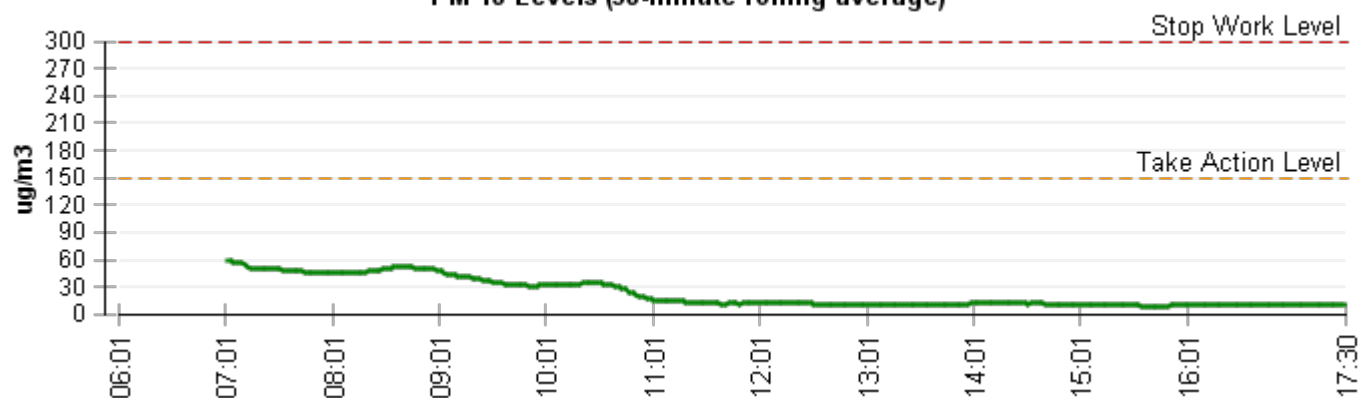
Union Pacific Railroad (UPRR) has established control levels for airborne particulates to help ensure that construction-related dust levels are adequately controlled. These levels are explained as follows:

- 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** May 2, 2023**Station ID** AMS-04b
Location Description 29.78743, -95.32127 - HWPW - Wipprecht 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** May 2, 2023**Station ID** AMS-05b
Location Description 29.7875, -95.31861 - HWPW - Clementine North**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

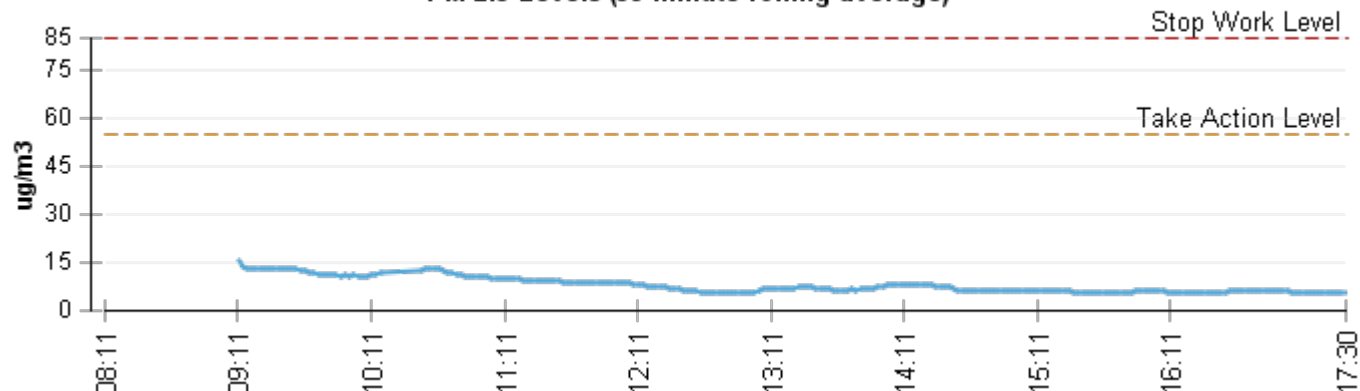
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-06b
Location Description 29.78204, -95.3193 - IMY South - Gagne**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data

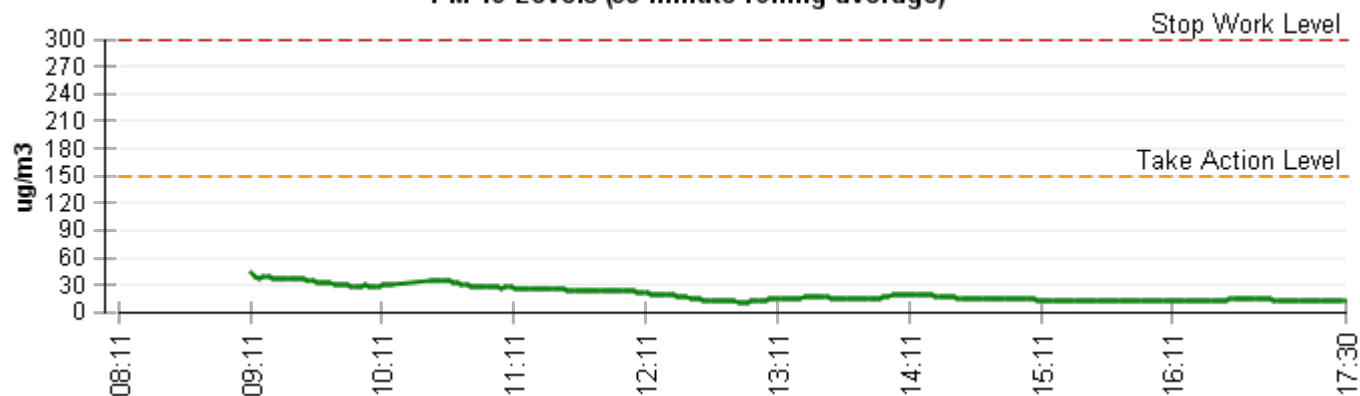
Sample Date May 2, 2023

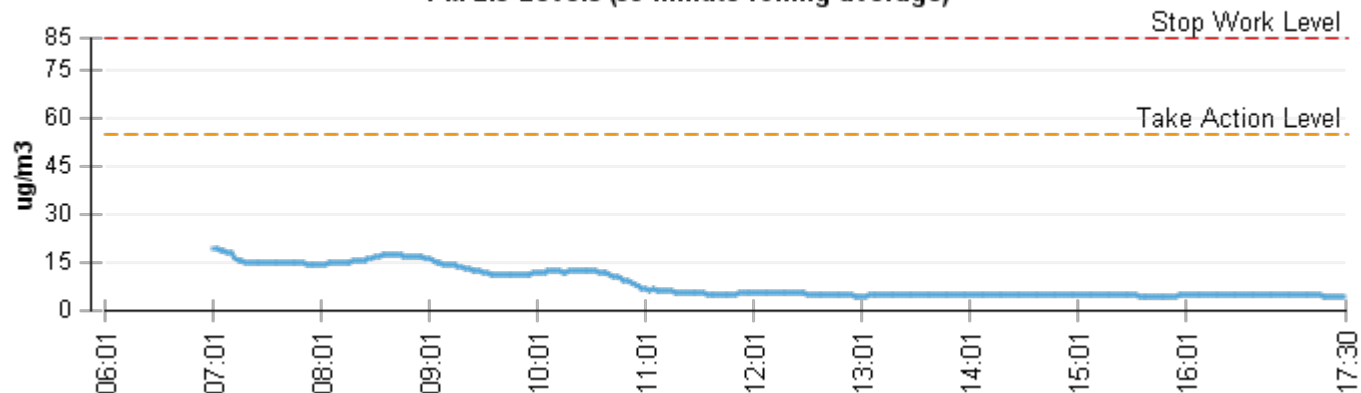
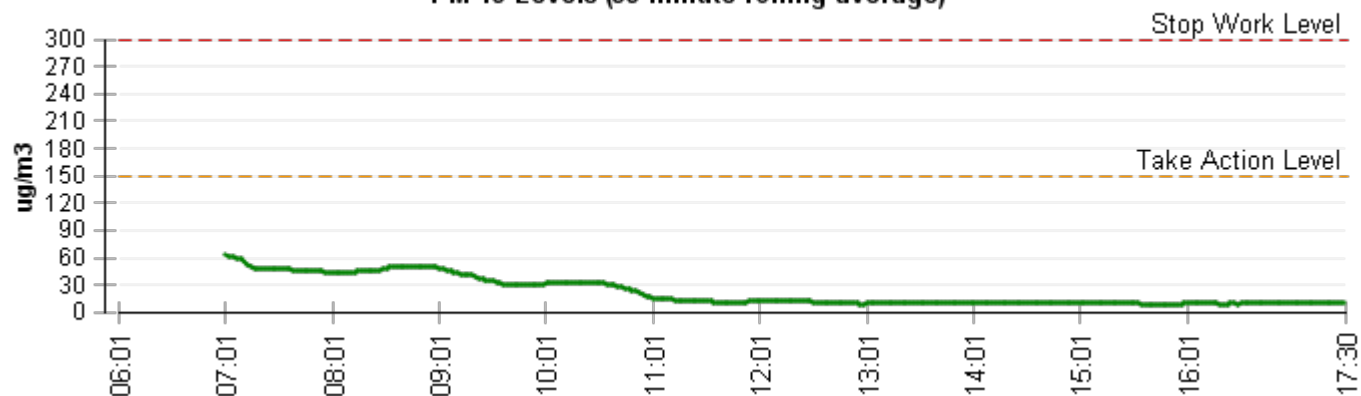
Station ID AMS-07
Location Description 29.78768, -95.31662 - HWPW - Erastus

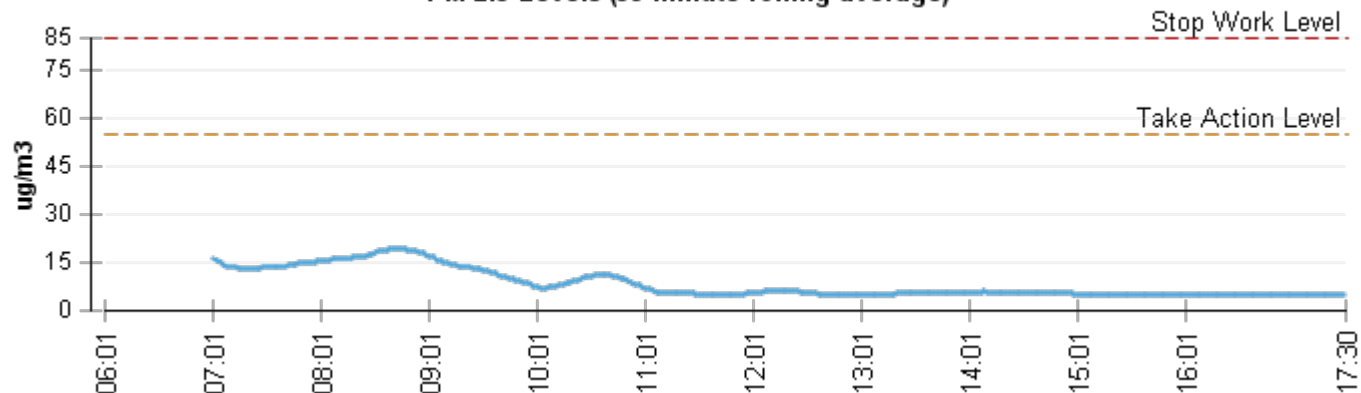
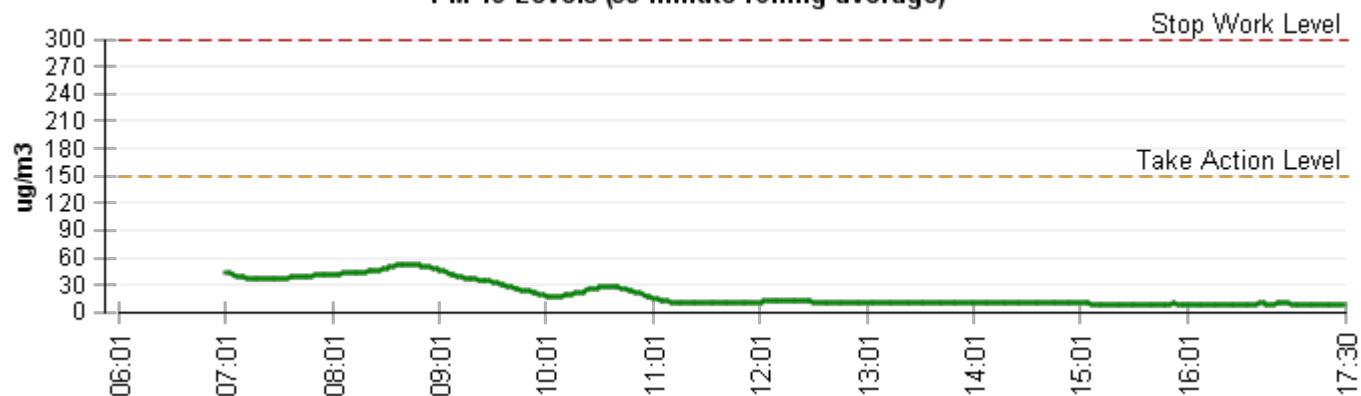
PM 2.5 Levels (30-minute rolling average)

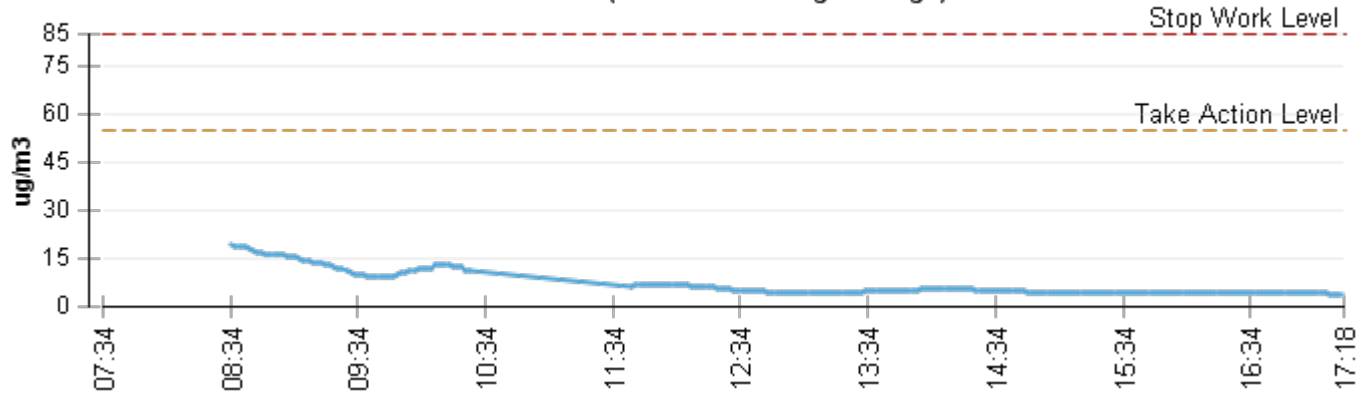
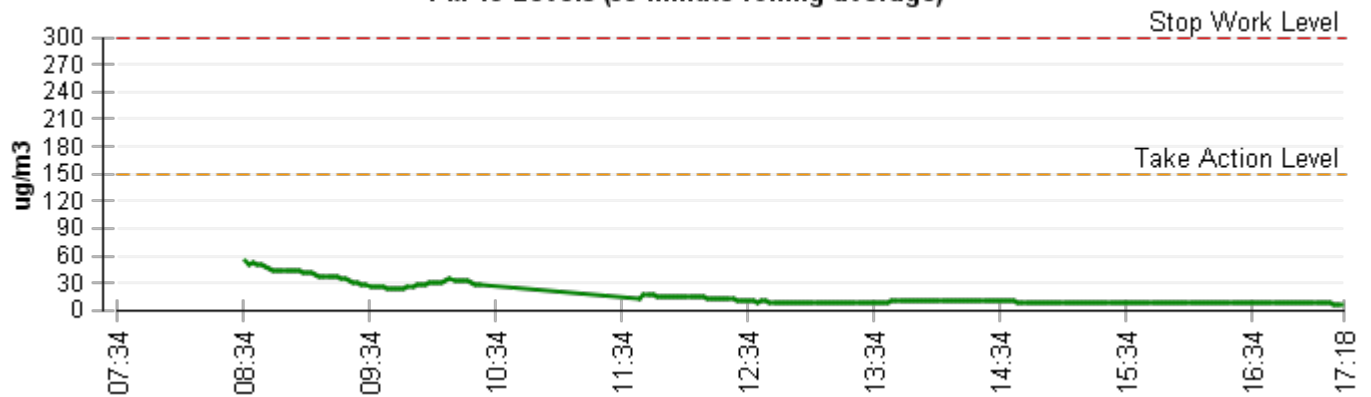


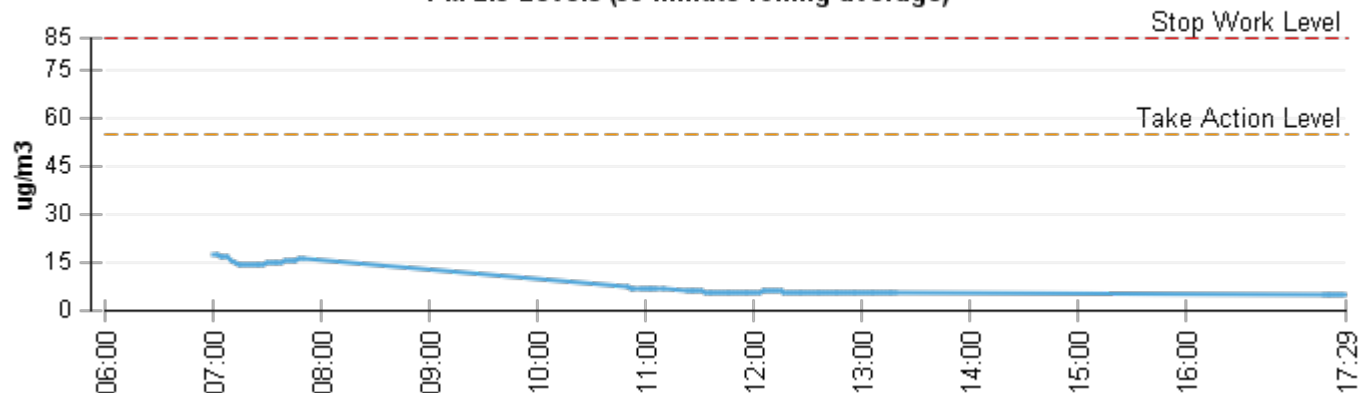
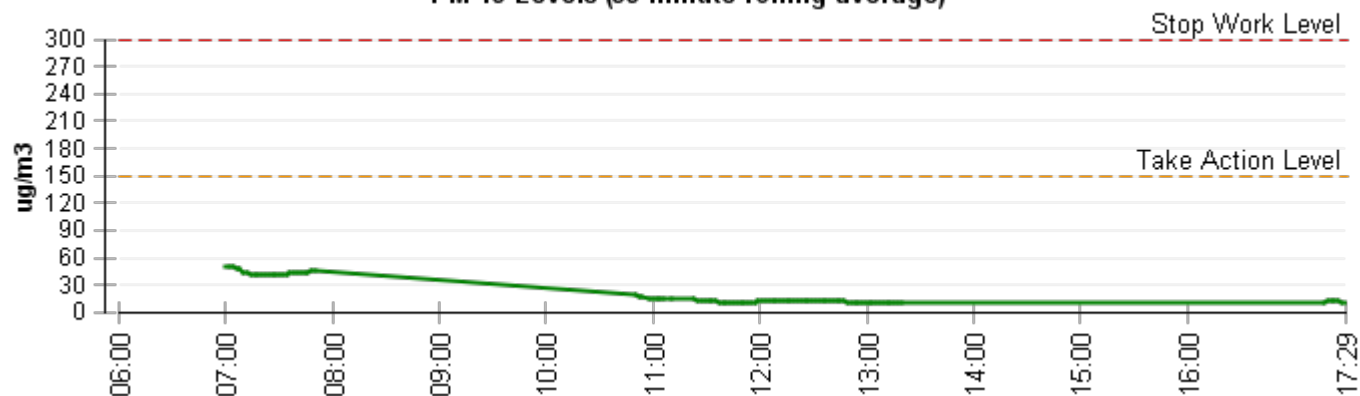
PM 10 Levels (30-minute rolling average)

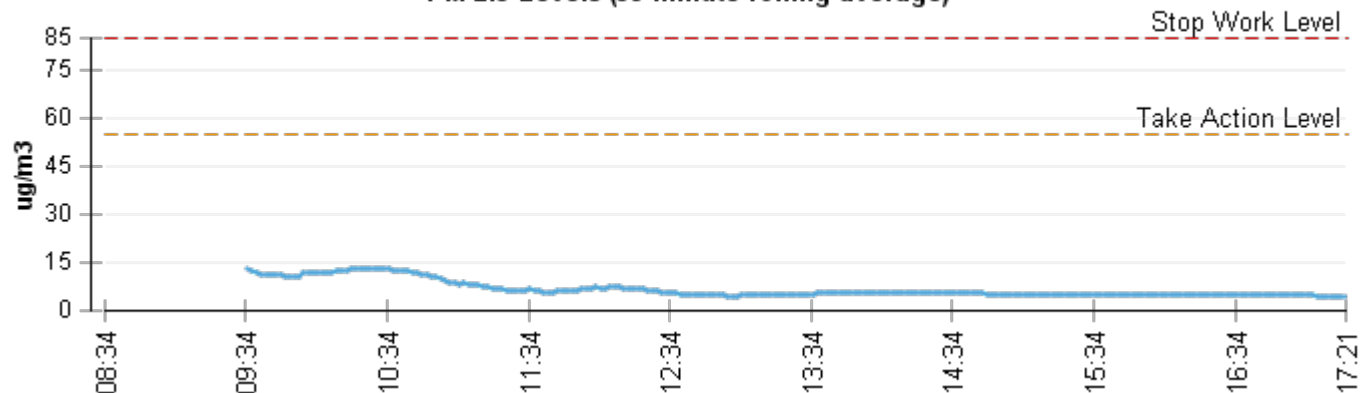
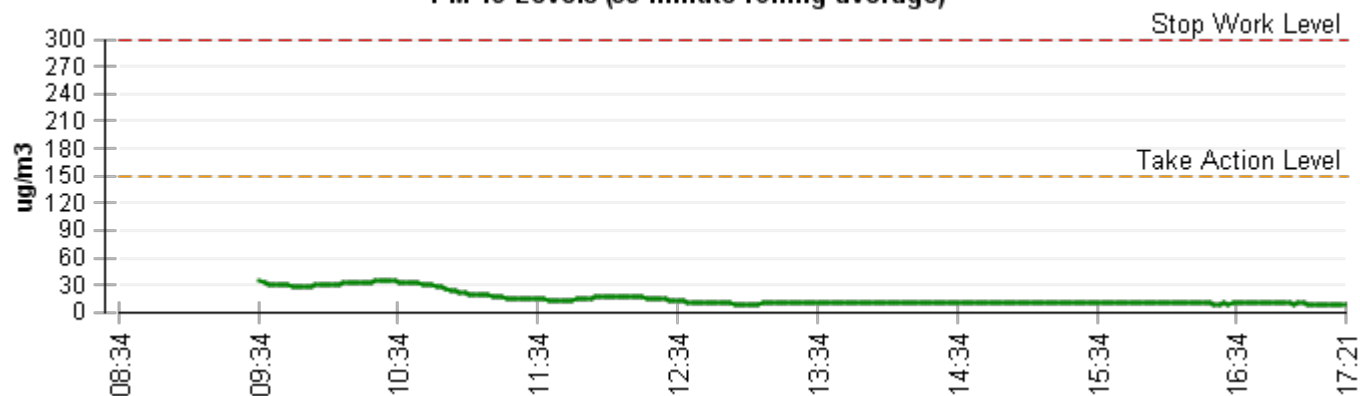


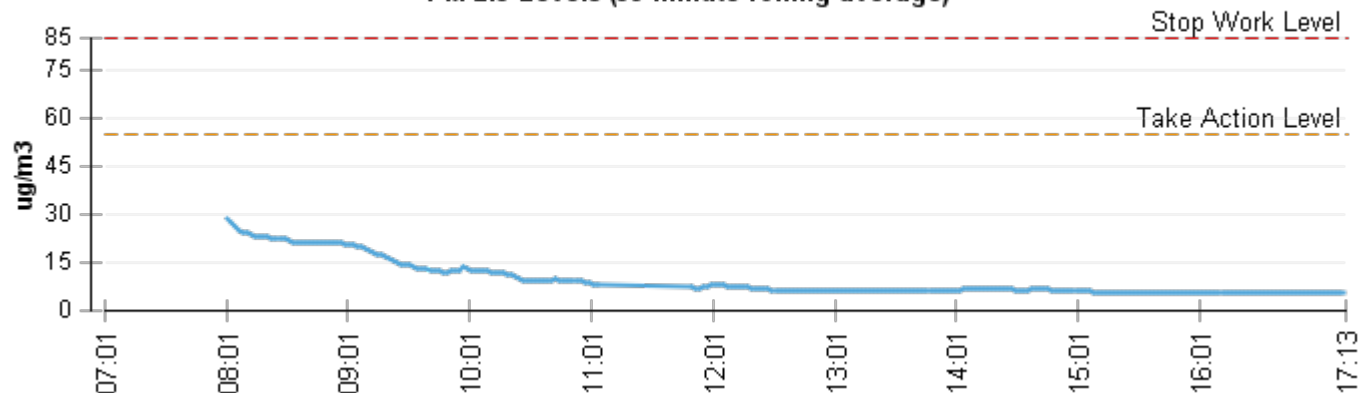
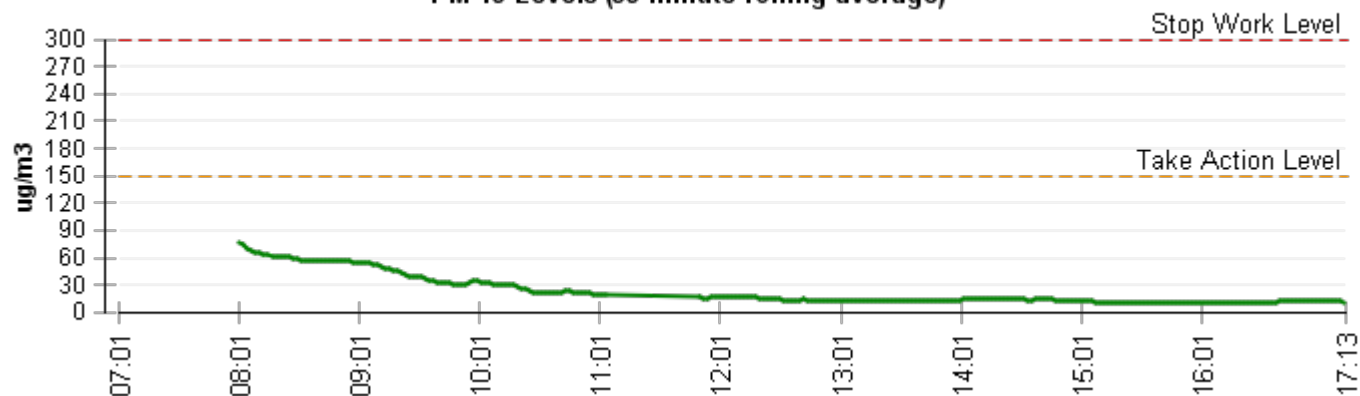
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-08b
Location Description 29.78206, -95.31766 - IMY SE - Fontinot**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

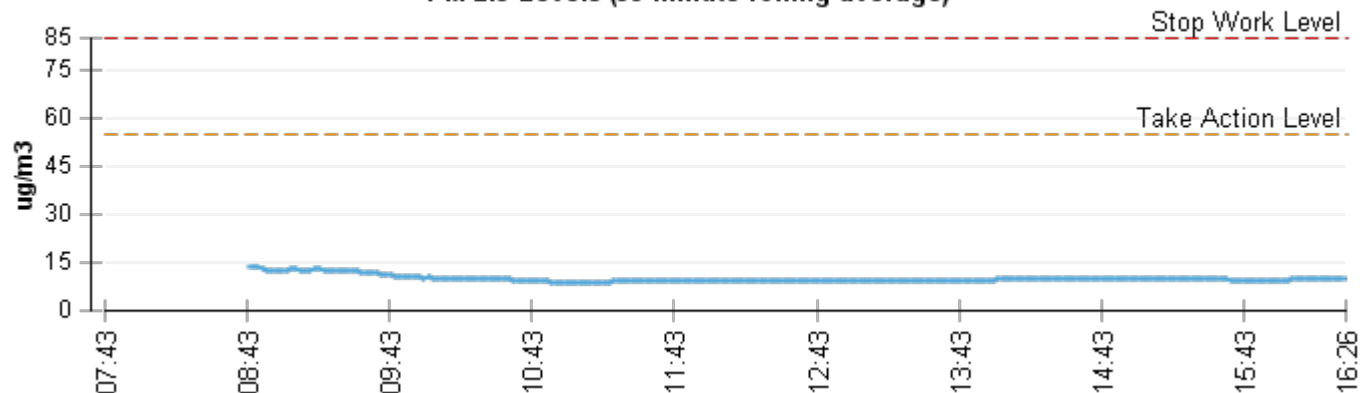
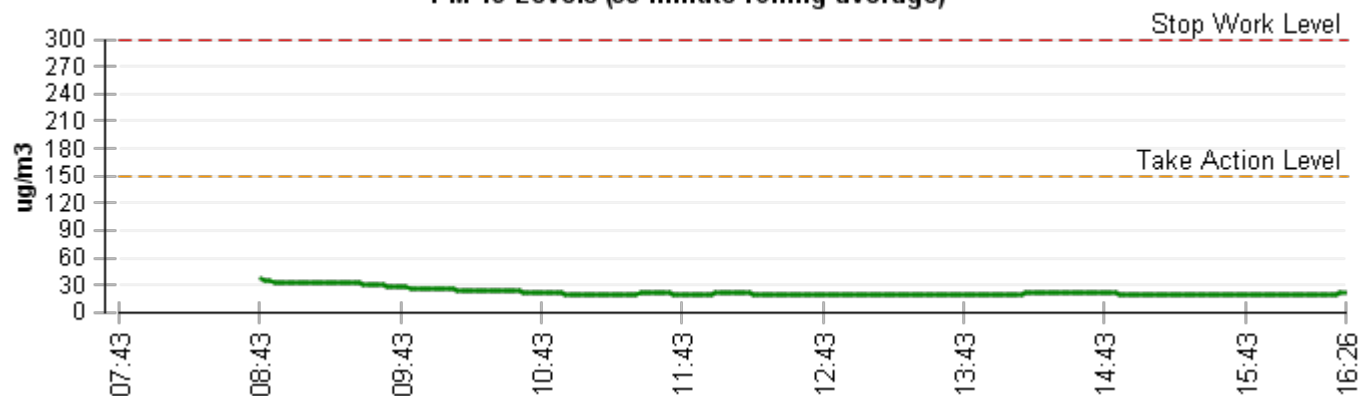
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-09
Location Description 29.7821, -95.32498 - IMY South - Waco and Lee**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

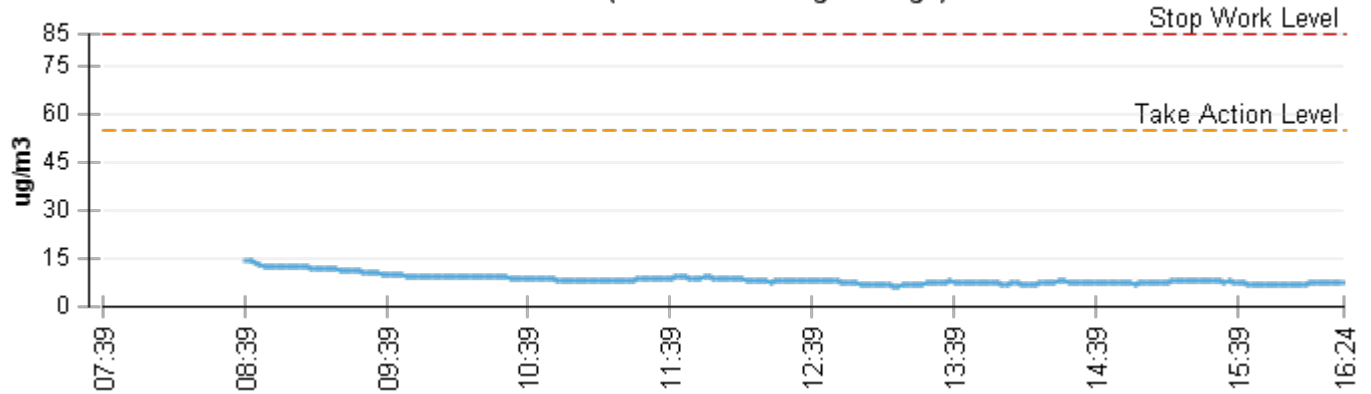
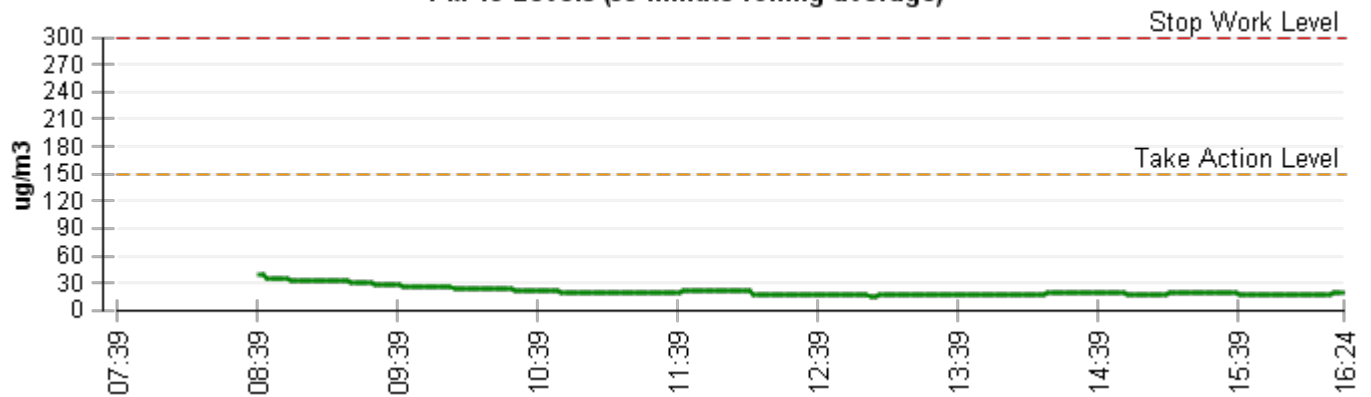
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-10b
Location Description 29.78622, -95.3238 - HWPW - Eddie and Amboy**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

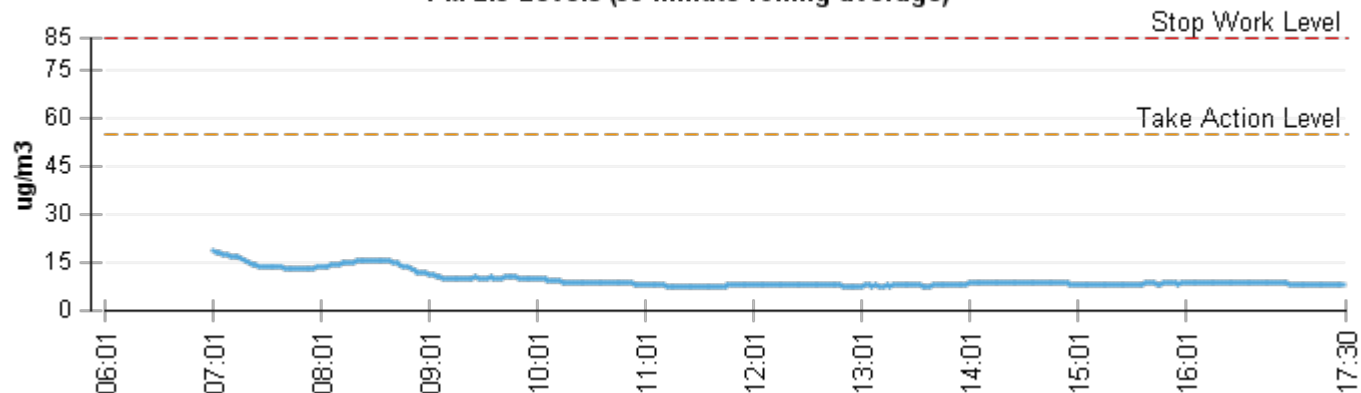
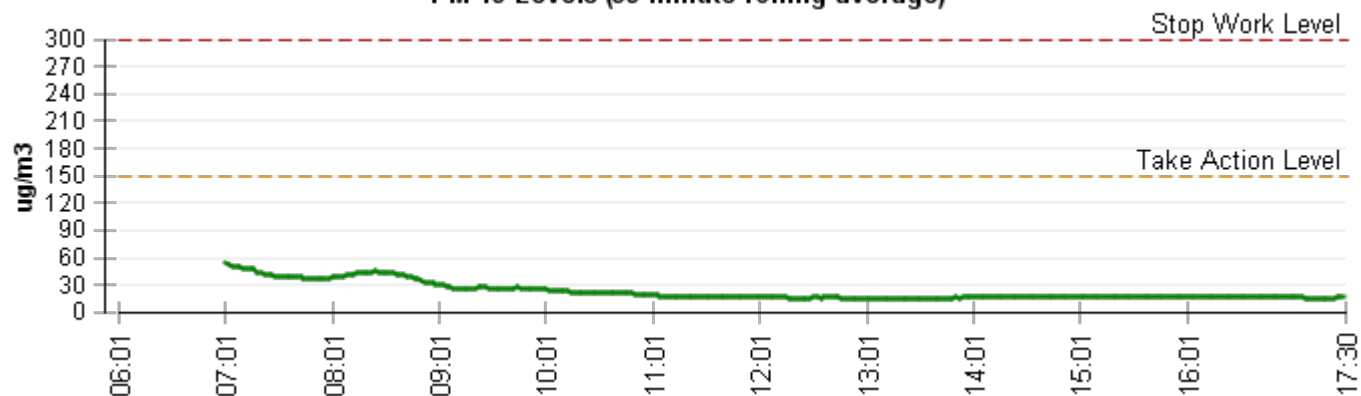
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-11
Location Description 29.78217, -95.32322 - IMY South - Yates**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

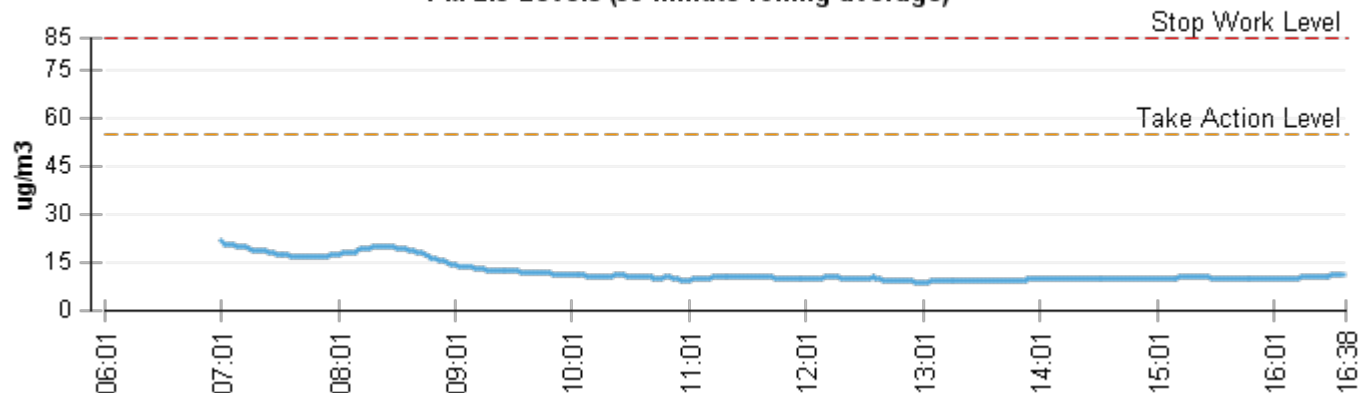
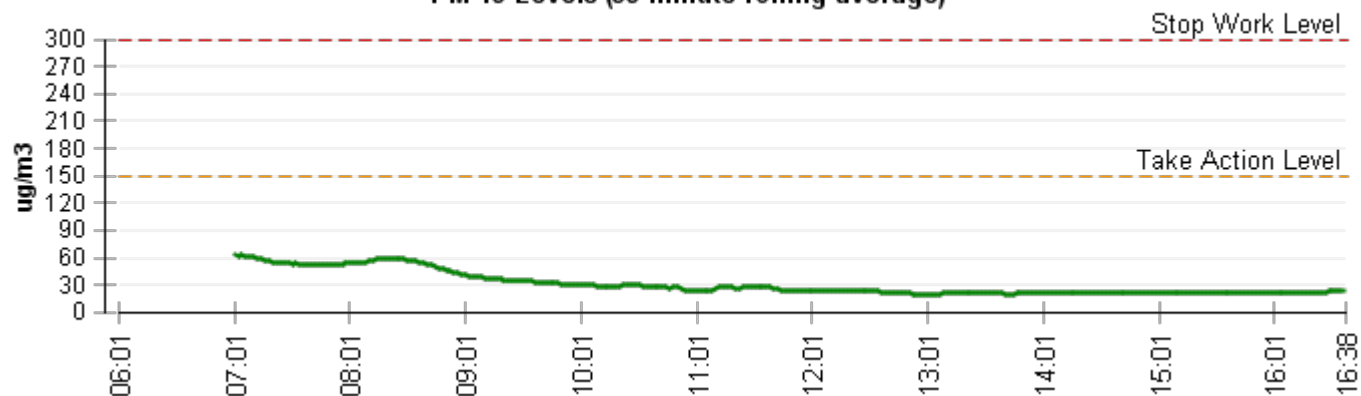
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-12
Location Description 29.78746, -95.32374 - HWPW - Kashmere and Liberty**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

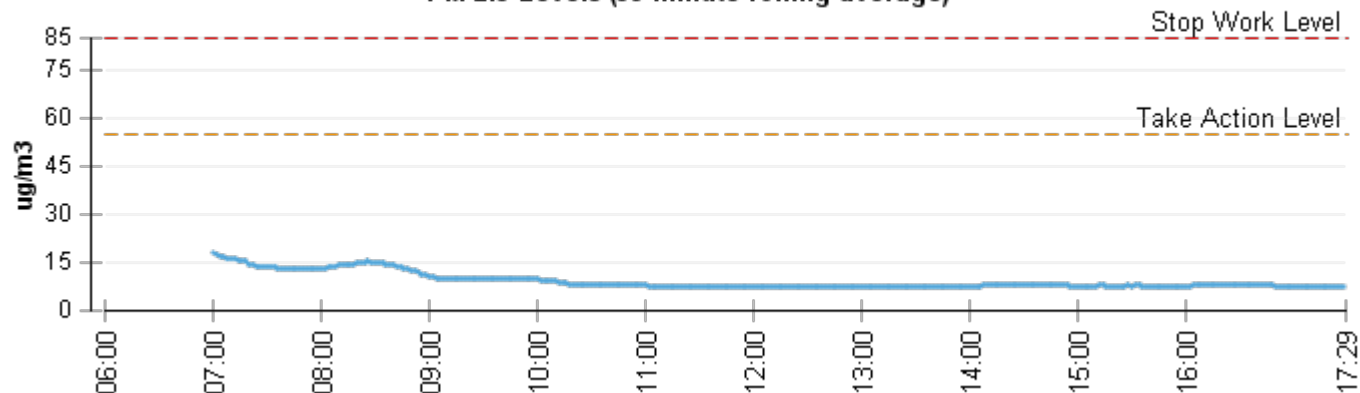
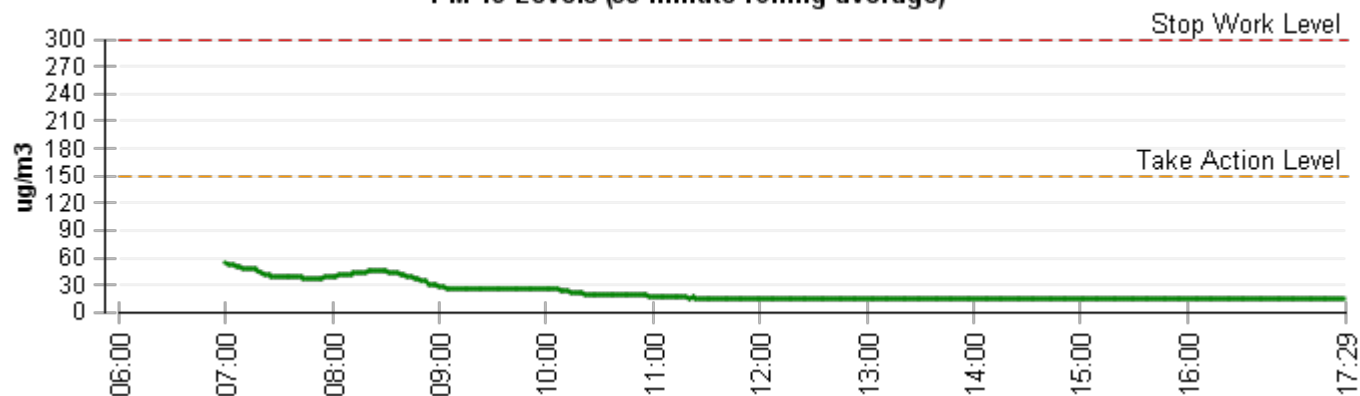
PM 2.5 and PM 10 Time History Data**Sample Date** May 2, 2023**Station ID** AMS-13a
Location Description 29.78451, -95.32406 - HWPW - Quitman East**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

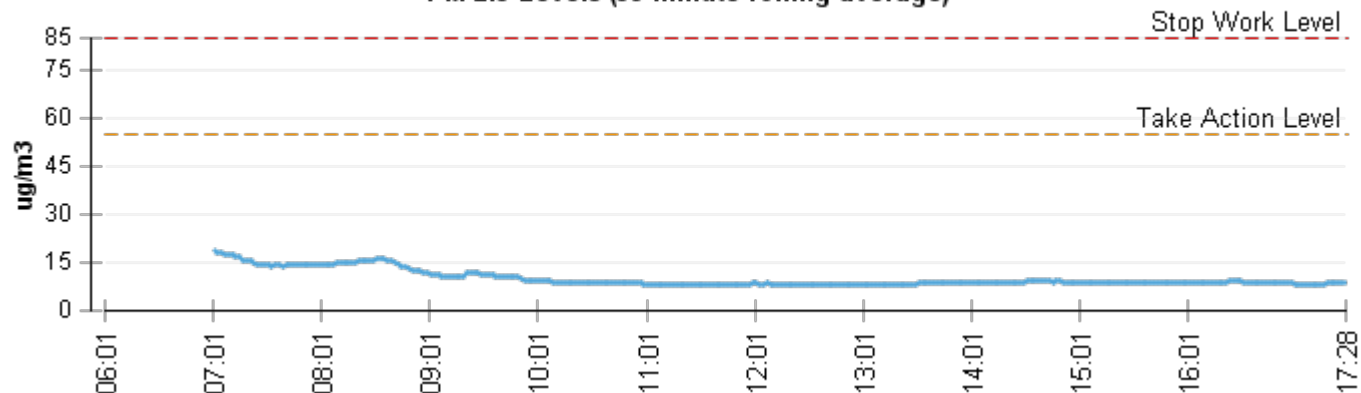
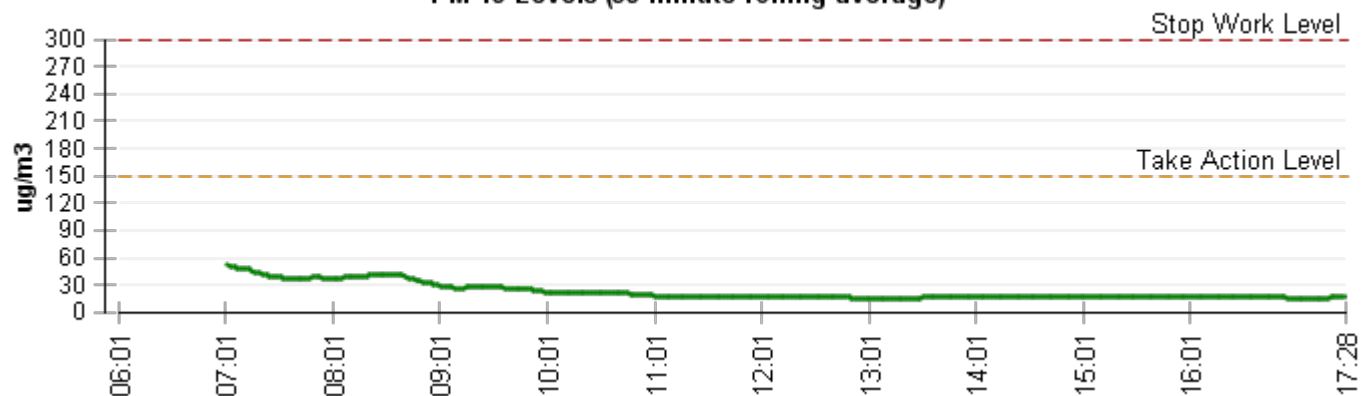
PM 2.5 and PM 10 Time History Data**Sample Date** May 3, 2023**Station ID** AMS-01
Location Description 29.78741, -95.32376 - HWPW - Kashmere and Liberty**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

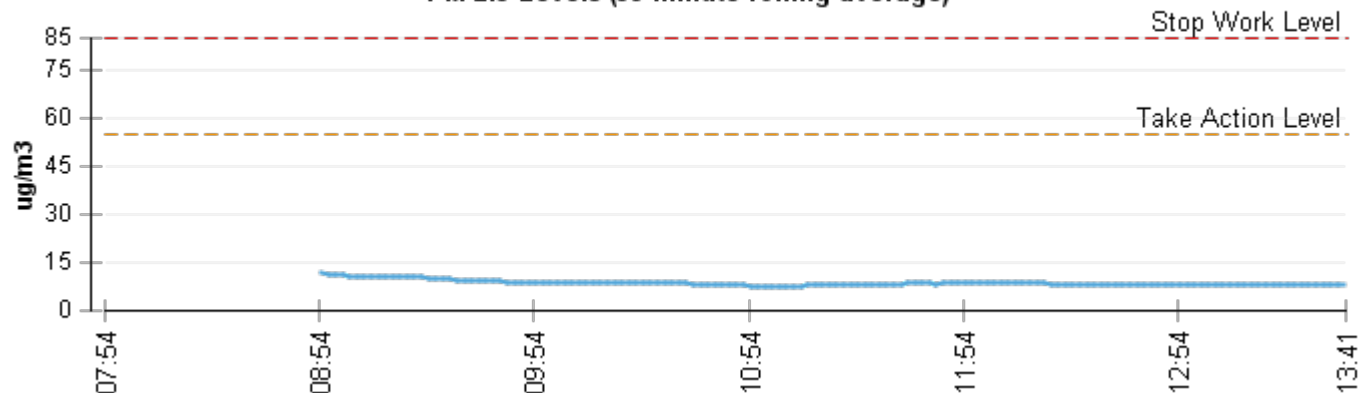
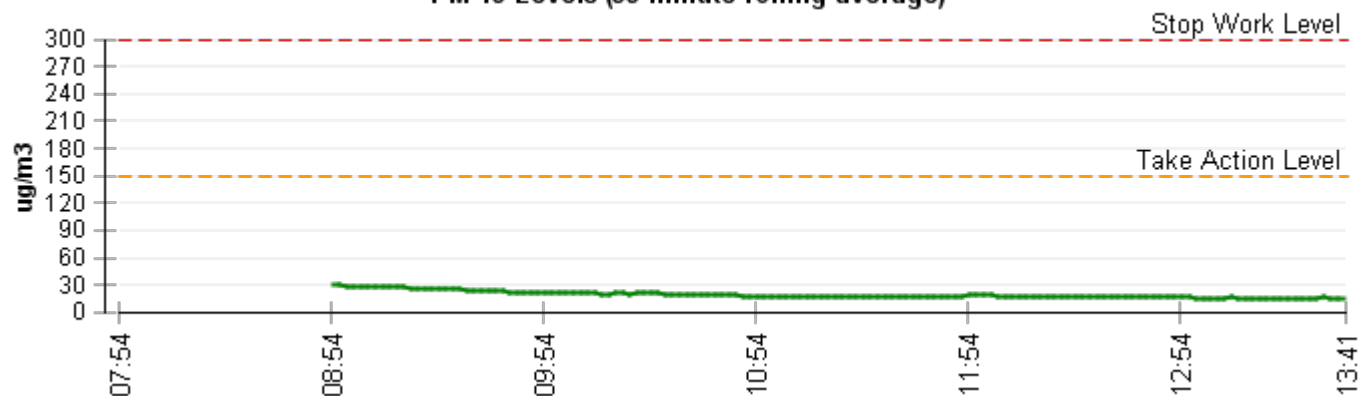
PM 2.5 and PM 10 Time History Data**Sample Date** May 3, 2023**Station ID** AMS-03a
Location Description 29.78623, -95.32385 - HWPW - Eddie and Amboy**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

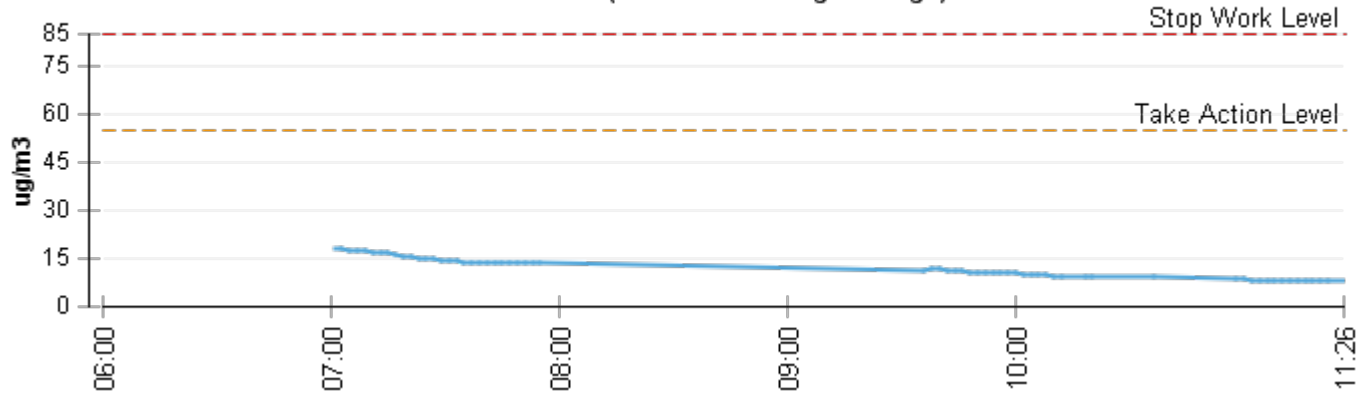
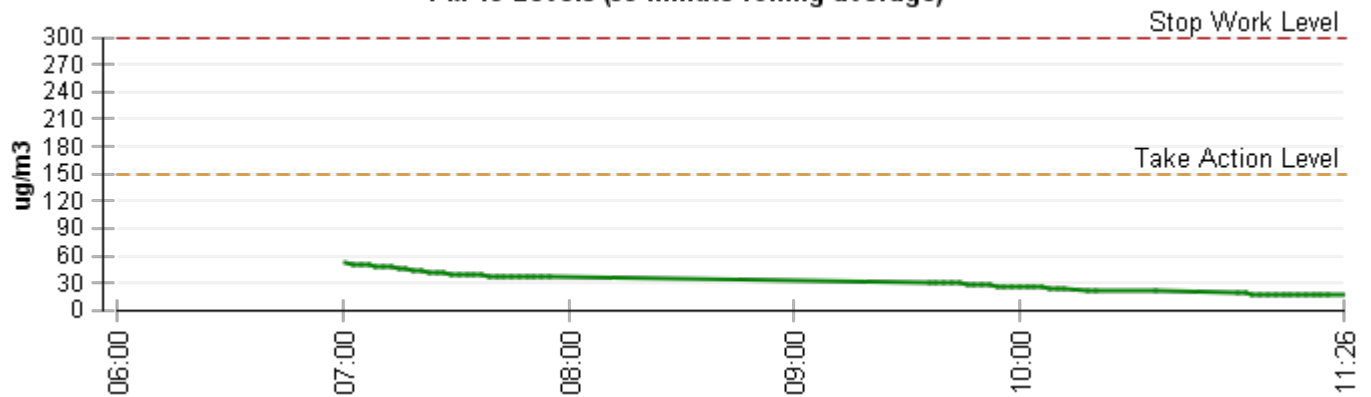
PM 2.5 and PM 10 Time History Data**Sample Date** May 3, 2023**Station ID** AMS-06b
Location Description 29.78202, -95.31927 - IMY SE - Clementine**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

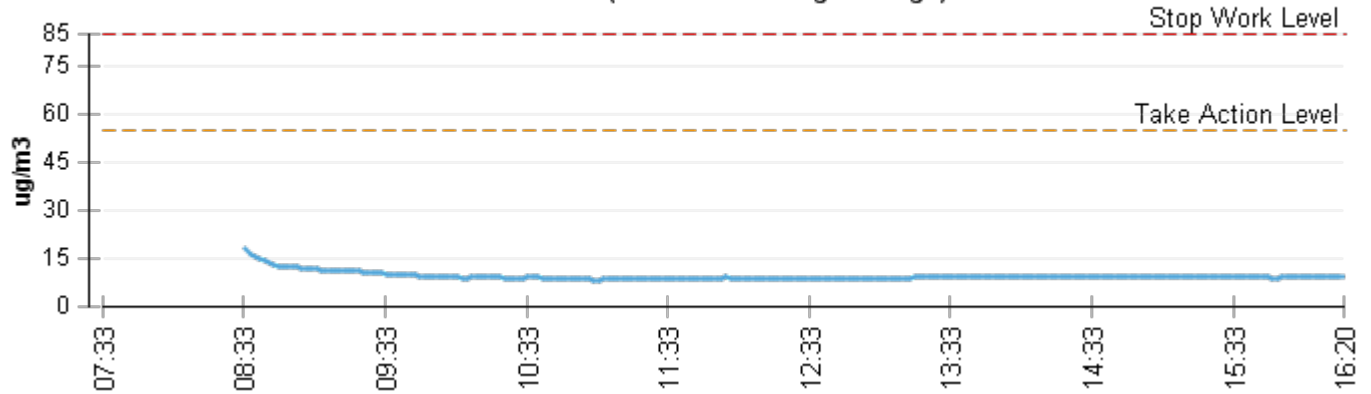
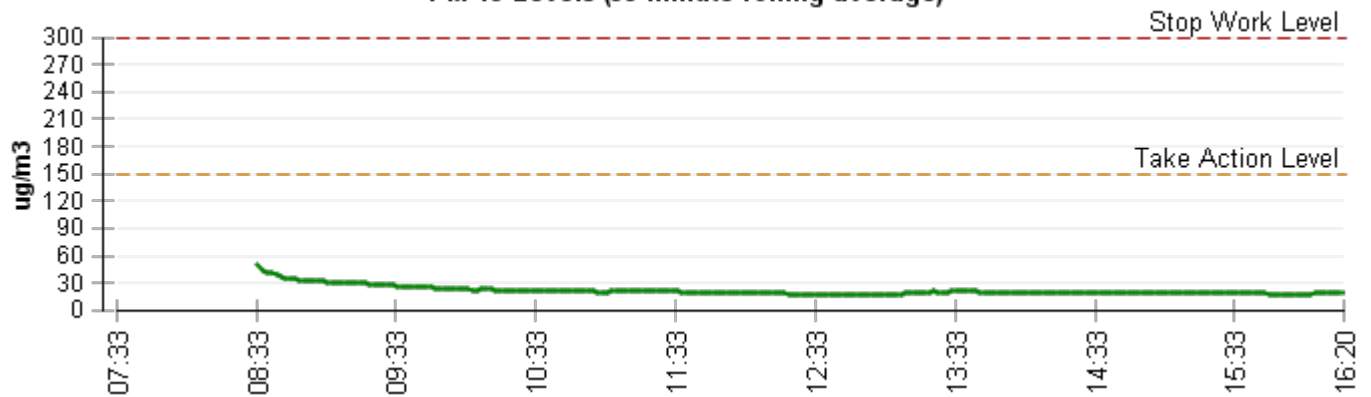
PM 2.5 and PM 10 Time History Data**Sample Date** May 3, 2023**Station ID** AMS-07
Location Description 29.78758, -95.3166 - HWPW - Erastus**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data**Sample Date** May 3, 2023**Station ID** AMS-08b
Location Description 29.78204, -95.31768 - IMY SE - Fontinot**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** May 3, 2023**Station ID** AMS-09
Location Description 29.78211, -95.32498 - IMY South - Waco and Lee**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** May 3, 2023**Station ID** AMS-10b
Location Description 29.7875, -95.31861 - 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** May 3, 2023**Station ID** AMS-11
Location Description 29.78212, -95.32321 - IMY South - Yates**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

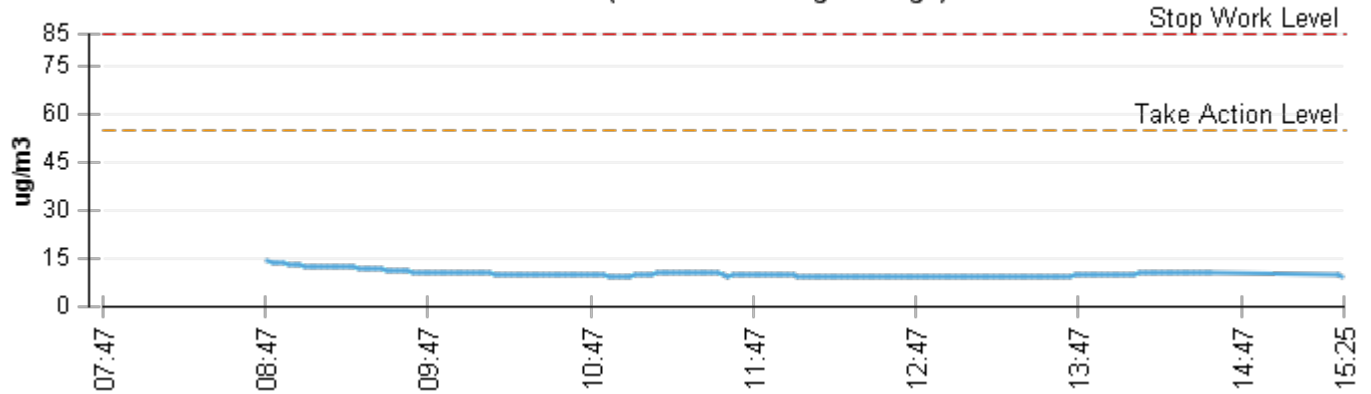
PM 2.5 and PM 10 Time History Data**Sample Date** May 3, 2023**Station ID** AMS-12
Location Description 29.78743, -95.32127 - HWPW - Wipprecht North**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data

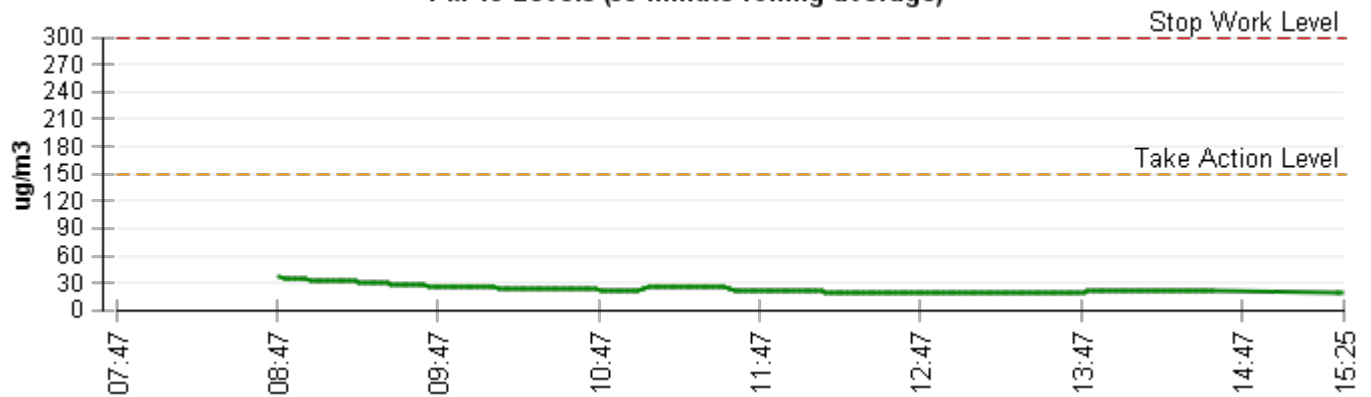
Sample Date May 3, 2023

Station ID AMS-13a
Location Description 29.78451, -95.32406 - HWPW - Quitman East

PM 2.5 Levels (30-minute rolling average)



PM 10 Levels (30-minute rolling average)



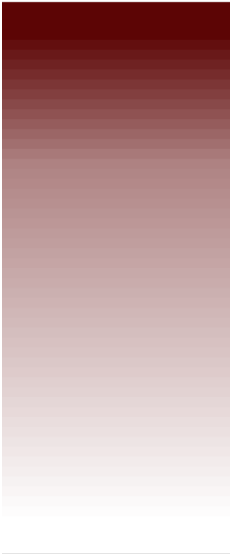


Industrial Hygiene and
Safety Technology, Inc.

2235 Keller Way
Carrollton, TX 75006
Phone: (972) 478-7415
Fax: (972) 478-7615

<http://www.ihst.com>

Leaders in
Quality, Service
and Innovation



Weekly Report of Air Monitoring

Union Pacific Railroad North Bypass Construction Project

Former Houston Wood Preserving Works Site
Houston, TX

For Period from 2023-05-08 to 2023-05-14

Contents

Summary Results of Daily Dust Monitoring 3

Summary Results of Daily Weather Conditions 7

Daily Time History Detail for PM 2.5 and PM 10 Dust Levels..... 8

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.

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.

The only activity on the capped area this week was hydro-vacuuming, which took place on part of Thursday, May 11, 2023, a full day on Friday, May 12, 2023, and part of Saturday, May 13, 2023. Soils were saturated from recent and ongoing rains throughout the period.

PM 2.5 and PM 10 Daily Summary Results

Sample Date
May 11, 2023

Description of Work Performed

Site work consisted of hydro-vacuuming of accumulated rainwater from previously excavated anchor holes for signal bridges at the northeast corner of the capped area, just north of the tracks near the intersection of the North Bypass Service Road and Liberty Road. Only a limited number of air monitoring stations were deployed due to short advance notice of work and battery pack problems. Work hours were from approximately 11:00 – 16:00.

Overview Map of Daily Sample Locations



Station ID	Location Description	Start	Stop	Latitude	Longitude	Overall Average PM 2.5	Overall Average PM 10
AMS-05b	HWPW – Lockwood Overpass	12:53	15:57	29.78773	-95.31599	9.8 ug/m3	24.3 ug/m3
AMS-08b	IMY SE - Fontinot	10:44	12:28	29.78204	-95.31765	7.4 ug/m3	21.3 ug/m3
AMS-10b	HWPW - Erastus	12:44	15:52	29.78757	-95.31664	7.1 ug/m3	16.3 ug/m3

Note: Battery power failed on AMS-08b at approximately 12:28.

PM 2.5 and PM 10 Daily Summary Results

Sample Date
May 12, 2023

- **Description of Work Performed**
- Site work consisted of hydro-vacuuming of accumulated rainwater from previously excavated anchor holes for signal bridges at the northeast corner of the capped area, just north of the tracks near the intersection of the North Bypass Service Road and Liberty Road. Work hours were from approximately 09:00 – 16:20.

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	HWPW - Eddie and Amboy	08:52	15:44	29.78589	-95.32373	7.7 ug/m3	21.1 ug/m3
AMS-03a	HWPW - Erastus	09:04	15:52	29.78757	-95.31664	7.9 ug/m3	23.6 ug/m3
AMS-05b	HWPW - Solo North	08:40	15:38	29.78735	-95.32105	5.9 ug/m3	16 ug/m3
AMS-06b	IMY SE - Clementine	07:57	16:05	29.78201	-95.31927	6.3 ug/m3	21 ug/m3
AMS-08b	IMY SE - Fontinot	07:55	16:04	29.78212	-95.31768	6.6 ug/m3	21.2 ug/m3
AMS-09	IMY South - Waco and Lee	08:02	16:08	29.78207	-95.32499	6.5 ug/m3	15.6 ug/m3
AMS-10b	HWPW - Kashmere and Liberty	08:47	15:42	29.78753	-95.32377	7.5 ug/m3	20.2 ug/m3
AMS-13a	HWPW - Quitman East	08:57	15:49	29.78482	-95.32391	8.7 ug/m3	23.2 ug/m3

Note: Station AMS-07, on the south side of the intermodal yard near Lee and Wipprecht had battery pack issues and could not be started. The station usually located on the north side of the capped area, near the intersection of Liberty of Fontinot was not deployed as recent rains had made the location inaccessible.

PM 2.5 and PM 10 Daily Summary Results

Sample Date
May 13, 2023

Description of Work Performed

Site work consisted of hydro-vacuuming of accumulated rainwater from previously excavated anchor holes for signal bridges at the northeast corner of the capped area, just north of the tracks near the intersection of the North Bypass Service Road and Liberty Road. The day was short, due to intermittent rains and continuous rain beginning in the afternoon. Work hours were from approximately 08:00 – 13:20.

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	HWPW - Solo North	08:32	13:34	29.78735	-95.32106	9 ug/m3	24.5 ug/m3
AMS-03a	HWPW - Eddie and Amboy	08:42	13:40	29.7859	-95.3238	8.4 ug/m3	25.3 ug/m3
AMS-05b	HWPW - Erastus	09:01	13:51	29.78757	-95.31661	8.1 ug/m3	22.3 ug/m3
AMS-06b	IMY SE - Clementine	07:50	13:58	29.78204	-95.31926	6.7 ug/m3	23.5 ug/m3
AMS-07	IMY South - Yates	07:54	09:22	29.78208	-95.32319	11.5 ug/m3	34.1 ug/m3
AMS-09	IMY South - Waco and Lee	07:55	14:01	29.78209	-95.32498	7.8 ug/m3	21.4 ug/m3
AMS-10b	HWPW - Quitman East	08:47	13:45	29.78451	-95.324	7.3 ug/m3	19.9 ug/m3
AMS-13a	HWPW - Kashmere and Liberty	08:38	13:39	29.78743	-95.32384	9.7 ug/m3	26 ug/m3

Note: Station AMS-08, on the south side of the intermodal yard near Lee and Fontinot had battery pack issues and could not be started. The station usually located on the north side of the capped area, near the intersection of Liberty of Fontinot was not deployed as recent rains had made the location inaccessible.

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.

Note: Weather station data is unavailable for the three workdays included in this report. Weather station was experiencing multiple connectivity and power issues and could not be brought online.

Following is a summarization of weather conditions on the workdays, as indicated by the historical data reported by Houston's Greater 5th Ward Station (KTXHOUST3045) on Weather Underground:

Date	Avg Wind Direction	Avg Wind Speed	Rainfall
5/11/2023	Southeast	10.3 mph	0 inches
5/12/2023	South-southeast	9.6 mph	0 inches
5/13/2023	South-southeast	7.5 mph	0.01 inch

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.

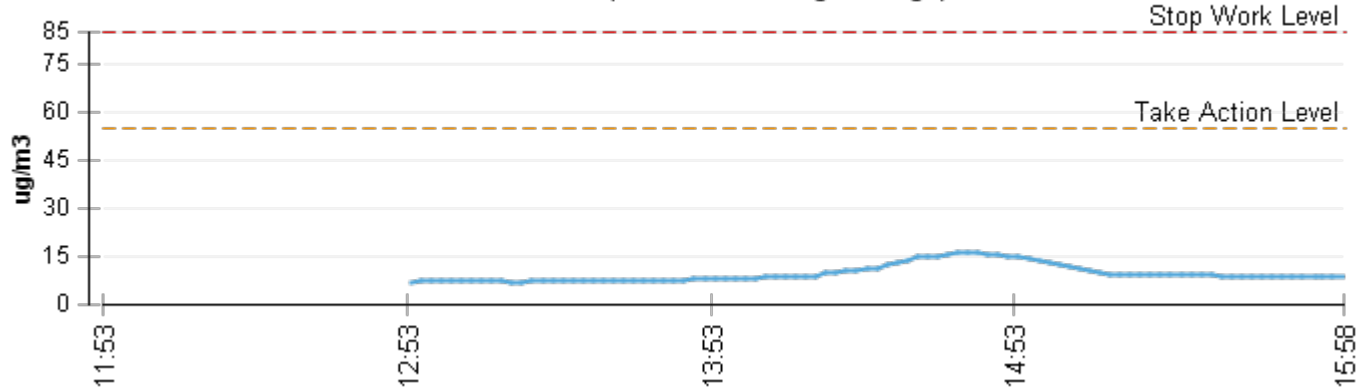
Air monitoring stations may exhibit higher than actual readings during the first 5 - 10 minutes after startup, before the instrumentation has fully warmed up. This is a known and expected behavior of the instrumentation.

PM 2.5 and PM 10 Time History Data

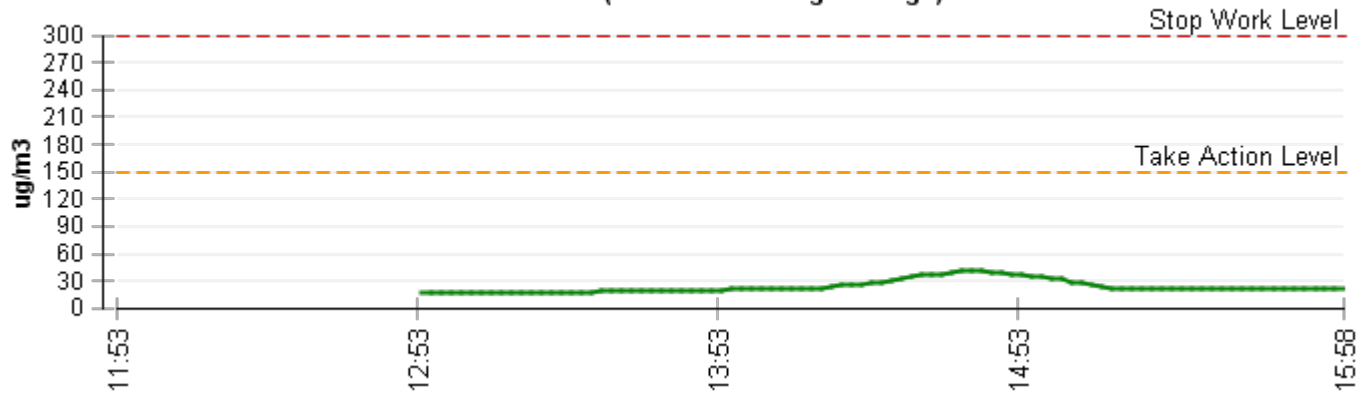
Sample Date May 11, 2023

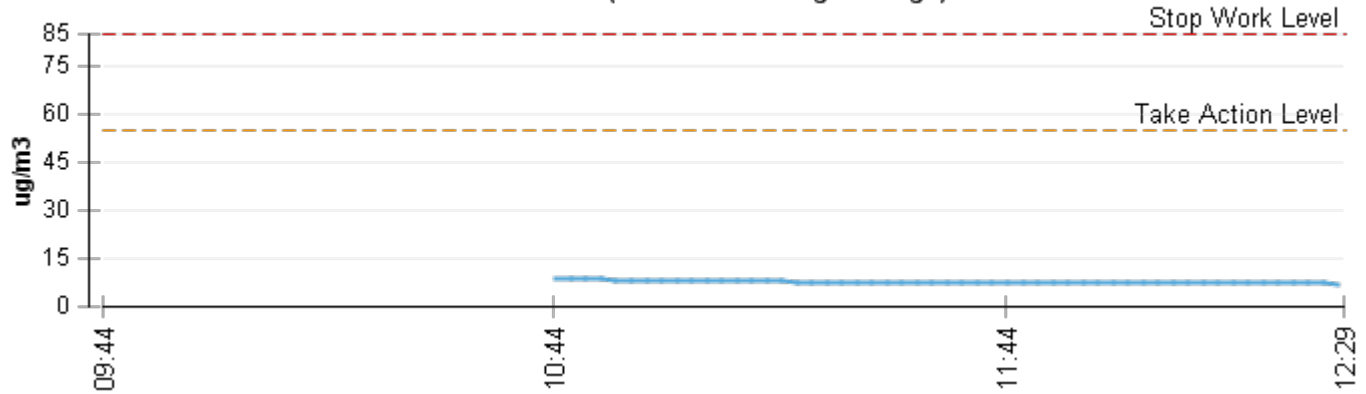
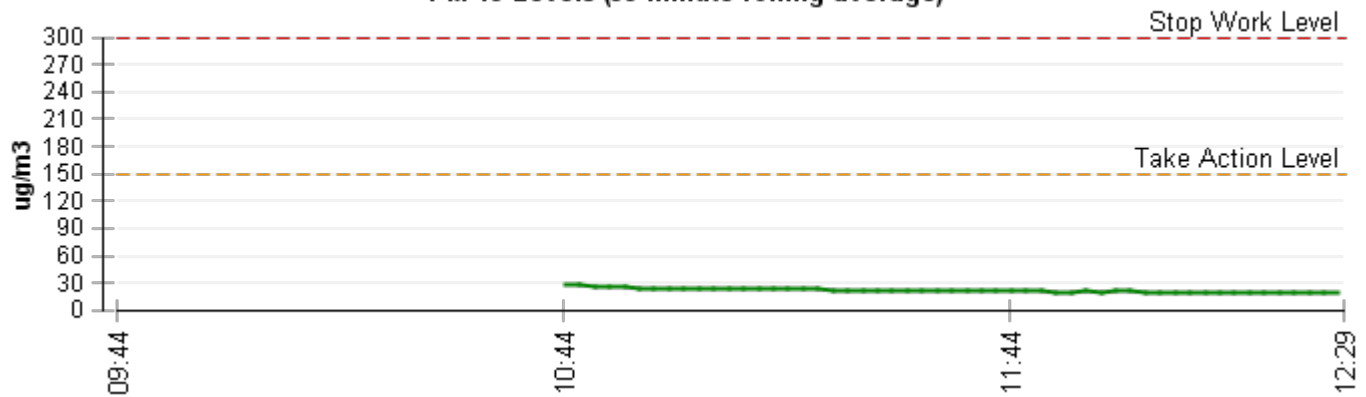
Station ID AMS-05b
Location Description 29.78773, -95.31599 – Lockwood Overpass

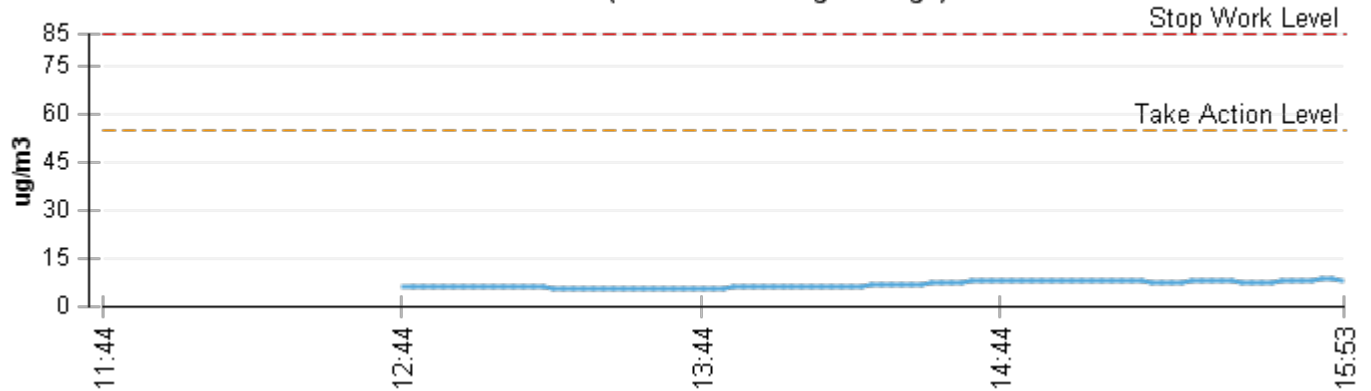
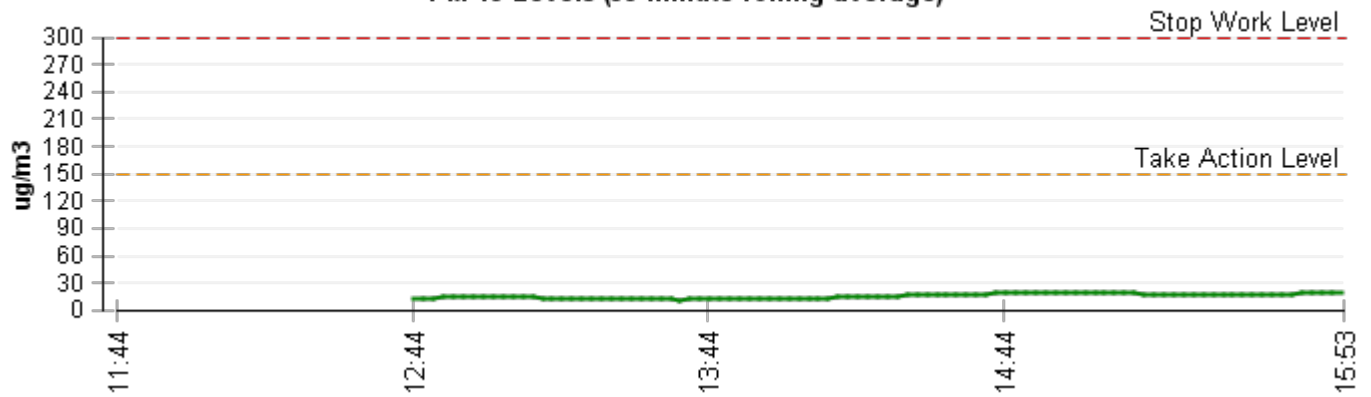
PM 2.5 Levels (30-minute rolling average)

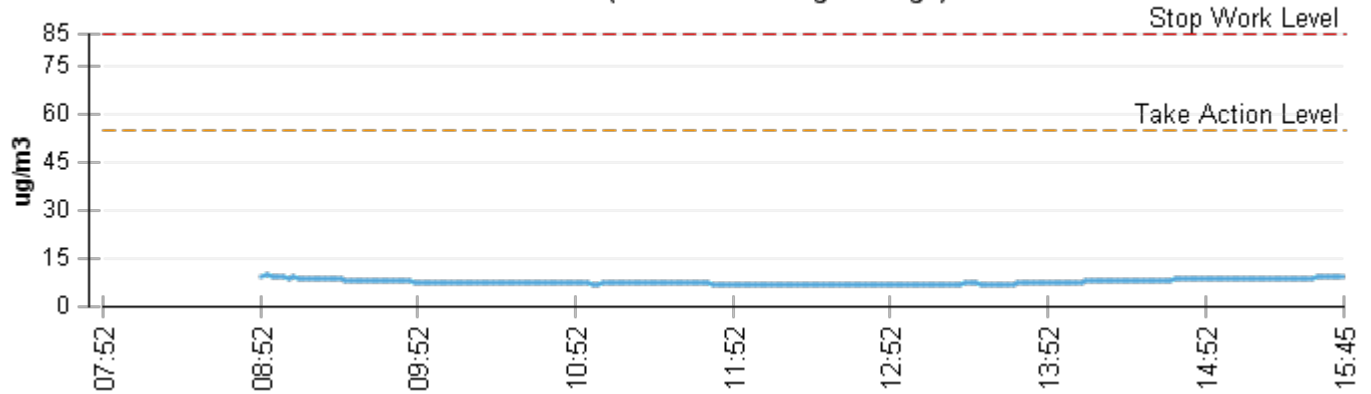
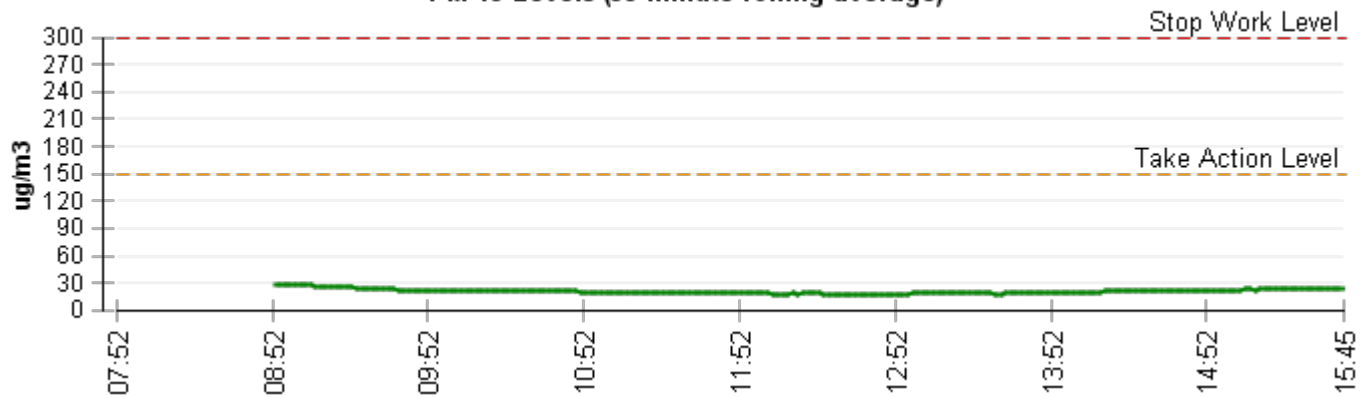


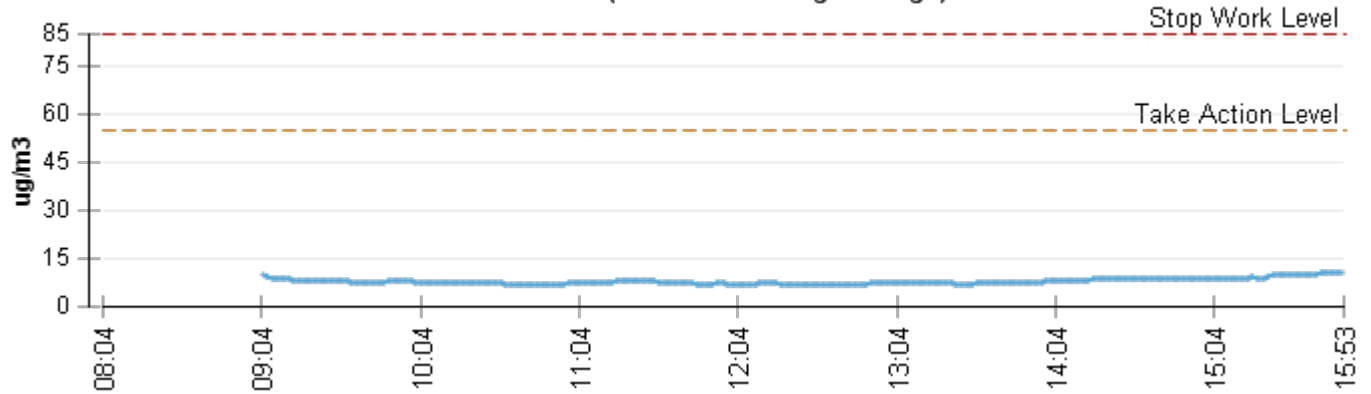
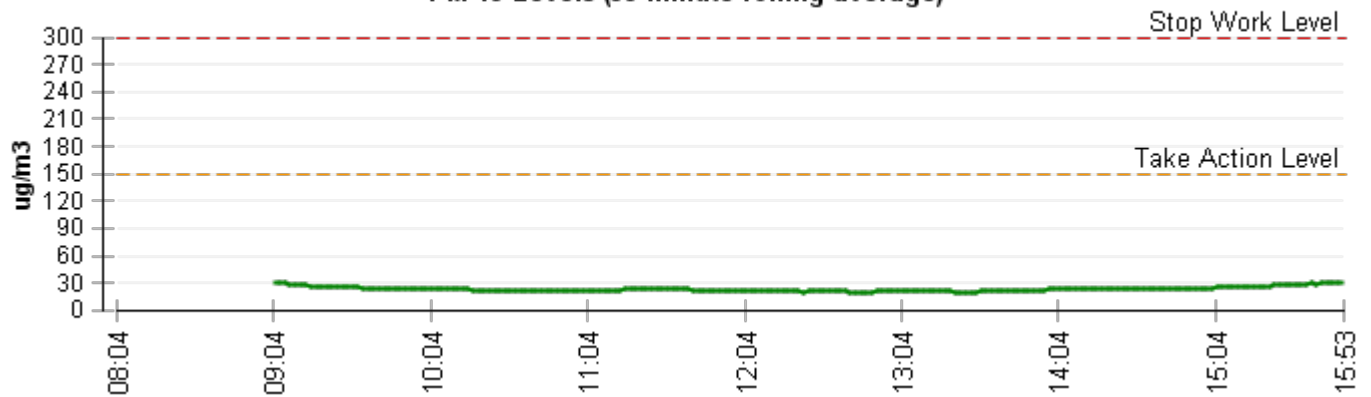
PM 10 Levels (30-minute rolling average)

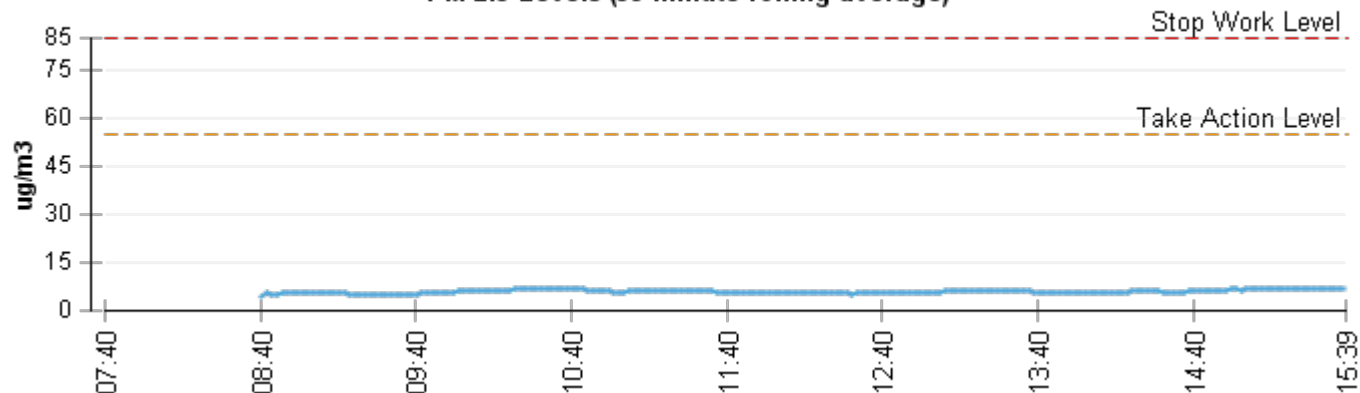
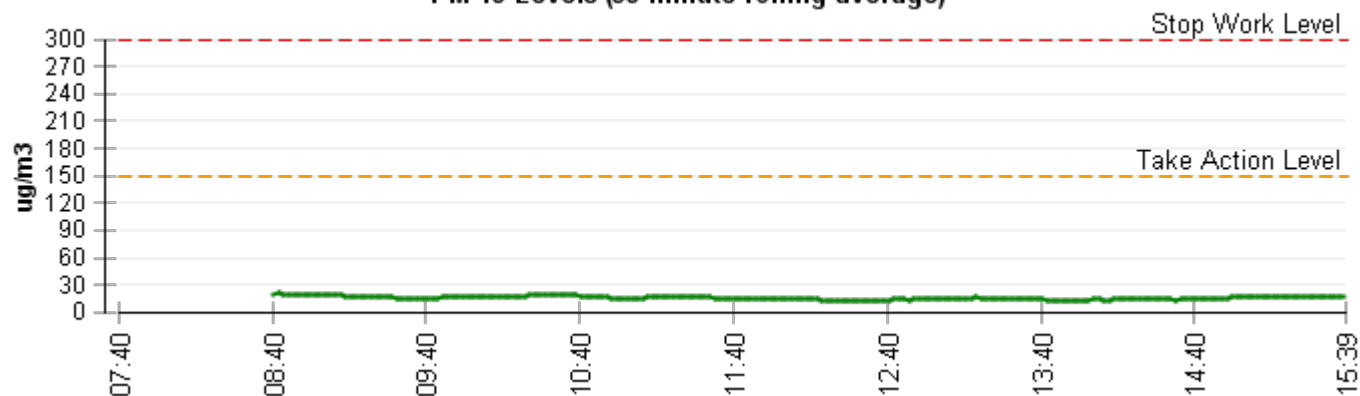


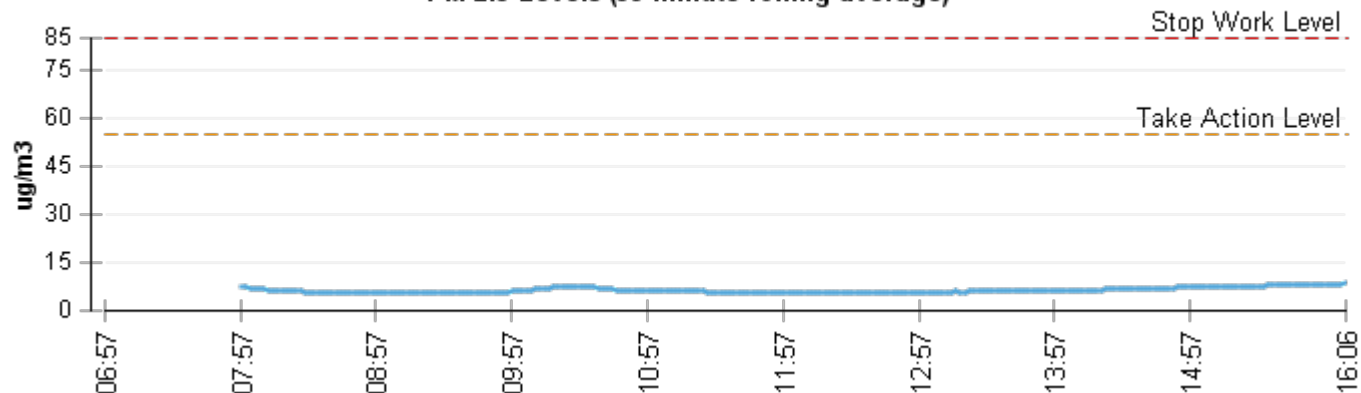
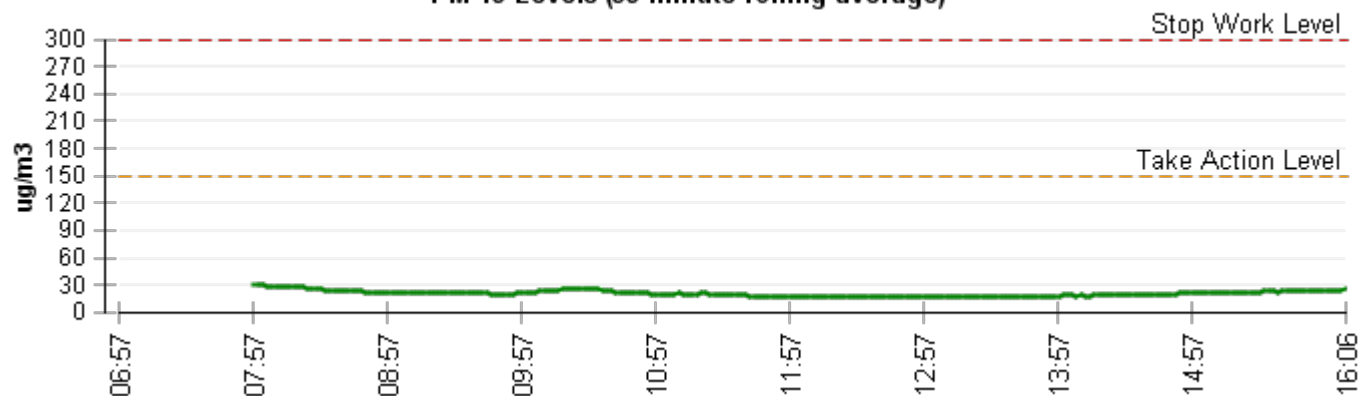
PM 2.5 and PM 10 Time History Data**Sample Date** May 11, 2023**Station ID** AMS-08b
Location Description 29.78204, -95.31765 - IMY SE - Fontinot**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data**Sample Date** May 11, 2023**Station ID** AMS-10b
Location Description 29.78757, -95.31664 - HWPW - Erastus**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** May 12, 2023**Station ID** AMS-01
Location Description 29.78589, -95.32373 - HWPW - Eddie and Amboy**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** May 12, 2023**Station ID** AMS-03a
Location Description 29.78757, -95.31664 - HWPW - Erastus**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** May 12, 2023**Station ID** AMS-05b
Location Description 29.78735, -95.32105 - HWPW - Solo North**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

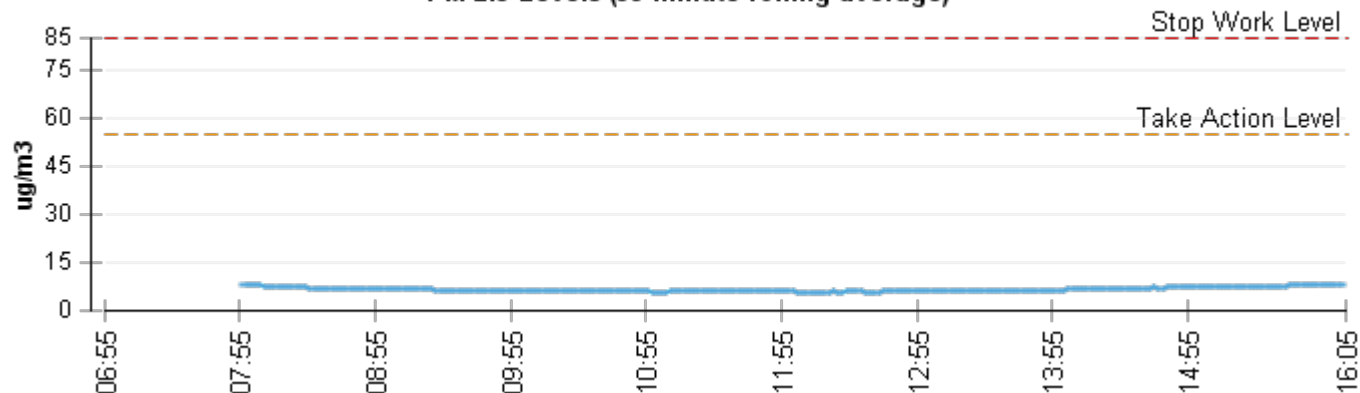
PM 2.5 and PM 10 Time History Data**Sample Date** May 12, 2023**Station ID** AMS-06b
Location Description 29.78201, -95.31927 - IMY SE - Clementine**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data

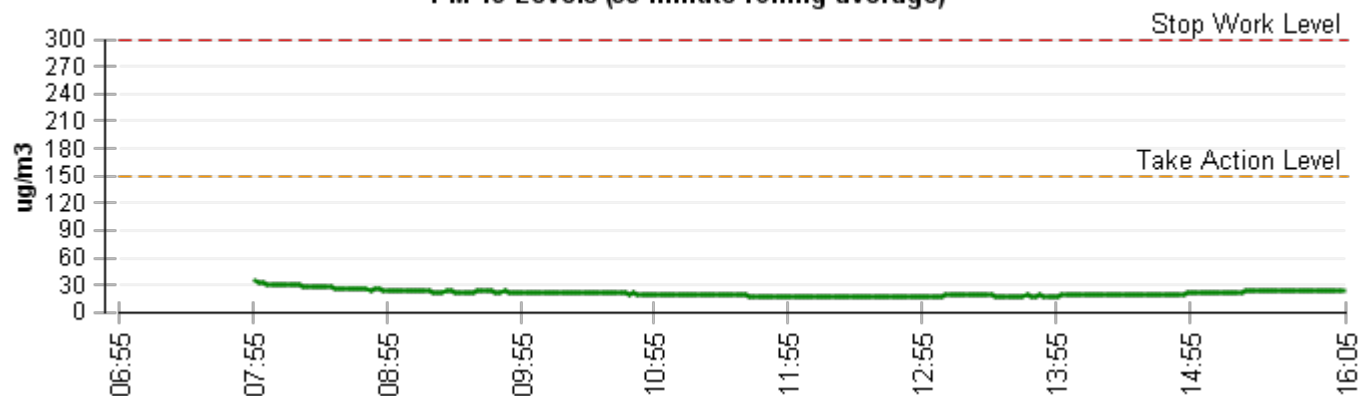
Sample Date May 12, 2023

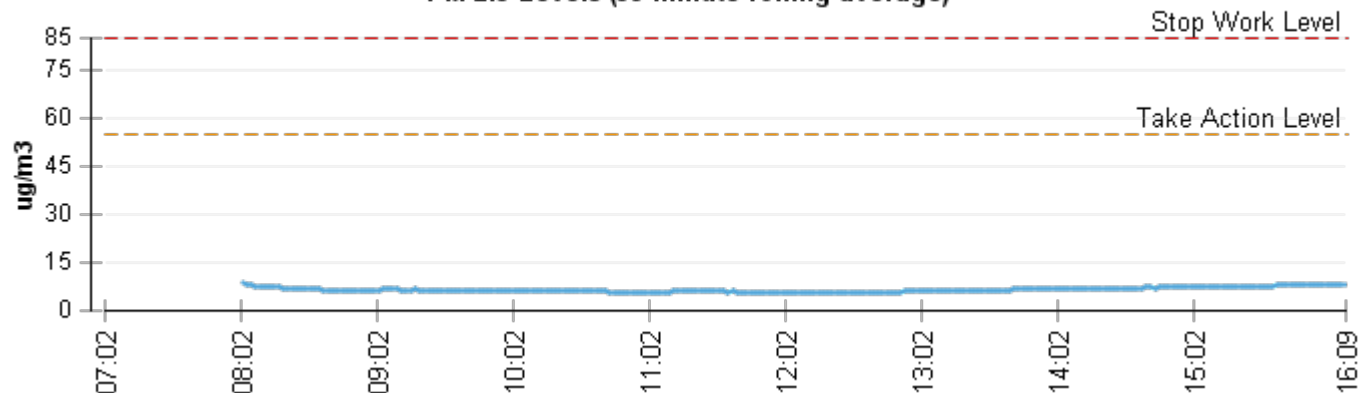
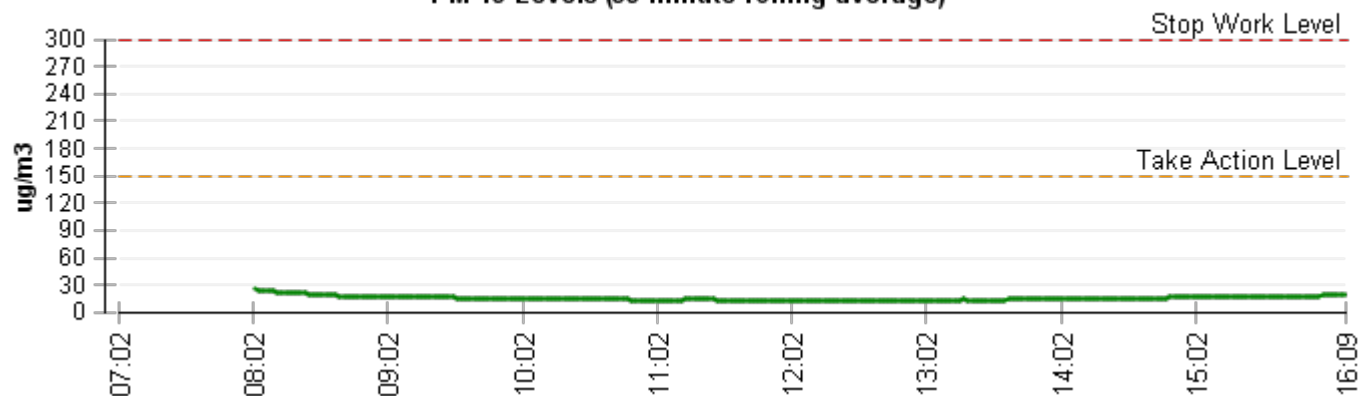
Station ID AMS-08b
Location Description 29.78212, -95.31768 - IMY SE - Fontinot

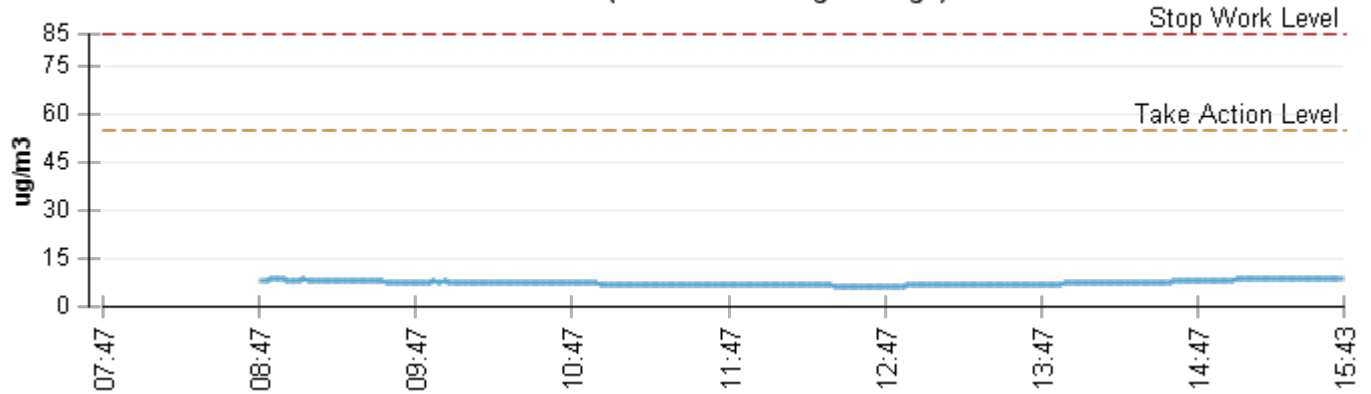
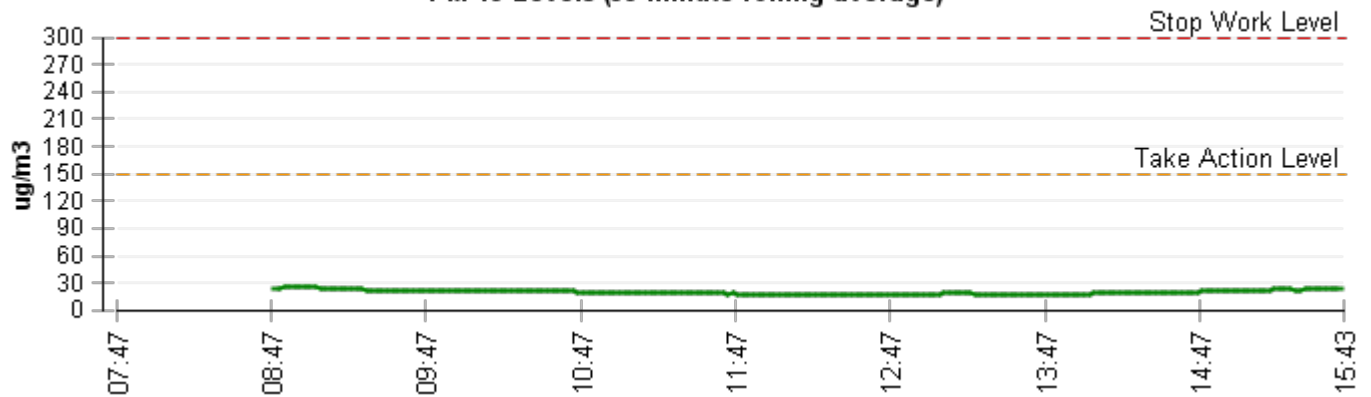
PM 2.5 Levels (30-minute rolling average)

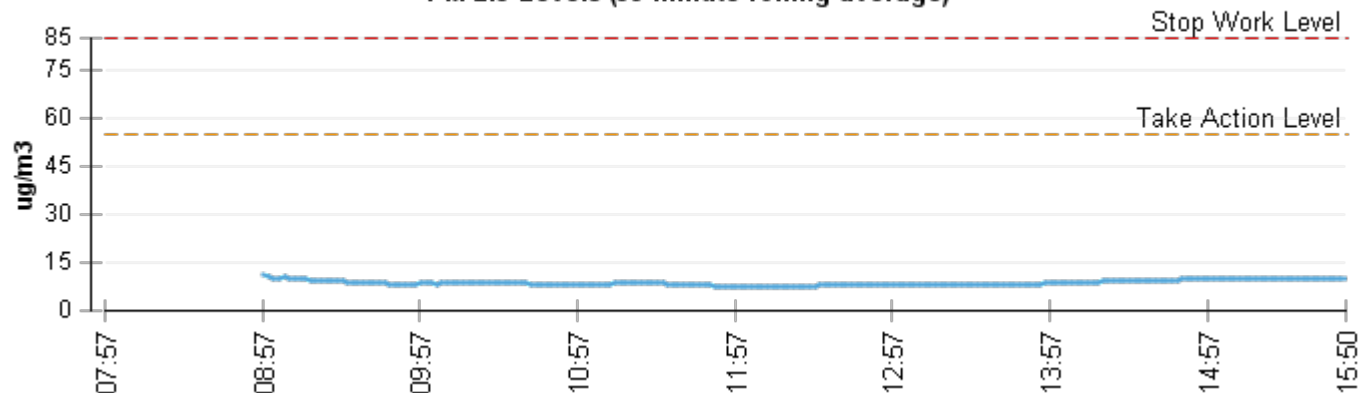
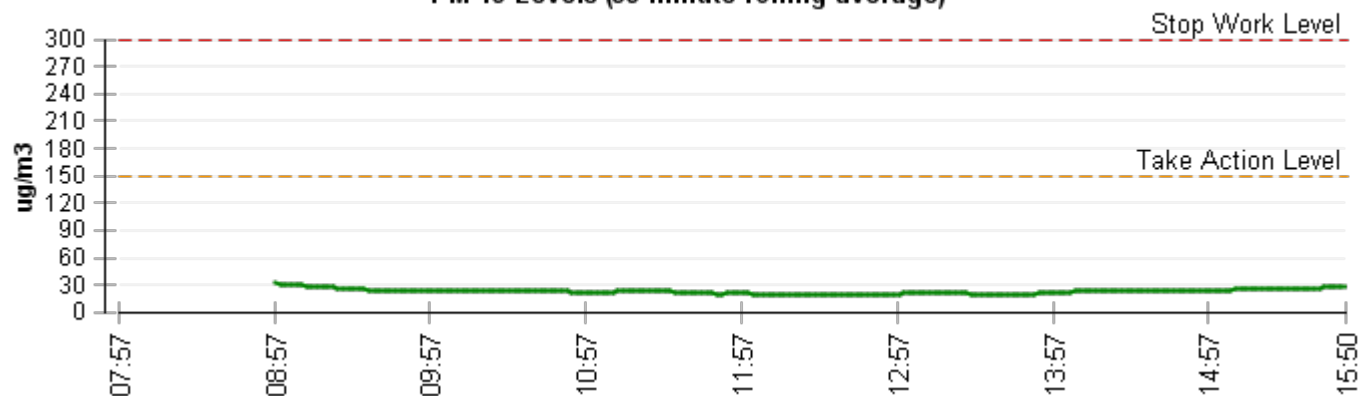


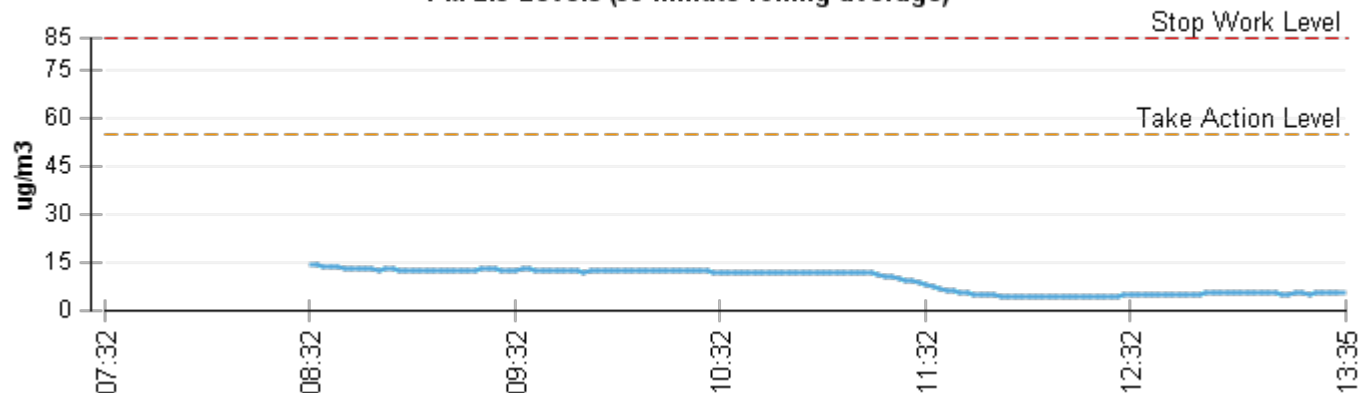
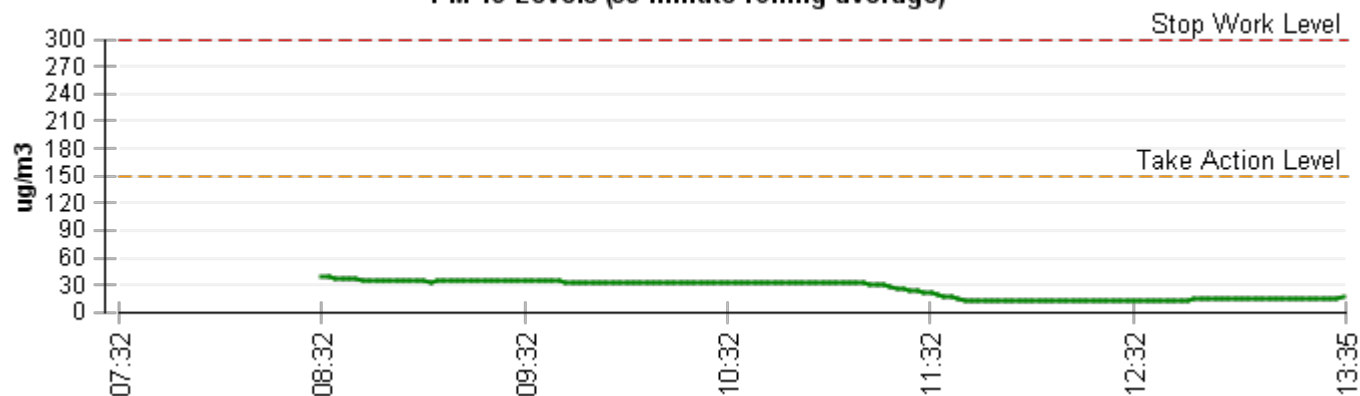
PM 10 Levels (30-minute rolling average)

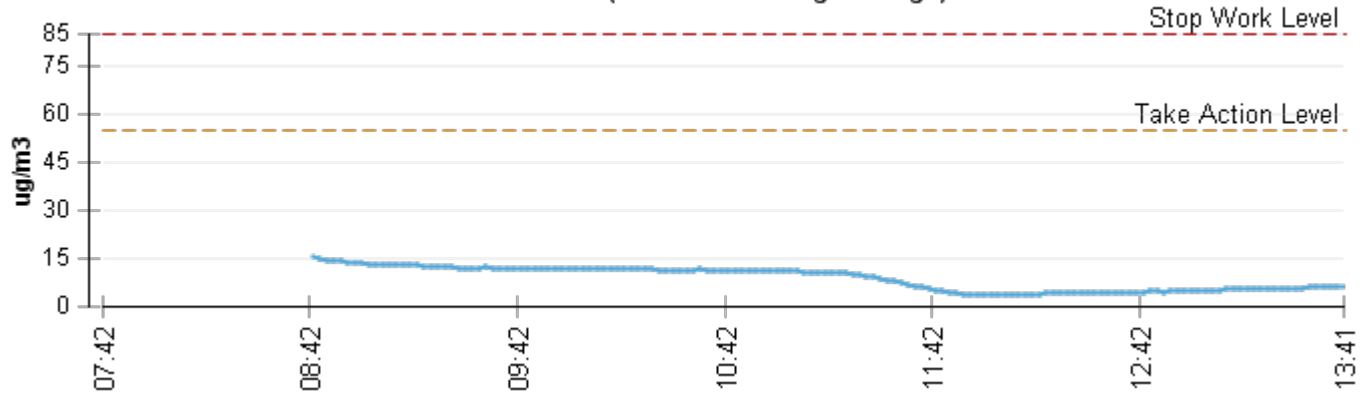
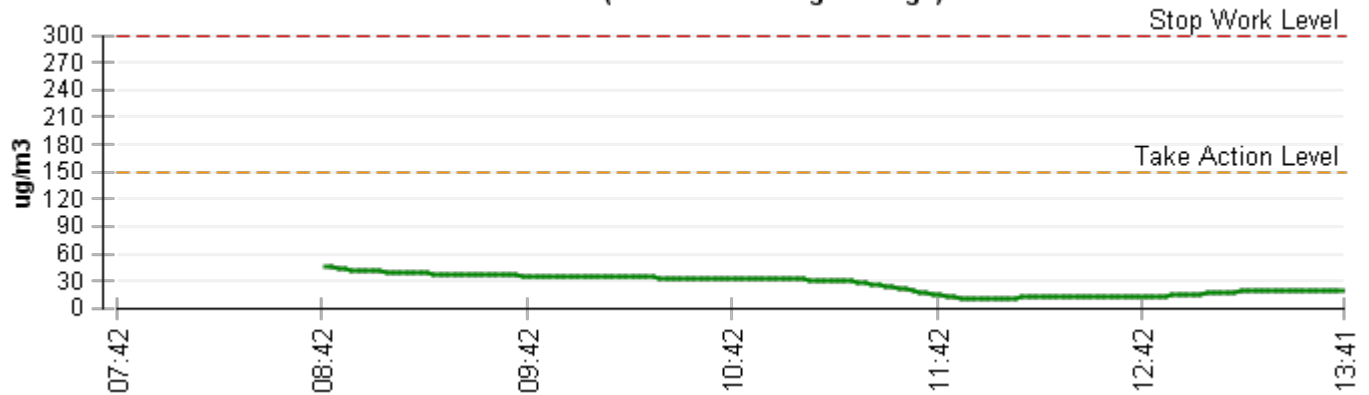


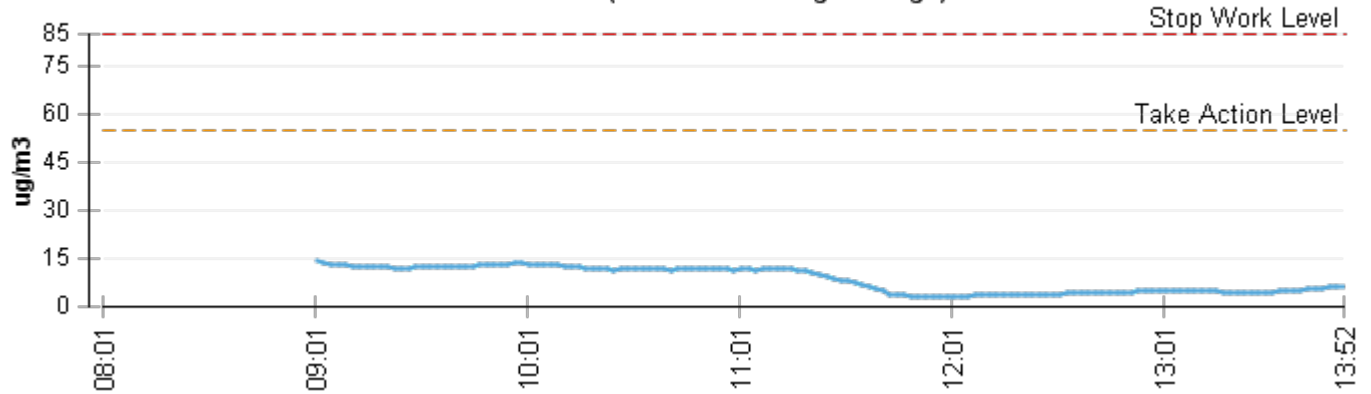
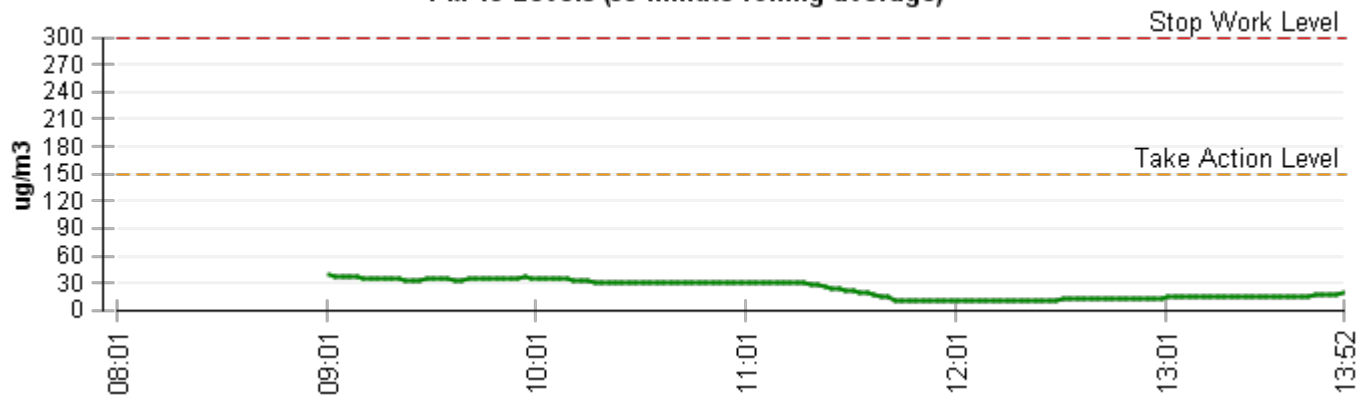
PM 2.5 and PM 10 Time History Data**Sample Date** May 12, 2023**Station ID** AMS-09
Location Description 29.78207, -95.32499 - IMY South - Waco and Lee**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

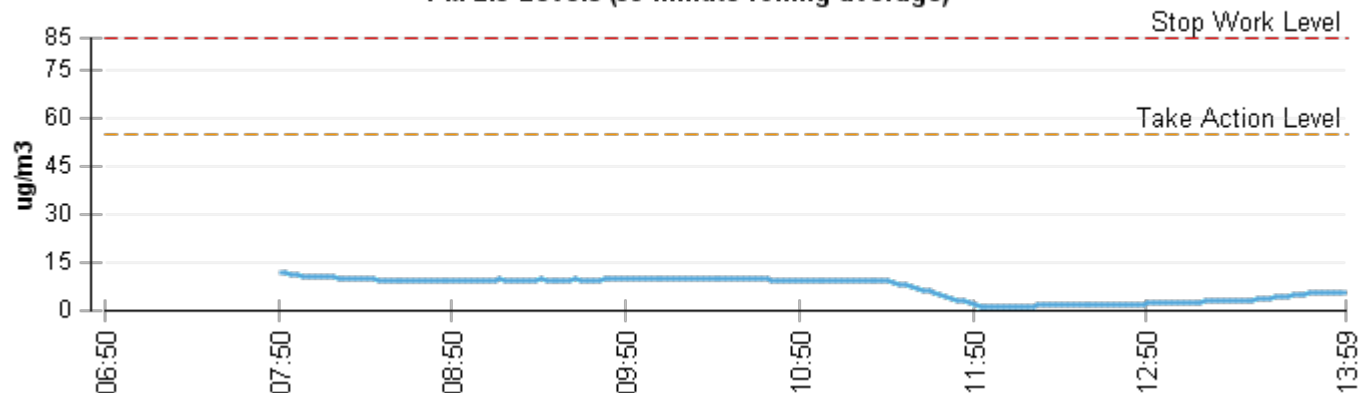
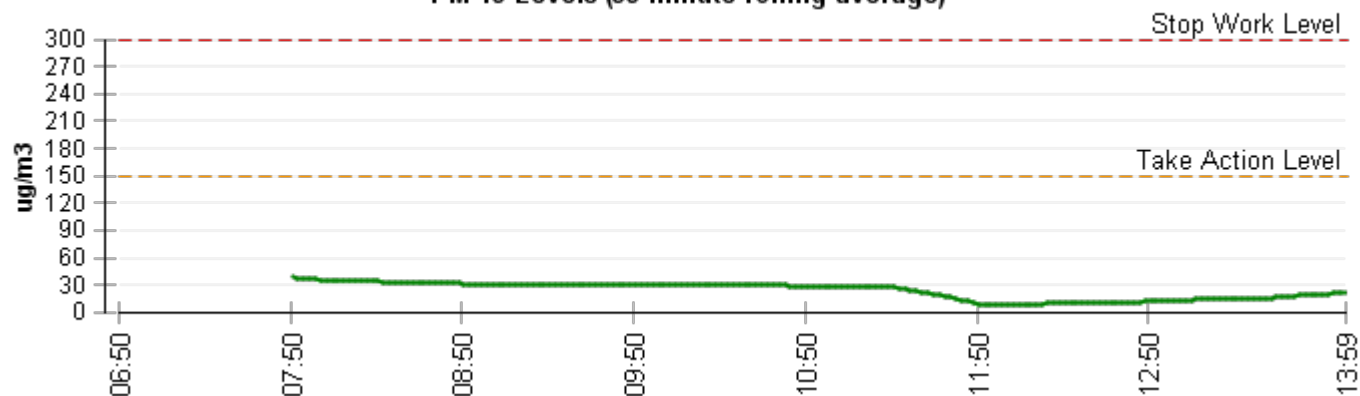
PM 2.5 and PM 10 Time History Data**Sample Date** May 12, 2023**Station ID** AMS-10b
Location Description 29.78753, -95.32377 - HWPW - Kashmere and Liberty**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

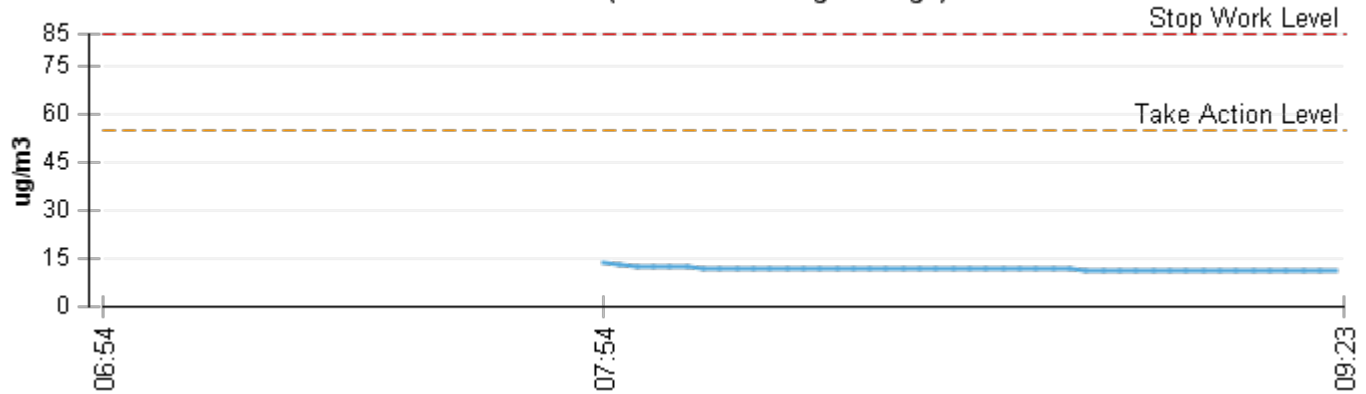
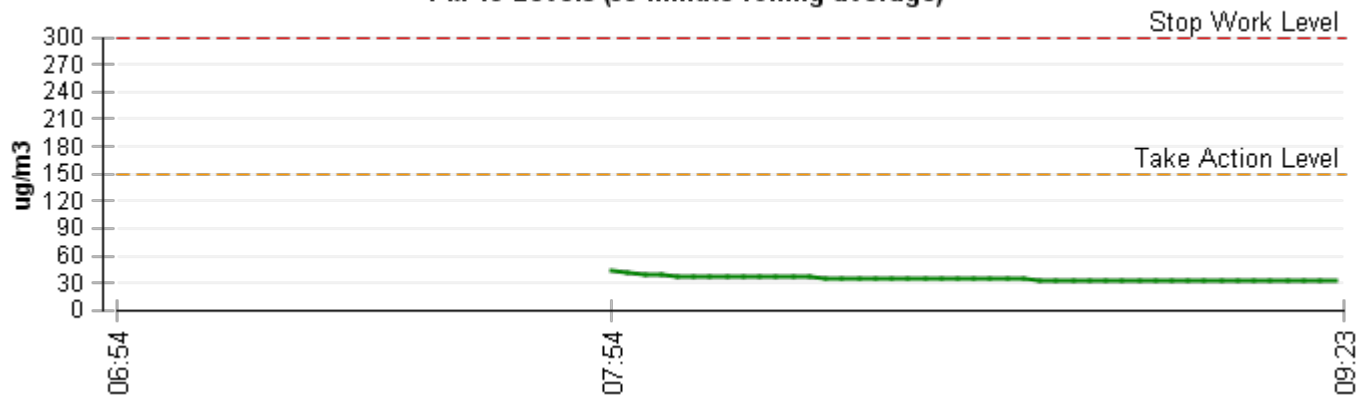
PM 2.5 and PM 10 Time History Data**Sample Date** May 12, 2023**Station ID** AMS-13a
Location Description 29.78482, -95.32391 - HWPW - Quitman East**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

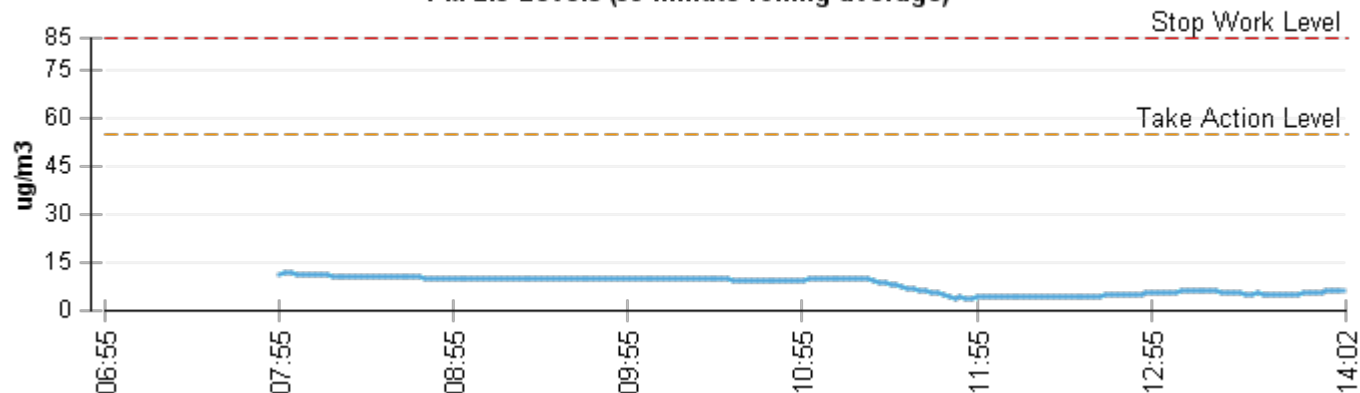
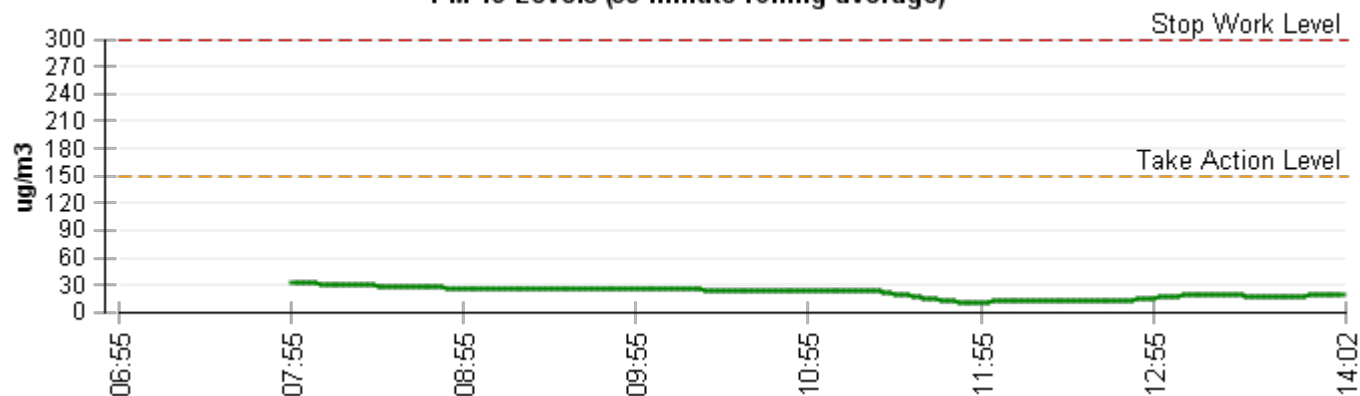
PM 2.5 and PM 10 Time History Data**Sample Date** May 13, 2023**Station ID** AMS-01
Location Description 29.78735, -95.32106 - HWPW - Solo North**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

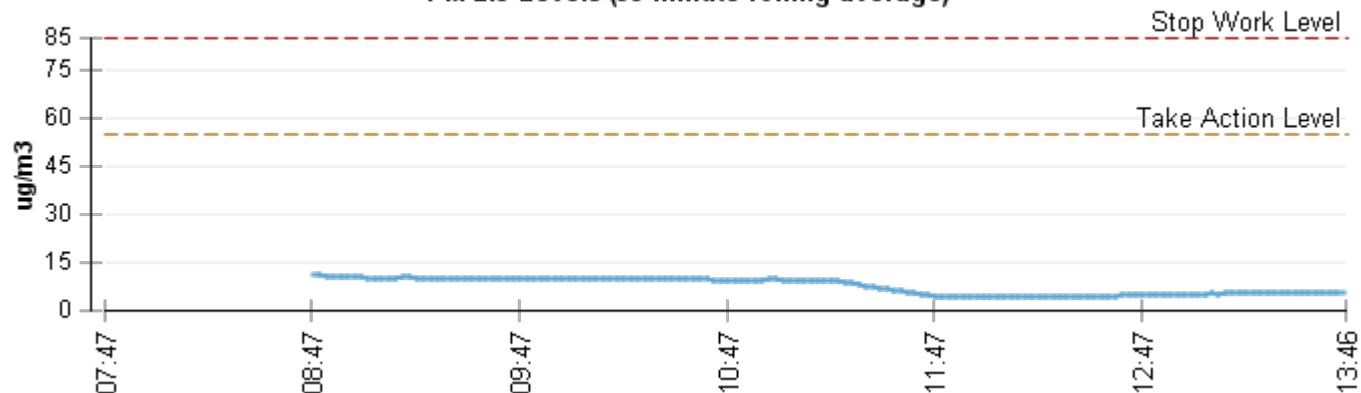
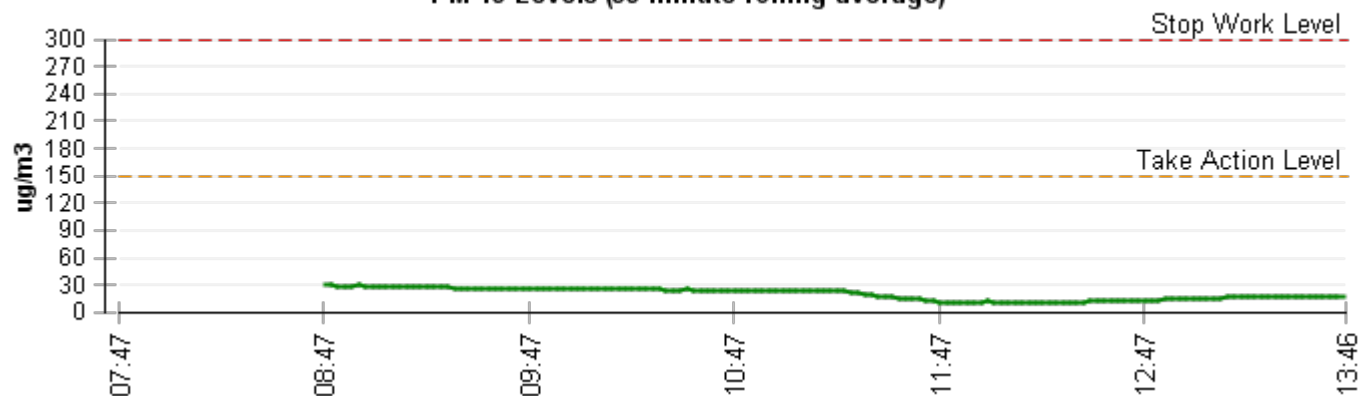
PM 2.5 and PM 10 Time History Data**Sample Date** May 13, 2023**Station ID** AMS-03a
Location Description 29.7859, -95.3238 - HWPW - Eddie and Amboy**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

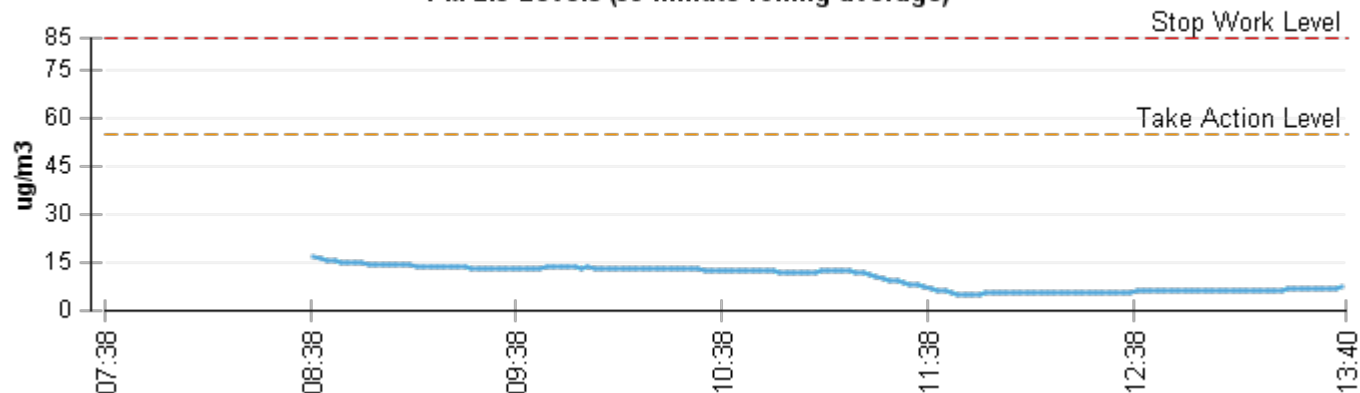
PM 2.5 and PM 10 Time History Data**Sample Date** May 13, 2023**Station ID** AMS-05b
Location Description 29.78757, -95.31661 - HWPW - Erastus**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**

PM 2.5 and PM 10 Time History Data**Sample Date** May 13, 2023**Station ID** AMS-06b
Location Description 29.78204, -95.31926 - 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** May 13, 2023**Station ID** AMS-07
Location Description 29.78208, -95.32319 - IMY South - Yates**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** May 13, 2023**Station ID** AMS-09
Location Description 29.78209, -95.32498 - IMY South - Waco and Lee**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** May 13, 2023**Station ID** AMS-10b
Location Description 29.78451, -95.324 - 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** May 13, 2023**Station ID** AMS-13a
Location Description 29.78743, -95.32384 - HWPW - Kashmere and Liberty**PM 2.5 Levels (30-minute rolling average)****PM 10 Levels (30-minute rolling average)**