GOLDER
MEMBER OF WSP

December 8, 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: *November 29 through December 5, 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 noted in the IHST Weekly Report (Attachment A), dense fog was observed on the mornings of November 1, and December 1 and 2, resulting in elevated particulate instrument readings in the morning hours. The readings typically dropped to below Notice Levels as fog burned off later in the morning, typically between 09:00 and 10:00. No site activities were observed during any of these periods which would contribute to the higher readings during these times. The elevated readings appear entirely attributable to ambient weather conditions with the morning fog and condensation.
  - On December 1, 2021, station AMS-05a, located at the southwest corner of the intermodal yard near Lee and Waco, experienced network communication problems. No particulate monitoring data was collected for this location on this day. Unit AMS-05a was replaced with another air monitoring station on subsequent days.

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- There were two events where PM 2.5 and PM 10 readings increased above the Notice Levels during the monitoring period. As indicated in the IHST Weekly Report (Attachment A) and detailed below, both events were a result of outside incidents and not related to the construction activities:
  - On December 1, 2021, dense early morning fog was present, creating elevated readings at all stations. Around 08:15 – 08:20, an additional rise in PM 2.5 and PM 10 particulate readings began, impacting all stations. An odor of smoke was noted, and a visible haze was present across the entire work site. Site activities were checked, and no site activities were being performed that generated significant visible dust. Visual observation of the haze showed it appeared heaviest north of Liberty Road, near the Lockwood overpass. Further investigation found the source of the haze and odor was a neighborhood trash fire burning one block northeast of Liberty Road and the Lockwood overpass (trash fire visually confirmed by hygienist conducting the air monitoring). Particulate levels peaked between 08:23 - 09:26, with stations along the northeast perimeter of the former Houston Wood Preserving Works site (AMS-06, AMS-07 and AMS-08), Liberty Road at the Lockwood overpass (AMS-12) and the Englewood Yard Office (AMS-01) reaching Take-Action levels. Particulate levels briefly reached Stop-Work levels at AMS-01 (Englewood Yard Office, 08:39 – 08:49). No additional dust control measures were implemented, and work was not stopped, as observations clearly indicated that site construction activities were not the source of the elevated particulate readings (consistent with protocols outlined in the TCEQ-approved dust control plan for the site). Smoke haze and elevated particulate readings at stations had dissipated and particulate concentrations at all stations dropped below Notice Levels by approximately 10:00.
  - On December 2, 2021, elevated particulate readings at all stations were observed at station startup. After sunrise and some dissipation of morning fog, a visible haze was observed throughout the Site and surrounding area. Review of regulatory air monitoring data from TCEQ air monitoring station Houston North Wayside C405/C1033, located approximately 3.4 miles to the northeast of the Site and not associated with the Project, indicated elevated particulate patterns similar to those observed in the Site area, confirming the wide-spread nature of the atmospheric event. IHST was not able to identify the source(s) of the haze but it appeared to have been likely associated with residual smoke from a large trash fire at a recycling plant that occurred around 19:00 on the previous night (December 1) near the 6900 Block of North Eldridge in Houston, about 20 miles northwest of the site. By 09:53, particulate levels at all stations were reporting levels below the Notice Levels for PM 2.5 and PM 10 particulates. Site activities were not generating significant visible dust and were not the source of the elevated particulate concentrations during this period.
- On December 2, 2021, deployment of station AMS-11, on the southwest side of the former Houston Wood Preserving Works site, near Quitman Street, was delayed. An occupied homeless camp was found established in the station location overnight, and station deployment was delayed until the homeless camp was cleared by local law enforcement. AMS-11 was not deployed until approximately 09:35.
- Air samples for analytical testing were collected on November 30 and December 1, 2021, and submitted to the Pace National Laboratory in Mt. Juliet, TN (Pace) on December 2, 2021 for analysis.

- Analytical results for samples collected on November 30 and December 1, 2021 will be validated and posted to the weekly update. It is anticipated that the validated data will be available the week of **December 13, 2021.**
- Results of Integrated Air Samples for PAHs collected on November 22, 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 Metals (lead and arsenic) collected on November 16, 17, 22, and 23, 2021 have not yet been received from the laboratory at the time of this report. It is anticipated that the validated data for these samples will be available the week of **December 13, 2021.**

- **Soil Management**
  - Activities that resulted in the generation of excavated soils for this weekly period included installing three power poles within the Railroad Ballast Cap area using air knife technology.
  - Approximately 8 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 and initially placed in plastic lined, liquid tight roll-off containers with the generated soils was pumped from the roll-off containers into a roll-off vacuum box staged at the HWPW CSA. The wash water will be sampled for waste characterization analyses.
  - Pending waste characterization results, wash water will be disposed at an approved and authorized disposal facility.
  - Two roll-off containers containing approximately 15 CY (each) of soil classified as impacted with listed hazardous waste (F034/K001) were shipped to the US Ecology Texas TSDF in Robstown, TX on December 1, 2021 (Hazardous Waste Manifest Number: 022648994JJK) and December 2, 2021 (Hazardous Waste Manifest Number: 022649000JJK).
- **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 6 and December 12, 2021**:

- **Dust Control and Air Monitoring**
  - Continue to conduct air monitoring per the approved Plan.
  - Review and validate the analytical results for air samples collected on November 16, 17, 22, 23, and December 2, 2021.
- **Soil Management**
  - Manage soils generated using a mini excavator from the installation of a utility trench within the Railroad Ballast Cap area.
- **Stormwater Management**
  - Manage stormwater in the event of rainfall in the area per the approved Storm Water Pollution Prevention Plan (SWPPP).

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

Industrial Hygiene and
Safety Technology, Inc.

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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 2021-11-29 to 2021-12-05

Contents

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.

Note: Site work was not performed on Monday, November 29, and no air monitoring was conducted on this day.

PM 2.5 and PM 10 Daily Summary Results

Sample Date	Description of Work Performed
Nov 30, 2021	Work plan for the day included excavation of holes for power poles using an air-knifing excavation rig and setting/installation of power poles using boom trucks. Work locations included the east end of the former Houston Wood Preserving Works site service road and along Liberty Road, east of the Lockwood overpass. Some excavation work with a hydro-vac, accompanied by coring for samples took place on the concrete slab area in the southeast corner of the intermodal yard, near AMS-02.

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	04:26	23:58	29.79008	-95.29822	17.4 ug/m3	45.6 ug/m3
AMS-02	IMY East - Sudan and Harlem	04:40	18:39	29.7842	-95.31684	13.5 ug/m3	35.8 ug/m3
AMS-03	IMY SE - Clementine	05:08	18:26	29.78208	-95.31913	16.1 ug/m3	41 ug/m3
AMS-04	IMY South - Schweikhardt	05:28	18:18	29.7822	-95.32282	15.3 ug/m3	39.8 ug/m3
AMS-05a	IMY South - Waco and Lee	05:18	17:28	29.78223	-95.32514	16.2 ug/m3	47.4 ug/m3
AMS-06	HWPW - Erastus	05:23	18:33	29.78759	-95.31688	14.4 ug/m3	37.6 ug/m3
AMS-07	HWPW - Clementine North	06:09	17:57	29.78749	-95.31901	13 ug/m3	35.3 ug/m3
AMS-08	HWPW - Solo North	05:55	19:14	29.78746	-95.32116	12.8 ug/m3	33.5 ug/m3
AMS-09	HWPW - Kashmere and Liberty	06:20	17:35	29.78757	-95.32357	13.7 ug/m3	34.6 ug/m3
AMS-10a	HWPW - Eddie and Kashmere	06:29	17:29	29.78628	-95.32378	14.2 ug/m3	35.7 ug/m3
AMS-11	HWPW - Quitman East	06:39	17:19	29.78435	-95.3246	14.2 ug/m3	36 ug/m3
AMS-12	Liberty - Rupert	10:32	16:58	29.78937	-95.3123	7.3 ug/m3	16.3 ug/m3
AMS-13	Liberty - Easy	10:47	17:09	29.78973	-95.3115	7.2 ug/m3	15.4 ug/m3

PM 2.5 and PM 10 Daily Summary Results

Sample Date
Dec 1, 2021

Description of Work Performed

Work plan for the day included excavation of holes for power poles using an air-knifing excavation rig and setting/installation of power poles using boom trucks. Work locations included the east end of the former Houston Wood Preserving Works site service road and along Liberty Road, east of the Lockwood overpass. Coring for soil samples was conducted on the northeast corner of the form Houston Wood Preserving Works site, near station AMS-07. Work was generally slow, due to frequent delays from train traffic on the tracks nearest the service road.

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	23:59	29.79003	-95.29827	16.3 ug/m3	42.8 ug/m3
AMS-02	IMY East - Sudan and Harlem	04:33	16:59	29.7842	-95.31684	16.5 ug/m3	45.3 ug/m3
AMS-03	IMY SE - Clementine	04:56	16:51	29.78208	-95.31913	17 ug/m3	43 ug/m3
AMS-04	IMY South - Schweikhardt	04:58	16:51	29.7822	-95.32282	14.3 ug/m3	36.5 ug/m3
AMS-06	HWPW - Erastus	05:16	17:30	29.78759	-95.31688	15 ug/m3	41.5 ug/m3
AMS-07	HWPW - Clementine North	06:07	16:37	29.78749	-95.31901	14.5 ug/m3	39.7 ug/m3
AMS-08	HWPW - Solo North	05:43	17:59	29.78746	-95.32116	14.6 ug/m3	37.7 ug/m3
AMS-09	HWPW - Kashmere and Liberty	06:19	17:49	29.78757	-95.32357	13.3 ug/m3	32.8 ug/m3
AMS-10a	HWPW - Eddie and Kashmere	06:25	17:43	29.78628	-95.32378	14.1 ug/m3	35.4 ug/m3
AMS-11	HWPW - Quitman East	06:35	17:13	29.78435	-95.3246	13.7 ug/m3	34.6 ug/m3
AMS-12	Lockwood Overpass East	07:37	15:47	29.787857	-95.31571	15.6 ug/m3	41.4 ug/m3

PM 2.5 and PM 10 Daily Summary Results

Sample Date	Description of Work Performed
Dec 2, 2021	Work plan for the day included excavation of holes for power poles using an air-knifing excavation rig and setting/installation of power poles using boom trucks. Work locations included the east end of the former Houston Wood Preserving Works site service road and along Liberty Road, east of the Lockwood overpass. Excavation with a hydro-vac and boring for soil samples was conducted on the northeast corner of the form Houston Wood Preserving Works site, near stations AMS-07 and AMS-06.

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	23:58	29.7901	-95.29823	10.1 ug/m3	26 ug/m3
AMS-02	IMY East - Sudan and Harlem	05:28	17:43	29.78421	-95.31689	13.3 ug/m3	35.2 ug/m3
AMS-03	IMY SE - Clementine	05:32	17:45	29.78206	-95.31911	14.2 ug/m3	35.4 ug/m3
AMS-04	IMY South - Schweikhardt	05:35	17:47	29.78212	-95.32281	11.5 ug/m3	28.7 ug/m3
AMS-06	HWPW - Erastus	05:51	17:09	29.78764	-95.31661	13 ug/m3	34.7 ug/m3
AMS-07	HWPW - Clementine North	06:23	17:05	29.78757	-95.31884	11.9 ug/m3	31.7 ug/m3
AMS-08	HWPW - Solo North	06:14	17:16	29.78745	-95.32116	11.6 ug/m3	29.6 ug/m3
AMS-09	HWPW - Kashmere and Liberty	06:06	17:20	29.78752	-95.32368	10.7 ug/m3	26.2 ug/m3
AMS-10a	HWPW - Eddie and Amboy	06:02	17:26	29.78621	-95.32375	12 ug/m3	29.4 ug/m3
AMS-11	HWPW - Quitman East	09:38	17:32	29.78432	-95.32457	7.7 ug/m3	17.1 ug/m3
AMS-12	Liberty - Sakowitz	07:40	16:55	29.78889	-95.31342	13.9 ug/m3	35.8 ug/m3
AMS-13	IMY South - Waco and Lee	05:38	17:48	29.78219	-95.32515	11.6 ug/m3	28.4 ug/m3

Note: Station AMS-05a, at southwest corner of the intermodal yard near Waco and Lee, experienced network communication issues which could not be resolved, and no particulate matter readings were collected at this station on this day. Unit AMS-05a was replaced with a different air monitoring station on subsequent days.

PM 2.5 and PM 10 Daily Summary Results

Sample Date	Description of Work Performed
Dec 3, 2021	Work plan for the day included excavation of holes for power poles using an air-knifing excavation rig and setting/installation of power poles using boom trucks. Work locations included the east end of the former Houston Wood Preserving Works site service road and along Liberty Road, east of the Lockwood overpass. Excavation with a hydro-vac and boring for soil samples was conducted on the north central and northeast corner of the former Houston Wood Preserving Works site, near stations AMS-06, AMS-07 and AMS-08.

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	23:59	29.79011	-95.29821	5.1 ug/m3	13.9 ug/m3
AMS-02	IMY East - Sudan and Harlem	05:26	17:36	29.78421	-95.31691	5.6 ug/m3	14.9 ug/m3
AMS-03	IMY SE - Clementine	05:30	17:29	29.78205	-95.31914	6 ug/m3	15.5 ug/m3
AMS-04	IMY South - Schweikhardt	05:32	17:27	29.78216	-95.32281	5.6 ug/m3	14.6 ug/m3
AMS-06	HWPW - Erastus	05:57	16:39	29.78763	-95.31663	5 ug/m3	13.3 ug/m3
AMS-07	HWPW - Clementine North	06:31	16:43	29.78752	-95.31885	4.4 ug/m3	11.9 ug/m3
AMS-08	HWPW - Solo North	06:26	16:49	29.78745	-95.32117	5 ug/m3	13 ug/m3
AMS-09	HWPW - Kashmere and Liberty	06:20	16:53	29.78753	-95.32367	5 ug/m3	12.7 ug/m3
AMS-10a	HWPW - Eddie and Kashmere	06:15	16:56	29.78627	-95.32378	5.6 ug/m3	14.3 ug/m3
AMS-11	HWPW - Quitman East	07:35	17:03	29.78435	-95.32452	5.6 ug/m3	13.9 ug/m3
AMS-12	Liberty - Sakowitz	12:46	17:14	29.78889	-95.31342	3.1 ug/m3	7.3 ug/m3
AMS-13	IMY South - Waco and Lee	05:36	17:24	29.78219	-95.32515	6.5 ug/m3	16.7 ug/m3

PM 2.5 and PM 10 Daily Summary Results

Sample Date	Description of Work Performed
Dec 4, 2021	Work plan for the day included excavation of holes for power poles using an air-knifing excavation rig and setting/installation of power poles using boom trucks. Work locations included the east end of the former Houston Wood Preserving Works site service road and along Liberty Road, east of the Lockwood overpass. Soil boring activity took place along the east side of the intermodal area, with hydro-vac boring at the intermodal gate exit location and hydraulic push probe boring north of station AMS-02.

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	23:58	29.79008	-95.29823	6.1 ug/m3	17.5 ug/m3
AMS-02	IMY East - Sudan and Harlem	05:38	16:30	29.78419	-95.31691	6.8 ug/m3	19.5 ug/m3
AMS-03	IMY SE - Clementine	05:35	16:25	29.78205	-95.31915	7.4 ug/m3	19.8 ug/m3
AMS-04	IMY South - Schweikhardt	05:32	16:12	29.78217	-95.3228	7.5 ug/m3	20.4 ug/m3
AMS-06	HWPW - Erastus	05:47	15:17	29.78763	-95.31665	6.9 ug/m3	19.6 ug/m3
AMS-07	HWPW - Clementine North	06:25	15:49	29.78752	-95.31887	6.5 ug/m3	19 ug/m3
AMS-08	HWPW - Solo North	06:18	15:42	29.7874	-95.32115	7 ug/m3	19.3 ug/m3
AMS-09	HWPW - Kashmere and Liberty	06:12	15:38	29.78753	-95.32369	7.1 ug/m3	18.8 ug/m3
AMS-10a	HWPW - Eddie and Kashmere	06:05	15:33	29.78633	-95.32374	7.9 ug/m3	21.3 ug/m3
AMS-11	HWPW - Quitman East	05:57	15:26	29.78439	-95.3245	8.7 ug/m3	23.6 ug/m3
AMS-12	Liberty - Sakowitz	07:33	15:09	29.7889	-95.31345	7.7 ug/m3	20.6 ug/m3
AMS-13	IMY South - Waco and Lee	05:30	16:06	29.78216	-95.32516	8.1 ug/m3	21.6 ug/m3

PM 2.5 and PM 10 Daily Summary Results

Sample Date	Description of Work Performed
Dec 5, 2021	Work plan for the day included installing electric lines on new wood utility poles from the Lockwood Road overpass moving west along the former Houston Wood Preserving Works site service road. Work was limited, due to mechanical problems with a boom, so no power poles were set. No air knife excavation took place on this day. Soil boring was conducted near the northeast intermodal gate entrance, and boring equipment was staged and moved near the central staging area of the former Houston Wood Preserving Works site.

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	23:59	29.79008	-95.29823	4.1 ug/m3	11.9 ug/m3
AMS-02	IMY East - Sudan and Harlem	06:14	16:10	29.78423	-95.31681	3.2 ug/m3	8.6 ug/m3
AMS-03	IMY SE - Clementine	06:15	16:15	29.78206	-95.31913	3.7 ug/m3	9.5 ug/m3
AMS-04	IMY South - Schweikhardt	06:18	16:20	29.78219	-95.32282	2.9 ug/m3	7.4 ug/m3
AMS-06	HWPW - Erastus	05:26	16:02	29.78761	-95.31662	3.6 ug/m3	9.7 ug/m3
AMS-07	HWPW - Clementine North	06:03	15:51	29.78751	-95.31877	3.1 ug/m3	7.9 ug/m3
AMS-08	HWPW - Solo North	05:57	15:45	29.78741	-95.3212	2.7 ug/m3	6.9 ug/m3
AMS-09	HWPW - Kashmere and Liberty	05:49	15:37	29.78756	-95.32367	2.6 ug/m3	6.2 ug/m3
AMS-10a	HWPW - Eddie and Kashmere	05:43	15:33	29.78637	-95.32373	2.8 ug/m3	7.3 ug/m3
AMS-11	HWPW - Quitman East	05:37	15:27	29.78439	-95.32447	3.4 ug/m3	8.7 ug/m3
AMS-13	IMY South - Waco and Lee	06:19	16:22	29.78213	-95.32514	3.2 ug/m3	8.2 ug/m3

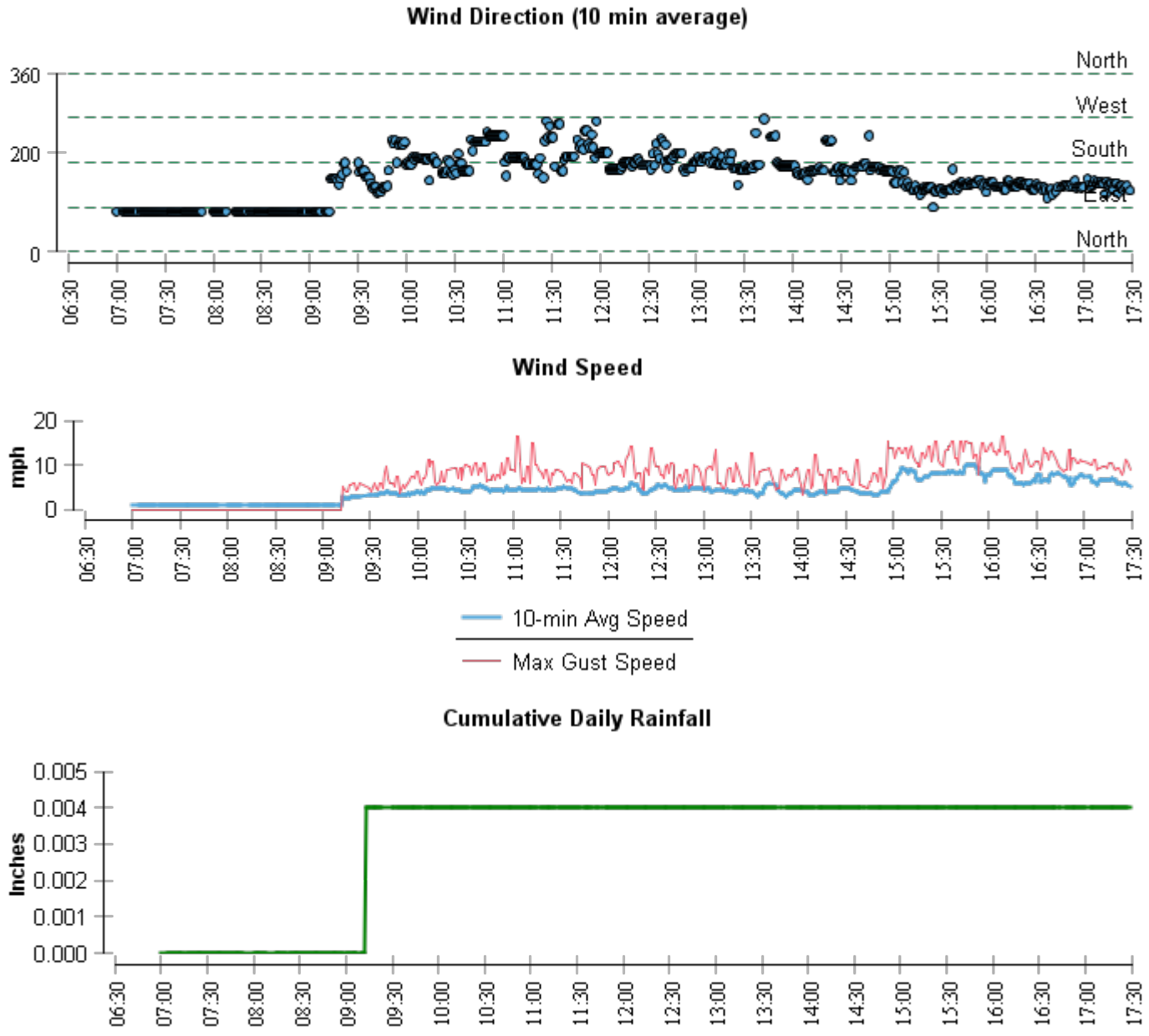
Summary Results of Daily Weather Conditions

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

Note: Site work was not performed on Monday, November 29, and no weather data was collected on this day.

Weather Time History Data

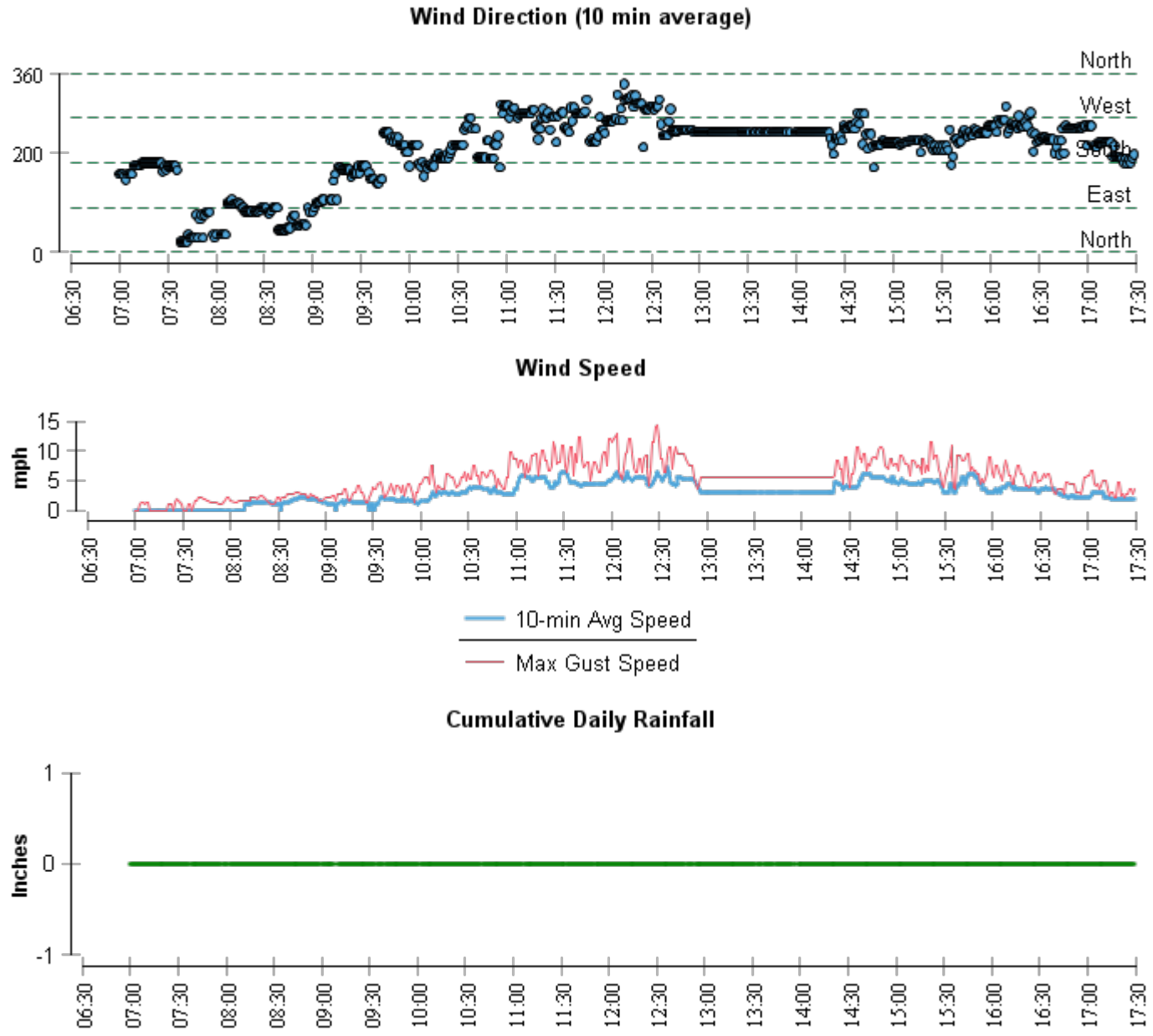
Sample Date **Nov 30, 2021**



Note: Rainfall indicated is result of surface condensation of early morning fog dripping into the rain gauge. No actual rainfall occurred on this day.

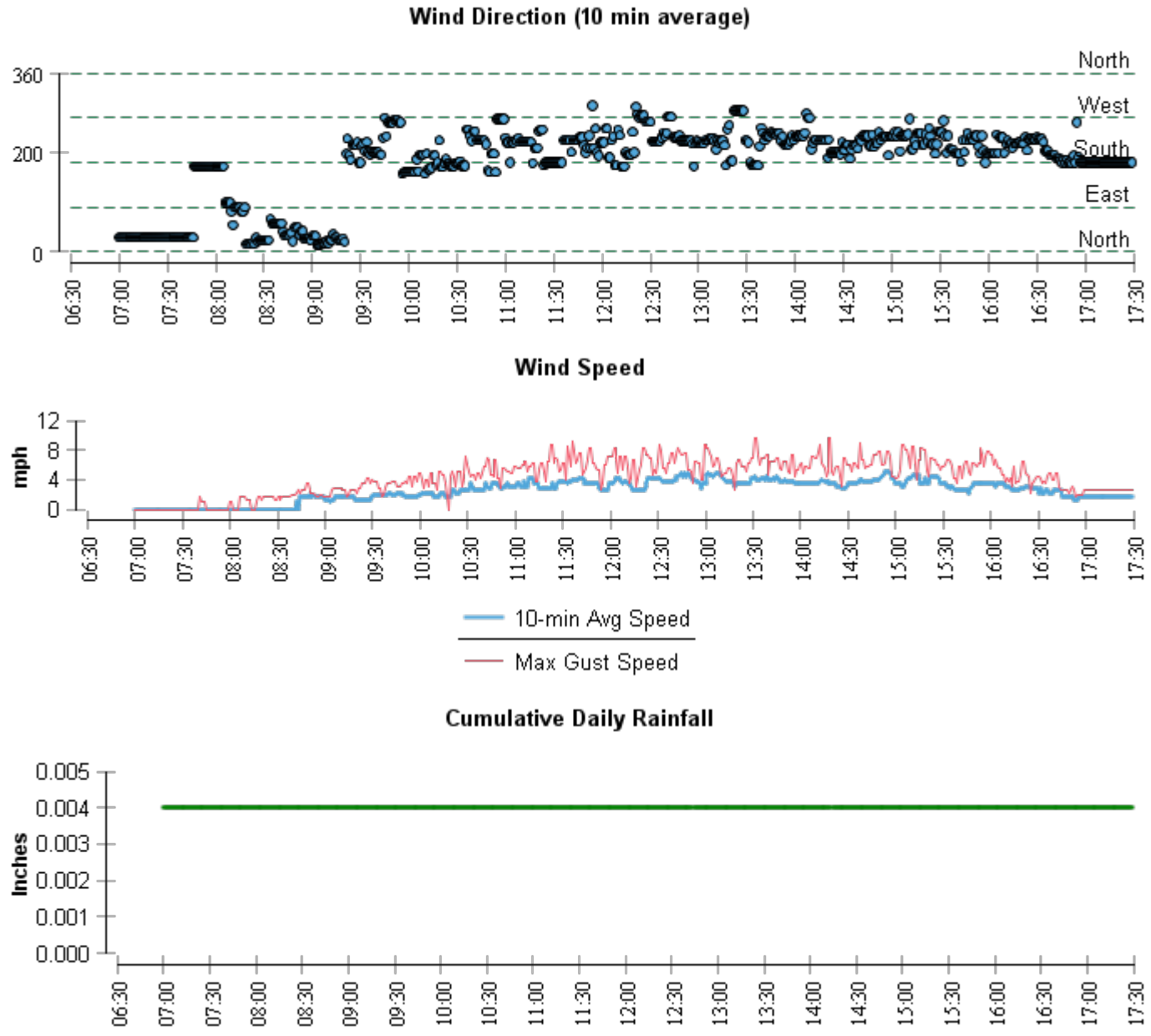
Weather Time History Data

Sample Date **Dec 1, 2021**



Weather Time History Data

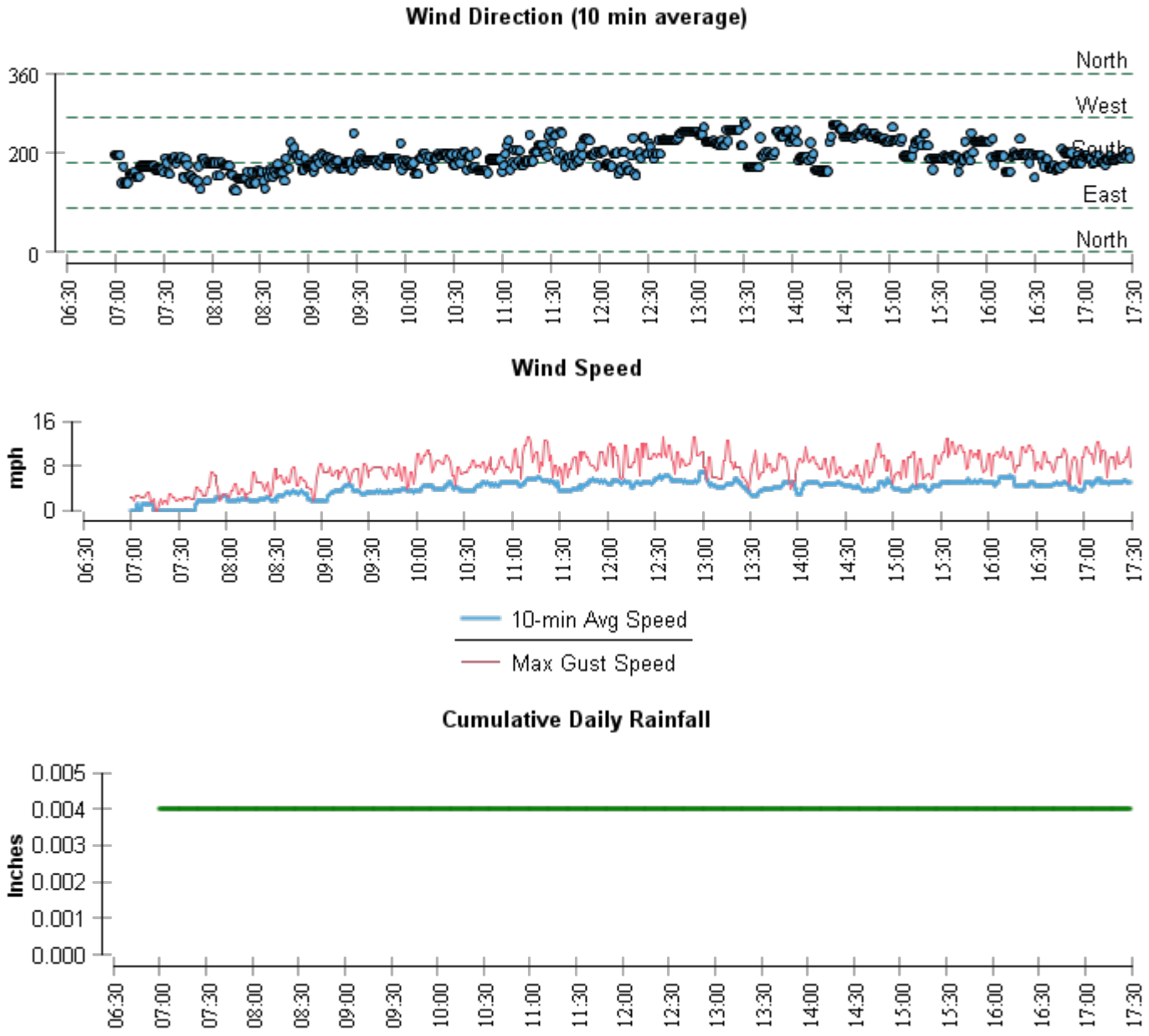
Sample Date **Dec 2, 2021**



Note: Rainfall indicated is result of surface condensation of early morning fog dripping into the rain gauge. No actual rainfall occurred on this day.

Weather Time History Data

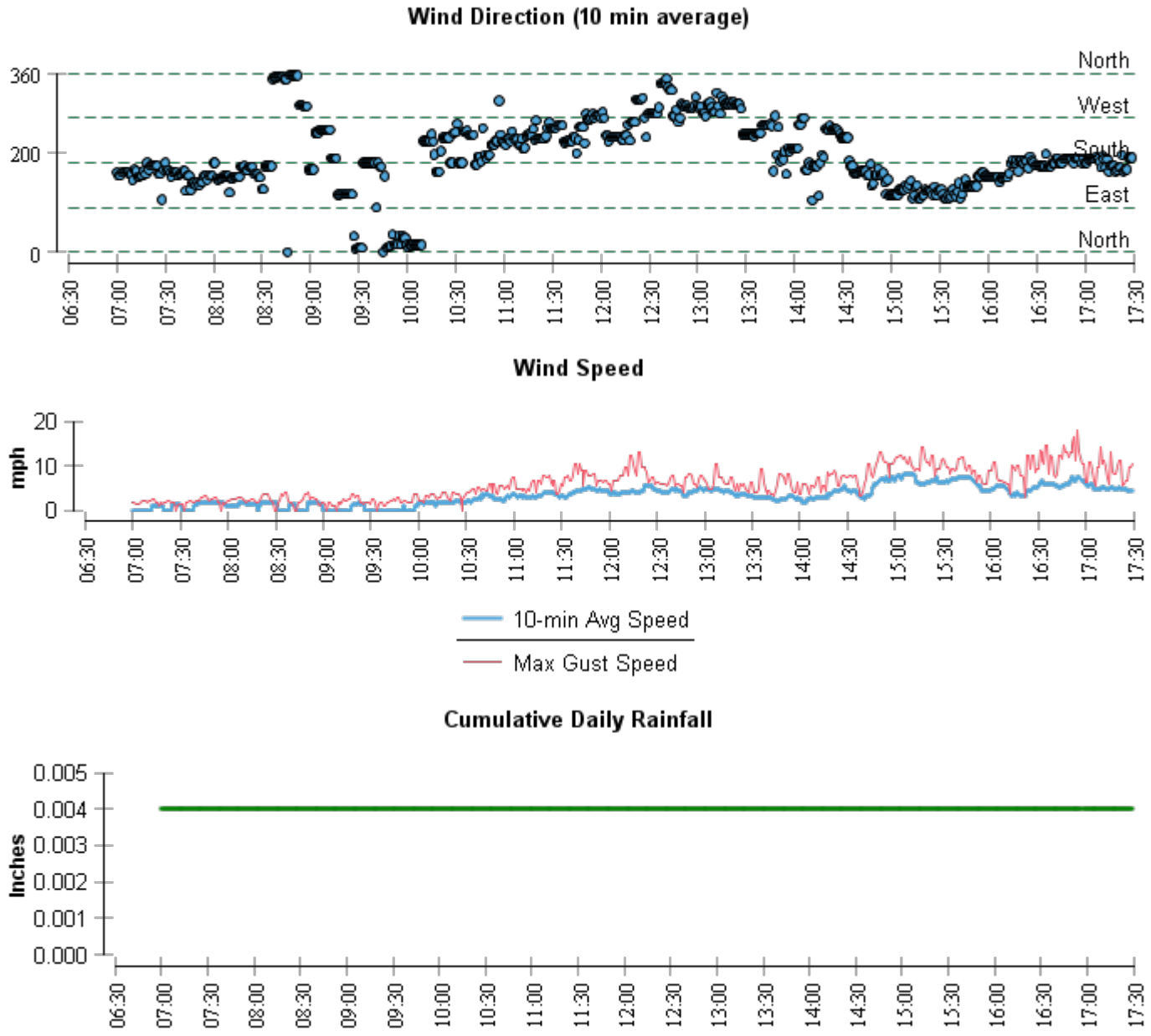
Sample Date **Dec 3, 2021**



Note: Rainfall indicated is result of surface condensation of early morning fog dripping into the rain gauge. No actual rainfall occurred on this day.

Weather Time History Data

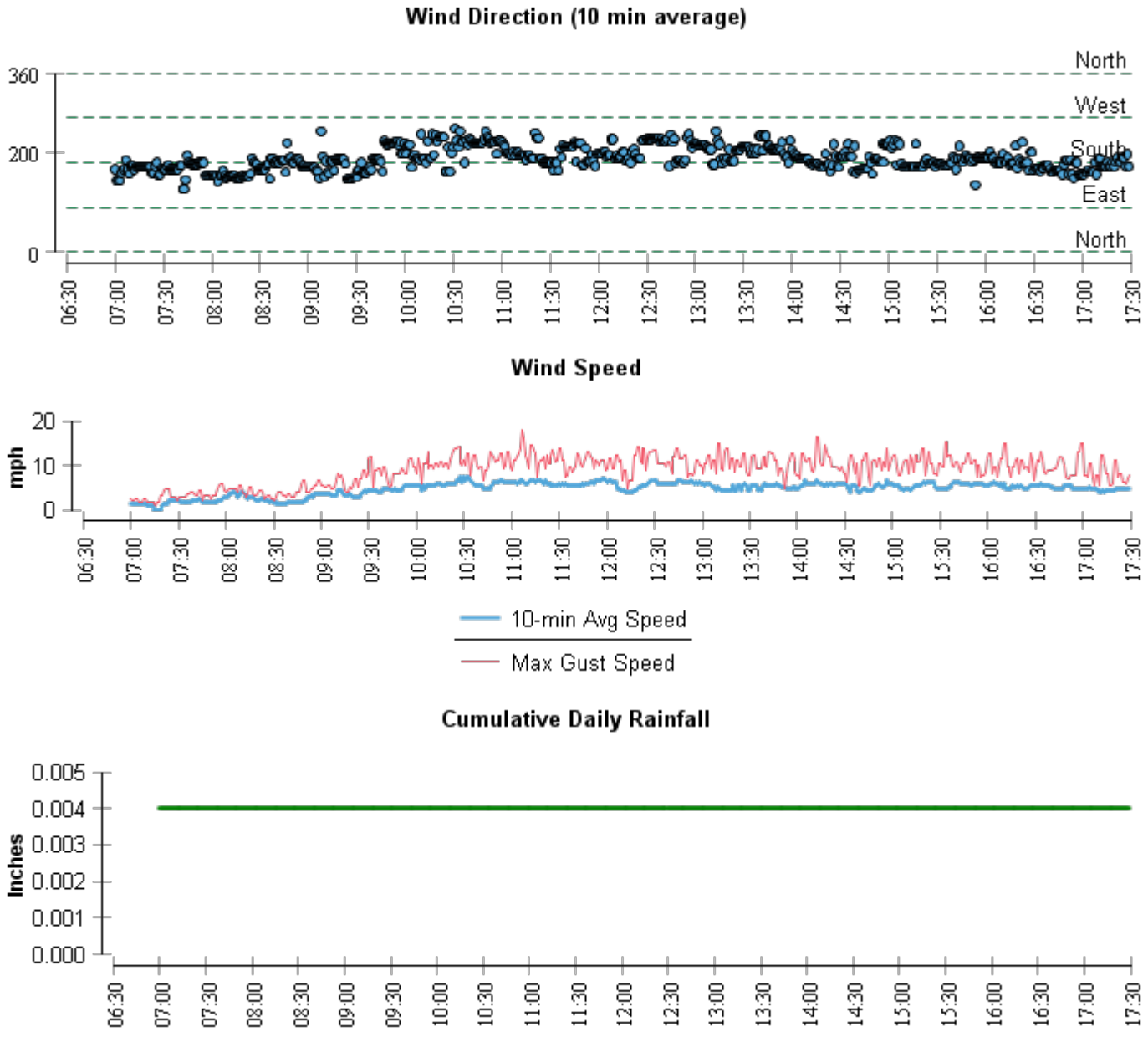
Sample Date **Dec 4, 2021**



Note: Rainfall indicated is result of surface condensation of early morning fog dripping into the rain gauge. No actual rainfall occurred on this day.

Weather Time History Data

Sample Date **Dec 5, 2021**



Note: Rainfall indicated is result of surface condensation of early morning fog dripping into the rain gauge. No actual rainfall occurred on this day.

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 ug/m3 (PM 2.5) or >150 ug/m3 (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 ug/m3 (PM 2.5) or >300 ug/m3 (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.

Items of Note:

- Dense morning fog was present on multiple days during the period covered in this report, resulting in elevated particulate readings at station startup and in the early morning hours, dropping below notice levels as fog burned off after sunrise, typically between 09:00 and 10:00. No site activities were observed during any of these periods which would contribute to the higher readings during these times. Morning elevations in particulate readings were entirely attributable to the heavy fog. Periods of elevated particulate readings due to heavy morning fog are as follows:

    - 11/30/2021 – until 09:49
    - 12/1/2021 – until 09:59 (see following notes regarding elevated readings from smoke from a trash fire on 12/1/2021 that overlapped with this period)
    - 12/2/2021 – until 09:53 (see following notes regarding elevated readings from a wide-area haze/smoke event on 12/2/2021 that overlapped with this period)

- On December 1, 2021, dense early morning fog was present, creating elevated readings at all stations. Around 08:15 – 08:20, an additional rise in PM 2.5 and PM 10 particulate readings began, impacting all stations. An odor of smoke was noted, and a visible haze was present across the entire work site. Site activities were checked and no site activities were being performed that generated significant visible dust. Visual observation of the haze showed it appeared heaviest north of Liberty Road, near the Lockwood overpass. Further investigation found the source of the haze and odor was a neighborhood trash fire burning one block northeast of Liberty Road and the Lockwood overpass (trash fire visually confirmed by hygienist conducting the air monitoring). Particulate levels peaked between 08:23 - 09:26, with stations along the northeast perimeter of the former Houston Wood Preserving Works site (AMS-06, AMS-07 and AMS-08), Liberty Road at the Lockwood overpass (AMS-12) and the Englewood Yard Office (AMS-01) reaching take-action levels. Particulate levels briefly reached stop-work levels at AMS-01 (Englewood Yard Office, 08:39 – 08:49). No additional dust control measures were implemented and work was not stopped, as observations clearly indicated that site construction activities were not the source of the elevated particulate readings (consistent with protocols outlined in the TCEQ-approved dust control plan for the site). Smoke haze and elevated particulate readings at stations had dissipated and particulate concentrations at all stations dropped below notice levels by approximately 10:00.

- On December 1, 2021, station AMS-05a, located at the southwest corner of the intermodal yard near Lee and Waco, experienced network communication problems that could not be resolved and no particulate monitoring data was collected for this location on this day. Unit AMS-05a was replaced with another air monitoring station on subsequent days.

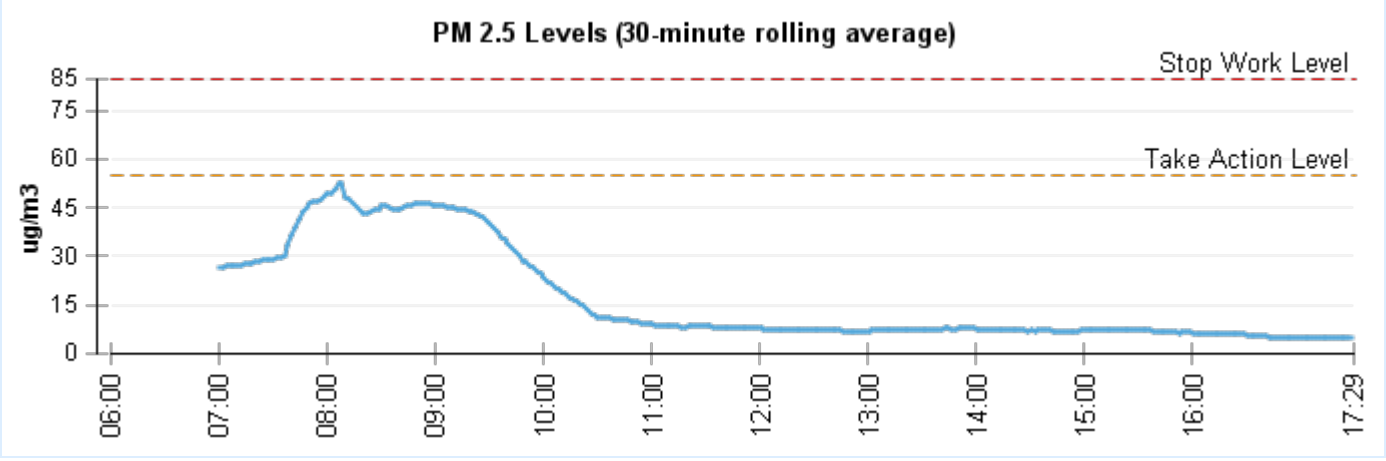
- On December 2, 2021, elevated particulate readings at all stations were present at station startup. After sunrise and some dissipation of morning fog, a visible haze was noted throughout the site and surrounding area. Review of regulatory air monitoring data from TCEQ air monitoring station Houston North Wayside C405/C1033 indicated elevated particulate patterns similar to those observed in the site area earlier that morning, confirming the wide-spread nature of the atmospheric event. Source(s) of the haze could not be specifically determined but appear likely to have been associated with residual smoke from a large trash fire at a recycling plant that occurred around 19:00 on the previous night (December 1) near the 6900 Block of North Eldridge in Houston, about 20 miles northwest of the site. Visual observations of the haze moving from the downtown area would be consistent with this source. Particulate levels did not reach take-action thresholds at any stations. By 09:53, particulate levels at all stations were reporting levels below the notice levels for PM 2.5 and PM 10 particulates. Site activities were not generating significant visible dust and were not the source of the elevated particulate concentrations during this period.

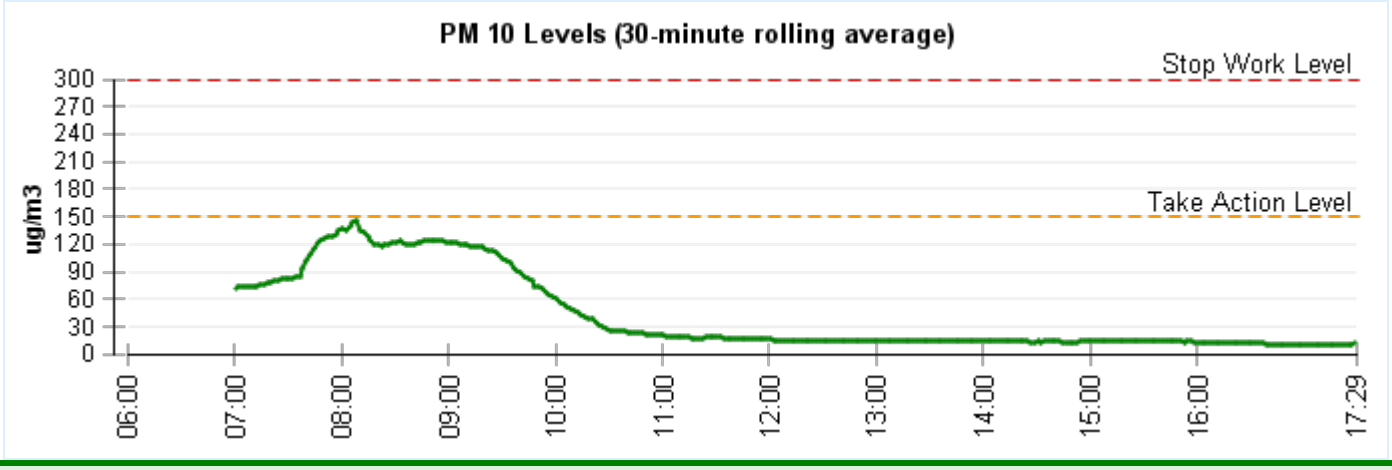
- On December 2, 2021, deployment of station AMS-11, on the southwest side of the former Houston Wood Preserving Works site, near Quitman Street, was delayed. An occupied homeless camp was found established in the station location overnight, and station deployment was delayed until the homeless camp was cleared by local law enforcement. AMS-11 was not deployed until approximately 09:35.

Note: Site work was not performed on Monday, November 29, and no weather data was collected on this day.

PM 2.5 and PM 10 Time History Data

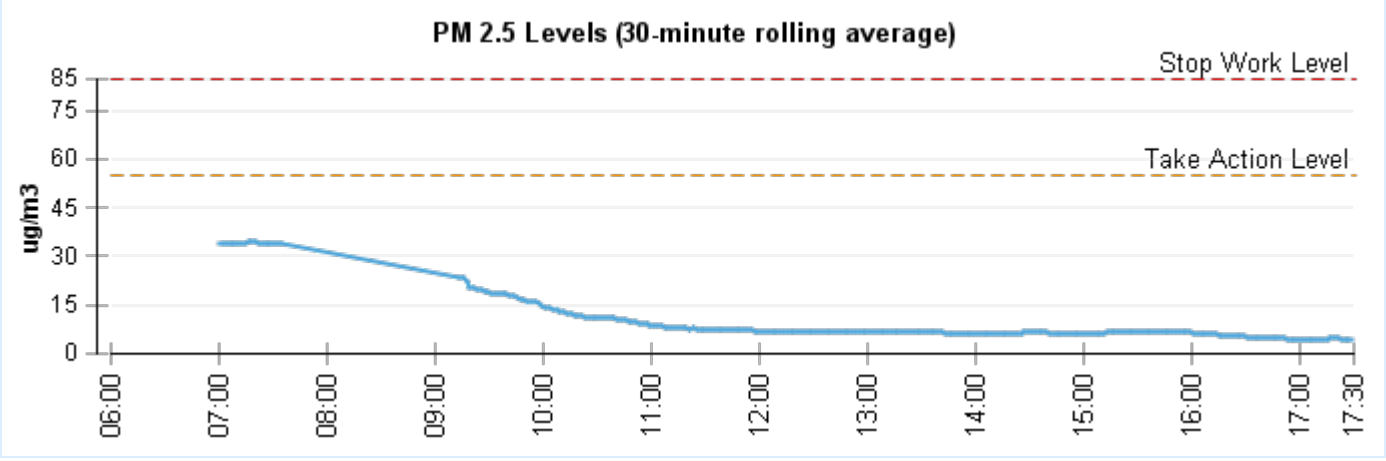
Sample Date	Nov 30, 2021
Station ID AMS-01	**Location Description** 29.79008, -95.29822 - Yard Office

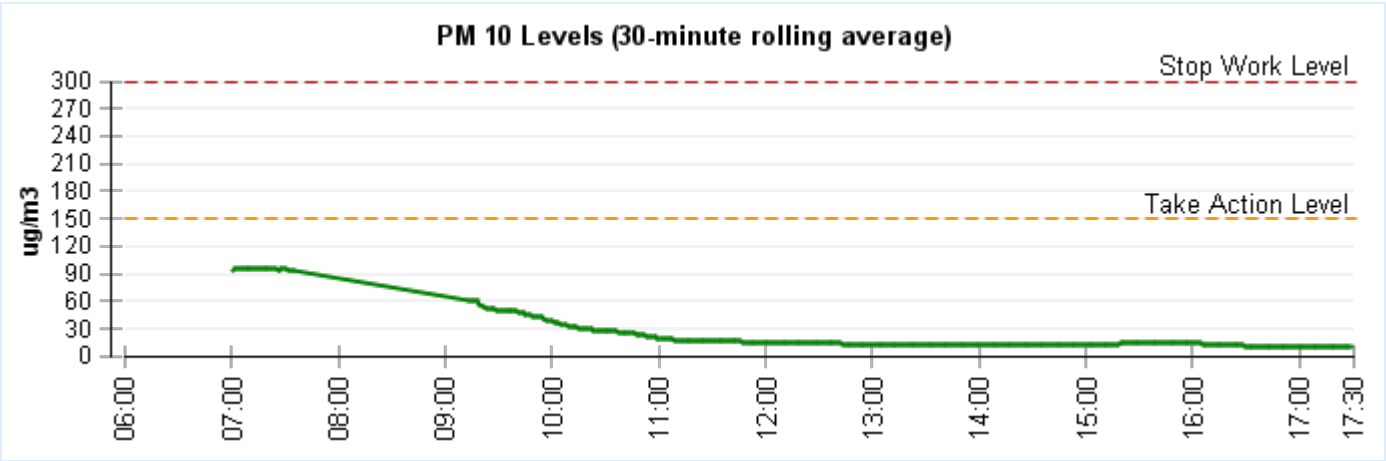




PM 2.5 and PM 10 Time History Data

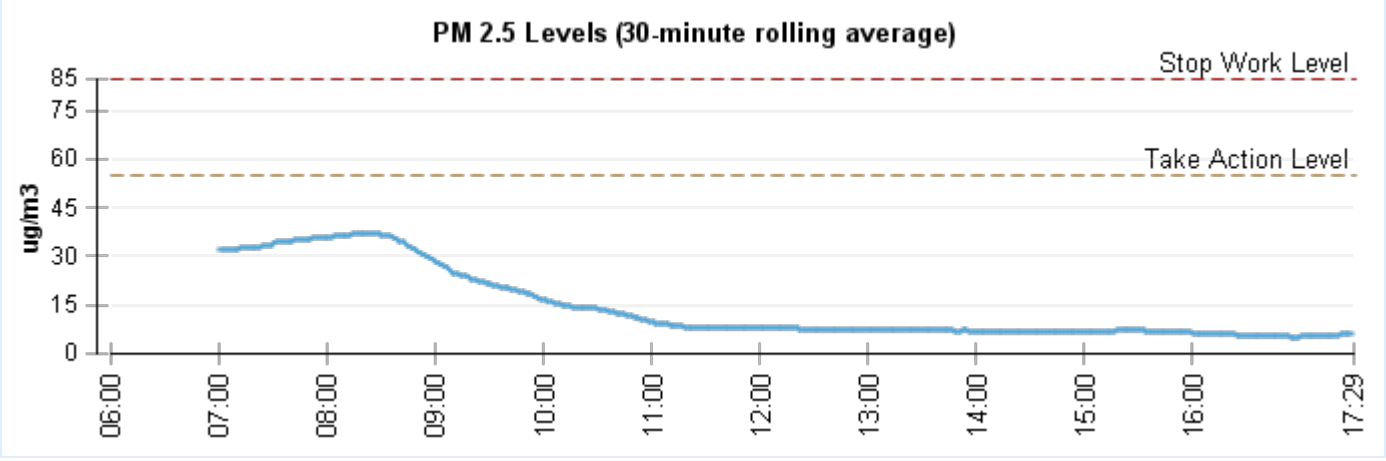
Sample Date	Nov 30, 2021
Station ID AMS-02	**Location Description** 29.7842, -95.31684 - IMY East - Sudan and Harlem

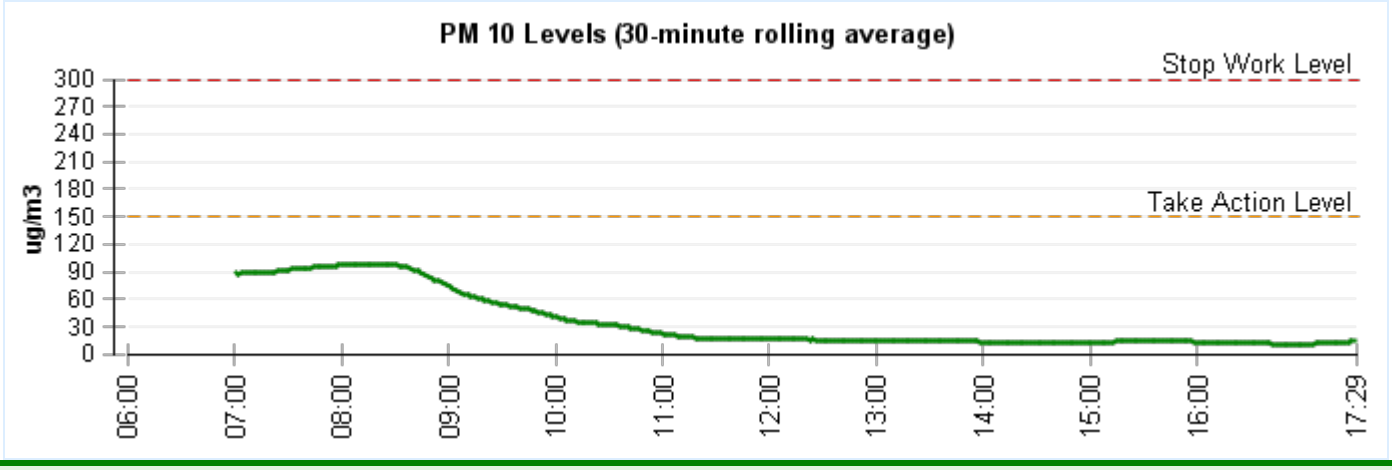




PM 2.5 and PM 10 Time History Data

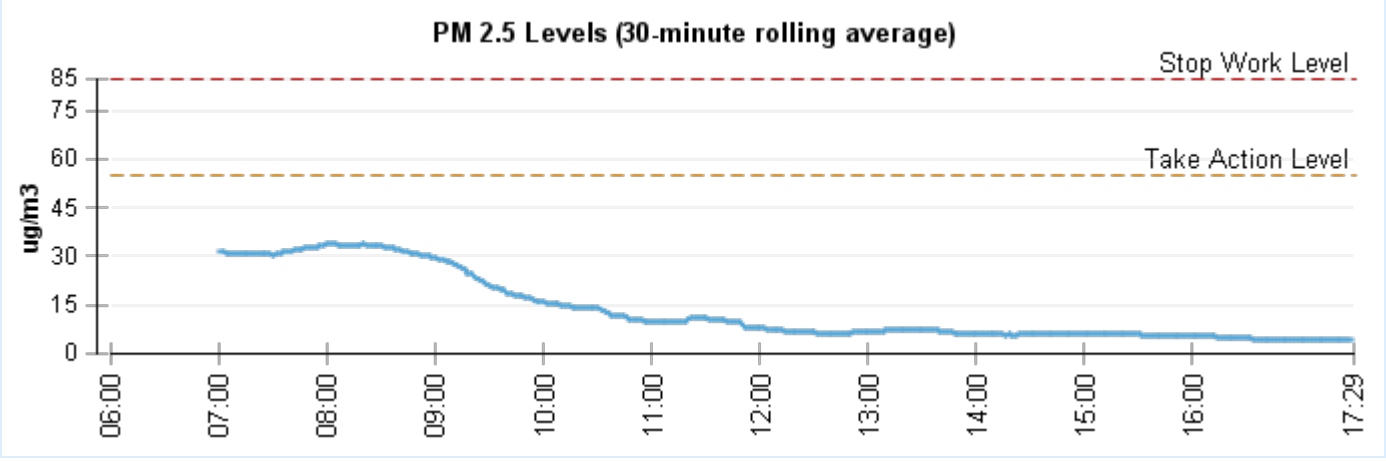
Sample Date	Nov 30, 2021
Station ID AMS-03	**Location Description** 29.78208, -95.31913 - IMY SE - Clementine

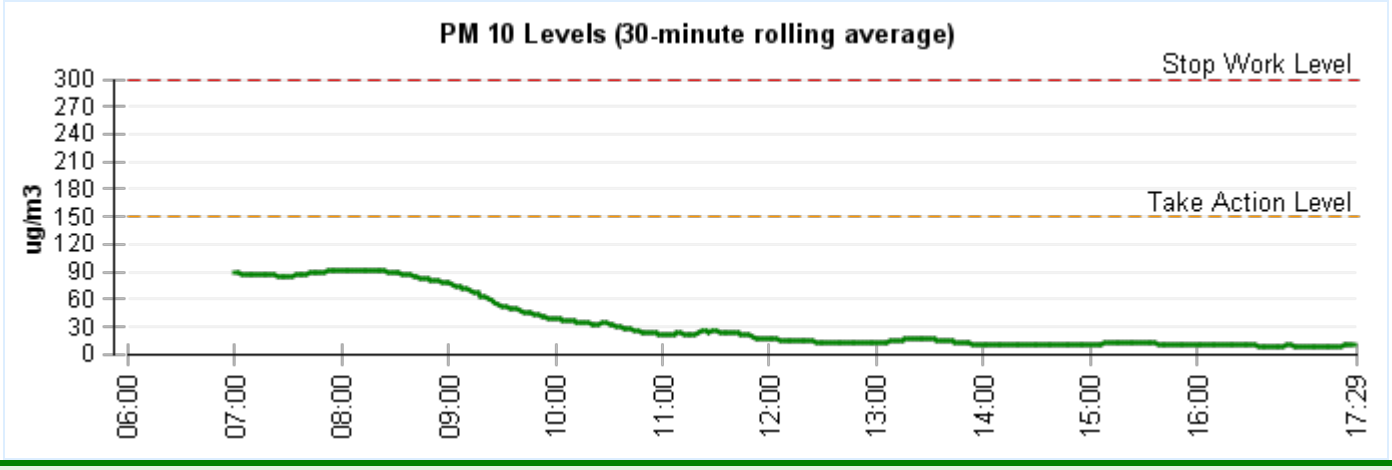




PM 2.5 and PM 10 Time History Data

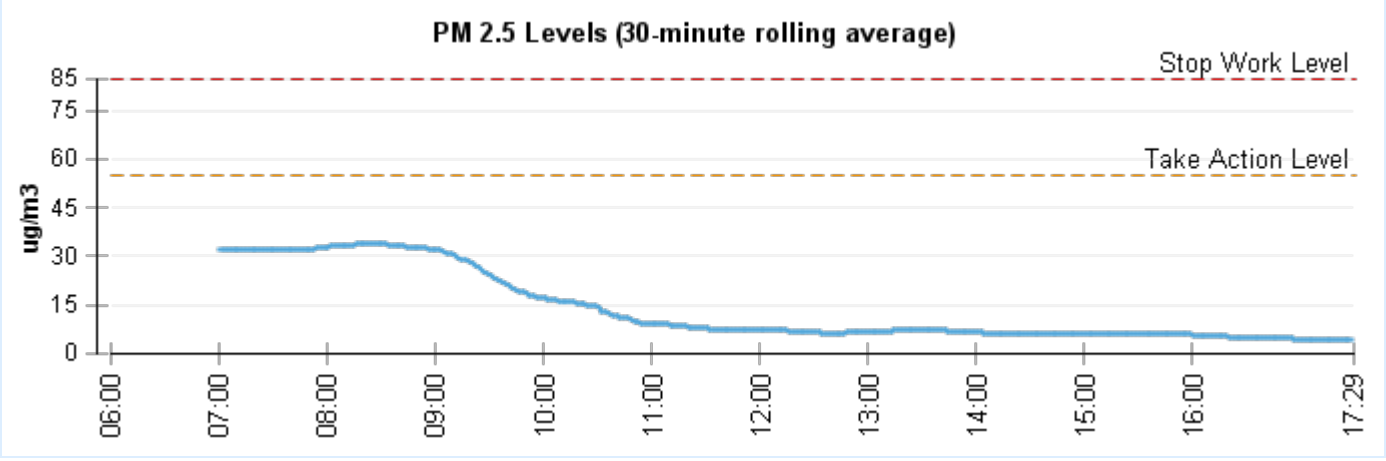
Sample Date	Nov 30, 2021
Station ID AMS-04	**Location Description** 29.7822, -95.32282 - IMY South - Schweikhardt

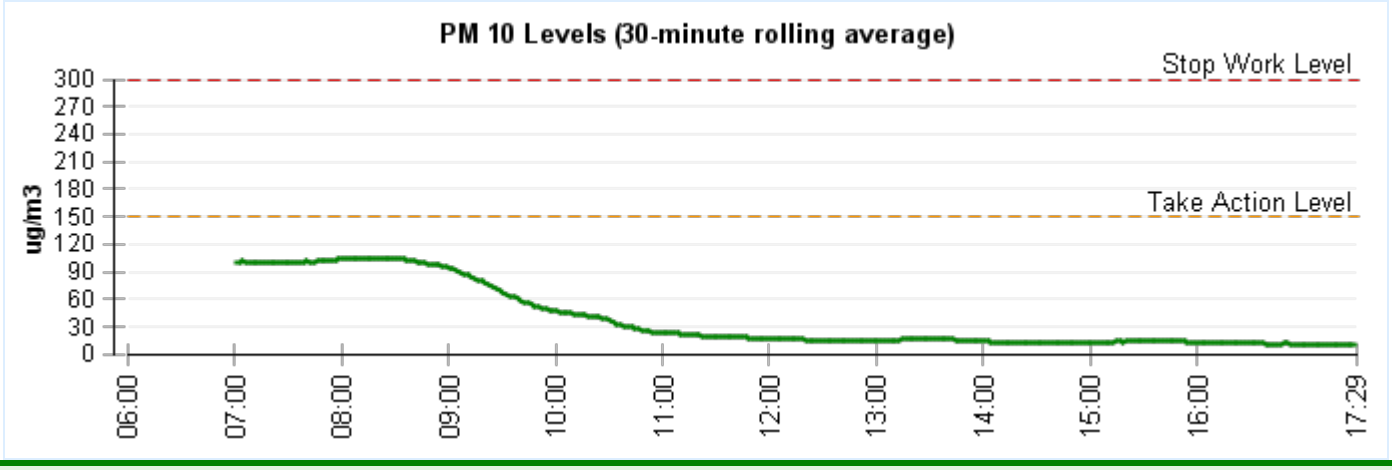




PM 2.5 and PM 10 Time History Data

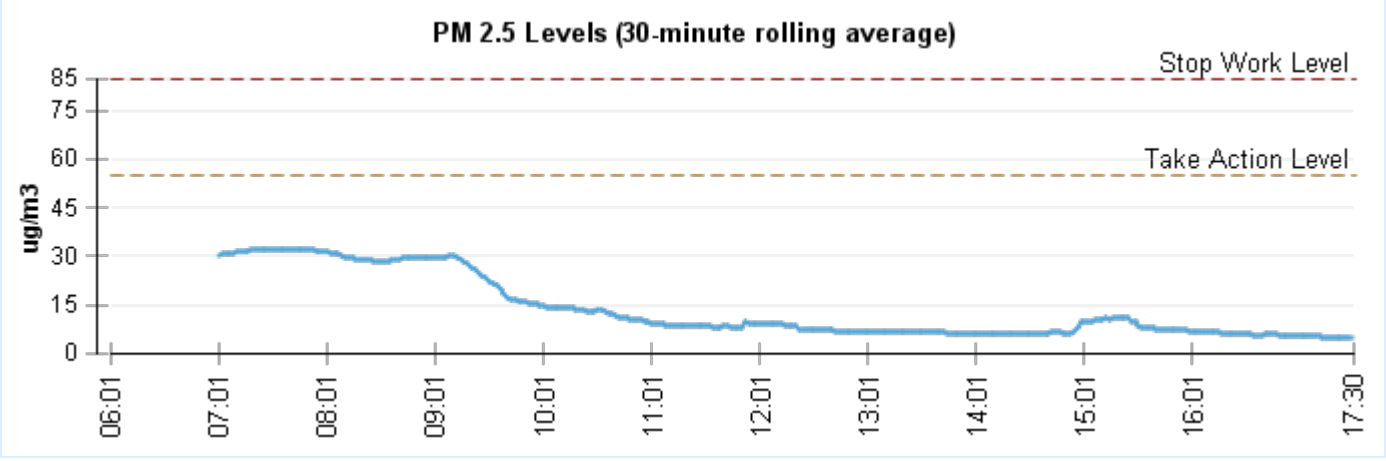
Sample Date	Nov 30, 2021
Station ID AMS-05a	**Location Description** 29.78223, -95.32514 - IMY South - Waco and Lee

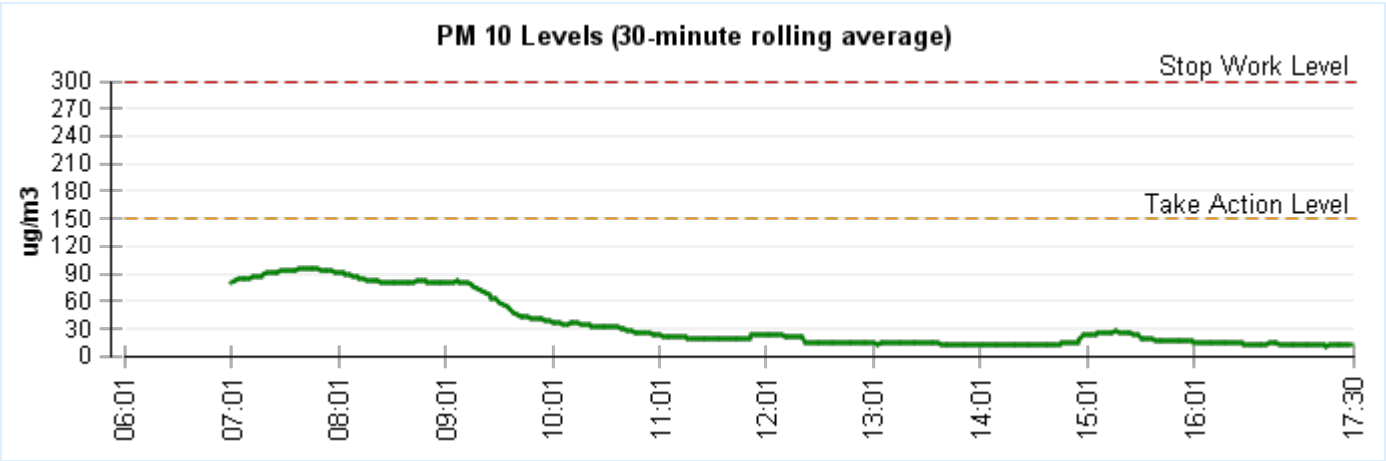




PM 2.5 and PM 10 Time History Data

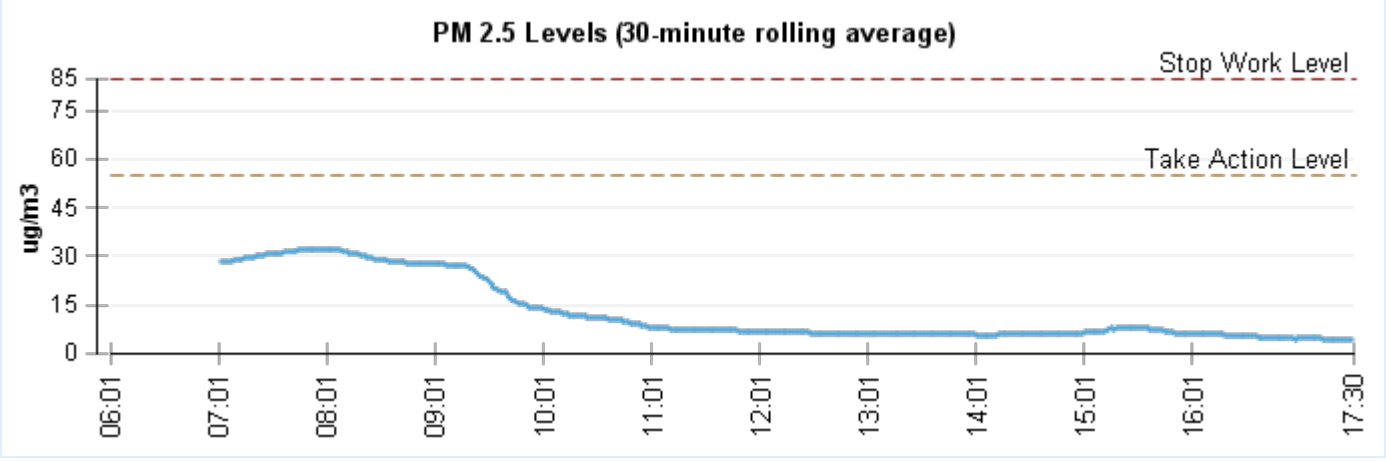
Sample Date	Nov 30, 2021
Station ID AMS-06	**Location Description** 29.78759, -95.31688 - HWPW - Erastus

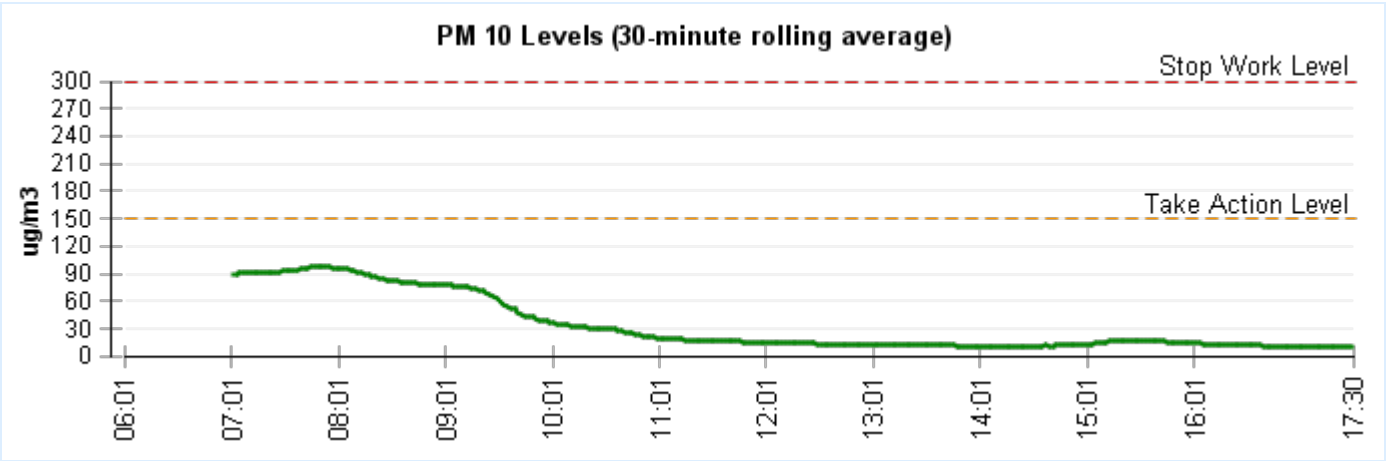




PM 2.5 and PM 10 Time History Data

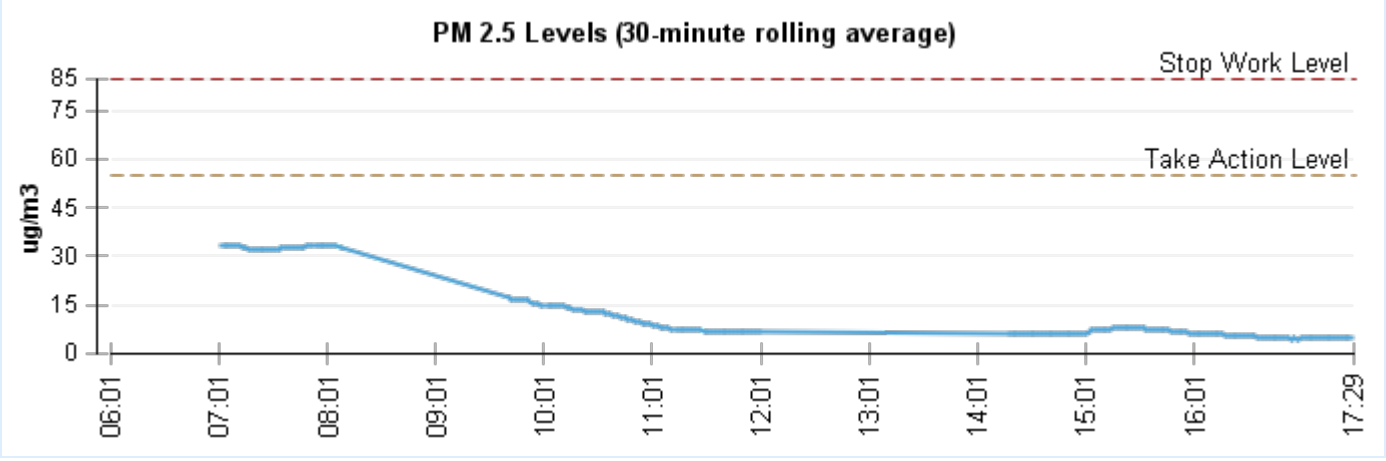
Sample Date	Nov 30, 2021
Station ID AMS-07	**Location Description** 29.78749, -95.31901 - HWPW - Clementine North

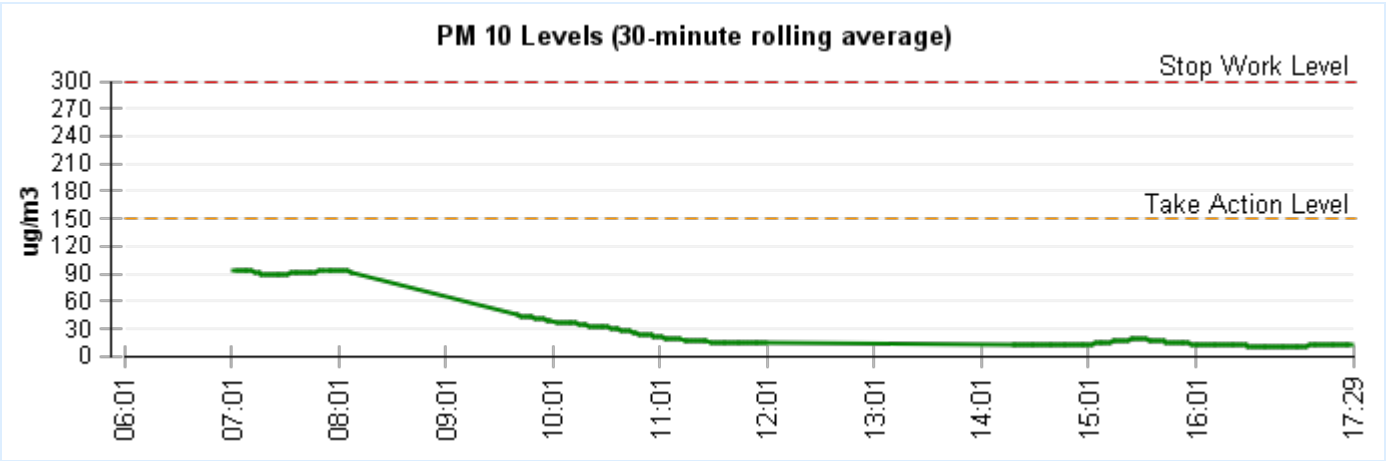




PM 2.5 and PM 10 Time History Data

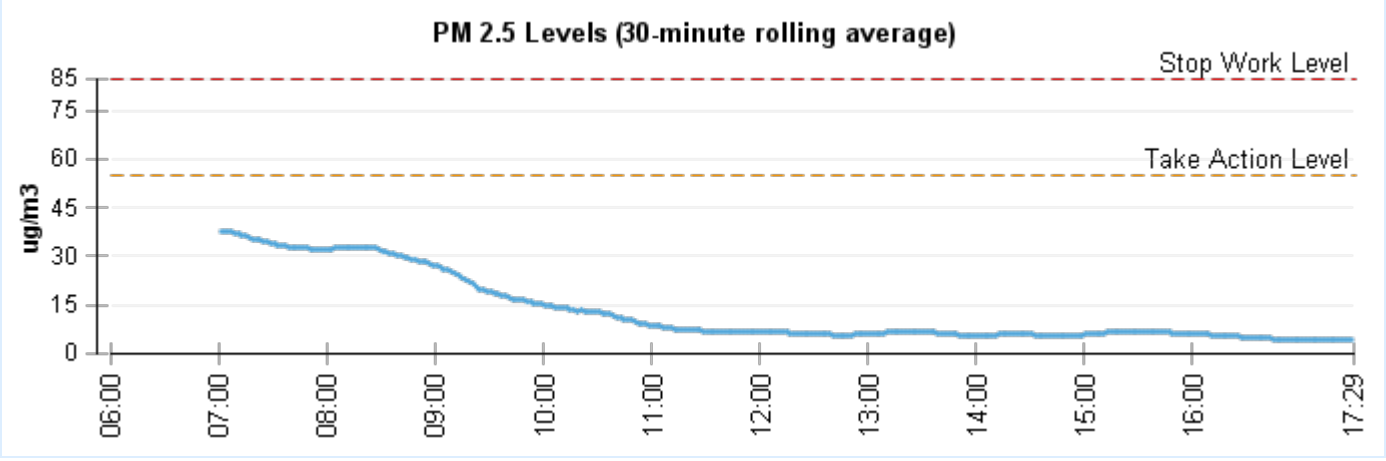
Sample Date	Nov 30, 2021
Station ID AMS-08	**Location Description** 29.78746, -95.32116 - HWPW - Solo North

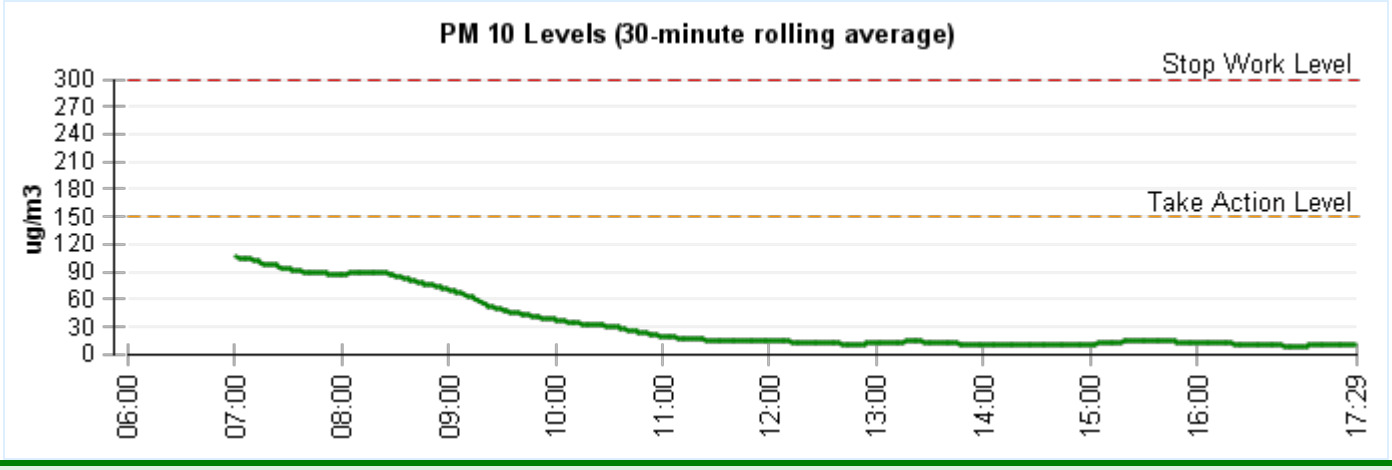




PM 2.5 and PM 10 Time History Data

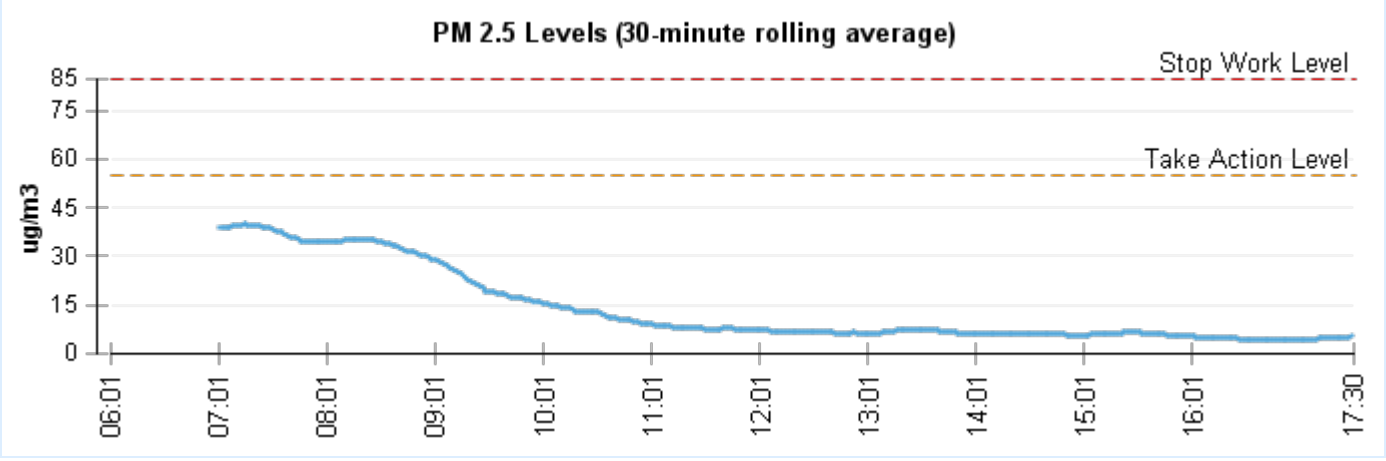
Sample Date	Nov 30, 2021
Station ID AMS-09	**Location Description** 29.78757, -95.32357 - HWPW - Kashmere and Liberty

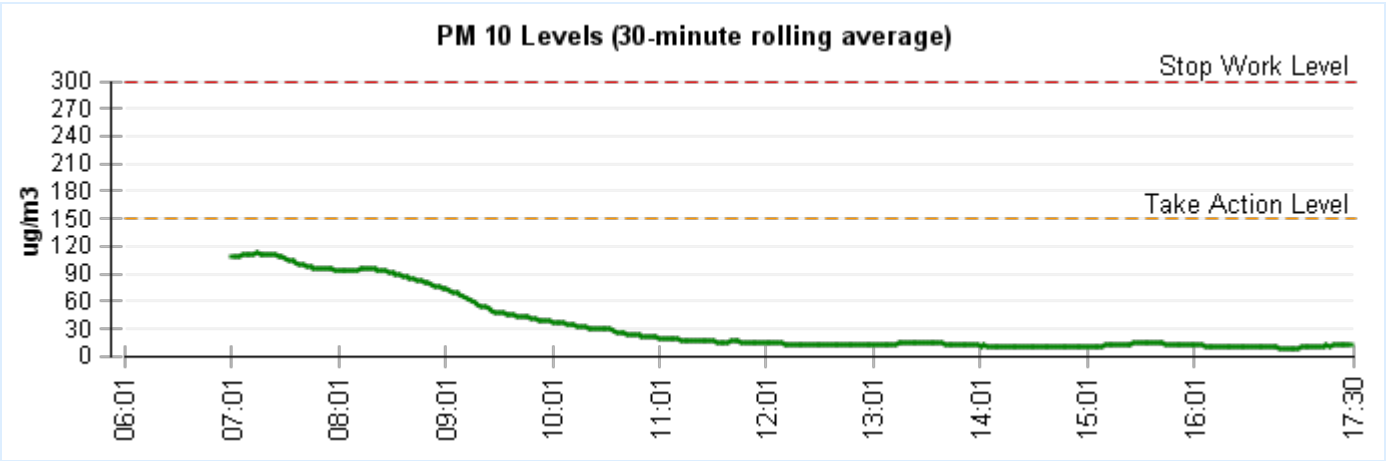




PM 2.5 and PM 10 Time History Data

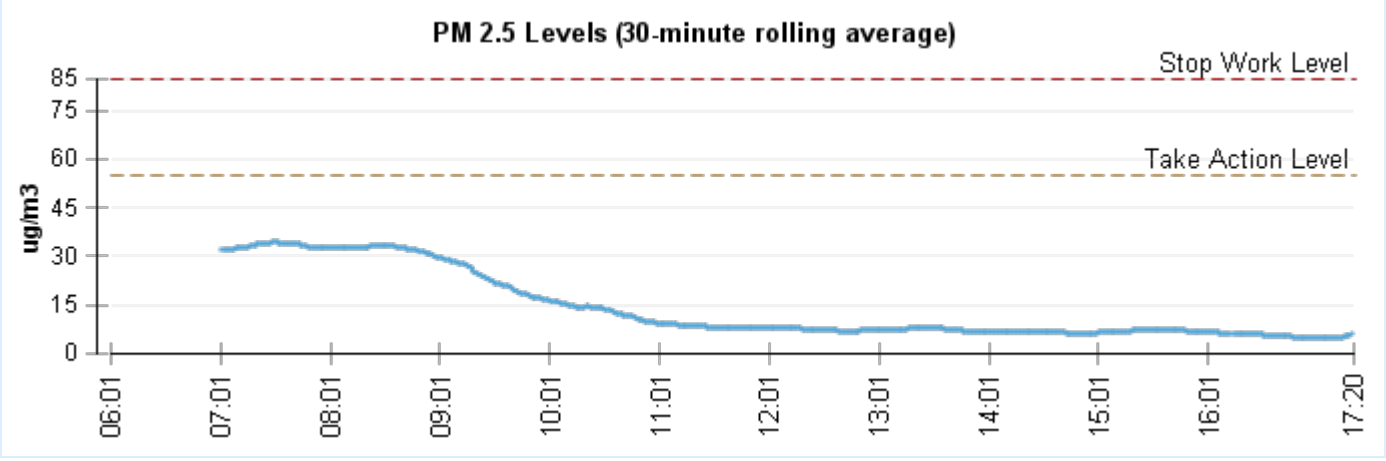
Sample Date	Nov 30, 2021
Station ID AMS-10a	**Location Description** 29.78628, -95.32378 - HWPW - Eddie and Kashmere

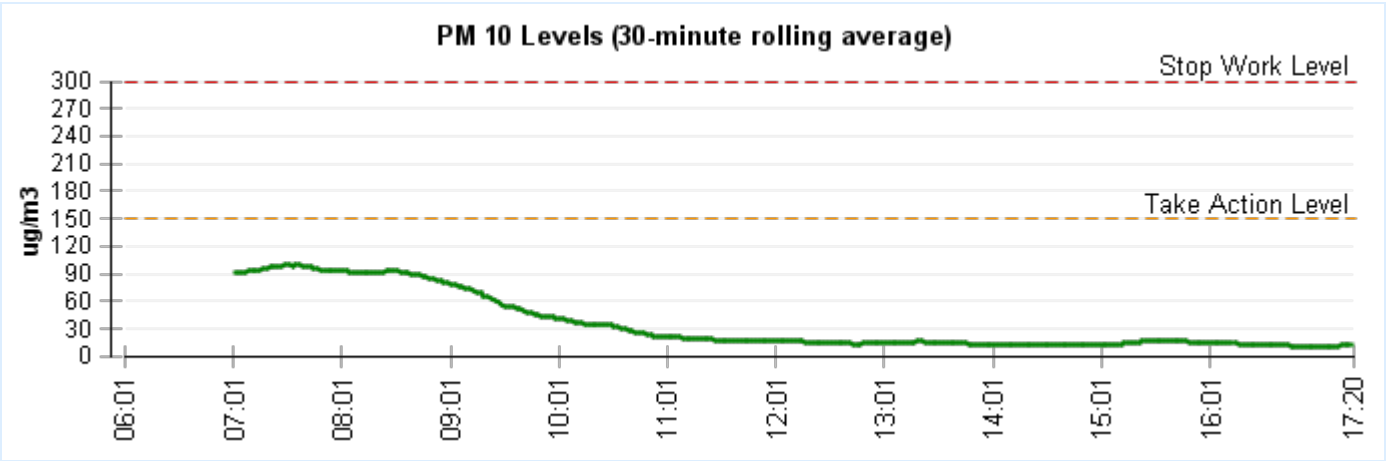




PM 2.5 and PM 10 Time History Data

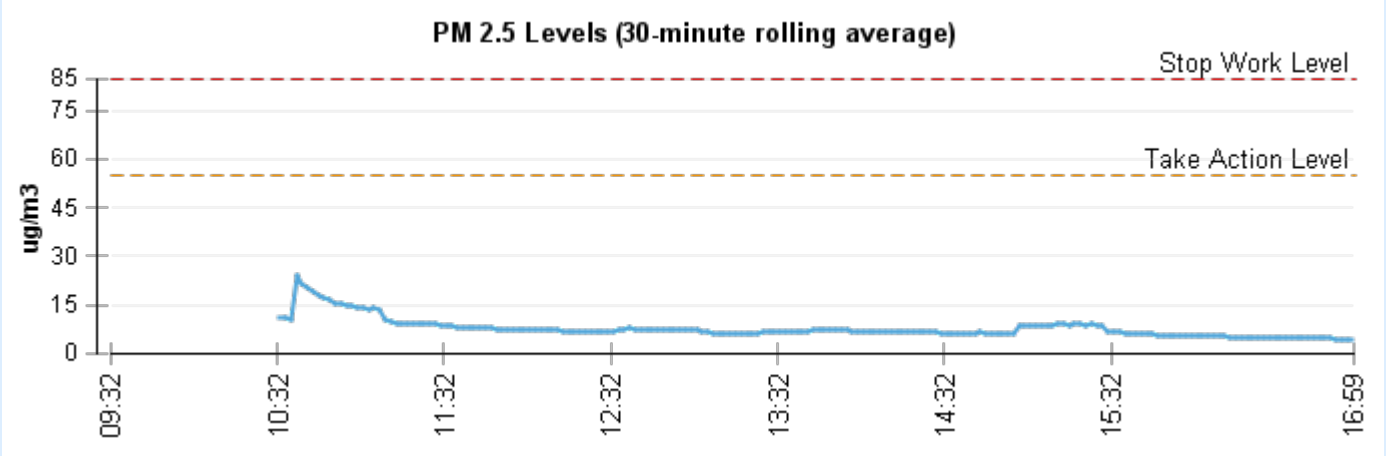
Sample Date	Nov 30, 2021
Station ID AMS-11	**Location Description** 29.78435, -95.3246 - HWPW - Quitman East

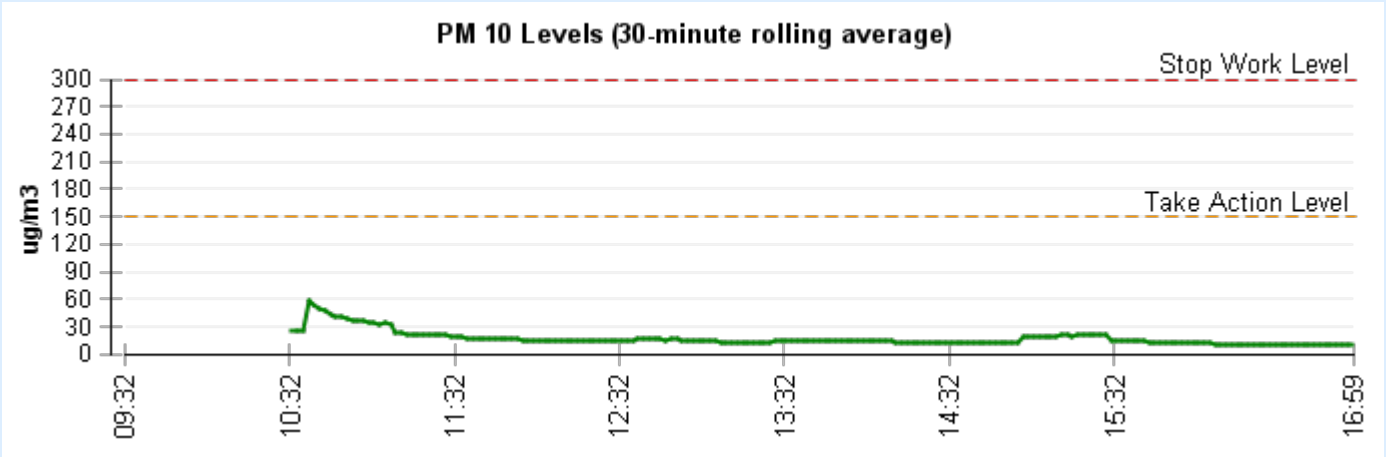




PM 2.5 and PM 10 Time History Data

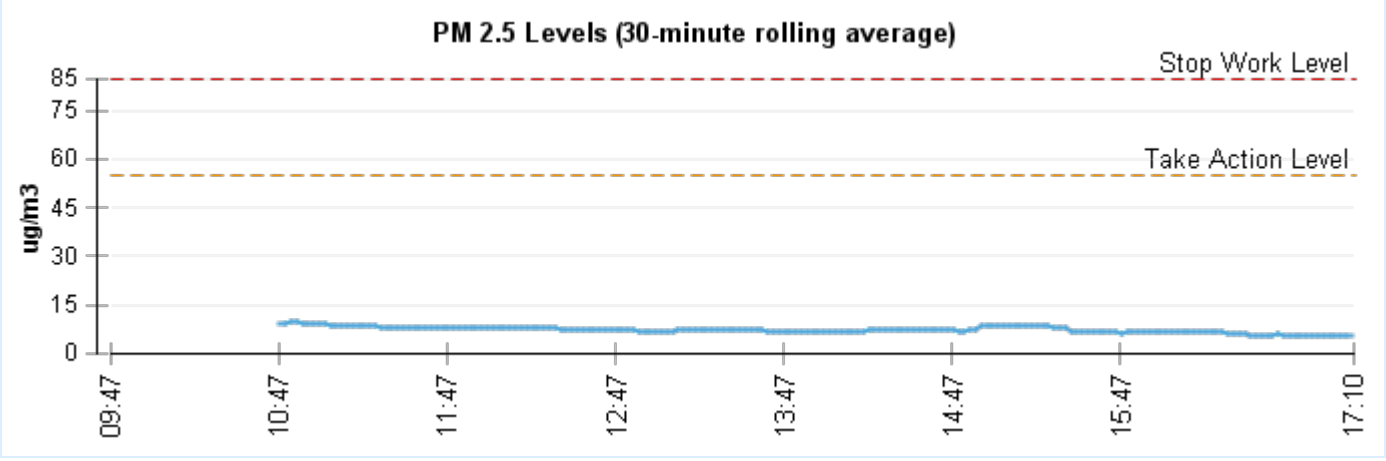
Sample Date	Nov 30, 2021
Station ID AMS-12	**Location Description** 29.78937, -95.3123 - Liberty - Rupert

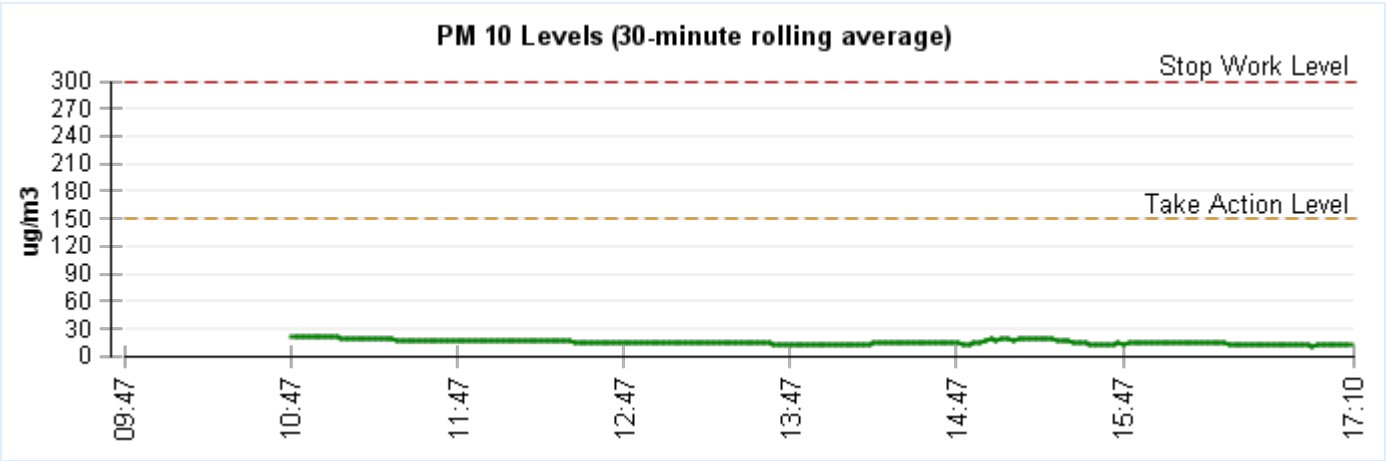




PM 2.5 and PM 10 Time History Data

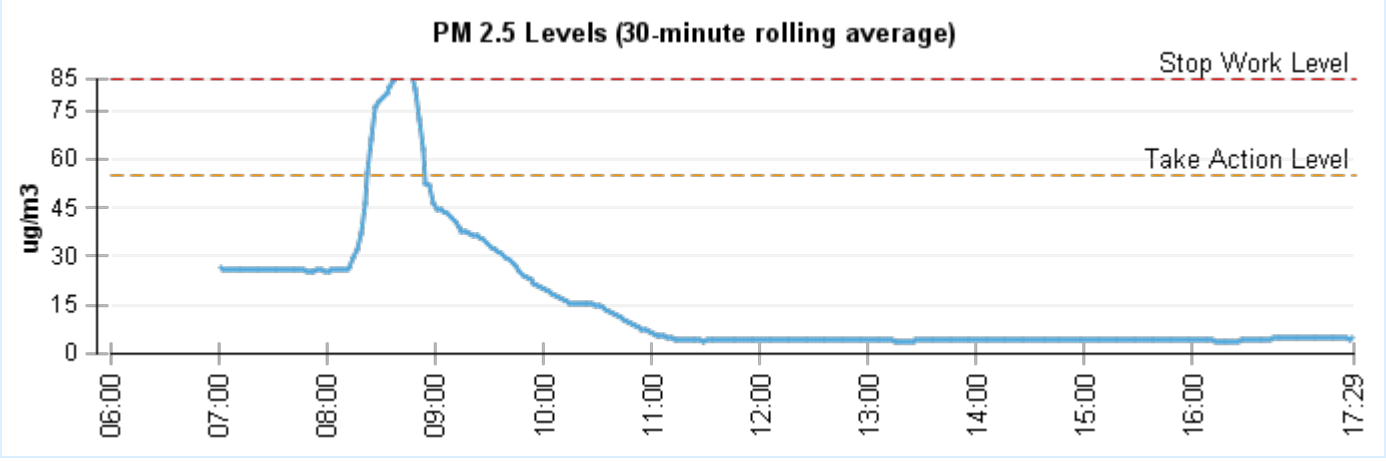
Sample Date	Nov 30, 2021
Station ID AMS-13	**Location Description** 29.78973, -95.3115 - Liberty - Easy

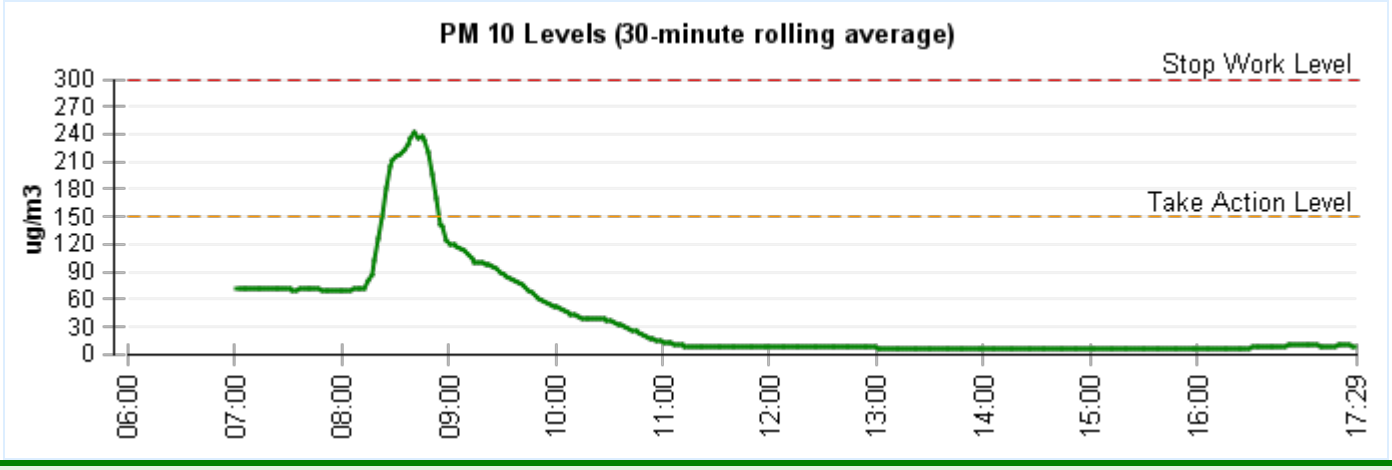




PM 2.5 and PM 10 Time History Data

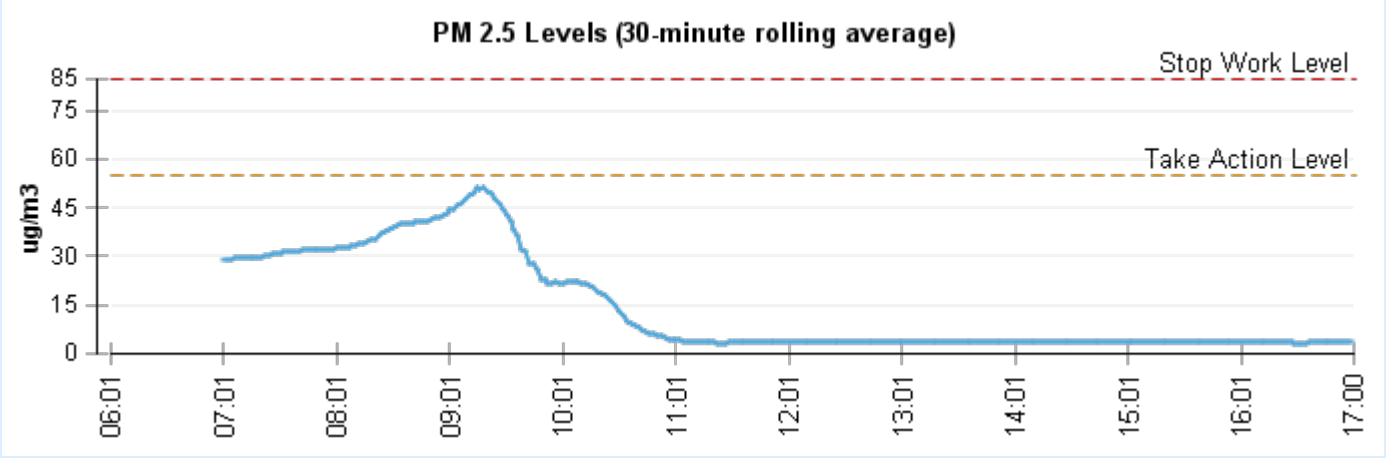
Sample Date	Dec 1, 2021
Station ID AMS-01	**Location Description** 29.79003, -95.29827 - Yard Office

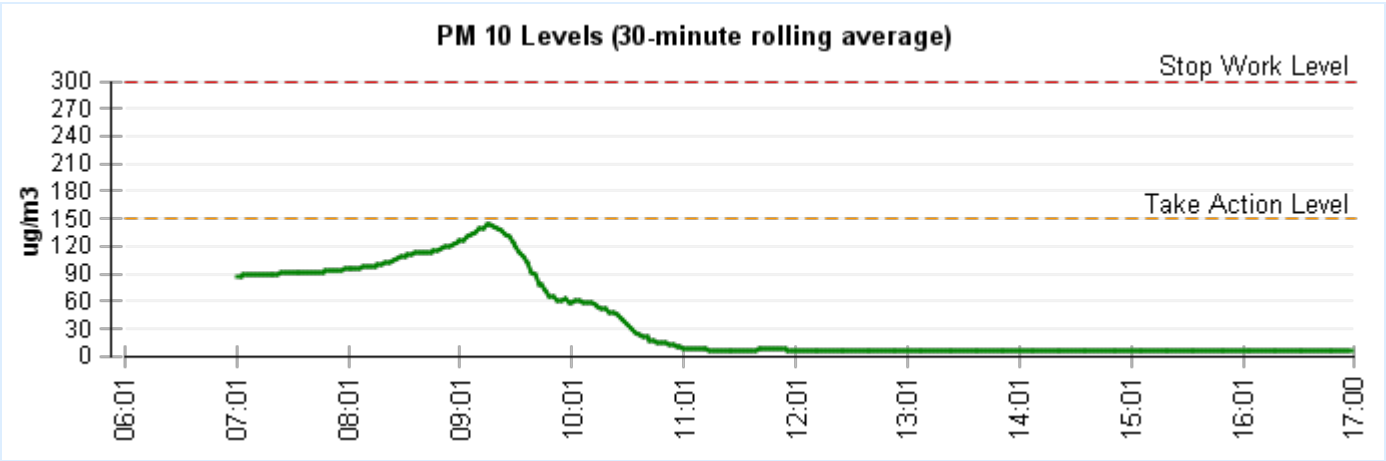




PM 2.5 and PM 10 Time History Data

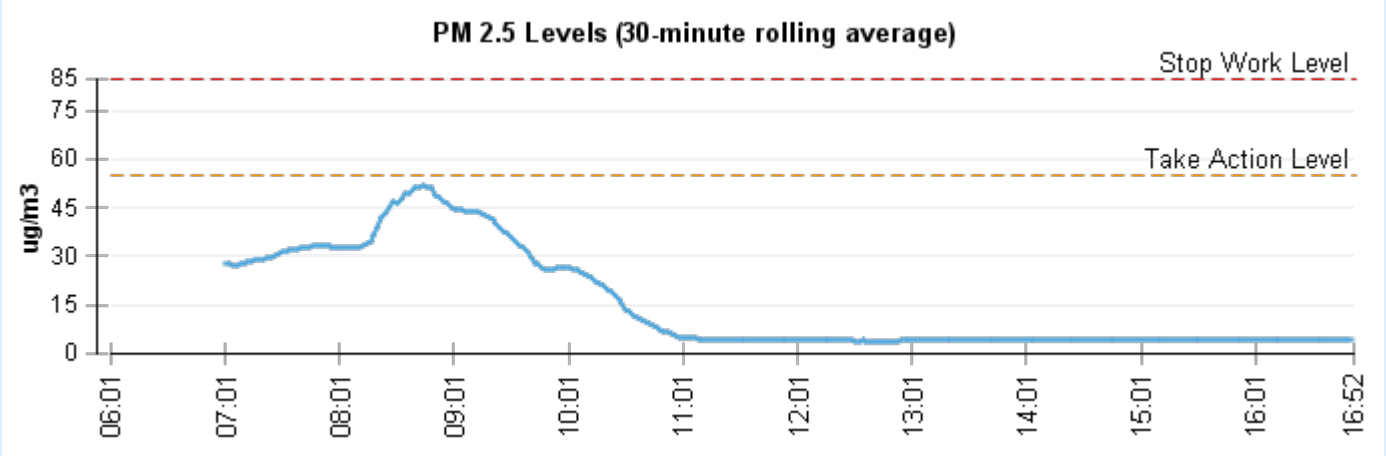
Sample Date	Dec 1, 2021
Station ID AMS-02	**Location Description** 29.7842, -95.31684 - IMY East - Sudan and Harlem

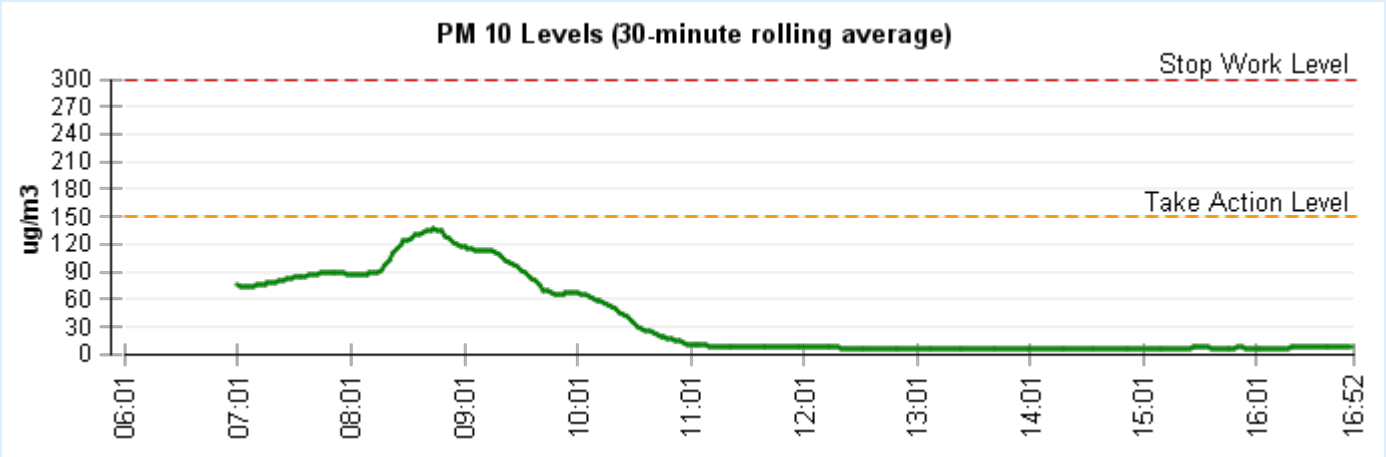




PM 2.5 and PM 10 Time History Data

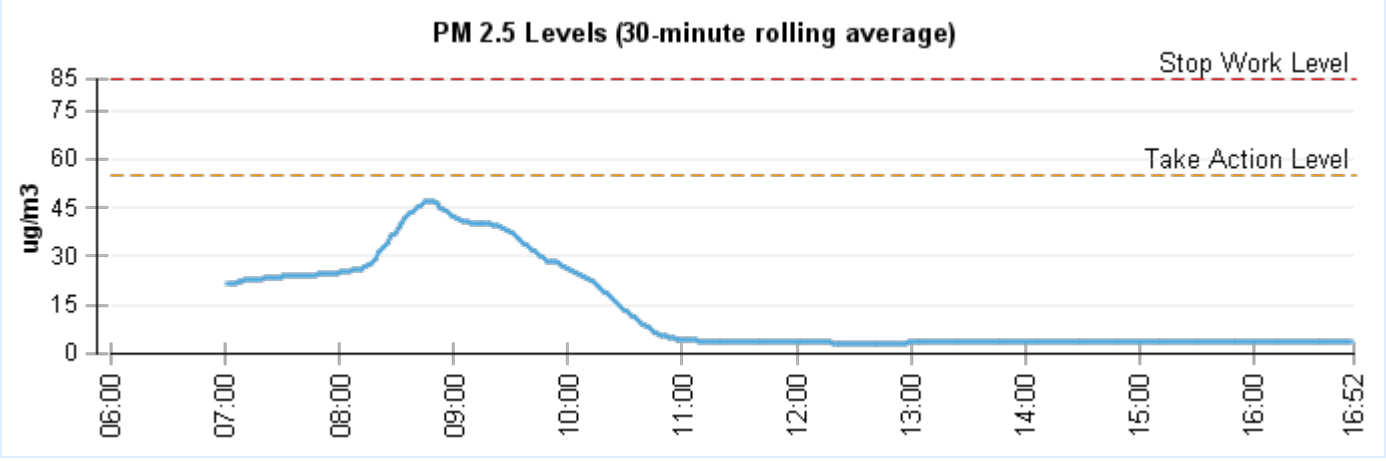
Sample Date	Dec 1, 2021
Station ID AMS-03	**Location Description** 29.78208, -95.31913 - IMY SE - Clementine

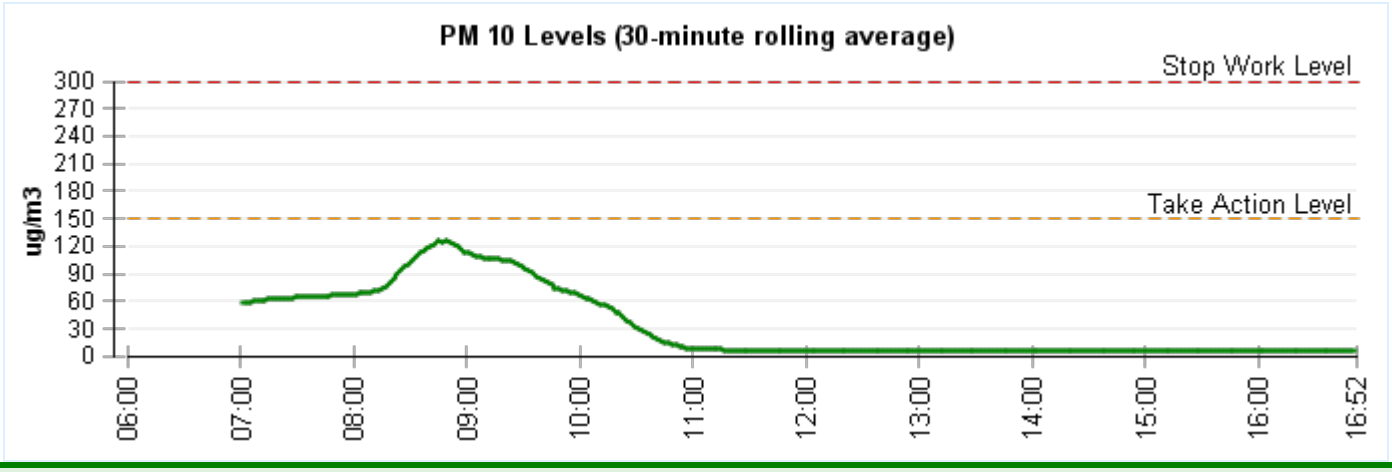




PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-04	**Location Description** 29.7822, -95.32282 - IMY South - Schweikhardt

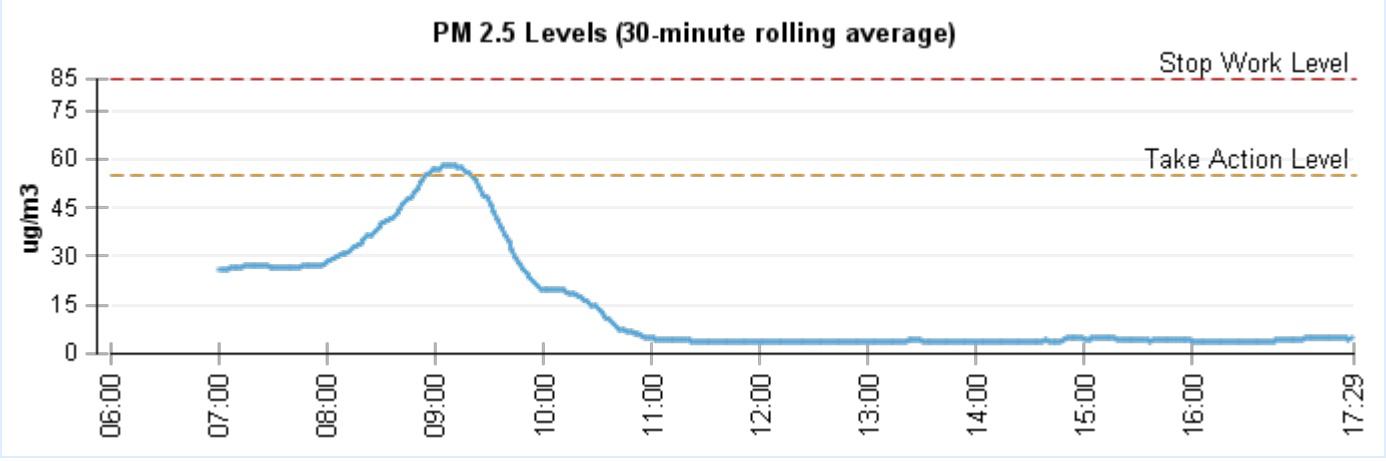


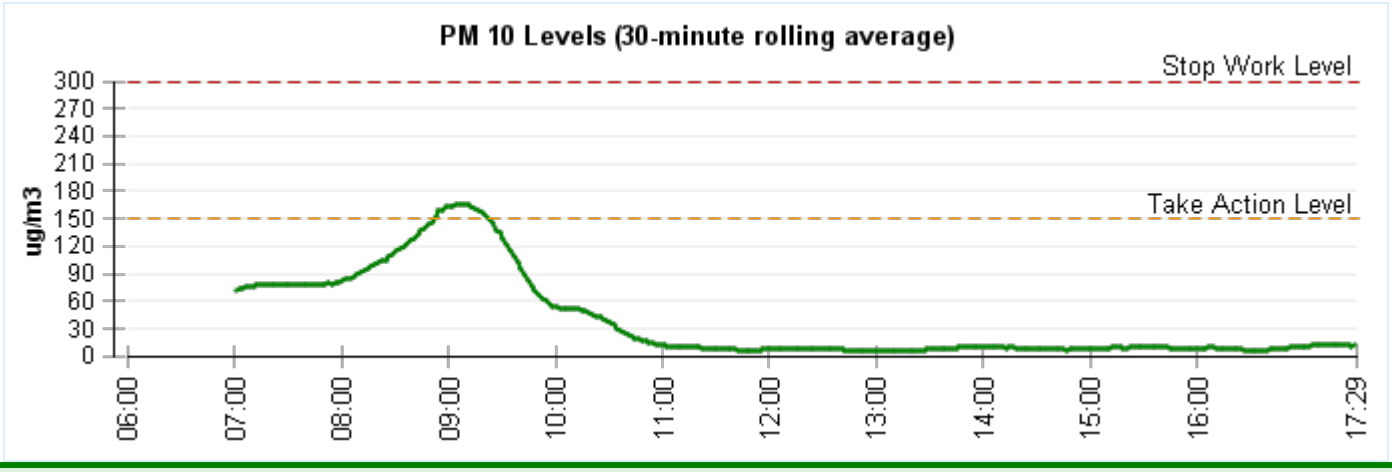


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-06	**Location Description** 29.78759, -95.31688 - HWPW - Erastus

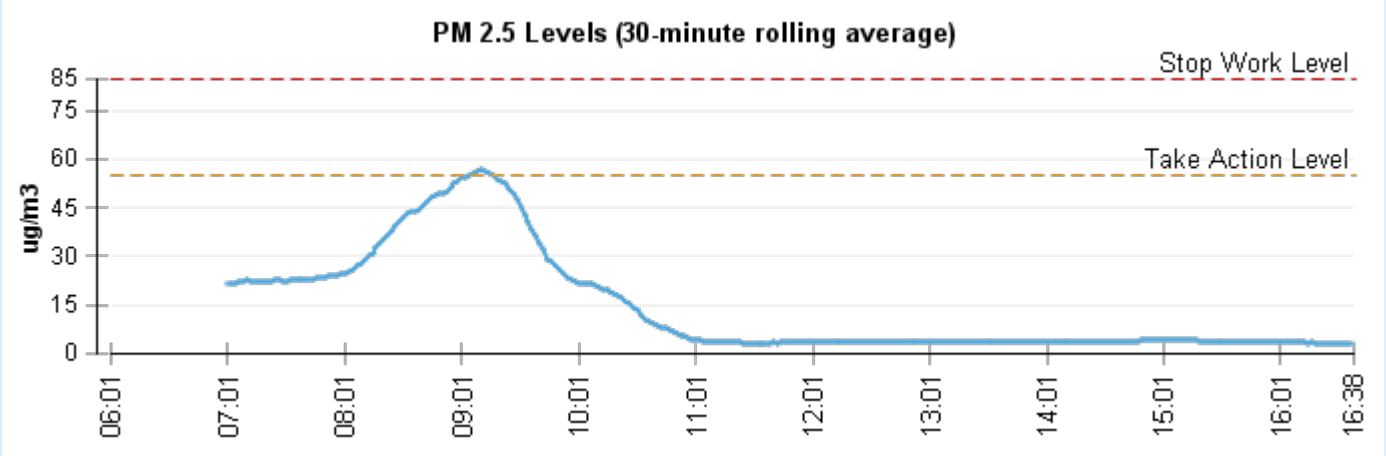


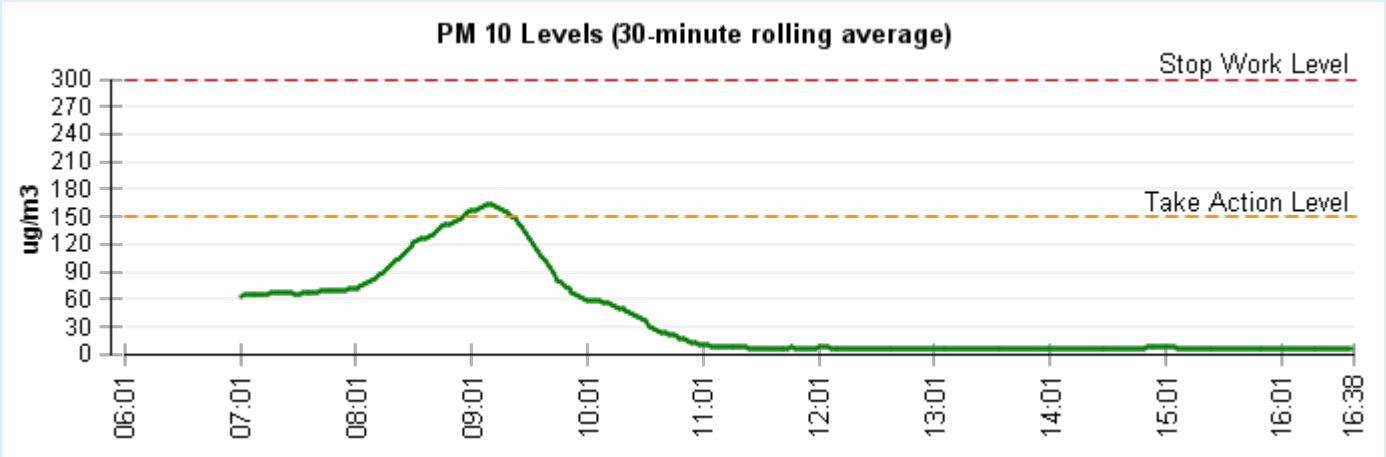


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-07	**Location Description** 29.78749, -95.31901 - HWPW - Clementine North

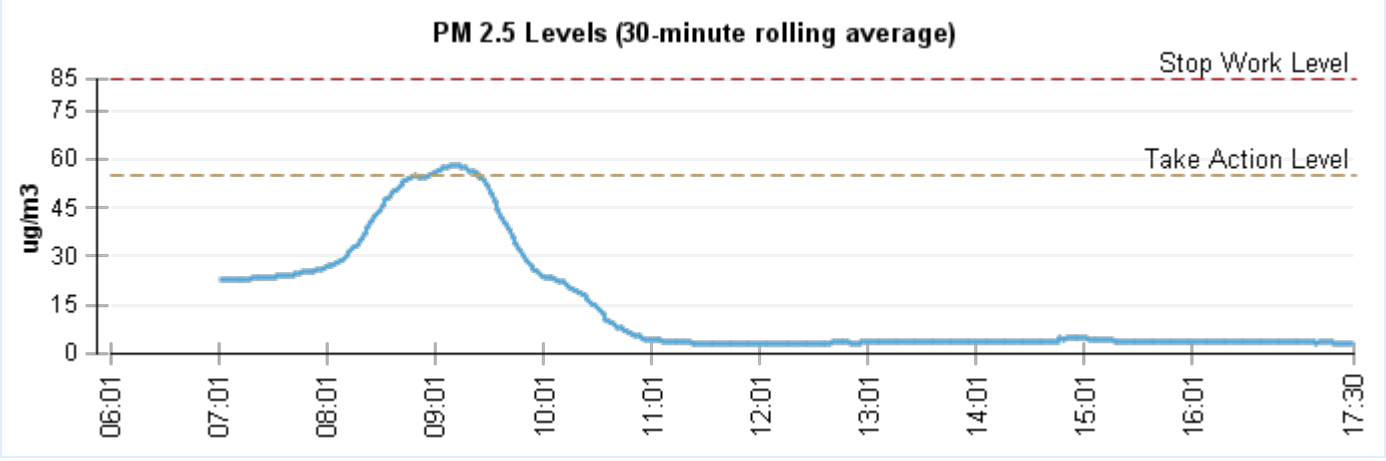


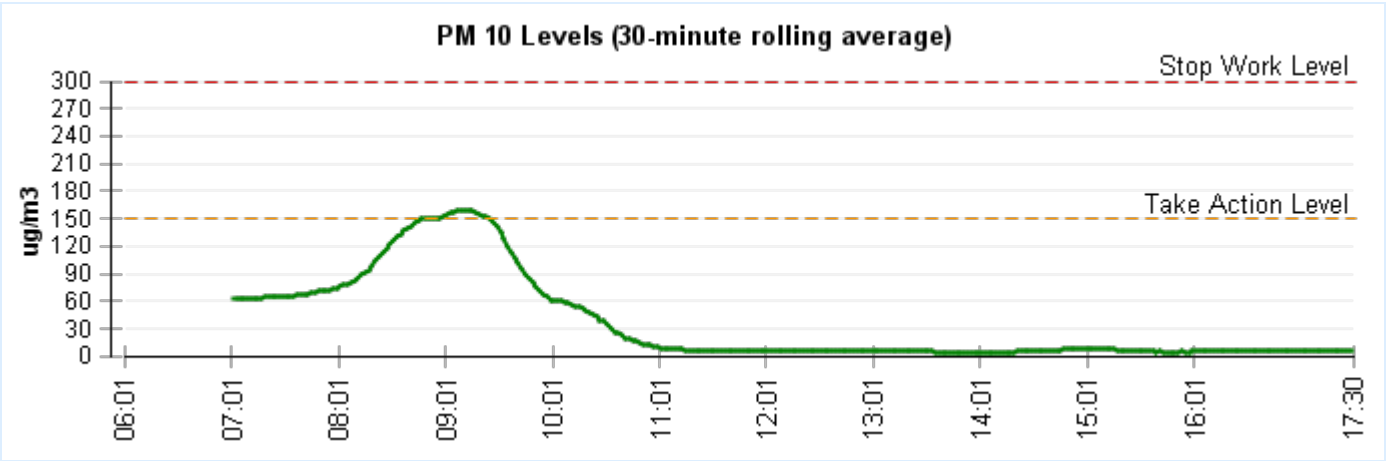


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-08	**Location Description** 29.78746, -95.32116 - HWPW - Solo North

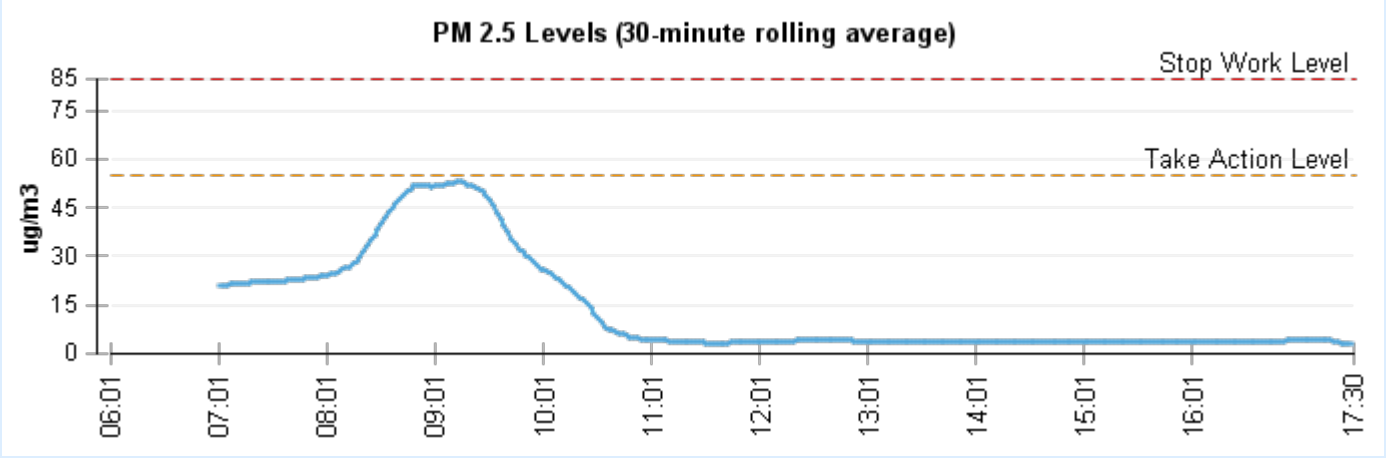


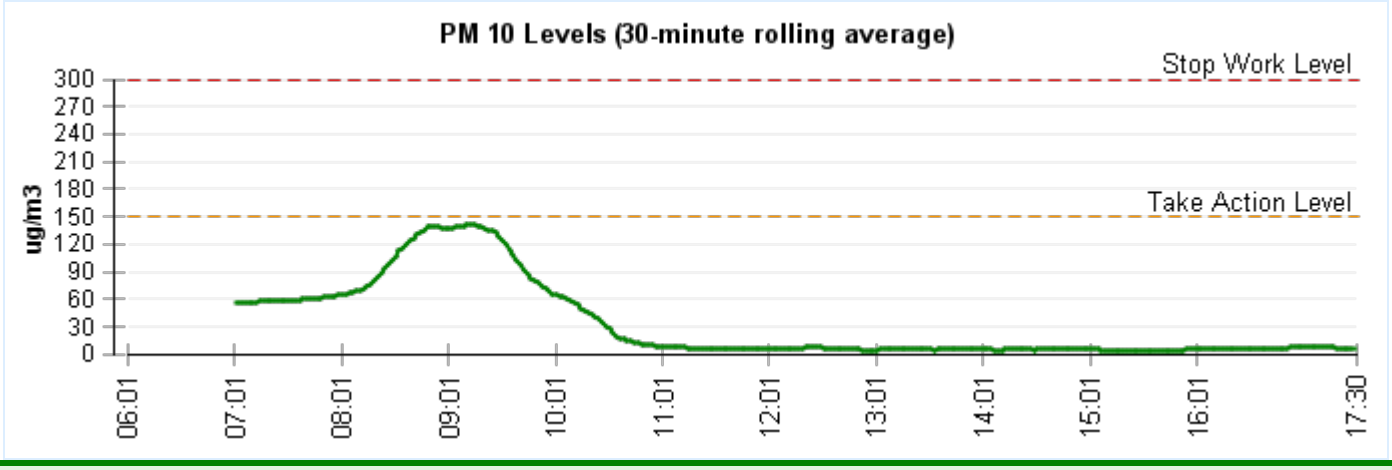


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-09	**Location Description** 29.78757, -95.32357 - HWPW - Kashmere and Liberty

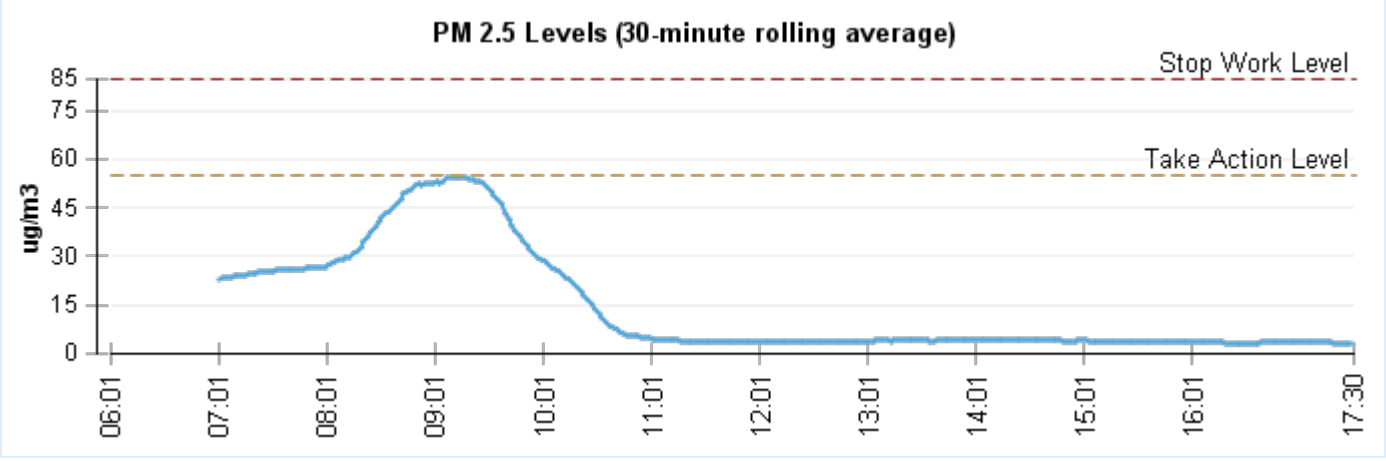


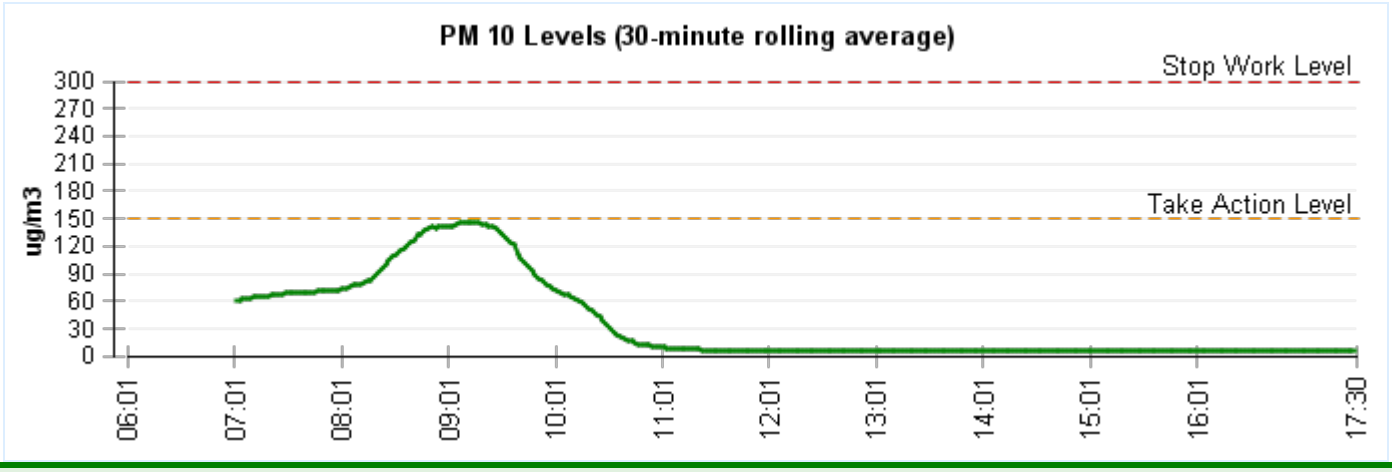


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-10a	**Location Description** 29.78628, -95.32378 - HWPW - Eddie and Kashmere

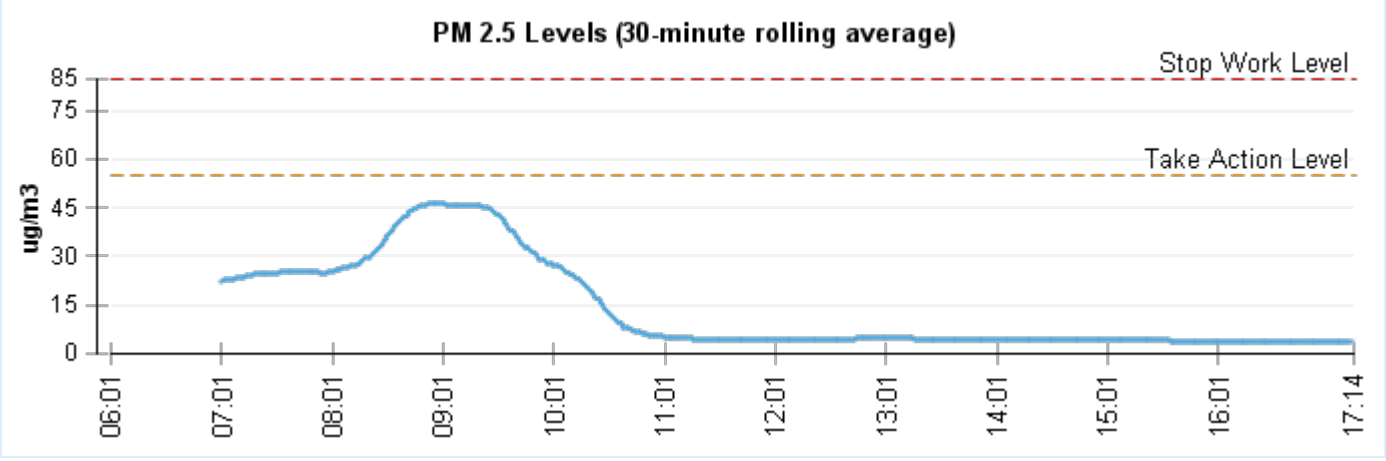


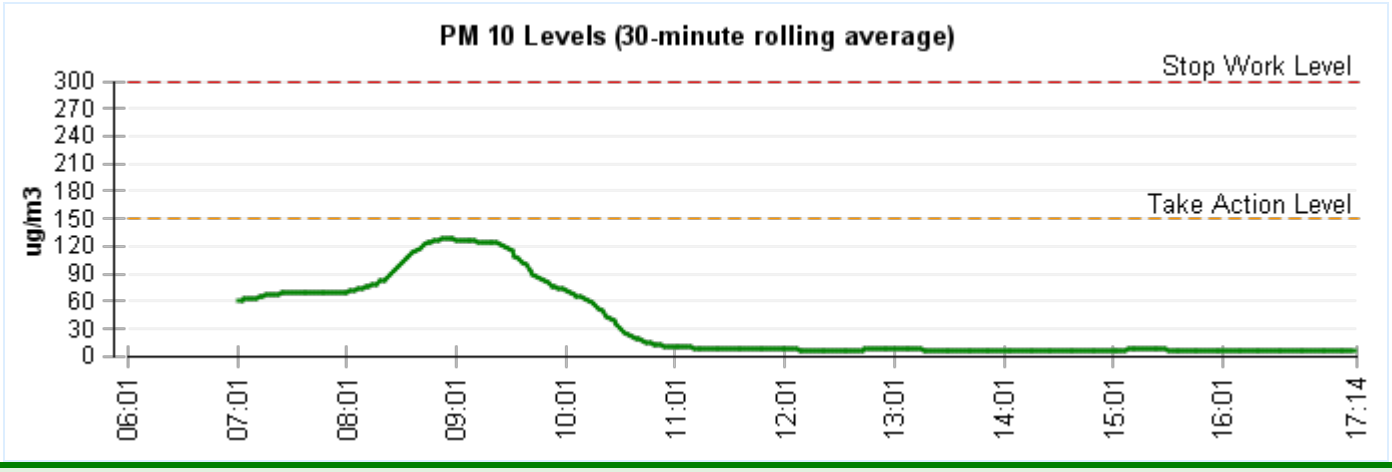


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-11	**Location Description** 29.78435, -95.3246 - HWPW - Quitman East

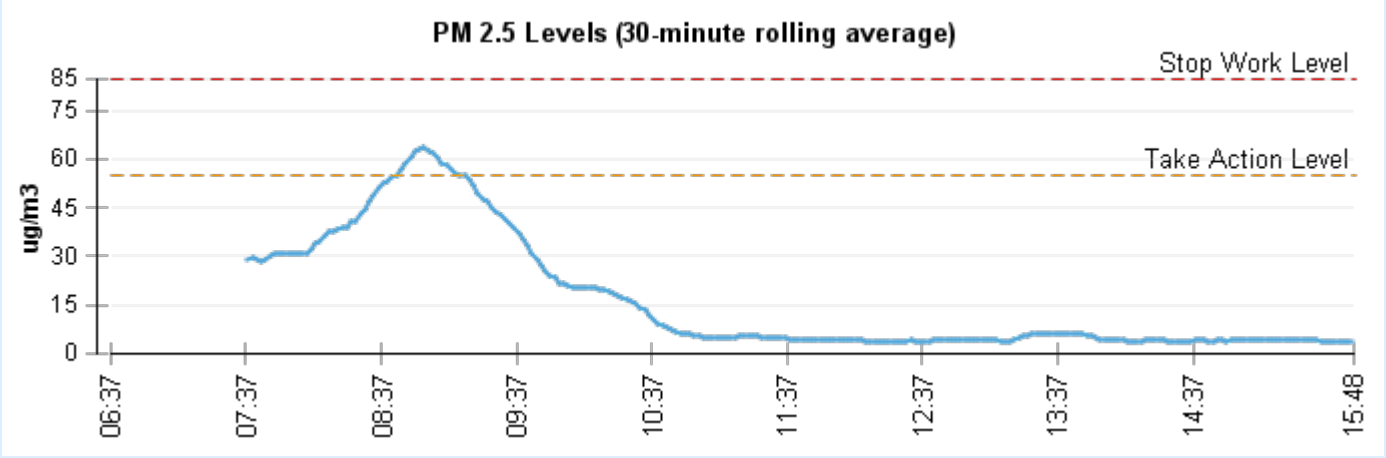


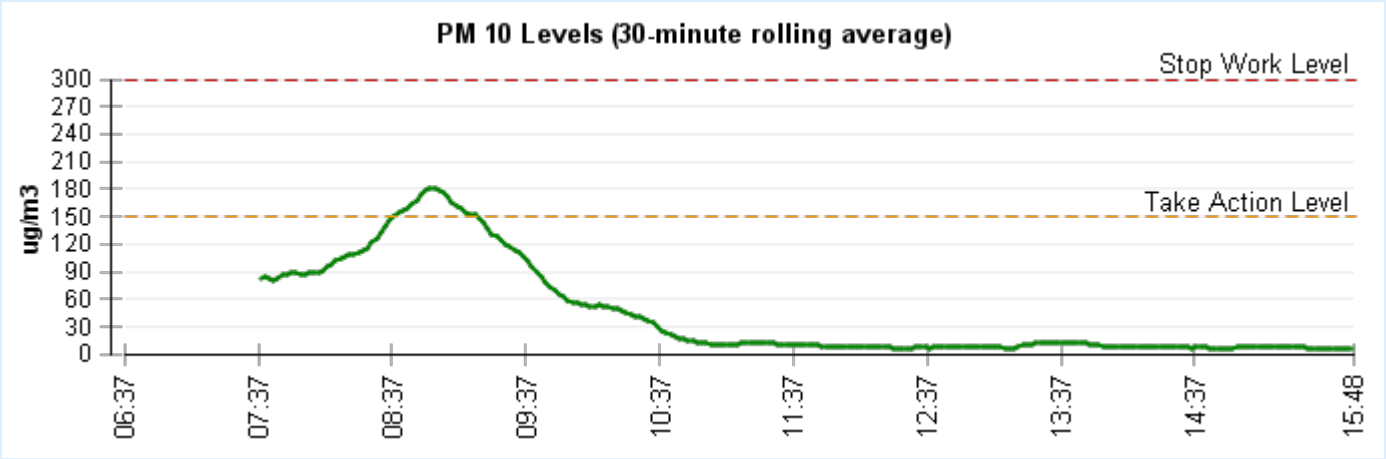


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 1, 2021
Station ID AMS-12	**Location Description** 29.787857, -95.31571 - Lockwood Overpass East

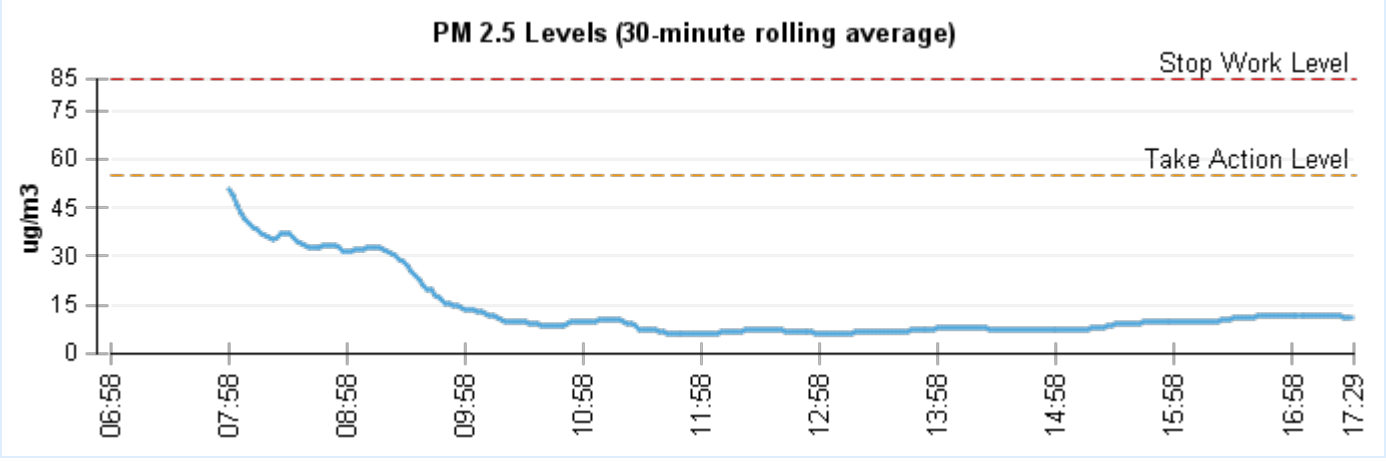


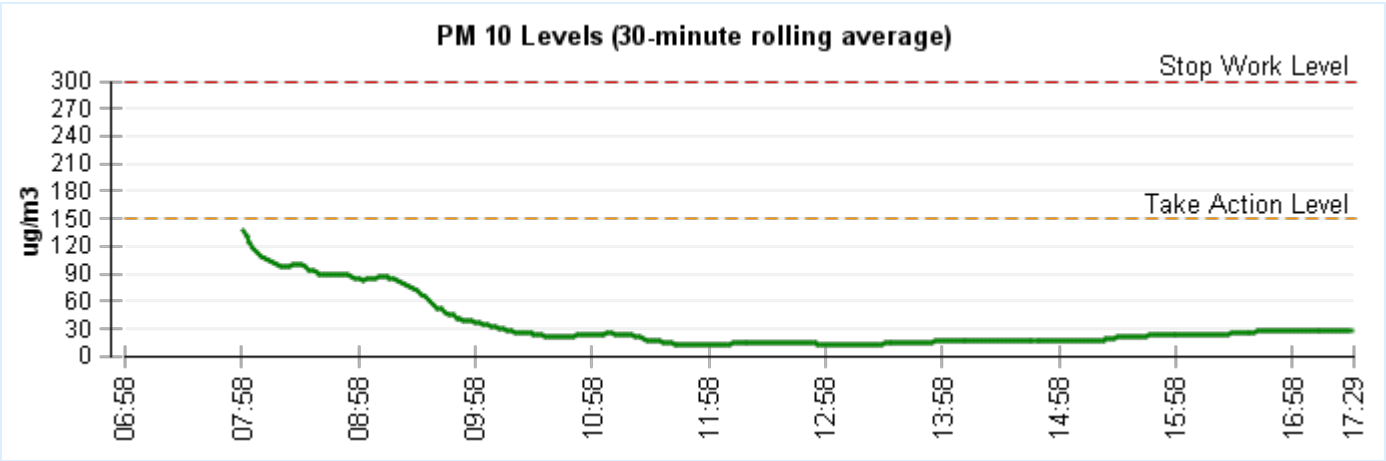


Note: Elevated readings between 08:16 and 09:53 resulted from a neighborhood trash fire located about a block northeast of the intersection Liberty Road and the Lockwood overpass.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-01	**Location Description** 29.7901, -95.29823 - Yard Office

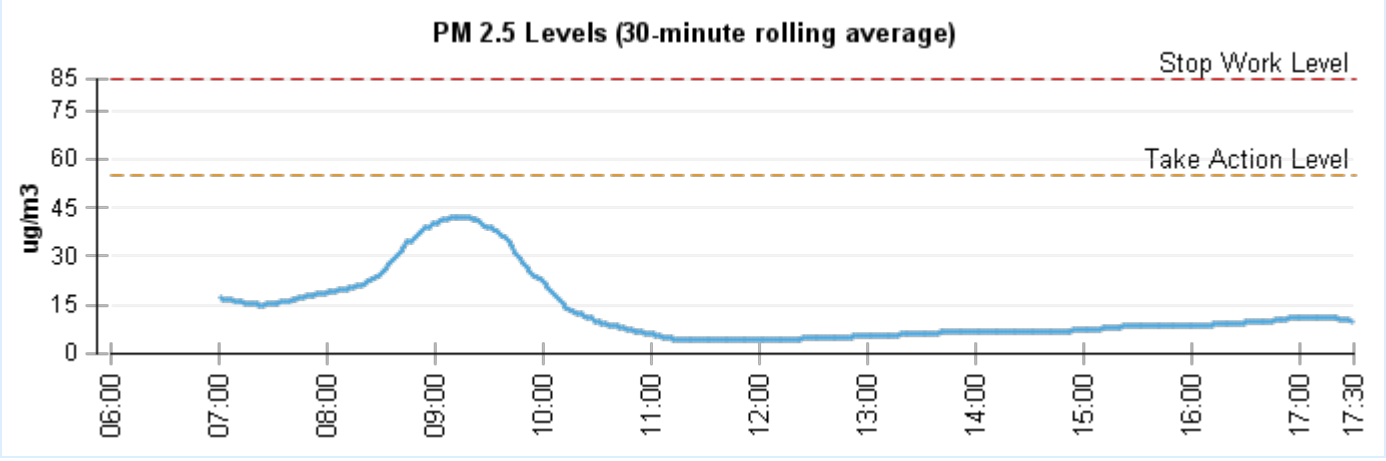


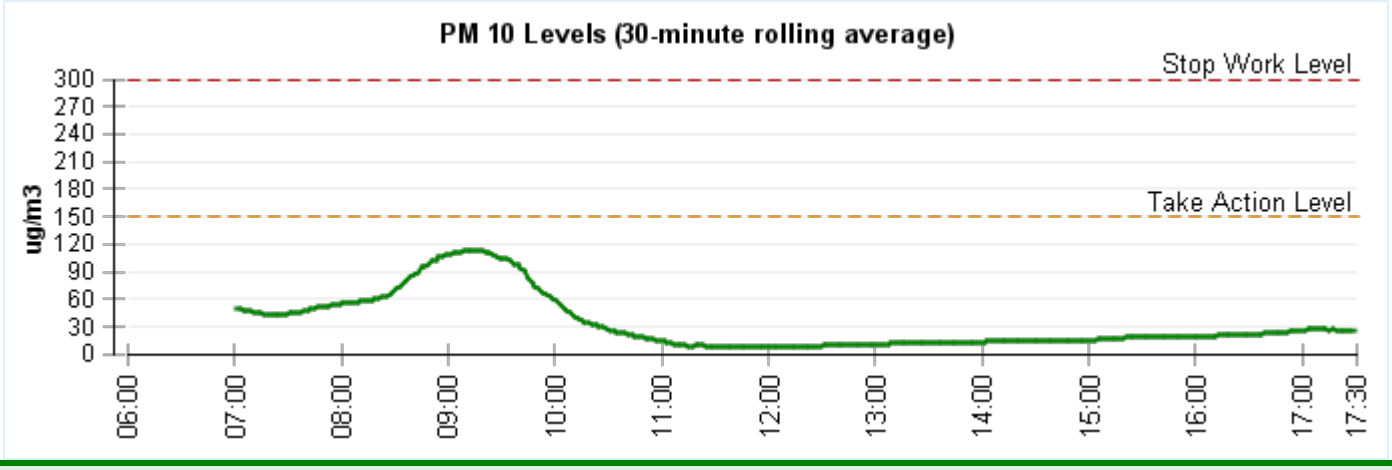


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-02	**Location Description** 29.78421, -95.31689 - IMY East - Sudan and Harlem

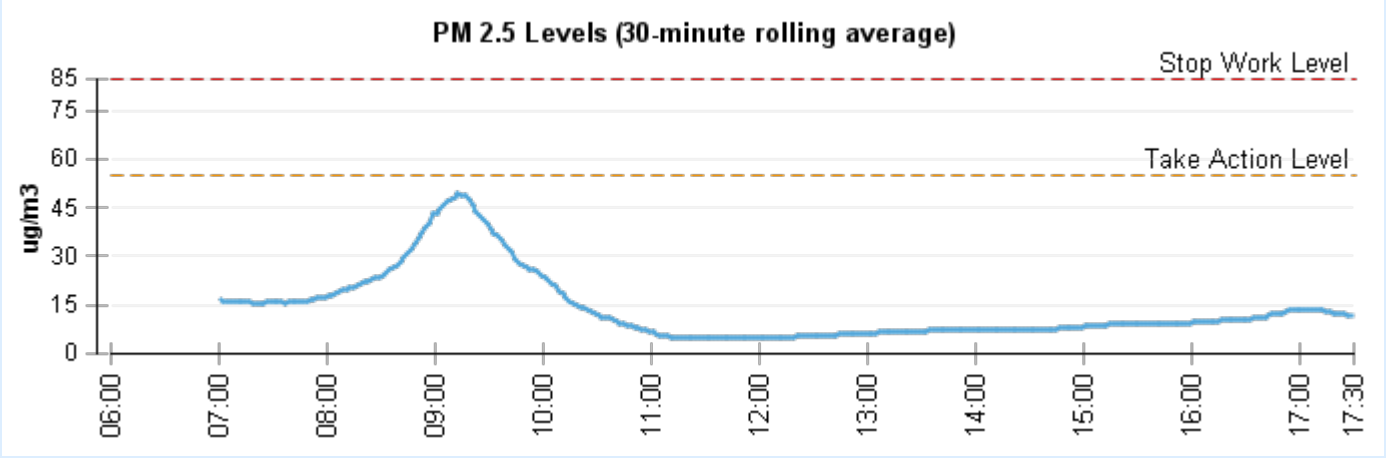


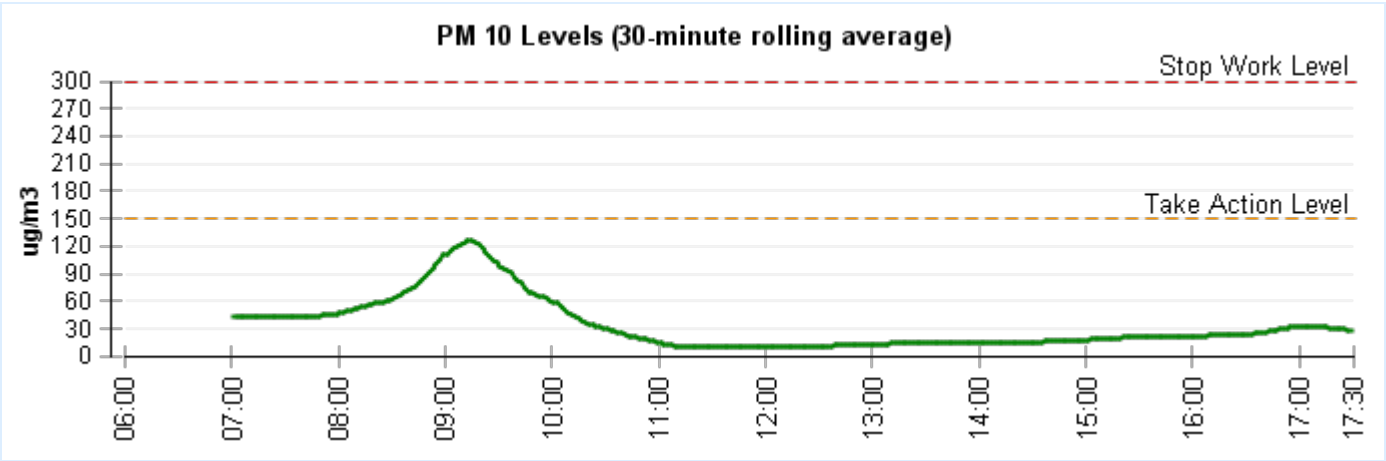


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-03	**Location Description** 29.78206, -95.31911 - IMY SE - Clementine

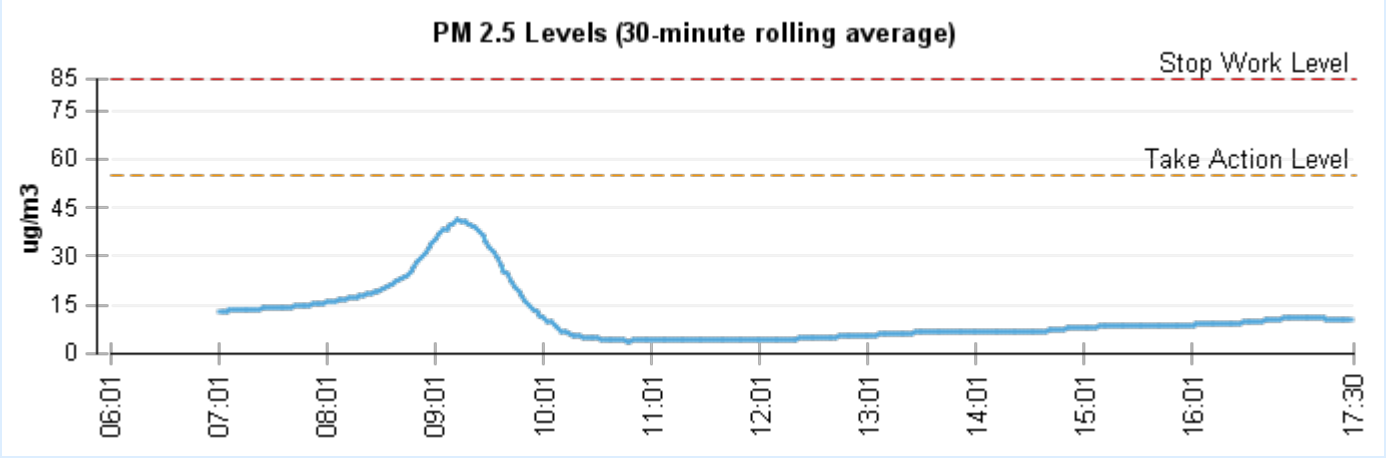


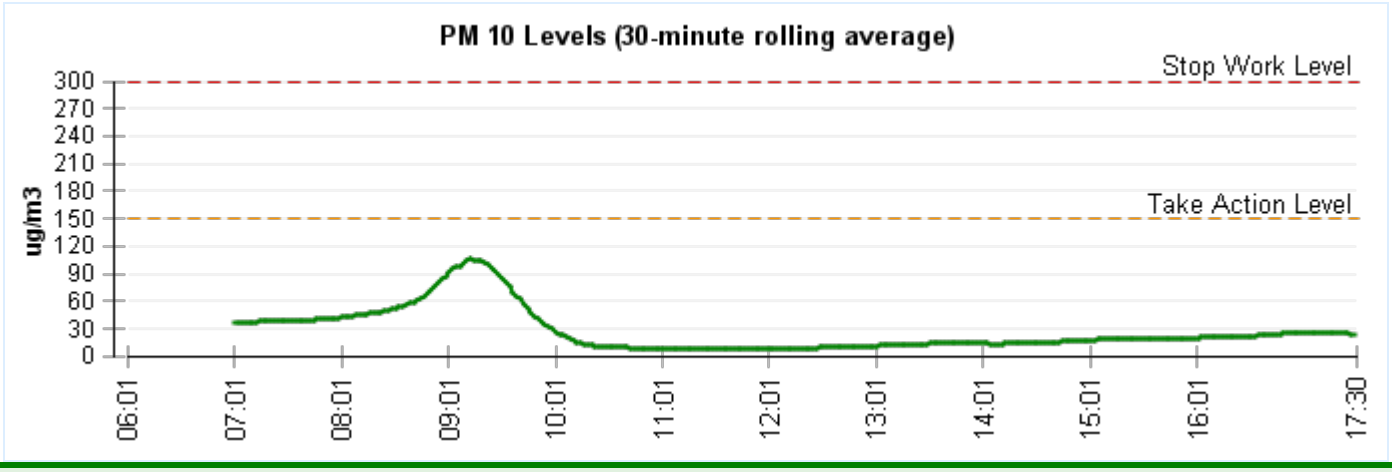


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-04	**Location Description** 29.78212, -95.32281 - IMY South - Schweikhardt

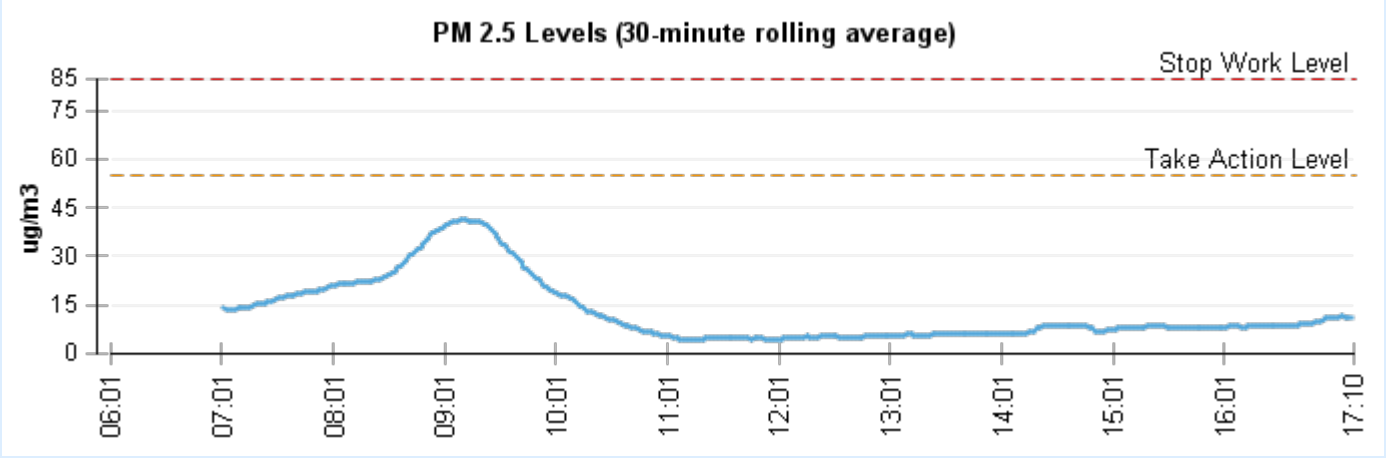


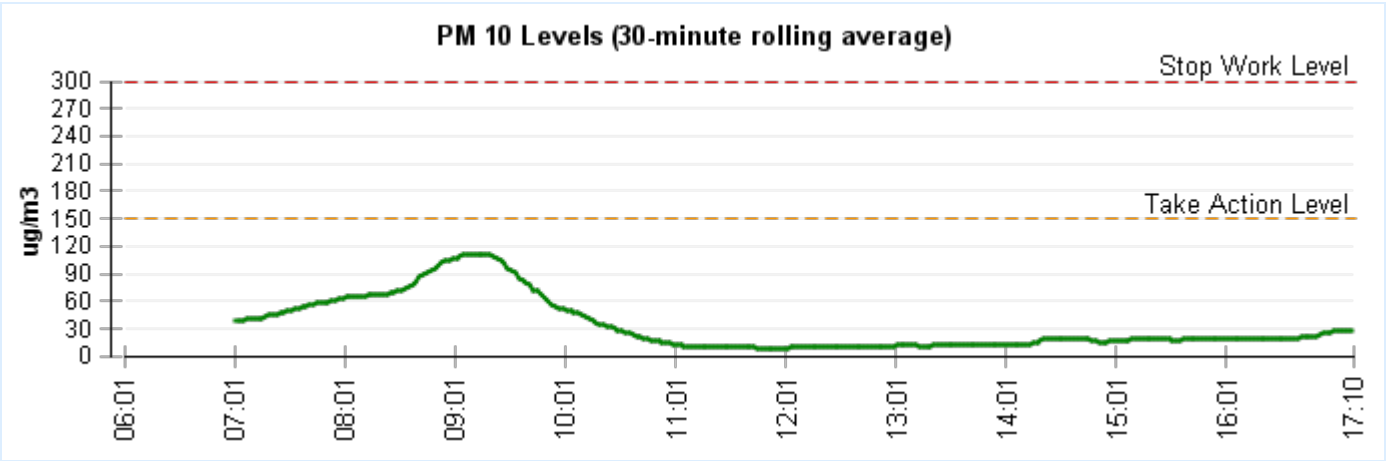


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-06	**Location Description** 29.78764, -95.31661 - HWPW - Erastus

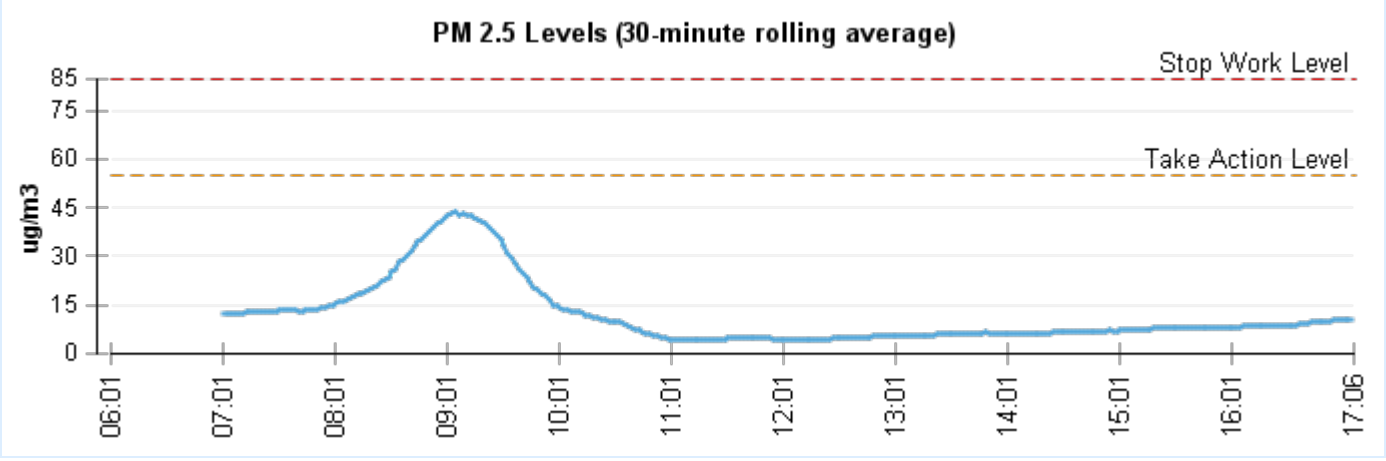


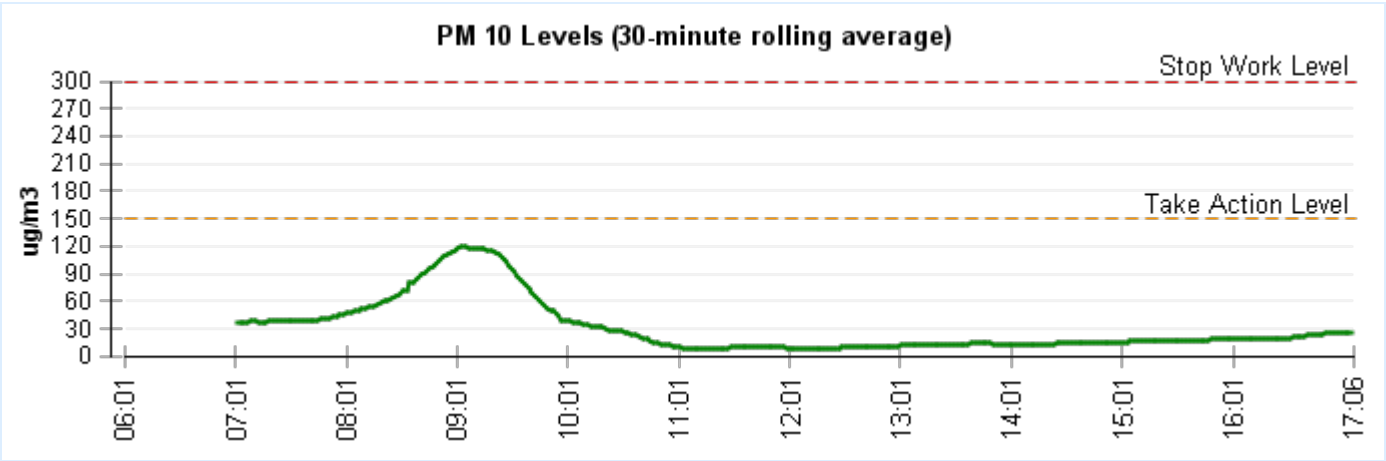


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-07	**Location Description** 29.78757, -95.31884 - HWPW - Clementine North

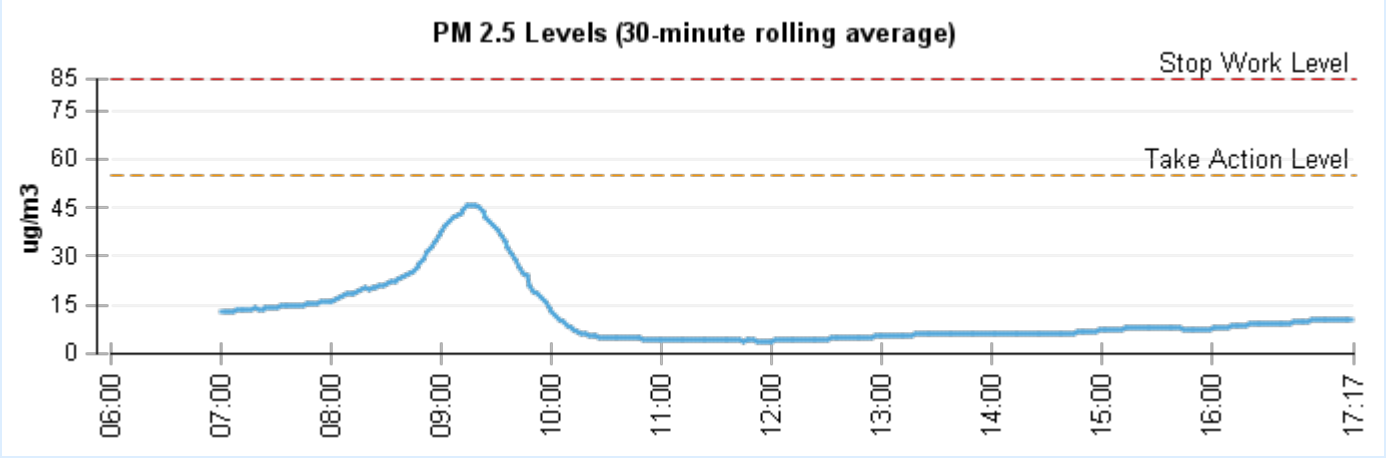


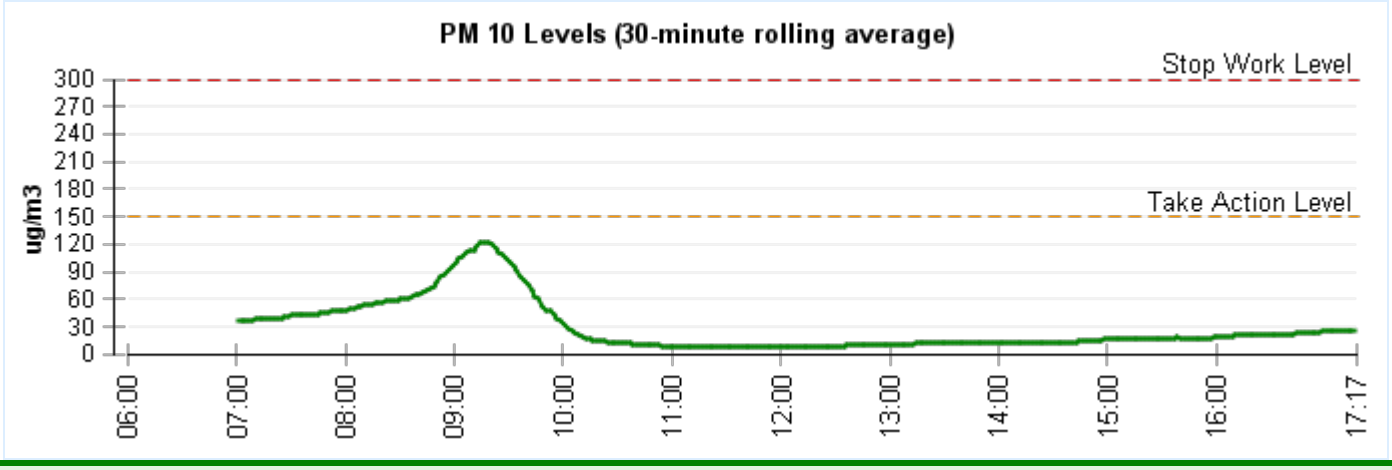


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-08	**Location Description** 29.78745, -95.32116 - HWPW - Solo North

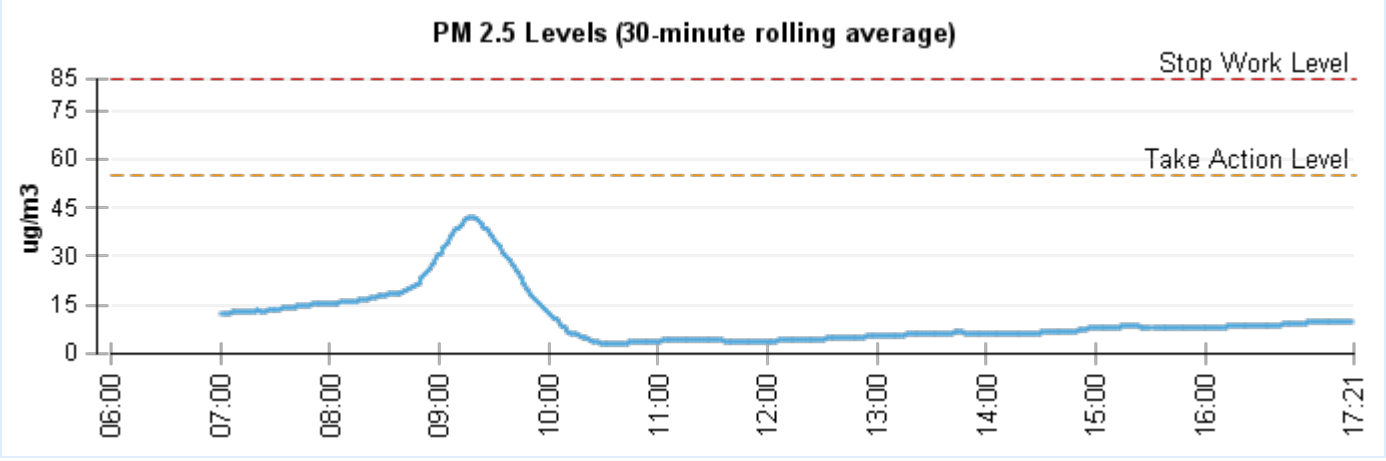


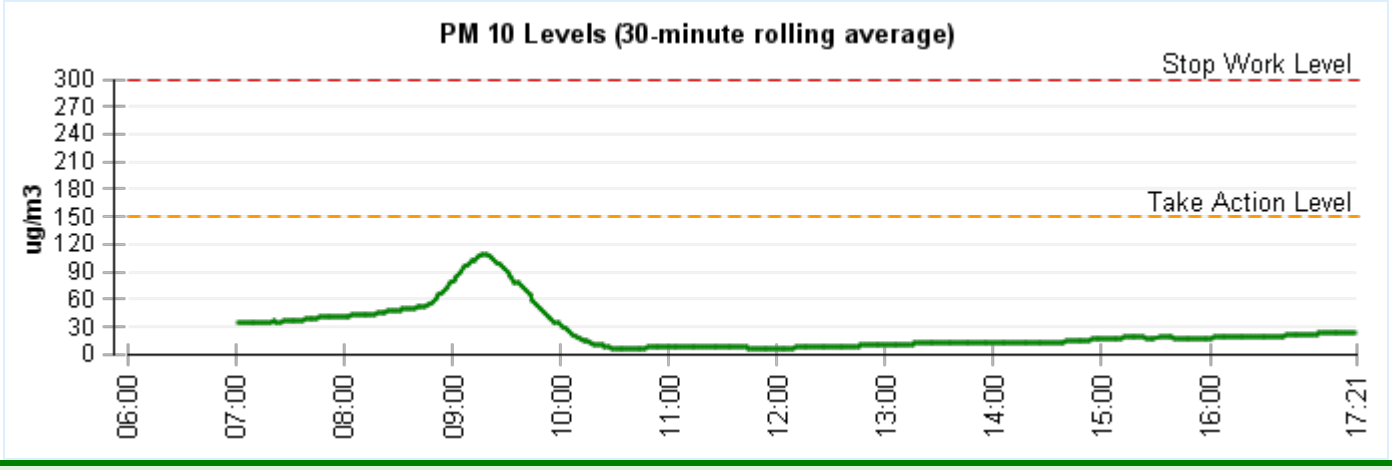


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-09	**Location Description** 29.78752, -95.32368 - HWPW - Kashmere and Liberty

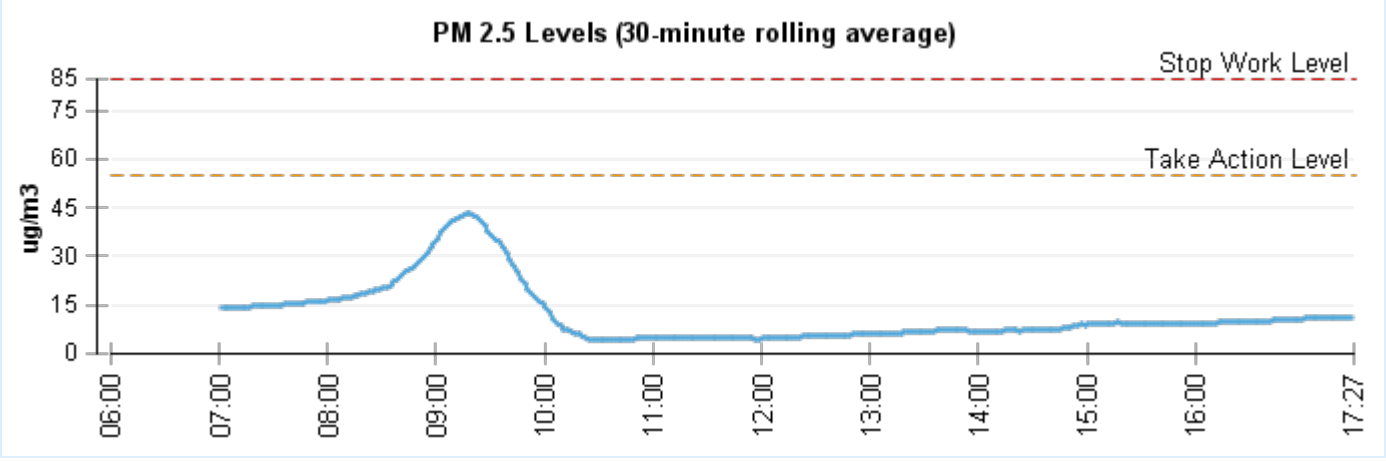


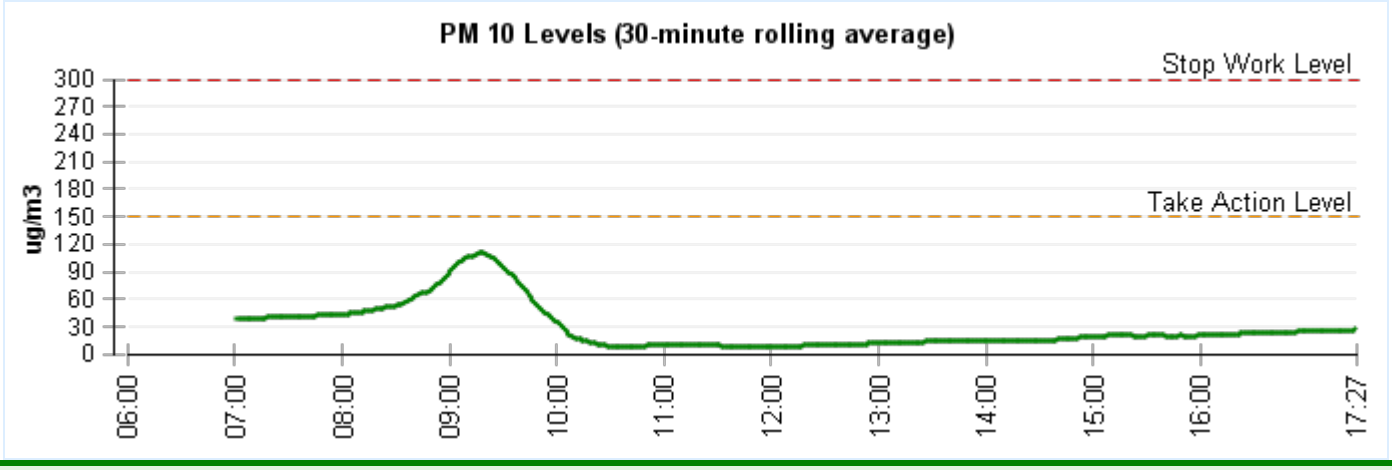


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-10a	**Location Description** 29.78621, -95.32375 - HWPW - Eddie and Amboy

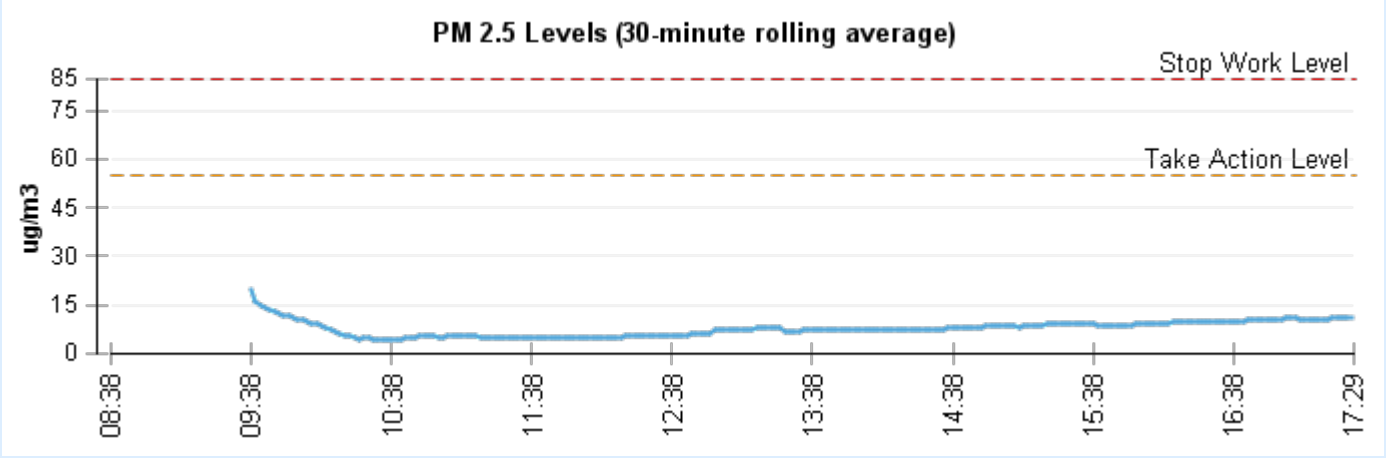


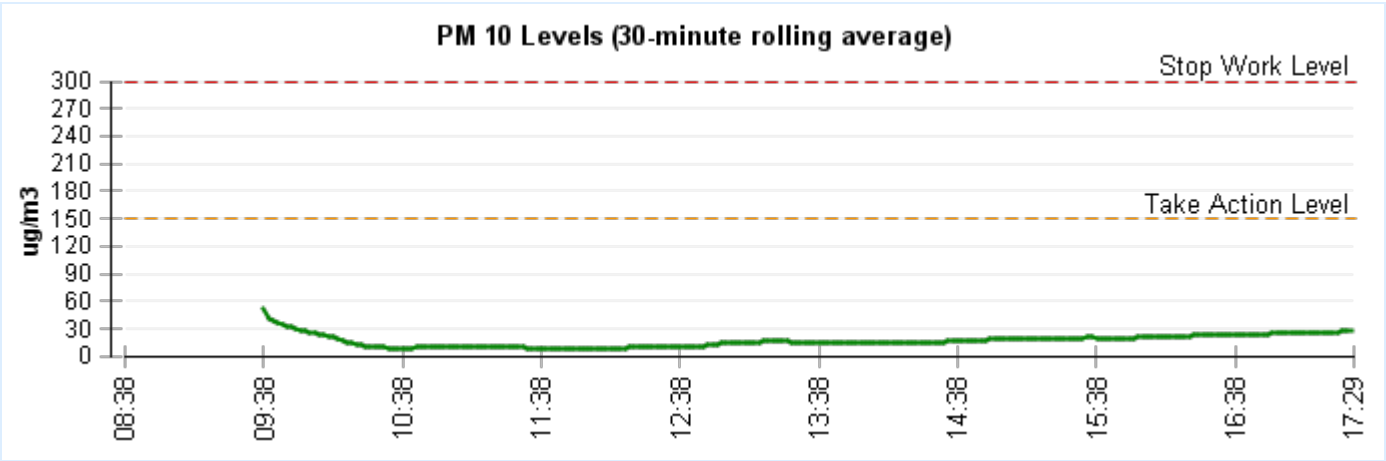


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

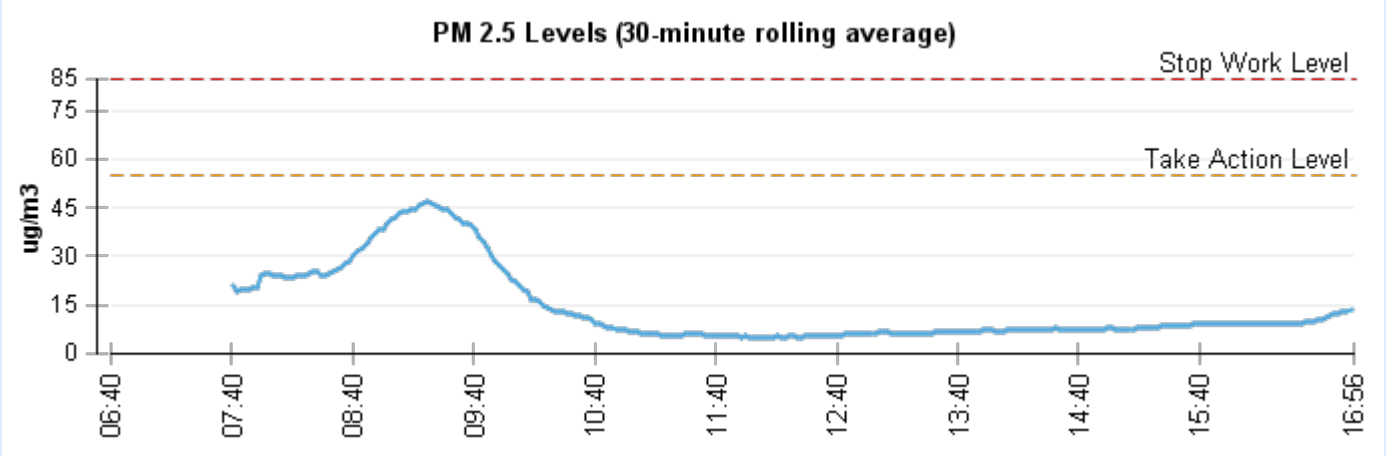
Sample Date	Dec 2, 2021
Station ID AMS-11	**Location Description** 29.78432, -95.32457 - HWPW - Quitman East

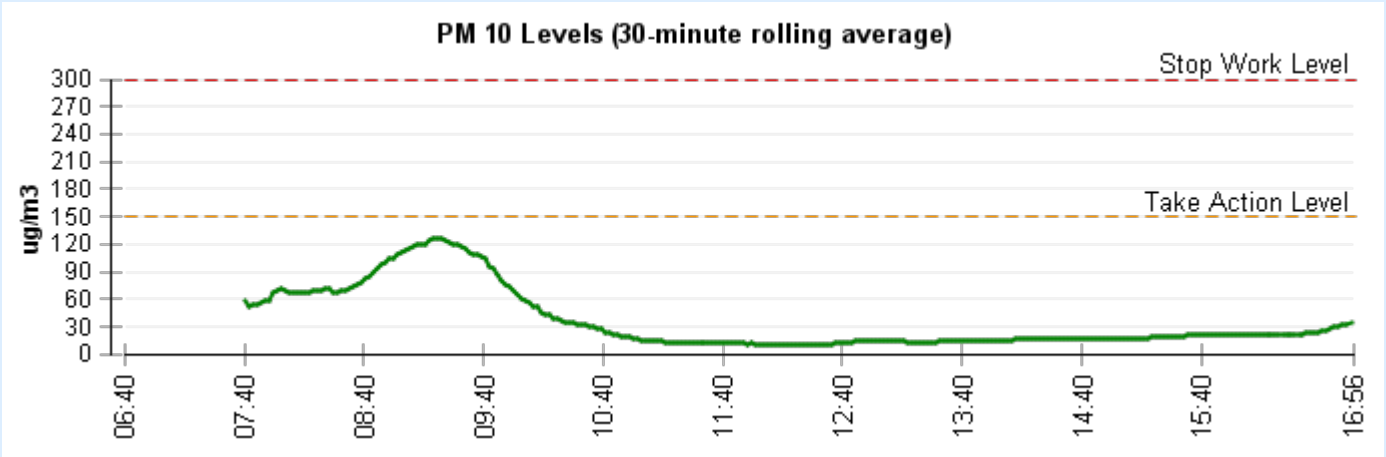




PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-12	**Location Description** 29.78889, -95.31342 - Liberty - Sakowitz

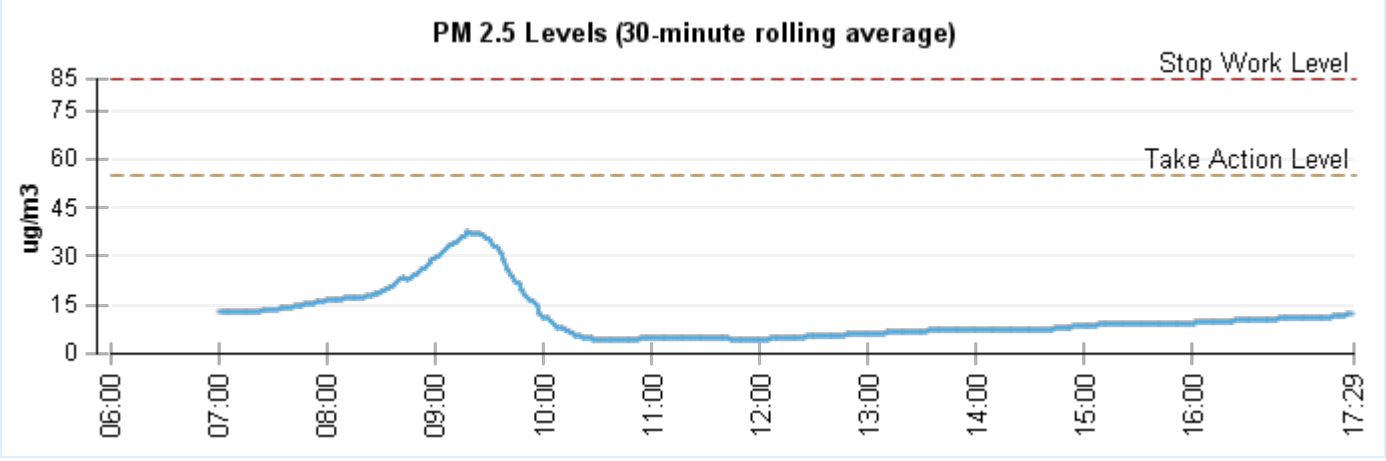


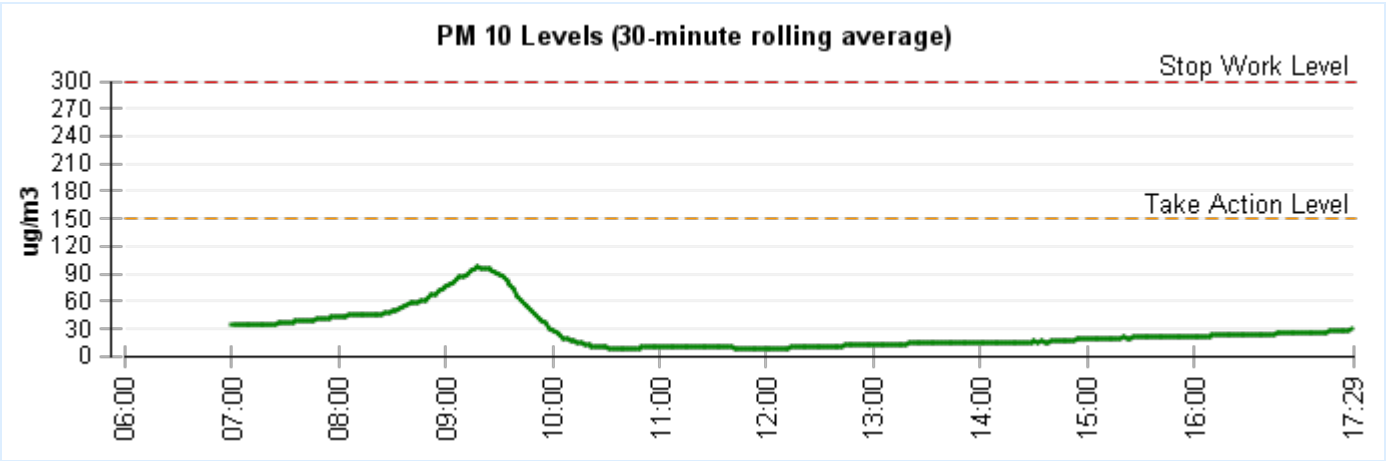


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

Sample Date	Dec 2, 2021
Station ID AMS-13	**Location Description** 29.78219, -95.32515 - IMY South - Waco and Lee

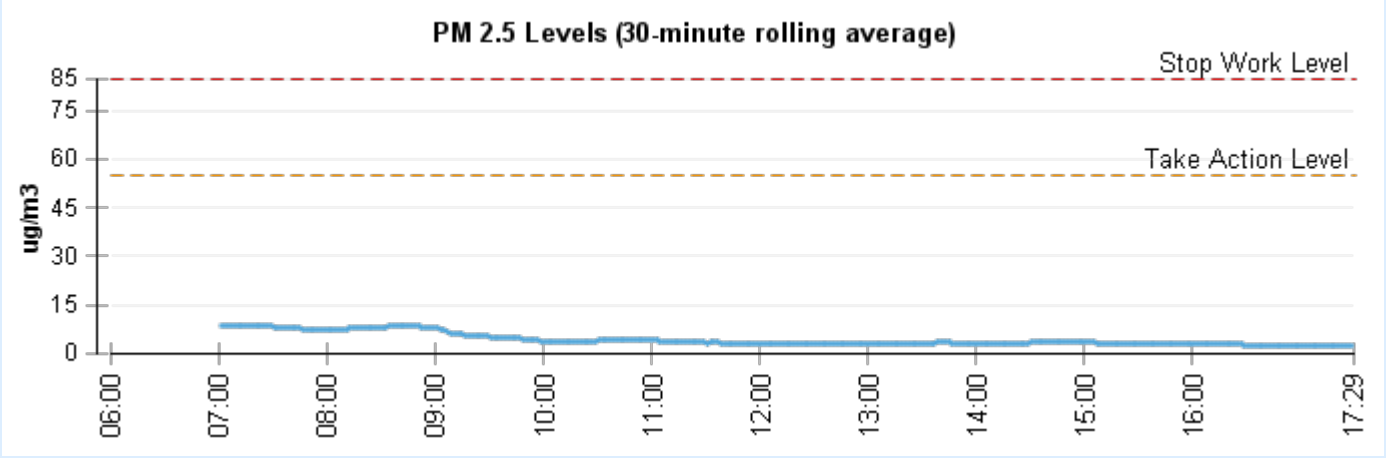


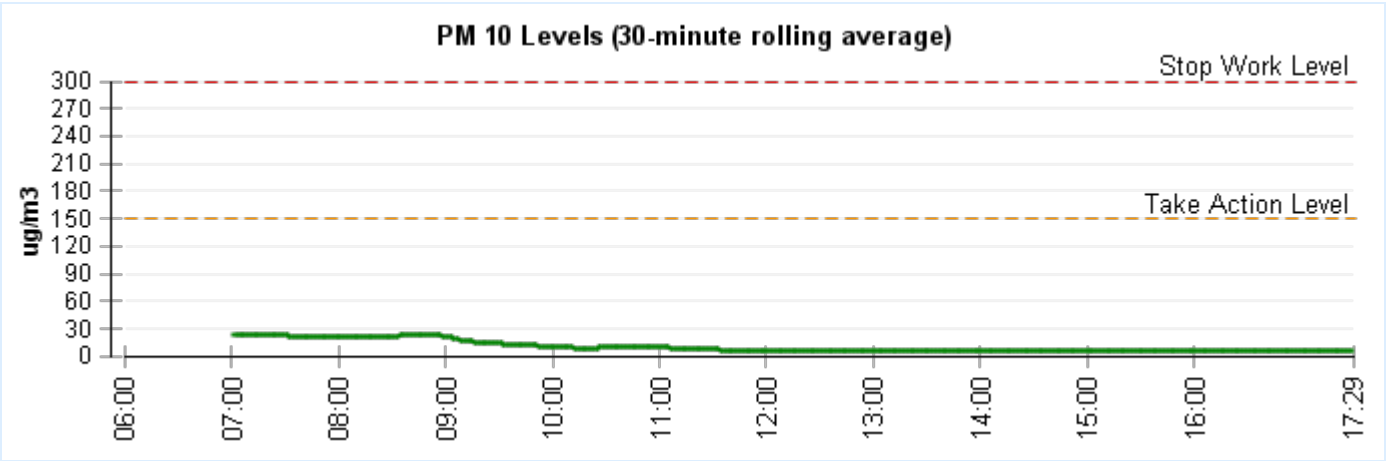


Note: Elevated readings prior to around 09:50 resulted from an area-wide haze, believed likely residual smoke from a large trash fire at a recycling plant on the northwest side of Houston.

PM 2.5 and PM 10 Time History Data

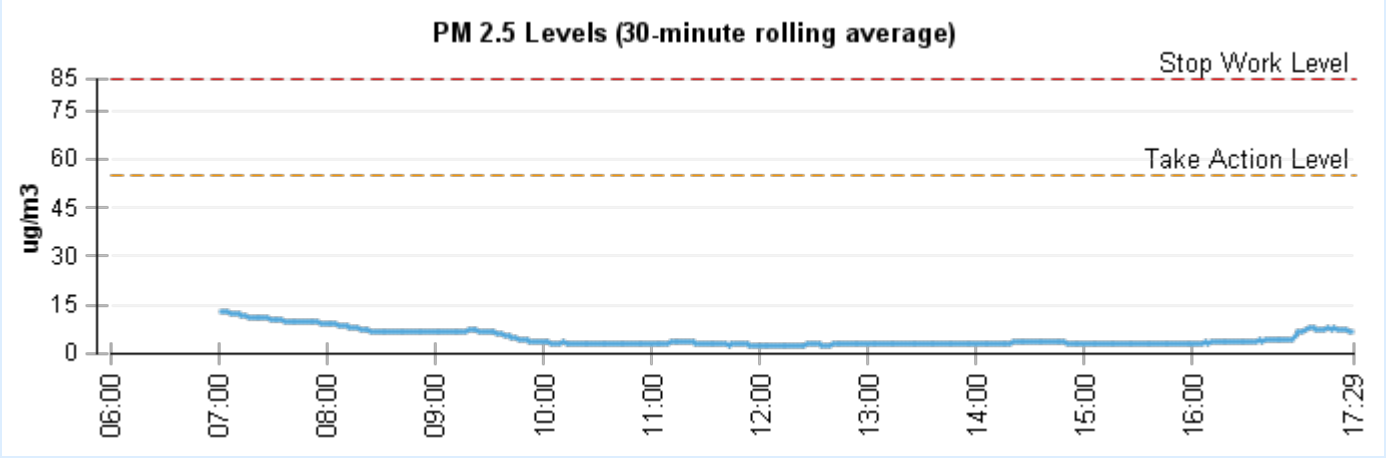
Sample Date	Dec 3, 2021
Station ID AMS-01	**Location Description** 29.79011, -95.29821 - Yard Office

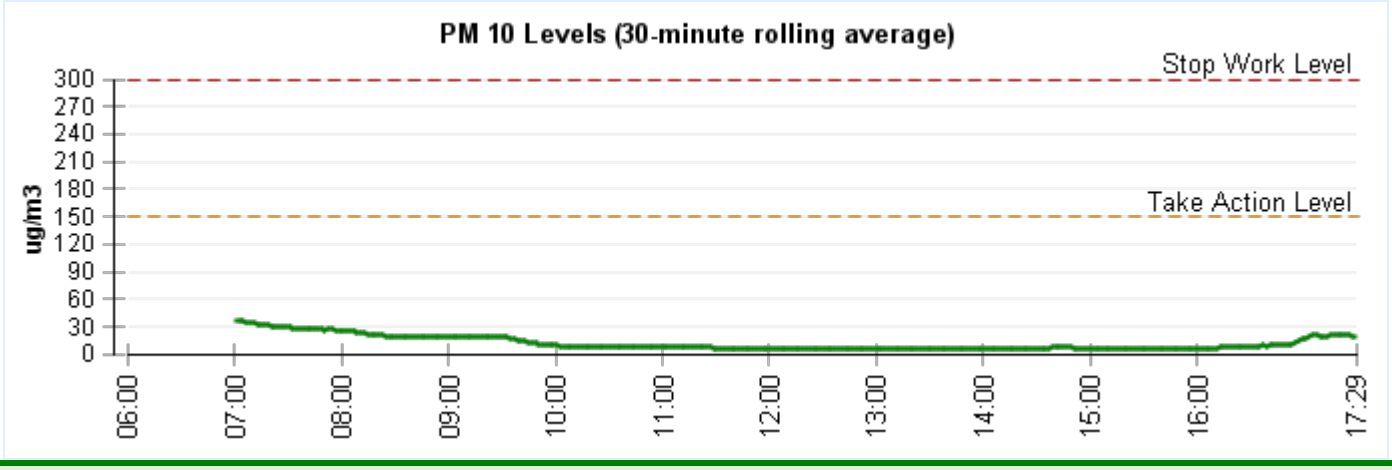




PM 2.5 and PM 10 Time History Data

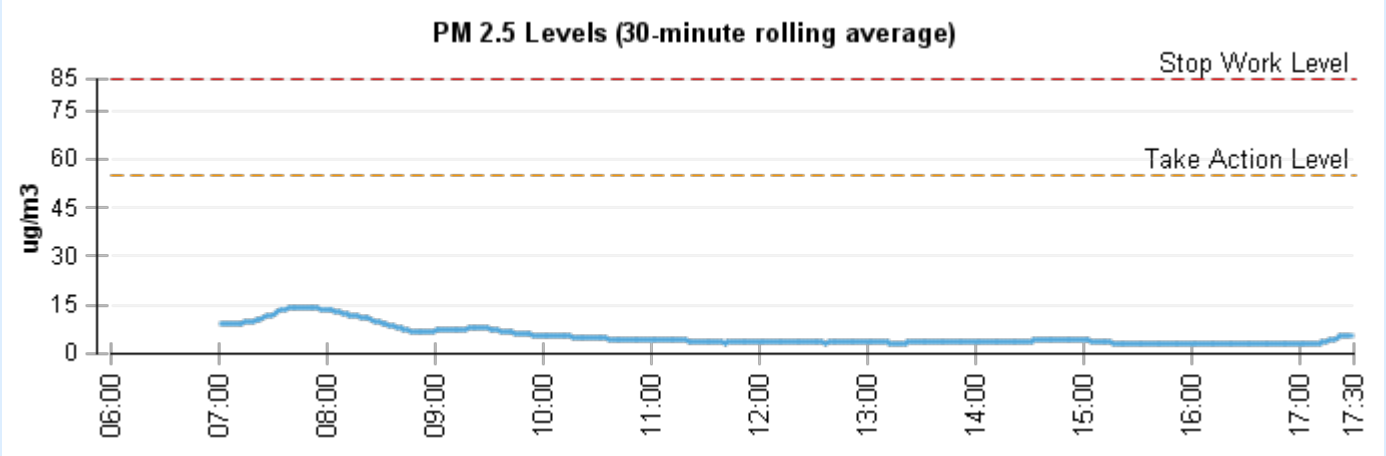
Sample Date	Dec 3, 2021
Station ID AMS-02	**Location Description** 29.78421, -95.31691 - IMY East - Sudan and Harlem

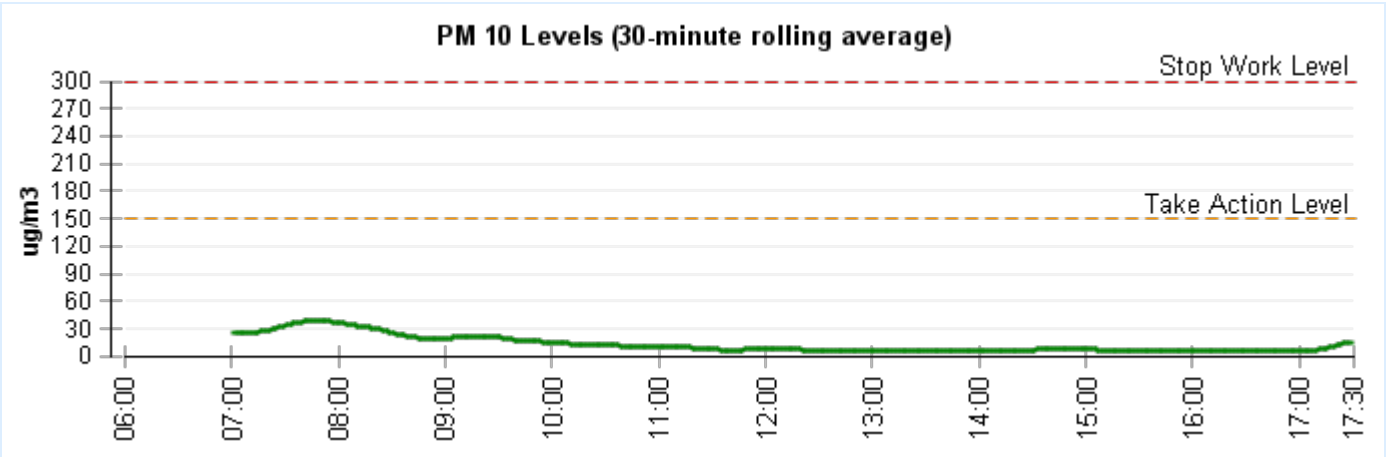




PM 2.5 and PM 10 Time History Data

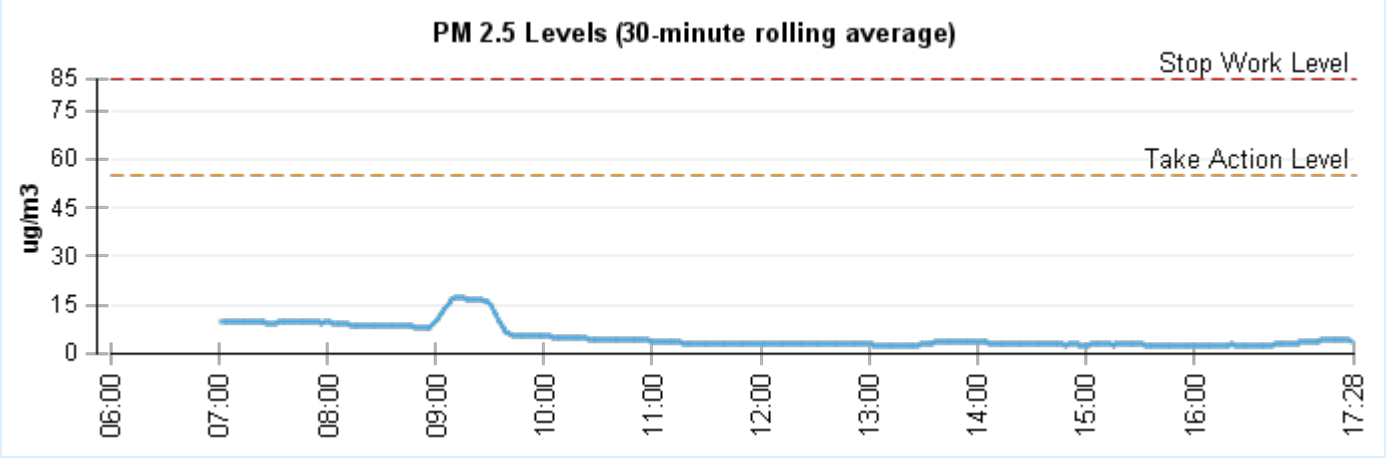
Sample Date	Dec 3, 2021
Station ID AMS-03	**Location Description** 29.78205, -95.31914 - IMY SE - Clementine

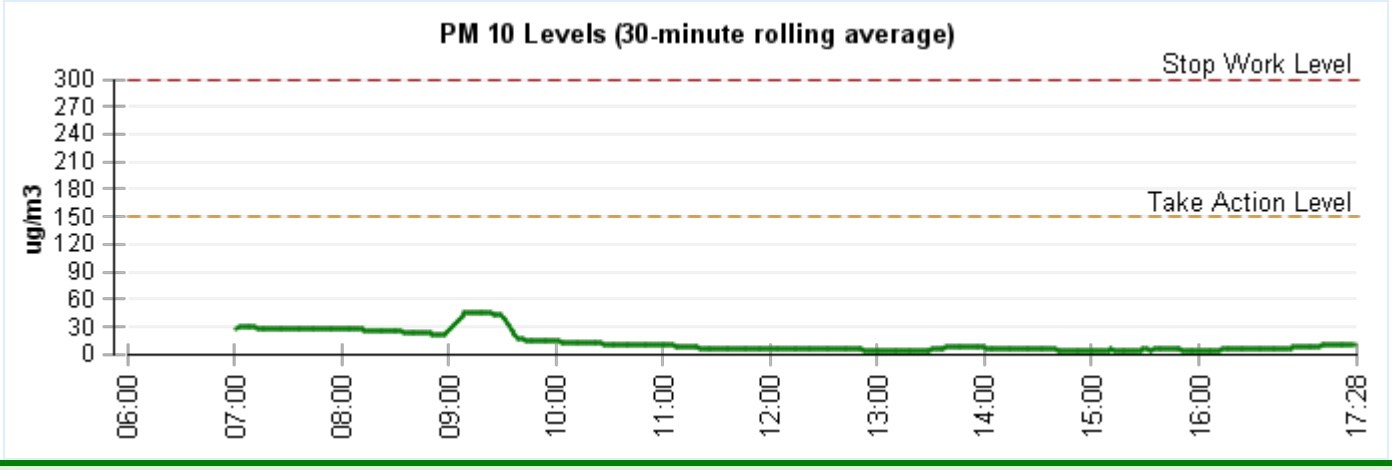




PM 2.5 and PM 10 Time History Data

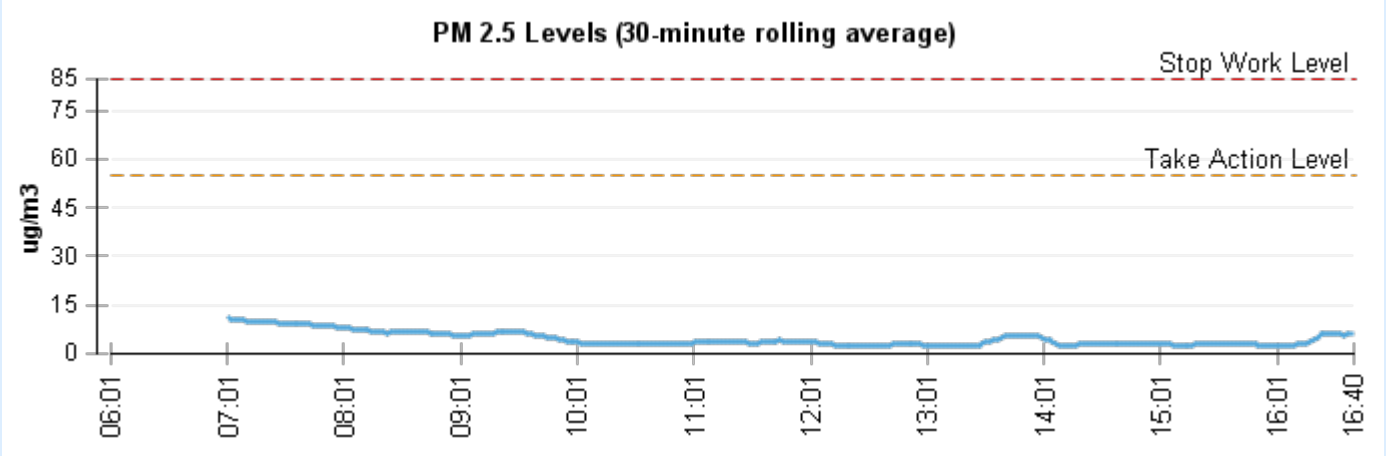
Sample Date	Dec 3, 2021
Station ID AMS-04	**Location Description** 29.78216, -95.32281 - IMY South - Schweikhardt

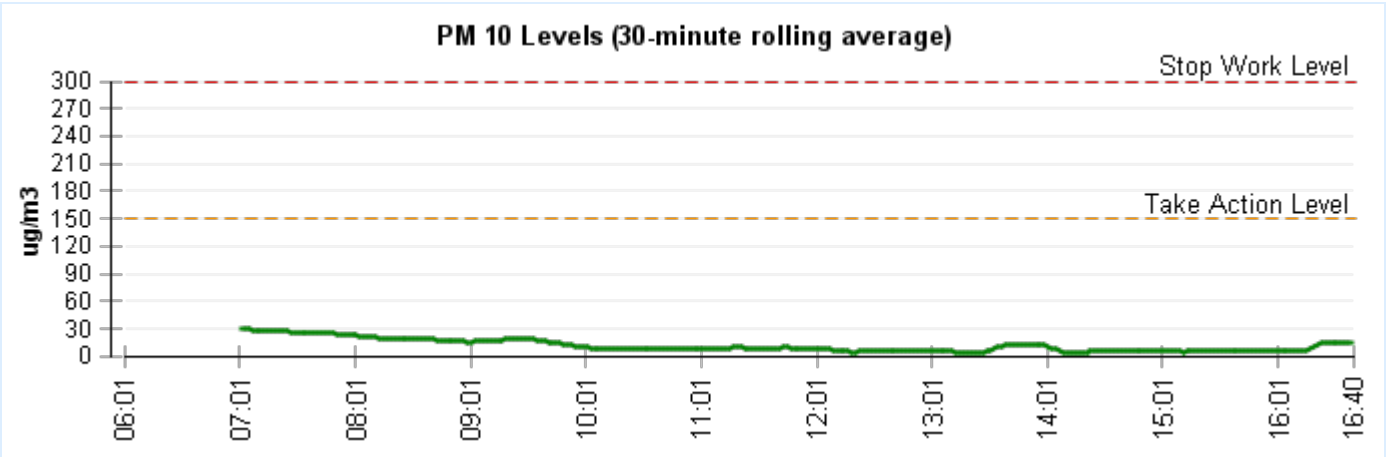




PM 2.5 and PM 10 Time History Data

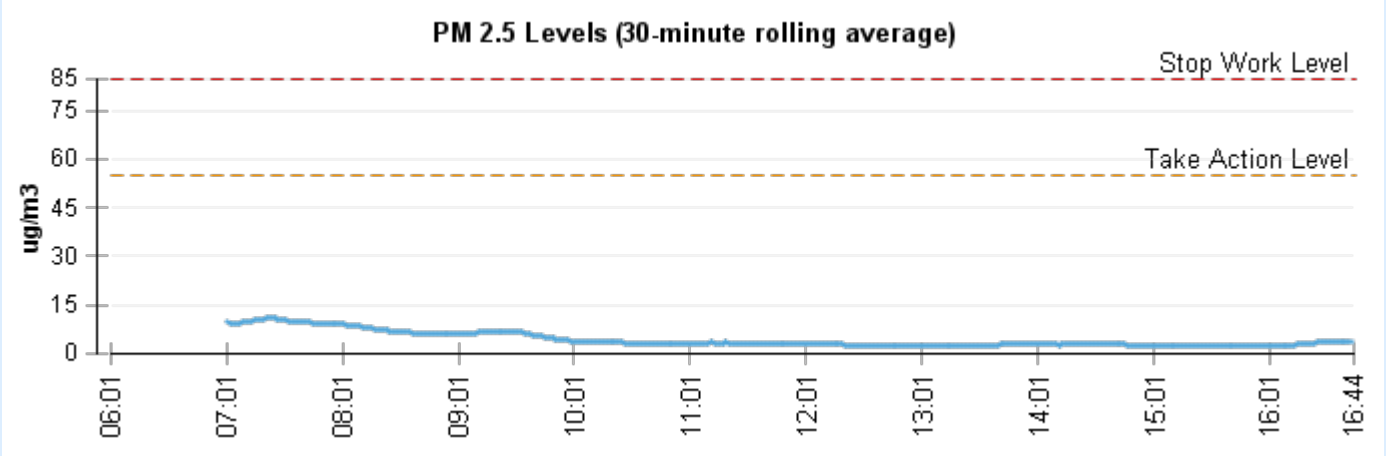
Sample Date	Dec 3, 2021
Station ID AMS-06	**Location Description** 29.78763, -95.31663 - HWPW - Erastus

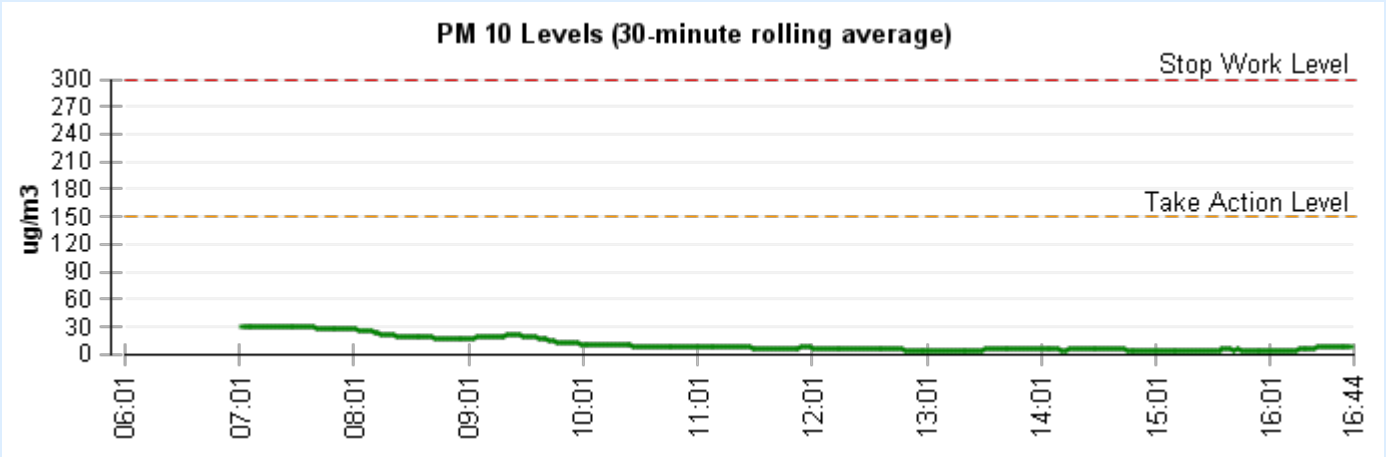




PM 2.5 and PM 10 Time History Data

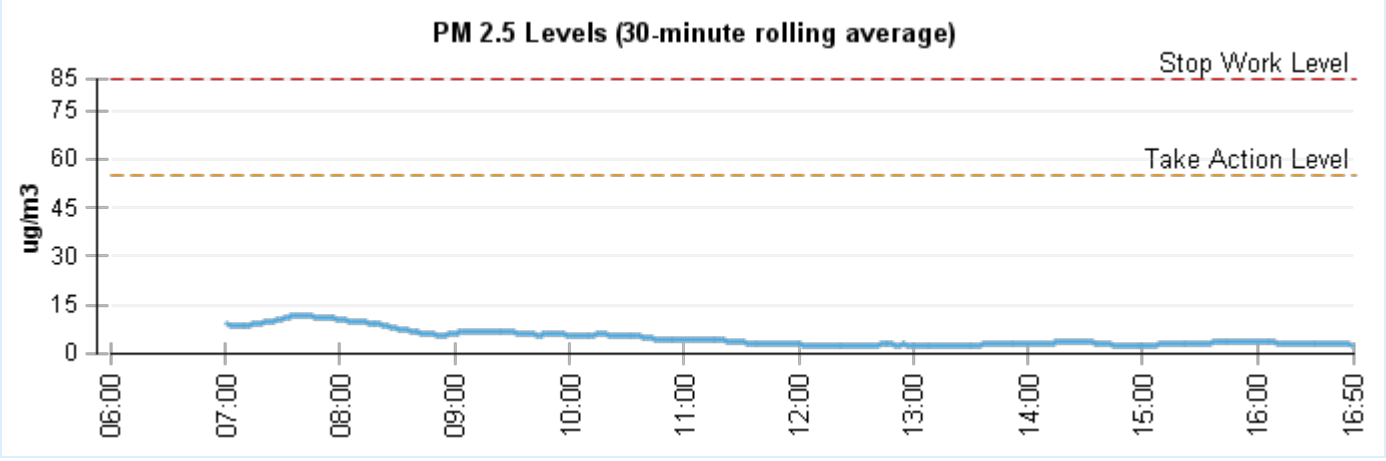
Sample Date	Dec 3, 2021
Station ID AMS-07	**Location Description** 29.78752, -95.31885 - HWPW - Clementine North

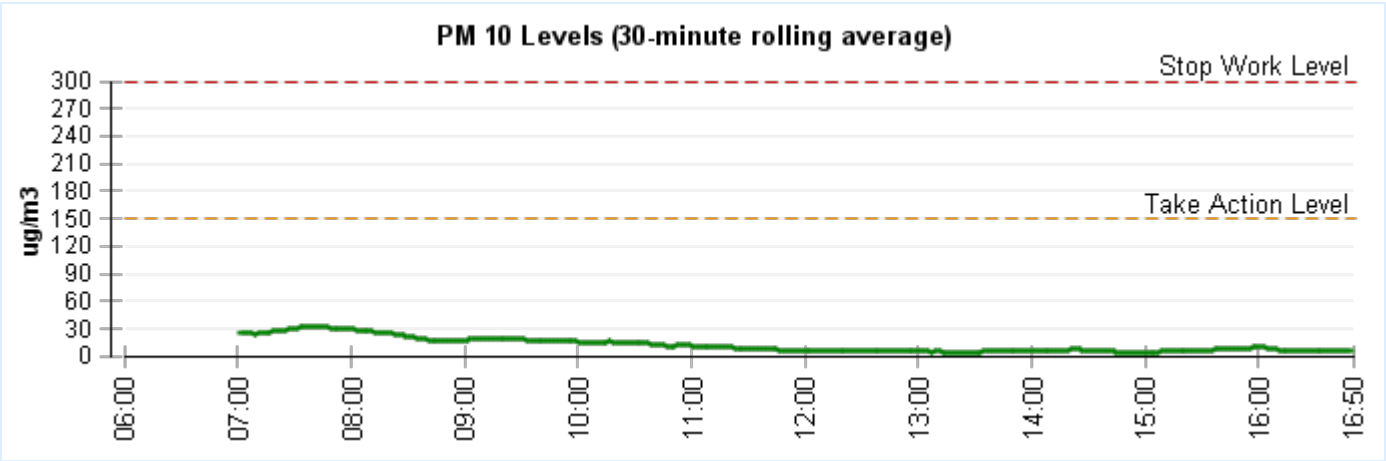




PM 2.5 and PM 10 Time History Data

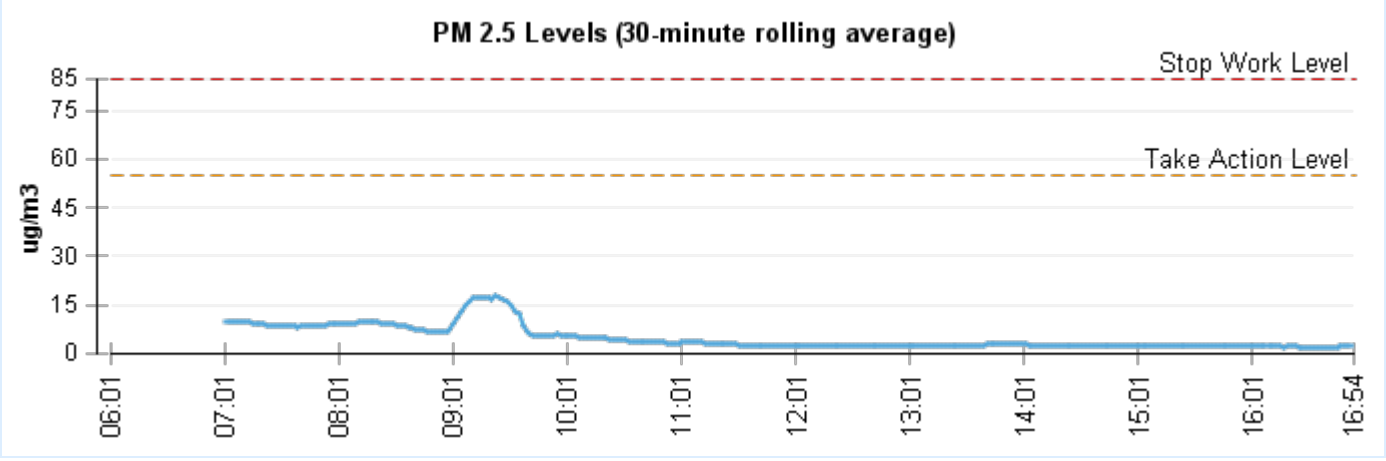
Sample Date	Dec 3, 2021
Station ID AMS-08	**Location Description** 29.78745, -95.32117 - HWPW - Solo North

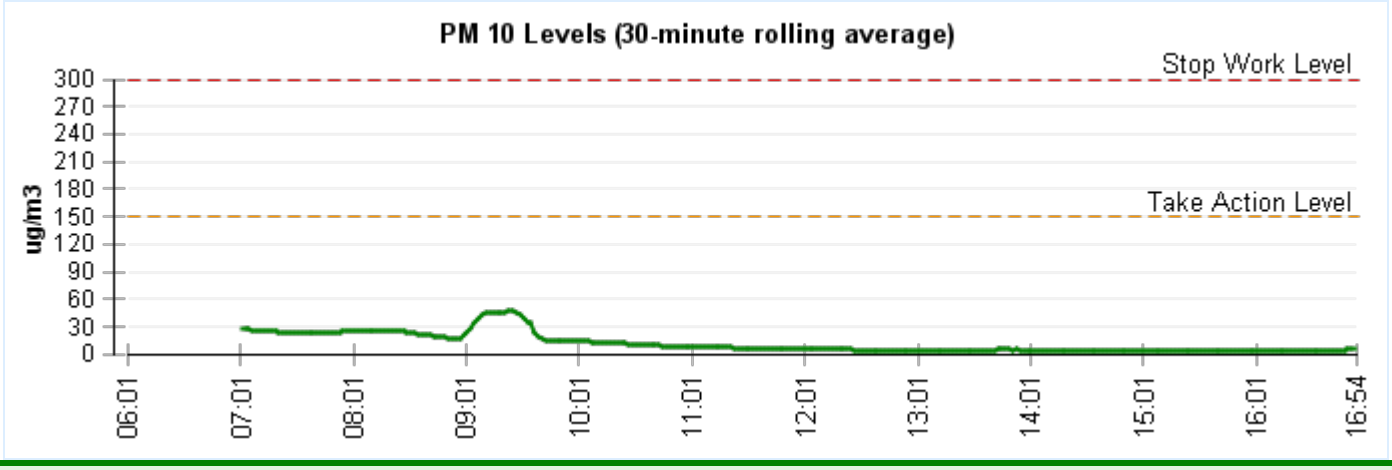




PM 2.5 and PM 10 Time History Data

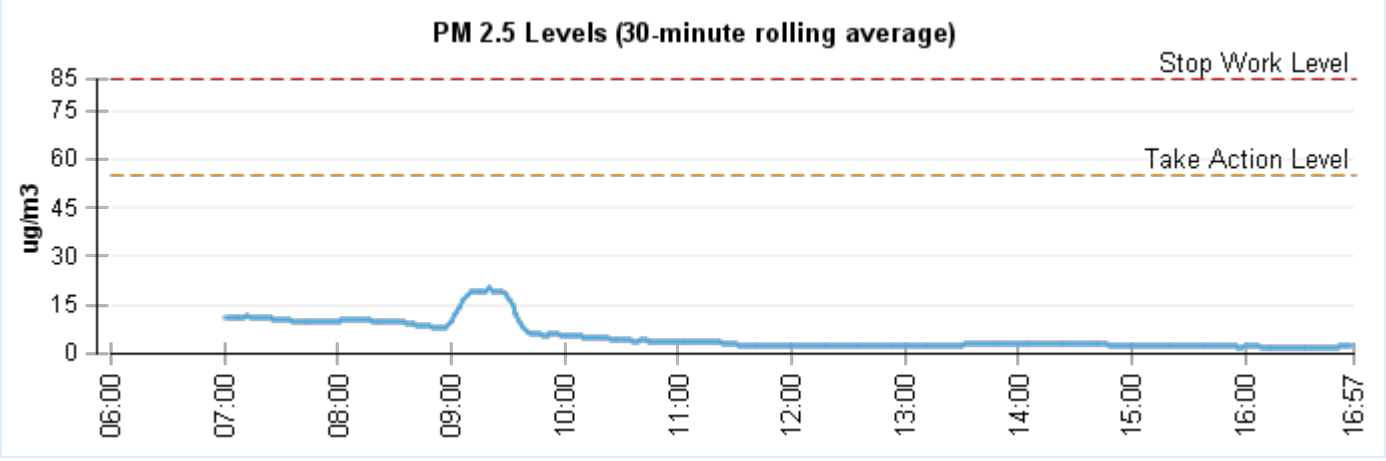
Sample Date	Dec 3, 2021
Station ID AMS-09	**Location Description** 29.78753, -95.32367 - HWPW - Kashmere and Liberty

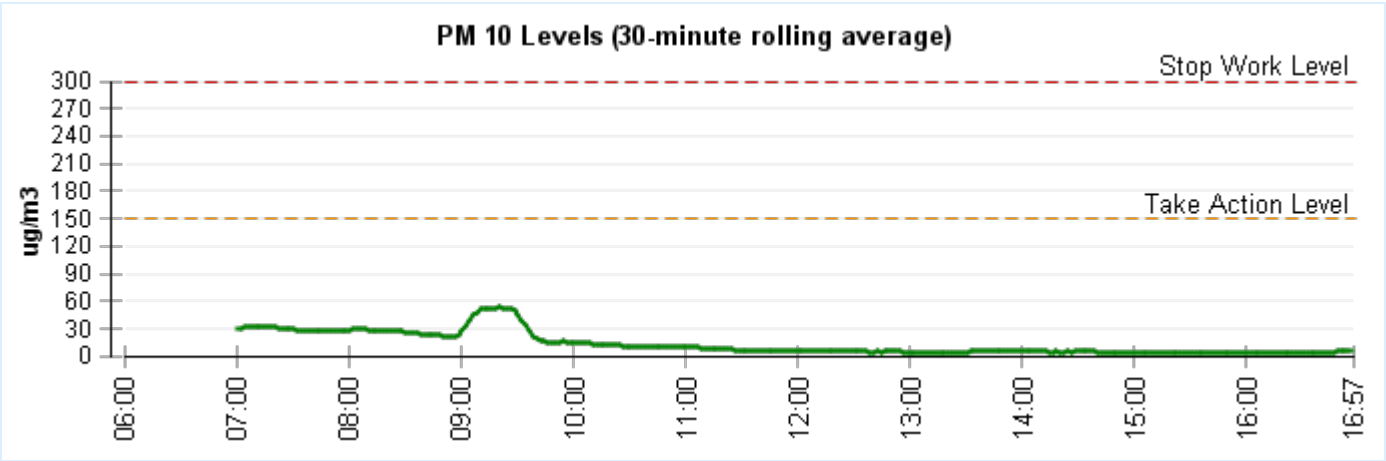




PM 2.5 and PM 10 Time History Data

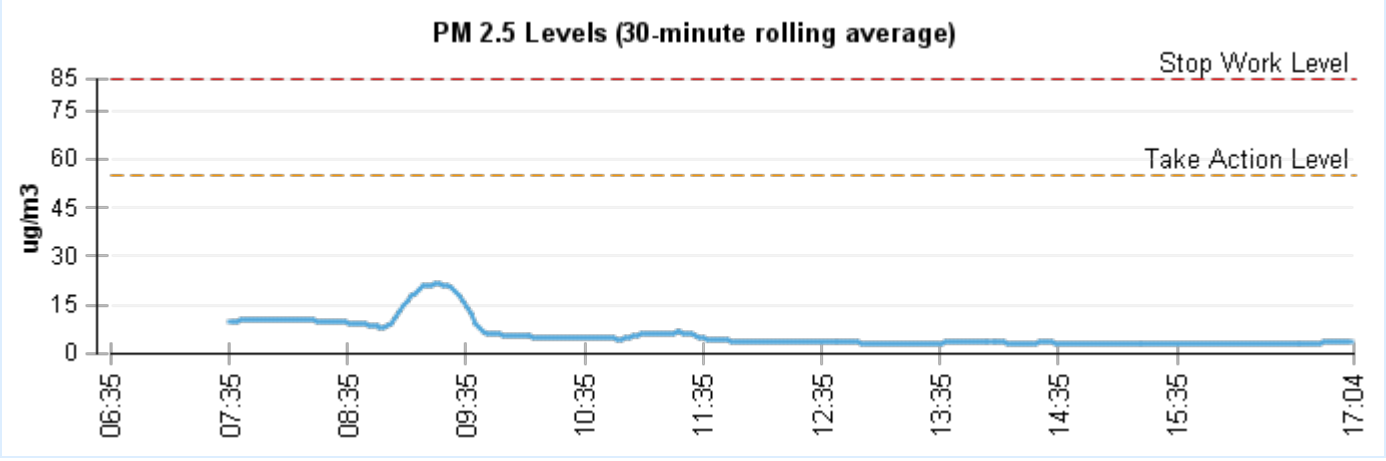
Sample Date	Dec 3, 2021
Station ID AMS-10a	**Location Description** 29.78627, -95.32378 - HWPW - Eddie and Kashmere

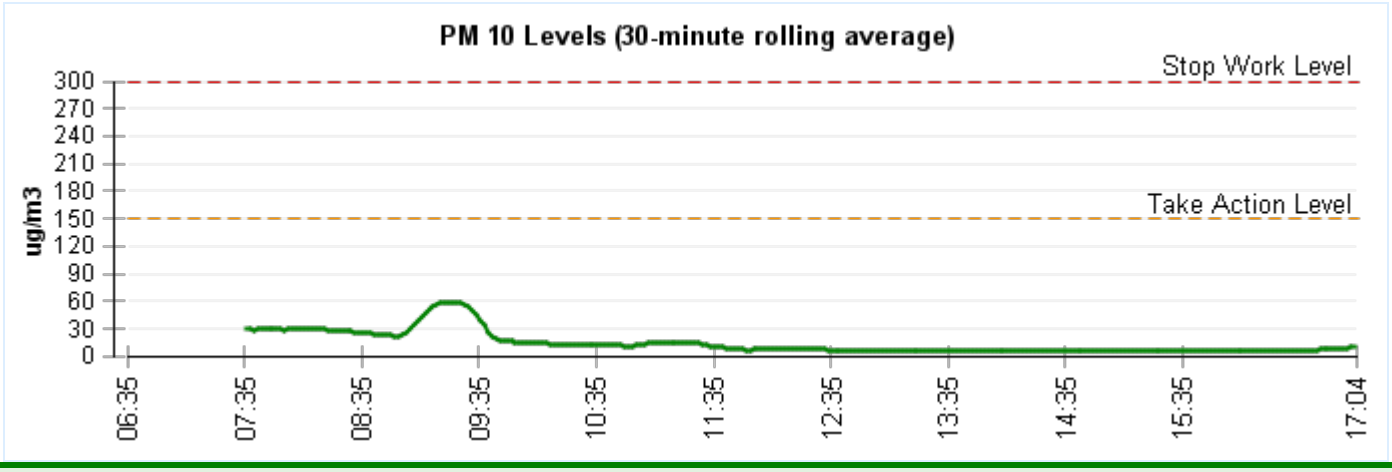




PM 2.5 and PM 10 Time History Data

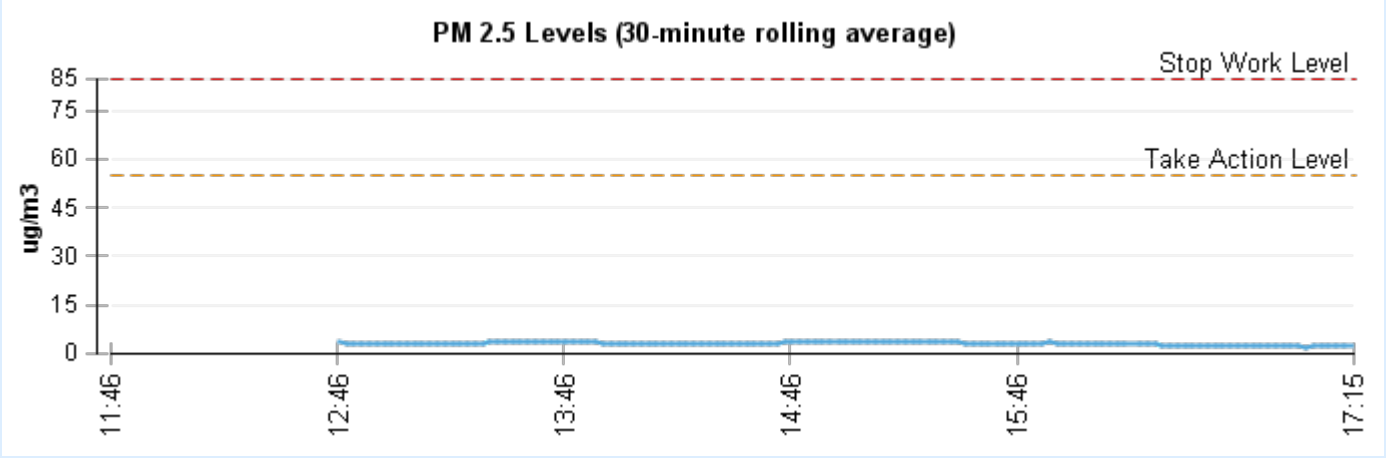
Sample Date	Dec 3, 2021
Station ID AMS-11	**Location Description** 29.78435, -95.32452 - HWPW - Quitman East

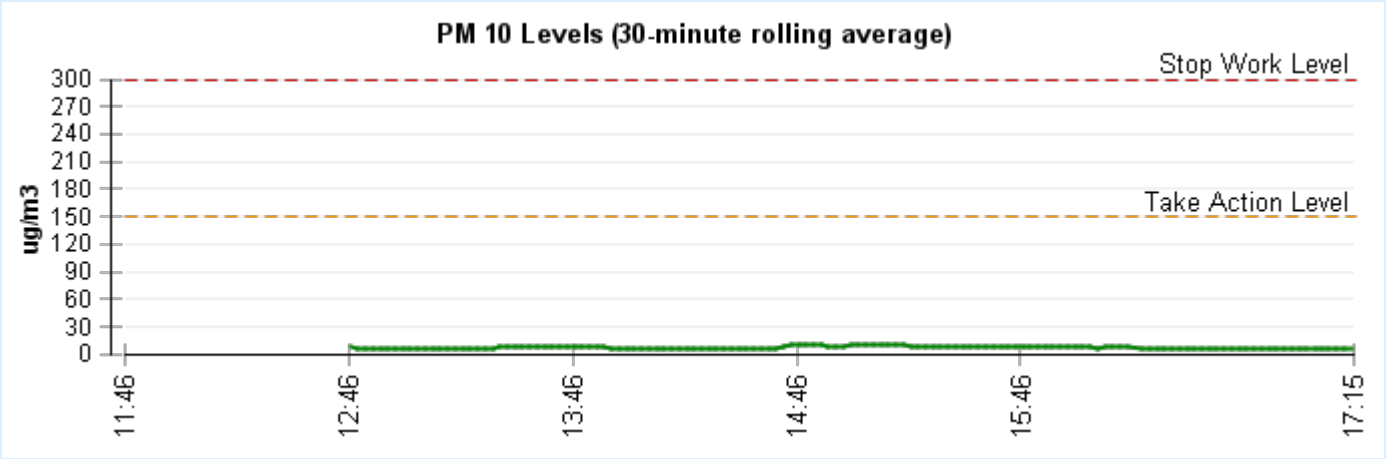




PM 2.5 and PM 10 Time History Data

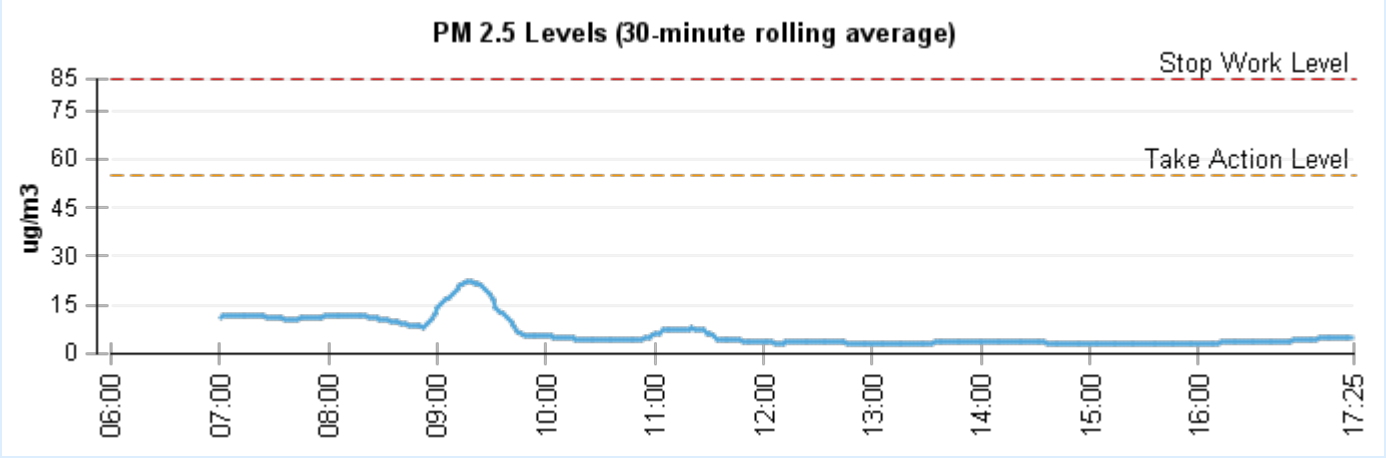
Sample Date	Dec 3, 2021
Station ID AMS-12	**Location Description** 29.78889, -95.31342 - Liberty - Sakowitz

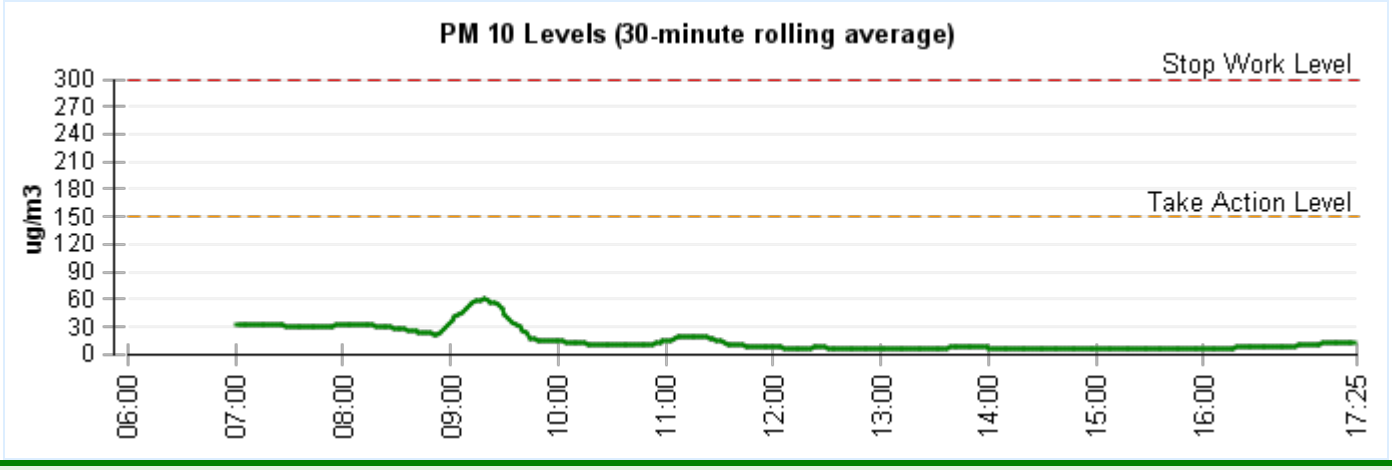




PM 2.5 and PM 10 Time History Data

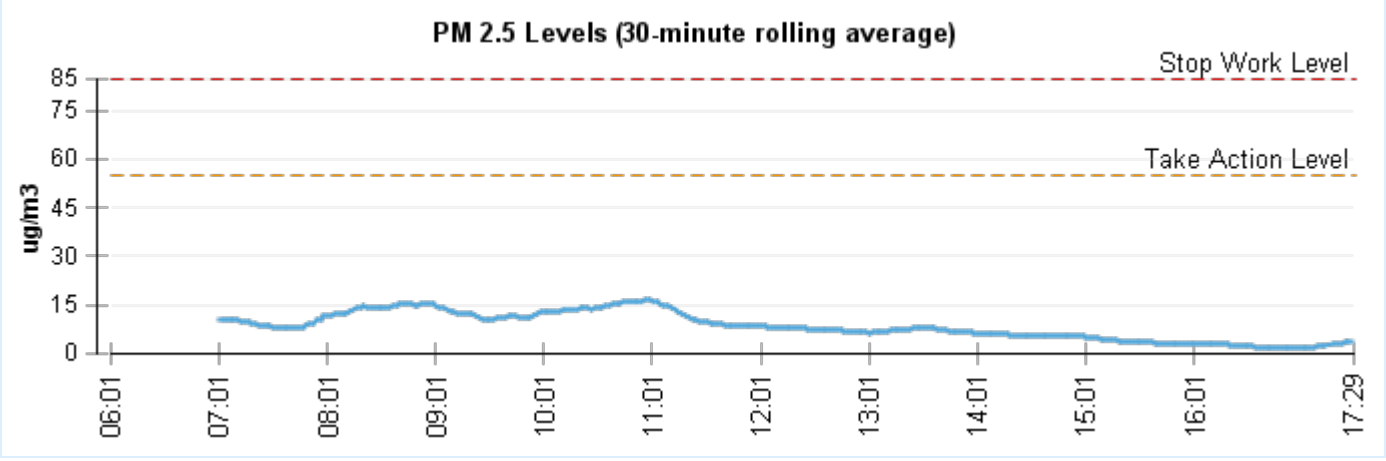
Sample Date	Dec 3, 2021
Station ID AMS-13	**Location Description** 29.78219, -95.32515 - IMY South - Waco and Lee

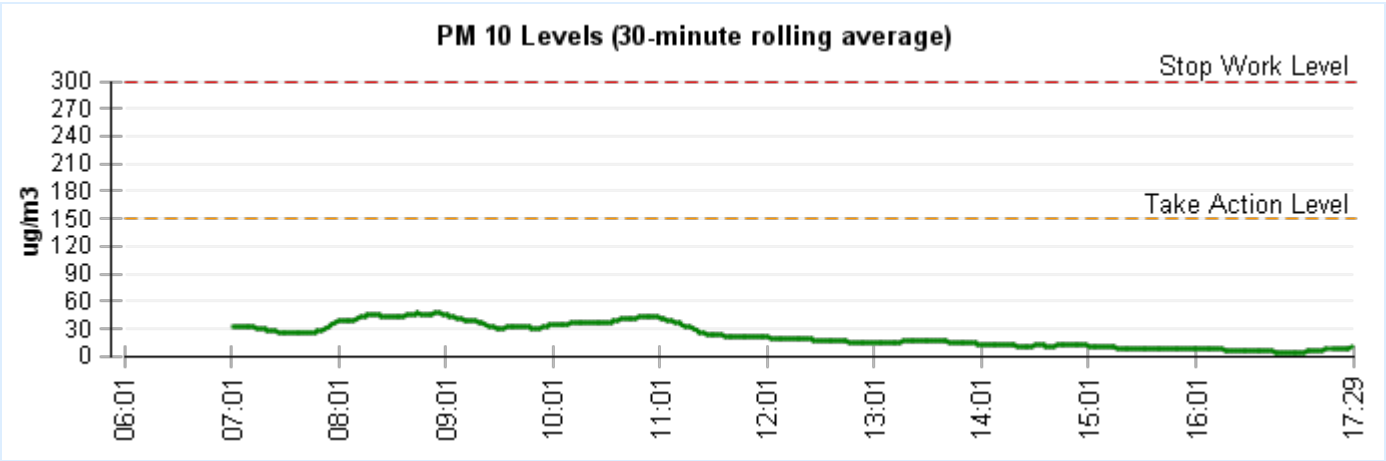




PM 2.5 and PM 10 Time History Data

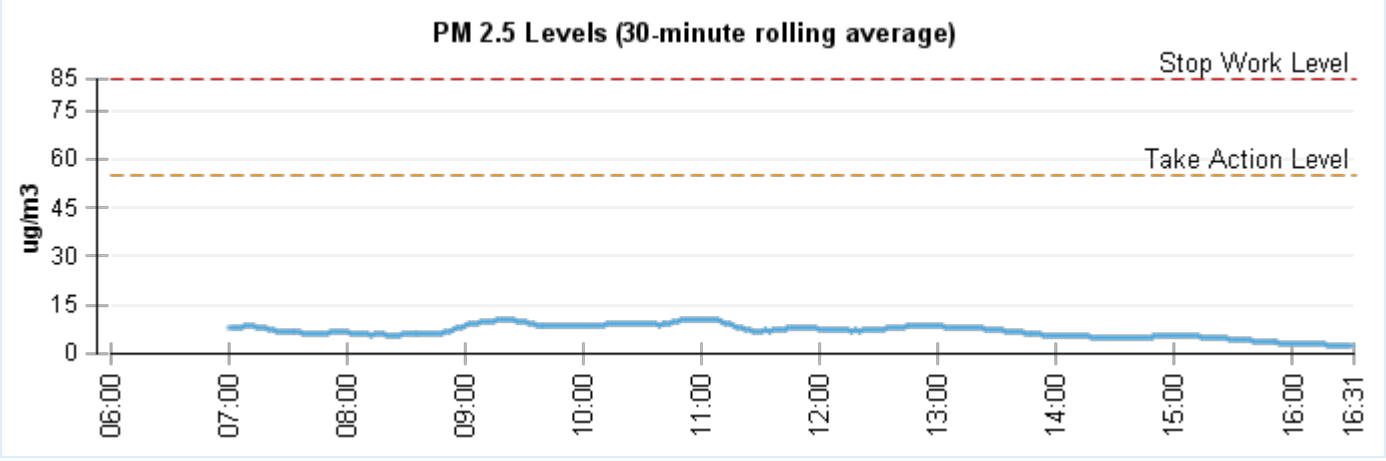
Sample Date	Dec 4, 2021
Station ID AMS-01	**Location Description** 29.79008, -95.29823 - Yard Office

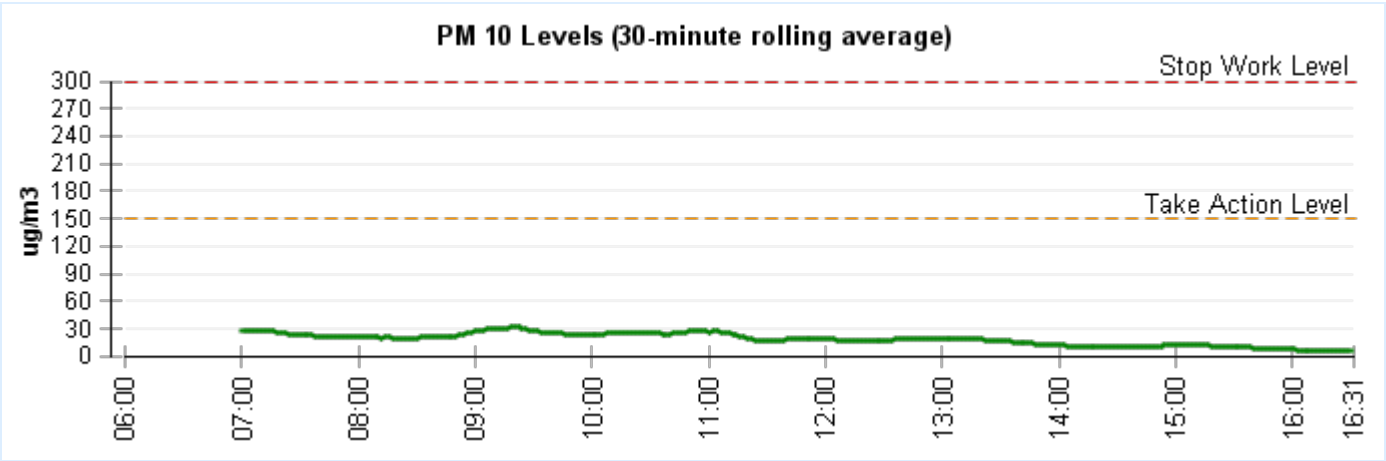




PM 2.5 and PM 10 Time History Data

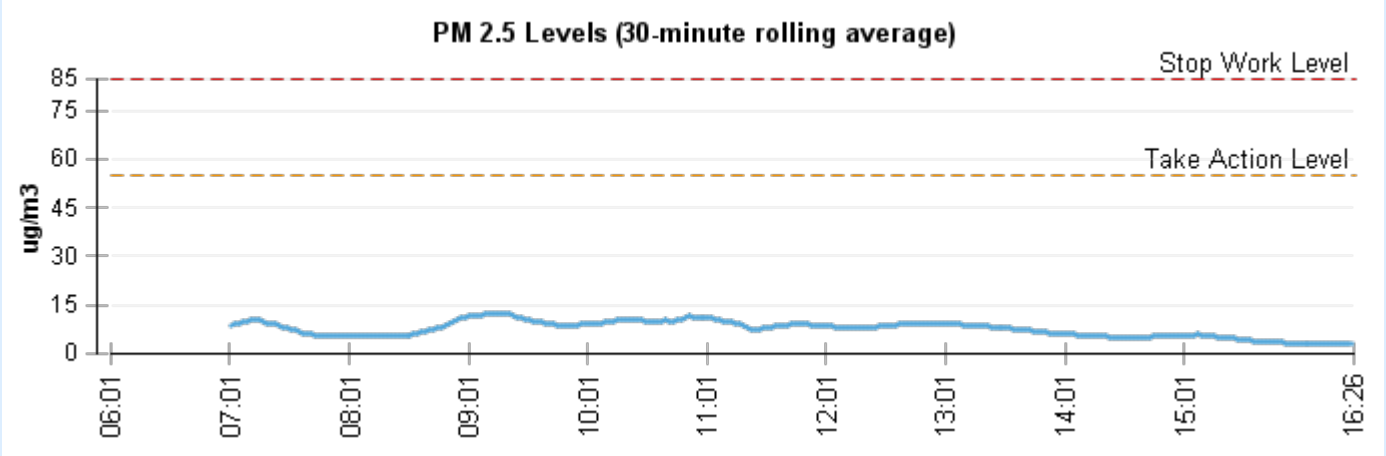
Sample Date	Dec 4, 2021
Station ID AMS-02	**Location Description** 29.78419, -95.31691 - IMY East - Sudan and Harlem

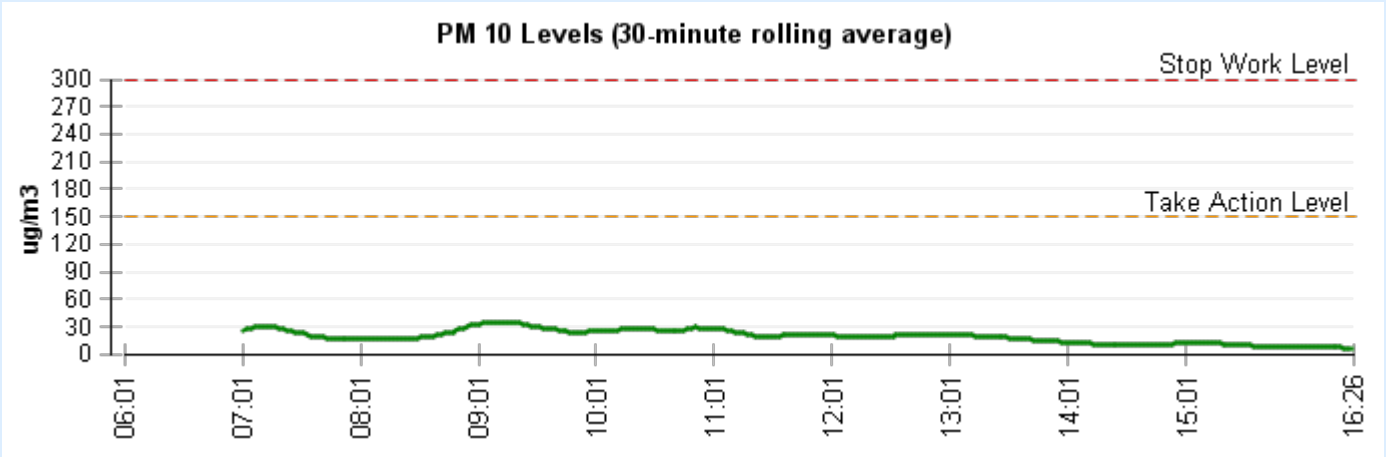




PM 2.5 and PM 10 Time History Data

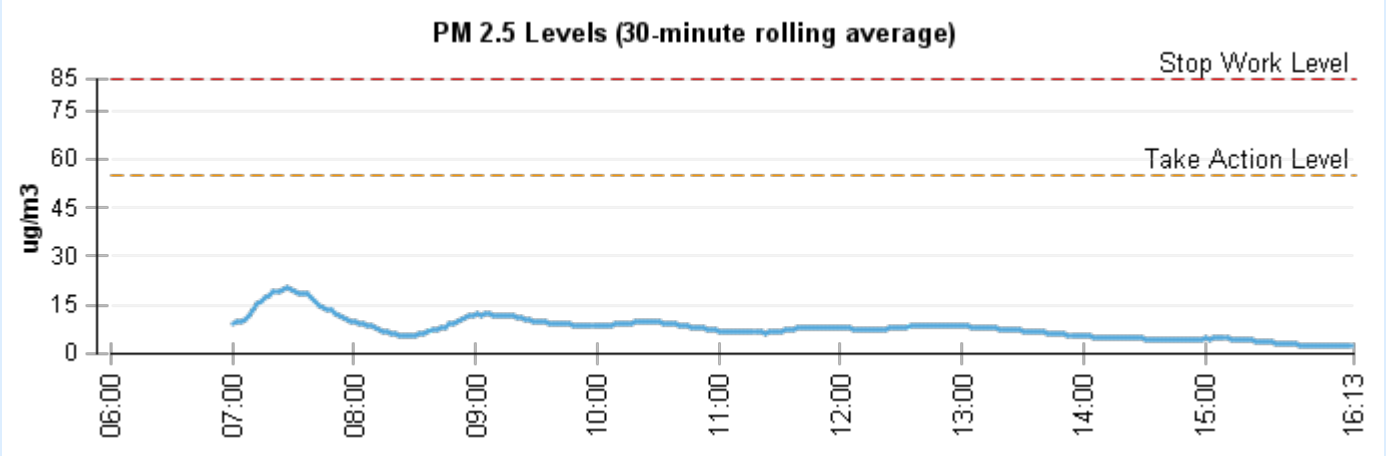
Sample Date	Dec 4, 2021
Station ID AMS-03	**Location Description** 29.78205, -95.31915 - IMY SE - Clementine

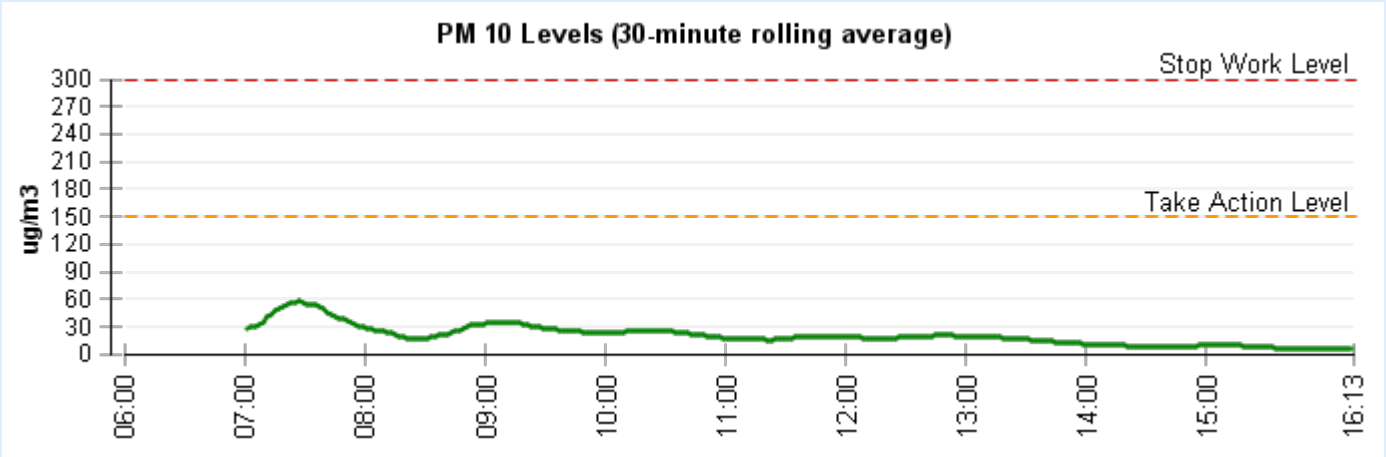




PM 2.5 and PM 10 Time History Data

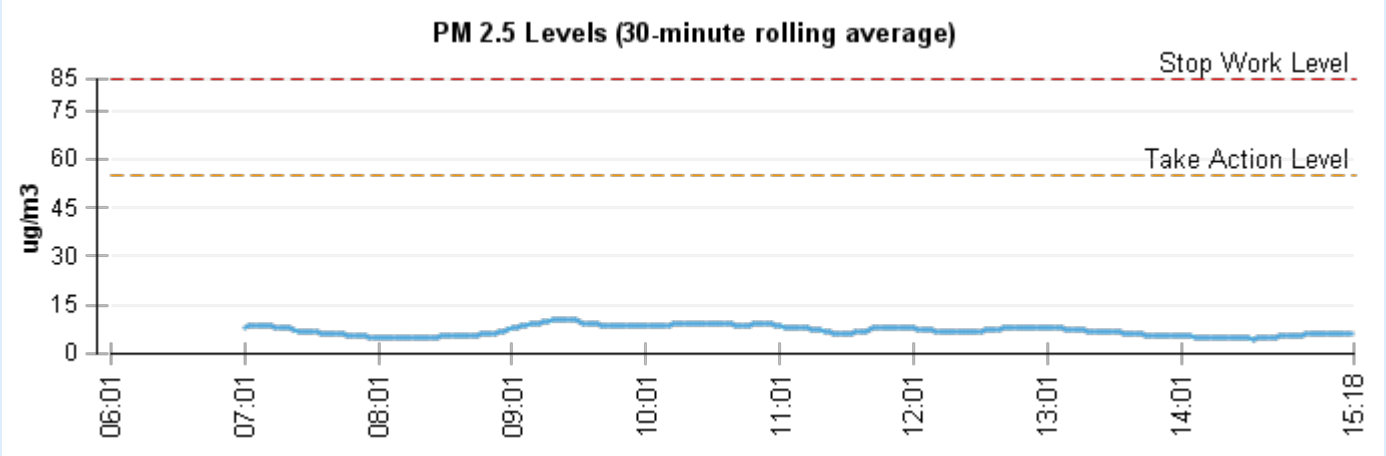
Sample Date	Dec 4, 2021
Station ID AMS-04	**Location Description** 29.78217, -95.3228 - IMY South - Schweikhardt

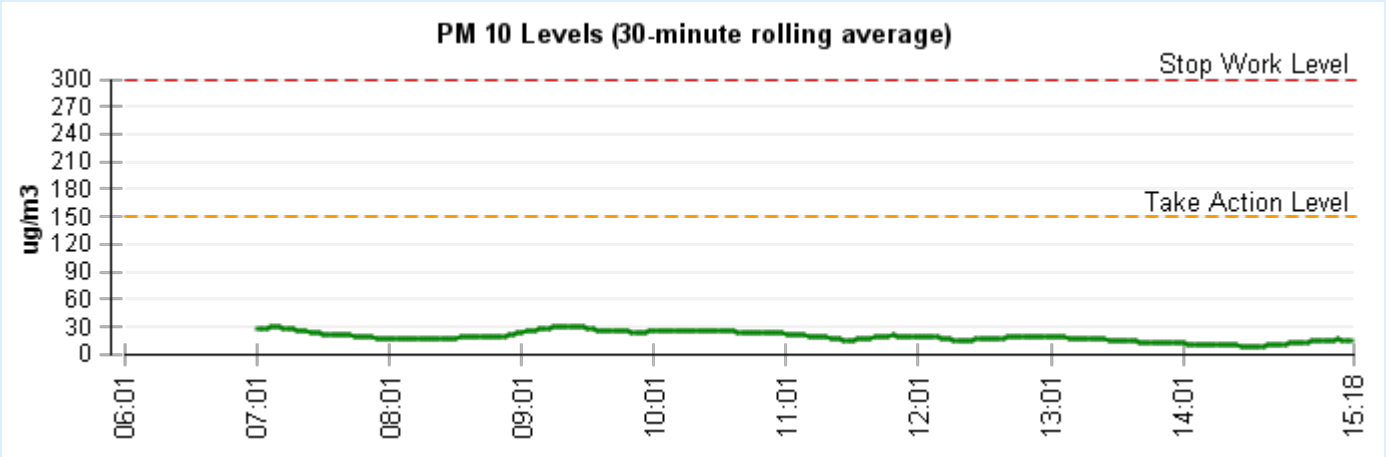




PM 2.5 and PM 10 Time History Data

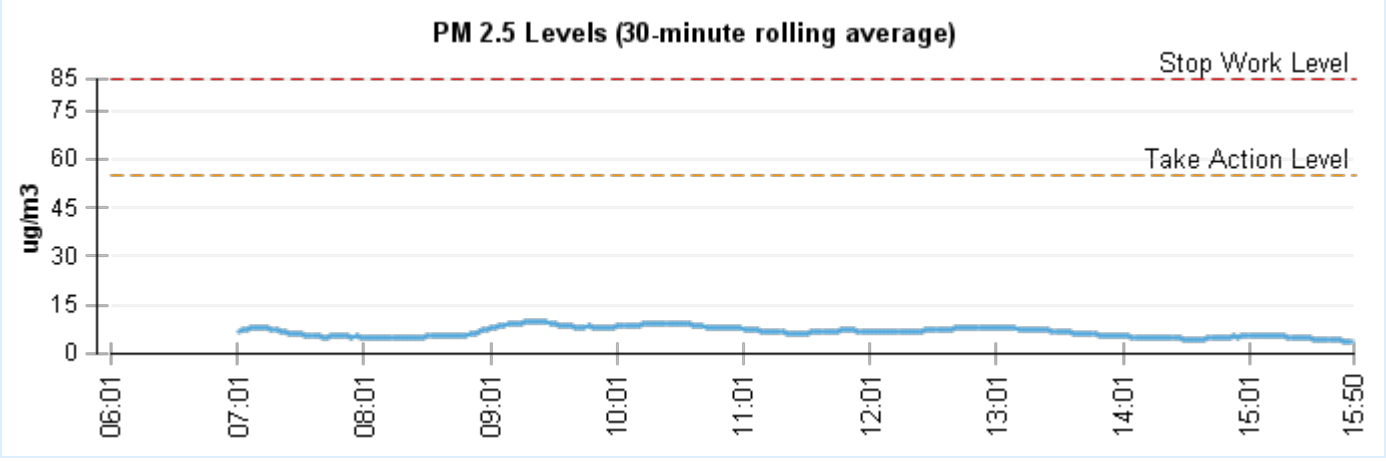
Sample Date	Dec 4, 2021
Station ID AMS-06	**Location Description** 29.78763, -95.31665 - HWPW - Erastus

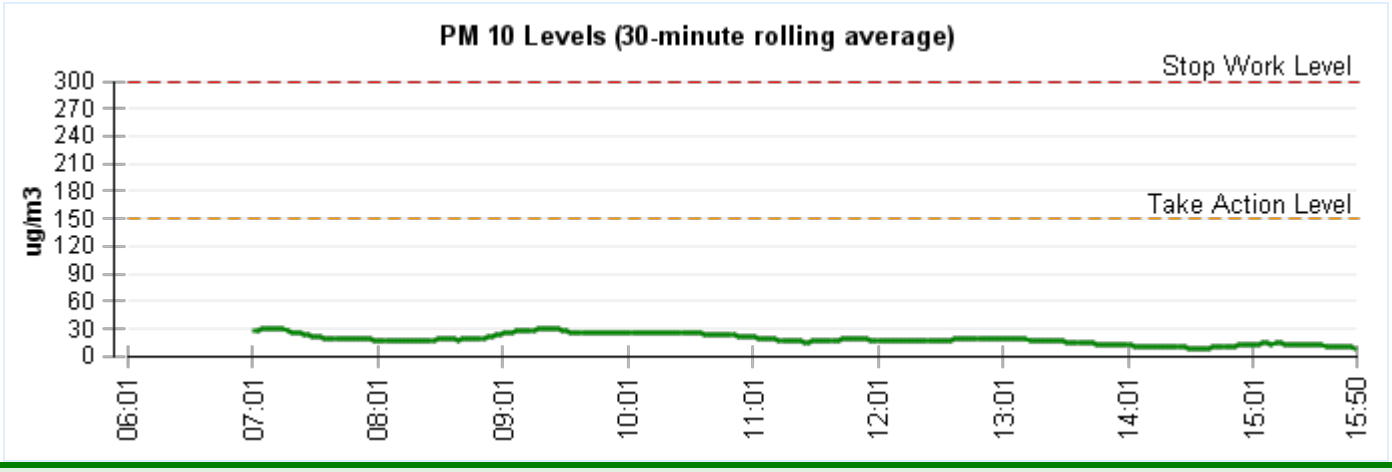




PM 2.5 and PM 10 Time History Data

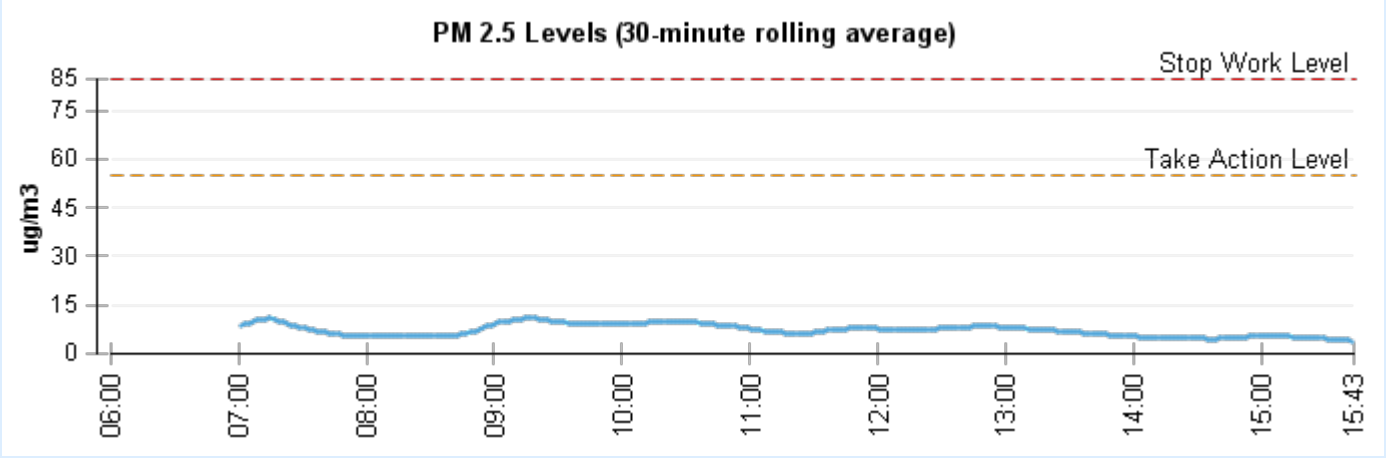
Sample Date	Dec 4, 2021
Station ID AMS-07	**Location Description** 29.78752, -95.31887 - HWPW - Clementine North

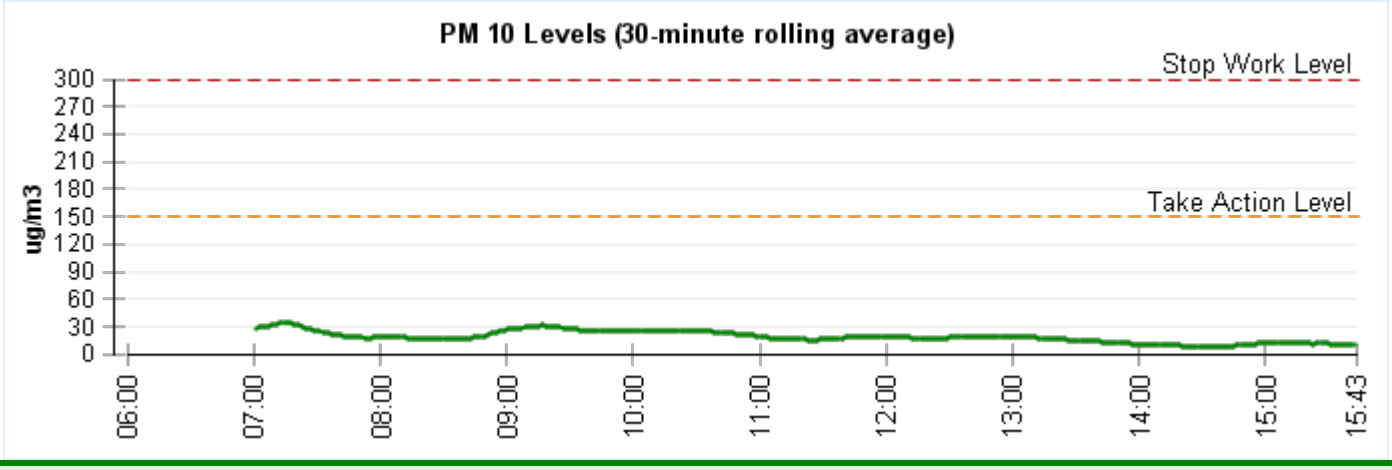




PM 2.5 and PM 10 Time History Data

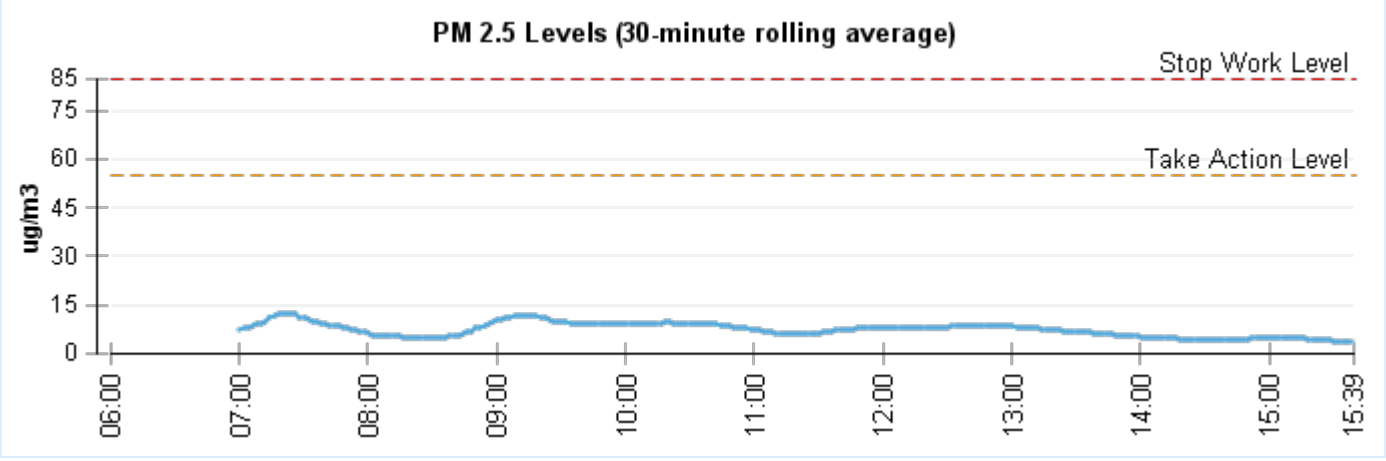
Sample Date	Dec 4, 2021
Station ID AMS-08	**Location Description** 29.7874, -95.32115 - HWPW - Solo North

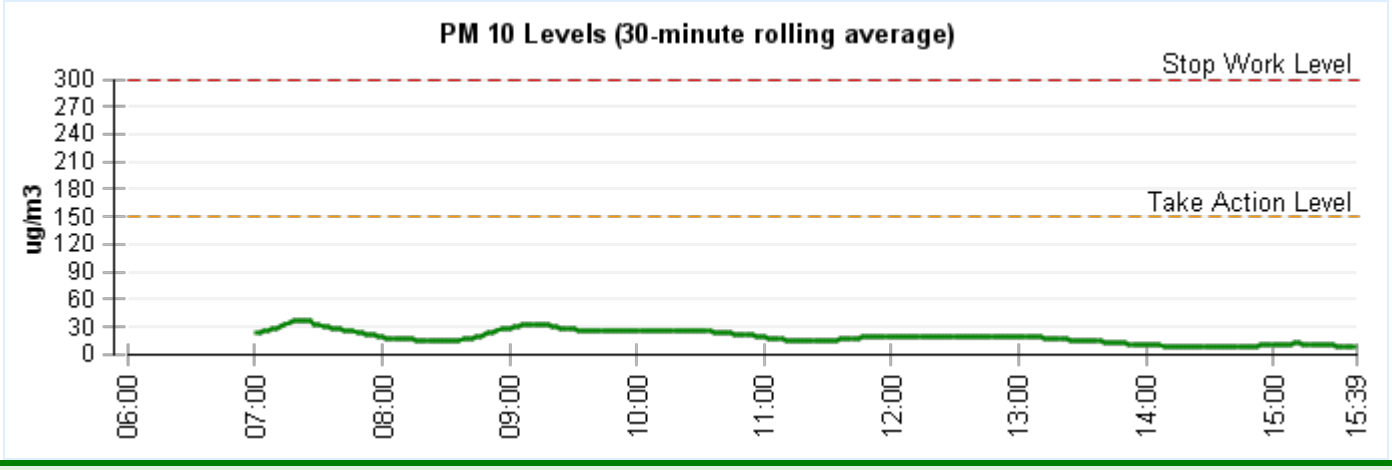




PM 2.5 and PM 10 Time History Data

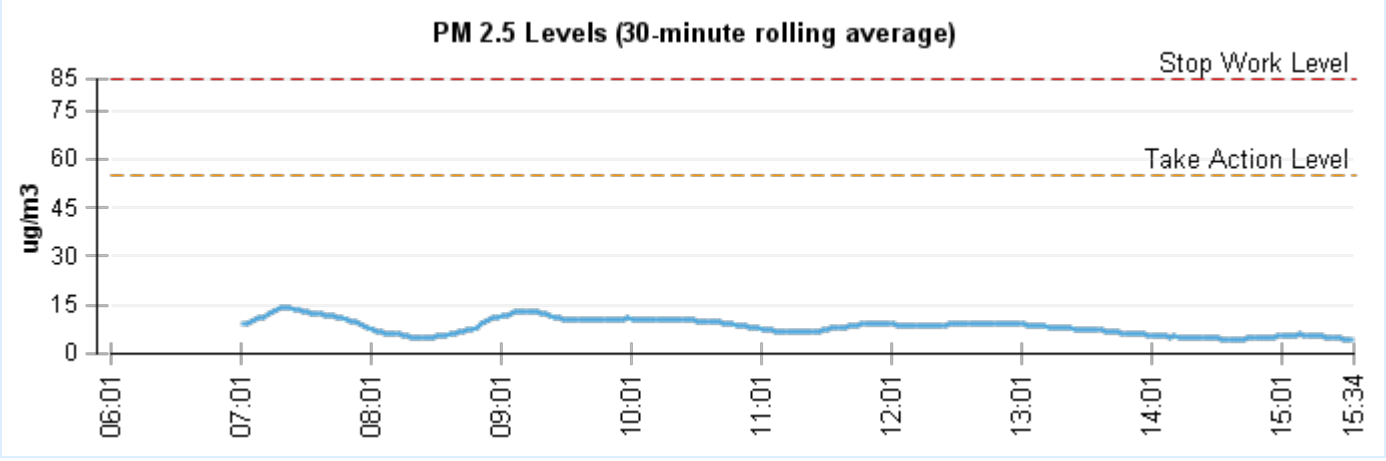
Sample Date	Dec 4, 2021
Station ID AMS-09	**Location Description** 29.78753, -95.32369 - HWPW - Kashmere and Liberty

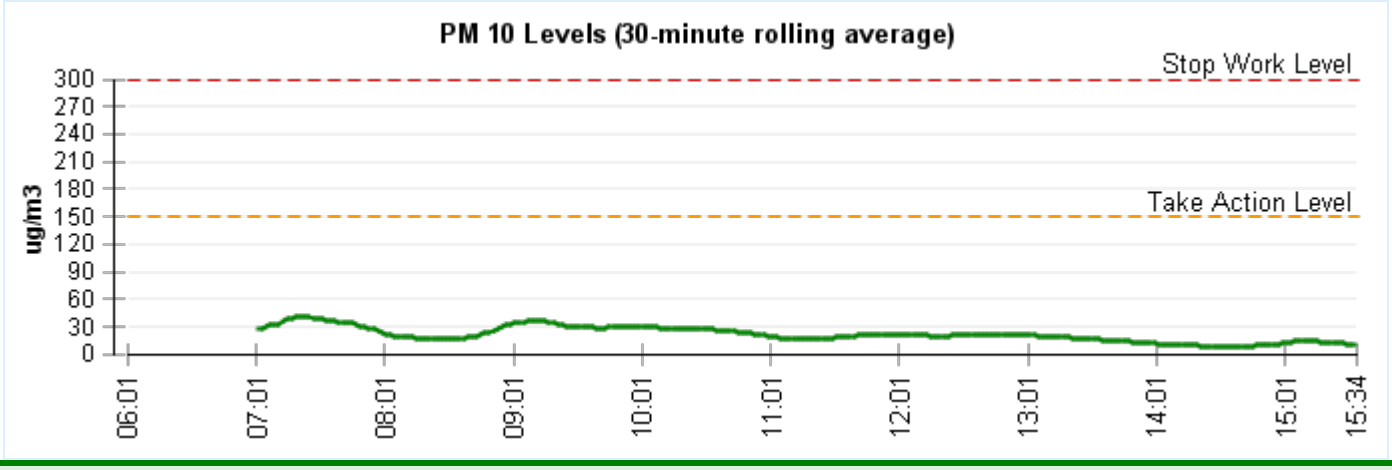




PM 2.5 and PM 10 Time History Data

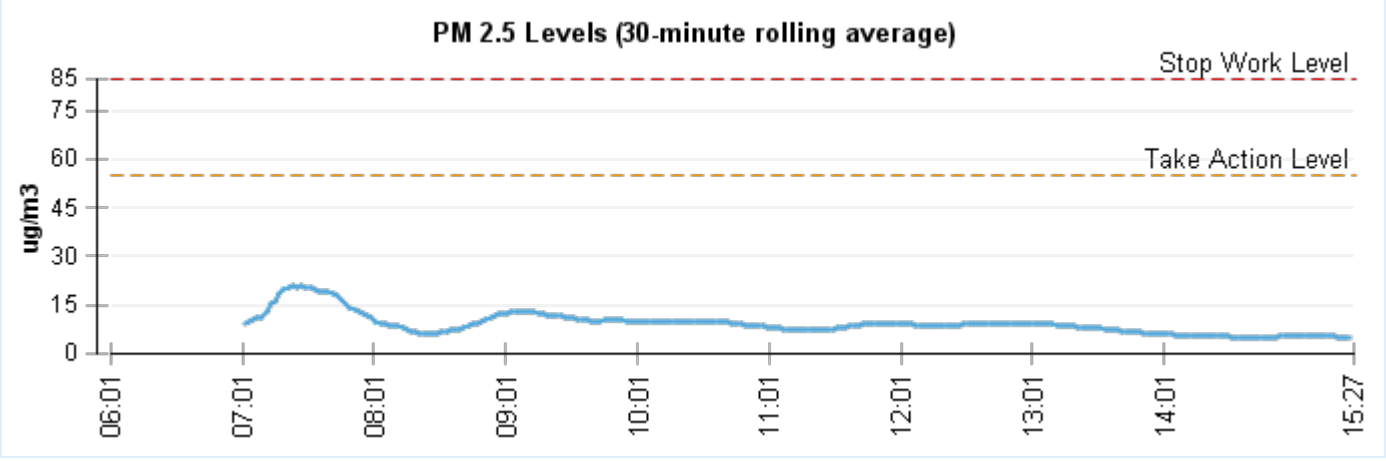
Sample Date	Dec 4, 2021
Station ID AMS-10a	**Location Description** 29.78633, -95.32374 - HWPW - Eddie and Kashmere

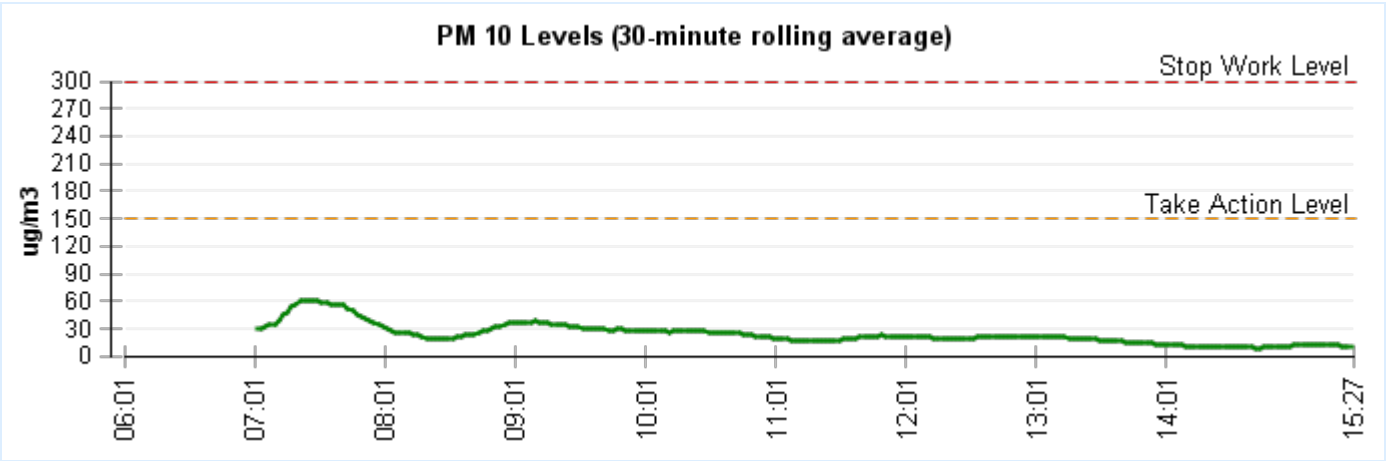




PM 2.5 and PM 10 Time History Data

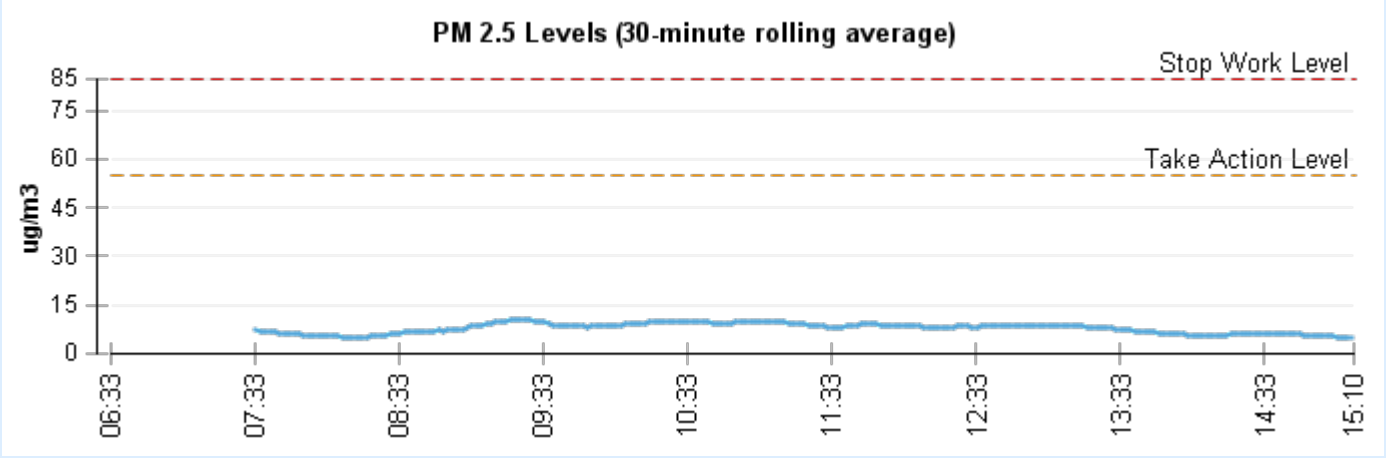
Sample Date	Dec 4, 2021
Station ID AMS-11	**Location Description** 29.78439, -95.3245 - HWPW - Quitman East

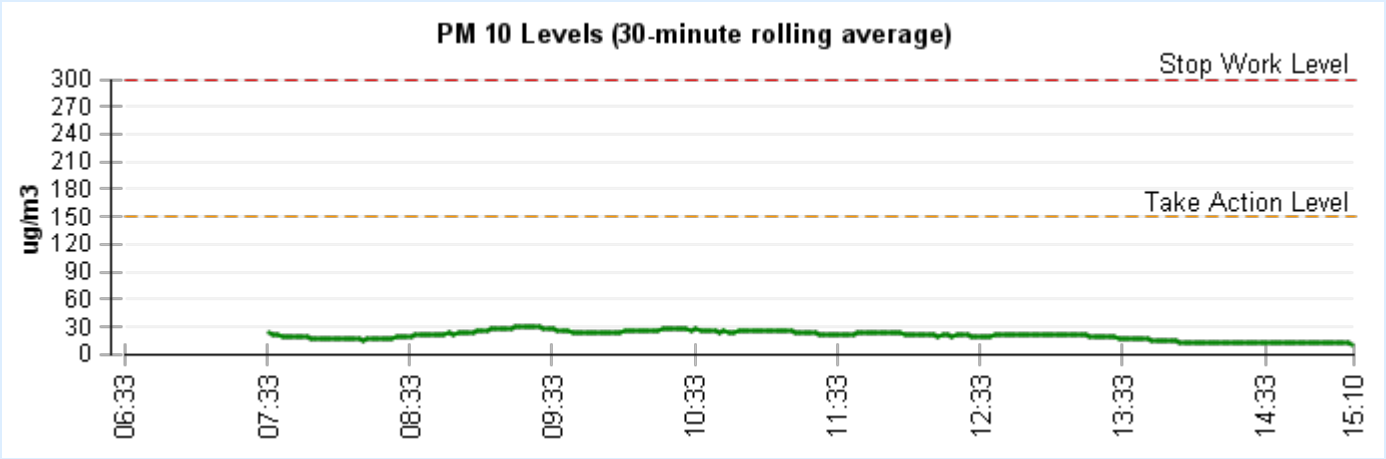




PM 2.5 and PM 10 Time History Data

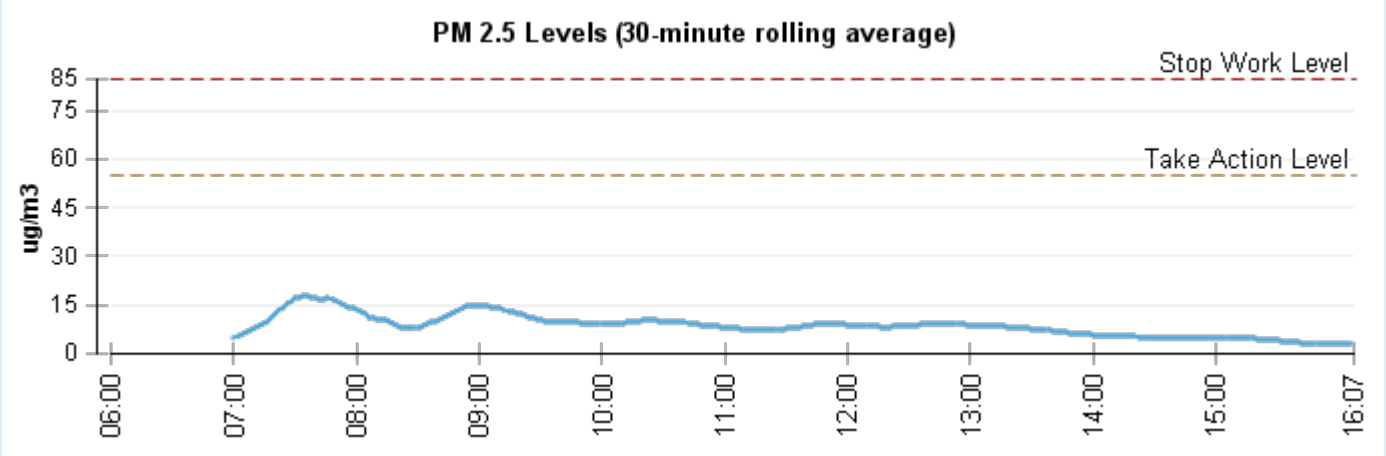
Sample Date	Dec 4, 2021
Station ID AMS-12	**Location Description** 29.7889, -95.31345 - Liberty - Sakowitz

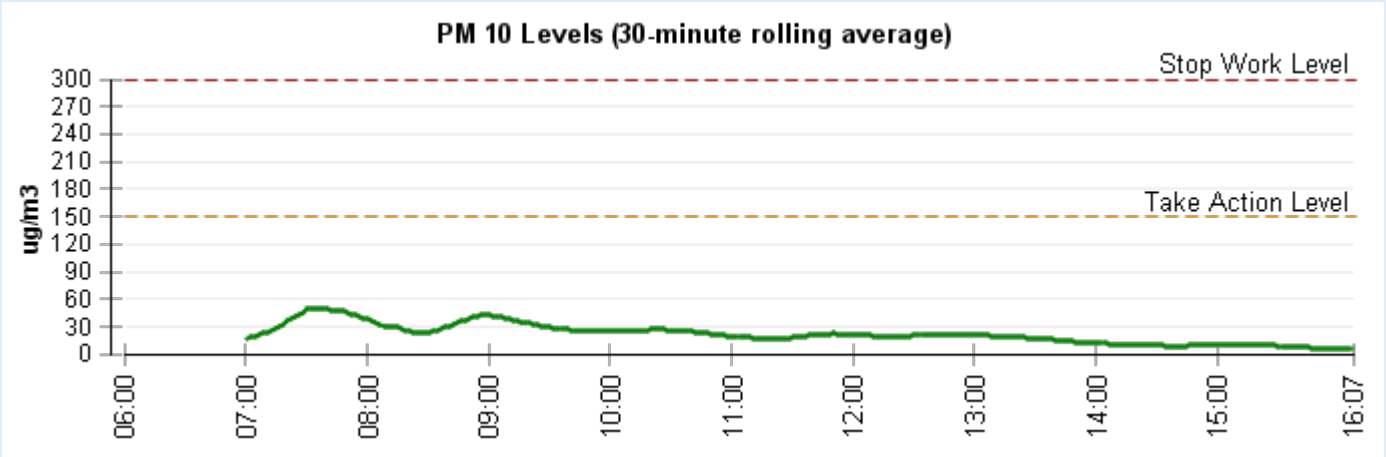




PM 2.5 and PM 10 Time History Data

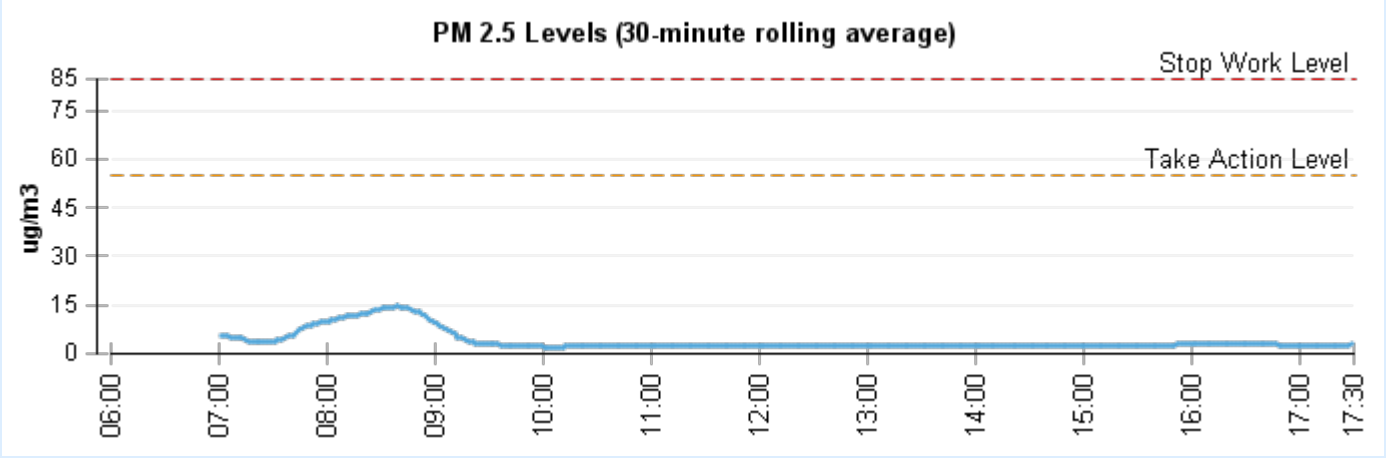
Sample Date	Dec 4, 2021
Station ID AMS-13	**Location Description** 29.78216, -95.32516 - IMY South - Waco and Lee

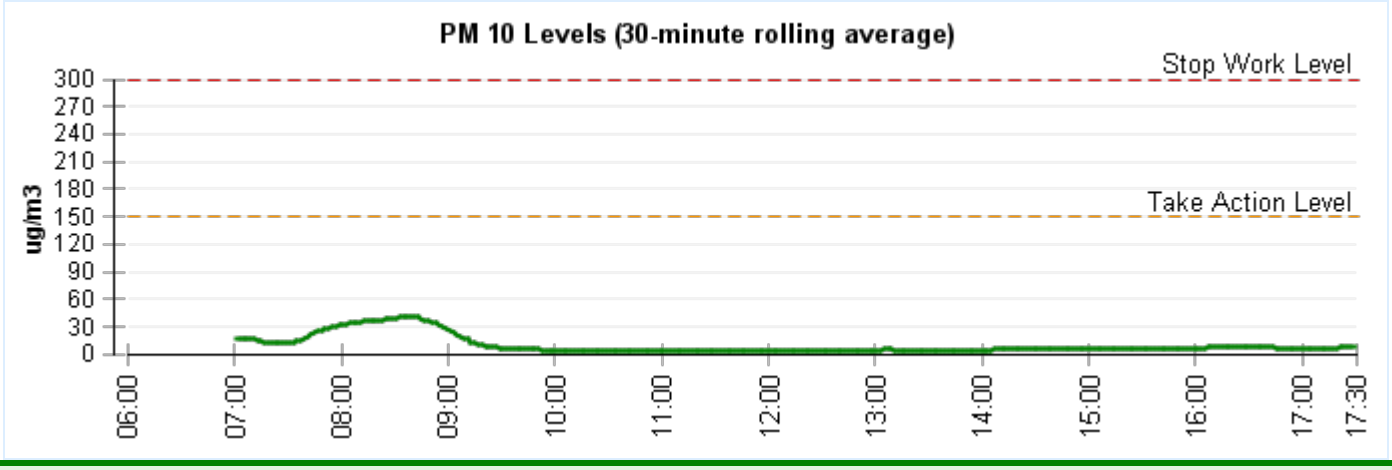




PM 2.5 and PM 10 Time History Data

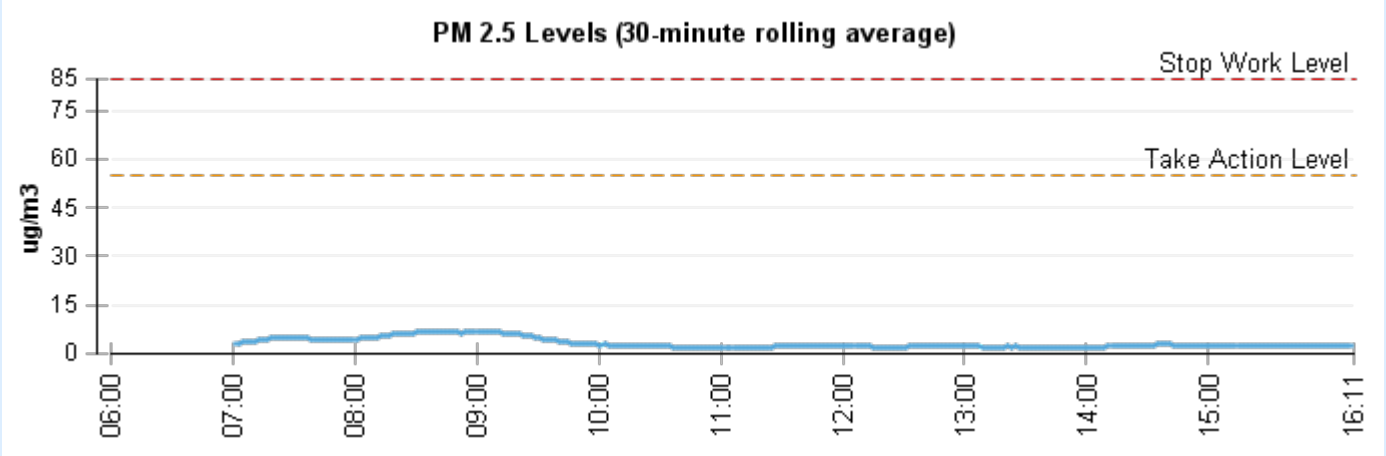
Sample Date	Dec 5, 2021
Station ID AMS-01	**Location Description** 29.79008, -95.29823 - Yard Office

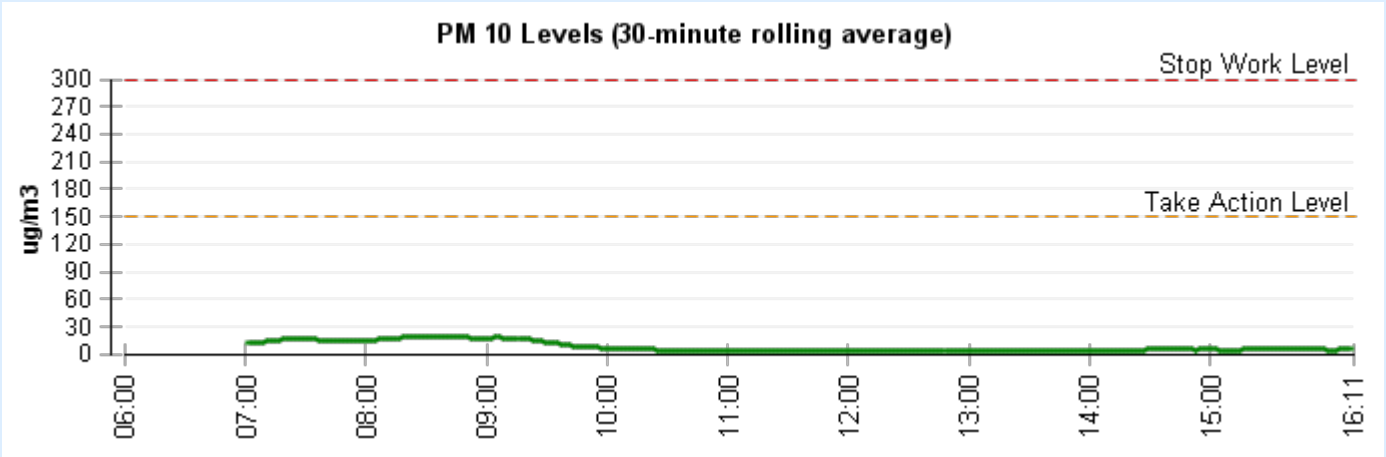




PM 2.5 and PM 10 Time History Data

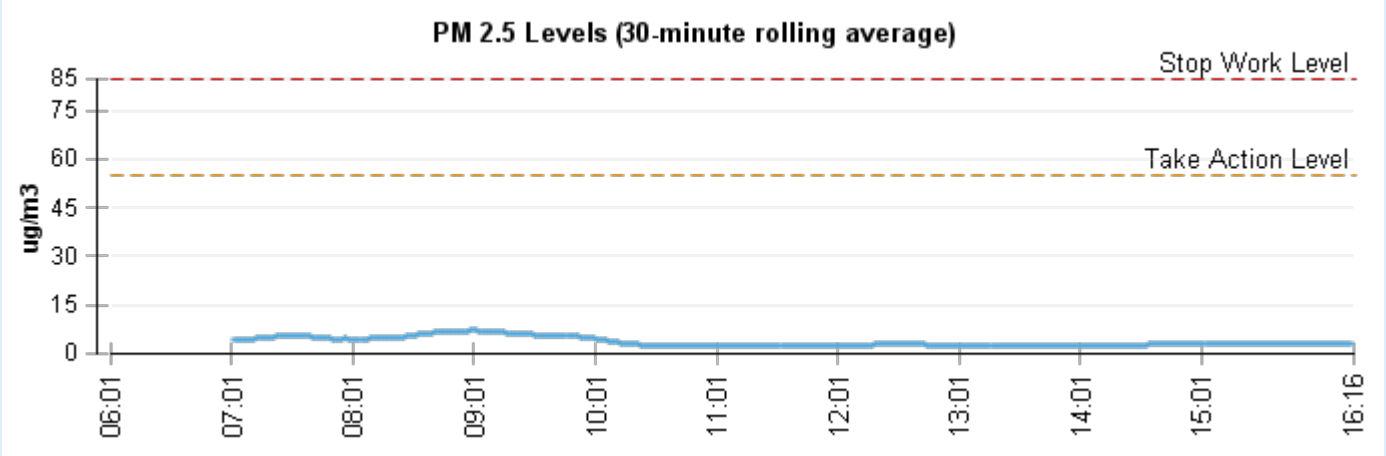
Sample Date	Dec 5, 2021
Station ID AMS-02	**Location Description** 29.78423, -95.31681 - IMY East - Sudan and Harlem

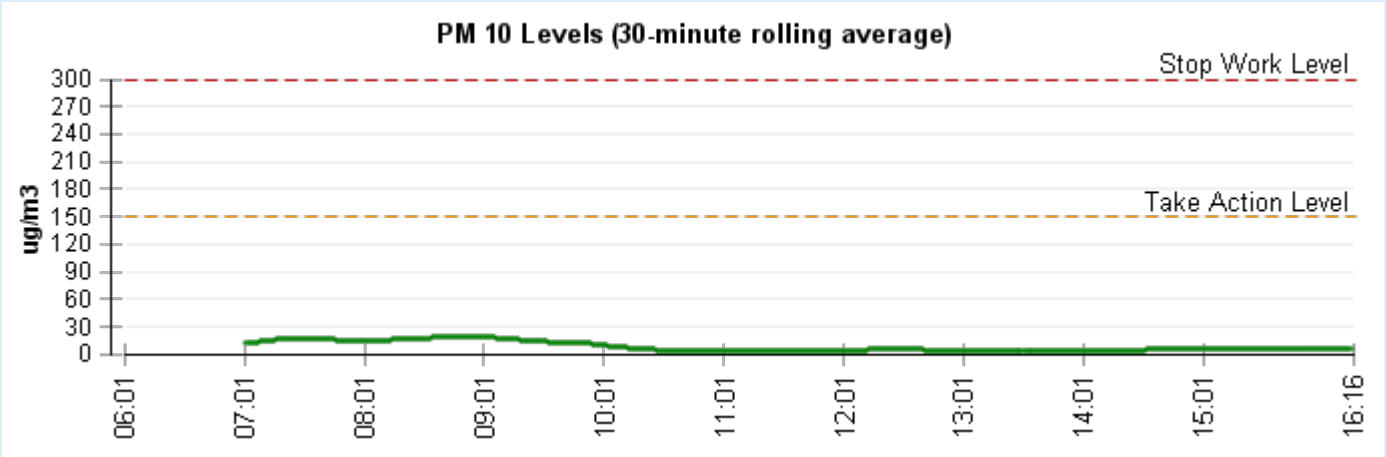




PM 2.5 and PM 10 Time History Data

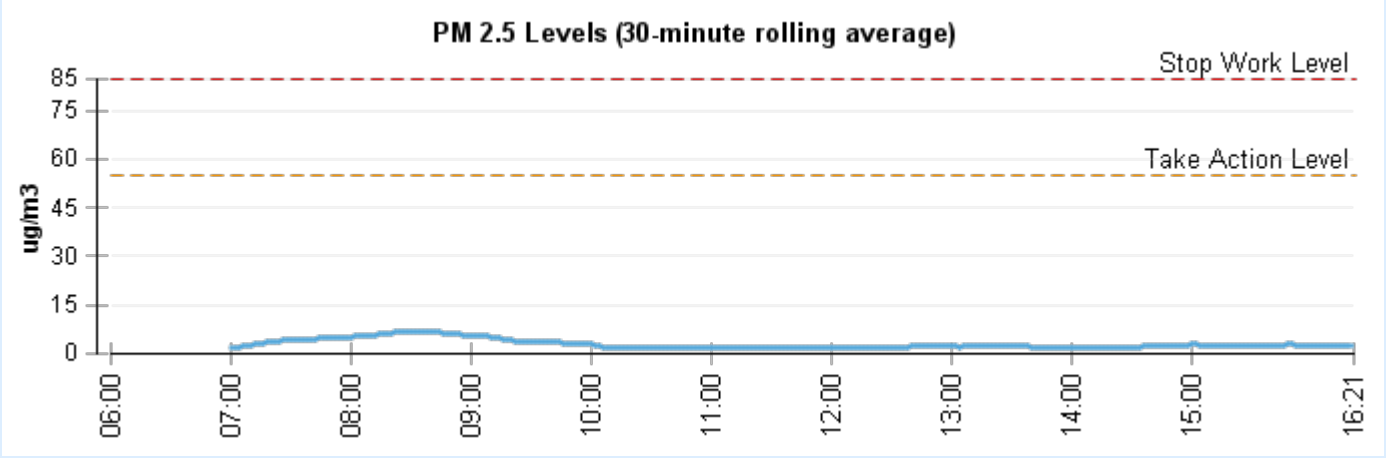
Sample Date	Dec 5, 2021
Station ID AMS-03	**Location Description** 29.78206, -95.31913 - IMY SE - Clementine

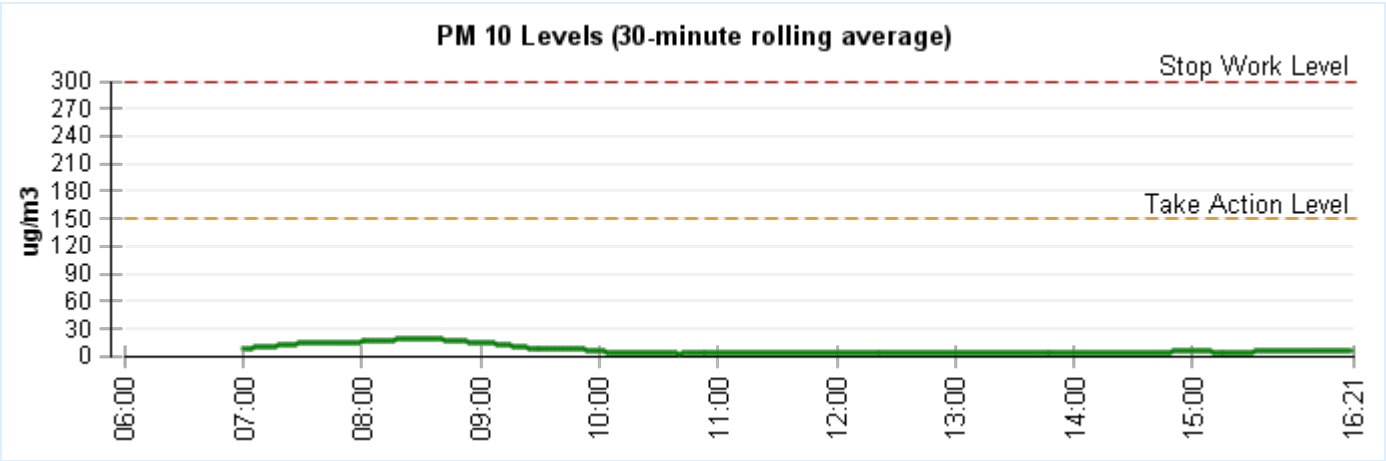




PM 2.5 and PM 10 Time History Data

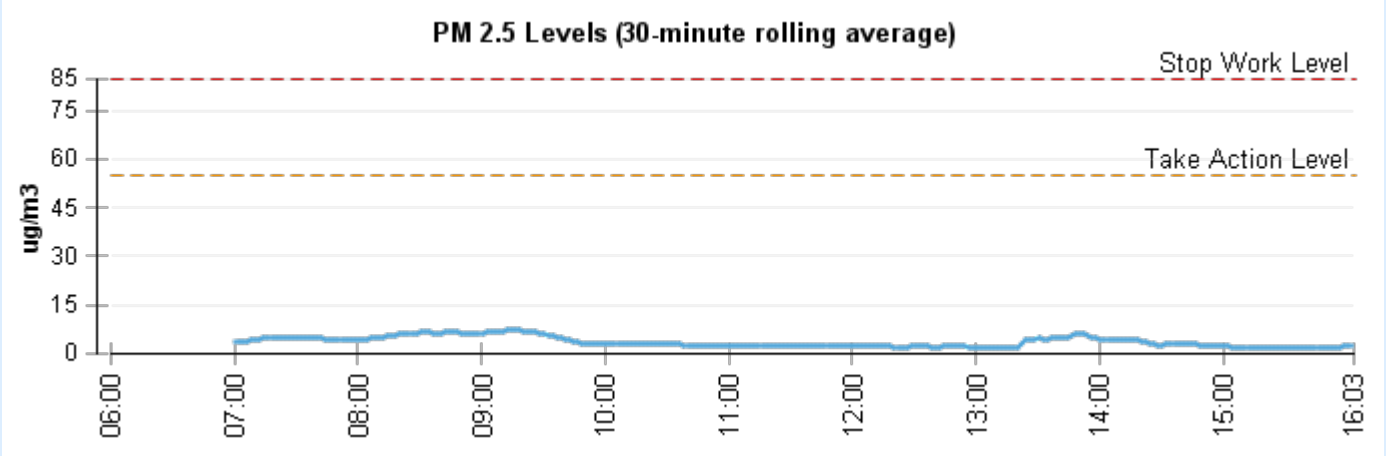
Sample Date	Dec 5, 2021
Station ID AMS-04	**Location Description** 29.78219, -95.32282 - IMY South - Schweikhardt

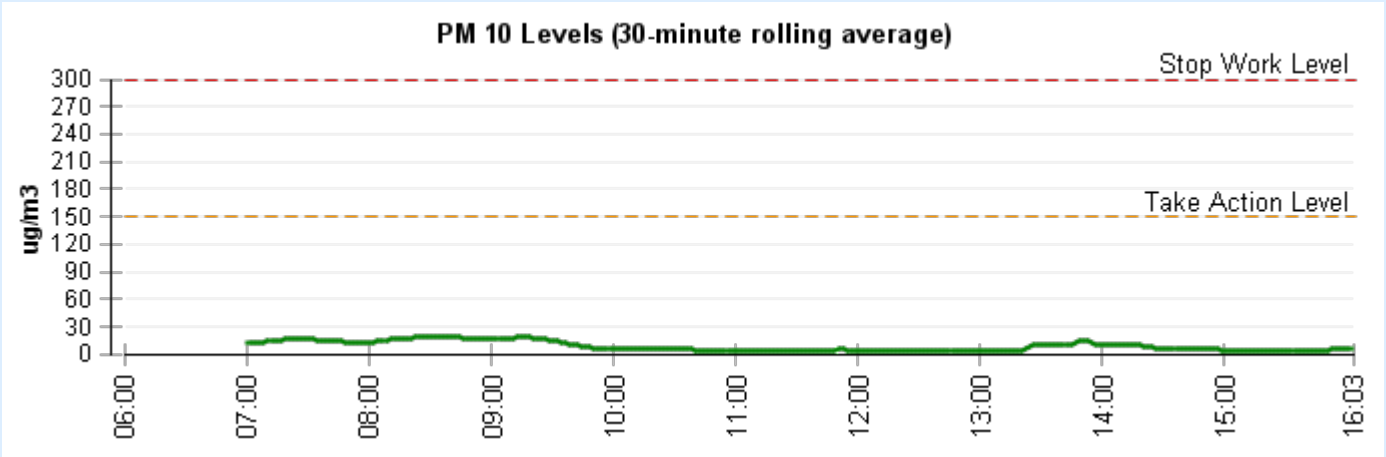




PM 2.5 and PM 10 Time History Data

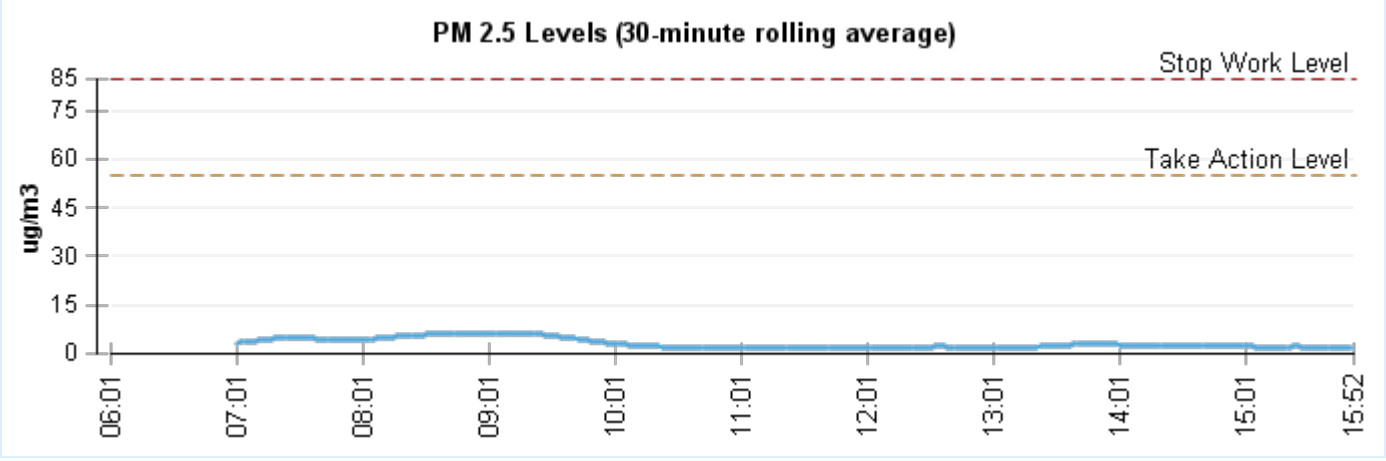
Sample Date	Dec 5, 2021
Station ID AMS-06	**Location Description** 29.78761, -95.31662 - HWPW - Erastus

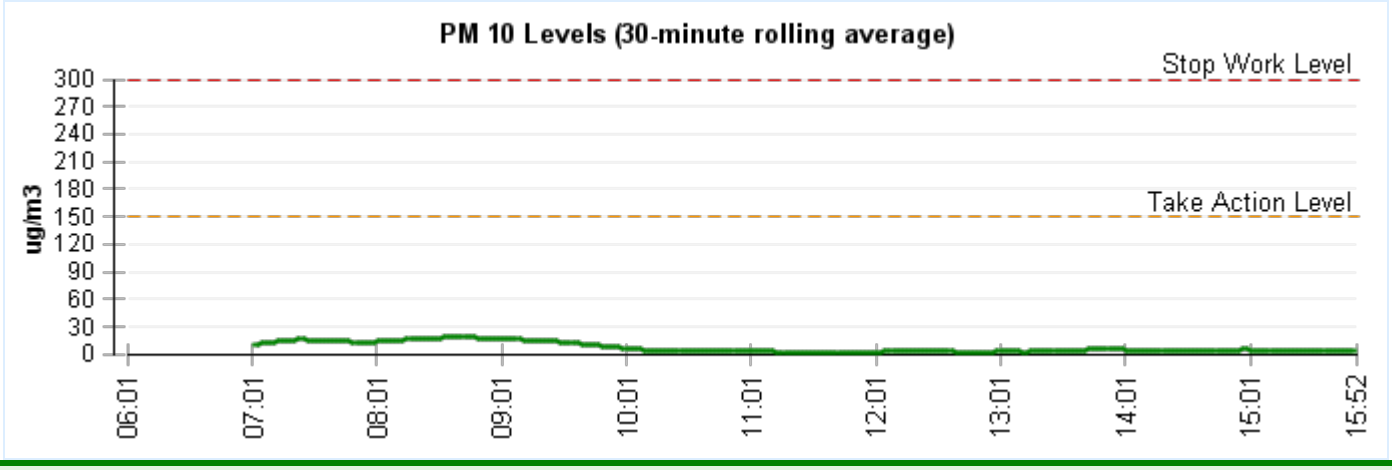




PM 2.5 and PM 10 Time History Data

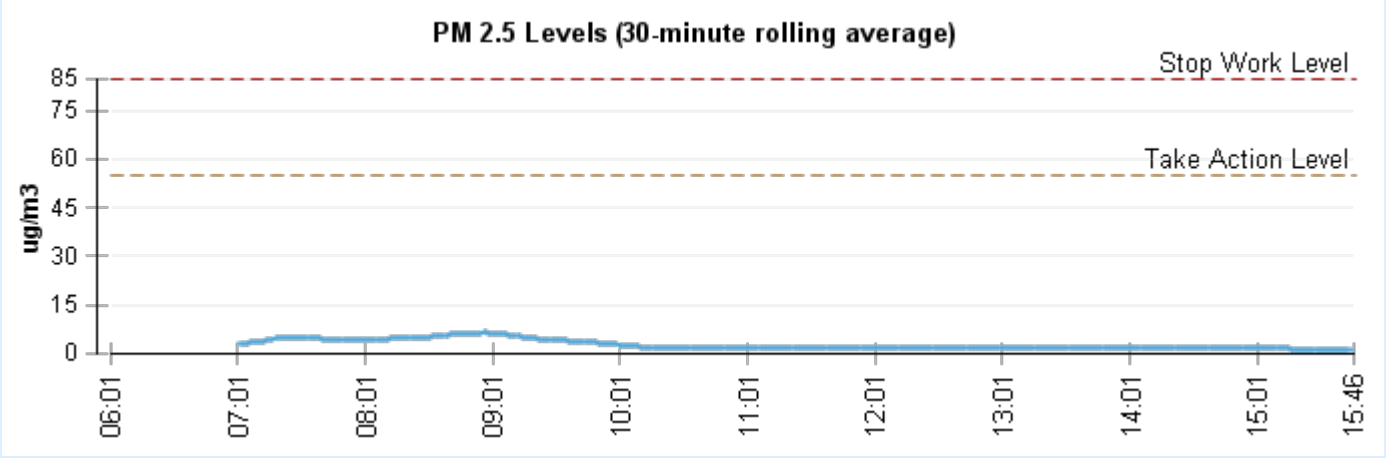
Sample Date	Dec 5, 2021
Station ID AMS-07	**Location Description** 29.78751, -95.31877 - HWPW - Clementine North

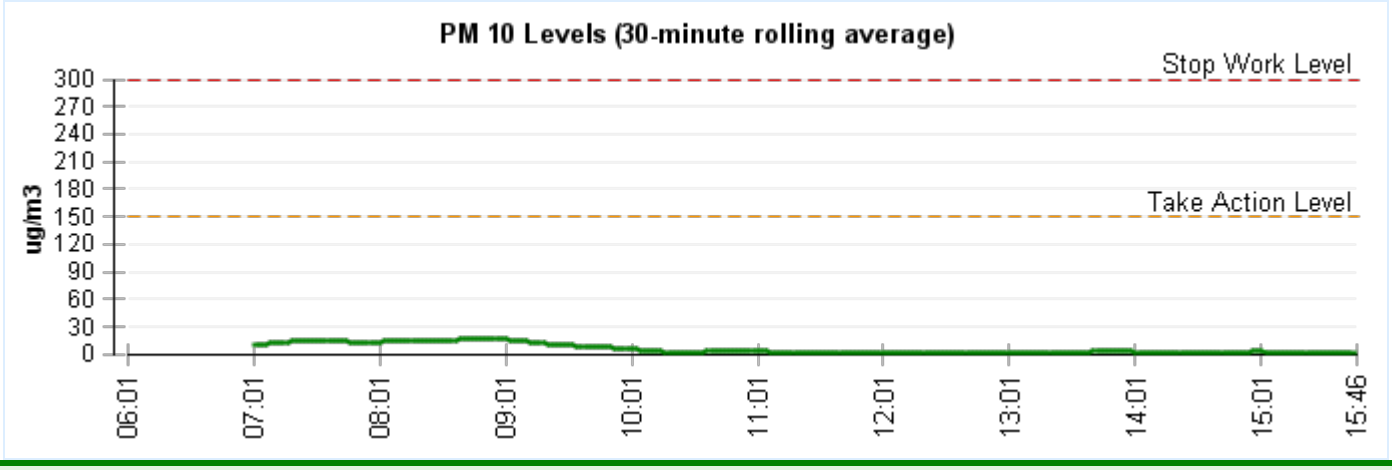




PM 2.5 and PM 10 Time History Data

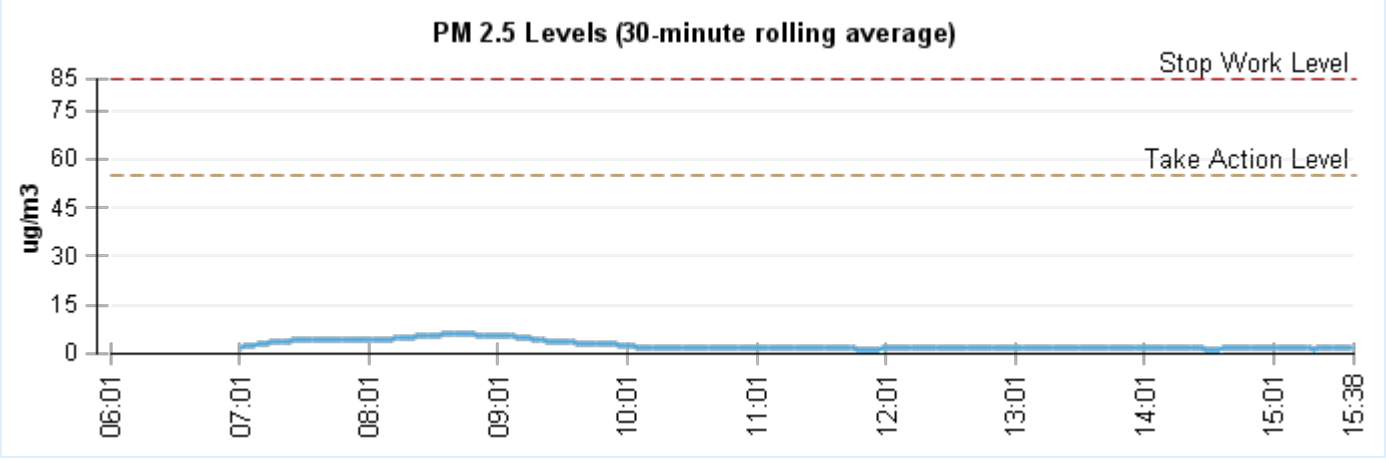
Sample Date	Dec 5, 2021
Station ID AMS-08	**Location Description** 29.78741, -95.3212 - HWPW - Solo North

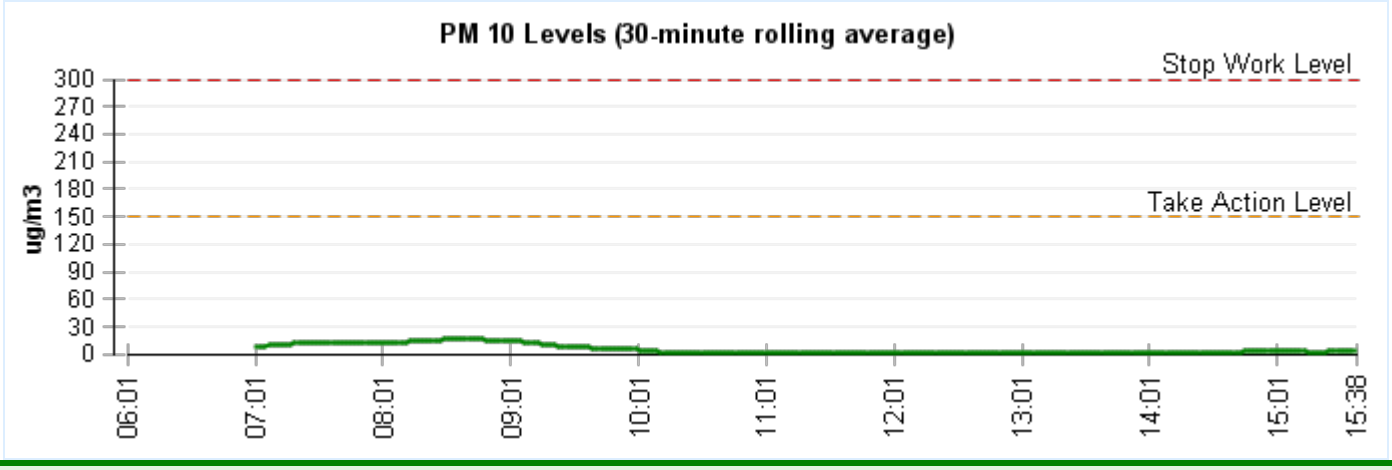




PM 2.5 and PM 10 Time History Data

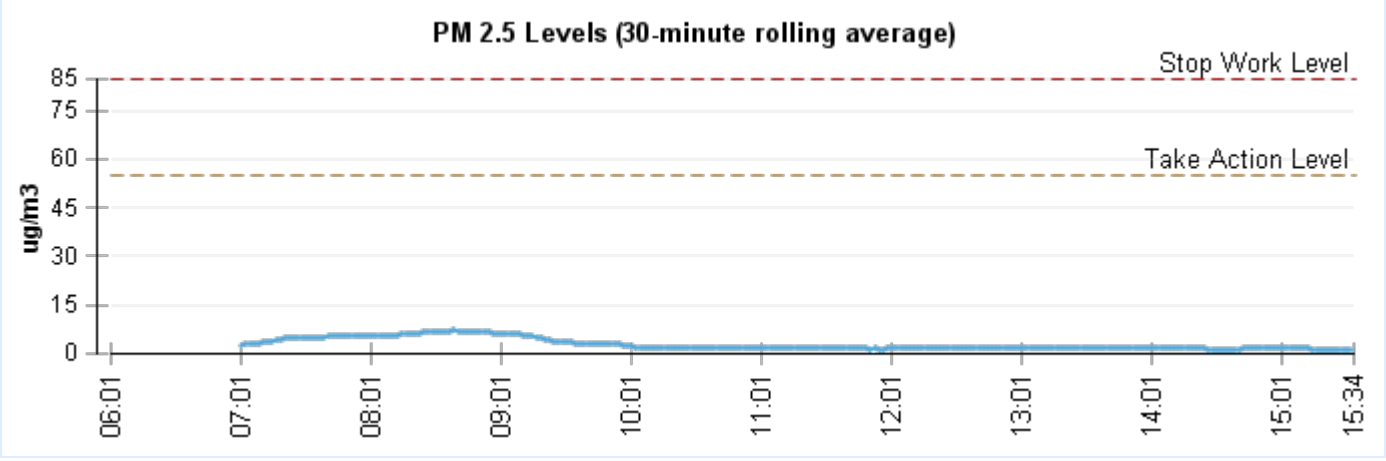
Sample Date	Dec 5, 2021
Station ID AMS-09	**Location Description** 29.78756, -95.32367 - HWPW - Kashmere and Liberty

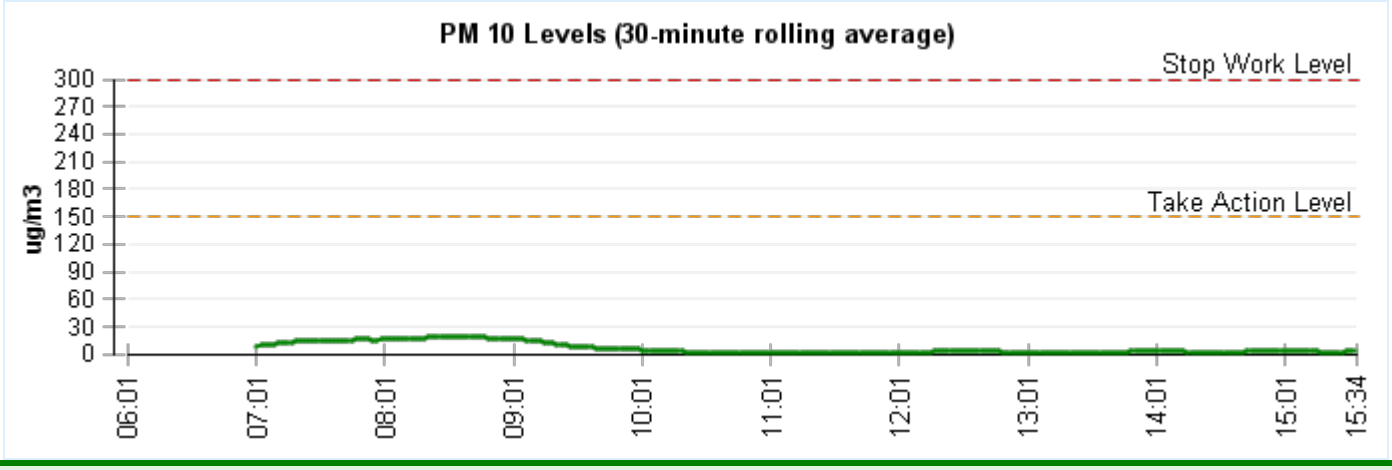




PM 2.5 and PM 10 Time History Data

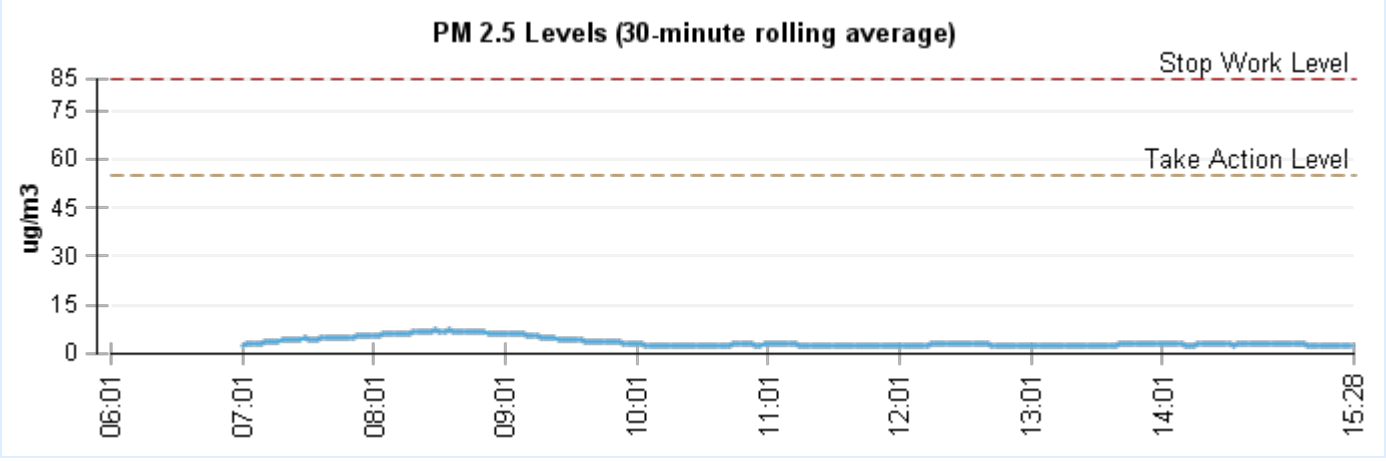
Sample Date	Dec 5, 2021
Station ID AMS-10a	**Location Description** 29.78637, -95.32373 - HWPW - Eddie and Kashmere

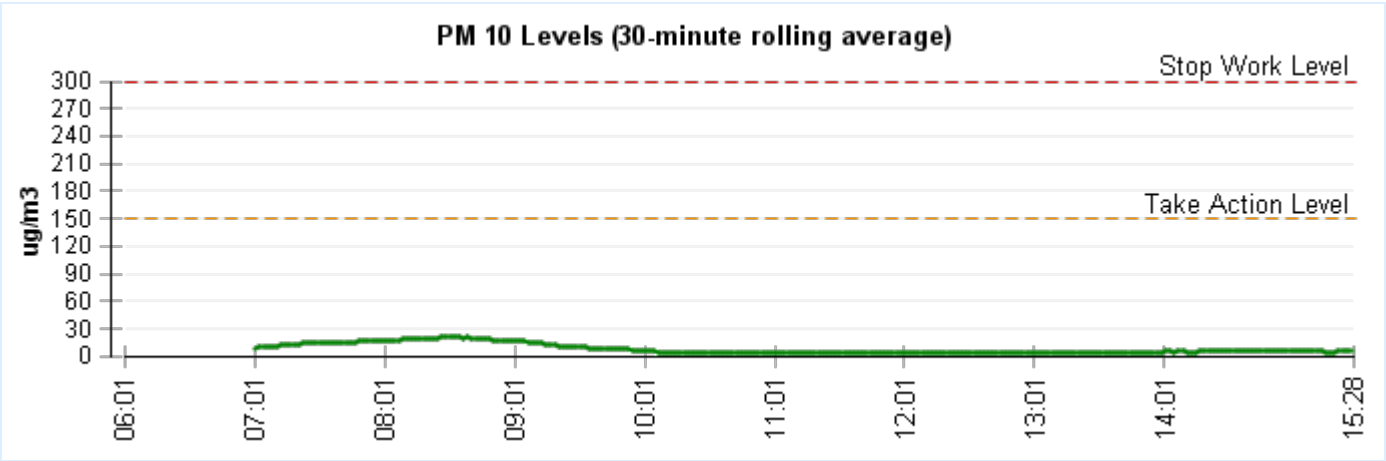




PM 2.5 and PM 10 Time History Data

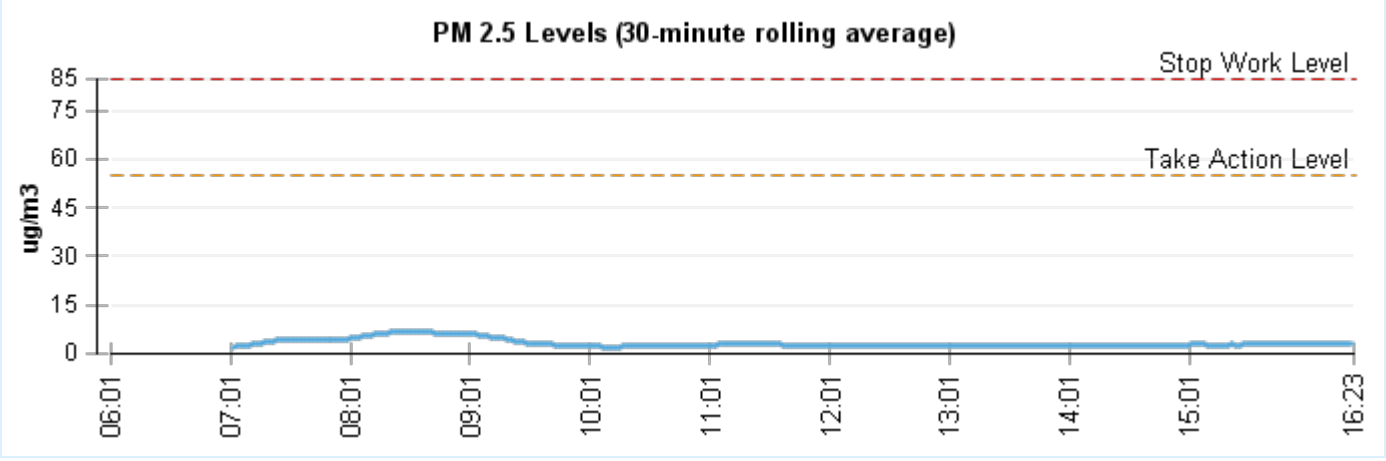
Sample Date	Dec 5, 2021
Station ID AMS-11	**Location Description** 29.78439, -95.32447 - HWPW - Quitman East

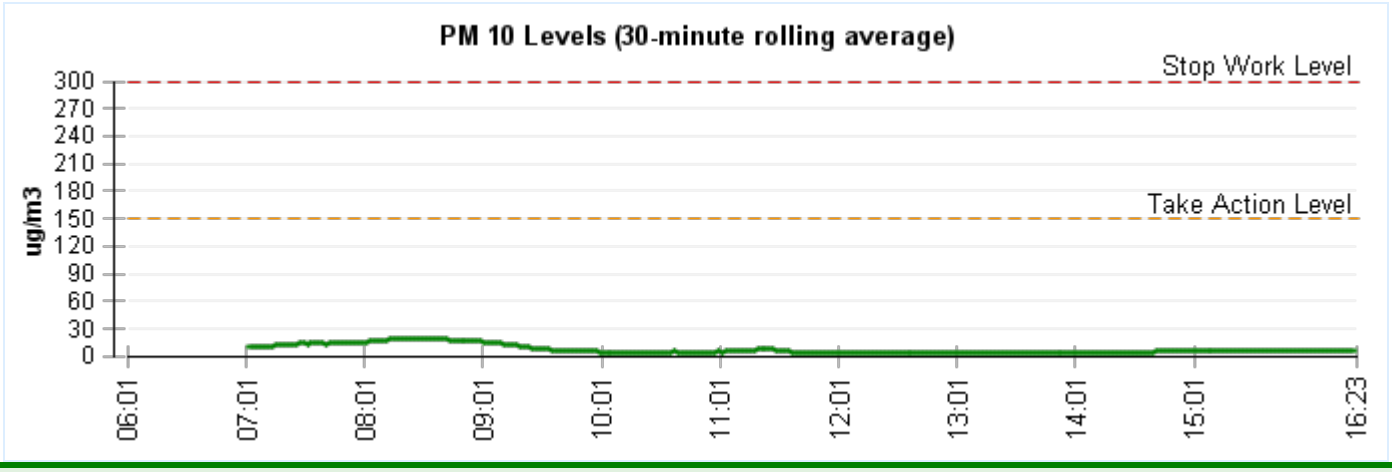




PM 2.5 and PM 10 Time History Data

Sample Date	Dec 5, 2021
Station ID AMS-13	**Location Description** 29.78213, -95.32514 - IMY South - Waco and Lee





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.

Notes:

Only partial analysis results for arsenic and lead samples collected from 11/17/2021 through 11/23/2021 have been received to date. Receipt of final results and data validation is anticipated to be complete by the next weekly summary, and those results are planned for inclusion on that report.

Partial results for arsenic and lead samples received to date do not indicate concentrations above or closely approaching either long-term or short-term TCEQ Air Monitoring Comparison Values (AMCV) for arsenic or lead.

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:

- This report includes results for PAH samples collected on 11/22/2021. PAH samples were only collected on only one day the week of November 22, 2021, due to a short Thanksgiving work week at the site and holiday schedules of the analytical laboratory.

- One PAH sample planned for collection at the southeast corner of the intermodal yard, at station AMS-02, was voided due to sampling pump malfunction and was not submitted for analysis.

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

Sample Number	Date	Start	End	Station ID	Location
AA-1744-P038-20211122	11/22/21	04:01	16:42	AMS-13	(29.78761, -95.31677) - HWPW - Erastus

Agent	Airborne Concentration	Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.0091 ug/m3	N/A	N/A
2-Methylnaphthalene	= 0.016 ug/m3	N/A	N/A
Acenaphthene	< 0.013 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	< 0.013 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	= 0.046 ug/m3	500 ug/m3	50 ug/m3
Perylene	< 0.013 ug/m3	N/A	N/A
Phenanthrene	< 0.013 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-P039-20211122	11/22/21	04:23	17:00	AMS-12	(29.78748, -95.32116) - HWPW - Solo North

Agent	Airborne Concentration	Short-Term AMCV	Long-Term AMCV
1-Methylnaphthalene	= 0.054 ug/m3	N/A	N/A
2-Methylnaphthalene	= 0.1 ug/m3	N/A	N/A
Acenaphthene	< 0.013 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	= 0.058 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	< 0.11 ug/m3	500 ug/m3	50 ug/m3
Perylene	< 0.013 ug/m3	N/A	N/A
Phenanthrene	= 0.052 ug/m3	8 ug/m3	0.8 ug/m3
Pyrene	< 0.013 ug/m3	0.5 ug/m3	0.05 ug/m3