EAST SIDE COASTAL RESILIENCY

SANDRESM1 | PROJECT AREA 1

AIR QUALITY MONITORING REPORT

Q1 | 2024

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PREPARED BY: HNTB-LIRO JOINT VENTURE
WITH DATA COLLECTED BY: SA ENGINEERING, LLC.
SUBCONSULTANT TO IPC RESILIENCY PARTNERS

NYC DDC Department of Design and Construction

NEW YORK CITY DEPARTMENT OF DESIGN & CONSTRUCTION IN PARTNERSHIP WITH THE CITY OF NEW YORK

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PART 1

I. Air Quality Monitoring: Introduction

The East Side Coastal Resiliency (ESCR) project is a coastal protection initiative, jointly funded by the City of New York and the federal government, aimed at reducing flood risk due to coastal storms and sea level rise on Manhattan's East Side from East 25th Street to Montgomery Street. The ESCR project will protect 110,000 New Yorkers from the impacts of climate change by increasing resiliency for communities, properties, businesses, critical infrastructure, and public open spaces. In addition to providing flood protection, the project will strengthen and enhance waterfront spaces on Manhattan's East Side by improving accessibility, increasing ecological diversity, and delivering improved recreational amenities to a vibrant and highly diverse community.

The project is divided into three project areas: Project Area 1 (from Montgomery Street to East 15th Street, including East River Park), Project Area 2 (East 15th Street to East 25th Street, including Murphy Brothers Playground, Stuyvesant Cove Park, and Asser Levy Playground), and Parallel Conveyance (work to improve inland drainage on local streets between Montgomery Street and East 25th Street).

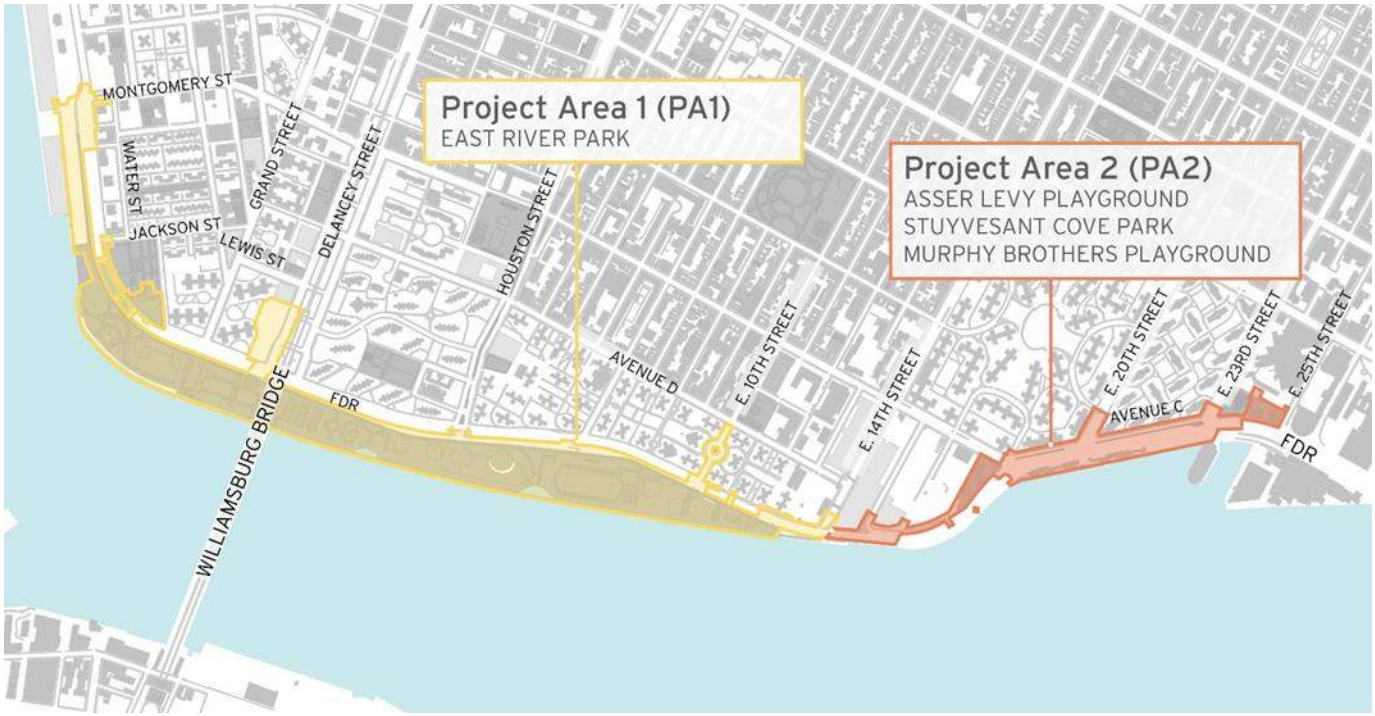


Fig.1 East Side Coastal Resiliency Project Areas

The ESCR team will be conducting air quality monitoring throughout construction in all three Project Areas to ensure the ongoing health and safety of the adjacent community. In particular, the ESCR Air Quality Monitoring program will measure levels of Particulate Matter (PM) at two sizes: PM10 and PM2.5.

As described by the Environmental Protection Agency (EPA):

> PM stands for **particulate matter** (also called particle pollution): the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. Particle pollution includes:

- PM10: inhalable particles, with diameters that are generally 10 micrometers and smaller (typically from dust)
- PM2.5: fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller (typically from vehicle emissions)

The Clean Air Act requires EPA to set national air quality standards for particulate matter, as one of the six criteria pollutants considered harmful to public health and the environment. The law also requires the United States Environmental Protection Agency (EPA) to periodically review the standards to ensure that they provide adequate health and environmental protection, and to update those standards, as necessary. National Ambient Air Quality Standards (NAAQS) for PM pollution specify a maximum amount of PM to be present in outdoor air.

The **Permissible Exposure Limit (PEL)** is a regulatory limit to protect public health/welfare set by the NAAQS in line with the requirements of the Clean Air Act (CAA) on the amount or concentration of a substance in the air. The EPA has set a **24-hour time weighted average (TWA)** as standard for evaluating PM levels, meaning that they average potential PM exposure over a 24-hour period. This is also referred to as the **daily value**. In the line graphs presented in the ESCR monthly data plots, readings are averaged in 15-minute intervals and do not represent the standard TWA of 24-hrs. This more conservative approach will help the ESCR project team monitor the project's effect on air quality more closely.

The **Action Level (AL)** is lower than the PEL and represents a level set by the ESCR AQM Plan which, when reached, will alert the contractor that there has been an increase in particulate matter so that they can assess construction activities and take necessary measures to remediate the condition. Automated alerts are dispatched to the general contractor and the construction management team whenever the AL is exceeded.

The table here illustrates the PEL and AL for net PM2.5 and PM10 concentrations over a 24-hour TWA. These levels are measured in micrograms per cubic meter air ($\mu g/m^3$):

	Action Level (AL) over a 24-hour TWA	**Permissible Exposure Limit (PEL) over a 24-hour TWA**
PM2.5	25 $\mu g/m^3$	35 $\mu g/m^3$
PM10	100 $\mu g/m^3$	150 $\mu g/m^3$

The ESCR Final Environmental Impact Statement (FEIS) analyzed the potential impact of the construction on community air quality and determined that **with consistent air quality monitoring and application of measures to reduce pollutant emissions and suppress dust, "construction of the Preferred Alternative would not result in any predicted concentrations above the National Ambient Air Quality Standards (NAAQS)** for NO2, CO, and PM10 or the de minimis thresholds for PM2.5 from nonroad and on-road sources. **Therefore, *no significant adverse air quality impacts are predicted* from the construction of the Preferred Alternative."** (ESCR FEIS, Chapter 6.10 Construction Air-Quality, 6.10-2)

Along with air quality monitoring, the contractor is required to take extensive preventative measures to control dust and limit vehicle emissions. Potential mitigation techniques include but are not limited to:

- use of water spray for roads, trucks, excavation areas and stockpiles
- use of anchored tarps to cover stockpiles
- use of truck covers during soil transport within site limits and during off-site transport

- employment of extra care during dry and/or high-wind periods
- use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface
- use of a truck wheel wash at site access/egress points to prevent fugitive dust and off-site migration of dust and other particulates

How to Read the Data Plots

The PM readings that follow by month in this report are shown in data plots, as below. The data plots illustrate **PM** levels in a **15-minute TWA.** As mentioned above, the federal limits for PM exposure are evaluated on a **24-hour TWA**. By evaluating PM readings on the 15-minute TWA, the ESCR project can ensure that Net PM never exceeds the 24-hour TWA, or daily value.

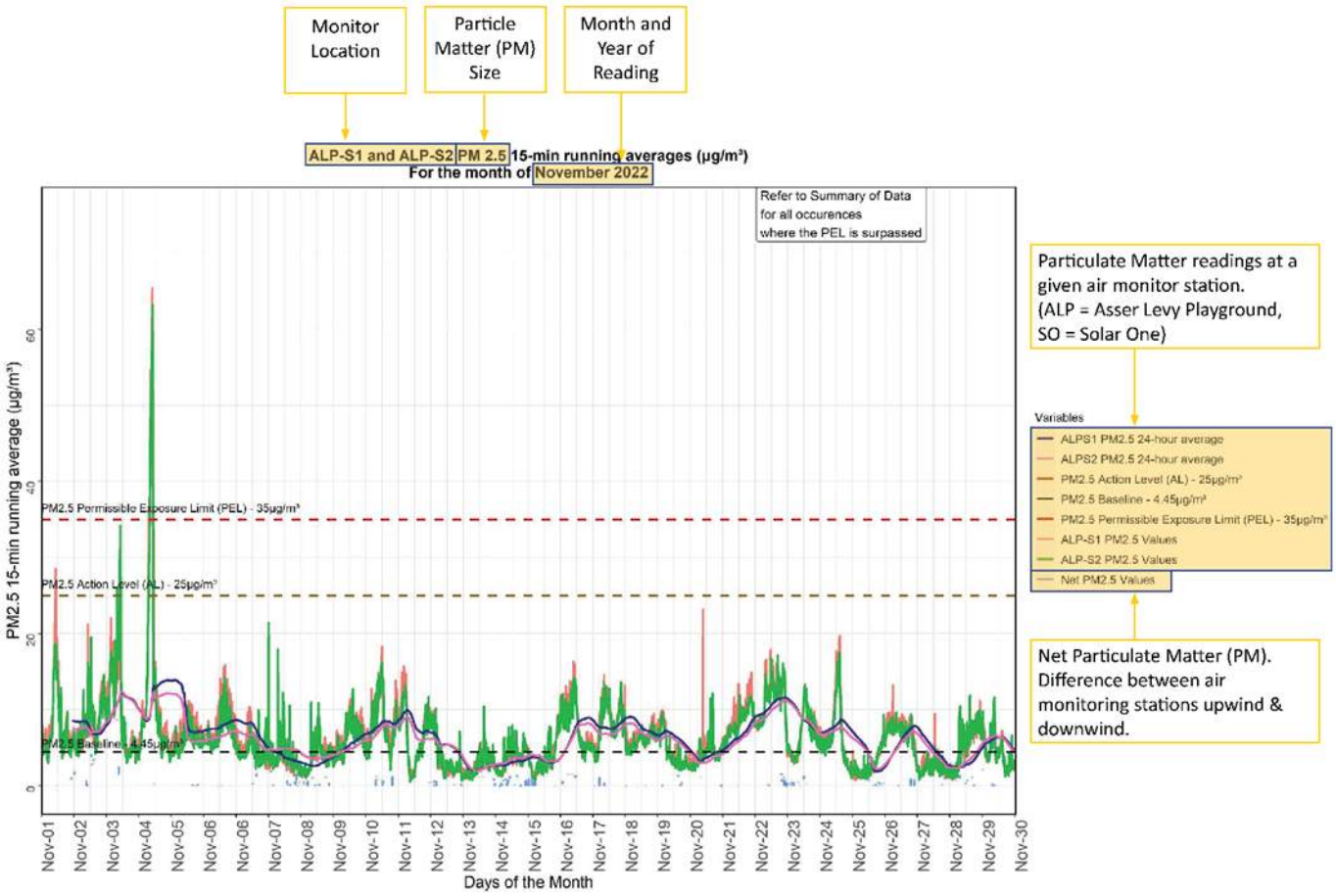


Fig.2 Sample Air Quality Data Plot

The **Net particulate matter (Net PM)** readings are determined as the difference between the upwind and downwind monitoring stations as determined on any day given the wind speed and wind direction. At each construction location at least two air quality monitors are required to determine the Net PM. The Net PM value is important because it measures the **potential increase of particulate matter due to construction activities**. If the wind-speed is less than 0.5 meters per second, the downwind station is considered undetermined, and the Net PM will be absent from the data plot. In these circumstances, high readings at one or both monitoring stations will still be noted, however the increased levels in the PM readings may be due to conditions unrelated to construction.

An **exceedance** is a daily value that is above the level of the 24-hour TWA after rounding to the nearest 10 $\mu g/m^3$ (i.e., values ending in 5 or greater are to be rounded up).

An **exceptional event** is an uncontrollable event caused by natural sources of particulate matter or an event that is not expected to recur at a given location. Inclusion of such a value in the computation of exceedances or averages could result in inappropriate estimates of their respective expected annual values.

An **outlier** is a data point on a graph or in a set of results that is very much bigger or smaller than the next nearest data point. For example, outliers among monitoring data can be due to instrument malfunctions, the influence of harsh environments, and the limitation of measuring methods.

II. Executive Summary

This report summarizes the PM readings for ESCR Project Area 1 (PA1), collected by SA Engineering, environmental subconsultant to the PA1 contractor, IPC Resiliency Partners (IPC) October through December 2023. The PA1 contract requires a minimum of six (6) air quality monitoring stations throughout construction, which are relocated as necessary to reflect the phased construction activities. Currently sixteen (16) air quality monitoring stations are active throughout the construction area perimeter and reflect current construction areas. For this report, each monitor will be referred to as "AQM-#" – referring to the numbers in Figures 3A-C. Figure 3A details the locations of the air quality monitoring stations prior to March 24, 2023. Figure 3B details the locations of the air quality monitoring stations from March 24, 2023 to March 5, 2024. Figure 3C details the locations of the air quality monitoring stations from March 5, 2024.

Fig.3A ESCR Project Area 1 Phase 1 Air Quality Monitoring Station Locations, as of January 13, 2023

Fig.3B ESCR Project Area 1 Phase 1 Air Quality Monitoring Station Locations, as of March 24, 2023

Fig.3C ESCR Project Area 1 Phase 1 Air Quality Monitoring Station Locations, as of March 5, 2024

Due to construction activities, by March 5, 2024, the AQM-5 monitor were installed in Reach G at the location shown above; the monitor began recording upon installation.

Work Activities from January to March 2024:

Reach A:

- Con Edison electrical layout;
- Install and grout micropiles and jet grout; and
- Micropile compression test and tension test (24 hours/day, 2/15 - 2/16 and 2/20 - 2/21).

Reach B:

- Excavate manhole in shared use path;
- Excavate and install jet grout sleeves; and
- Excavate for ConEd utilities for carbon fiber wrapping.

Reach C:

- Install tie rods;
- Form and pour cutoff cap;
- Form and pour Corlears Hook Park stairs; and
- Install Parks drainage.

Reach D: (7:00 AM – 3:30 PM; M-F | 3:00 PM - 11:00 PM; M-F);

- Place grout and Ultra High-Pressure Concrete (UHPC) for precast esplanade;
- Excavation, installation, and backfill of watermain and gas work;
- Install precast retaining walls on esplanade, form and pour retaining wall curbs;
- Excavate, install conduit and pipe, and backfill around Fields 1 & 2;
- Install armored joints on esplanade (7 AM - 3:30 PM, Saturday, 2/10);
- Excavate and backfill for utilities and park finishes;
- Form and pour structures on esplanade and southern embayment; and

- Demolish backwall next to Fireboat House.

Reach E:

- Form, install rebar, and pour bridge concrete at Delancey West;
- Place grout for pier cap resurfacing and precast girder anchors;
- Pour UHPC for esplanade (9:30 AM - 5 PM; M - F);
- Install precast beams and retaining walls on esplanade, form and pour retaining wall curbs;
- Excavate, install drainage, and backfill east of Maintenance & Operations (M&O) Area 2;
- Form, pour, and strip security wall around Williamsburg Bridge; and
- Excavate and install watermain along existing shared use path.

Delancey Street West:

- Cut installed piles; and
- Form, pour, and strip bridge structures.

Reach F:

- Place fill;
- Form, pour, and strip cutoff cap (7 AM - 3:30 PM, M - F and 3:00 PM - 11:00 PM, M - F 1/15 - 1/19);
- Core drill pier caps for precast anchor rods;
- Remove cofferdam sheets;
- Scarify, form, pour, and drill holes pier caps for anchor rods;
- Install precast beams and retaining walls on esplanade;
- Form and pour retaining wall curbs;
- Install tie rods and walers for deadmen; and
- Install rebar and pour combi-wall plugs and pile caps.

Reach G:

- Clear and grub Fields 3, 4, and 5;
- Install H-piles and install, drill, and grout micropiles for Houston Street retaining wall; and
- Screen and load out spoils from excavations.

Reach H:

- Move field staff into new trailers (7:00 AM – 3:30 PM; Saturday 2/10).

10th St.: (7:00 AM – 3:30 PM; M-F)

- ConEd utility installation;
- Demolish existing manholes; and
- Excavate, install pipe, and backfill for sewer utilities.

Though air quality is monitored 24/7, typical day time work hours during the period of this report are 7:00 am – 3:30 pm, unless otherwise noted above.

Summary of Air Quality Monitoring Reports

For the months of January to March 2024, construction-related levels of PM at both net PM2.5 and PM10 levels did not surpass Daily PEL as set by federal standards for the 24-hour TWA, or daily value, and did not cause additional air quality concerns to the public or on-site workers. The contractor, IPC, in conjunction with the contractor's environmental specialist, has successfully implemented mitigation techniques when PM levels surpassed both the AL as well as the PEL (15-minute TWA) to suppress construction activity effects on air quality in East River Park.

January 2024:

- PM2.5 levels surpassed the PEL (15-minute TWA) at AQM-1 on January 26th and January 29th; AQM-6 on January 24th; AQM-GS on January 25th; AQM-CHR on January 5th; AQM-4 on January 3rd and January 15th; and AQM-HS on January 15th.

- PM10 levels surpassed the PEL (15-minute TWA) at AQM-1 on January 29th; AQM-6 on January 24th; AQM-CHR on January 5th; and AQM-4 on January 3rd.

February 2024:

- PM2.5 levels surpassed the PEL (15-minute TWA) at AQM-1 on February 16th; AQM-CH on February 10th; AQM-3 on February 1st, February 16th, and February 21st; AQM-FB on February 10th and February 27th; AQM-AT on February 14th; AQM-WB on February 27th; AQM-4 on February 5th; AQM-HS on February 4th; and AQM-TH on February 8th.

- PM10 levels surpassed the PEL (15-minute TWA) at AQM-1 on February 16th; AQM-CH on February 10th; AQM-FB on February 10th; AQM-3 on February 16th and February 21st; AQM-4 on February 5th; and AQM-HS on February 4th.

March 2024:

- PM2.5 levels surpassed the PEL (15-minute TWA) at AQM-1 on March 14th, March 15th, March 18th, and March 25th; AQM-CH on March 1st; AQM-FB on March 26th; AQM-WBN on March 13th, March 19th, and March 21st; AQM-TH on March 7th; AQM-5 on March 14th; and AQM-HS on March 19th.

- PM10 levels surpassed the PEL (15-minute TWA) at AQM-1 on March 15th; AQM-CH on March 1st; AQM-WBN on March 13th, March 19th, and March 21st; and AQM-5 on March 14th.

Notes

- AQM-4 was disconnected from power and not monitoring from February 14th to April 22nd
- AQM-TH was disconnected from power and not monitoring from March 16th to April 15th

Baselines:

- PM2.5 baseline air quality at the site was previous determined to be between 0.105 and 4.09 $\mu g/m^3$
- PM10 baseline air quality at the site was previous determined to be between 0.149 and 5.00 $\mu g/m^3$

PART 2

Summary of Data January 2024

PM2.5 levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-1 on 1/26 for 24 minutes and 1/29 for 49 and 116 minutes;
- AQM-6 on 1/24 for 46 minutes;
- AQM-GS on 1/25 for 15 minutes;
- AQM-CHR on 1/5 for 19 minutes;
- AQM-4 on 1/3 for 2 minutes and 1/15 for 14 minutes; and
- AQM-HS on 1/15 for 3 minutes.

PM10 levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-1 on 1/29 for 90 minutes;
- AQM-6 on 1/24 for 17 minutes;
- AQM-CHR on 1/5 for 10 minutes; and
- AQM-4 on 1/3 for 7 minutes.

For the month of January 2024, PM net 2.5 levels were surpassed on 1/3, 1/5, 1/11, 1/15, 1/24, 1/25, and 1/29. PM net 10 were exceeded on 1/3, 1/4, 1/11, 1/15, 1/24, and 1/26.

For the month of January 2024, construction-related PM net 2.5 or 10 levels did not surpass the Daily PEL (24-hour TWA).

PM 2.5 µg/m^3

- PM 2.5 µg/m^3 levels surpassed the PEL (15-minute TWA) on nine occasions (1/3, 1/5, 1/15, 1/24, 1/25, 1/26, and 1/29) for between 15 and 116 minutes.
    - AQM-1 is located near the site access gate at Gouverneur Slip West and adjacent to another construction site and an FDR entry ramp; elevated readings on 1/26 and 1/29 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-GS is located on the corner of South Street and Gouverneur's Slip East; elevated readings on 1/25 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-6 is located on the corner of South Street and Gouverneur's Slip East; elevated readings on 1/24 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-CHR is located on the construction access road/shared use path in Reach B; elevated readings on 1/5 were related to on-site construction vehicle traffic. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-4 is located adjacent to the shared use path/construction access road in Reach F.
        - Elevated readings on 1/3 were related to anomalous readings during instrument maintenance.
        - Elevated readings on 1/15 were related to on-site construction activity. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-HS is located near the Houston Street ramp at the exit to the construction on the FDR; elevated readings on 1/15 were related to on-site construction vehicle traffic. Dust mitigation measures were deployed to mitigate airborne dust.

PM 10 µg/m^3

- PM 10 µg/m^3 levels surpassed the PEL (15-minute TWA) four occasions (1/3, 1/5, 1/24, and 1/29) for between 7 and 90 minutes.
    - AQM-1 is located near the site access gate at Gouverneur Slip West and adjacent to another construction site and an FDR entry ramp; elevated readings on 1/29 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-6 is located on the corner of South Street and Gouverneur's Slip East; elevated readings on 1/24 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-CHR is located on the construction access road/shared use path in Reach B; elevated readings on 1/5 were related to on-site construction vehicle traffic. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-4 is located adjacent to the shared use path/construction access road in Reach F; elevated readings on 1/3 were related to anomalous readings during instrument maintenance.

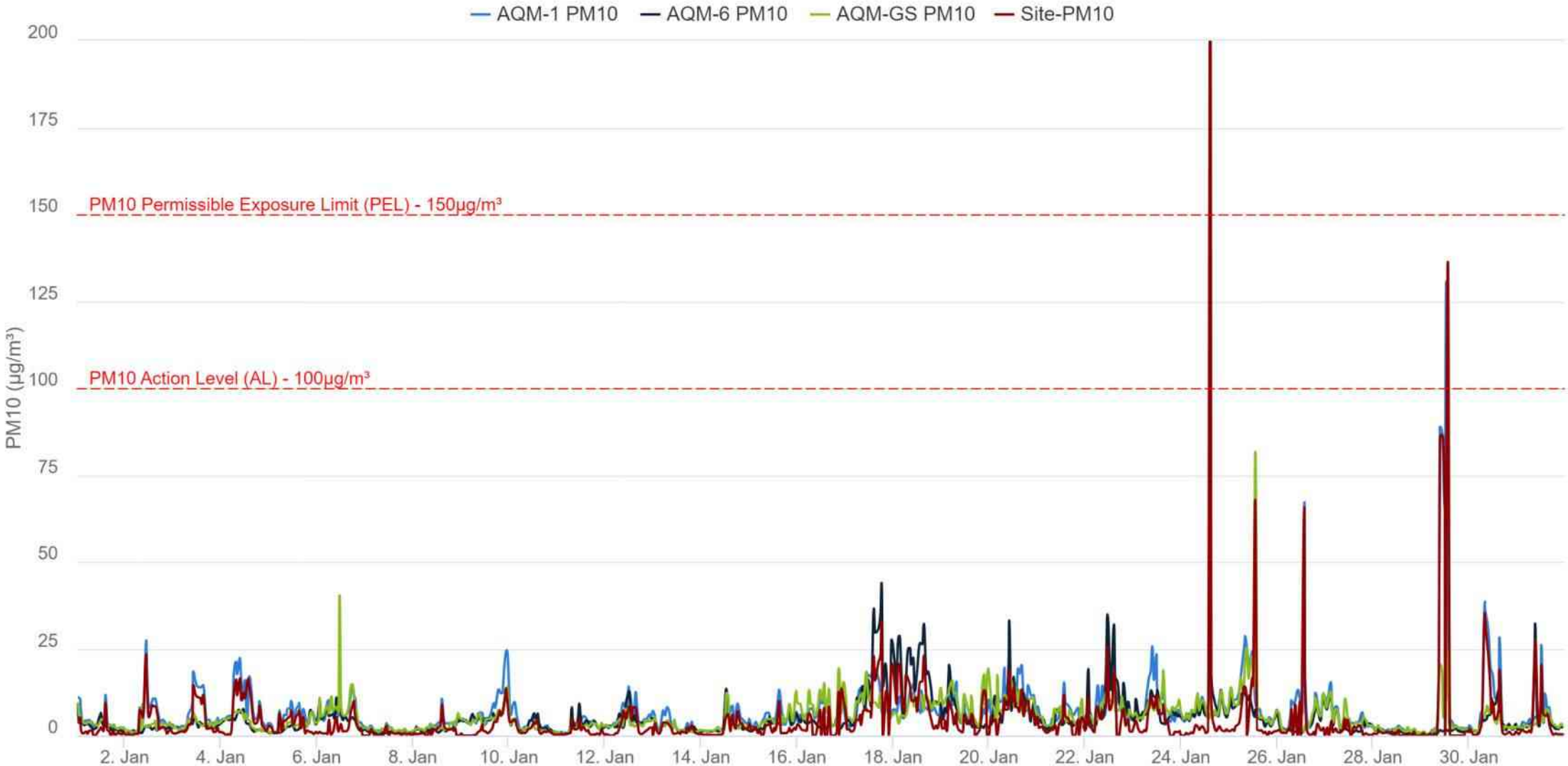
Mitigation Measures

- Throughout the month, construction activity was closely monitored, and dust mitigation techniques were continuously implemented to successfully contain any airborne particulates created due to construction activity.

JANUARY 2024 DATA PLOTS

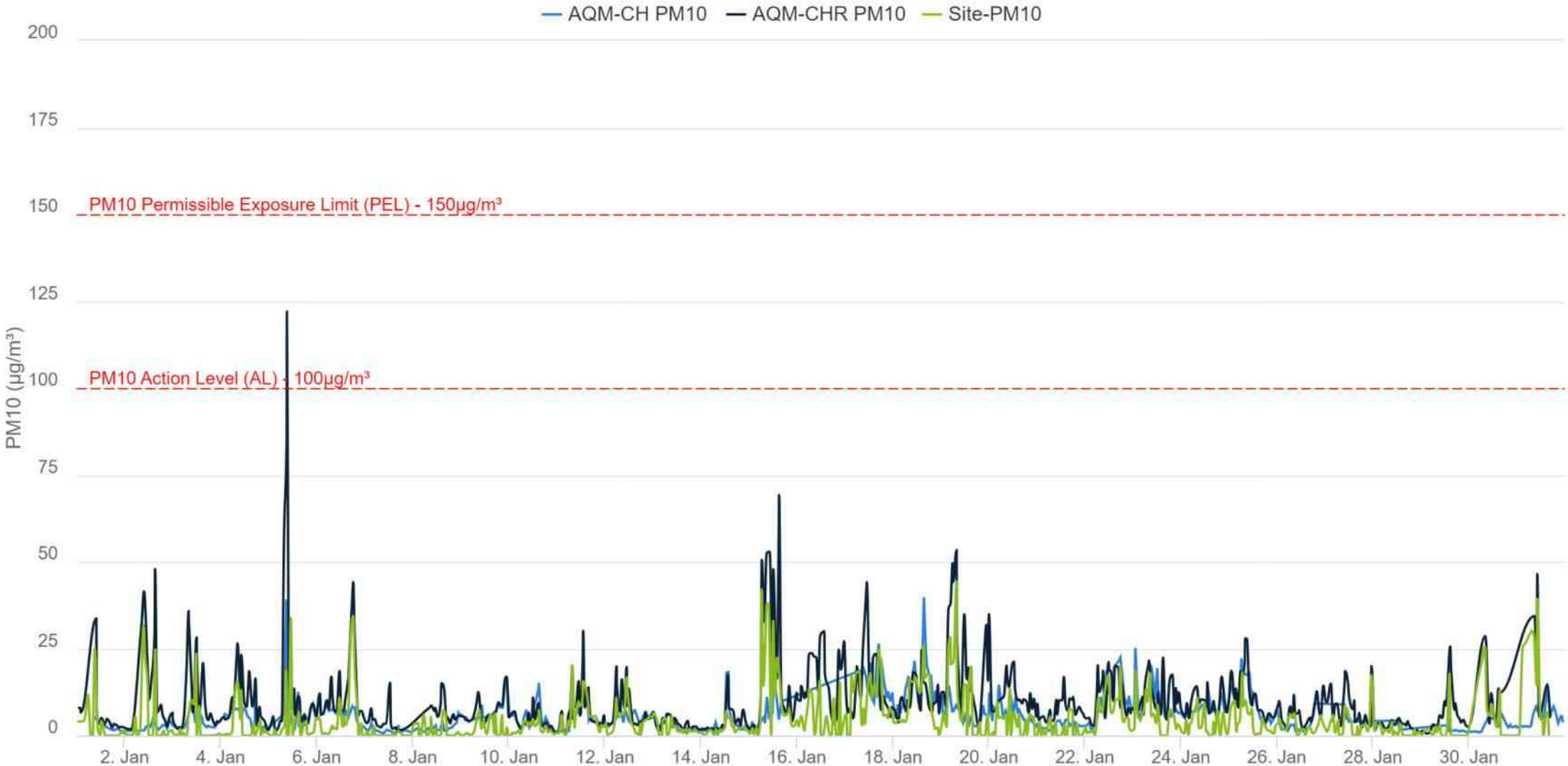
Reach A - PM2.5 - 15 min Running avg. (January 2024)

Reach A - PM10 - 15 min Running Avg. (January 2024)

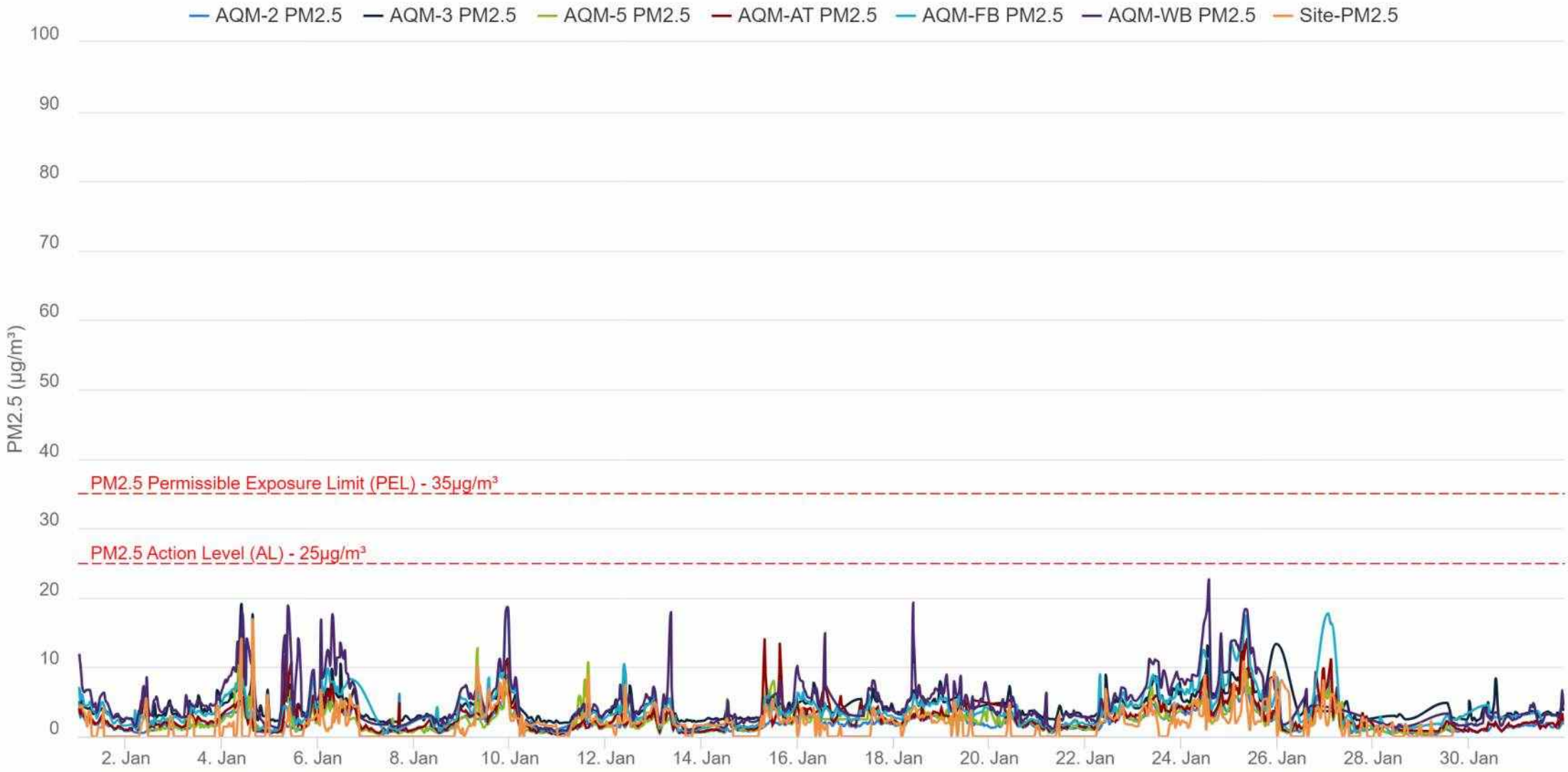


Reach B - PM2.5 - 15 min Running Avg. (January 2024)

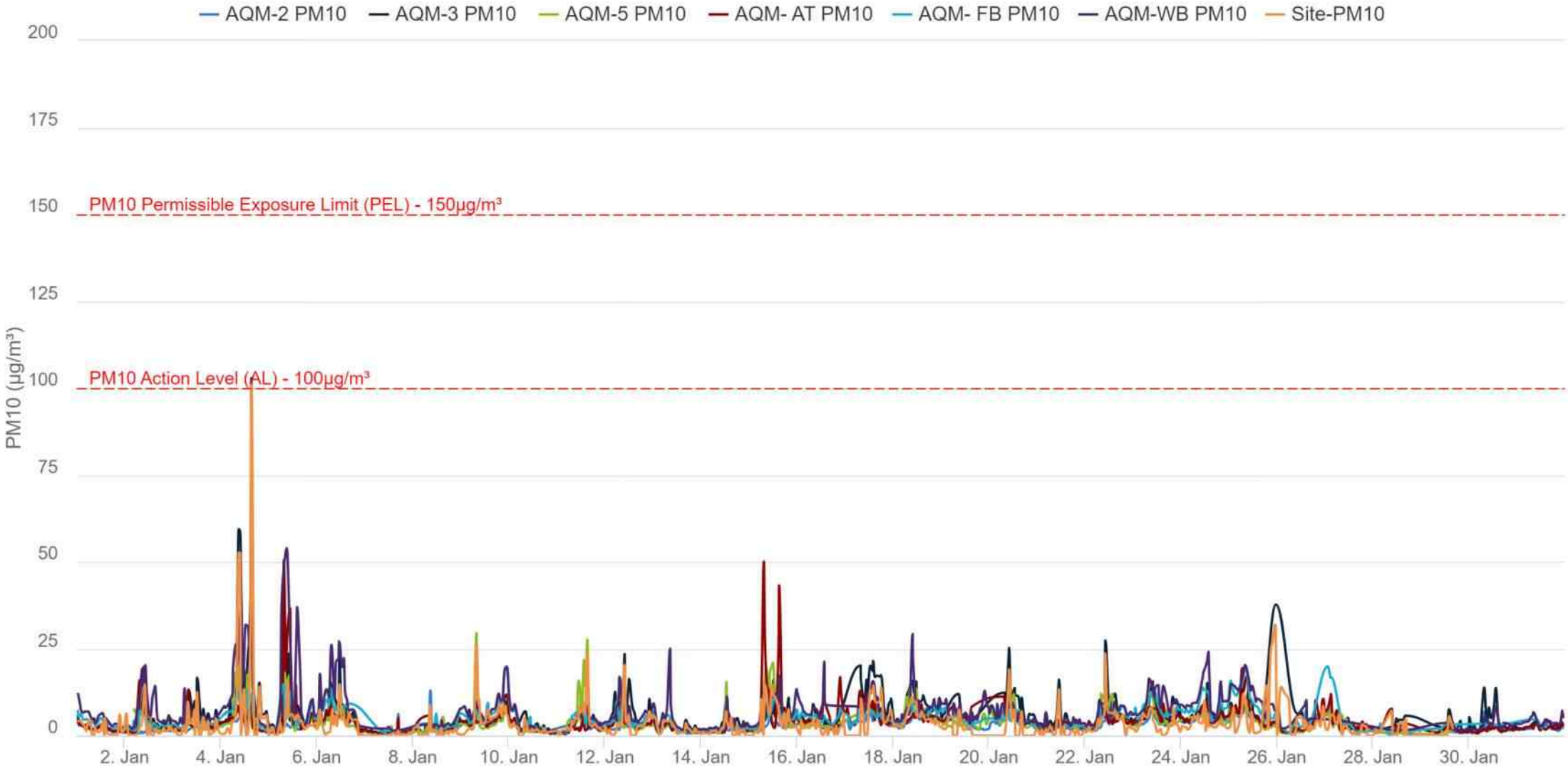
Reach B - PM10 - 15 min Running avg. (January 2024)



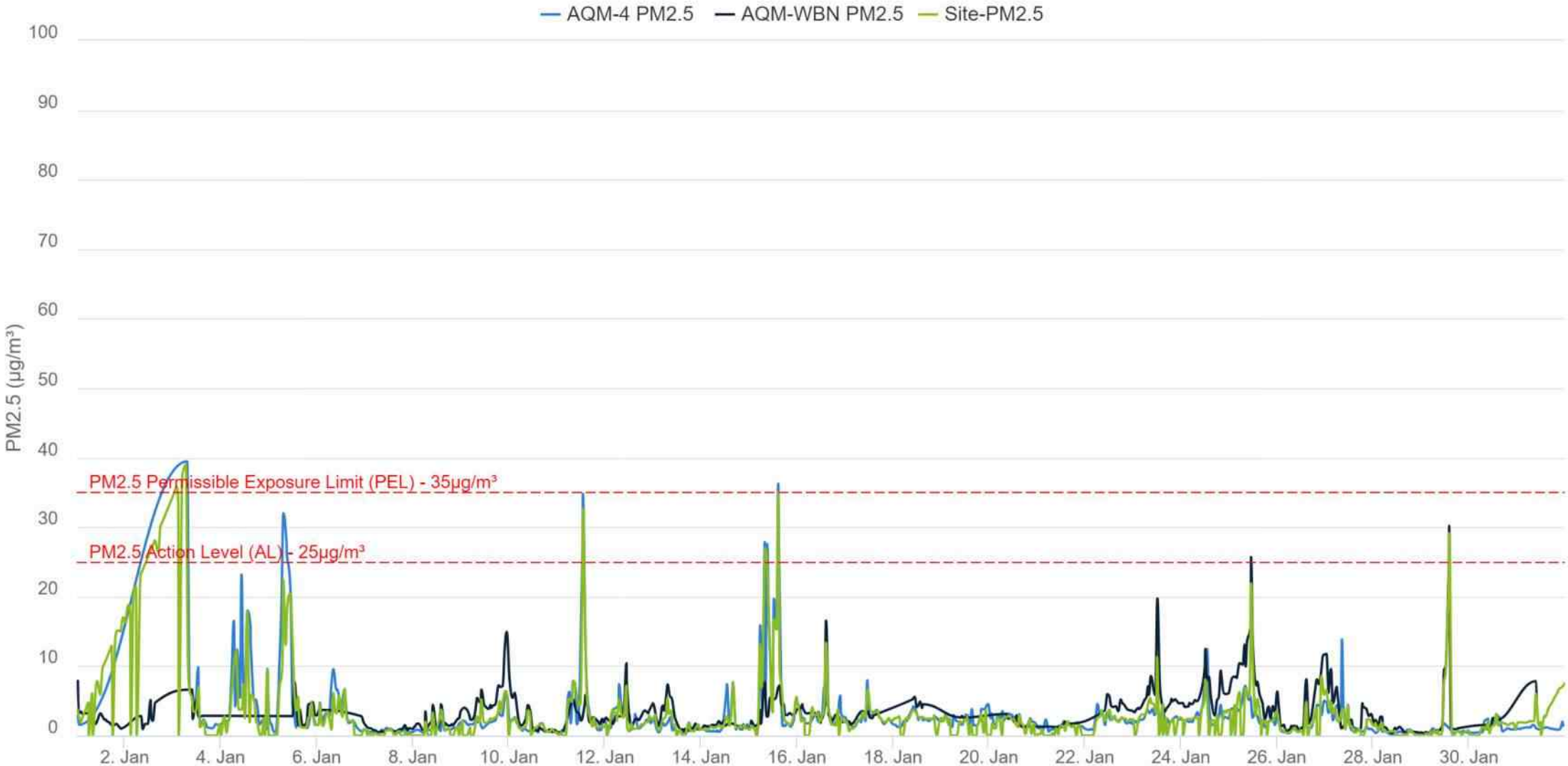
Reach C,D,& E - PM2.5 - 15 min Running Avg. (January 2024)



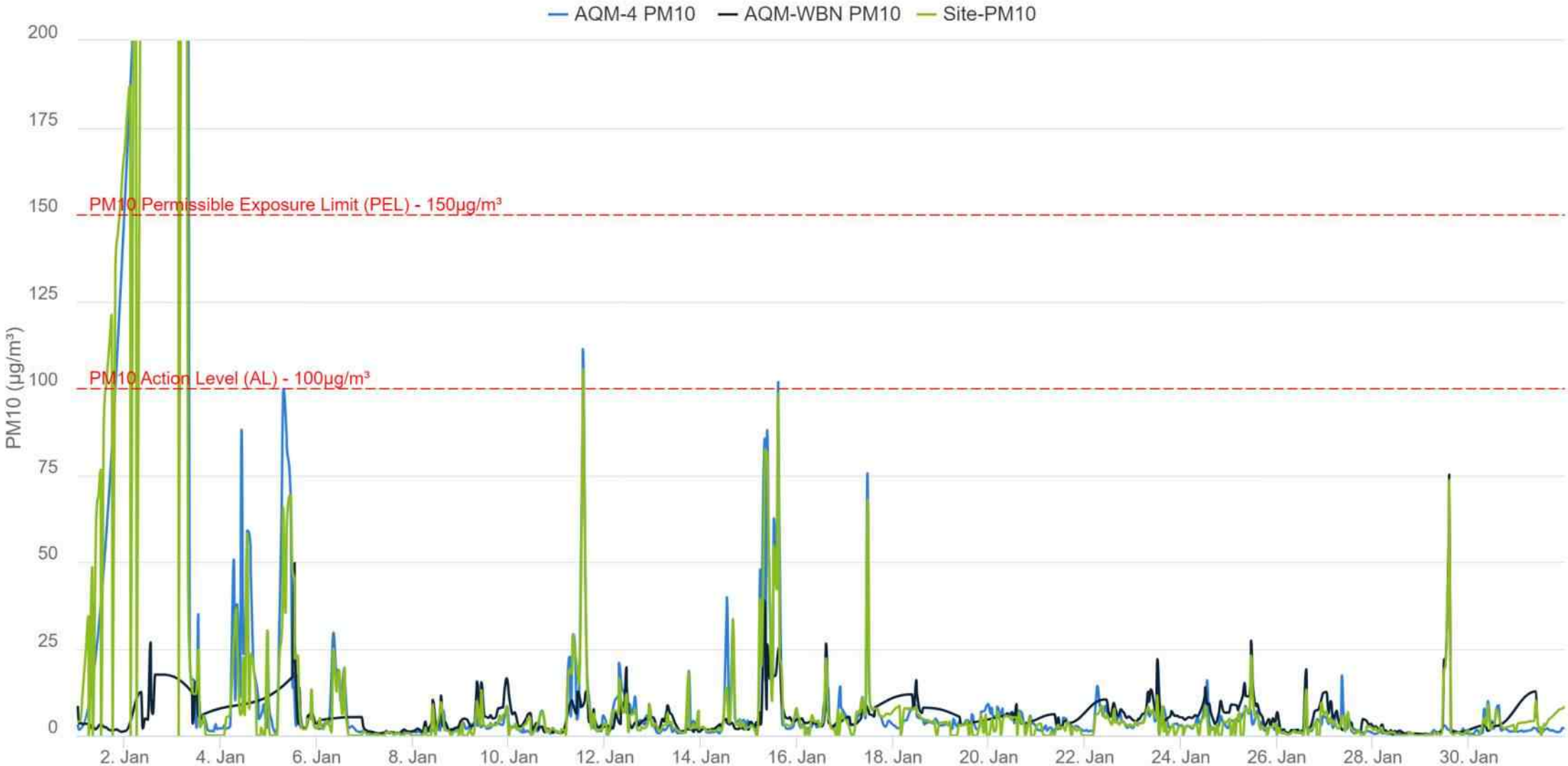
Reach C,D,& E - PM10 - 15 min Running avg. (January 2024)



Reach F - PM2.5 - 15 min Running avg. (January 2024)

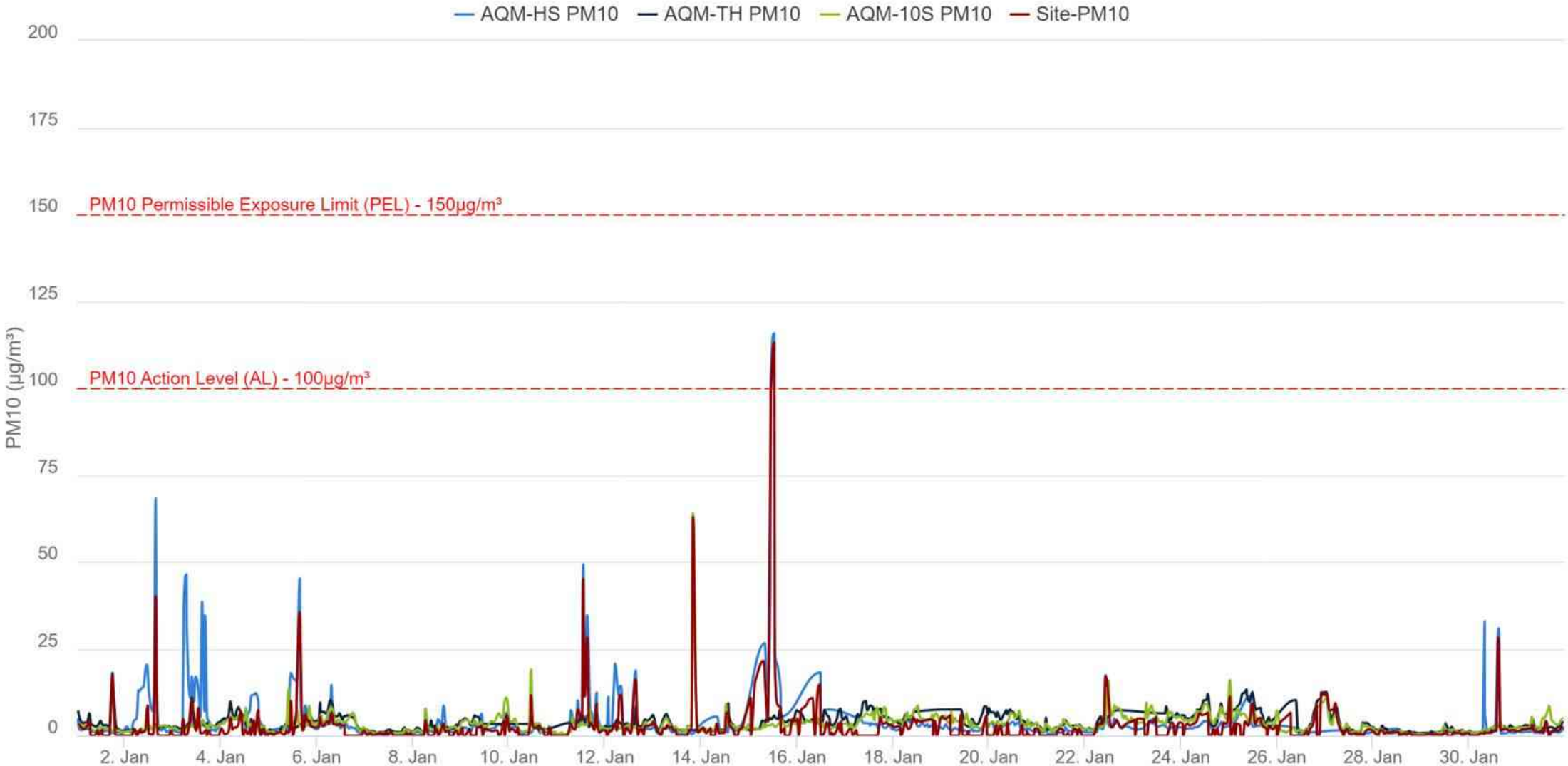


Reach F - PM10 - 15 min Running avg. (January 2024)



Reach G,H & I - PM2.5 - 15 min Running avg. (January 2024)

Reach G, H & I - PM10 - 15 min Running avg. (January 2024)



Summary of Data February 2024

PM2.5 levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-1 on 2/16 for 21 minutes;
- AQM-CH on 2/10 for 16 minutes;
- AQM-3 on 2/1 for 29 minutes, 2/16 for 23 minutes, and 2/21 for 17 minutes;
- AQM-FB on 2/10 for 2 minutes and 2/27 for 100 minutes;
- AQM-AT on 2/14 for 15 minutes;
- AQM-WB on 2/27 for 88 minutes;
- AQM-4 on 2/5 for 23 and 43 minutes;
- AQM-HS on 2/4 for 26 minutes; and
- AQM-TH on 2/8 for 30 minutes.

PM10 levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-1 on 2/16 for 21 minutes;
- AQM-CH on 2/10 for 15 minutes;
- AQM-FB on 2/10 for 9 minutes;
- AQM-3 on 2/16 for 23 minutes and 2/21 for 17 minutes
- AQM-4 on 2/5 for 23 minutes and 44 minutes; and
- AQM-HS on 2/4 for 17 minutes.

For the month of February 2024, PM net 2.5 levels were exceeded on 2/1, 2/4, 2/5, 2/8, 2/10, 2/14, 2/16, 2/21, and 2/27. PM net 10 levels were exceeded on 2/4, 2/5, 2/10, 2/16, and 2/21.

For the month of February 2024, construction-related PM net 2.5 or 10 levels did not surpass the Daily PEL (24-hour TWA).

PM 2.5 µg/m^3

- PM 2.5 µg/m^3 levels surpassed the PEL (15-minute TWA) on 13 occasions (2/1, 2/4, 2/5, 2/8, 2/10, 2/14, 2/16, 2/21, and 2/27) for between 15 and 100 minutes.
    - AQM-1 is located near the site access gate at Gouverneur Slip West and adjacent to another construction site and an FDR entry ramp; elevated readings on 2/16 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-CH is located on Jackson Street adjacent to the FDR; elevated readings on 2/10 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-3 is located is located west of the FDR on Delancey Street.
        - Elevated readings on 2/1 and 2/21 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
        - Elevated readings on 2/16 were related to were related to anomalous readings during instrument maintenance.
    - AQM-FB is located in the vicinity of the Fire Boat House; elevated readings on 2/10 and 2/27 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-AT is located near the former amphitheater and Corlears Hook pedestrian bridge; the elevated readings on 2/14 were related to onsite construction vehicle traffic. A water truck was deployed to mitigate airborne dust.

- AQM-WB is in the vicinity of the Williamsburg Bridge along the East River; elevated readings on 2/27 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
- AQM-4 is located adjacent to the shared use path/construction access road; elevated readings on 2/5 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
- AQM-HS is located near the Houston Street ramp at the exit to the construction on the FDR; elevated readings on 2/4 were related to unknown off-site activities.
- AQM-TH is located near the Track House in the vicinity of the shared use path and open sections of East River Park; the elevated readings on 2/8 were related to unknown off-site activities.

PM 10 µg/m^3

- PM 10 µg/m^3 levels surpassed the PEL on eight occasions (2/4, 2/5, 2/10, 2/16, and 2/21) for between 9 and 44 minutes:
  - AQM-1 is located near the site access gate at Gouverneur Slip West and adjacent to another construction site and an FDR entry ramp; elevated readings on 2/16 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
  - AQM-CH is located on Jackson Street adjacent to the FDR; elevated readings on 2/10 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
  - AQM-FB is located in the vicinity of the Fire Boat House; elevated readings on 2/10 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
  - AQM-3 is located is located west of the FDR on Delancey Street.
    - Elevated readings on 2/21 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - Elevated readings on 2/16 were related to were related to anomalous readings during instrument maintenance.
  - AQM-4 is located adjacent to the shared use path/construction access road; elevated readings on 2/5 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
  - AQM-HS is located near the Houston Street ramp at the exit to the construction on the FDR; elevated readings on 2/4 were related to unknown off-site activities.

Mitigation Measures:

- Throughout the month, construction activity was closely monitored, and dust mitigation techniques were continuously implemented to successfully contain any airborne particulates created due to construction activity.

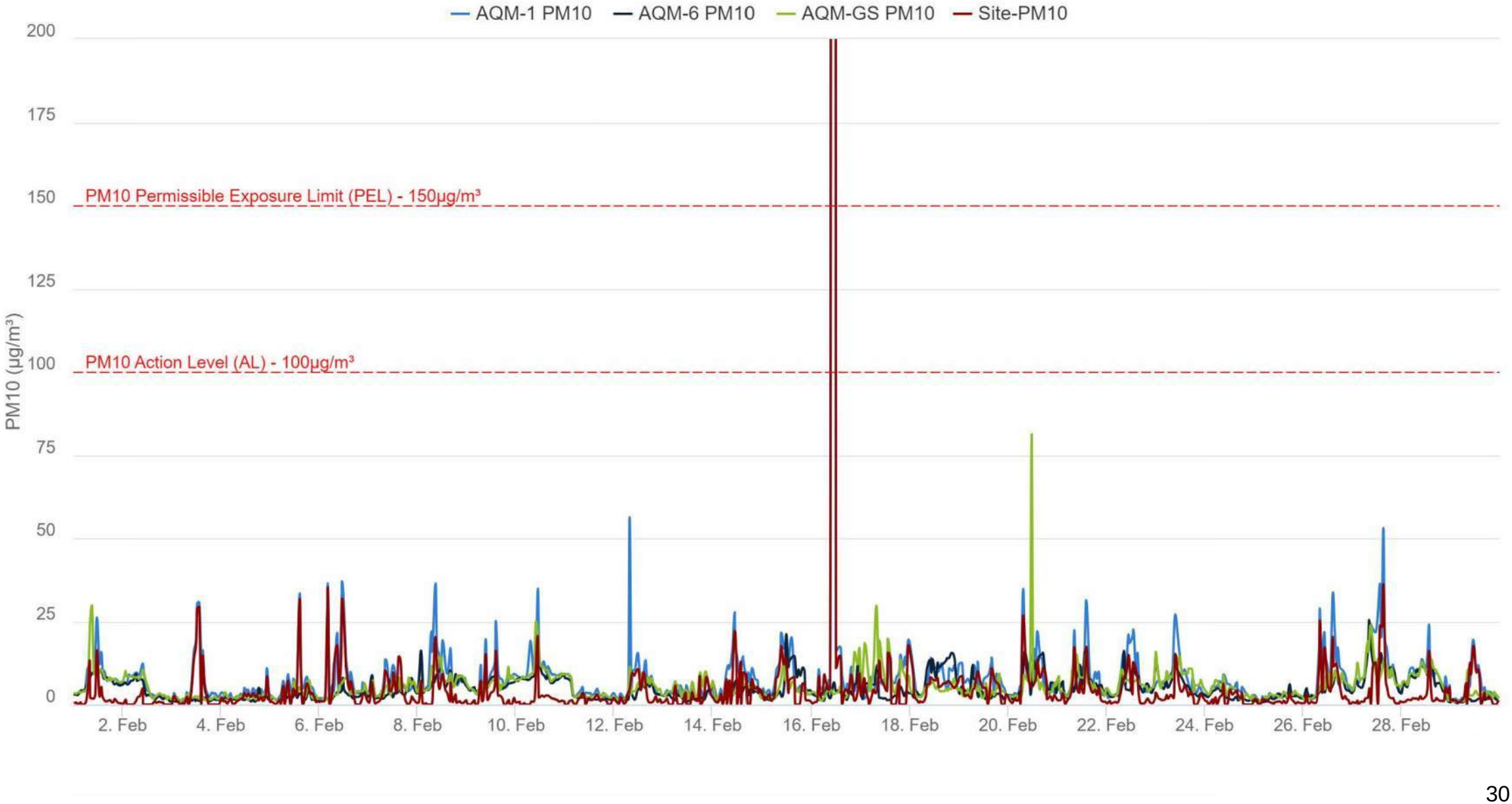
Notes

- AQM-4 was disconnected from power and not monitoring from February 14th to April 22nd

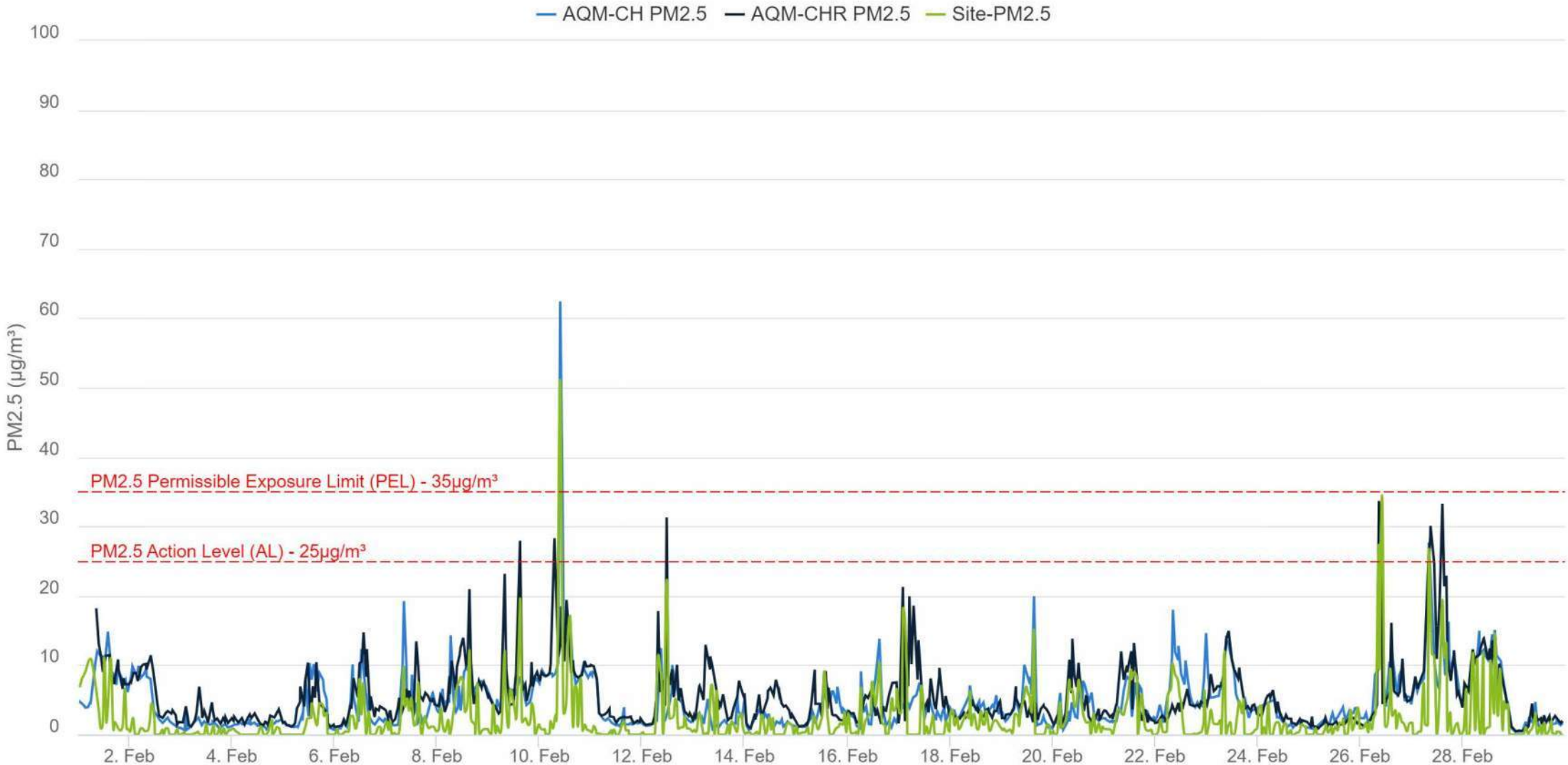
FEBRUARY 2024 DATA PLOTS

Reach A - PM2.5 - 15 min Running avg. (February 2024)

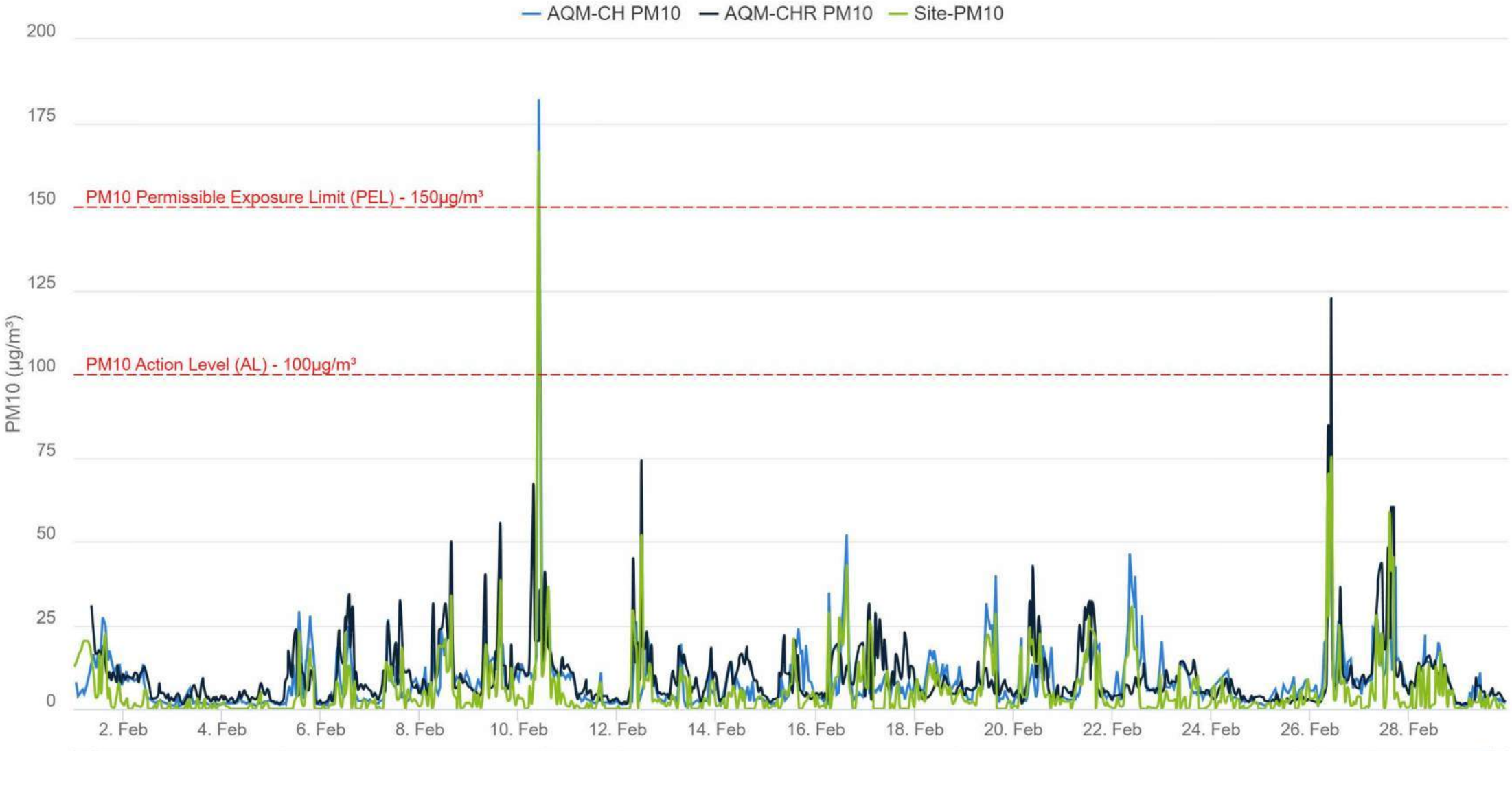
Reach A - PM10 - 15 min Running Avg. (February 2024)



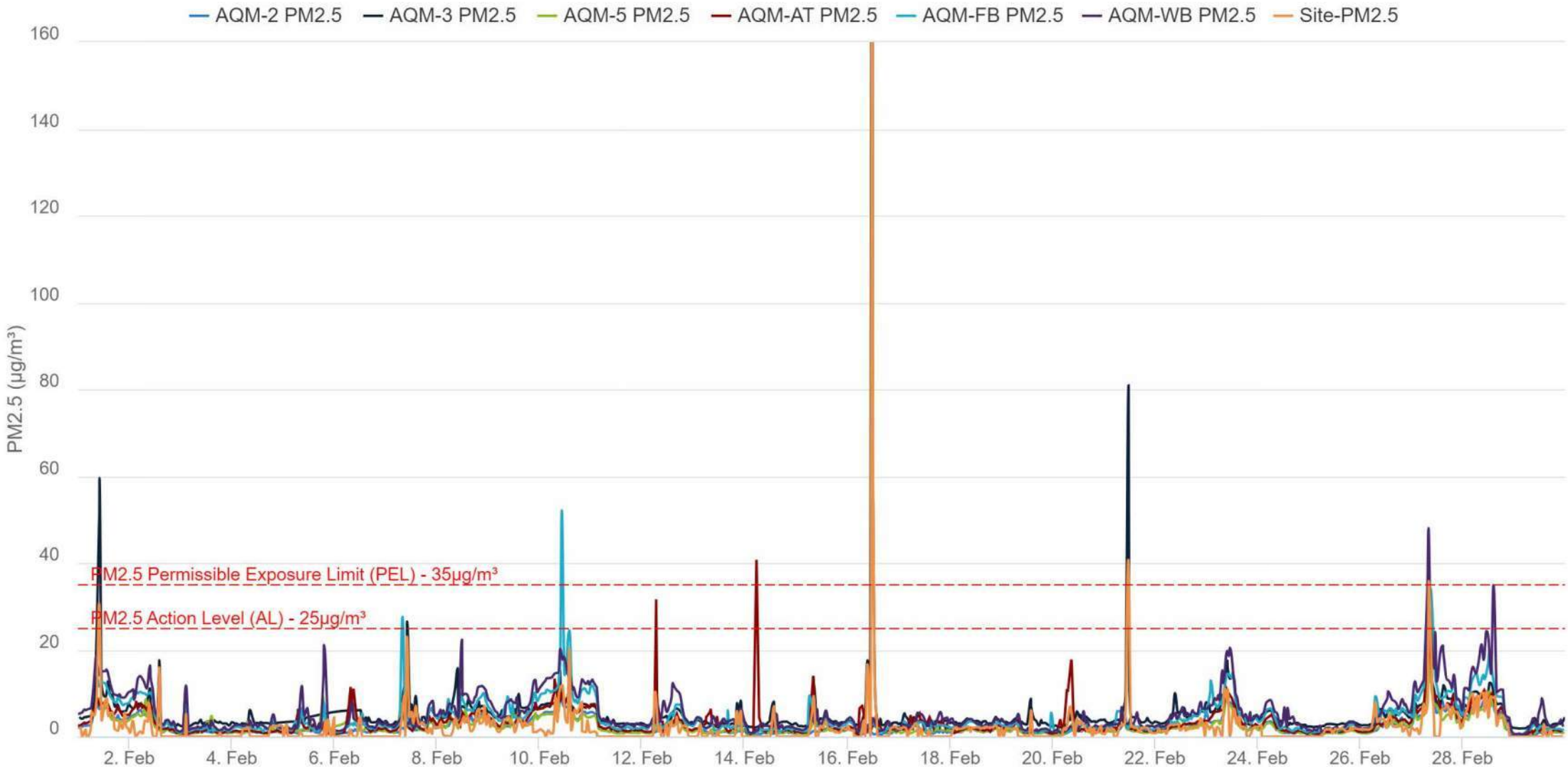
Reach B - PM2.5 - 15 min Running Avg. (February 2024)



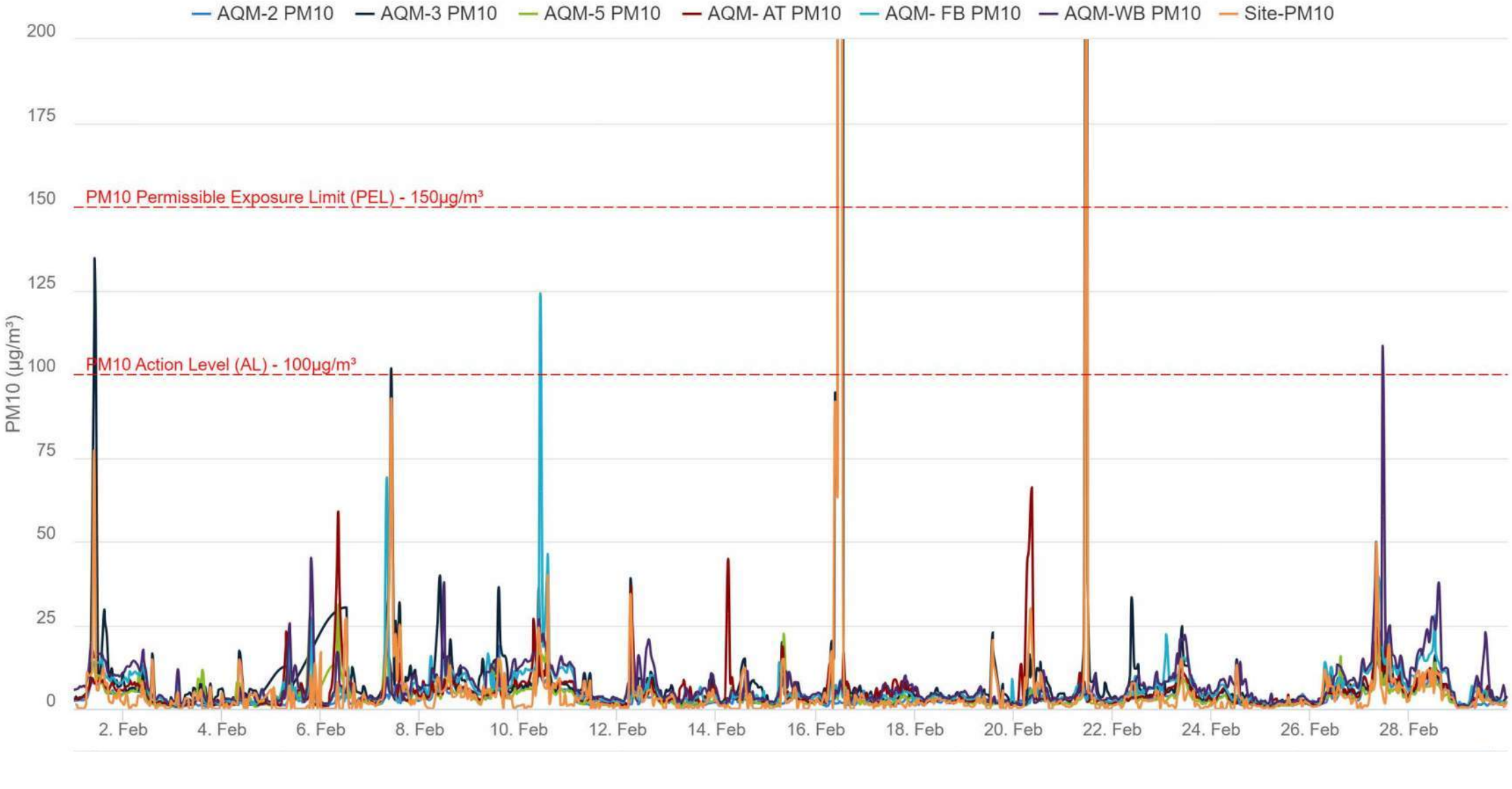
Reach B - PM10 - 15 min Running avg. (February 2024)



Reach C,D,& E - PM2.5 - 15 min Running Avg. (February 2024)

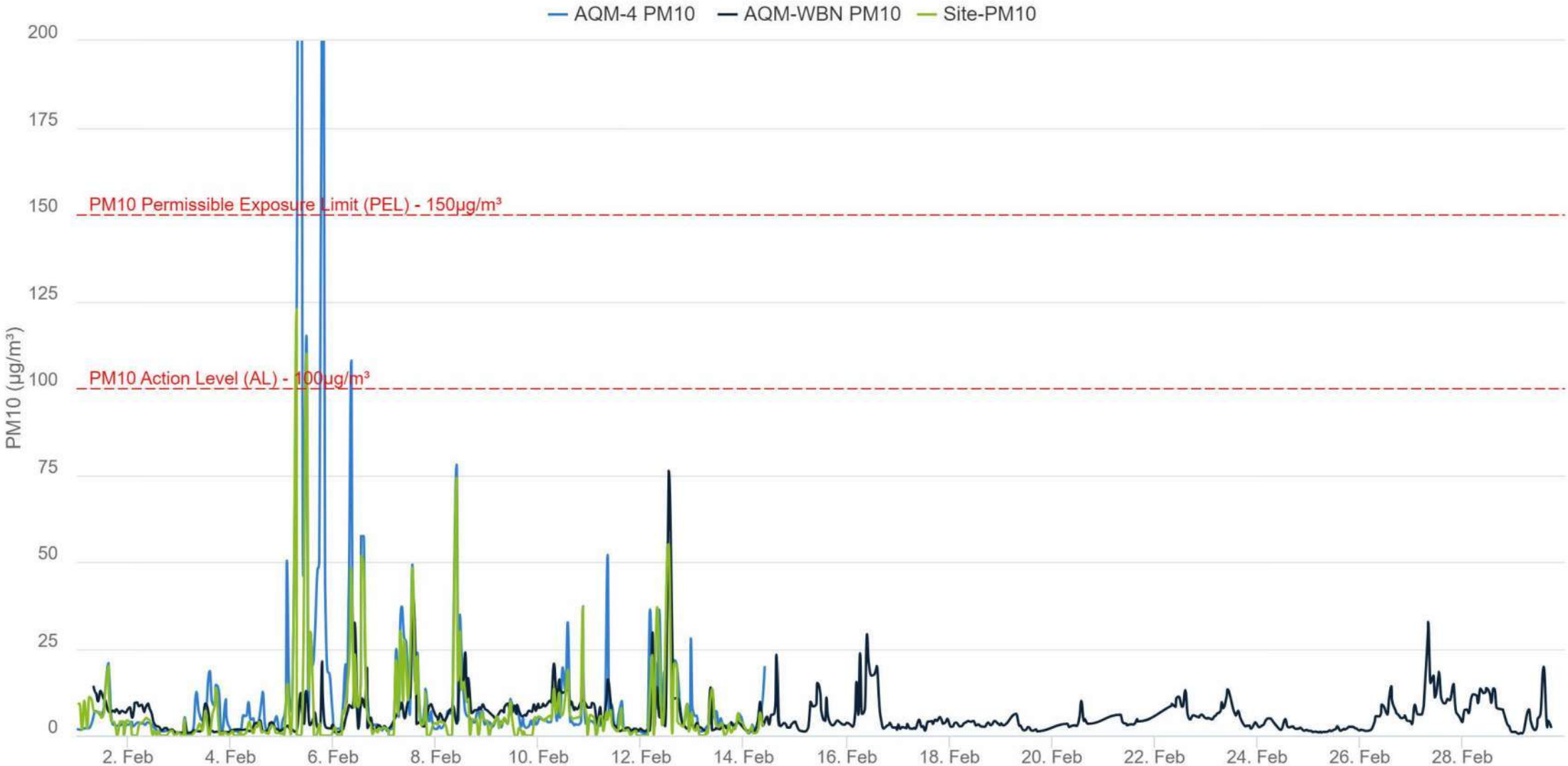


Reach C,D,& E - PM10 - 15 min Running avg. (February 2024)



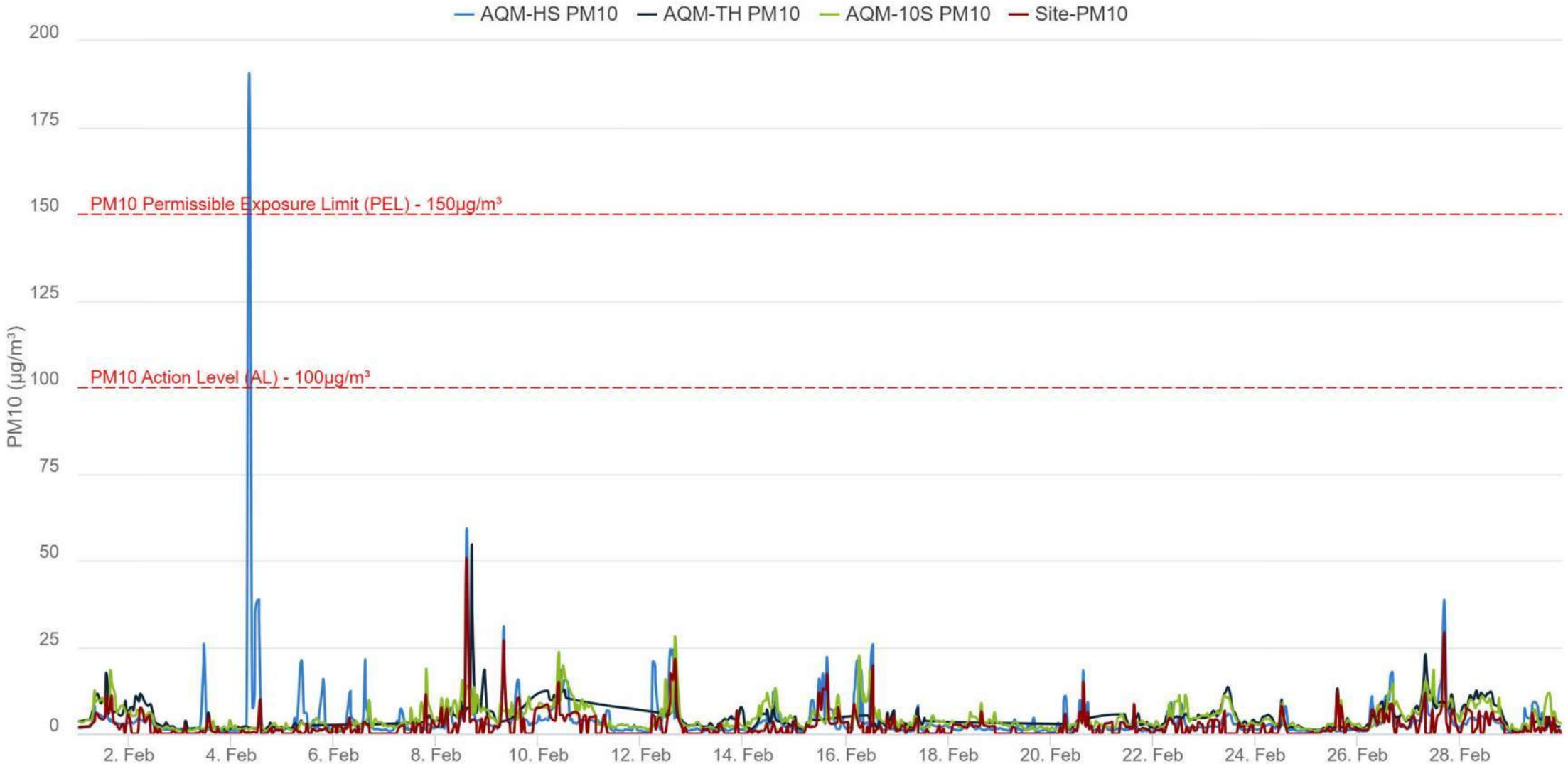
Reach F - PM2.5 - 15 min Running avg. (February 2024)

Reach F - PM10 - 15 min Running avg. (February 2024)



Reach G,H & I - PM2.5 - 15 min Running avg. (February 2024)

Reach G, H & I - PM10 - 15 min Running avg. (February 2024)



Summary of Data March 2024

PM2.5 levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-1 on 3/14 for 16 minutes, 3/15 for 17 minutes, 3/18 for 14 minutes, and 3/25 for 24 minutes;
- AQM-CH on 3/1 for 17 minutes;
- AQM-FB on 3/26 for 34 minutes;
- AQM-WBN on 3/13 for 18 minutes, 3/19 for 15 minutes, and 3/21 for 15 minutes;
- AQM-TH on 3/7 for 16 minutes;
- AQM-5 on 3/14 for 41 minutes; and
- AQM-HS on 3/19 for 15 minutes.

PM10 levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-1 on 3/15 for 17 minutes;
- AQM-CH on 3/1 for 15 minutes;
- AQM-WBN on 3/13 for 15 minutes, 3/19 for 15 minutes; and 3/21 for 15 minutes; and
- AQM-5 on 3/14 for 41 minutes.

For the month of March 2024, PM net 2.5 levels were exceeded on 3/1, 3/7, 3/13, 3/14, 3/15, 3/18, 3/21, 3/25, and 3/26. PM net 10 levels were exceeded on 3/14 and 3/15.

For the month of March 2024, construction-related PM net 2.5 or 10 levels did not surpass the Daily PEL (24-hour TWA).

PM 2.5 µg/m^3

- PM 2.5 µg/m^3 levels surpassed the PEL (15-minute TWA) on 12 occasions (3/1, 3/7 3/13, 3/14, 3/15, 3/18, 3/19, 3/21, 3/25, 3/26) for between 14 and 41 minutes.
    - AQM-1 is located near the site access gate at Gouverneur Slip West and adjacent to another construction site and an FDR entry ramp; elevated readings on 3/14, 3/15, 3/18, and 3/25 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-CH is located on Jackson Street adjacent to the FDR; elevated readings on 3/1 were related to unknown off-site activity.
    - AQM-FB is located in the vicinity of the Fire Boat House; the elevated readings on 3/26 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-WBN is north of the Williamsburg Bridge; the elevated readings on 3/13, 3/19, and 3/21 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-TH is located near the Track House in the vicinity of the shared use path and open sections of East River Park; the elevated readings on 3/7 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
    - AQM-5 is located between Houston Street and East 6th Street; elevated readings on 3/14 were related to on-site construction vehicle traffic. Dust mitigation measures were deployed to mitigate airborne dust.

- AQM-HS is located near the Houston Street ramp at the exit to the construction on the FDR; elevated readings on 3/19 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.

PM 10 µg/m^3

- PM 10 µg/m^3 levels surpassed the PEL (15-minute TWA) on six occasions (3/1, 3/13, 3/14, 3/15, 3/19, and 3/21) for between 15 and 41 minutes.
  - AQM-1 is located near the site access gate at Gouverneur Slip West and adjacent to another construction site and an FDR entry ramp; elevated readings on 3/15 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
  - AQM-CH is located on Jackson Street adjacent to the FDR; elevated readings on 3/1 were related to unknown off-site activity.
  - AQM-WBN is north of the Williamsburg Bridge; the elevated readings on 3/13, 3/19, and 3/21 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
  - AQM-5 is located between Houston Street and East 6th Street; elevated readings on 3/14 were related to on-site construction vehicle traffic. Dust mitigation measures were deployed to mitigate airborne dust.

Mitigation Measures

- Throughout the month, construction activity was closely monitored, and dust mitigation techniques were continuously implemented to successfully contain any airborne particulates created due to construction activity.

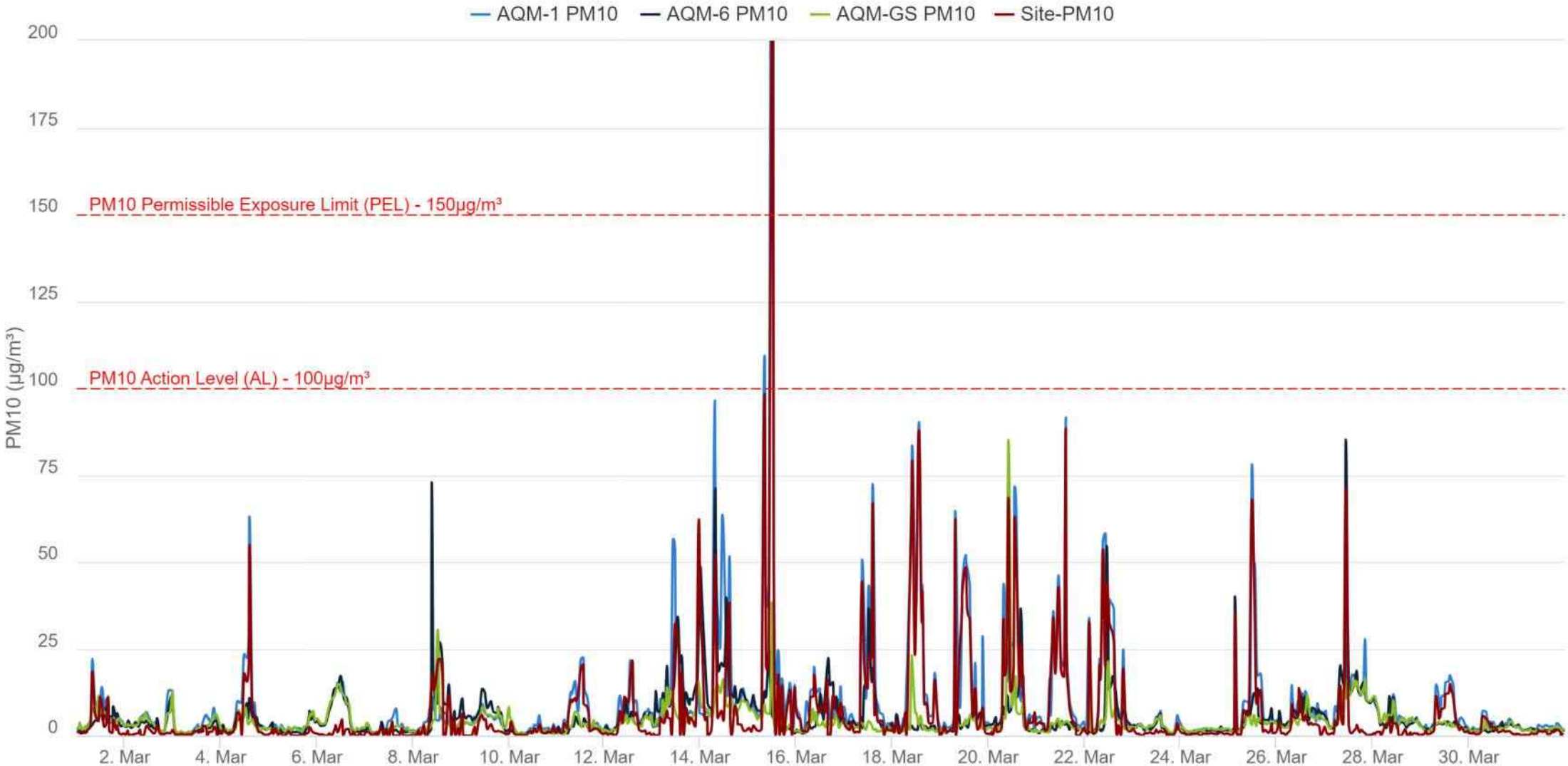
Notes

- AQM-4 was disconnected from power and not monitoring from February 14th to April 22nd
- AQM-TH was disconnected from power and not monitoring from March 16th to April 15th

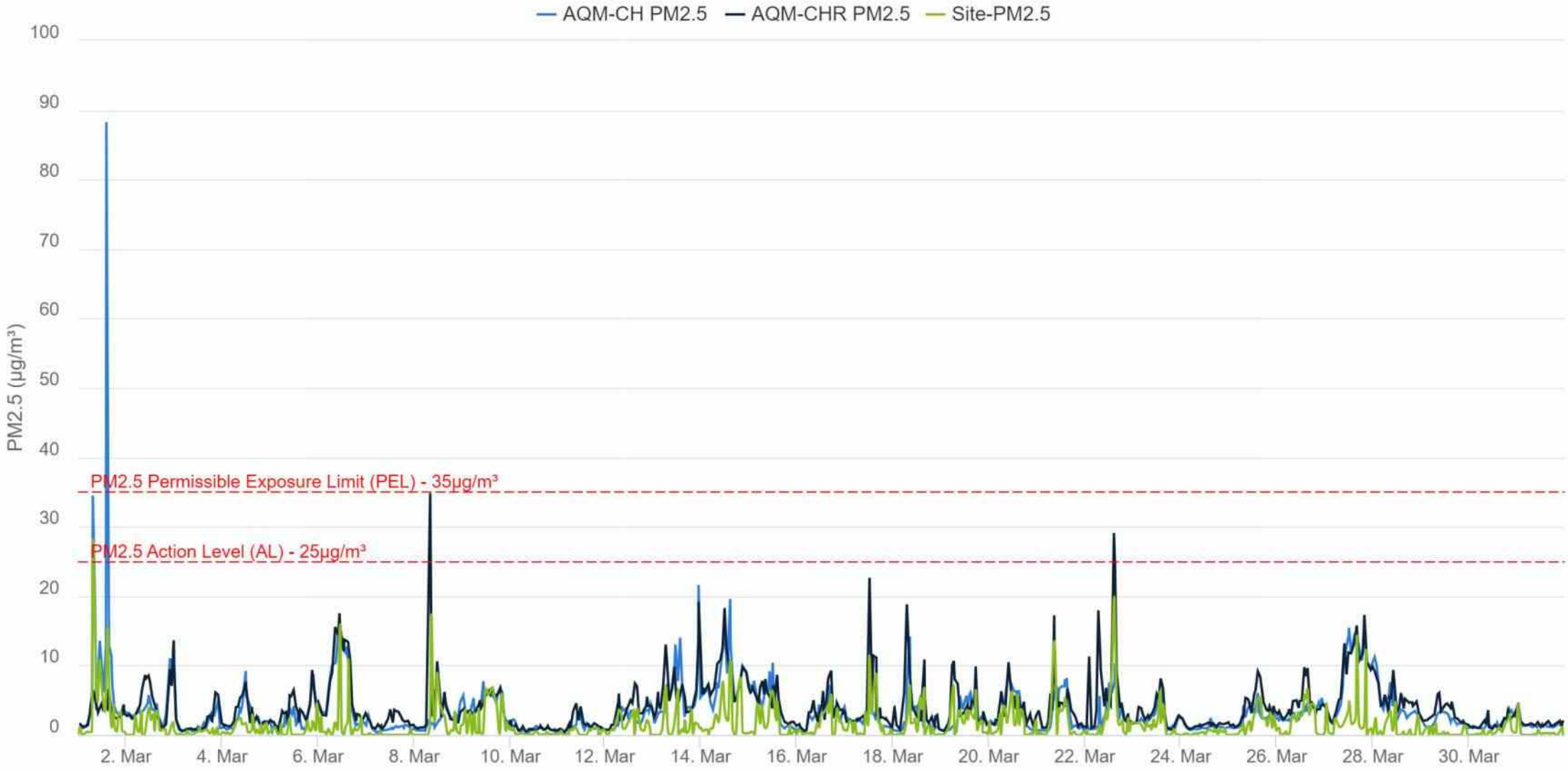
MARCH 2024 DATA PLOTS

Reach A - PM2.5 - 15 min Running avg. (March 2024)

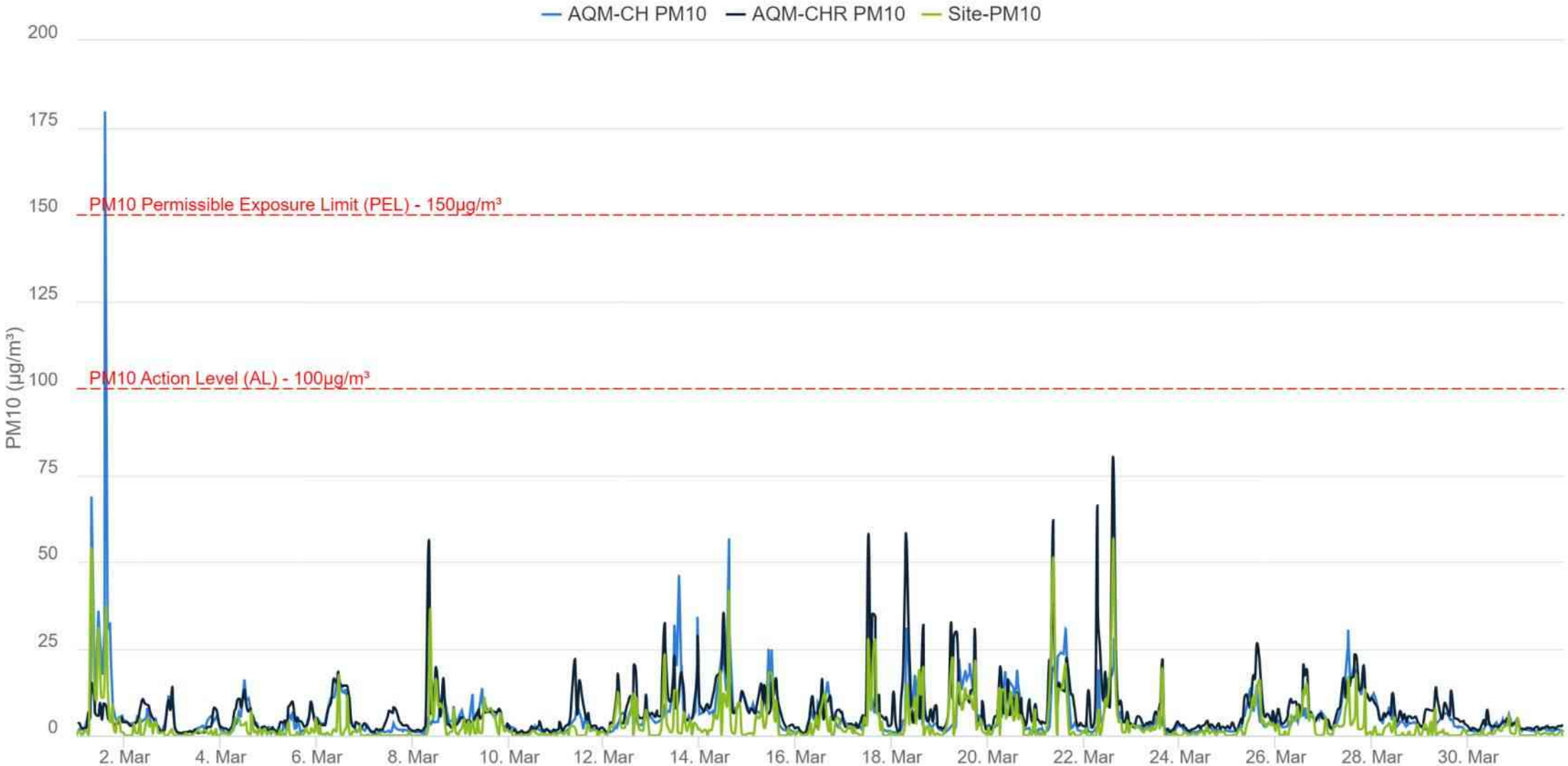
Reach A - PM10 - 15 min Running Avg. (March 2024)



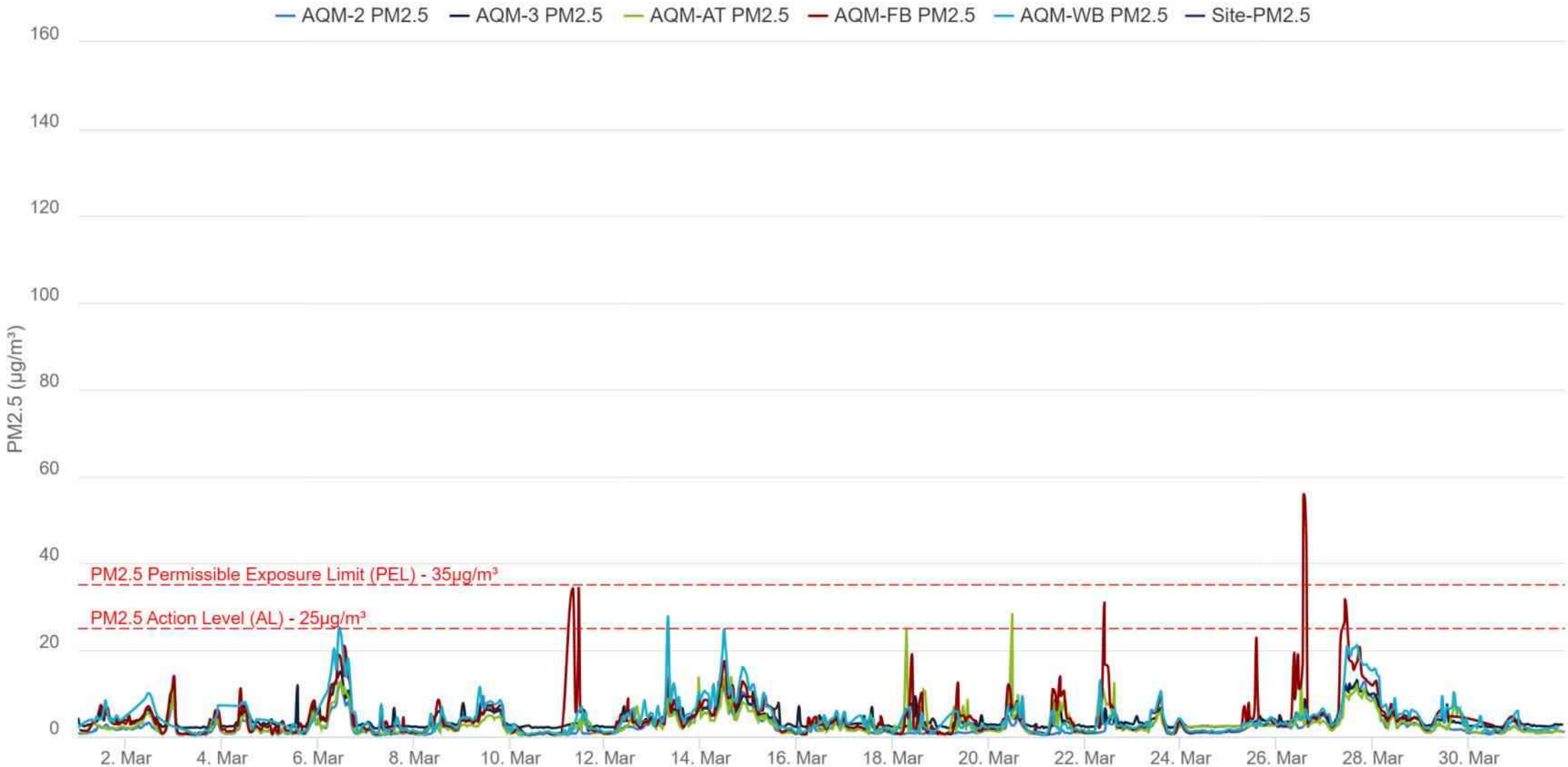
Reach B - PM2.5 - 15 min Running Avg. (March 2024)



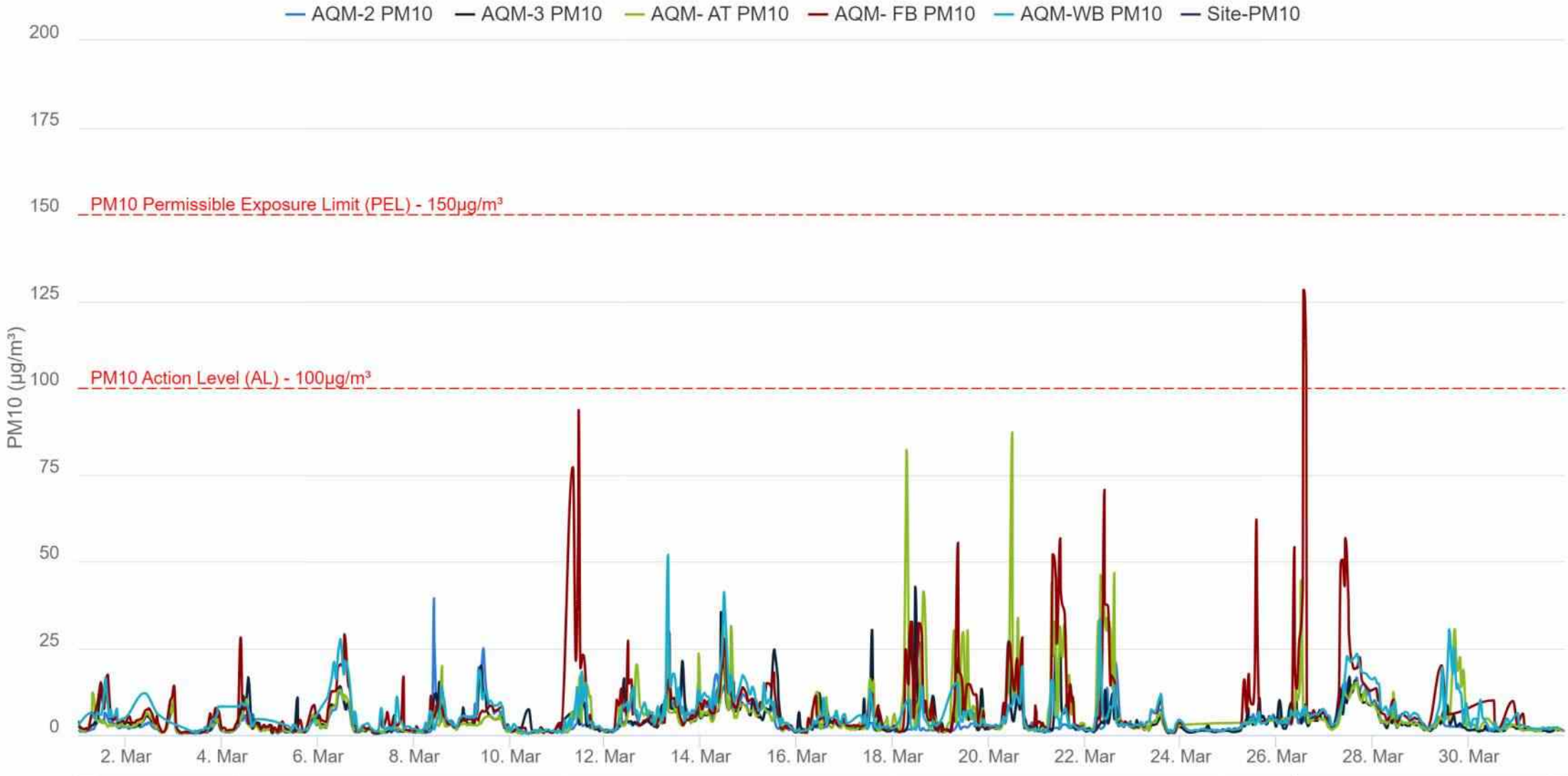
Reach B - PM10 - 15 min Running avg. (March 2024)



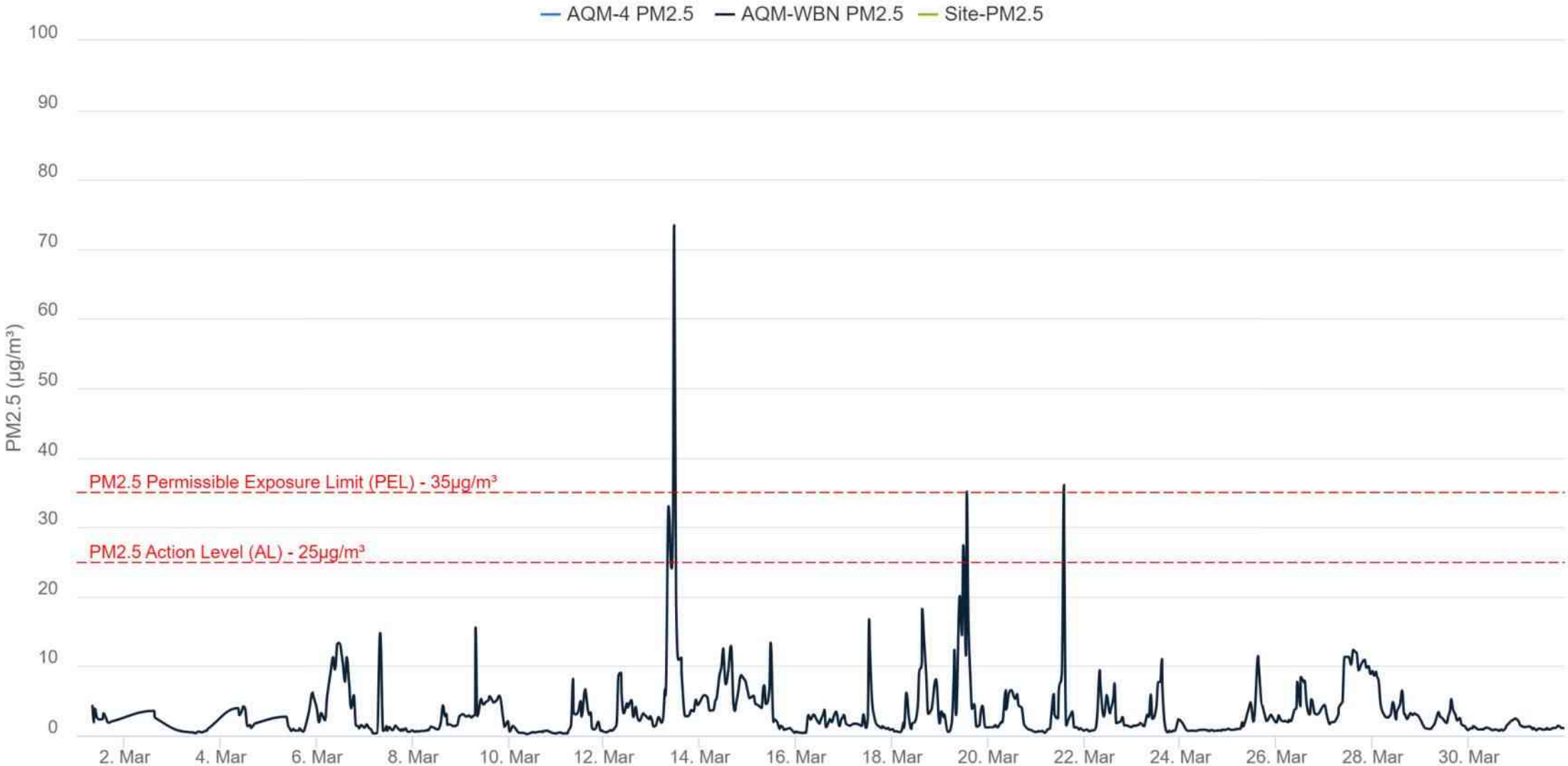
Reach C,D,& E - PM2.5 - 15 min Running Avg. (March 2024)



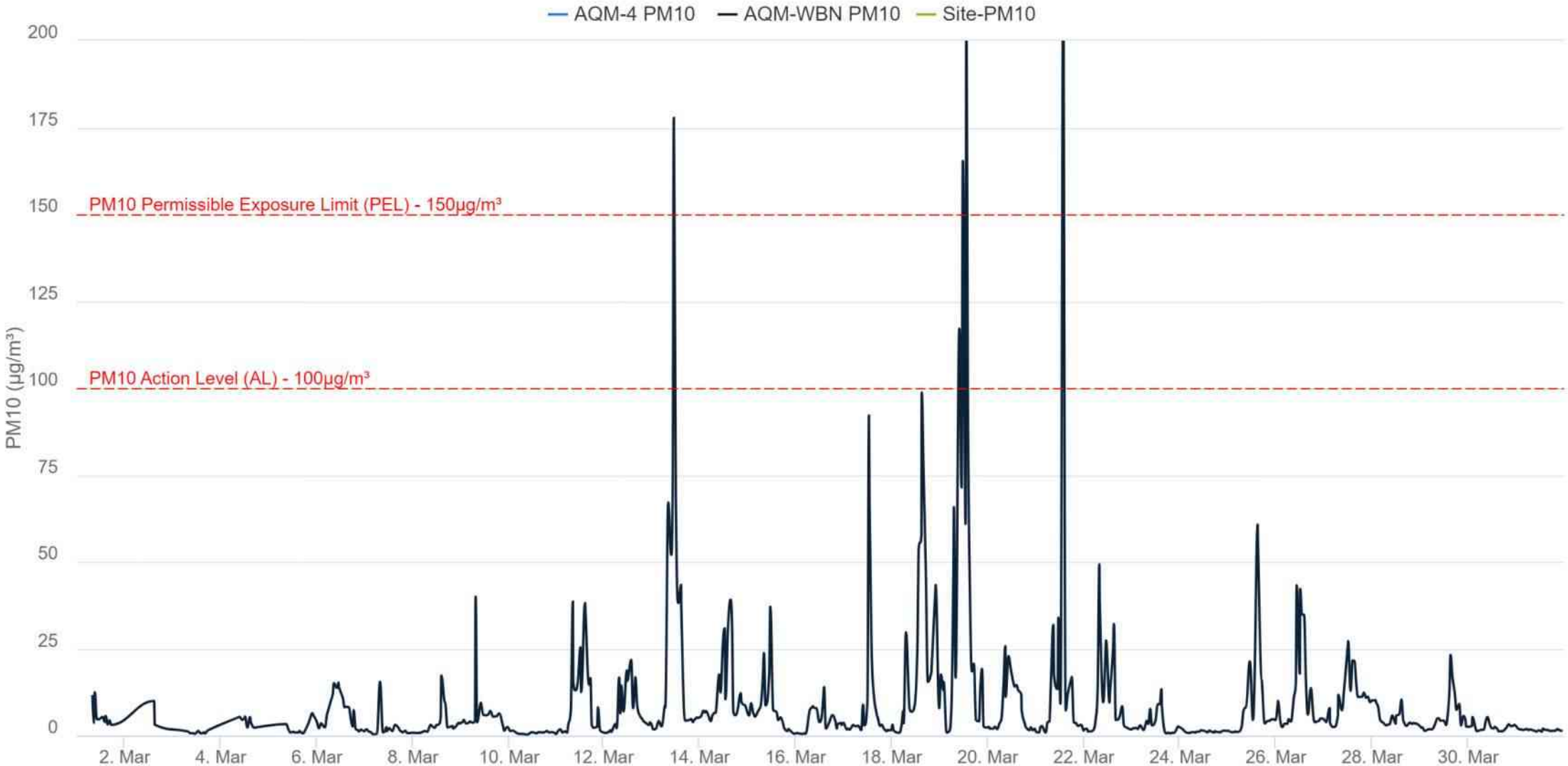
Reach C,D,& E - PM10 - 15 min Running avg. (March 2024)



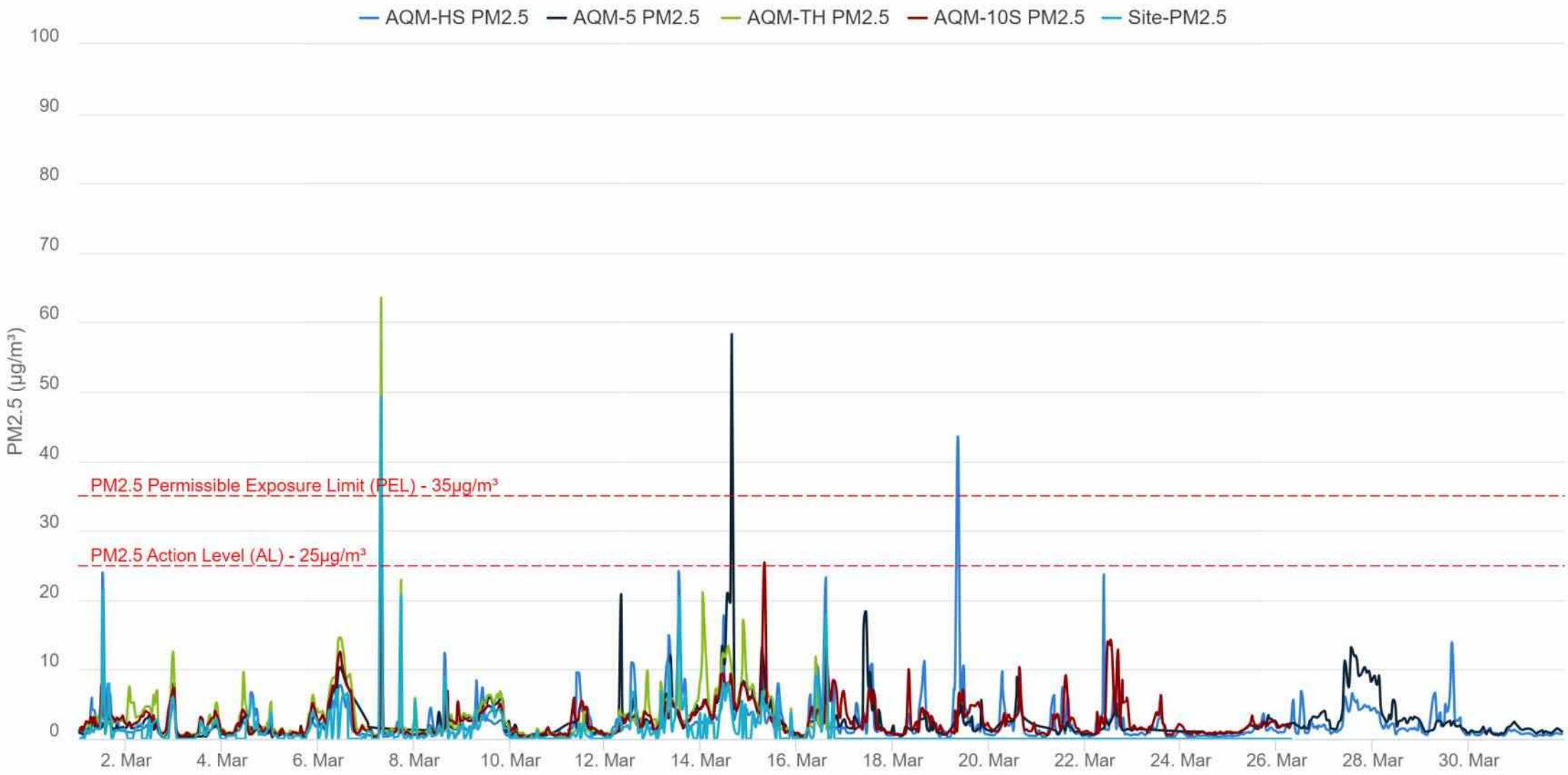
Reach F - PM2.5 - 15 min Running avg. (March 2024)



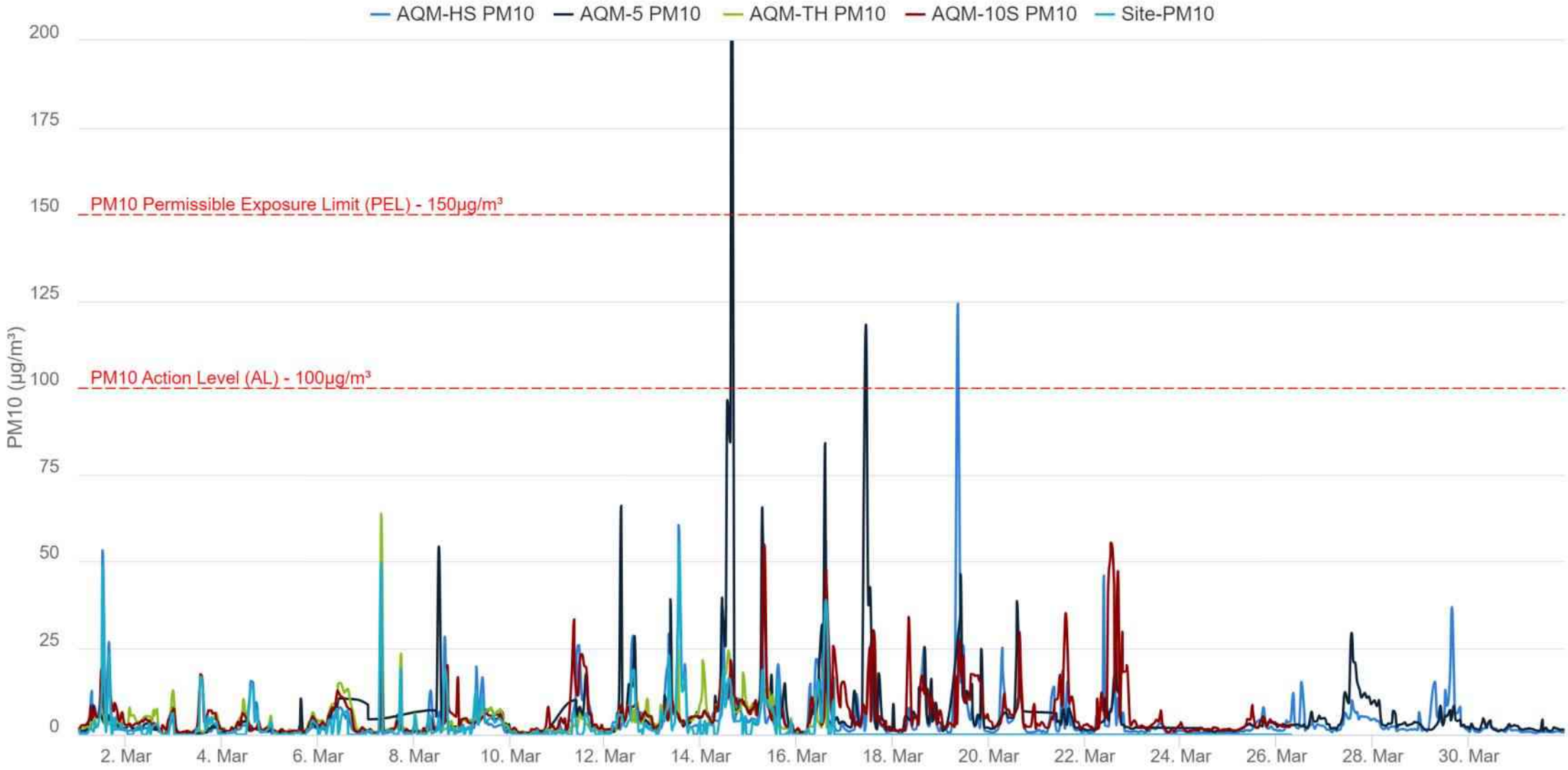
Reach F - PM10 - 15 min Running avg. (March 2024)



Reach G,H & I - PM2.5 - 15 min Running avg. (March 2024)



Reach G, H & I - PM10 - 15 min Running avg. (March 2024)



APPENDIX

I. ESCR Air Quality Management Program

Community health and safety is of utmost importance to the City of New York, the NYC Department of Design and Construction (DDC), and the East Side Coastal Resiliency Team. The ESCR Team is implementing a multi-level approach to Air Quality Management with includes:

- Step 1: Air Quality Management Plan
- Step 2: Daily Air Quality Mitigation Techniques
- Step 3: Daily Air Quality Monitoring
- Step 4: Air Quality oversight by environmental specialists

Step 1: The Air Quality Management Plan
The AQM Plan is submitted at the start of the project to outline the management of air quality for the project. It includes contractor roles and responsibilities, mitigation techniques, and action plans. This Plan is reviewed and approved by the Program Management / Construction Management (PMCM) Team HNTB-LiRo-Joint Venture, and the DDC.

Step 2: Daily Air Quality Mitigation Techniques
As mentioned in Chapter 6.6 of the EIS, Construction-Hazardous Materials Section "Dust management during soil-disturbing work would include the following: (1) use of water spray for roads, trucks, excavation areas and stockpiles; (2) use of anchored tarps to cover stockpiles; (3) use of truck covers during soil transport within site limits and during off-site transport; (4) employment of extra care during dry and/or high-wind periods; (5) use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface; and (6) use of a truck wheel wash at site access/egress points to prevent fugitive dust and off-site migration of dust and other particulates. The source(s) of any dust emissions would be identified and addressed immediately and appropriately.

Step 3: Daily Air Quality Monitoring
The air quality monitoring confirms the daily mitigation techniques in place are being implemented and are effective. Action levels are set to alert the contractor when a technique is not working, and adjustments are required to maintain the levels as set by the National Ambient Air Quality Standards (NAAQS) for PM pollution as mentioned above. Step 3 is implemented daily and mitigation techniques will vary depending on work activities. The EPA Standard Time Weighted Average (TWA) for analyzing PM levels is 24 hours, the ESCR project is analyzing levels more frequently at 15-minute TWA.

Step 4: Air Quality Oversight by Environmental Specialists
The oversight for environmental monitoring for the ESCR project is multi-tiered and includes relationships between several agencies and entities. As shown in the exhibit on the following page, a series of checks and balances have been implemented to assure compliance with environmental regulations. See *Fig. 4 East Side Coastal Resiliency Air Quality Monitoring Flow Chart*

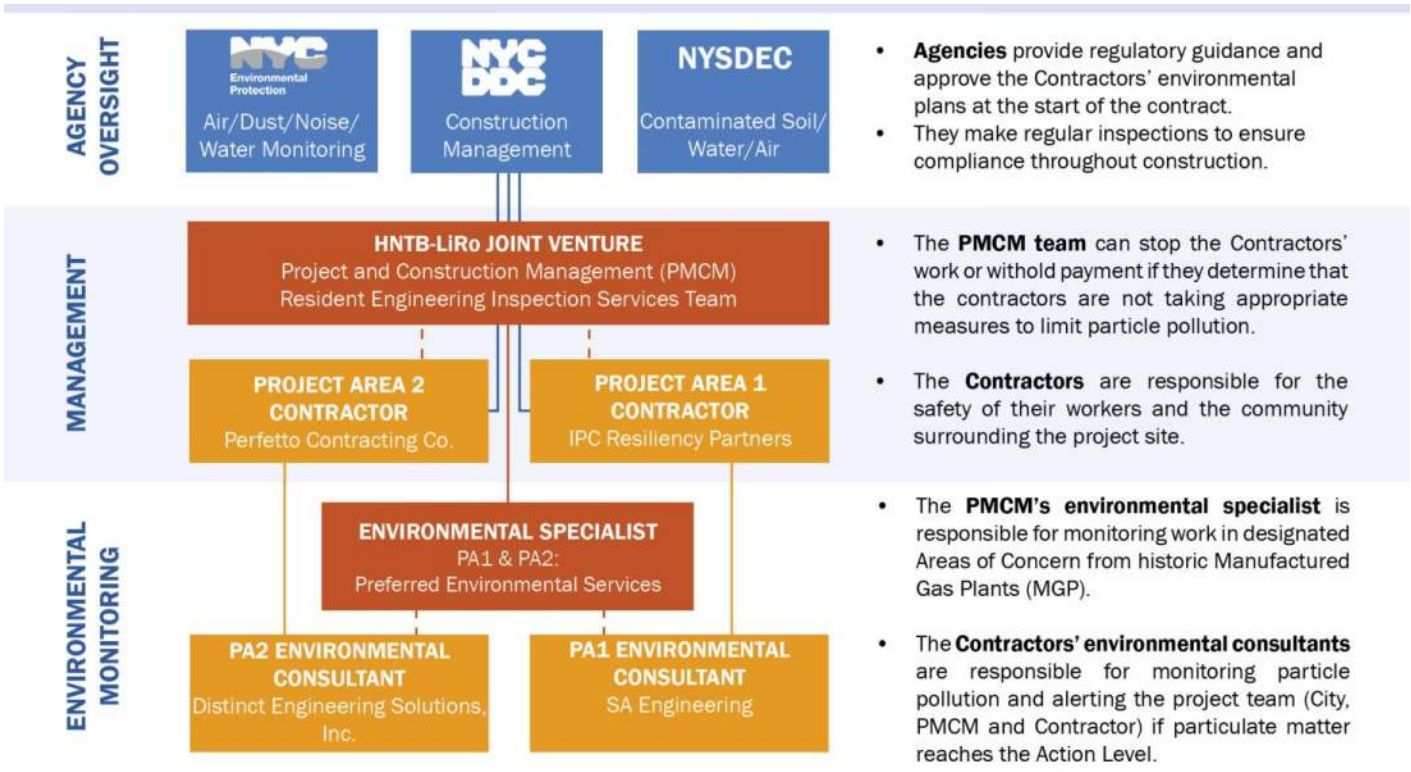


Fig.4 East Side Coastal Resiliency Air Quality Monitoring Flow Chart

II. RESOURCES

- ESCR Website: https://www1.nyc.gov/site/escr/index.page
- ESCR Environmental Review Process web page: https://www1.nyc.gov/site/escr/about/environmental-review.page
- FEIS Chapter 5.7 Hazardous Materials: https://www1.nyc.gov/assets/escr/downloads/pdf/FEIS/ESCR-EIS-Chapter-5.7-Hazardous-Materials.pdf
- FEIS Chapter 6.6 Construction Hazardous Materials: https://www1.nyc.gov/assets/escr/downloads/pdf/FEIS/ESCR-EIS-Chapter-6.6-Construction-Hazardous-Materials.pdf
- EPA Particulate Matter (PM) Pollution - Particulate Matter (PM) Basics: https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM
- EPA Particulate Matter (PM) Pollution - Setting and Reviewing Standards to Control Particulate Matter (PM) Pollution: https://www.epa.gov/pm-pollution/setting-and-reviewing-standards-control-particulate-matter-pm-pollution
- EPA Particulate Matter (PM) Pollution - National Ambient Air Quality Standards (NAAQS) for PM: https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm
- EPA Particulate Matter (PM) Pollution - Applying or Implementing Particulate Matter (PM) Standards: https://www.epa.gov/pm-pollution/applying-or-implementing-particulate-matter-pm-standards