

EAST SIDE COASTAL RESILIENCY

SANDRESM1 | PROJECT AREA 1

AIR QUALITY MONITORING REPORT

Q4 | 2024

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SUBCONSULTANT TO IPC RESILIENCY PARTNERS



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).

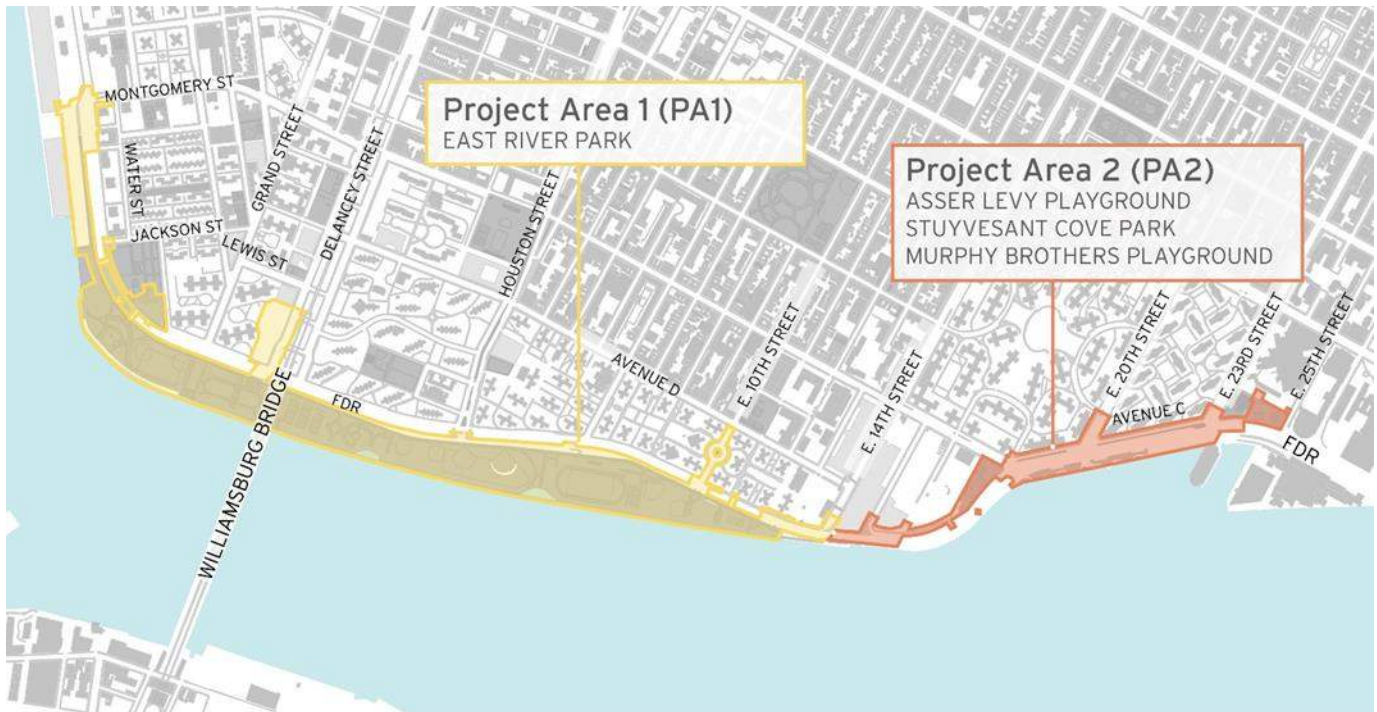


Fig.1 East Side Coastal Resiliency Project Areas

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 ($\mu\text{g}/\text{m}^3$):

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

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.

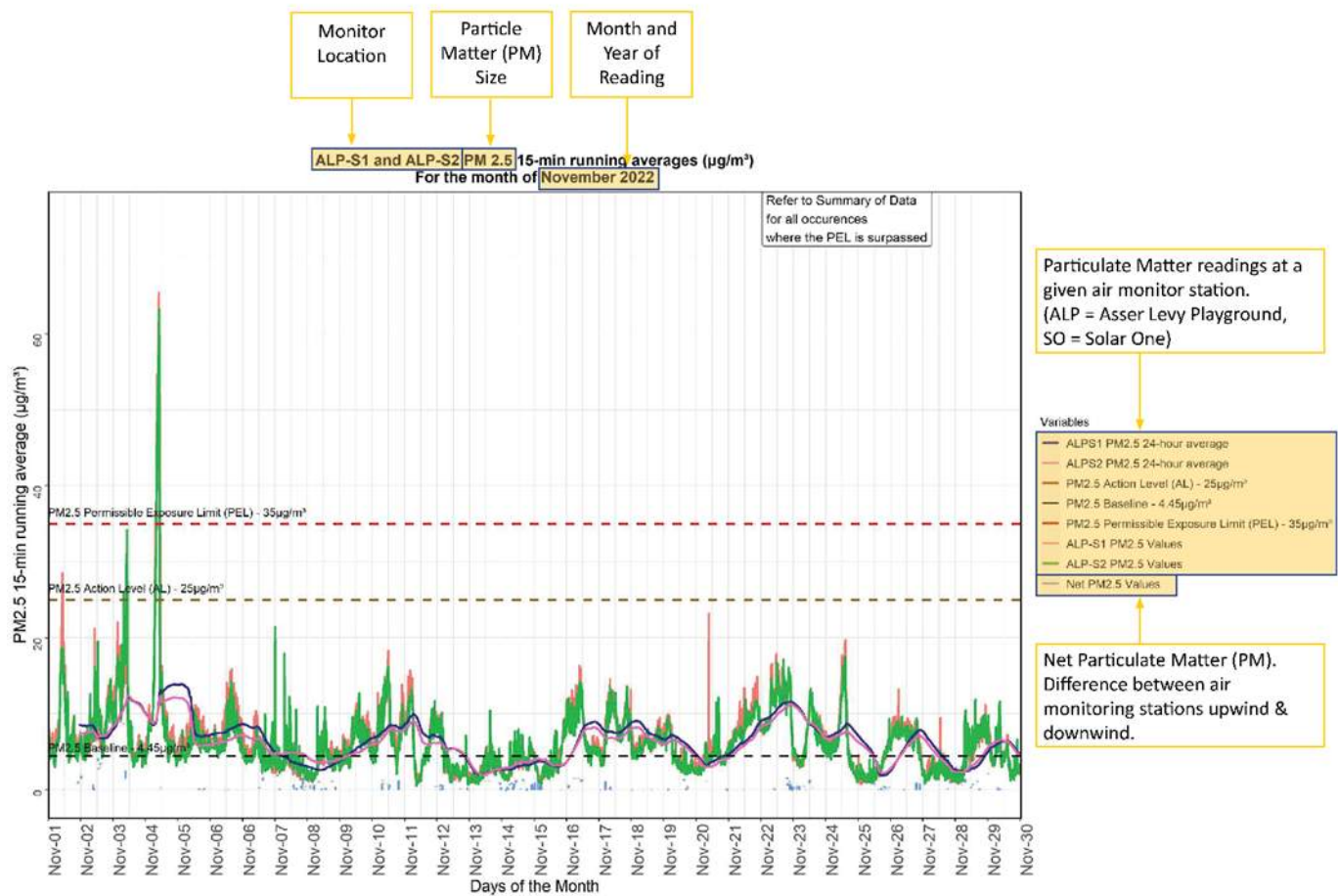


Fig.2 Sample Air Quality Data Plot

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 $10 \mu\text{g}/\text{m}^3$ (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-D. 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 and Figure 3D details the locations from June 6, 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 below; the monitor began recording upon installation (Figure 3C).



Fig.3D ESCR Project Area 1 Phase 1 Air Quality Monitoring Station Locations, as of June 6, 2024

Due to construction activities, by June 6, 2024, the AQM-GS and AQM-CH monitors were installed in Reach H and Reach I (AQM-THR and AQM-10SR, respectively) at the locations shown below; the monitors began recording upon installation (Figure 3D).



Fig.3E ESCR Project Area 1 Phase 1 Air Quality Monitoring Station Locations, as of December 10, 2024

Due to the completion of construction activities at Delancey Street, by December 10, 2024 AQM-3 was removed and is no longer monitoring.

Work Activities from October to December 2024:

Reach A:

- Install micropiles and jet grout at Gouverneur Gardens and along FDR on-ramp;
- Carbon fiber wrapping of Consolidated Edison (ConEd) utilities along FDR Drive;
- Form and pour floodgate monolith;
- Core for jet grout samples at Montgomery Street;
- Install shear studs on Gouverneur Gardens floodwall;
- Place concrete for Gouverneur Gardens floodwall;
- Excavate, form, install rebar, and pour concrete for closure wall near ConEd utilities;
- Form and pour architectural floodwall; and
- Welding and Installing steel plates for above ConEd utilities.

Reach B:

- Micropiles and jet grout along FDR on-ramp: excavate, drill micropiles, place jet grout, vacuum spoils, backfill.

Reach C:

- Micropiles and jet grout along FDR on-ramp;
- Paint and install shear studs and deck pans for Corlears Hook Bridge;
- Mobilize and demobilize equipment for installing Corlears Hook Bridge;
- Install Corlears Hook Bridge (Saturday 10/19, 11 PM - Sunday 10/20, 6 AM);
- Pour Corlears Hook Bridge Deck (Friday, 11/8 9PM - Saturday, 11/9 5:30 AM);
- Grade, form, and pour curbs and paver base around amphitheater;

- Scarify amphitheater seat foundations;
- Install and grade precast amphitheater seats;
- Excavate, install conduit, and backfill after conduit around amphitheater;
- Form and install rebar for Corlears Hook Bridge;
- Demolish existing esplanade pavers; and
- Pour esplanade paver base concrete.

Corlears Hook Park:

- Form park retaining walls;
- Form and install rebar for Corlears Hook Bridge backwalls; and
- Installation of ConEd utilities.

Reach D:

- Excavate, sheet, install utilities, and backfill utilities at Grand Street;
- Test pits for ConEd utilities at Grand Street;
- Place fill on esplanade for temporary access road to Fireboat House;
- Excavate, perform seawall repairs, pour concrete, remove clean stone, and backfill at Fireboat House;
- Form and pour Fireboat House stairs and classroom seating;
- Pave shared use path;
- Place biochar and plant trees around Fields 1/2 (Monday - Friday and Saturday, 11/2; 7 AM - 3:30 PM); and
- Grade, form, and pour esplanade paver base.

Reach E:

- Excavate for and install drainage structures along haul road (Monday - Friday, 10/1 - 10/8; 3 PM - 11 PM);
- Excavate, grade, form, and pour sidewalks and curbs;
- Grade, pave, and sawcut basketball court;
- Paint Delancey Street Bridge (Monday - Friday, 10/1 - 10/7 and Friday, 10/19; 9 PM - 5:30 AM; Saturday 11/2);
- Lane closures for night work (Monday - Friday, 10/1 - 10/7 and Friday, 10/19; 9 PM - 5:30 AM);
- Install planting soil (Monday - Friday, 10/7 - 10/31 and Saturday, 10/26; 7 AM - 3:30 PM);
- Pave shared use path;
- Scarify paver base poured too high;
- Excavate and place stone for Williamsburg Bridge security wall;
- Raising pull boxes and castings to new grade, and install steel face curb straight pieces;
- Forming and bracing steel face curb;
- Place biochar and plant trees (Saturday, 11/14/2024);
- Installation of tree irrigation systems;
- Placing electrical conduit for street lighting (Saturday, 11/20/2024; 7 AM - 3:30 PM);
- Excavating and placing road base; and
- Excavating for the Williamsburg Bridge bollard wall and sawcutting asphalt for the basketball court along the curb line.

Delancey West:

- Remove existing pavement and curb;
- Excavate, grade, form, and pour curbs and sidewalks;
- Lane striping for bike path; and
- Remove temporary asphalt walkway.

Reach F:

- Install lightweight fill at tennis stepdown;
- Form and pour sidewalks and light pole foundations;
- Form and pour sidewalk between tennis courts;
- Placing soil under the Williamsburg Bridge (Saturday, 11/2/2024; 7 AM - 3:30 PM);
- Scoring the sidewalk and caulking joints by the north side of the tennis court;
- Place biochar and plant trees; and
- Prepping for micro-tunneling and cleaning up a dewatering tank.

Reach G:

- CIP sewer and chamber: excavate, install sheeting, form, install rebar, pour, strip, remove sheeting, and backfill;
- Obstruction drilling for wick drains and install wick drains;
- Demo concrete at proposed north embayment (Saturday, 11/23; 7 AM - 3:30 PM);
- Removing flume and backfill; and
- Load out excavation spoils.

Reach I:

- Forming headwall at launching and receiving pit; and
- Installing studs for headwalls at launching and receiving pits for thrust blocks.

10th Street:

- Install piles; and
- Excavate for micro-tunnel receiving pit.

14th Street:

- Test pits for ConEd utilities;
- Lane closures for night work.

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

Summary of Air Quality Monitoring Reports

For the months of October to December 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 surpasses both the AL as well as the PEL (15-minute TWA) to suppress construction activity effects on air quality in East River Park.

October 2024:

- PM2.5 levels surpassed the PEL (15-minute TWA) at AQM-6 on October 19th; AQM-3 on October 4th, October 8th, October 14th, October 16th, and October 18th; AQM-WB on October 8th, October 9th, October 18th, October 21st, and October 22nd; AQM-FB on October 9th, October 16th, and October 18th; AQM-AT on October 10th and October 18th; AQM-4 on October 18th; AQM-TH on October 3rd, October 19th, October 22th, October 23rd, and October 29th; AQM-THR on October 13th; and AQM-10S on October 4th.
- PM10 levels surpassed the PEL (15-minute TWA) at AQM-3 on October 3rd, October 7th, October 8th, October 9th, October 14th, October 16th, and October 18th; AQM-WB on October 8th and October 18th; AQM-4 on October 18th; and AQM-TH on October 3rd.

November 2024:

- PM2.5 levels surpassed the PEL (15-minute TWA) at AQM-WB on November 2nd and November 19th; AQM-FB on November 14th and November 18th; AQM-3 on November 18th and November 20th; AQM-AT on November 23rd; AQM-5 on November 6th; AQM-10S on November 18th; and AQM-10SR on November 19th and November 22nd.
- PM10 levels surpassed the PEL (15-minute TWA) at AQM-FB on November 13th; AQM-3 on November 22nd; and AQM-AT on November 23rd.

December 2024:

- PM2.5 levels surpassed the PEL (15-minute TWA) at AQM-FB on December 18th; AQM-WB on December 23rd and December 31st; AQM-WBN on December 11th; and AQM-4 on December 12th.
- PM10 levels did not surpass the PEL (15-minute TWA) in December.

Baselines:

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

Notes

- AQM-1 was disconnected from power and not monitoring from September 13th to October 3rd and December 22nd to December 26th
- AQM-3 was disconnected from power and not monitoring from December 6th to December 10th
- AQM-4 was disconnected from power and not monitoring from December 22nd to December 31st
- AQM-5 was disconnected from power and not monitoring from October 10th to October 15th and November 21st to November 25th
- AQM-FB was disconnected from power and not monitoring from September 27th to October 8th and November 20th to November 25th

- AQM-HS was disconnected from power and not monitoring from October 11th to October 17th and November 7th to November 12th and December 26th to December 31st
- AQM-WBN was disconnected from power and not monitoring from November 15th to November 19th
- AQM-10SR was disconnected from power and not monitoring from November 7th to November 12th

PART 2

Summary of Data October 2024

PM_{2.5} levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-6 on 10/19 for 18 minutes;
- AQM-3 on 10/4 for 16 minutes, 10/8 for 46 minutes and 27 minutes, 10/14 for 14 minutes and 11 minutes, 10/16 for 15 minutes and 10/18 for 16 minutes;
- AQM-WB 10/8 for 27 minutes, 10/9 for 15 minutes, 10/18 for 18 minutes, 10/21 for 15 minutes, and 10/22 for 17 minutes;
- AQM-FB on 10/9 for 15 minutes, 10/16 for 15 minutes, and 10/18 for 25 minutes;
- AQM-AT on 10/10 for 10 minutes and 10/18 for 15 minutes;
- AQM-4 on 10/18 for 16 minutes;
- AQM-TH on 10/3 for 16 minutes, 10/19 for 18 minutes, 10/22 for 15 minutes, 10/23 for 28 minutes, and 10/29 for 37 minutes;
- AQM-THR on 10/13 for 15 minutes; and
- AQM-10S on 10/4 for 25 minutes.

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

- AQM-3 on 10/3 for 17 minutes, 10/7 for 14 minutes, 10/8 for 72 minutes and 37 minutes, 10/9 for 7 minutes and 14 minutes, 10/14 for 14 minutes and 15 minutes, 10/16 for 15 minutes and 18 minutes, and 10/18 for 21 minutes;
- AQM-WB on 10/8 for 15 minutes and 10/18 for 18 minutes;
- AQM-4 on 10/18 for 16 minutes; and
- AQM-TH on 10/3 for 15 minutes.

For the month of October 2024, PM net 2.5 levels were surpassed on 10/4, 10/8, 10/9, 10/10, 10/14, 10/16, 10/18, 10/19, 10/21, and 10/22. PM net 10 were exceeded on 10/3, 10/7, 10/8, 10/9, 10/14, 10/16, and 10/18.

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

PM 2.5 $\mu\text{g}/\text{m}^3$

- PM 2.5 $\mu\text{g}/\text{m}^3$ levels surpassed the PEL (15-minute TWA) on 26 occasions (10/4, 10/8, 10/9, 10/10, 10/14, 10/16, 10/18, 10/19, 10/21, and 10/22) for between 11 and 46 minutes.
 - AQM-6 is located on the corner of South Street and Gouverneur's Slip East; elevated readings on 10/19 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 10/10 and 10/18 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 10/9, 10/16, and 10/18 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - AQM-WB is in the vicinity of the Williamsburg Bridge along the East River.
 - Elevated readings on 10/18, 10/21, and 10/22 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - Elevated readings on 10/8 were related to unknown off-site activity.

- Elevated readings on 10/9 were related to on-site construction vehicle traffic. Dust mitigation measures were deployed to mitigate airborne dust.
- AQM-3 is located west of the FDR on Delancey Street; elevated readings on 10/4, 10/8, 10/14, and 10/16 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 in Reach F; elevated readings on 10/18 were related to on-site construction activity. 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.
 - Elevated readings on 10/3 and 10/19 were related to unknown off-site activity.
 - Elevated readings on 10/22, 10/23, and 10/29 were related to on-site construction activity. Dust mitigation measures were deployed to mitigate airborne dust.
- AQM-THR is located in Reach F between the esplanade and the existing track; elevated readings on 10/13 were related to unknown off-site activity.
- AQM-10S is located west of the FDR on East 10th Street; elevated readings on 10/4 were related to on-site construction activity. Dust mitigation measures were deployed to mitigate airborne dust.

PM 10 $\mu\text{g}/\text{m}^3$

- PM 10 $\mu\text{g}/\text{m}^3$ levels surpassed the PEL (15-minute TWA) 15 occasions (10/3, 10/7, 10/8, 10/9, 10/14, 10/16, and 10/18) for between 7 and 72 minutes.
 - AQM-3 is located west of the FDR on Delancey Street; elevated readings on 10/3, 10/7, 10/8, 10/9, 10/14, 10/16, and 10/18 were related on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - AQM-WB is in the vicinity of the Williamsburg Bridge along the East River; elevated readings on 10/8 and 10/18 were related 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 in Reach F; elevated readings on 10/18 were related to on-site construction activity. 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; elevated readings on 10/3 were related to unknown off-site activities.

Mitigation Measures

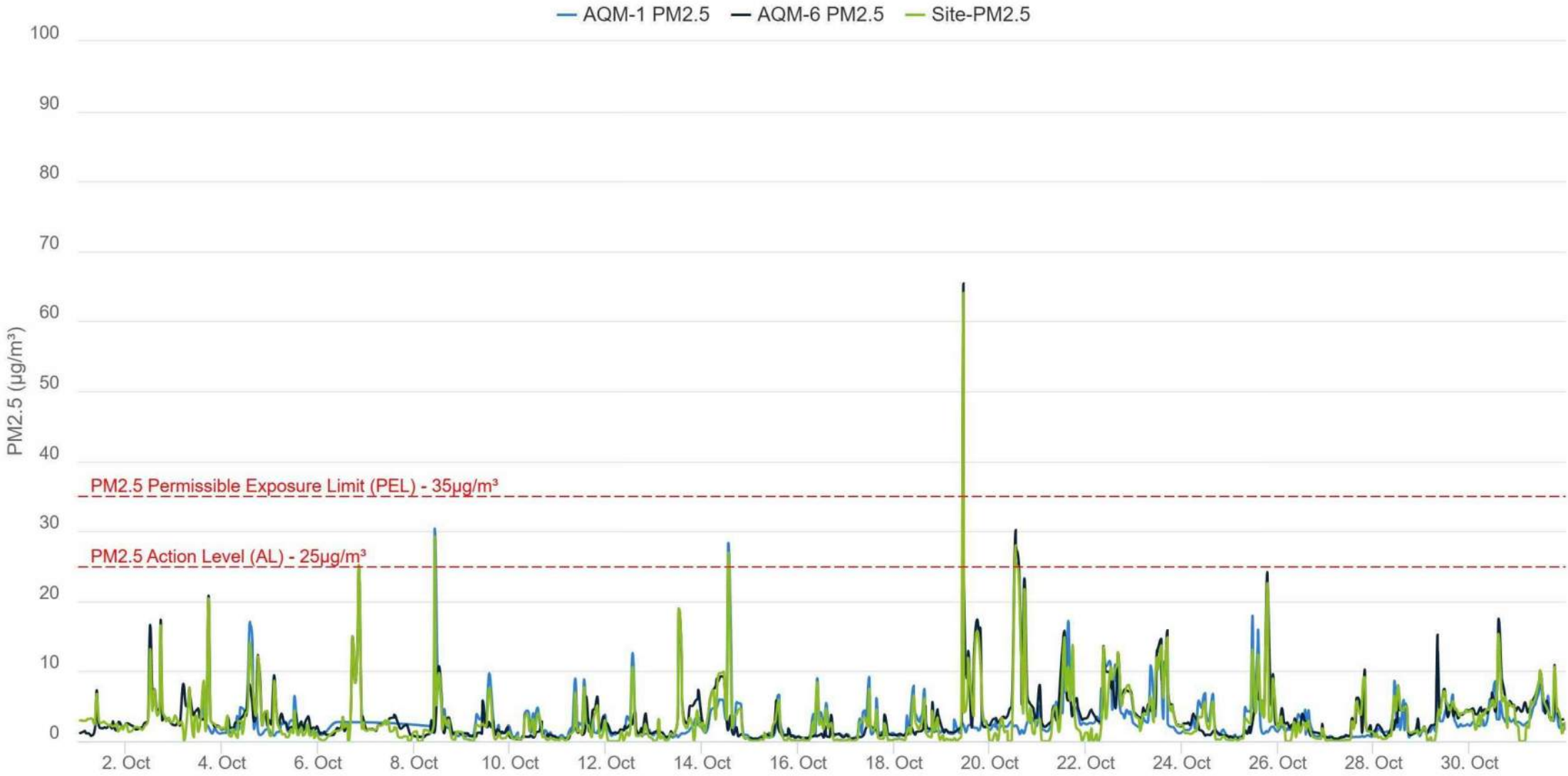
- Throughout the month, construction activity was closely monitored, and dust mitigation techniques were continuously implemented to successfully contain any airborne particulates created due to construction activity.

Notes

- AQM-1 was disconnected from power and not monitoring from September 13th to October 3rd
- AQM-FB was disconnected from power and not monitoring from September 27th to October 8th
- AQM-5 was disconnected from power and not monitoring from October 10th to October 15th
- AQM-HS was disconnected from power and not monitoring from October 11th to October 17th

OCTOBER 2024 DATA PLOTS

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

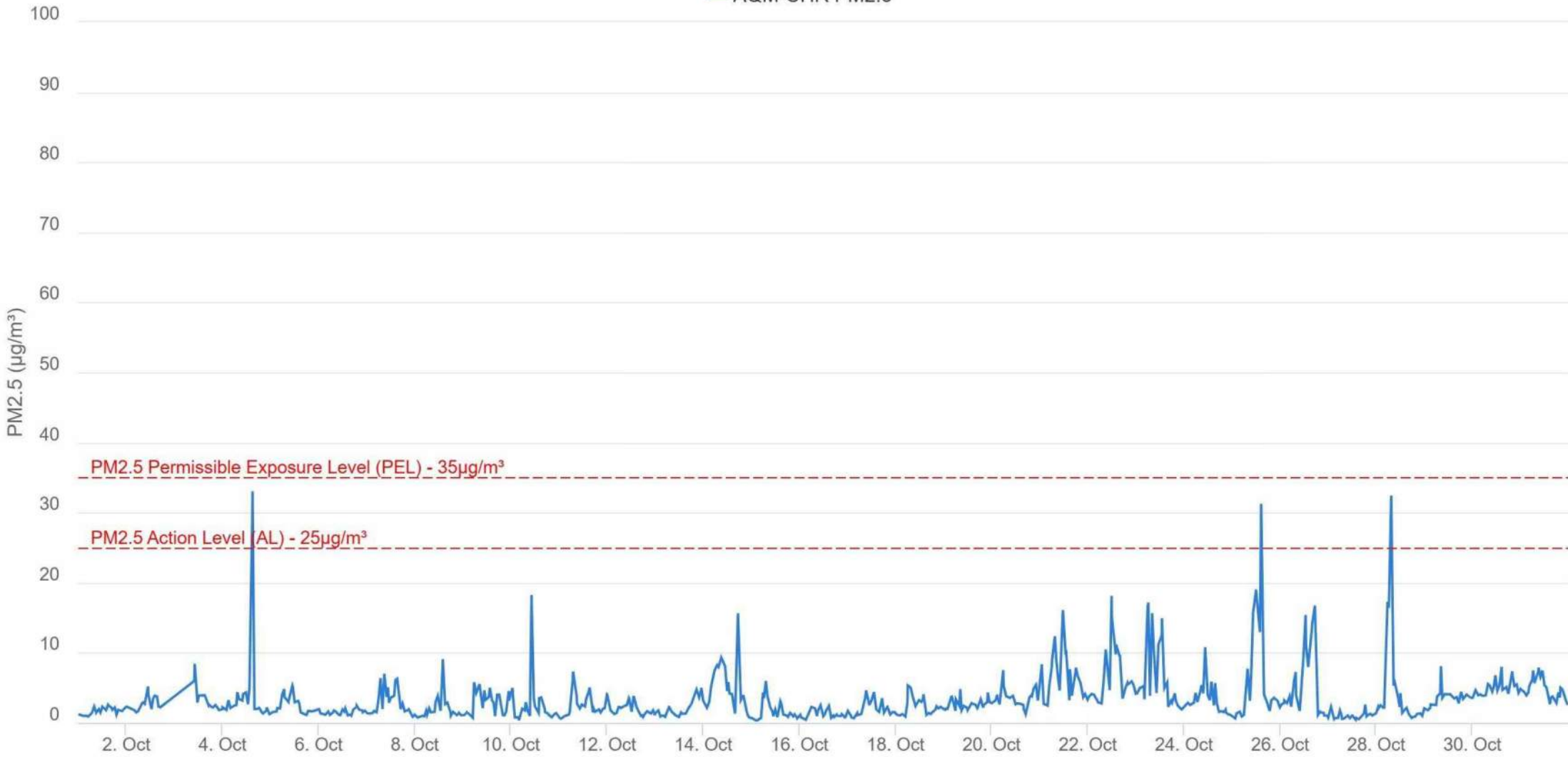


Reach A - PM10 - 15 min Running Avg. (October 2024)



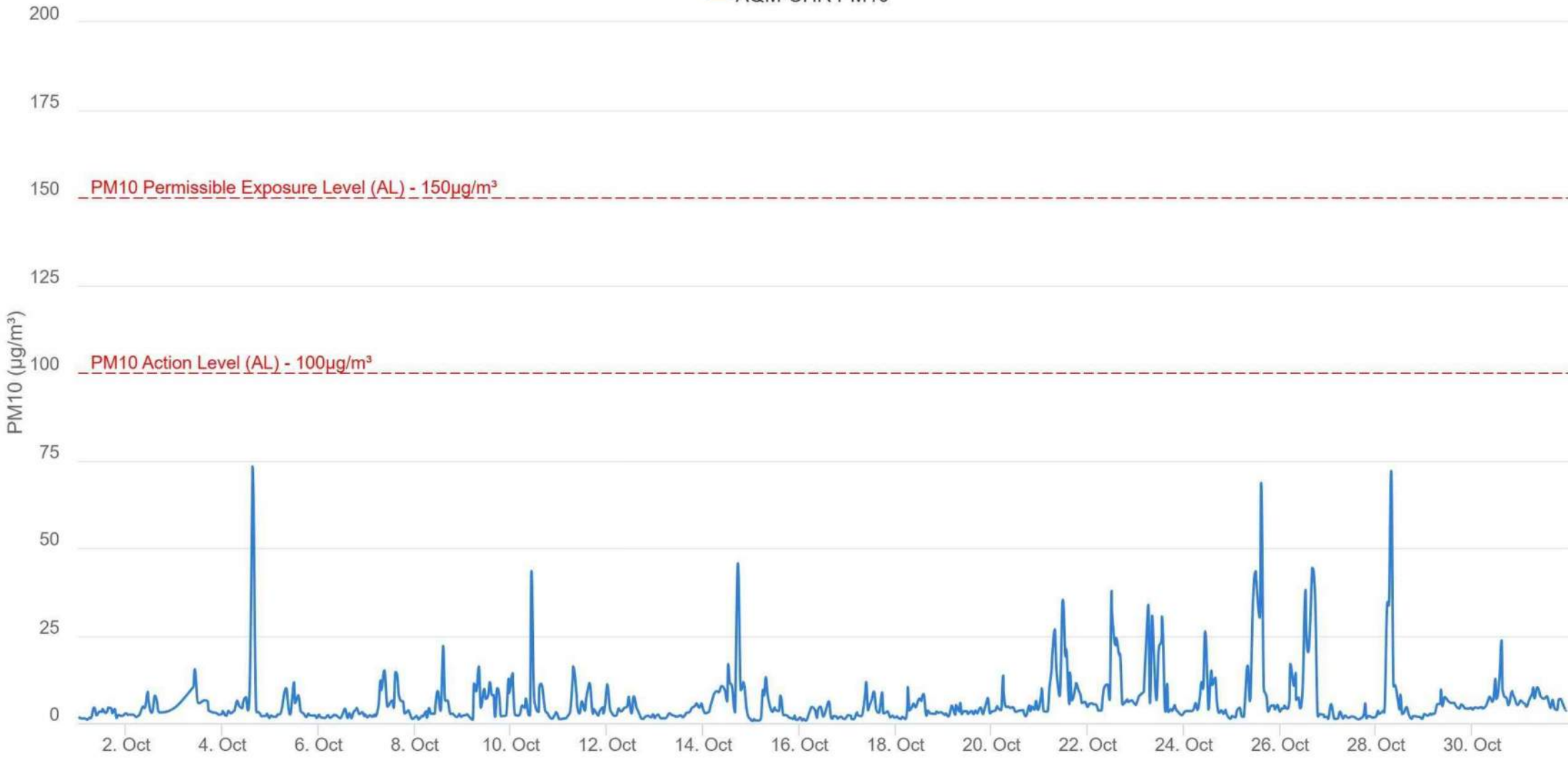
Reach B - PM2.5 - 15 min Running Avg. (October 2024)

— AQM-CHR PM2.5



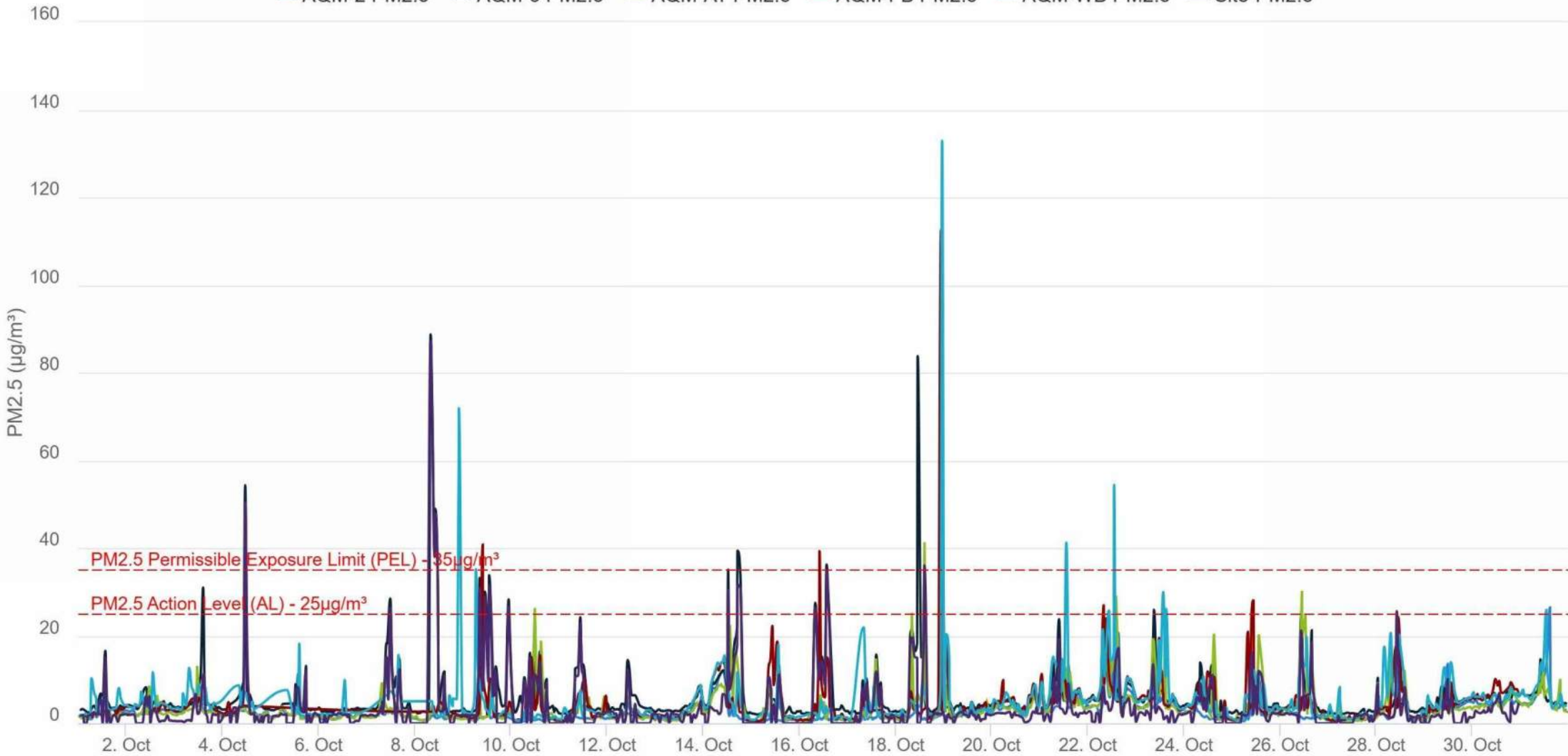
Reach B - PM10 - 15 min Running Avg. (October 2024)

— AQM-CHR PM10



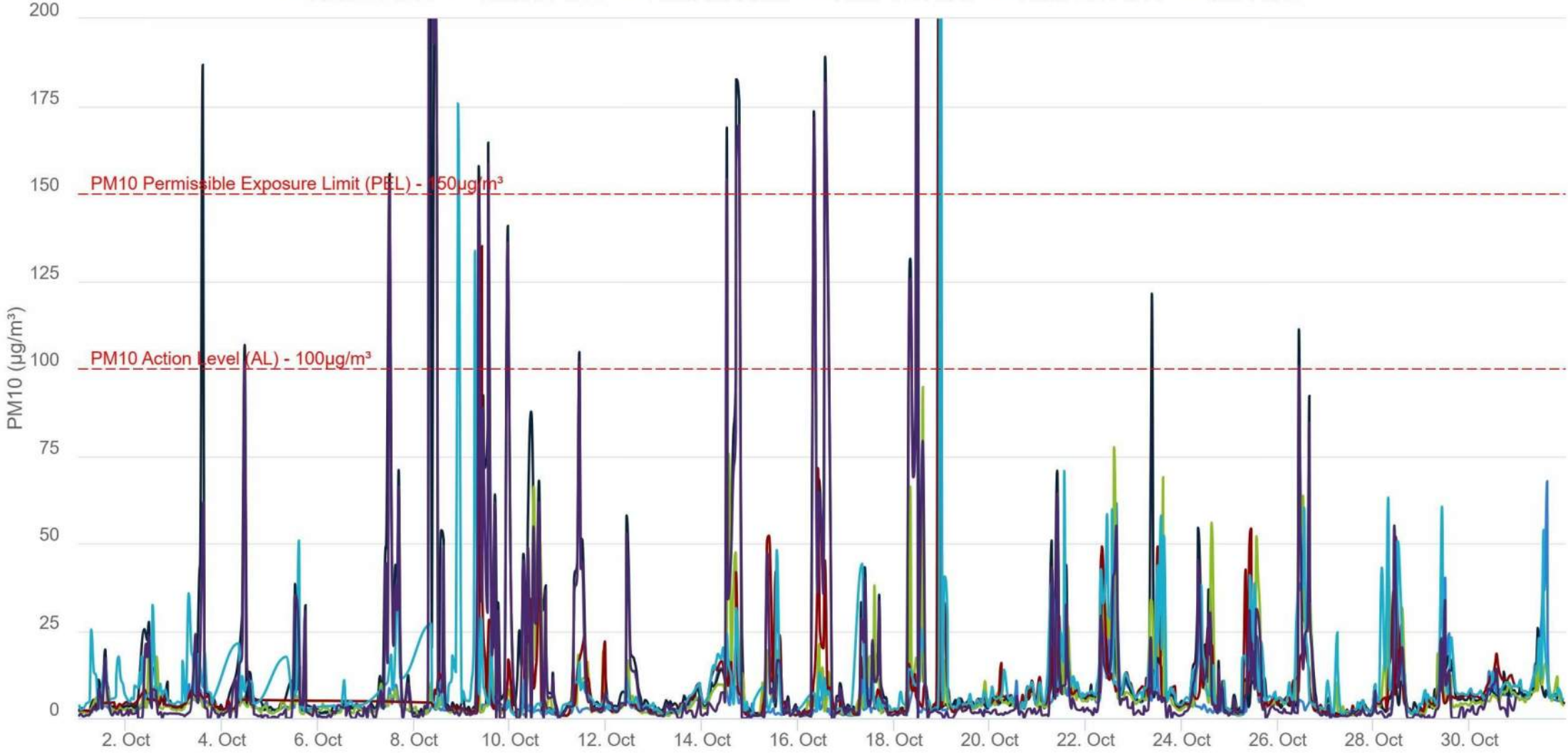
Reach C, D & E - PM2.5 - 15 min Running Avg. (October 2024)

— AQM-2 PM2.5 — AQM-3 PM2.5 — AQM-AT PM2.5 — AQM-FB PM2.5 — AQM-WB PM2.5 — Site-PM2.5

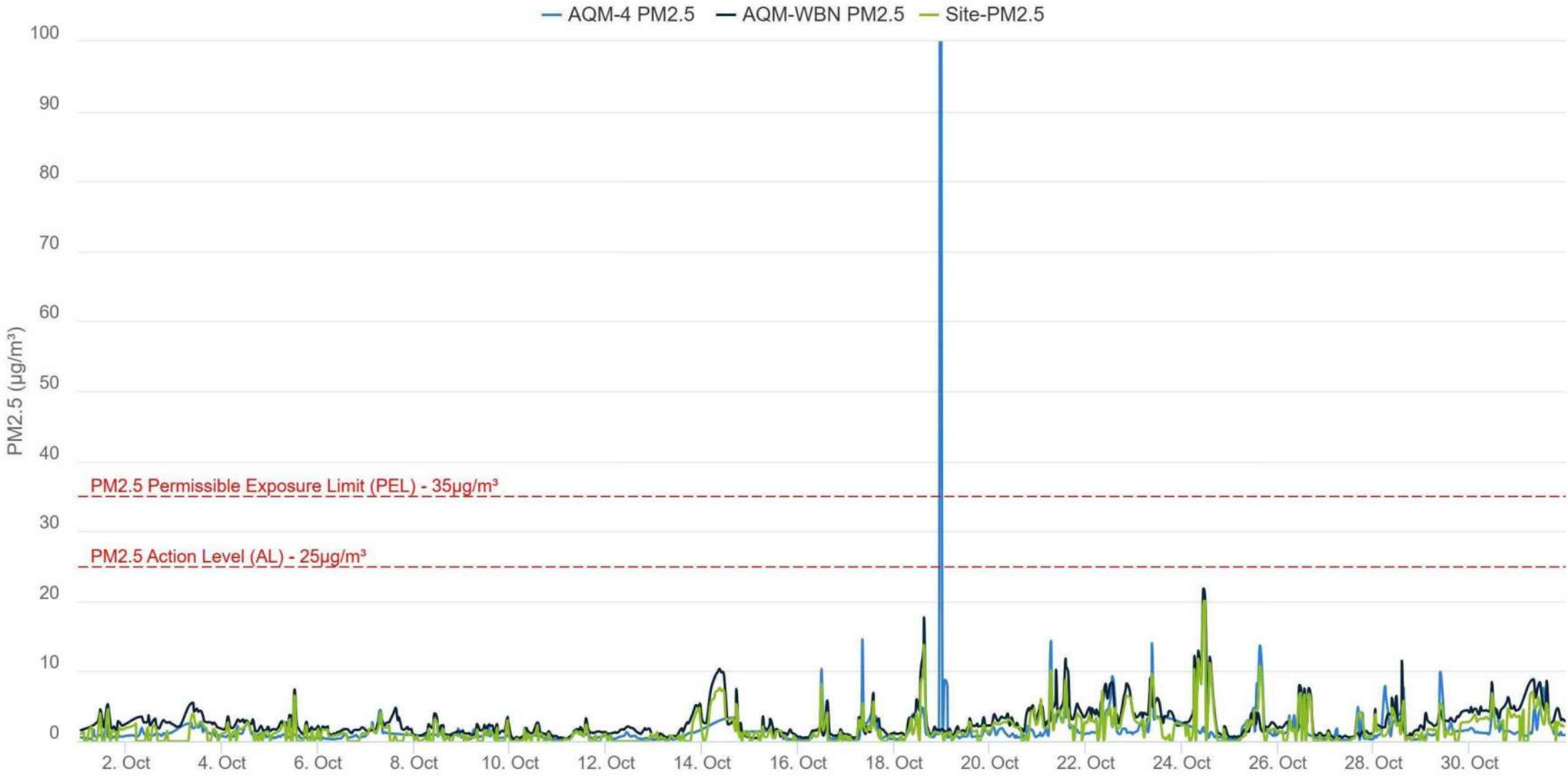


Reach C, D & E - PM10 - 15 min Running Avg. (October 2024)

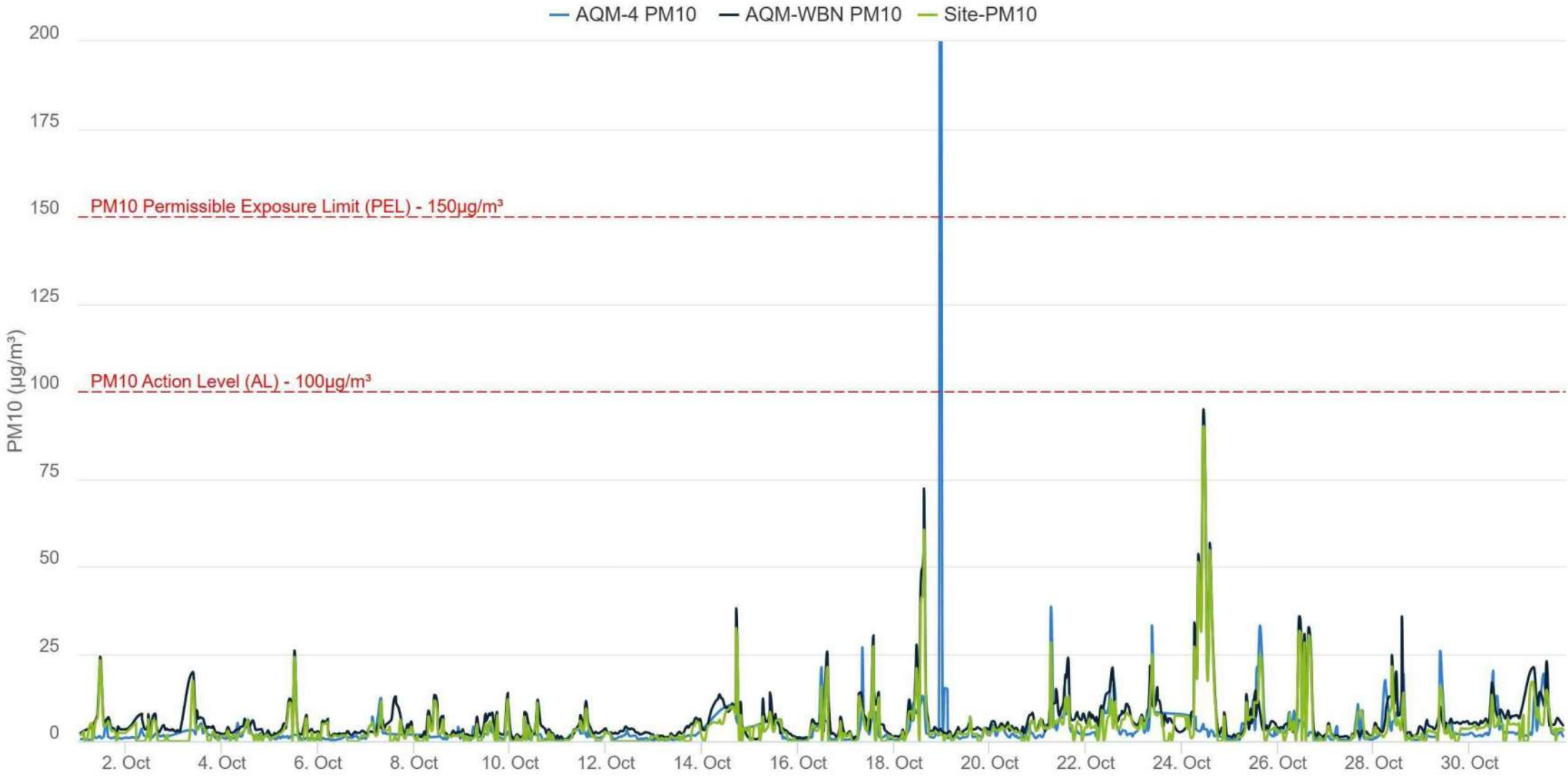
— AQM-2 PM10 — AQM-3 PM10 — AQM-AT PM10 — AQM-FB PM10 — AQM-WB PM10 — Site-PM10



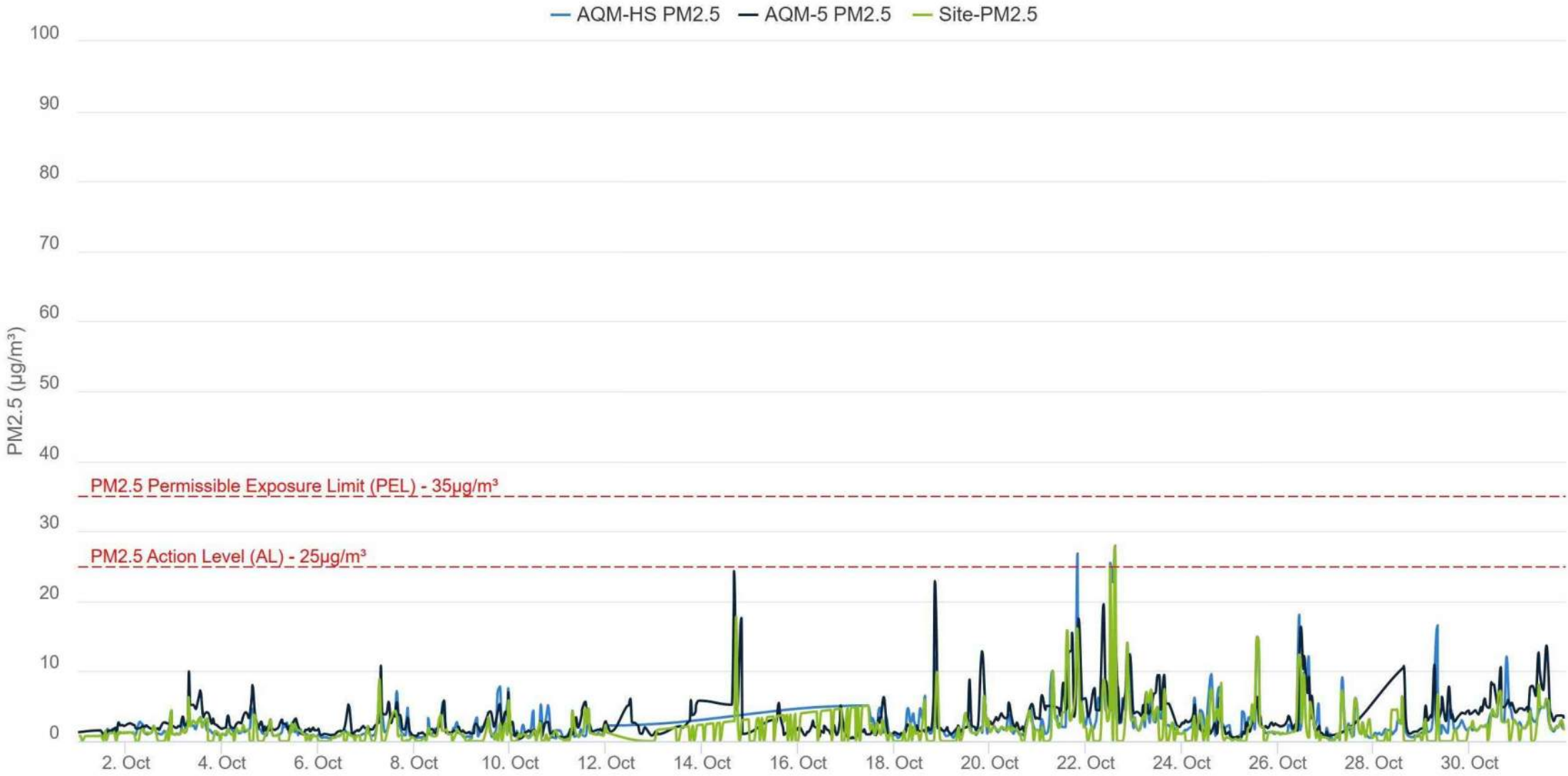
Reach F - PM2.5 - 15 min Running avg. (October 2024)



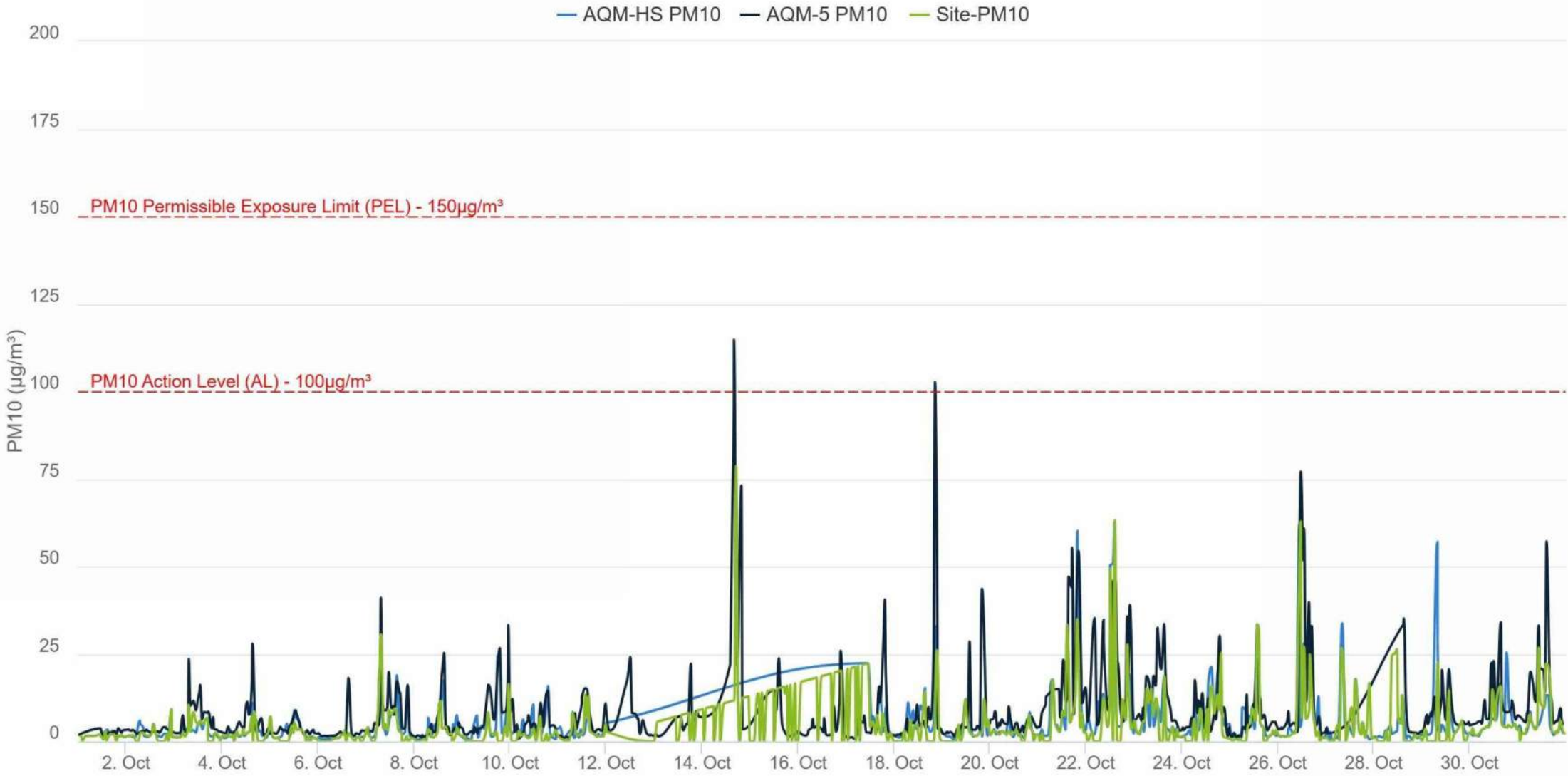
Reach F - PM10 - 15 min Running avg. (October 2024)



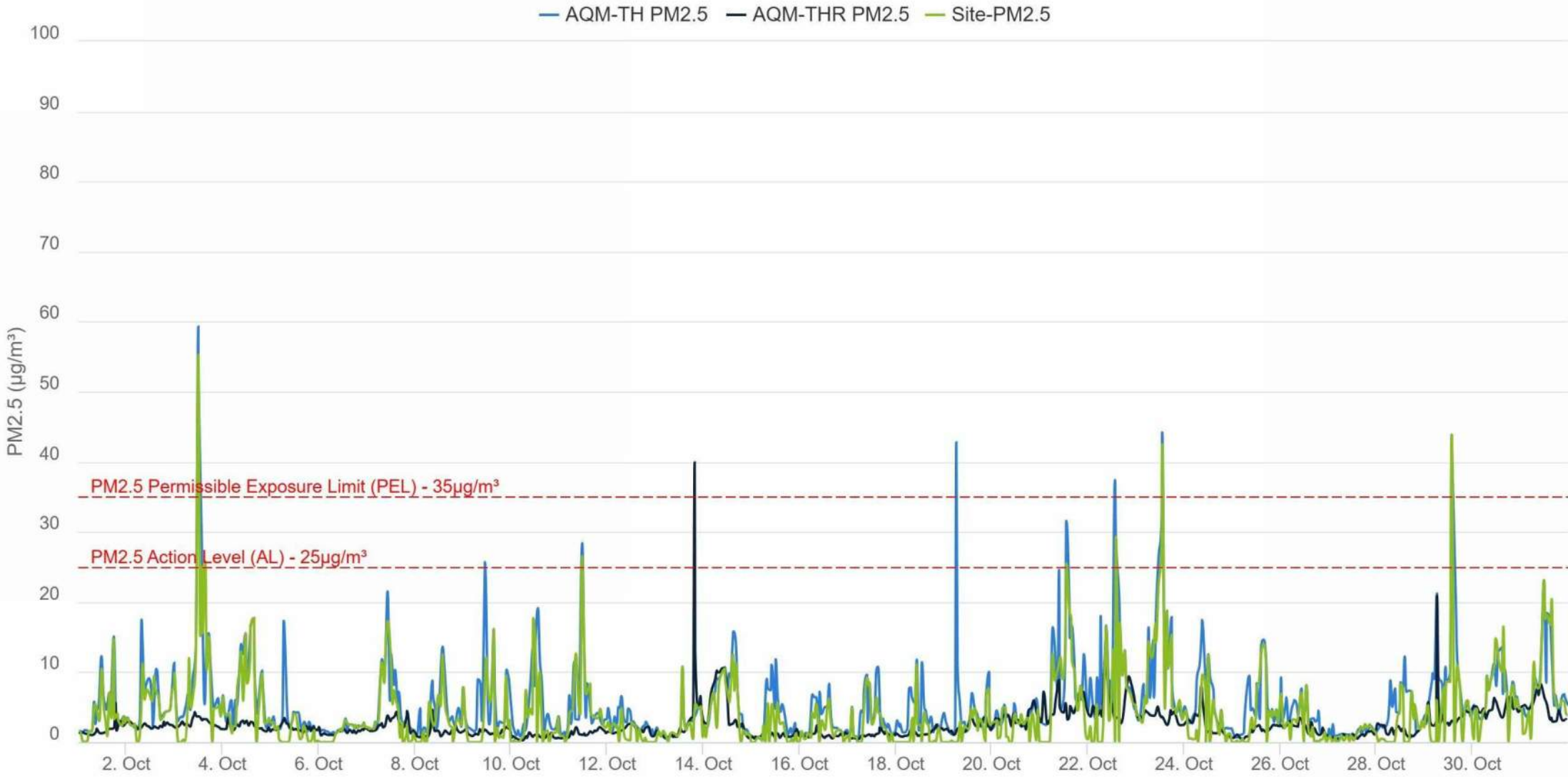
Reach G - PM2.5 - 15 min Running avg. (October 2024)



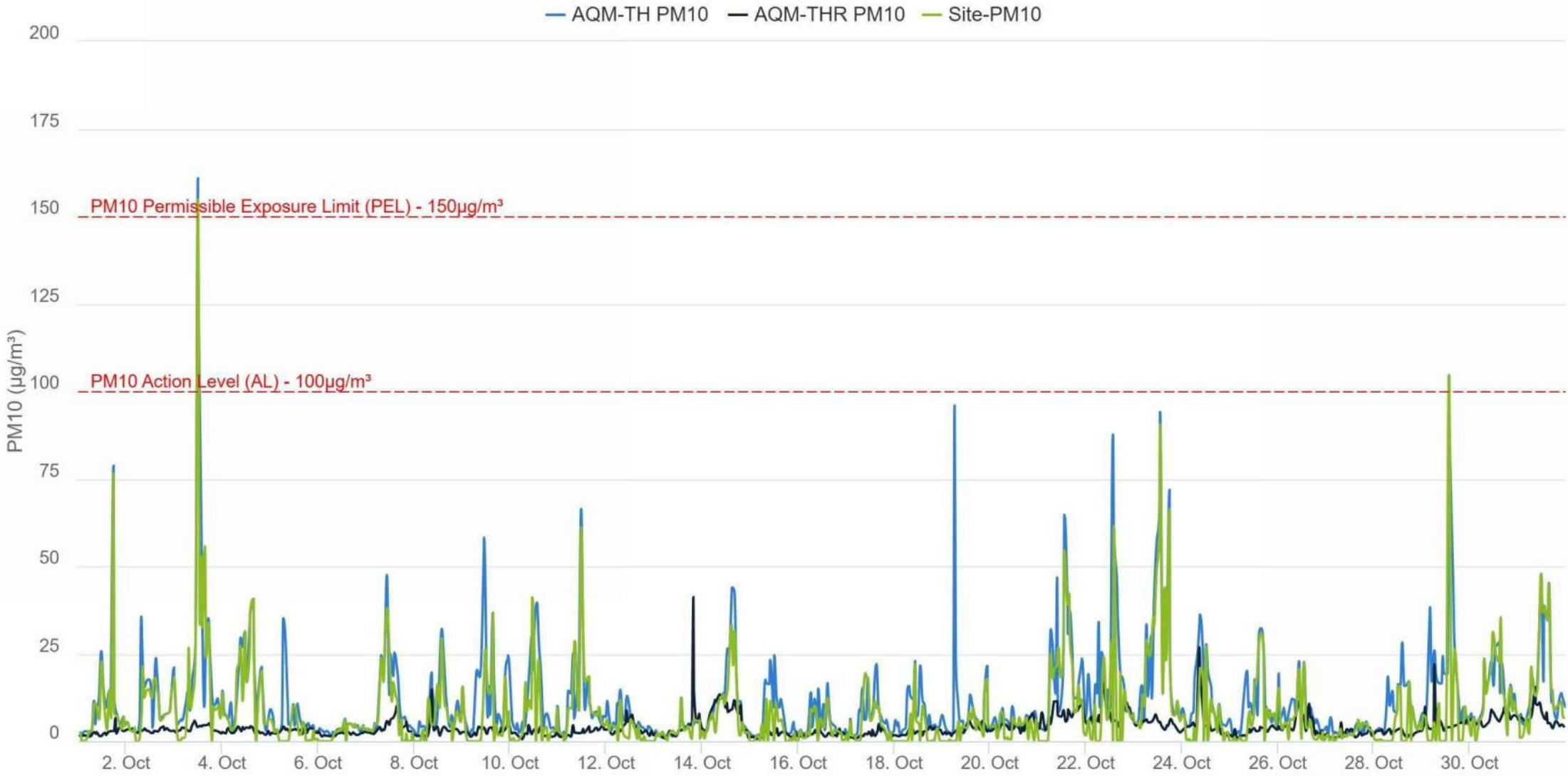
Reach G - PM10 - 15 min Running avg. (October 2024)



Reach H - PM2.5 - 15 min Running avg. (October 2024)



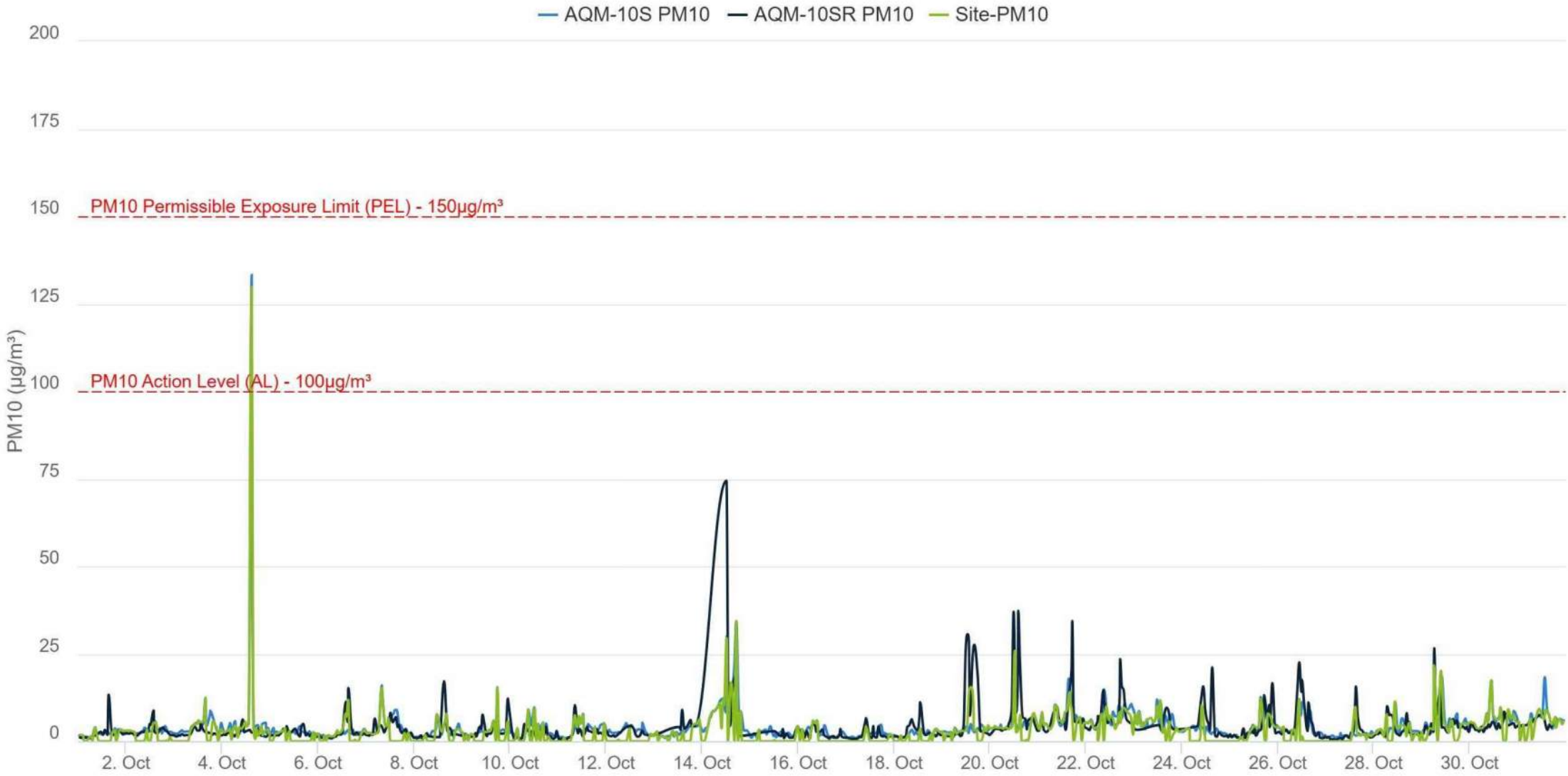
Reach H - PM10 - 15 min Running avg. (October 2024)



Reach I - PM2.5 - 15 min Running avg. (October 2024)



Reach I - PM10 - 15 min Running avg. (October 2024)



Summary of Data November 2024

PM_{2.5} levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-WB on 11/2 for 14 minutes and 11/19 for 1 minute;
- AQM-FB on 11/14 for 62 minutes and 11/18 for 2 minutes;
- AQM-3 on 11/8 for 1 minutes and 11/20 for 2 minutes;
- AQM-AT on 11/23 for 5 minutes;
- AQM-5 on 11/6 for 5 minutes;
- AQM-10S on 11/18 for 1 minute; and
- AQM-10SR on 11/19 for 1 minutes and 11/22 for 1 minutes.

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

- AQM-AT on 11/23 for 5 minutes;
- AQM-FB on 11/14 for 62 minutes; and
- AQM-3 on 11/22 for 60 minutes.

For the month of November 2024, PM net 2.5 levels were exceeded on 11/2, 11/16 11/14, 11/18, 11/19, 11/20, 11/22, and 11/23. PM net 10 levels were exceeded on 11/14, 11/22, and 11/23.

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

PM 2.5 µg/m³

- PM 2.5 µg/m³ levels surpassed the PEL (15-minute TWA) on 11 occasions (11/2, 11/16 11/14, 11/18, 11/19, 11/20, 11/22, and 11/23) for between 1 and 62 minutes.
 - AQM-3 is located west of the FDR on Delancey Street; elevated readings on 11/18 and 11/20 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 11/23 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 11/18 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - Elevated readings on 11/14 were related to anomalous readings during instrument maintenance.
 - AQM-WB is in the vicinity of the Williamsburg Bridge along the East River; elevated readings on 11/2 and 11/19 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 11/23 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - AQM-10S is located west of the FDR on East 10th Street; elevated readings on 11/18 were related to on-site construction activity. Dust mitigation measures were deployed to mitigate airborne dust.
 - AQM-10SR is located on the east side of the 10th Avenue bridge.
 - Elevated readings on 11/19 were related to unknown off-site activity.

- Elevated readings on 11/22 were related to on-site construction activity. Dust mitigation measures were deployed to mitigate airborne dust.

PM 10 $\mu\text{g}/\text{m}^3$

- PM 10 $\mu\text{g}/\text{m}^3$ levels surpassed the PEL on three occasions (11/14, 11/22, and 11/23) for between 5 and 62 minutes:
 - AQM-3 is located west of the FDR on Delancey Street; elevated readings on 11/22 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 11/23 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 11/14 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.

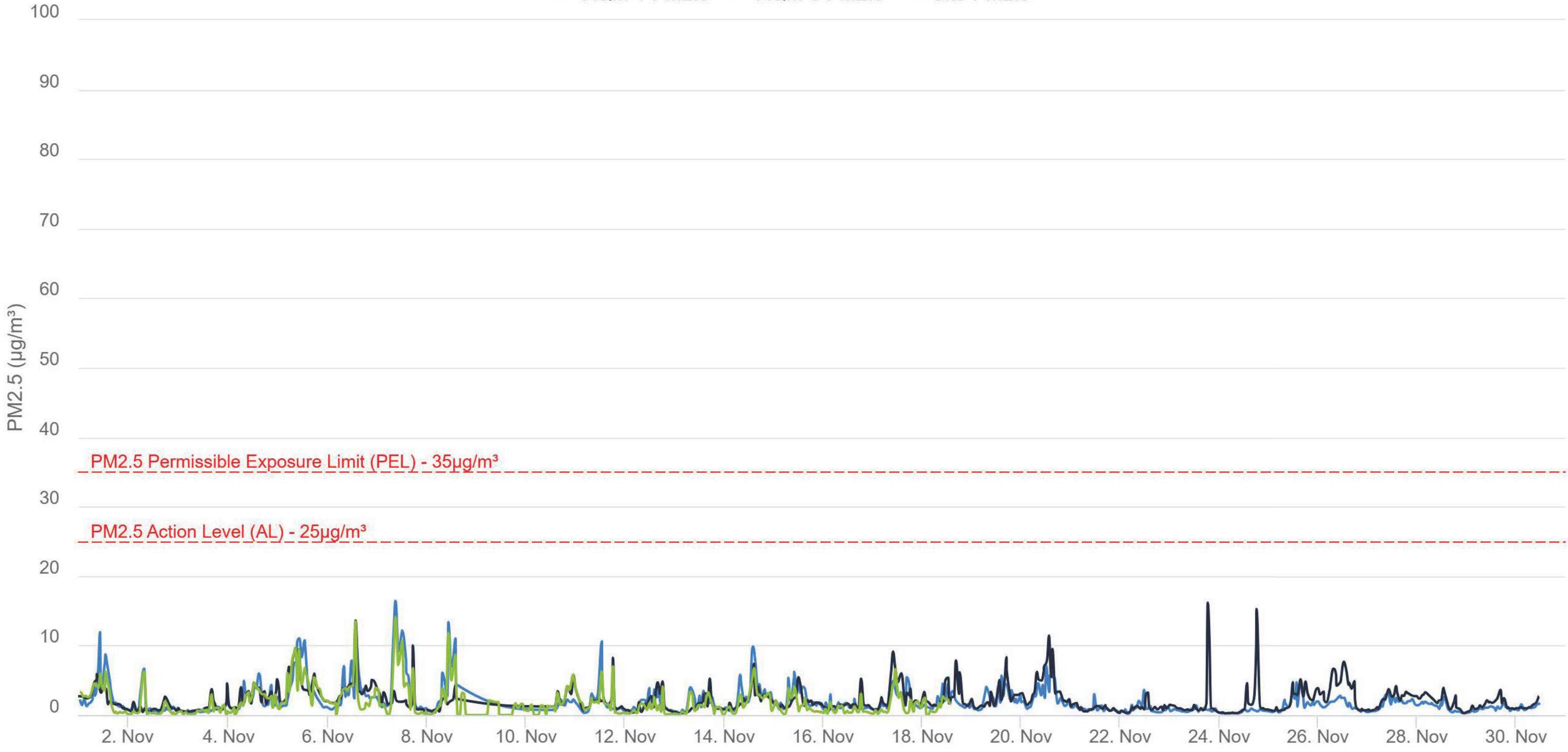
Notes

- AQM-5 was disconnected from power and not monitoring from November 21st to November 25th
- AQM-FB was disconnected from power and not monitoring from November 20th to November 25th
- AQM-WBN was disconnected from power and not monitoring from November 15th to November 19th
- AQM-HS was disconnected from power and not monitoring from November 7th to November 12th
- AQM-10SR was disconnected from power and not monitoring from November 7th to November 12th

NOVEMBER 2024 DATA PLOTS

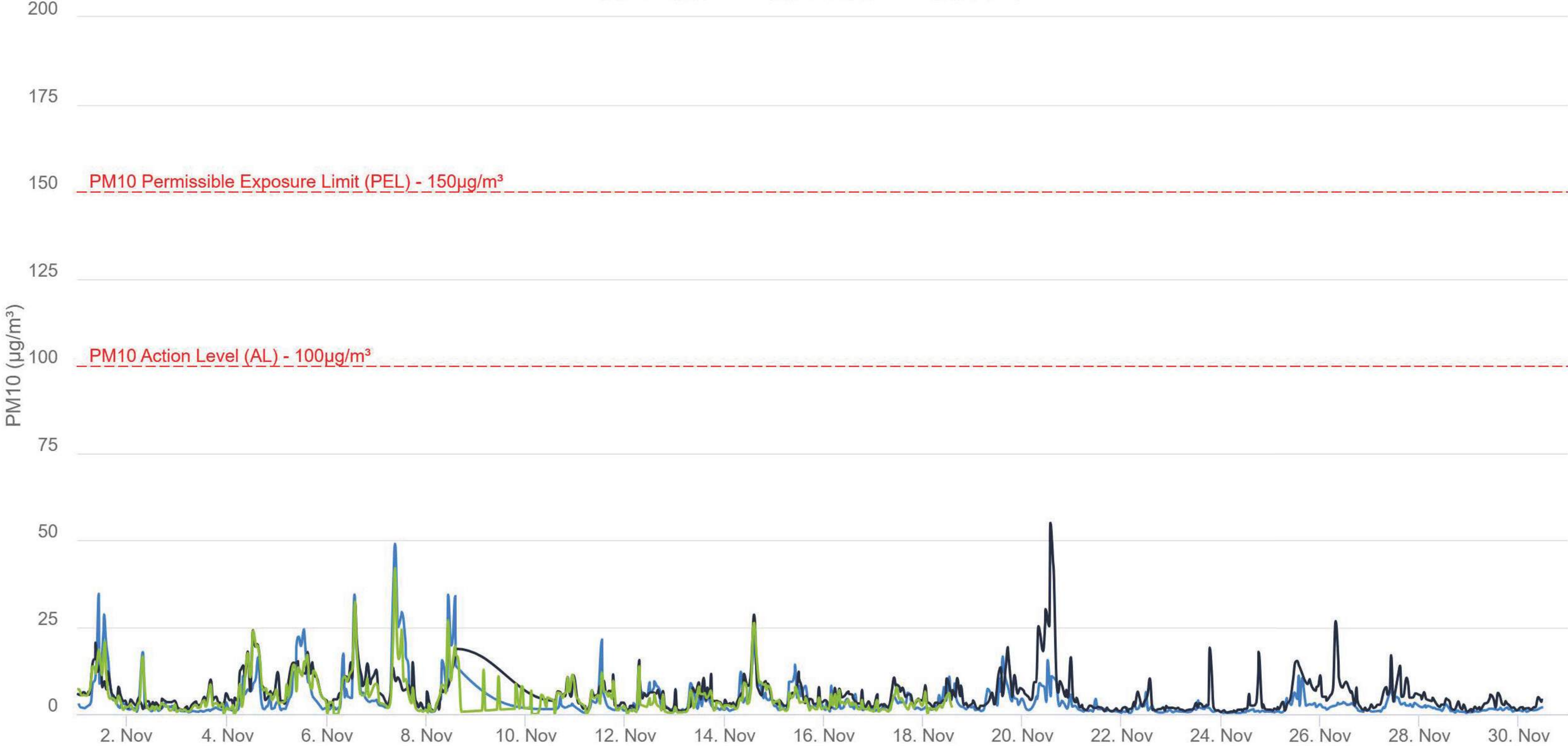
Reach A - PM2.5 - 15 min Running avg. (November 2024)

— AQM-1 PM2.5 — AQM-6 PM2.5 — Site-PM2.5



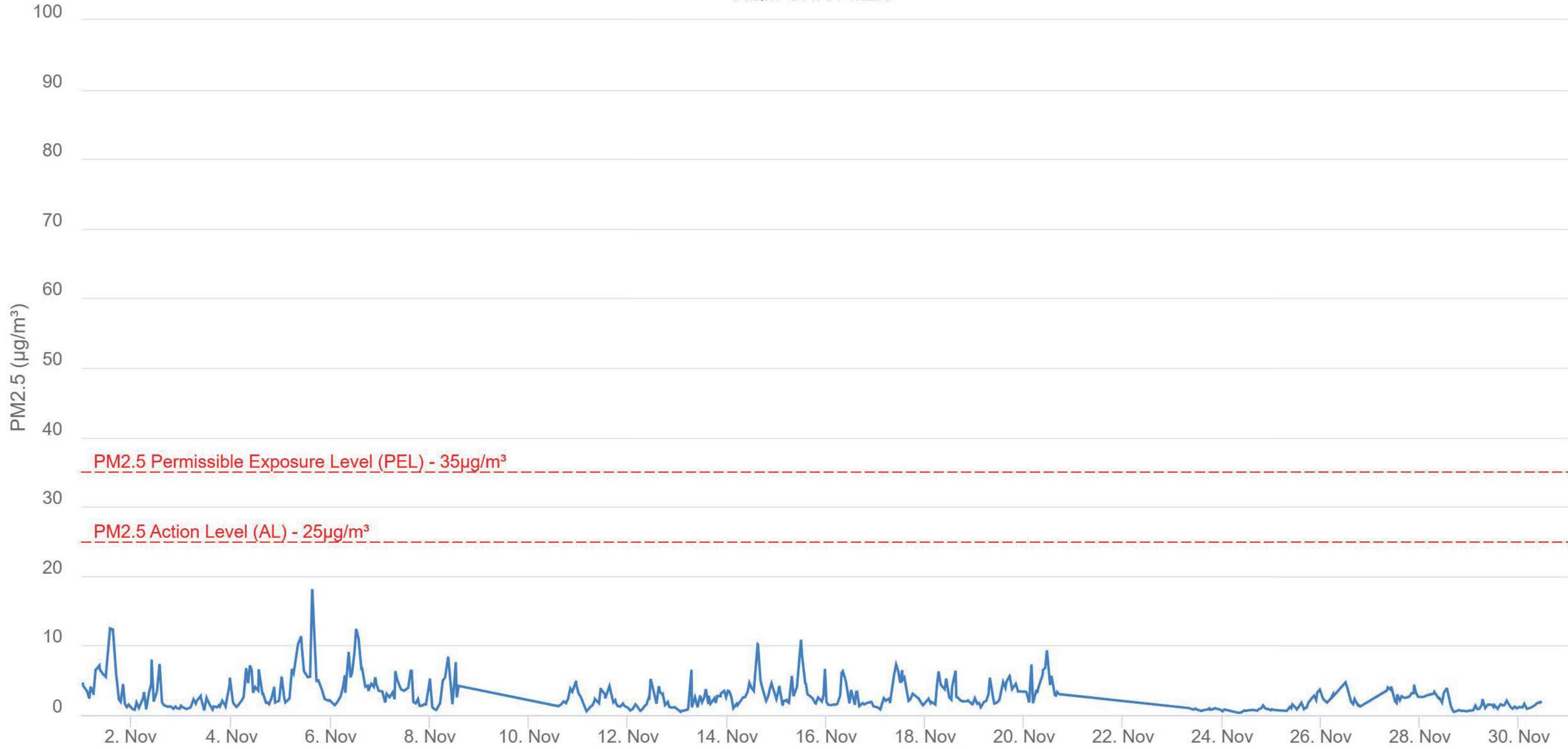
Reach A - PM10 - 15 min Running avg. (November 2024)

— AQM-1 PM10 — AQM-6 PM10 — Site-PM10



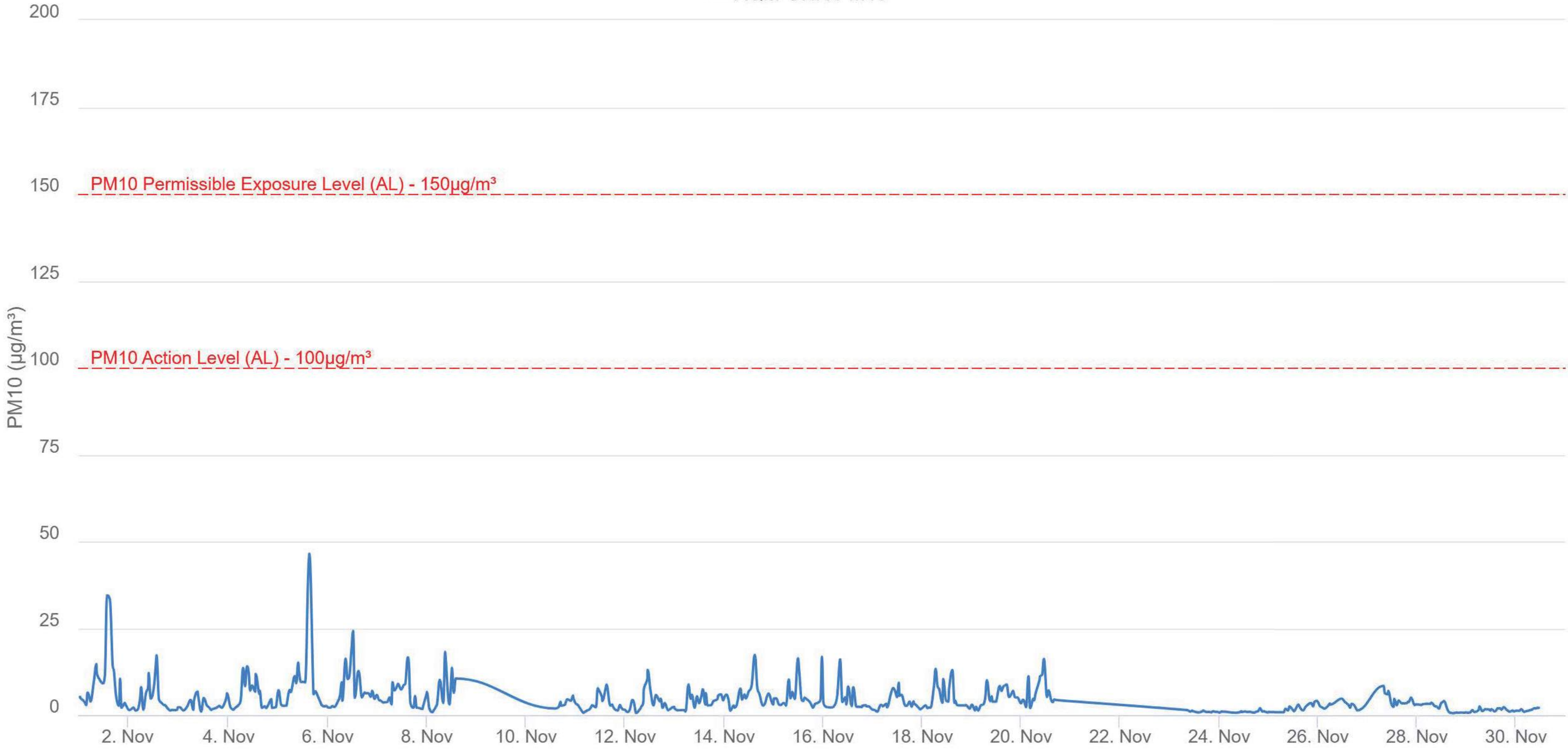
Reach B - PM2.5 - 15 min Running avg. (November 2024)

— AQM-CHR PM2.5



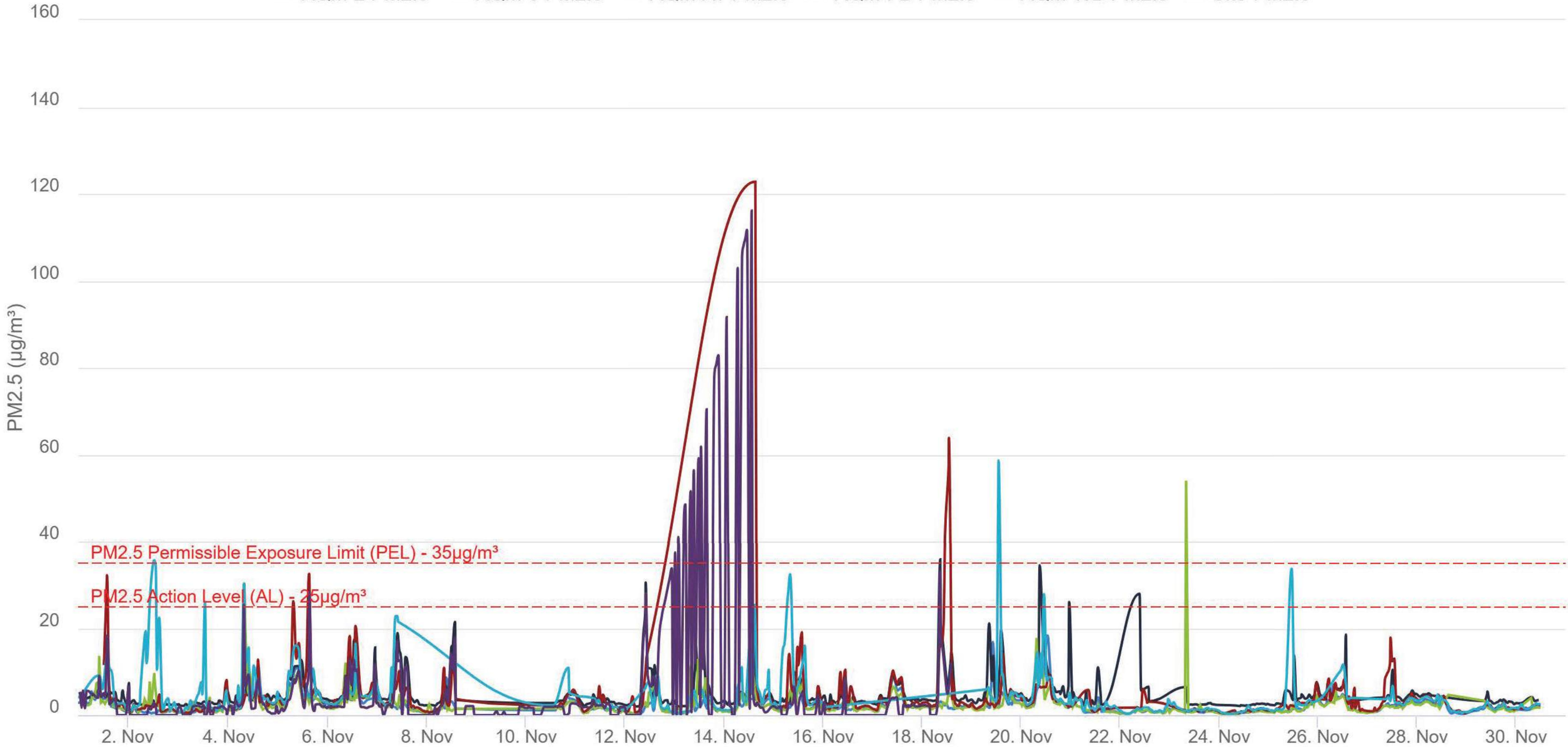
Reach B - PM10 - 15 min Running avg. (November 2024)

— AQM-CHR PM10



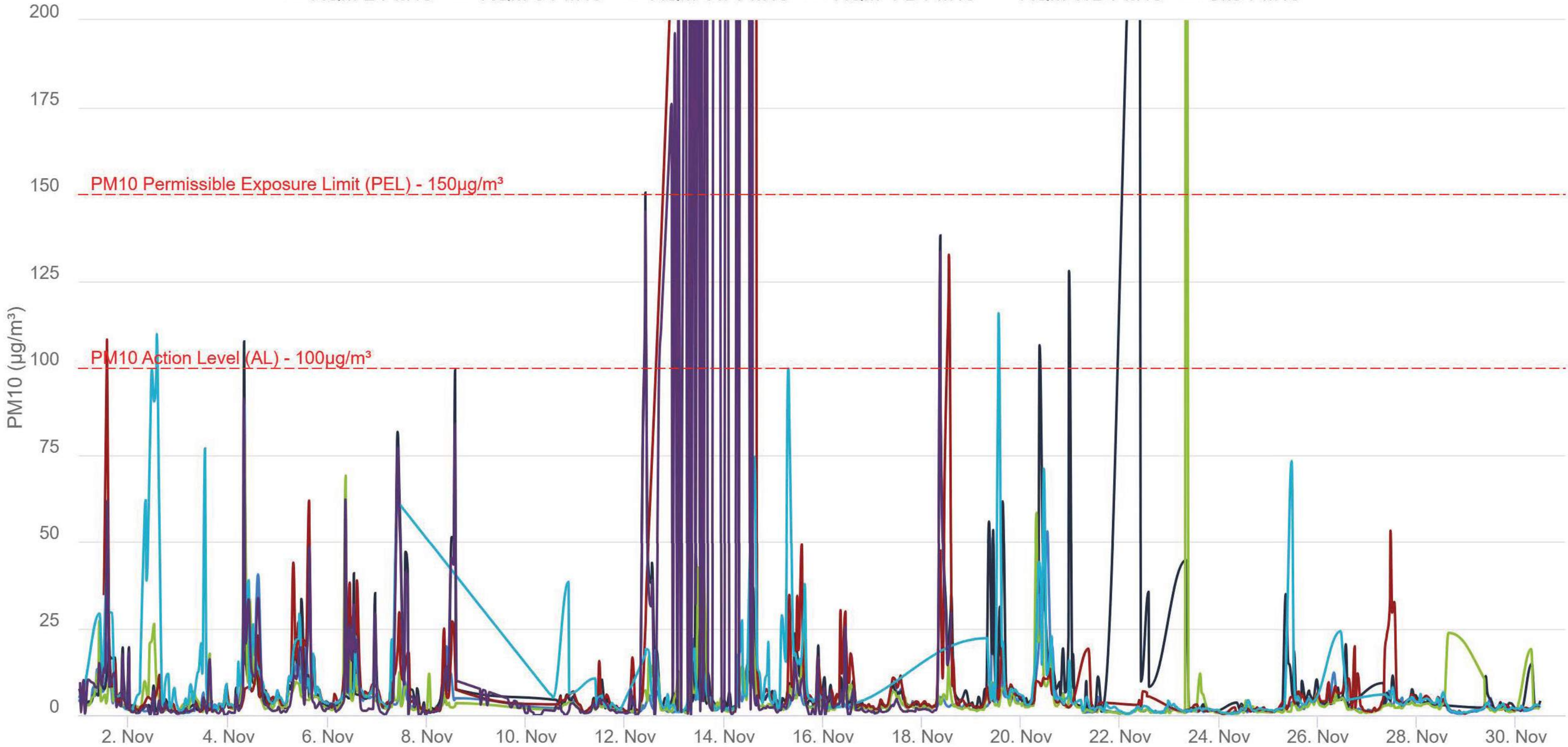
Reach C,D & E - PM2.5 - 15 min Running avg. (November 2024)

— AQM-2 PM2.5 — AQM-3 PM2.5 — AQM-AT PM2.5 — AQM-FB PM2.5 — AQM-WB PM2.5 — Site-PM2.5



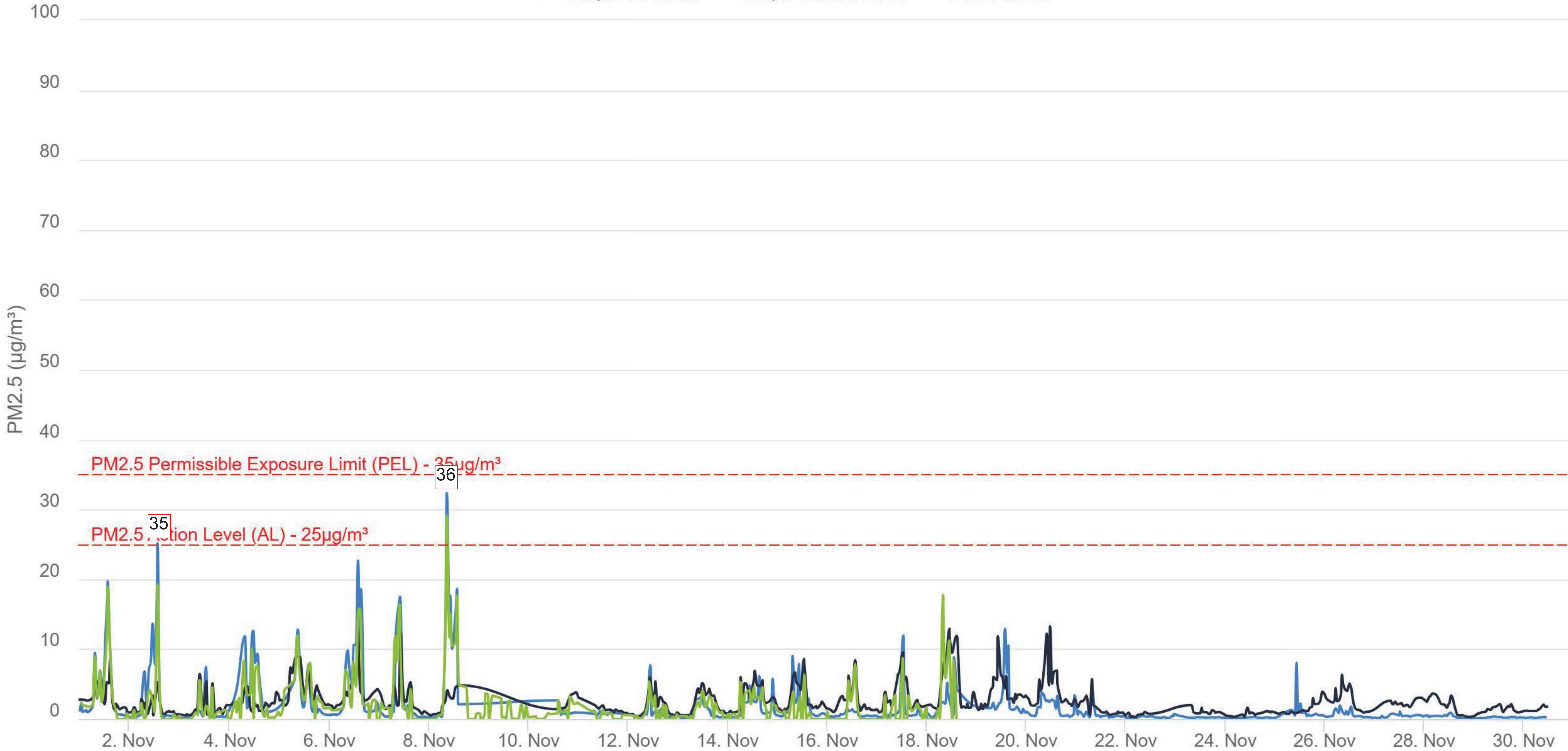
Reach C,D & E - PM10 - 15 min Running avg. (November 2024)

— AQM-2 PM10 — AQM-3 PM10 — AQM- AT PM10 — AQM- FB PM10 — AQM-WB PM10 — Site-PM10



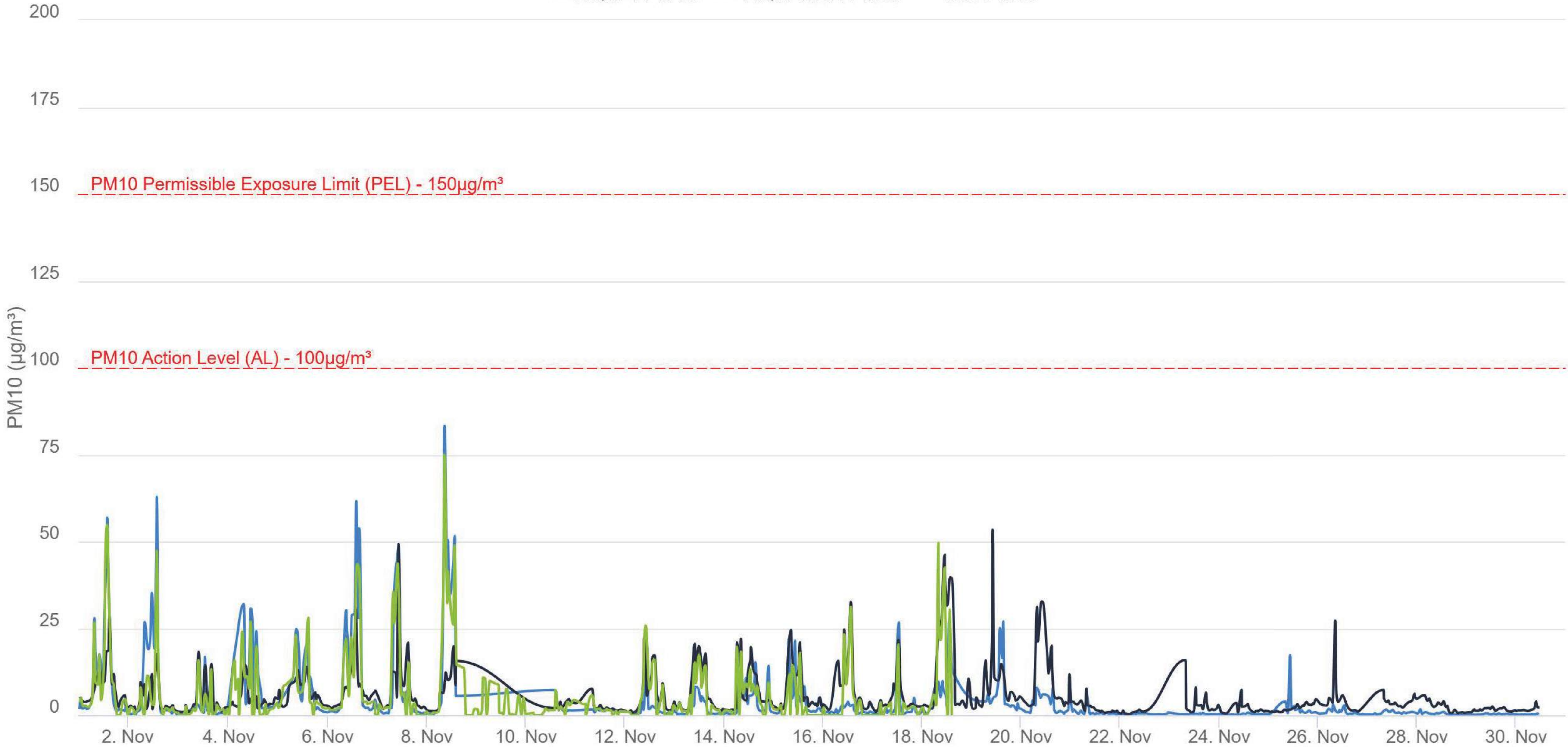
Reach F - PM2.5 - 15 min Running avg. (November 2024)

— AQM-4 PM2.5 — AQM-WBN PM2.5 — Site-PM2.5



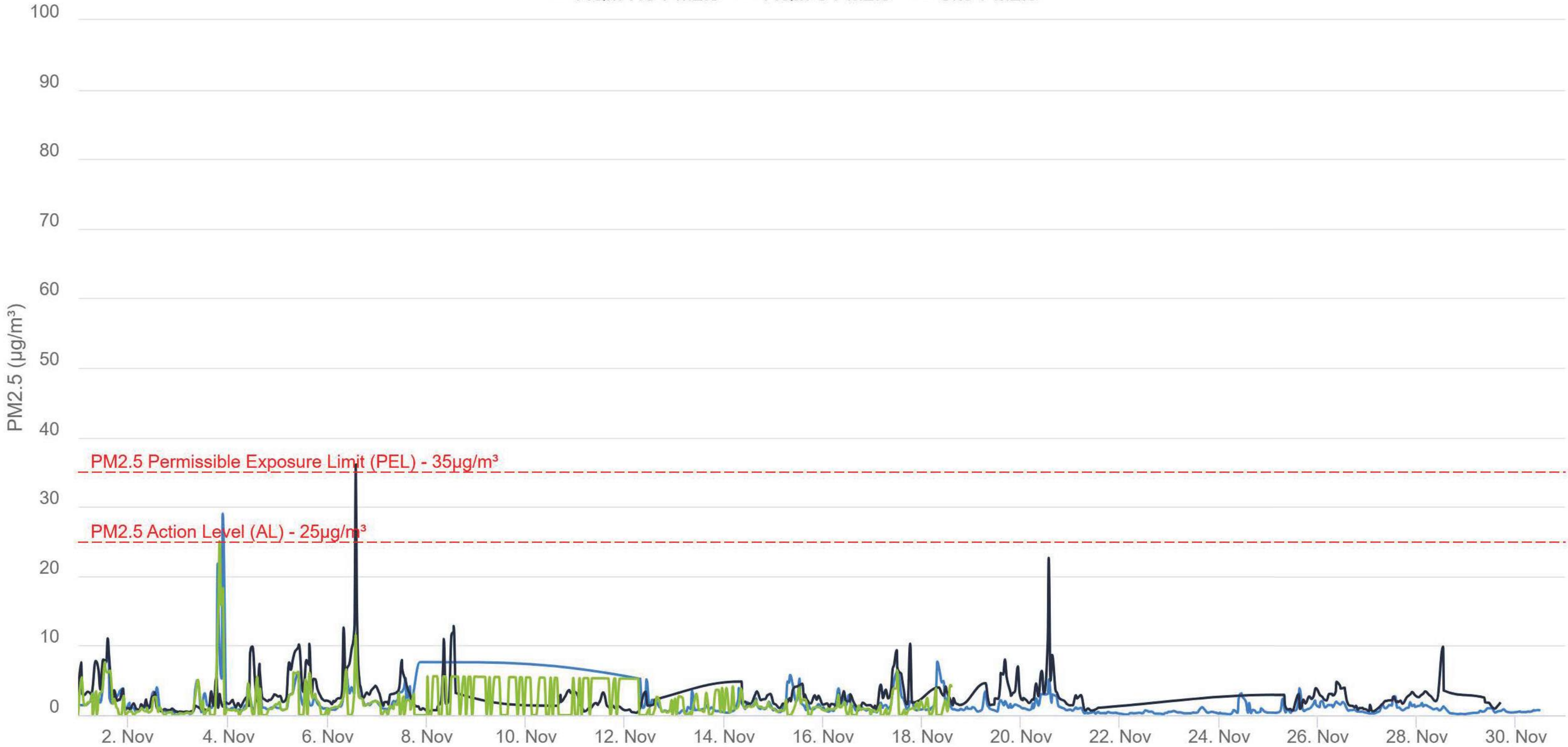
Reach F - PM10 - 15 min Running avg. (November 2024)

— AQM-4 PM10 — AQM-WBN PM10 — Site-PM10



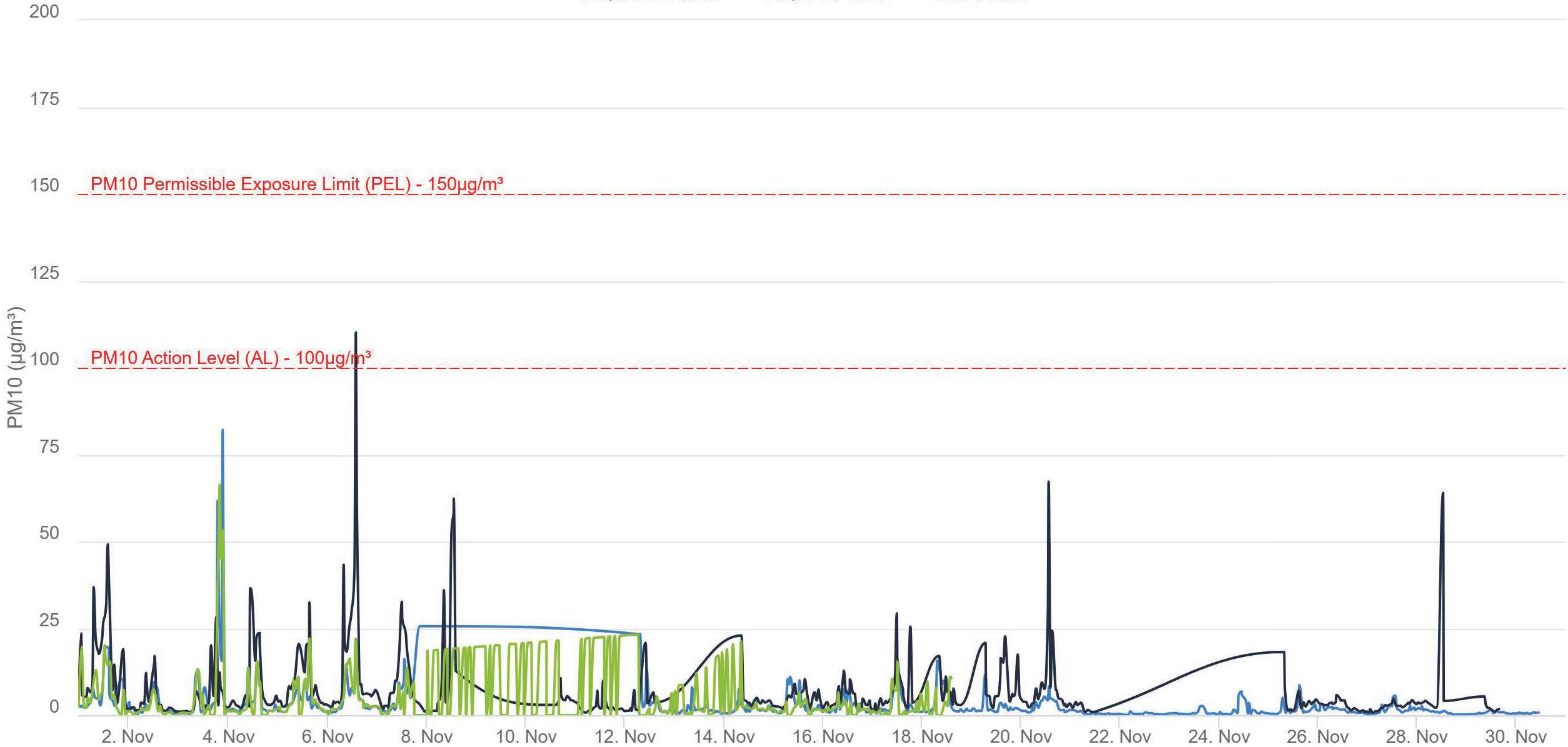
Reach G - PM2.5 - 15 min Running avg. (November 2024)

— AQM-HS PM2.5 — AQM-5 PM2.5 — Site-PM2.5



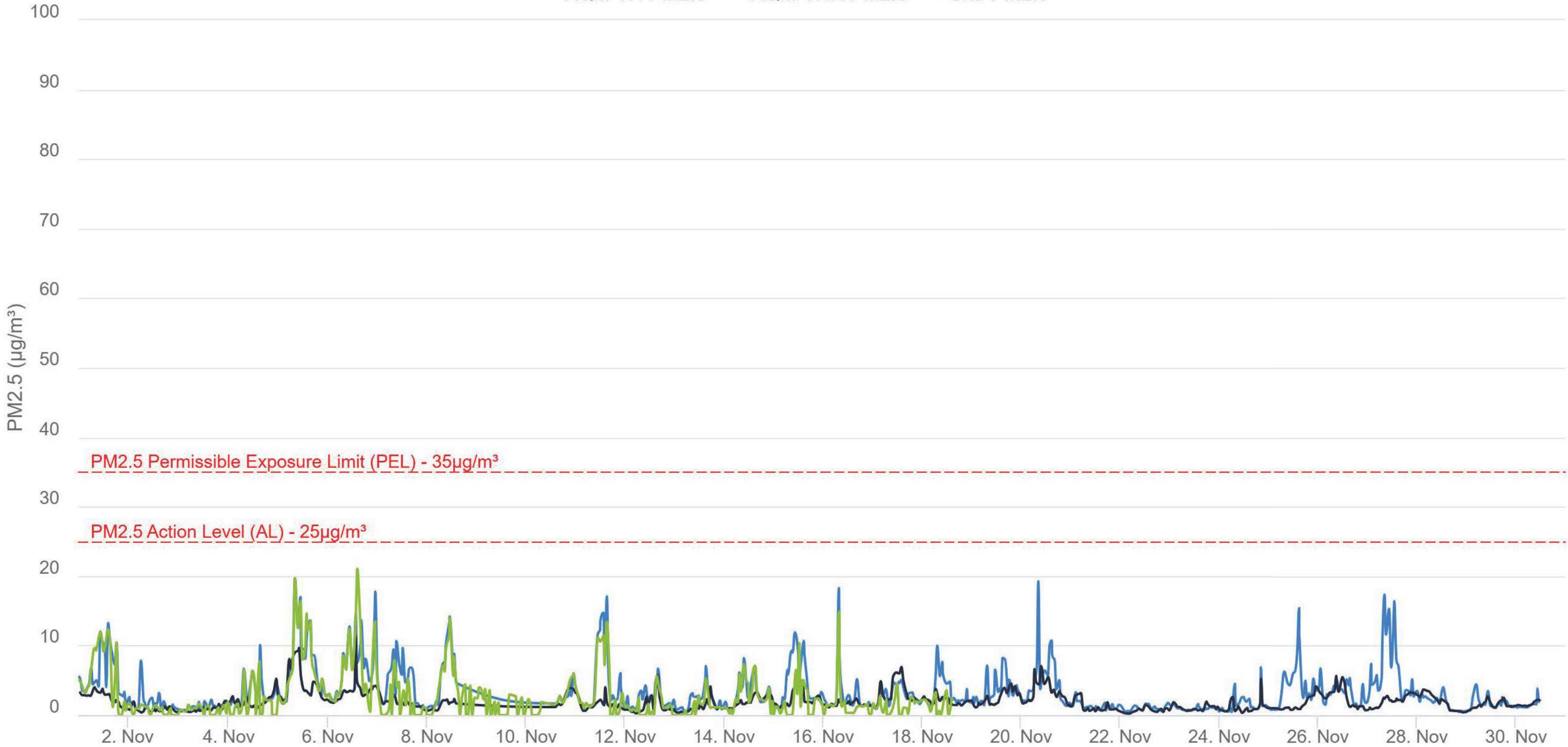
Reach G - PM10 - 15 min Running avg. (November 2024)

— AQM-HS PM10 — AQM-5 PM10 — Site-PM10



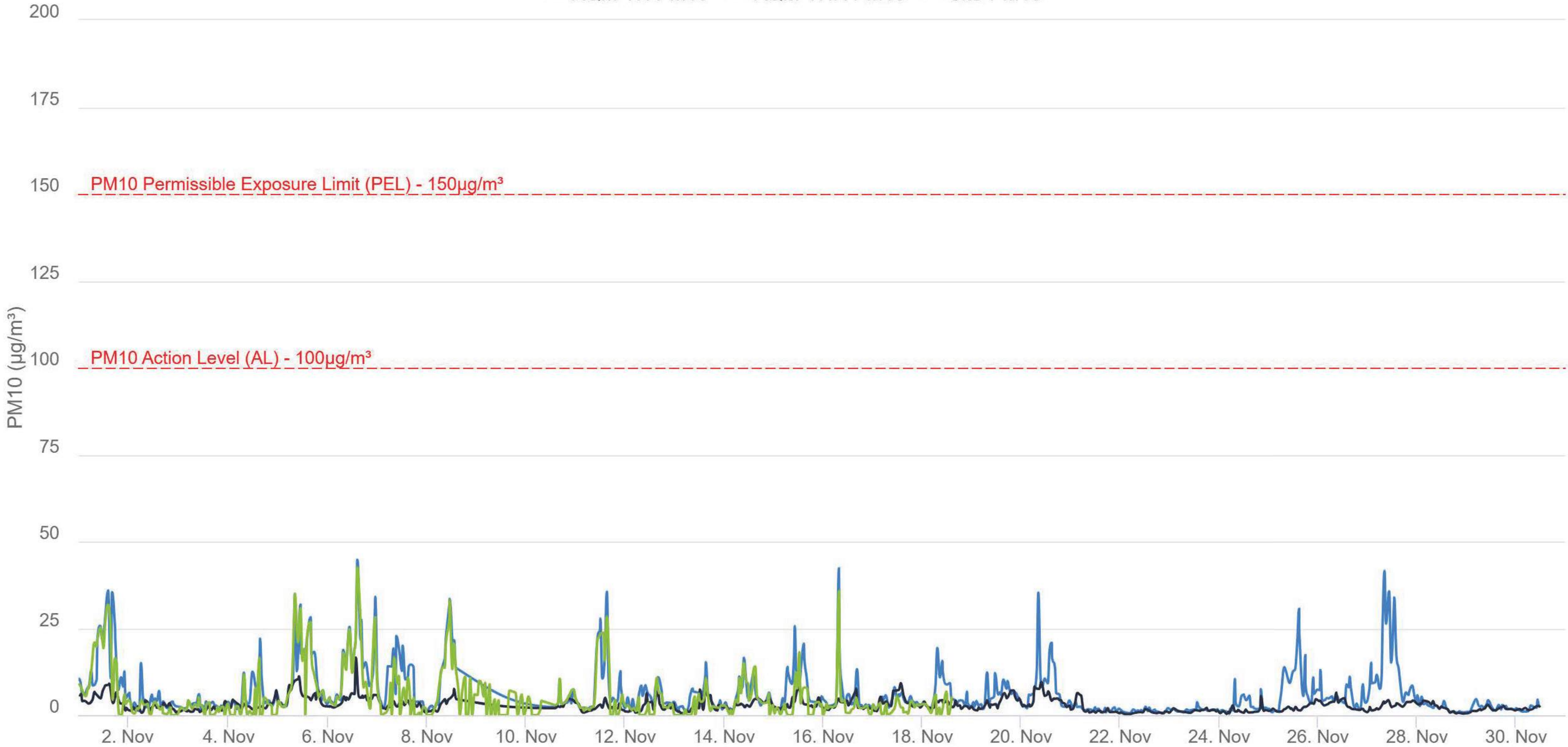
Reach H - PM2.5 - 15 min Running avg. (November 2024)

— AQM-TH PM2.5 — AQM-THR PM2.5 — Site-PM2.5



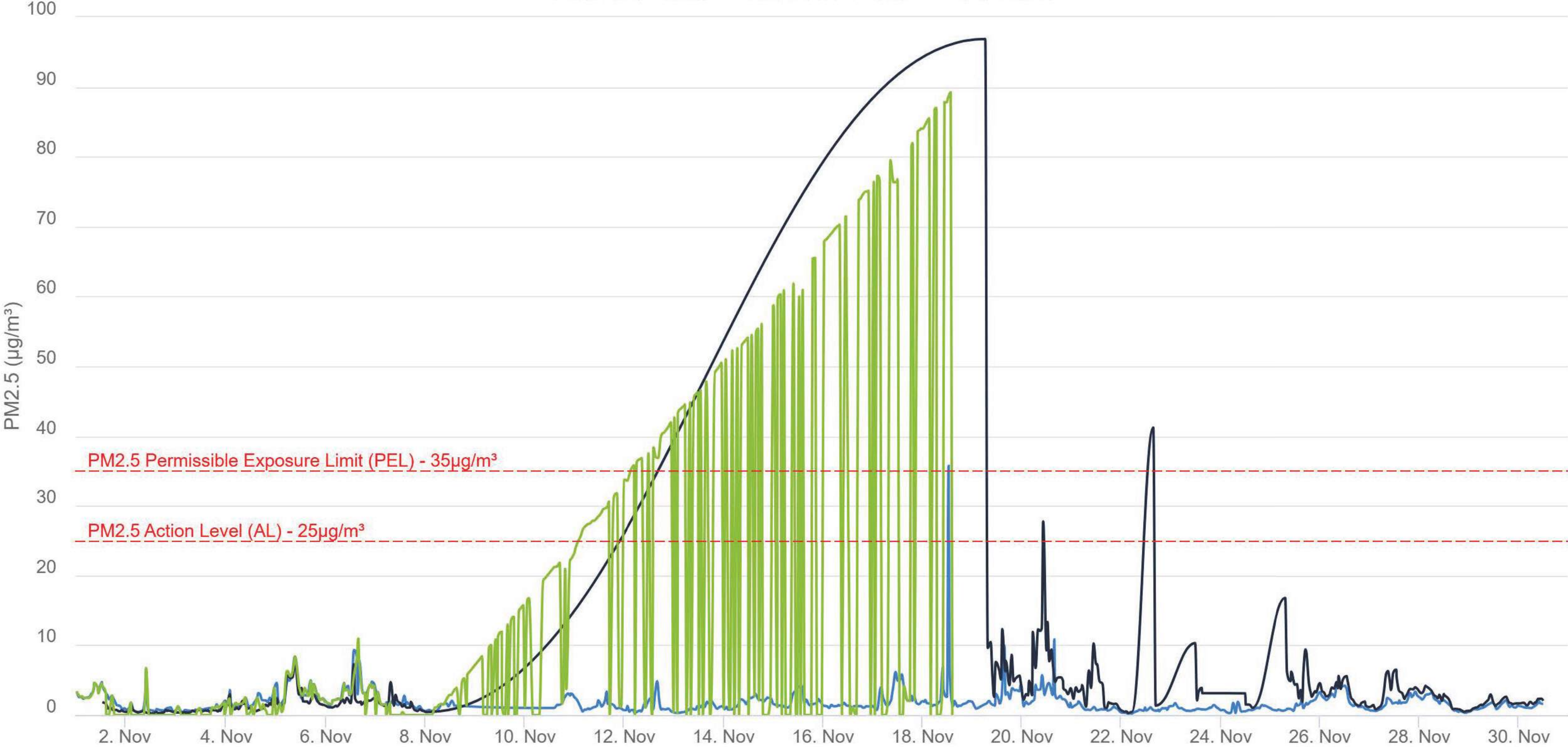
Reach H - PM10 - 15 min Running avg. (November 2024)

— AQM-TH PM10 — AQM-THR PM10 — Site-PM10



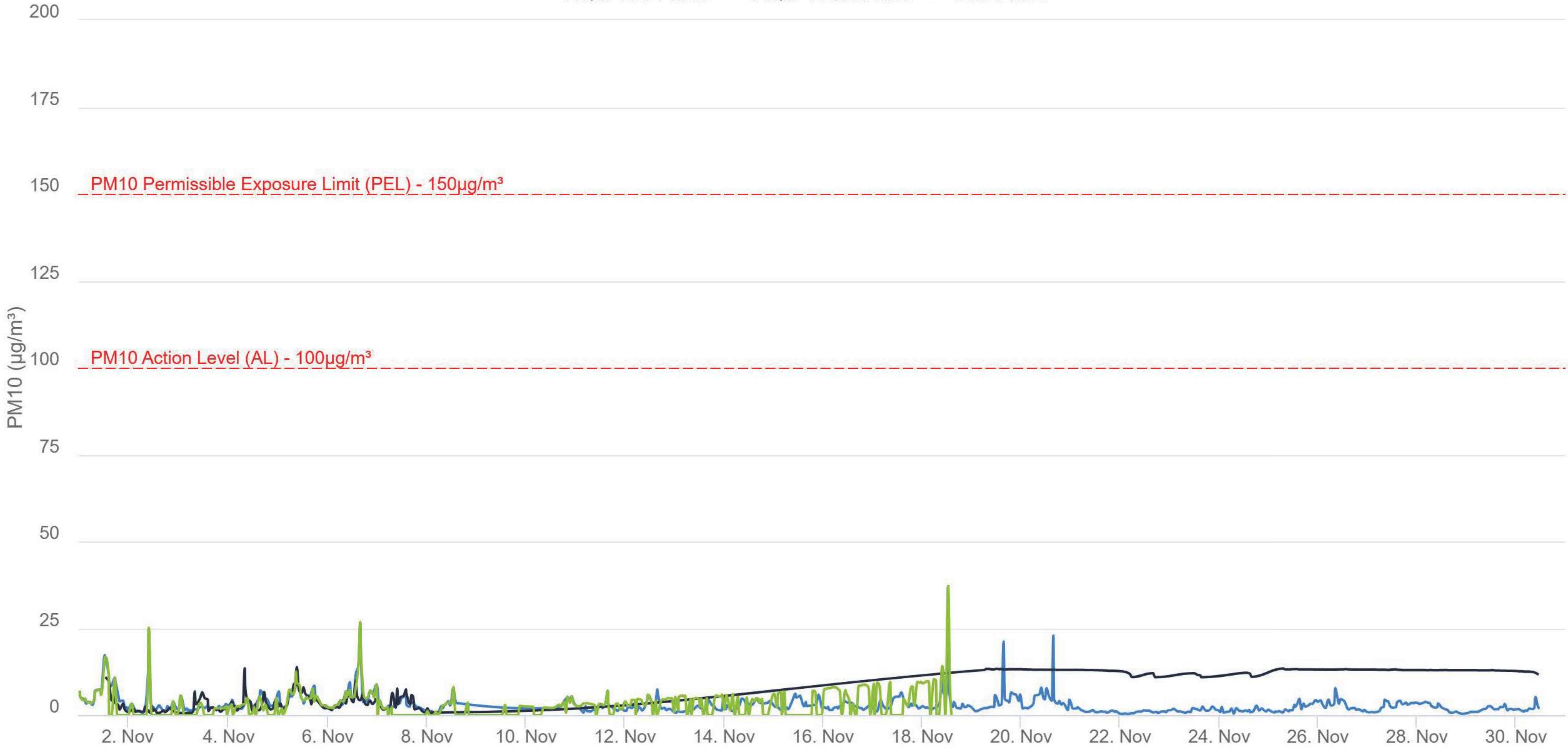
Reach I - PM2.5 - 15 min Running avg. (November 2024)

— AQM-10S PM2.5 — AQM-10SR PM2.5 — Site-PM2.5



Reach I - PM10 - 15 min Running avg. (November 2024)

— AQM-10S PM10 — AQM-10SR PM10 — Site-PM10



Summary of Data December 2024

PM_{2.5} levels surpassed the PEL (15-minute TWA) at the following locations:

- AQM-FB on 12/18 for 32 minutes;
- AQM-WB on 12/23 for 15 minutes and 12/31 for 8 minutes;
- AQM-WBN on 12/11 for 31 minutes; and
- AQM-4 on 12/12 for 14 minutes.

PM₁₀ levels did not surpass the PEL (15-minute TWA).

For the month of December 2024, PM net 2.5 levels were exceeded 12/11, 12/12, 12/18, 12/23, and 12/31. PM net 10 levels were not exceeded.

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

PM 2.5 $\mu\text{g}/\text{m}^3$

- PM 2.5 $\mu\text{g}/\text{m}^3$ levels surpassed the PEL (15-minute TWA) on five occasions (12/11, 12/12, 12/18, 12/23, and 12/31) for between 8 and 32 minutes.
 - AQM-FB is located in the vicinity of the Fire Boat House; the elevated readings on 12/18 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - AQM-WB is in the vicinity of the Williamsburg Bridge along the East River; elevated readings on 12/23 and 12/31 were related to on-site construction activities. Dust mitigation measures were deployed to mitigate airborne dust.
 - AQM-WBN is north of the Williamsburg Bridge; elevated readings on 12/11 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 in Reach F; elevated readings on 12/12 were related to on-site construction activity. Dust mitigation measures were deployed to mitigate airborne dust.

PM 10 $\mu\text{g}/\text{m}^3$

- PM 10 $\mu\text{g}/\text{m}^3$ levels did not surpass the PEL (15-minute TWA).

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-1 was disconnected from power and not monitoring from December 22nd to December 26th
- AQM-3 was disconnected from power and not monitoring from December 6th to December 10th
- AQM-4 was disconnected from power and not monitoring from December 22nd to December 31st
- AQM-HS was disconnected from power and not monitoring from December 26nd to December 31st

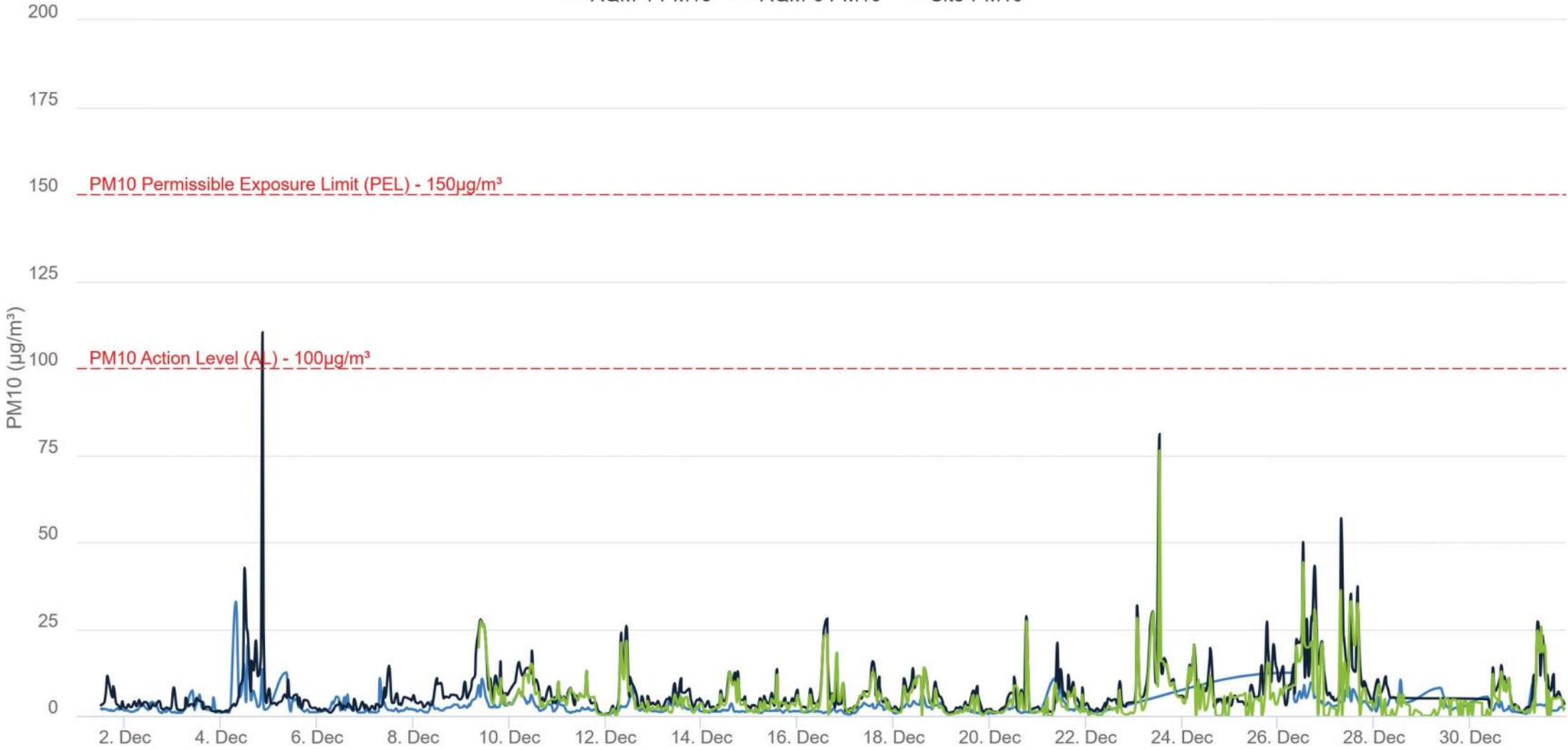
DECEMBER 2024 DATA PLOTS

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



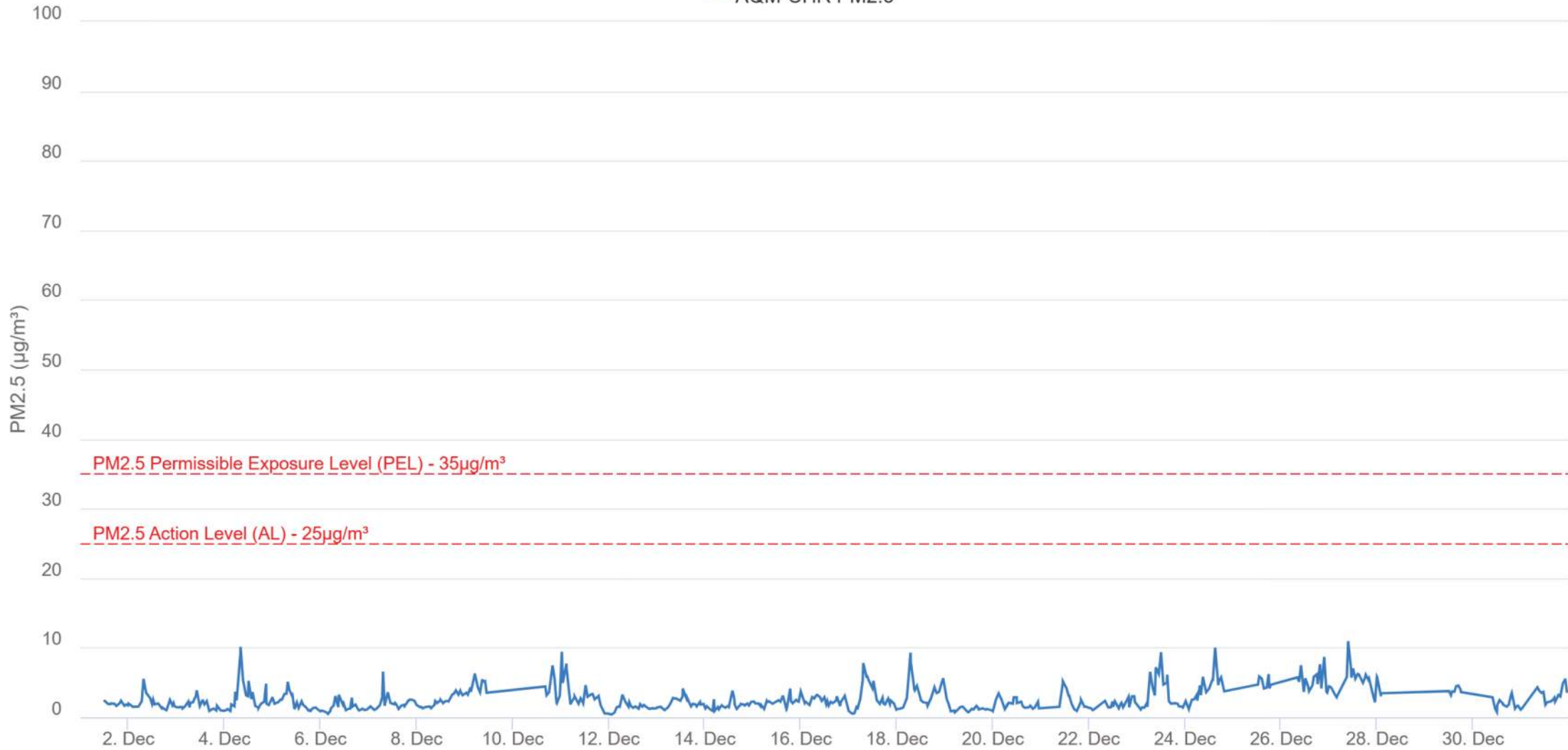
Reach A - PM10 - 15 min Running avg. (December 2024)

— AQM-1 PM10 — AQM-6 PM10 — Site-PM10



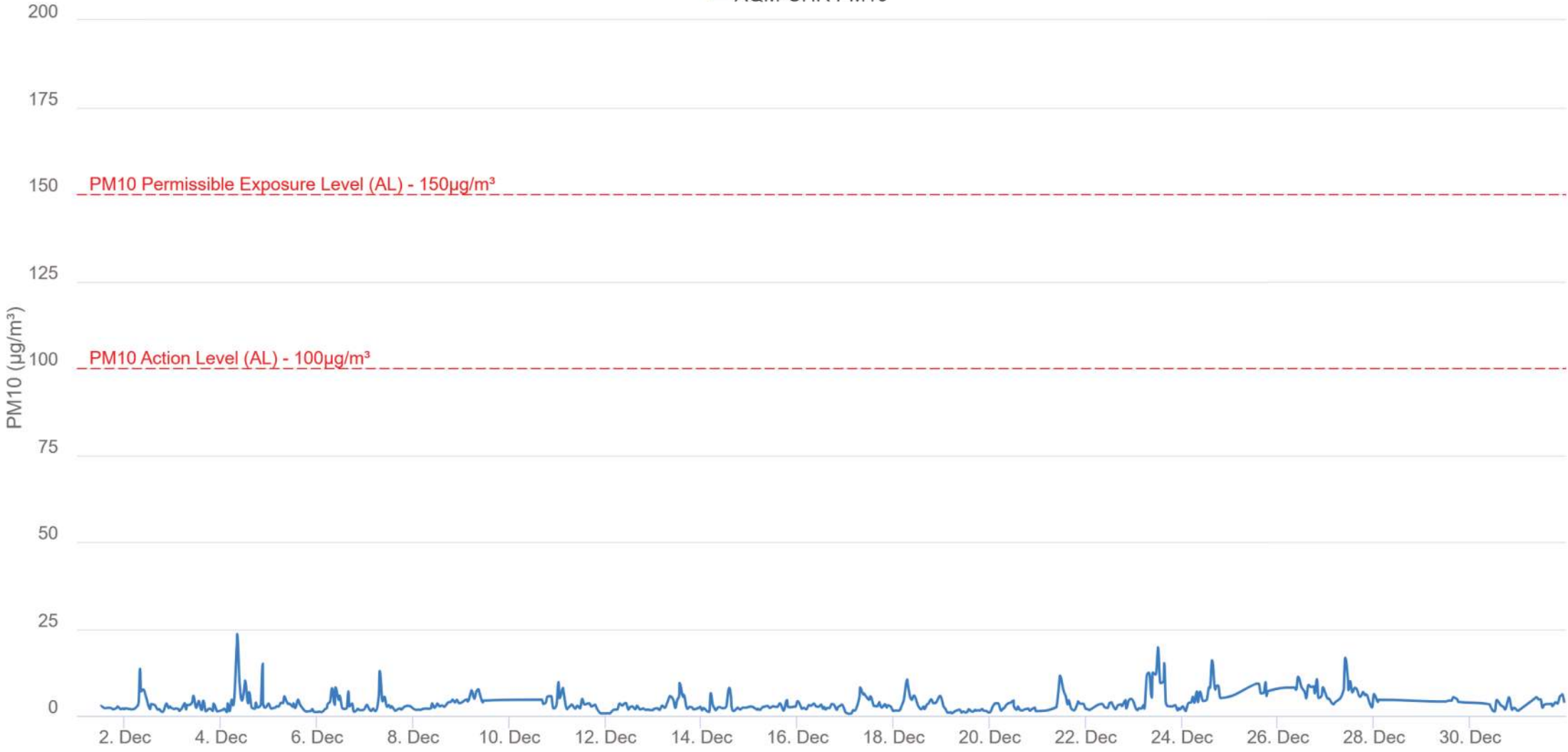
Reach B - PM2.5 - 15 min Running avg. (December 2024)

— AQM-CHR PM2.5



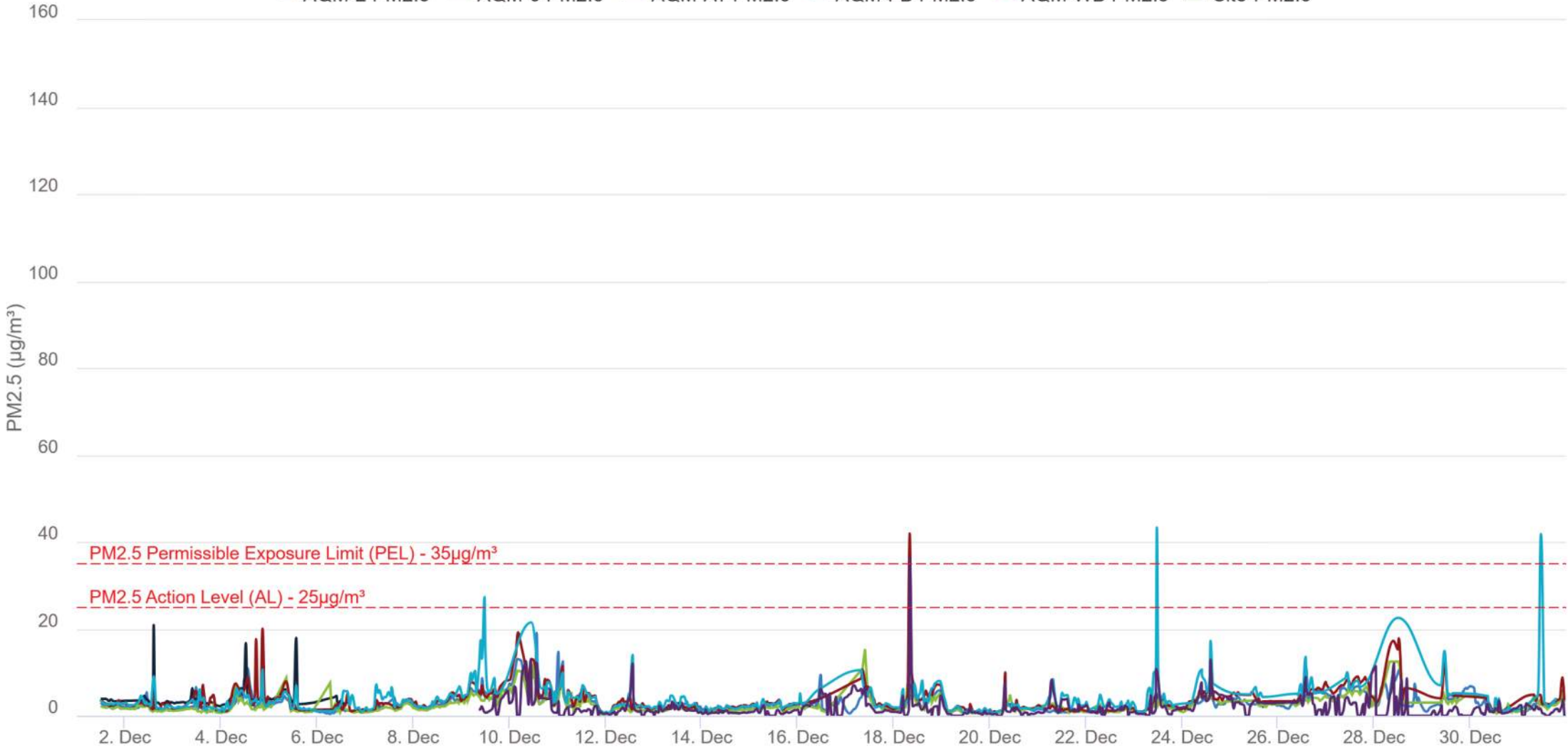
Reach B - PM10 - 15 min Running avg. (December 2024)

— AQM-CHR PM10



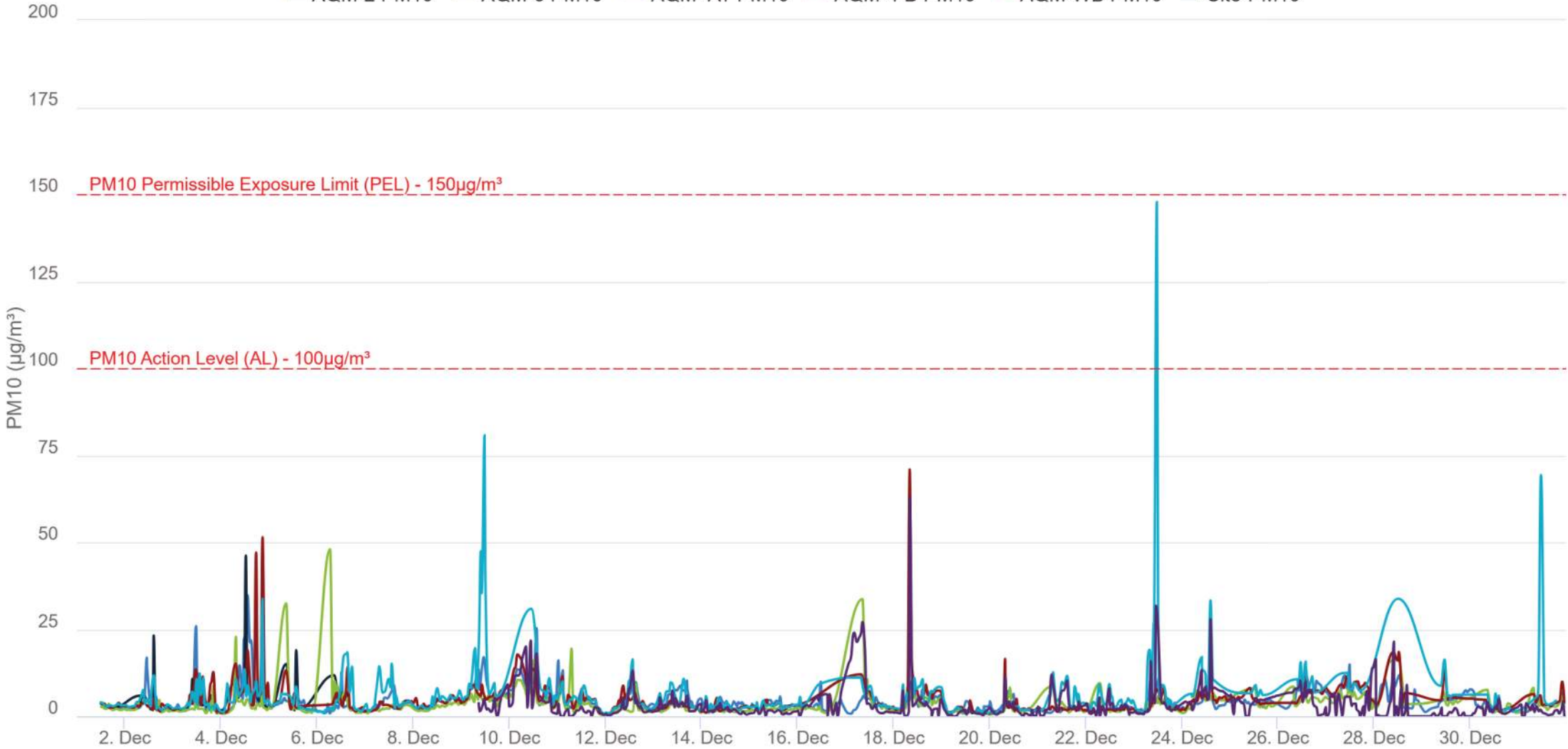
Reach C,D & E - PM2.5 - 15 min Running avg. (December 2024)

— AQM-2 PM2.5 — AQM-3 PM2.5 — AQM-AT PM2.5 — AQM-FB PM2.5 — AQM-WB PM2.5 — Site-PM2.5

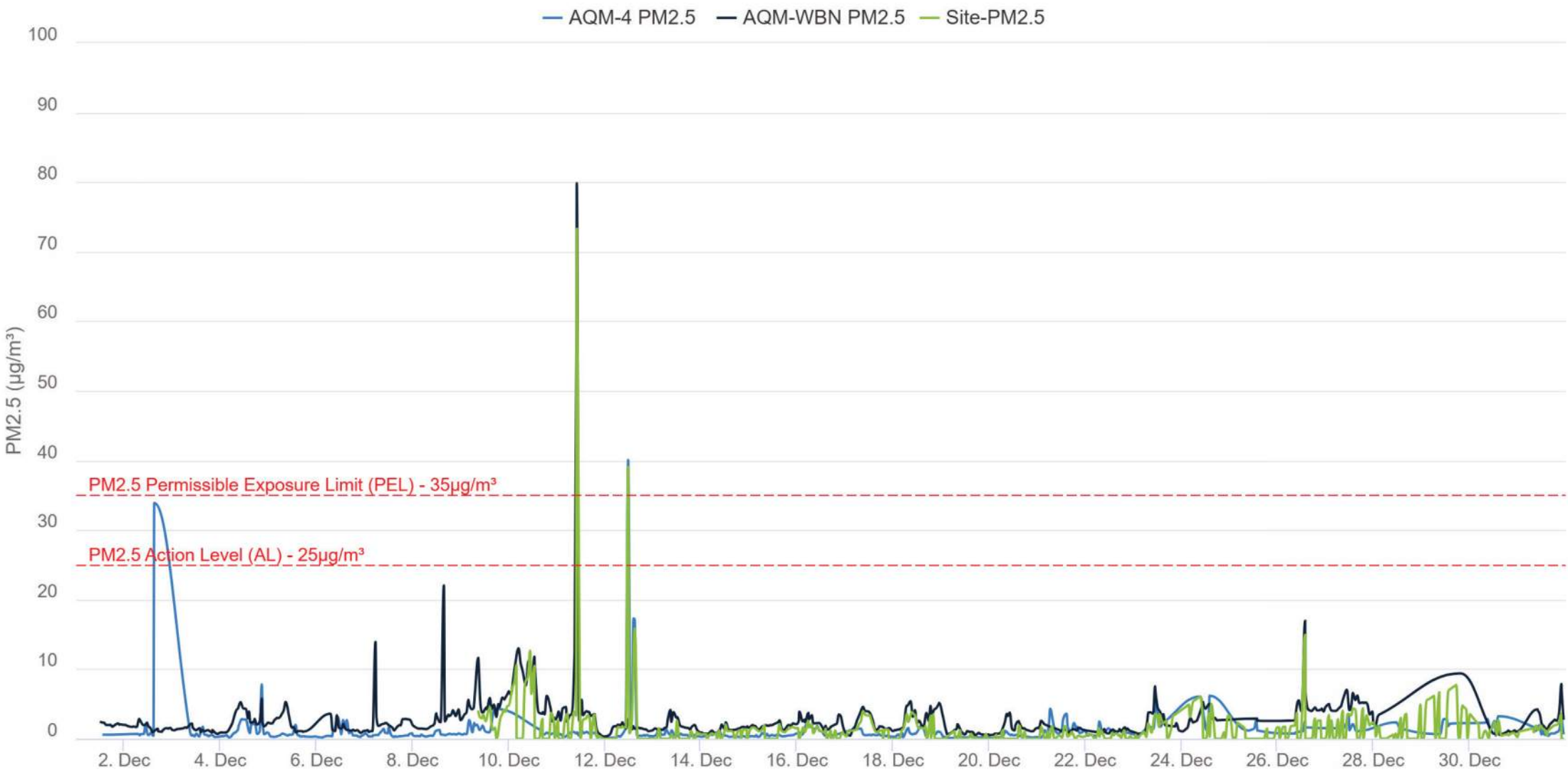


Reach C,D & E - PM10 - 15 min Running avg. (December 2024)

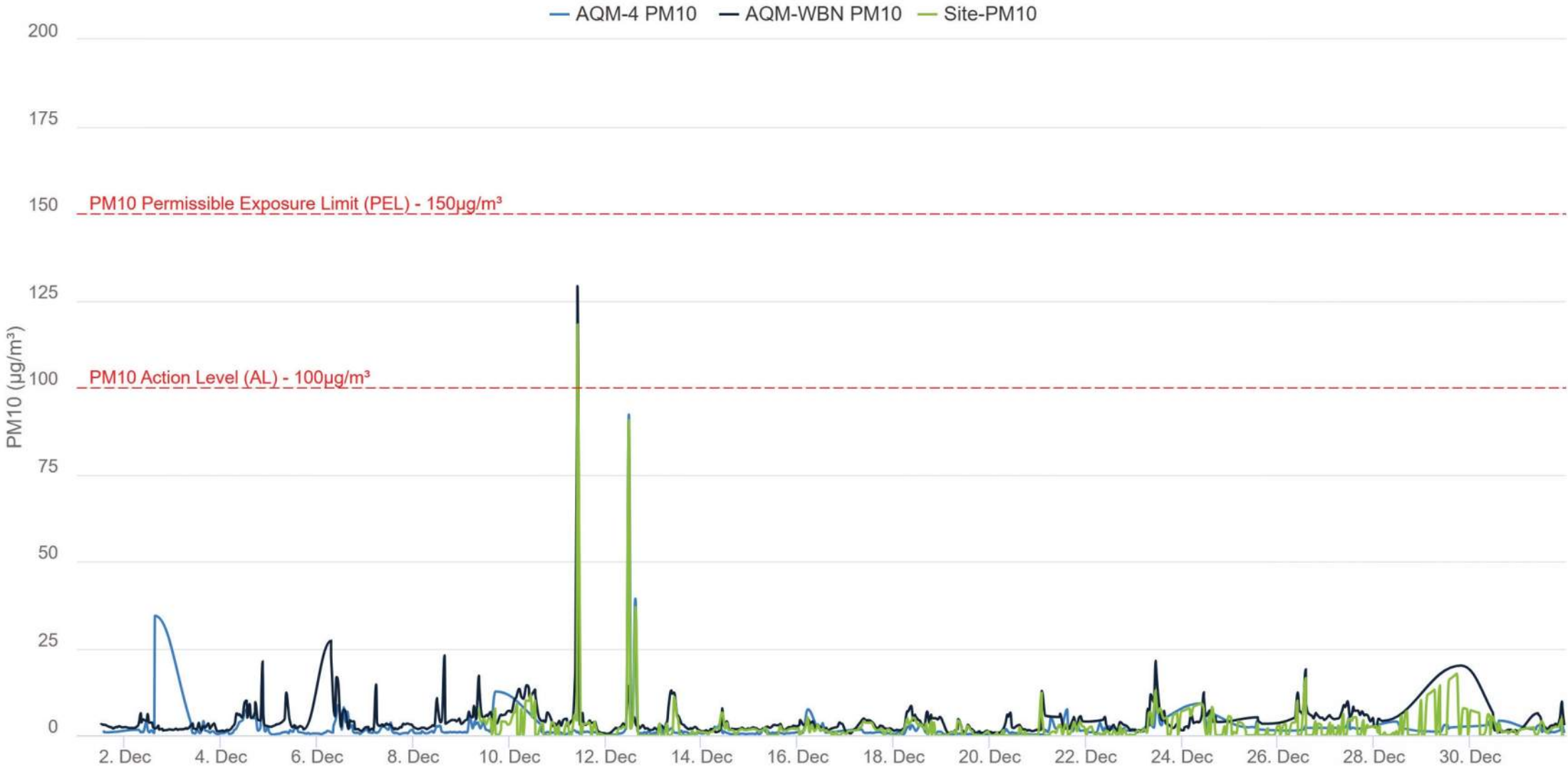
— AQM-2 PM10 — AQM-3 PM10 — AQM-AT PM10 — AQM-FB PM10 — AQM-WB PM10 — Site-PM10



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



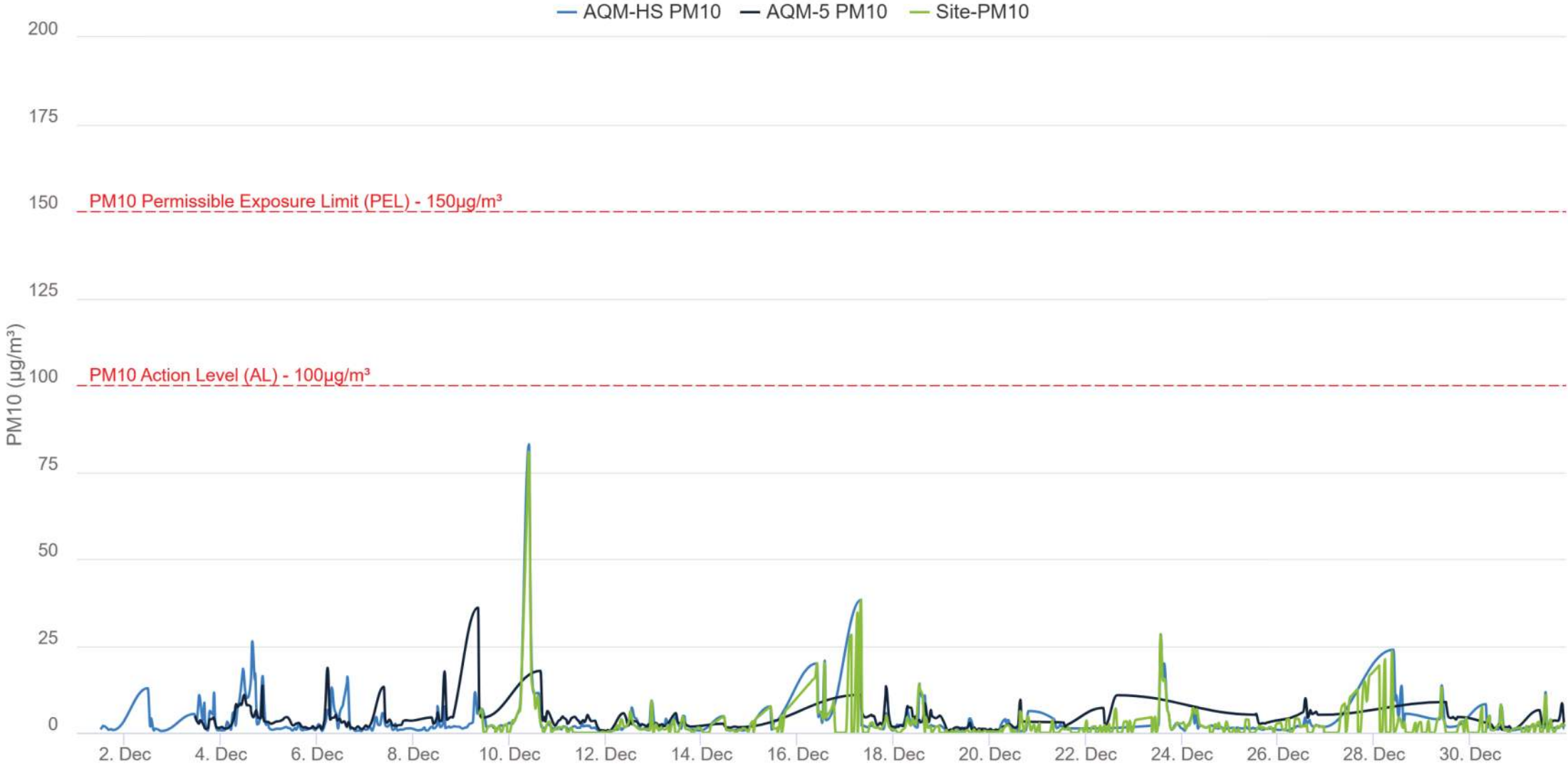
Reach F - PM10 - 15 min Running avg. (December 2024)



Reach G - PM2.5 - 15 min Running avg. (December 2024)

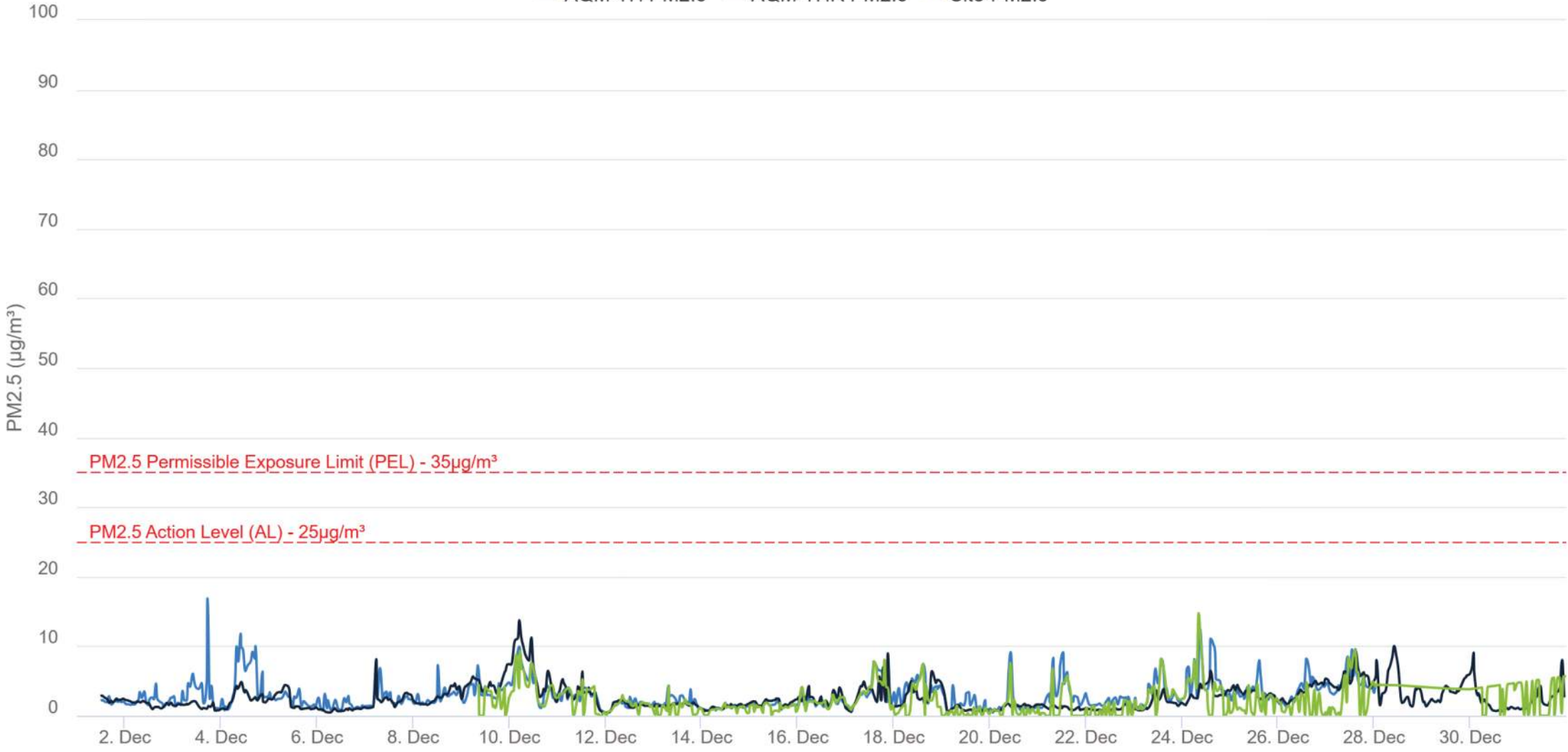


Reach G - PM10 - 15 min Running avg. (December 2024)



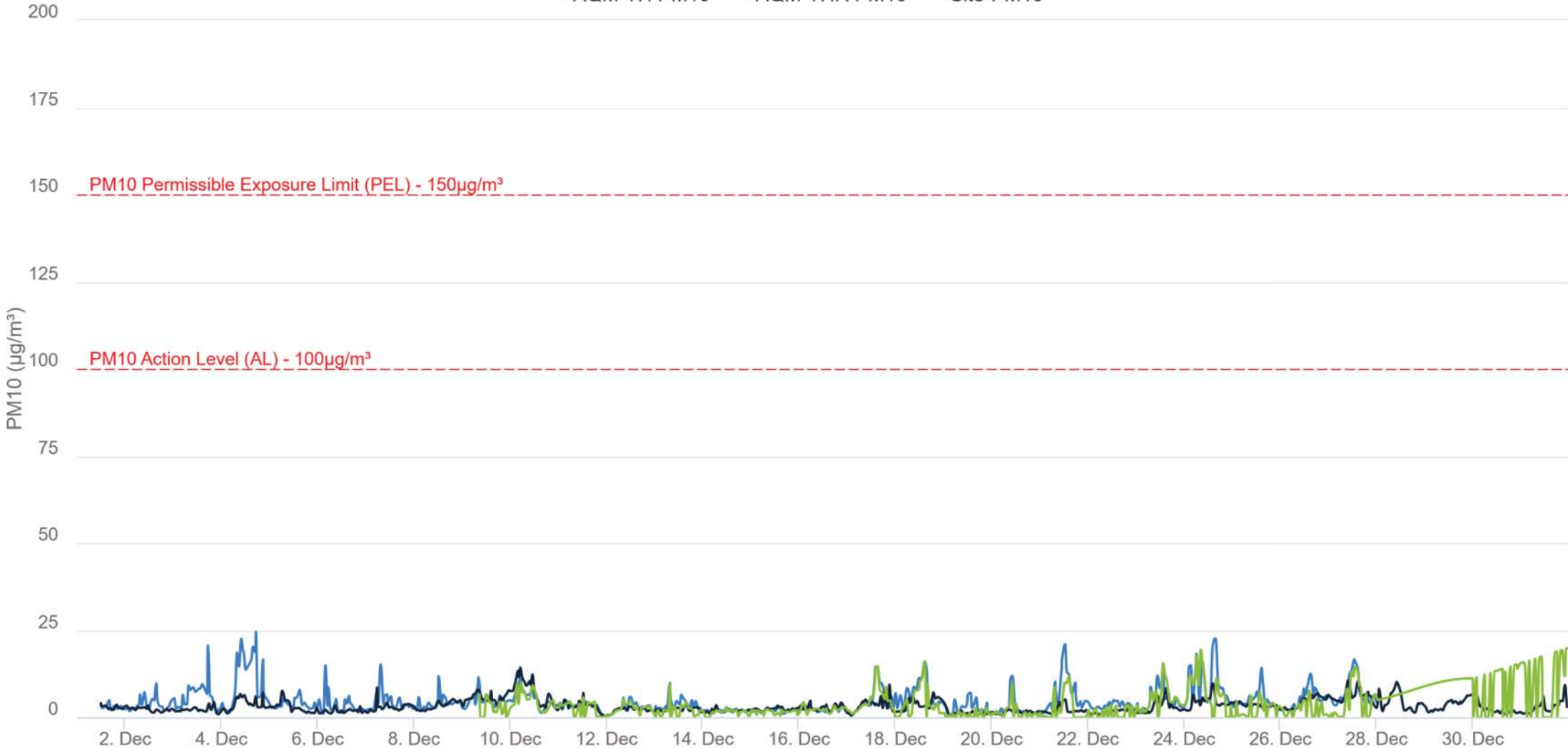
Reach H - PM2.5 - 15 min Running avg. (December 2024)

— AQM-TH PM2.5 — AQM-THR PM2.5 — Site-PM2.5



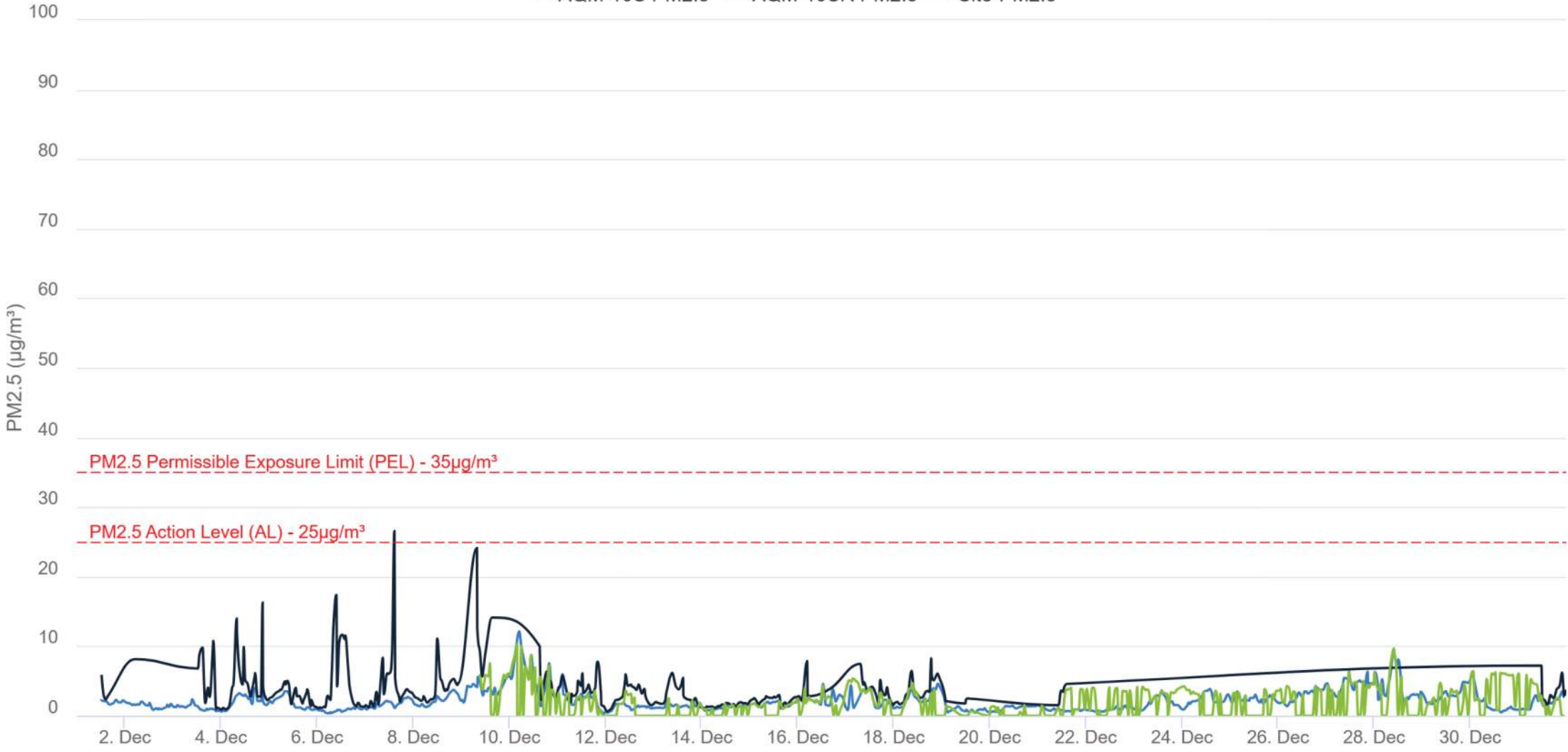
Reach H - PM10 - 15 min Running avg. (December 2024)

— AQM-TH PM10 — AQM-THR PM10 — Site-PM10



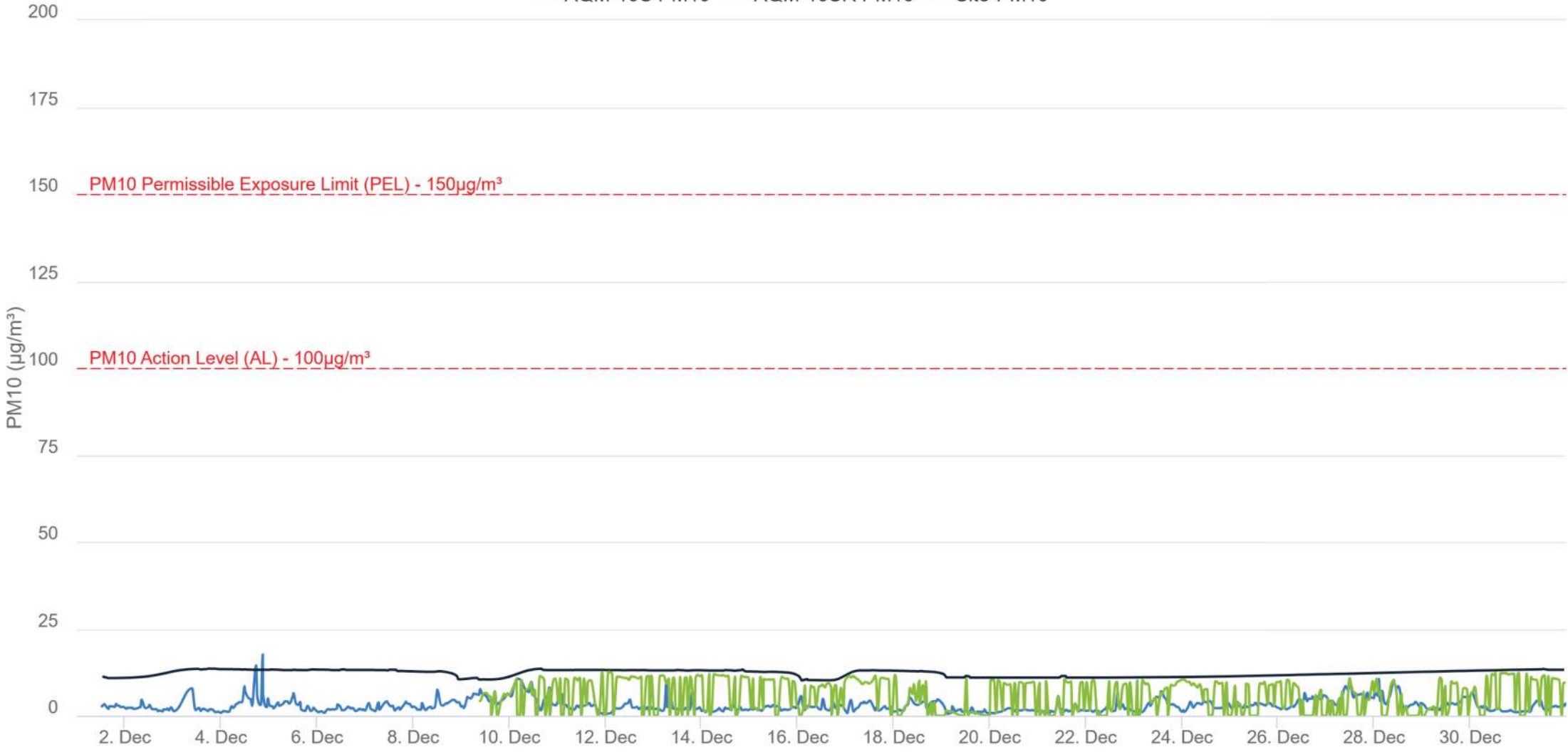
Reach I - PM2.5 - 15 min Running avg. (December 2024)

— AQM-10S PM2.5 — AQM-10SR PM2.5 — Site-PM2.5



Reach I - PM10 - 15 min Running avg. (December 2024)

— AQM-10S PM10 — AQM-10SR PM10 — Site-PM10



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](#)

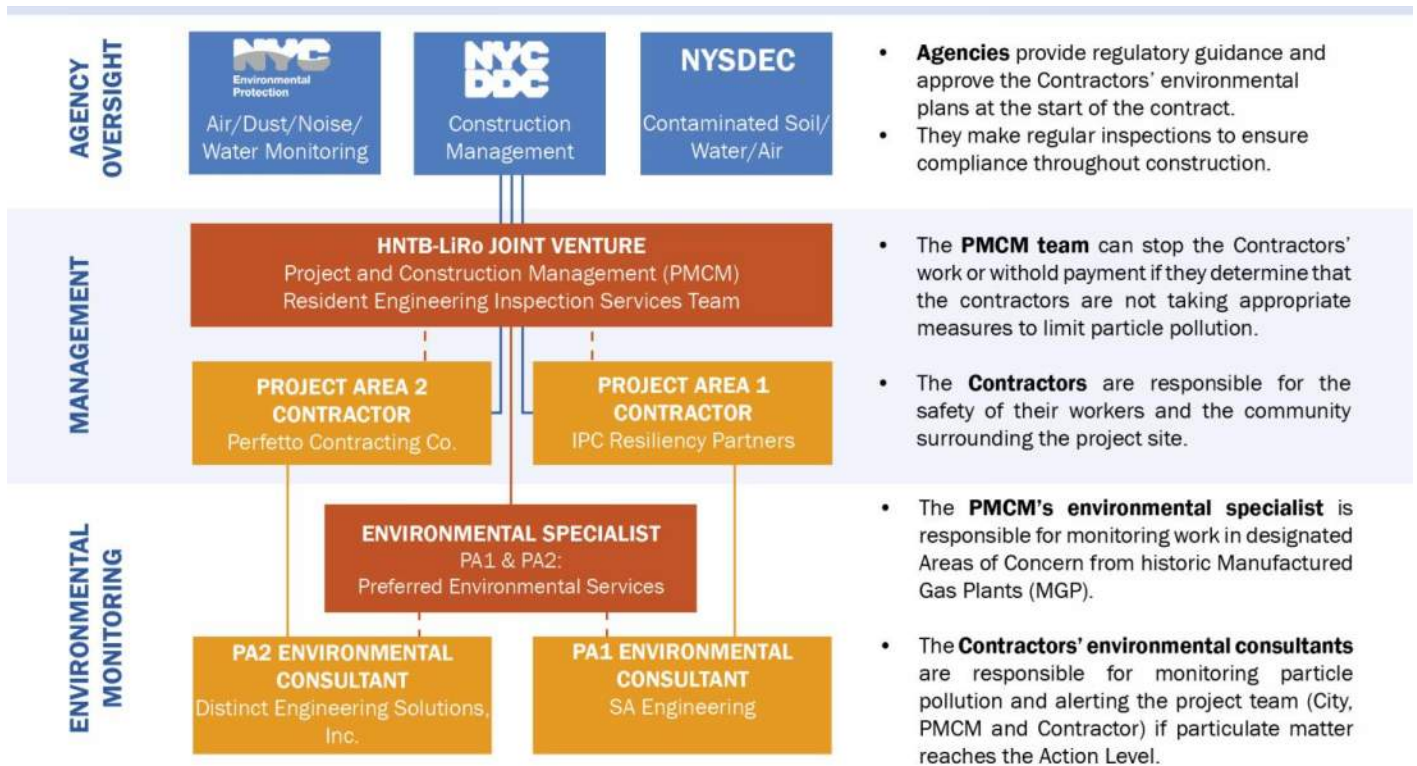


Fig.4 East Side Coastal Resiliency Air Quality Monitoring Flow Chart

II. RESOURCES

- ESCR Website:
- ESCR Environmental Review Process web 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>