EAST SIDE COASTAL RESILIENCY

SANDRESM2 | PROJECT AREA 2

AIR QUALITY MONITORING REPORT

SECOND HALF | 2021

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WITH DATA COLLECTED BY: DISTINCT ENGINEERING SOLUTIONS, INC.,
SUBCONSULTANT TO PERFETTO CONTRACTING CORPORATION

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 E. 15th Street, including East River Park), Project Area 2 (E. 15th Street to E. 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 E. 25th Street).

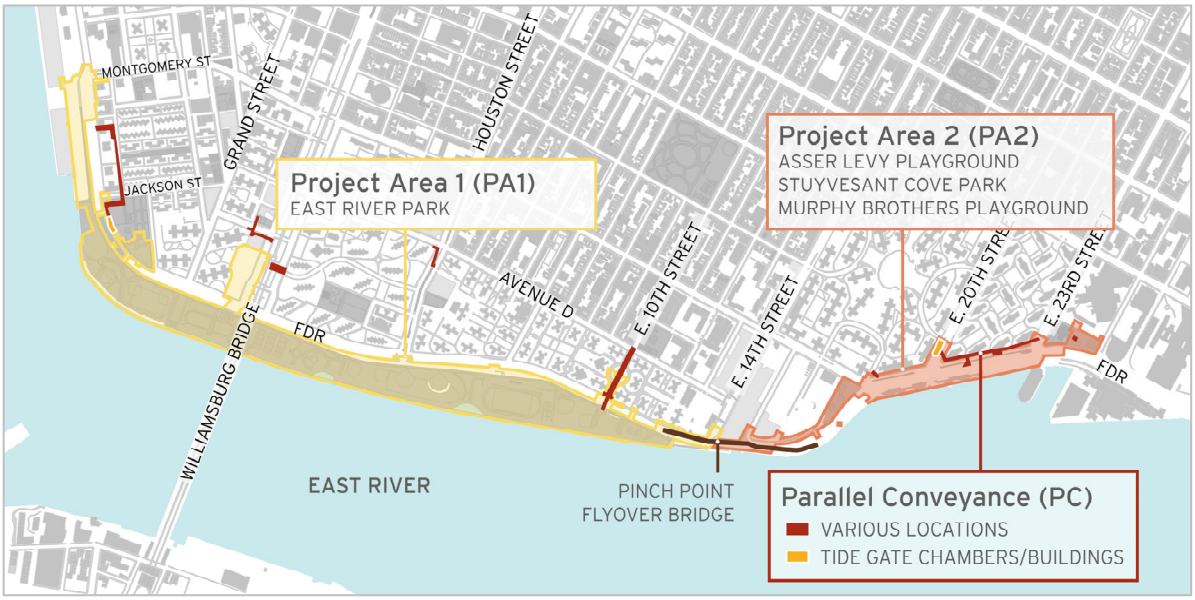


Fig.1 East Side Coastal Resiliency Project Areas

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 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 National Ambient Air Quality Standards (NAAQS) in line with the requirements of the Clean Air Act 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 Particulate Matter (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 Permissible Exposure Limit (PEL) and represents a level set by the ESCR Air Quality Monitoring 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 Permissible Exposure Limit and Action Levels for net PM2.5 and PM10 concentrations over a 24-hour Time Weighted Average (TWA). These levels are measured in micrograms per cubic meter air (µg/m3):

	Action Level (AL) over a 24-hour TWA	**Permissible Exposure Limit (PEL) over a 24-hour TWA**
PM2.5	25 µg/m3	35 µg/m3
PM10	100 µg/m3	150 µg/m3

The ESCR Final Environmental Impact Statement 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 **Net Particulate Matter (Net PM)** levels (blue line on data plot) in a **15-minute Time Weighted Average (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.

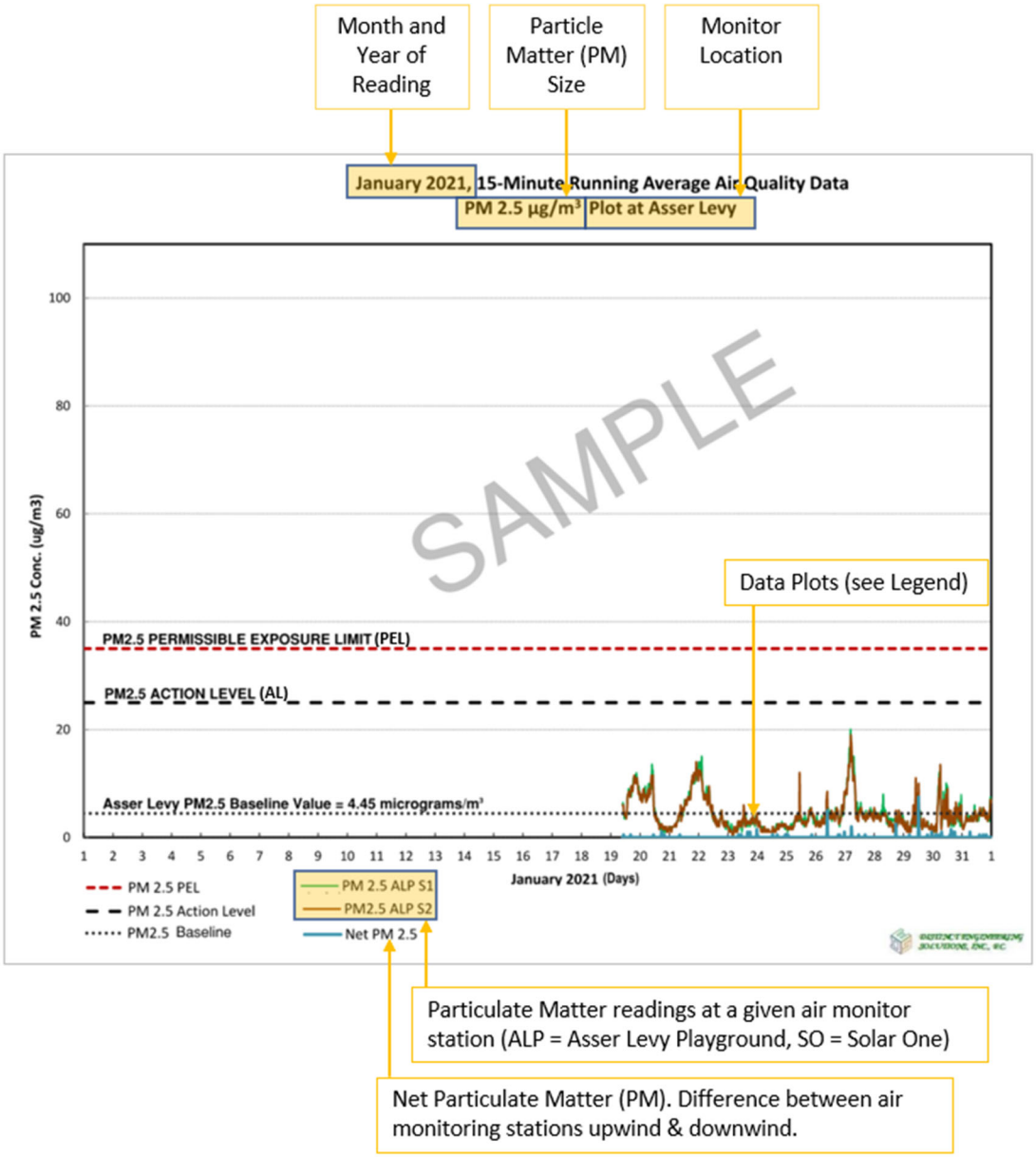


Fig.2 Sample Air Quality Data Plot

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 of the monitoring stations will still be noted, however the increased levels in the PM readings may be due to conditions unrelated to construction.

And **exceedance** is a daily value that is above the level of the 24-hour time weighted average after rounding to the nearest 10 µg/m3 (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 Particulate Matter (PM) readings for ESCR Project Area 2 (PA2), collected by Distinct Environmental Group, environmental subconsultant to the PA2 contractor, Perfetto Contracting Corporation (PCC), from July through December 2021. The PA2 contract requires a minimum of four (4) air quality monitoring stations throughout construction, which will be relocated as necessary to reflect the phased construction activities.

At the start of this period, construction activities occurred in the area along Avenue C, north to Asser Levy Playground **(ALP)** at E 25th Street, and south to E 20th Street within Stuyvesant Cove Park adjacent to the Solar One **(SO)** Building. Four stations were set up within the PA2 active construction zone (Fig 6). **ALP-S1** and **ALP-S2** monitoring stations were installed in **Asser Levy Playground (ALP)** on January 8, 2021. **SO-S3** and **SO-S4** monitoring stations were installed around the **Solar One (SO)** construction site on January 11, 2021. On March 25, the SO-S4 monitoring station was relocated because its proximity to idling buses at the M9 and M23 bus stop caused the monitors to show unusually high readings of particulate matter in the months prior.

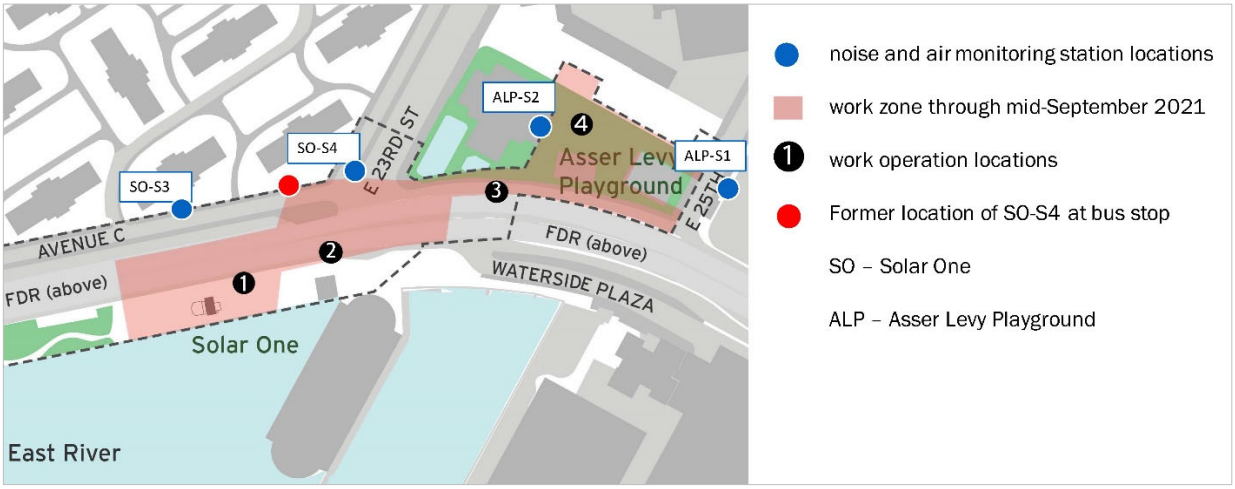


Fig.3 ESCR Project Area 2 Phase 1 Air Quality Monitoring Station Locations, July – Oct 2021

Starting the week of September 10, 2021, the phased construction in PA2 moved into Phase 2 (see Appendix I) and the work zone in Stuyvesant Cove Park extended south to E 20th Street. On October 12, 2021, the SO-03 monitor was relocated close to E 20th Street to accommodate the work progress.

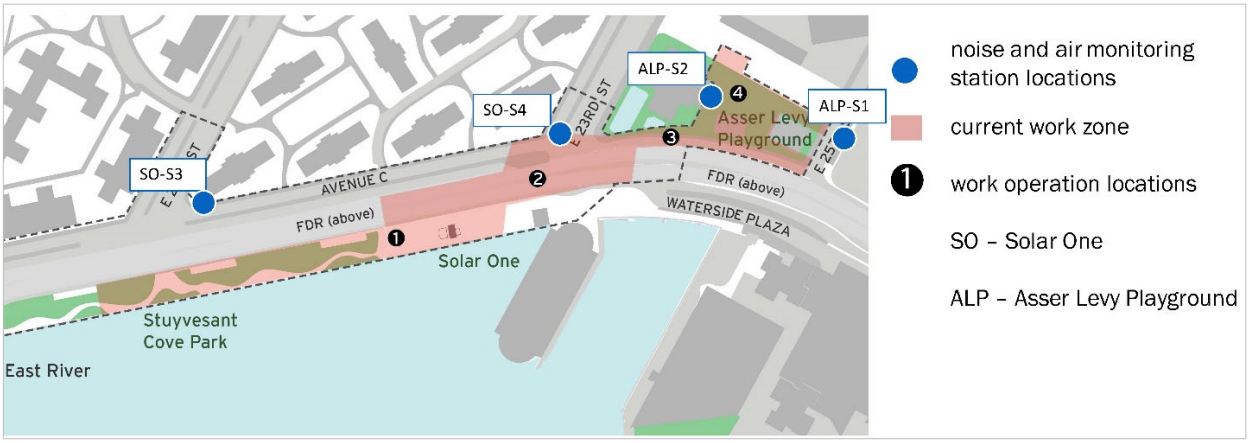


Fig.4 ESCR Project Area 2 Phase 1 and 2 Air Quality Monitoring Station Locations, Oct – Dec 2021

Work Activities during this period included:

- **Area 1: North Stuyvesant Cove Park at Solar One (Daytime work)**
  - In July, the contractors began constructing the floodwall foundation and in August, work included floodwall formwork and the construction of wall sections, as well as sewer installation. In November, the contractor began to prepare the parkland for floodgate construction, which continued through the end of the year.
- **Area 2: E 23rd Street Intersection at East Service Road/FDR Drive (Daytime work; Evening work week of 8/02/21 and 11/1/21)**
  - At this intersection, utility work, pile installation and excavation for the floodwall foundation continued through the October. ConEdison utility work occurred through the end of the year.
- **Area 3: West Service Road between E 23rd and E 25th Streets (Daytime work; Nighttime work the week of 9/20/21 through the week of 9/27/21)**
  - In September, the contractor began pile installation for the floodwall along the West Service Road, which continued through the end of the year.
- **Area 4: Asser Levy Playground (Daytime work; Evening work week of 8/9/21)**
  - Pile installation and floodwall foundation construction was ongoing from July through November. In August, the contractor began constructing formwork and pouring concrete for the floodwall; floodwall construction continued through the end of the year. Park restoration work began in October with drainage and curb installation, then installation of sidewalks and underground electrical and plumbing utilities in November. In December, the contractor worked on basketball court construction and the installation of light poles.

Though air quality is monitored 24/7, typical work hours during the period of this report are 7:00 am – 3:30 pm (Daytime); 3:30 pm – 11 pm (Evening), and 9:30 pm – 5:00 am (Nighttime).

Summary of Air Quality Monitoring Reports:

For the months of July 2021 – December 2021, construction-related levels of Particulate Matter (PM) at both net PM2.5 and PM10 levels did not surpass Daily Permissible Exposure Limits (PEL) as set by federal standards for the 24-hour Time Weighted Average (TWA), or daily value, and did not cause air quality concerns to the public or on-site workers. The contractor, PCC, in conjunction with the contractor's environmental specialist, has successfully implemented mitigation techniques at both Action Levels as well as Permissible Exposure Limits (15-minute TWA) to suppress construction activity effects on air quality at Asser Levy Playground and Solar One.

July 2021:

- PM2.5 daily value (24-hour TWA) surpassed the Permissible Exposure Limit (PEL) on July 20th and 21st at both Asser Levy Playground and Solar One, however the Net PM for the 24-hour TWA was not exceeded.
- These high PM levels were caused by smoke and ash from wildfires on the West Coast blown to the East coast by strong winds (see Appendix III). PM levels also surpassed the PEL (15-minute TWA) as a result of fireworks from the 4th of July holiday.

August 2021:

- PM10 levels surpassed the Permissible Exposure Limit (PEL) (15-minute TWA) at Asser Levy Playground on August 13 and 17. There were no PM10 readings recorded above the PEL at Solar One during the month of August.
- PM2.5 levels surpassed the PEL (15-minute TWA) at Asser Levy Playground on several days: August 9, 10, 13, 16, and 17. PM2.5 levels surpassed the PEL (15-minute TWA) at Solar One on August 6, 25, and 27.

- These PM levels above the PEL occurred for very short durations and the wind speeds were low (below 5 mph), so it is unlikely that any fugitive dust from construction activities migrated off-site.

September 2021:

- PM10 levels surpassed the Permissible Exposure Limit (PEL, 15-minute TWA) at Asser Levy Playground on September 23. There were no PM10 readings recorded above the PEL at Solar One during the month of September.
- PM2.5 levels surpassed the Permissible Exposure Level (PEL) for the 15-minute TWA at Asser Levy Playground on 9/1, 9/16, 9/20, and 9/23. PM2.5 levels surpassed the PEL at Solar One on 9/20, 9/21, and 9/22, however the Net PM values did not surpass the PEL for the 15-minute TWA.

October 2021

- There were no PM10 readings recorded above the Permissible Exposure Limit (PEL) at Solar One and Asser Levy Playground in the month of October.
- PM2.5 readings showed the Net PM slightly above the PEL (15-minute TWA) in Asser Levy Playground on 10/15/21, for a duration of 15 minutes. PM2.5 readings showed levels above the PEL (15-minute TWA) at Solar One/Stuyvesant Cove Park on 10/4/21 and 10/21/21, but the Net PM did not exceed the PEL.

November 2021

- There were no PM10 readings recorded above the Permissible Exposure Limit (PEL) at Solar One and Asser Levy Playground in the month of November.
- There were two occasions where PM2.5 readings were recorded above the Permissible Exposure Limit (15-minute TWA) at Asser Levy Playground for the month of November (11/9 and 11/18/21), however the Net PM levels did not exceed the PEL. The PM2.5 readings were below the Permissible Exposure Limit at Solar One this month.
- The spikes on 11/9 and 11/18 coincided with lunch break and end of shift, when there was no construction activity occurring near the monitors.

December 2021

- PM levels remained under the Permissible Exposure Limit for PM10 at Asser Levy Playground and Solar One in the month of December.
- PM levels surpassed the Permissible Exposure Limit (15-minute TWA) for PM2.5 at Asser Levy Playground on 12/10, 12/25, 12/29, 12/30, and 12/31. PM levels surpassed the Permissible Exposure Limit (15-minute TWA) for PM2.5 at Solar One on 12/10/21. For all of these events, the Net PM values did not surpass the PEL.
- The high PM2.5 levels at Asser Levy on 12/25, 12/29, 12/30, and 12/30 were recorded when there were no construction activities occurring and the majority of these were observed after hours/on the weekend/during an observed holiday.

PART 2

Summary of Data July 2021:

PM10 levels surpassed the Permissible Exposure Limit (PEL) (15-minute TWA) at Asser Levy Playground on July 4. PM10 levels surpassed the PEL at Solar One on July 20 and 21.

PM2.5 levels surpassed the PEL (15-minute TWA) at Asser Levy Playground on several days: July 4, 5, 7, 8, 12, 14, 20, 21, 24, 26, 27, and 28. PM2.5 levels surpassed the PEL (15-minute TWA) at Solar One on July 5, 15, 20, 21, and 29.

The PM 2.5 daily value (24-hour TWA) surpassed the PEL on the 20th and 21st for this month. The multiple PM levels above the PEL recorded for July 2021 were caused by smoke and ash from wildfires on the West Coast blown to the East Coast by strong winds.

These wildfires caused overall poor air quality in NYC for this month which is illustrated by data from the Air Quality Index (AQICN.org) in Appendix III. This data shows values well above the PM2.5 PEL for the majority of the month. Also included in Appendix III are smoke density levels (due to the wildfires) per the National Oceanic and Atmospheric Administration (NOAA). Regardless of the poor air quality unrelated to construction, the PA2 contractor, in conjunction with their environmental specialist, has continued to successfully implement mitigation techniques to suppress construction related effects on air quality at Asser Levy Playground and Solar One.

PM 10 µg/m3

- **Asser Levy Playground (ALP):** the high PM10 µg/m3 recorded on July 4 resulted from the 4th of July fireworks. There was no construction activity on July 4 due to observance of the holiday.
- **Solar One (SO):** As noted above, the PEL exceedance for PM10 µg/m3 levels on July 20-21 was due to the smoke from the West Coast wildfires that affected air quality throughout NYC.

PM 2.5 µg/m3

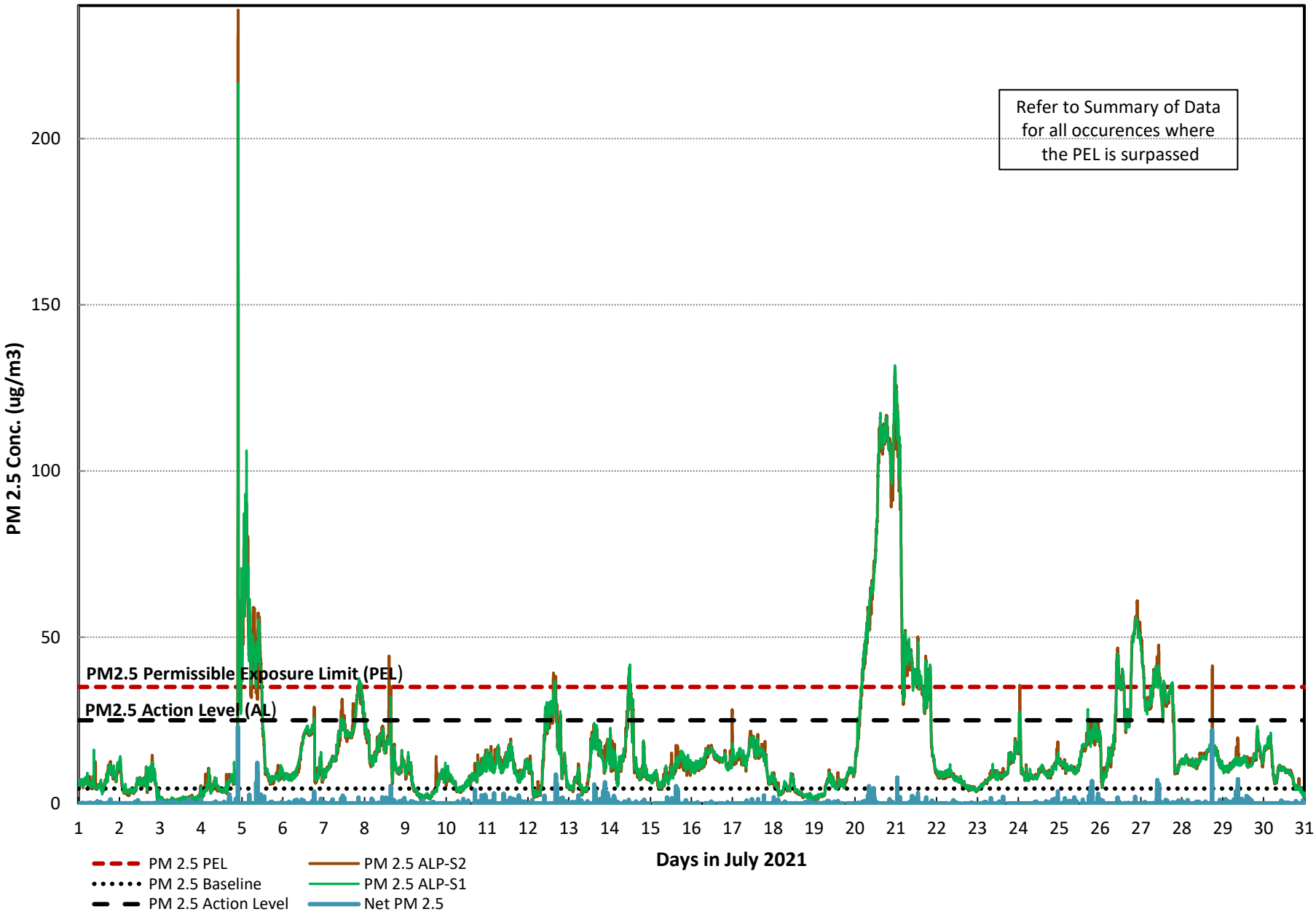
- **Asser Levy Playground (ALP):** As noted above, the high PM2.5 µg/m3 levels recorded this month were due to overall poor air quality from several non-construction related events, including 4th of July fireworks and effects from the wildfires.
- **Solar One (SO):** In addition to what was described above, the Net PM2.5 µg/m3 values spiked for two short durations on July 15. The spikes occurred at noon and 2:45pm, which correspond to lunch time (when no construction work occurs) and end of shift (when workers are putting away their tools and not performing major work). After assessment, it was determined that these high values related to idling vehicles, buses, and traffic near the monitors.

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.

JULY 2021 DATA PLOTS

July 2021, 15-Minute Running Average Air Quality Data
PM 2.5 µg/m³ Plot at Asser Levy



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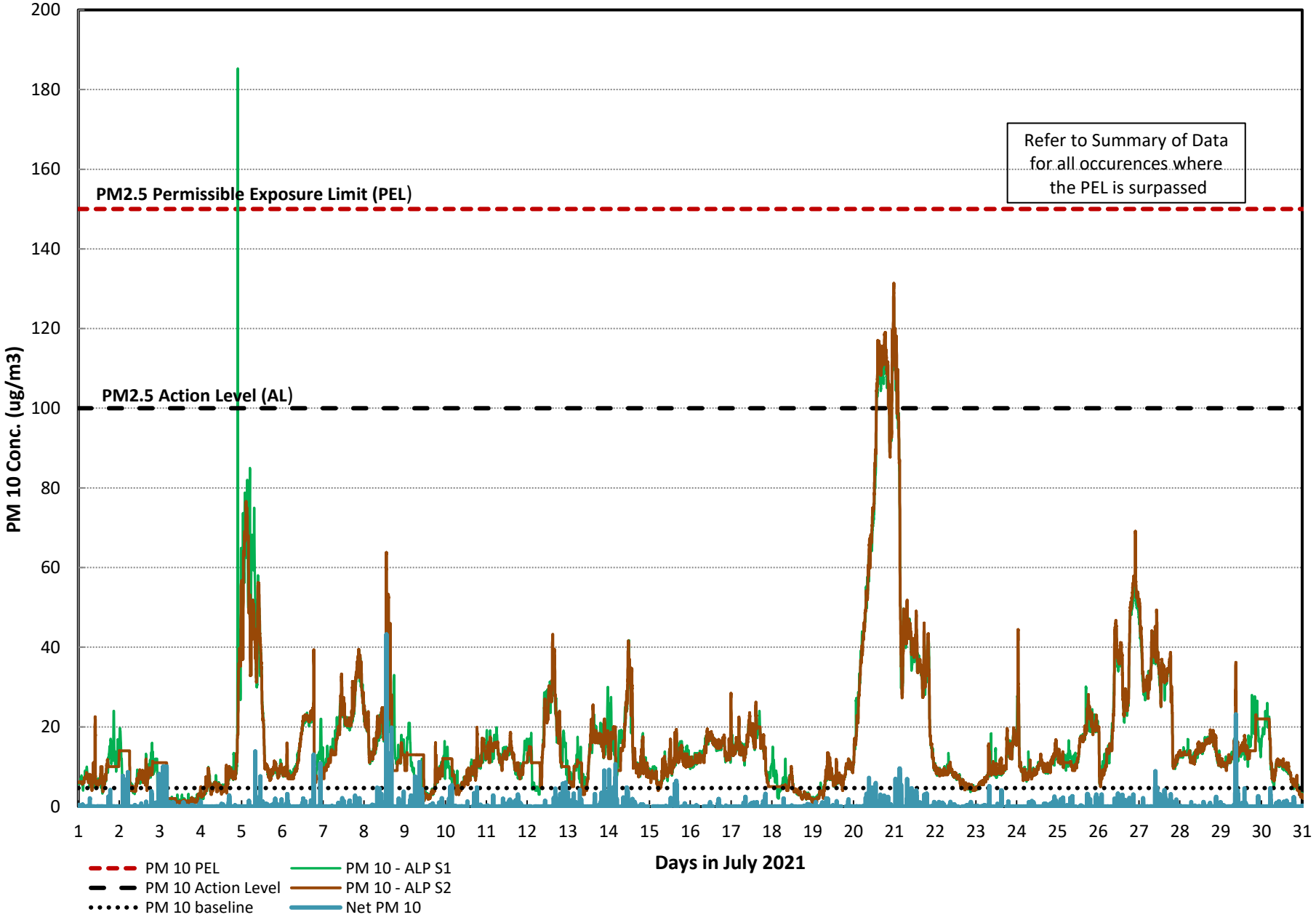
July 2021, 15-Minute Running Average Air Quality Data
PM 10 µg/m³ Plot at Asser Levy



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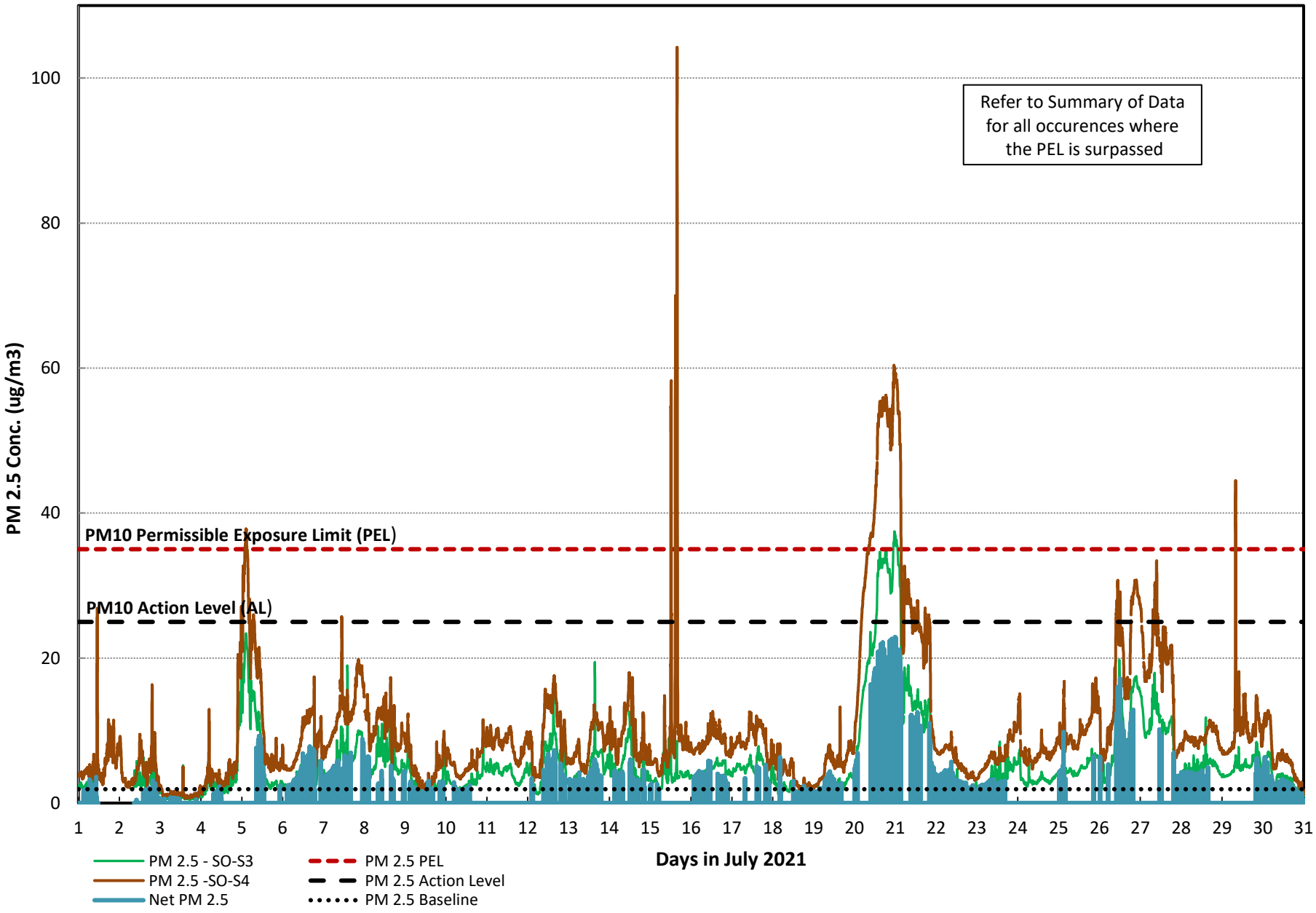
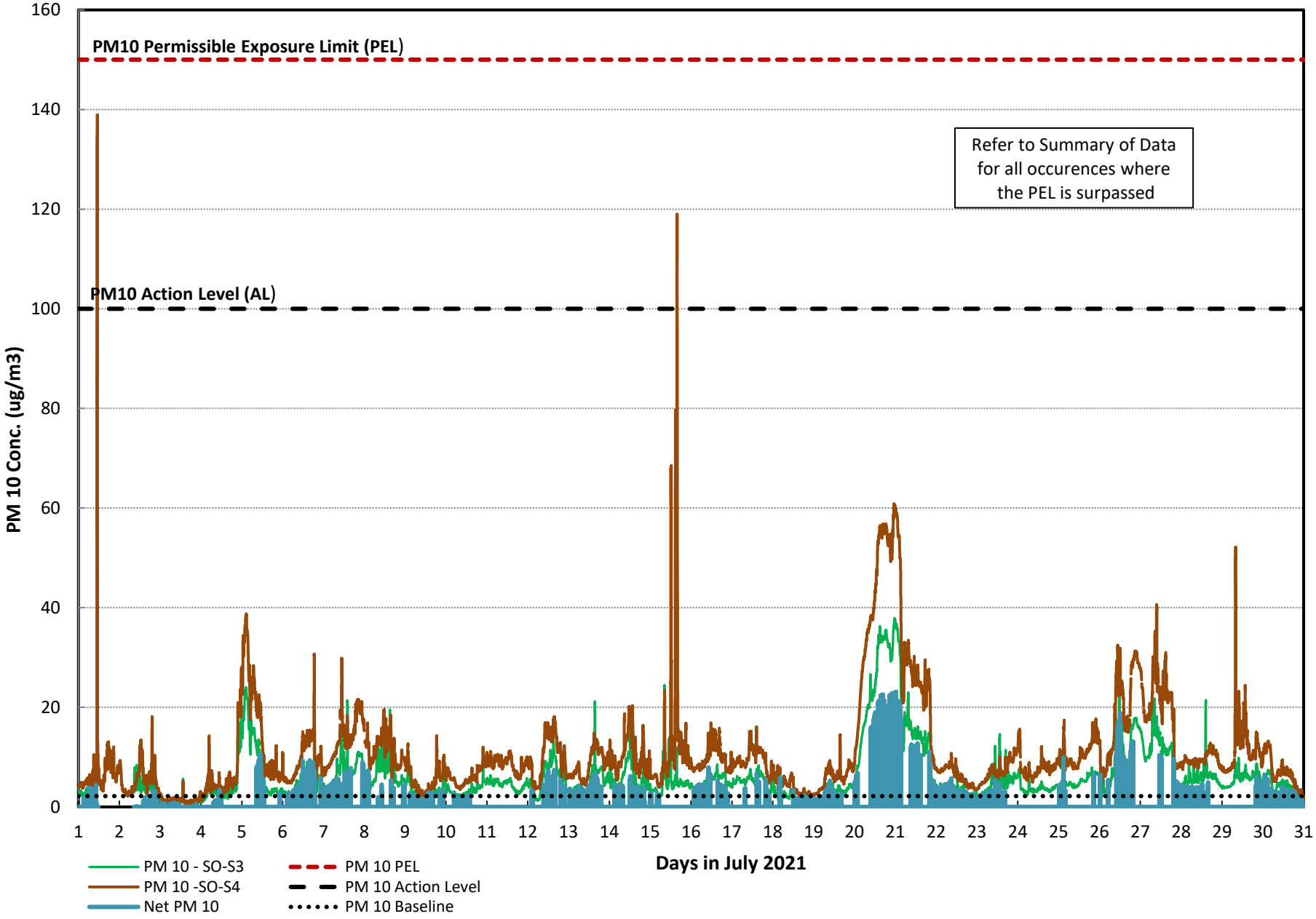
July 2021, 15-Minute Running Average Air Quality Data
PM 2.5 µg/m³ Plot at Solar One



July 2021, 15-Minute Running Average Air Quality Data
PM 10 µg/m³ Plot at Solar One



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Summary of Data August 2021:

PM10 levels surpassed the Permissible Exposure Limit (PEL), (15-minute TWA) at Asser Levy Playground on August 13 and 17. There were no PM10 readings recorded above the PEL at Solar One during the month of August.

PM2.5 levels surpassed the PEL (15-minute TWA) at Asser Levy Playground on several days: August 9, 10, 13, 16, and 17. PM2.5 levels surpassed the PEL (15-minute TWA) at Solar One on August 6, 25, and 27.

For the month of August 2021, construction-related Particulate Matter (PM) net 2.5 or 10 levels did not surpass Daily Permissible Exposure Limits (PEL) (24-hour time weighted average).

PM 10 µg/m3

- **Asser Levy Playground (ALP):** The PM10 µg/m3 levels surpassed the Permissible Exposure Limit (15-minute TWA) on two occasions:
    1. On 8/13/21, the high PM10 levels were recorded for a duration of under 5 minutes.
    2. On 8/17/21, the Net PM10 level surpassed the PEL for a duration of 10 minutes and was outside of working hours (beginning shortly after midnight).
- **Solar One (SO):** PM 10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).

PM 2.5 µg/m3

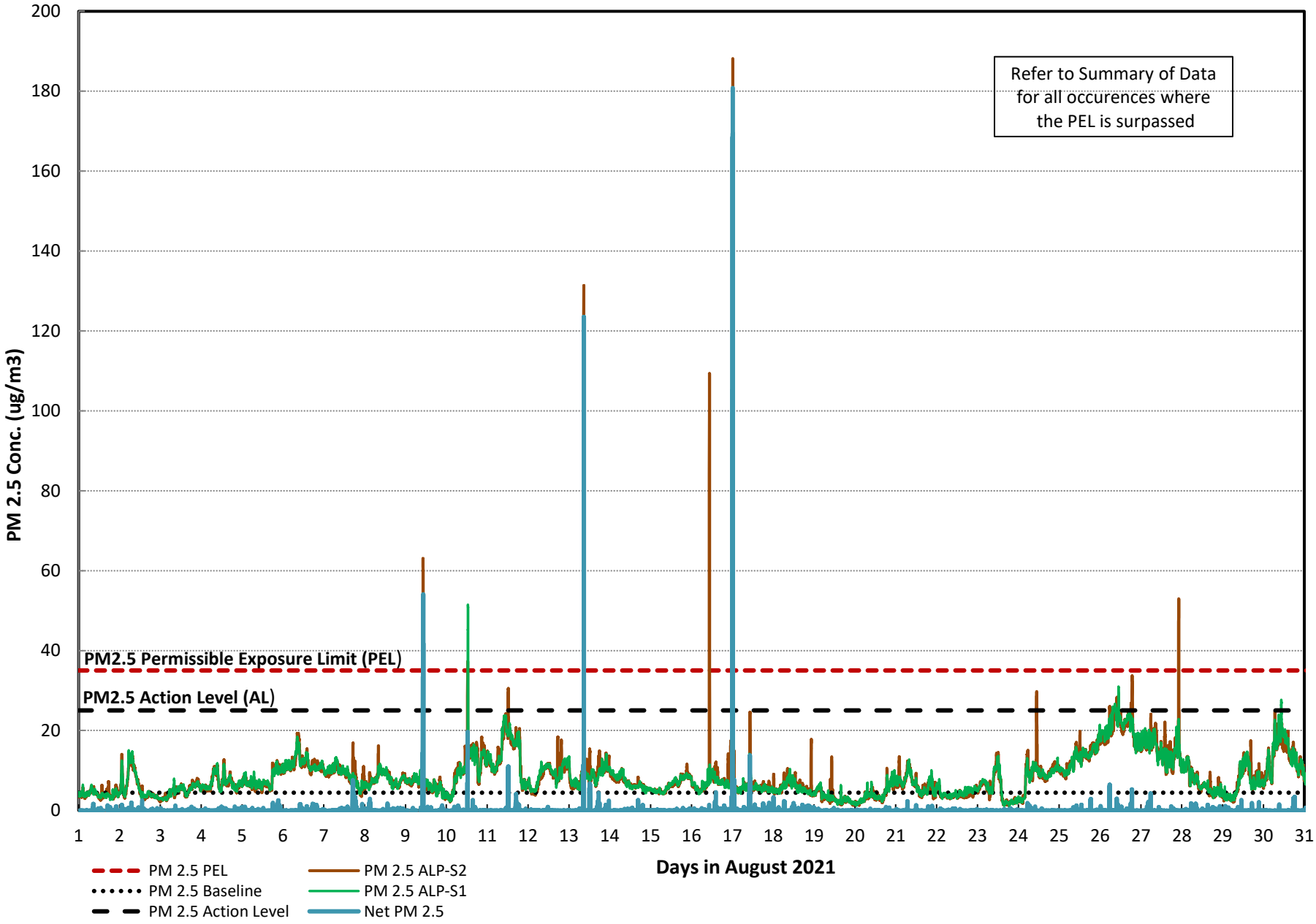
- **Asser Levy Playground (ALP):** High PM2.5 µg/m3 levels were recorded on five occasions:
    1. On 8/9, 8/10, 8/13, and 8/16, these levels were recorded for short durations of 15-20 minutes each. The Net PM surpassed the PEL on 8/9 and 8/13.
    2. On 8/17, the Net PM2.5 levels surpassed the PEL outside of working hours, when no construction activities were occurring.
- **Solar One (SO):** High PM2.5 µg/m3 were recorded on three occasions, however the Net PM did not exceed the PEL:
    1. On 8/6 and 8/25, the high levels were recorded for durations of 9 minutes and 8 minutes, respectively. No major construction activities were occurring at this location at the time.
    2. On 8/27/21, the PM2.5 levels above the PEL (15-minute TWA) were recorded at 10:30 pm, outside of construction hours.

Mitigation Measures:

- As these PM levels above the PEL occurred for very short durations and the wind speeds were low (below 5 mph), it is unlikely that any fugitive dust from construction activities migrated off-site.
- Construction activity was closely monitored, and dust mitigation techniques were continuously implemented to contain airborne particles due to construction activities.

AUGUST 2021 DATA PLOTS

August 2021, 15-Minute Running Average Air Quality Data
PM 2.5 µg/m³ Plot at Asser Levy



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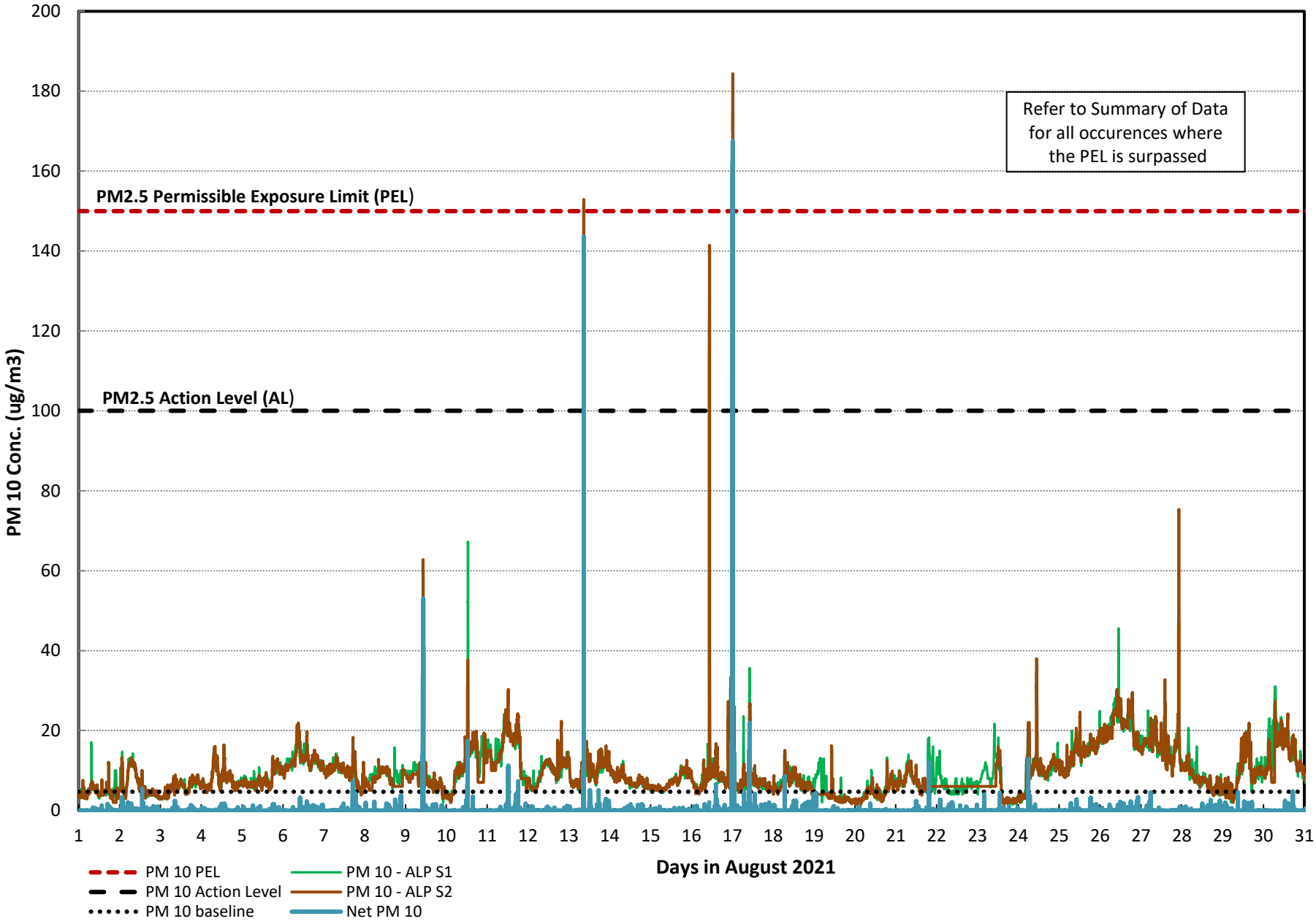
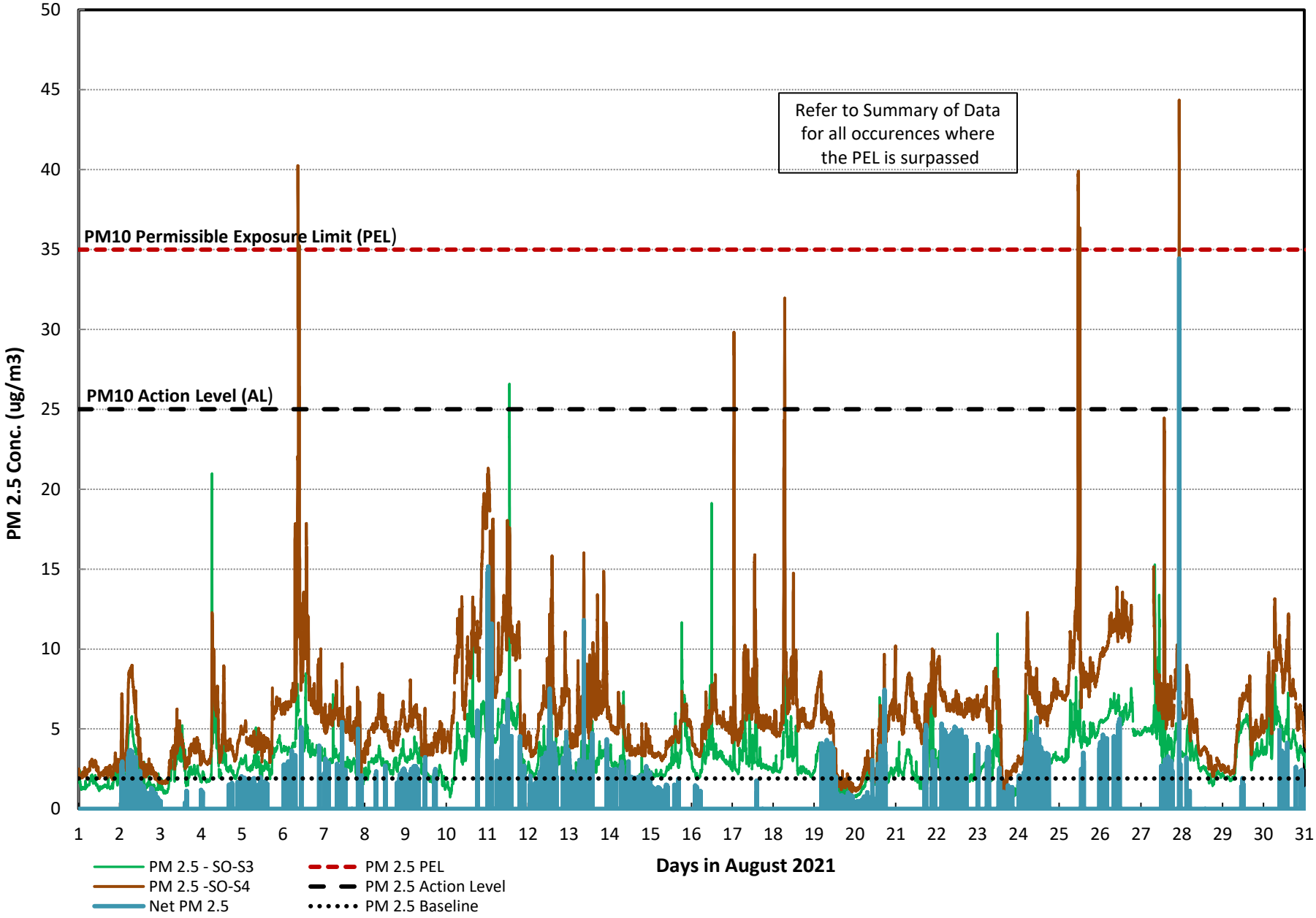
August 2021, 15-Minute Running Average Air Quality Data
PM 10 µg/m³ Plot at Asser Levy



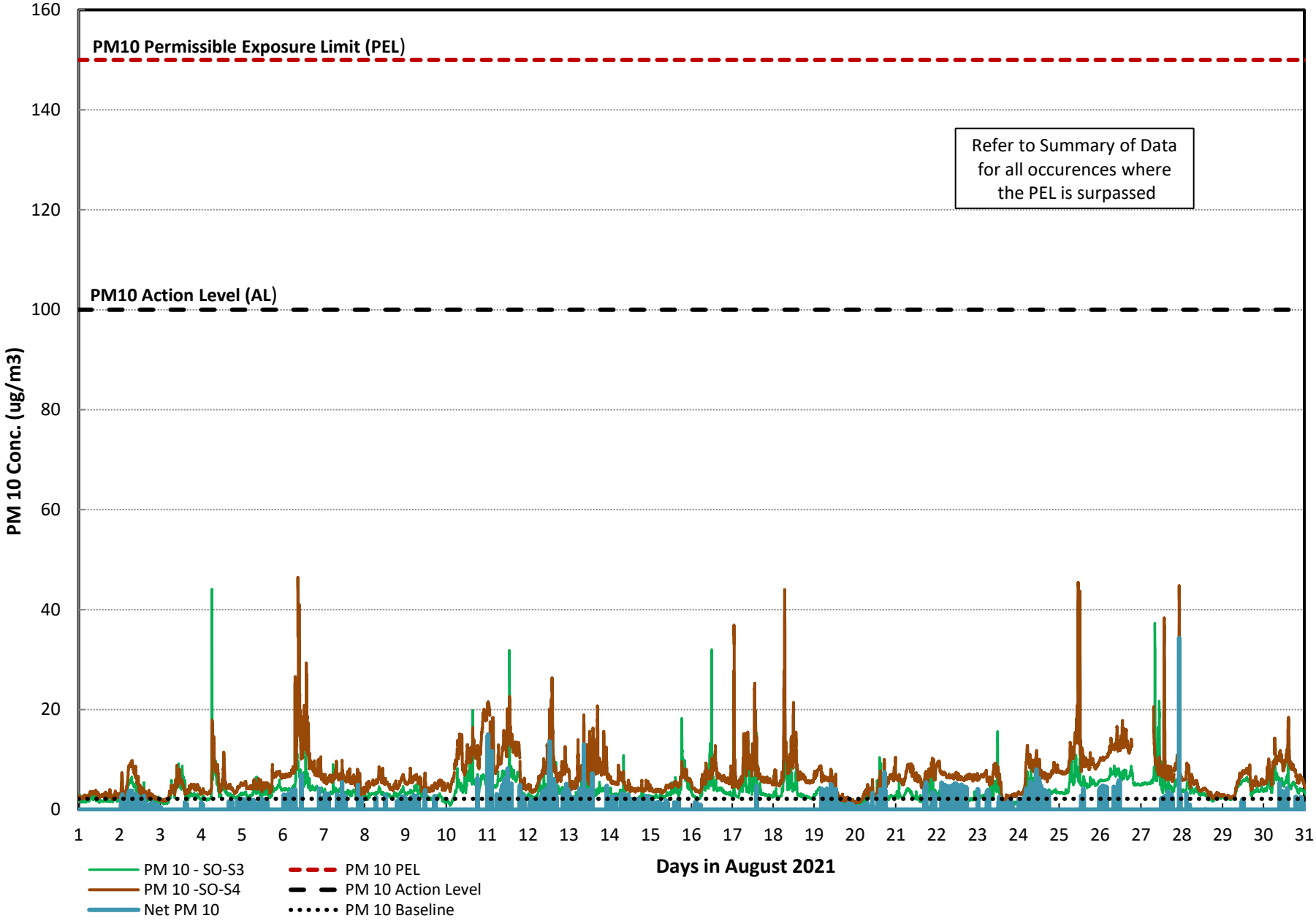
DISTINCT ENGINEERING SOLUTIONS, INC., P.C.

August 2021, 15-Minute Running Average Air Quality Data
PM 2.5 µg/m³ Plot at Solar One



DISTINCT ENGINEERING SOLUTIONS, INC., P.C.

August 2021, 15-Minute Running Average Air Quality Data
PM 10 µg/m³ Plot at Solar One



Summary of Data September 2021:

PM10 levels surpassed the Permissible Exposure Limit (PEL) for the 15-minute time weighted average at Asser Levy Playground for a short duration on September 23. There were no PM10 readings recorded above the PEL at Solar One during the month of September.

PM2.5 levels surpassed the Permissible Exposure Limit (PEL) for the 15-minute TWA at Asser Levy Playground on 9/1, 9/16, 9/20, and 9/23. PM2.5 levels surpassed the PEL at Solar One on 9/20, 9/21, and 9/22.

For the month of September 2021, construction-related Particulate Matter (PM) net 2.5 or 10 levels did not surpass Daily Permissible Exposure Limits (PEL) (24-hour time weighted average).

PM 10 µg/m3

- **Asser Levy Playground (ALP):** PM10 µg/m3 levels surpassed the Permissible Exposure Limit (15-minute TWA) when high levels were recorded for a duration of 10 minutes on 9/23.
- **Solar One (SO):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).

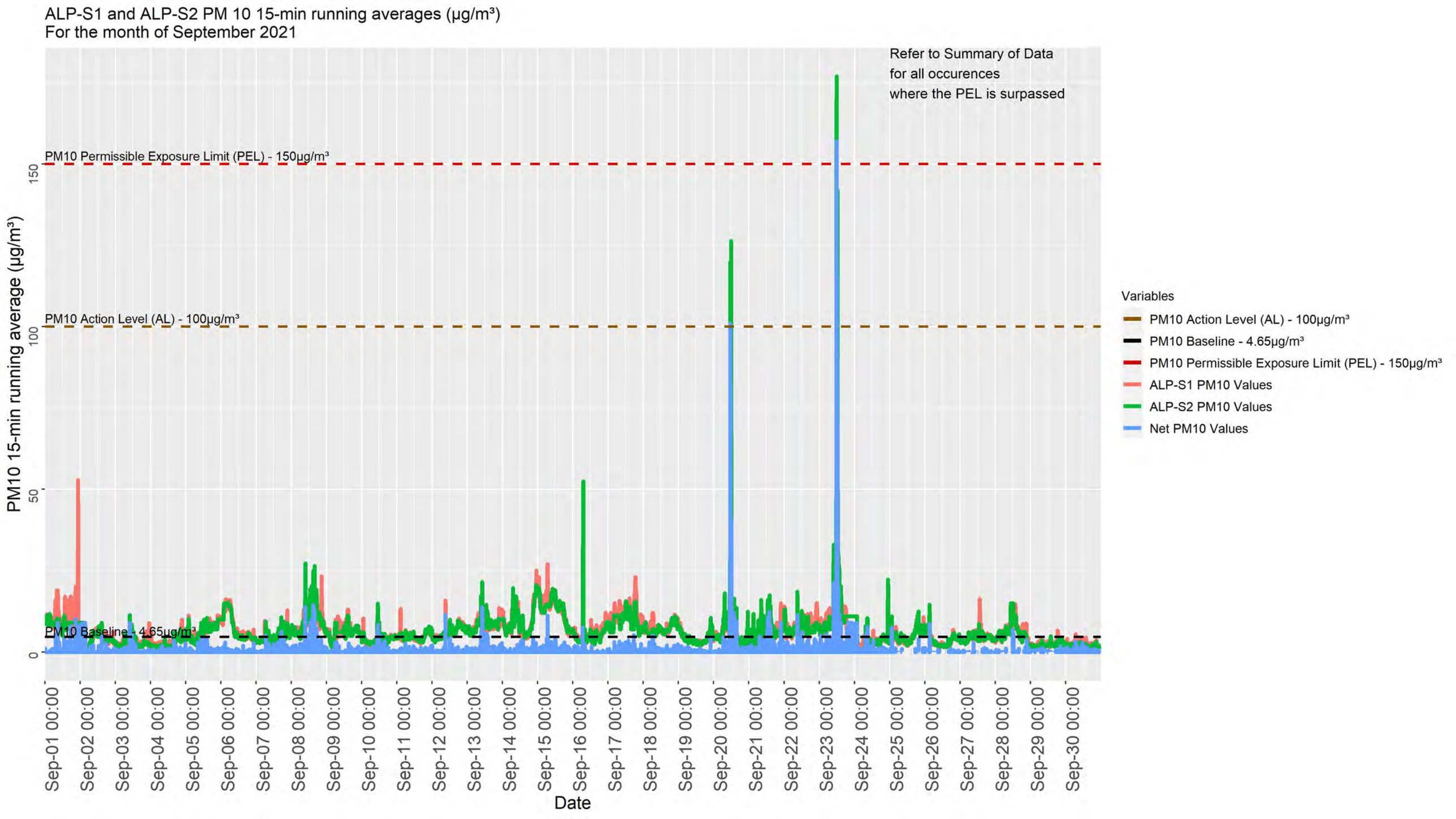
PM 2.5 µg/m3

- **Asser Levy Playground (ALP):** PM2.5 µg/m3 levels surpassed the PEL on four occasions in September (9/1, 9/16, 9/20, and 9/23) over durations ranging from 15 to 51 minutes. All levels in excess of the PEL were recorded at monitor ALP-S2. At the time of these increased PM2.5 levels, an excavator was sitting less than 10 ft from the monitor and the suspected cause of the spikes in PM levels was exhaust from this support machine. This was a very localized event (evidenced by readings at ALP-S1 being consistently well below the PEL or Action Level) adjacent to an area with limited pedestrians and it is determined that no fugitive dust migrated off site.
- **Solar One (SO):** PM2.5 levels slightly above the PEL were recorded at monitor SO-S4 on 9/20/21, 9/21/21 & 9/22/21 over durations ranging from 2 to 41 minutes. At the time of these increased readings, the downwind station was SO-03. The values measured at SO-S3 for these instances were well below both the Action and Permissible Exposure Limits showing that whatever was causing the minor spikes in PM2.5 levels did not migrate downwind and was localized at SO-S4 (at the intersection of 23rd street).

Mitigation Measures:

- For the events recorded at Solar One from 9/20-9/23/21, the Net PM 2.5 values did not surpass the PEL for the 15-minute time weighted average, meaning that there was no migration of particulate matter downwind or off-site.
- Construction activity was closely monitored, and dust mitigation techniques were continuously implemented to contain airborne particles due to construction activities.

SEPTEMBER 2021 DATA PLOTS


ALP-S1 and ALP-S2 PM 10 15-min running averages (µg/m³)
For the month of September 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Sep-01 00:00
Sep-02 00:00
Sep-03 00:00
Sep-04 00:00
Sep-05 00:00
Sep-06 00:00
Sep-07 00:00
Sep-08 00:00
Sep-09 00:00
Sep-10 00:00
Sep-11 00:00
Sep-12 00:00
Sep-13 00:00
Sep-14 00:00
Sep-15 00:00
Sep-16 00:00
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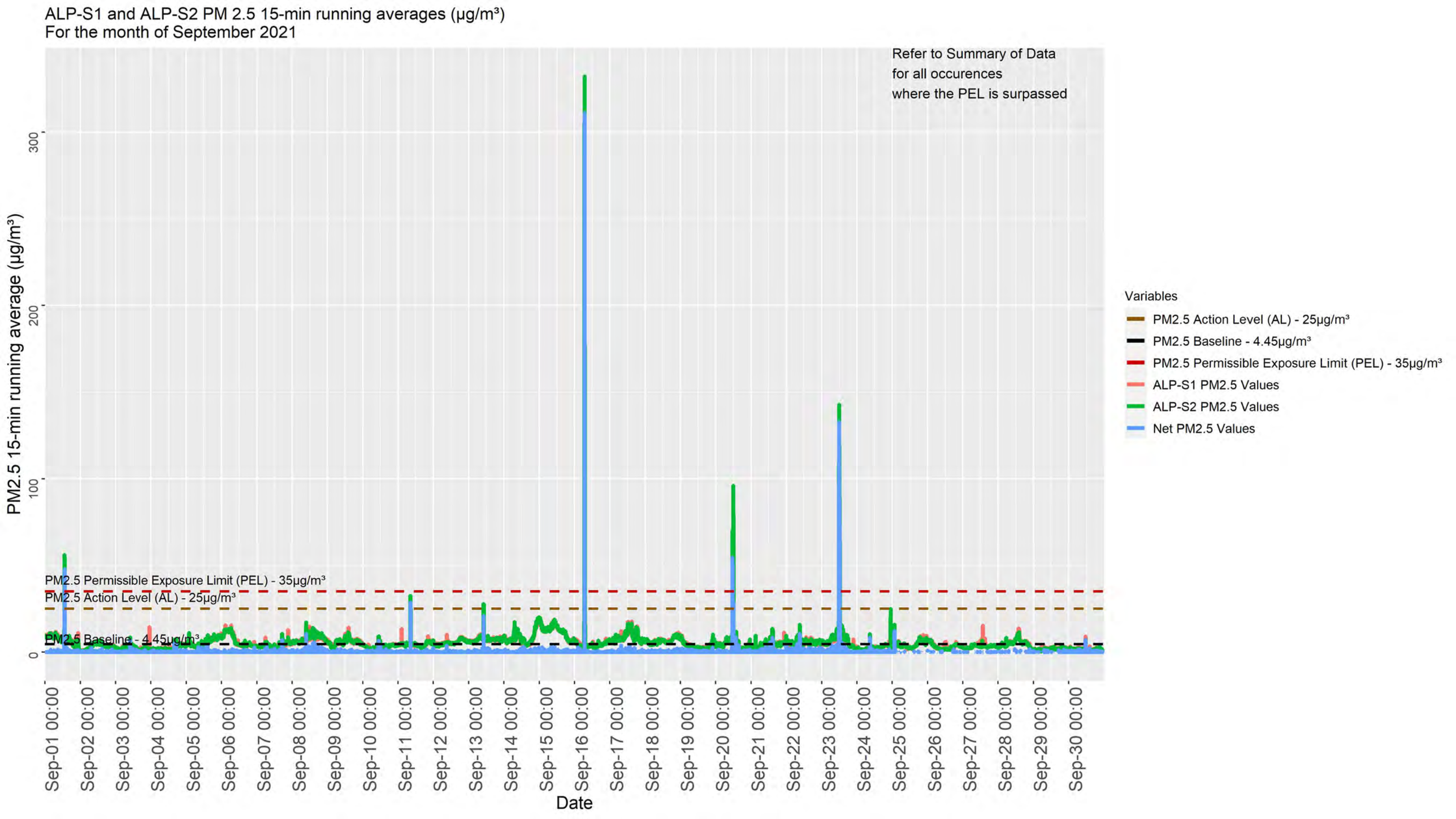
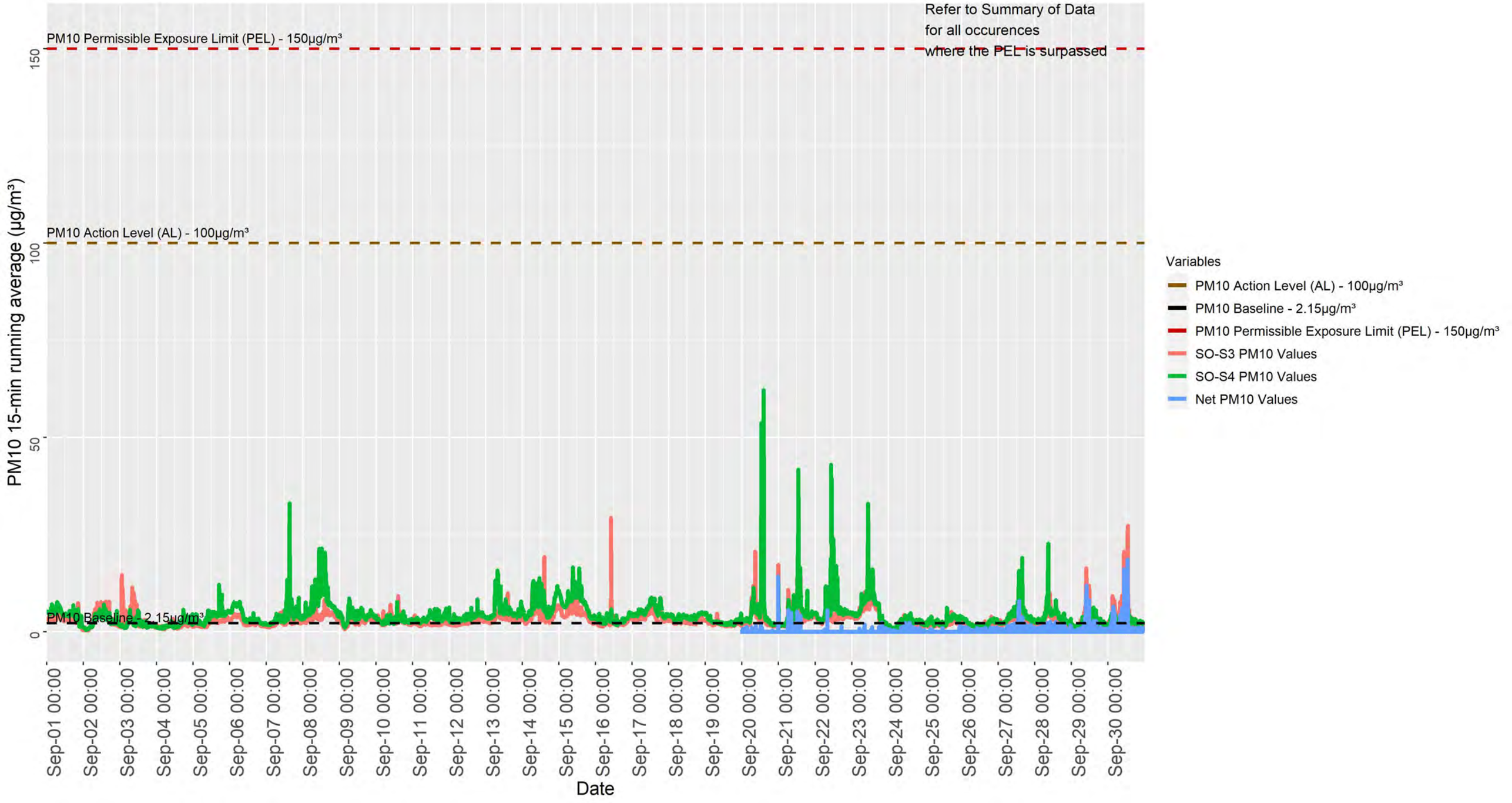
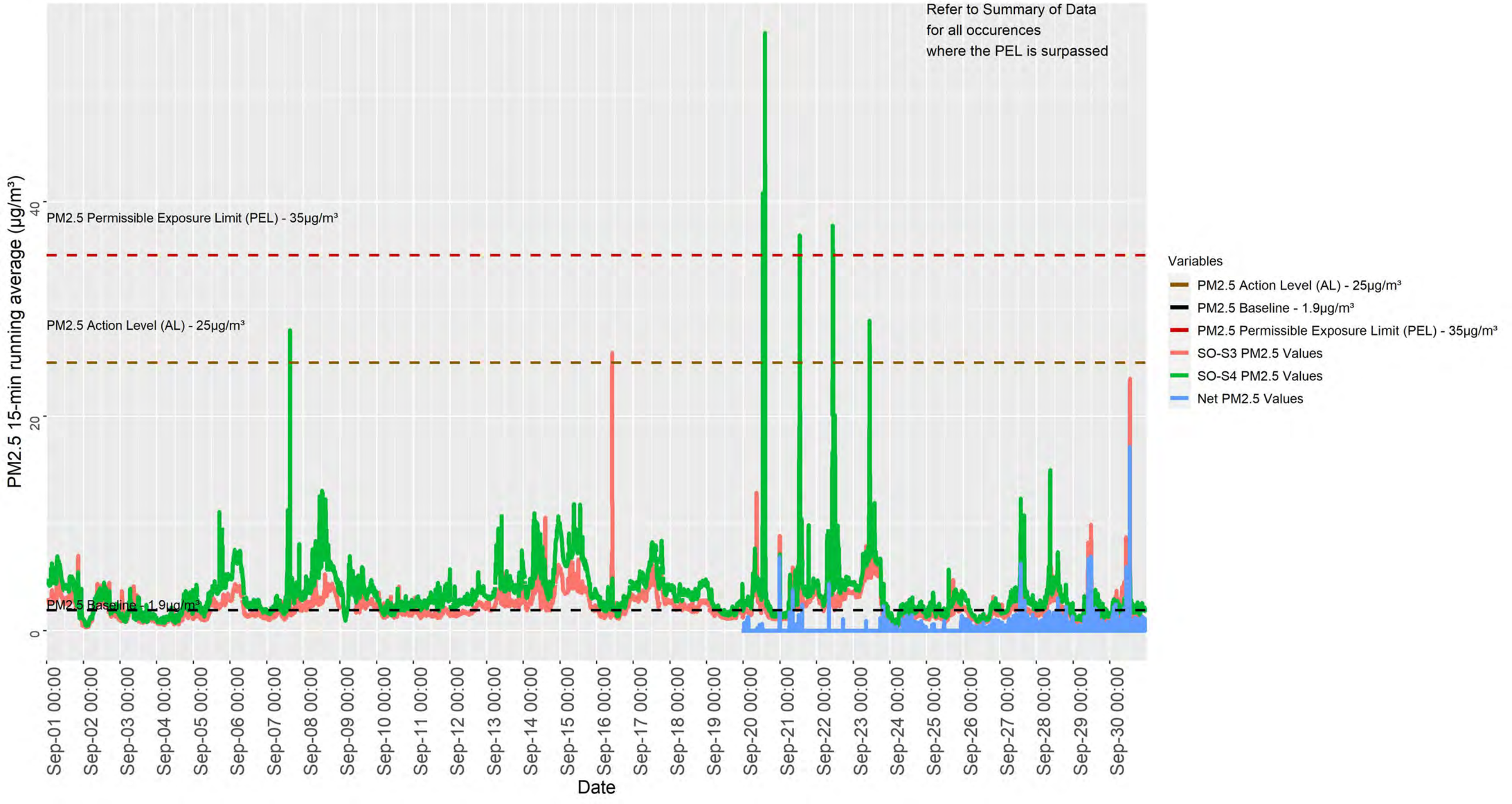
Sep-29 00:00
Sep-30 00:00
Date
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
ALP-S1 PM10 Values
ALP-S2 PM10 Values
Net PM10 Values


ALP-S1 and ALP-S2 PM 2.5 15-min running averages (µg/m³)
For the month of September 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 15-min running average (µg/m³)
0
100
200
300
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
Sep-01 00:00
Sep-02 00:00
Sep-03 00:00
Sep-04 00:00
Sep-05 00:00
Sep-06 00:00
Sep-07 00:00
Sep-08 00:00
Sep-09 00:00
Sep-10 00:00
Sep-11 00:00
Sep-12 00:00
Sep-13 00:00
Sep-14 00:00
Sep-15 00:00
Sep-16 00:00
Sep-17 00:00
Sep-18 00:00
Sep-19 00:00
Sep-20 00:00
Sep-21 00:00
Sep-22 00:00
Sep-23 00:00
Sep-24 00:00
Sep-25 00:00
Sep-26 00:00
Sep-27 00:00
Sep-28 00:00
Sep-29 00:00
Sep-30 00:00
Date
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
ALP-S1 PM2.5 Values
ALP-S2 PM2.5 Values
Net PM2.5 Values

SO-S3 and SO-S4 PM10 15-min running averages (µg/m³)
For the month of September 2021



SO-S3 and SO-S4 PM2.5 15-min running averages (µg/m³)
For the month of September 2021



Summary of Data October 2021:

On October 12, SO-S3 was moved further south to accommodate construction work progress.

There were no PM10 readings recorded above the Permissible Exposure Limit (PEL) at Solar One and Asser Levy Playground in the month of October.

PM2.5 readings showed levels above the PEL (15-minute TWA) in Asser Levy Playground on October 15, 2021. PM2.5 readings showed levels above the PEL (15-minute TWA) at Solar One/Stuyvesant Cove Park on October 4 and 21, 2021.

For the month of October 2021, construction related Particulate Matter (PM) net 2.5 or 10 levels did not surpass Daily Permissible Exposure Limits (PEL) (24-hour time weighted average).

PM 10 µg/m3

- **Asser Levy Playground (ALP):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).
- **Solar One (SO):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).

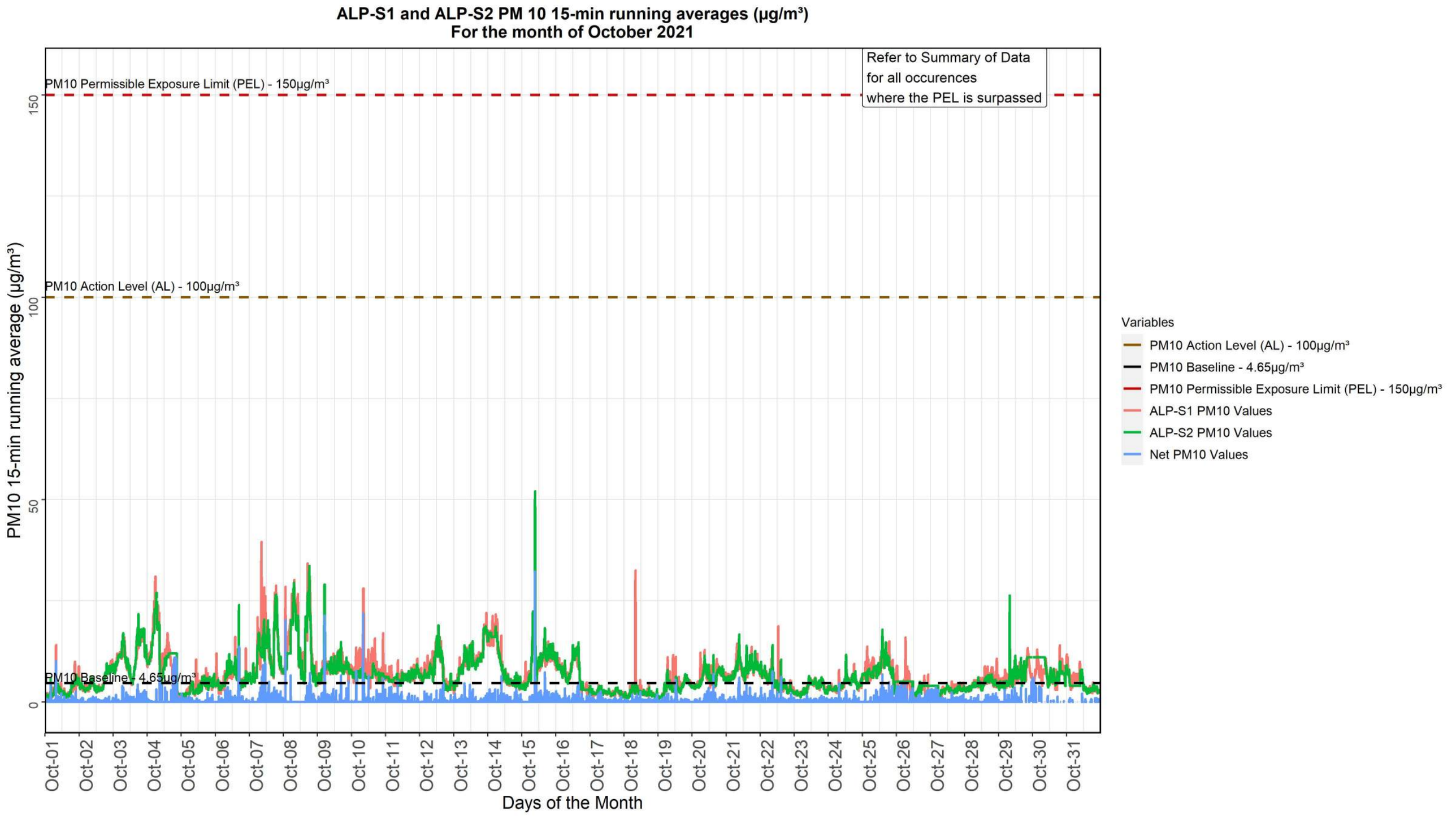
PM 2.5 µg/m3

- **Asser Levy Playground (ALP):** Net PM2.5 µg/m3 levels slightly above the PEL were recorded at the ALP-02 monitor on 10/15/21 at 9:16 am for a duration of 15 minutes. There was no construction activity occurring adjacent to this monitor during this time period or on this day, and the spike in PM2.5 levels coincides with coffee break which is taken from 9:00 am – 9:30 am. A number of cars park near the ALP-02 monitor and it was concluded that this reading was due to someone turning on their vehicle during coffee break, and not related to construction activities.
- **Solar One (SO):** Increased PM2.5 µg/m3 levels were recorded on two occasions, however the Net PM did not surpass the PEL for these events:
    1. On 10/4/21, PM2.5 levels above the PEL were recorded at monitor SO-03 (at the intersection of East 20th Street and Ave C) starting at 6:50 am for a duration of 27 minutes. As these readings above the PEL started prior to the start of the construction shift (which starts shortly after 7:00 am) and ended just after the start of the shift, the reason for these readings is concluded to be from idling dump trucks waiting to enter the site.
    2. On 10/21/21, PM2.5 levels slightly above the PEL were recorded at monitor SO-04 (at the intersection of East 18th Street and Ave C) for a duration of 12 minutes. As wind speeds were below 3 MPH and adjacent monitors did not show high readings for PM2.5 during this short period, it was concluded that the cause of the increase was very localized and did not migrate from this location.
- **Note:** Levels above the PEL were recorded at the Solar One monitors on 10/6/21. These readings were the result of routine maintenance on the monitors performed by the contractor's environmental specialist and not related to any particulate matter migrating from construction.

Mitigation Measures

- Construction activity was closely monitored, and dust mitigation techniques were continuously implemented to contain airborne particles due to construction activities.

OCTOBER 2021 DATA PLOTS


ALP-S1 and ALP-S2 PM 10 15-min running averages (µg/m³)
For the month of October 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Oct-01
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Oct-16
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Oct-18
Oct-19
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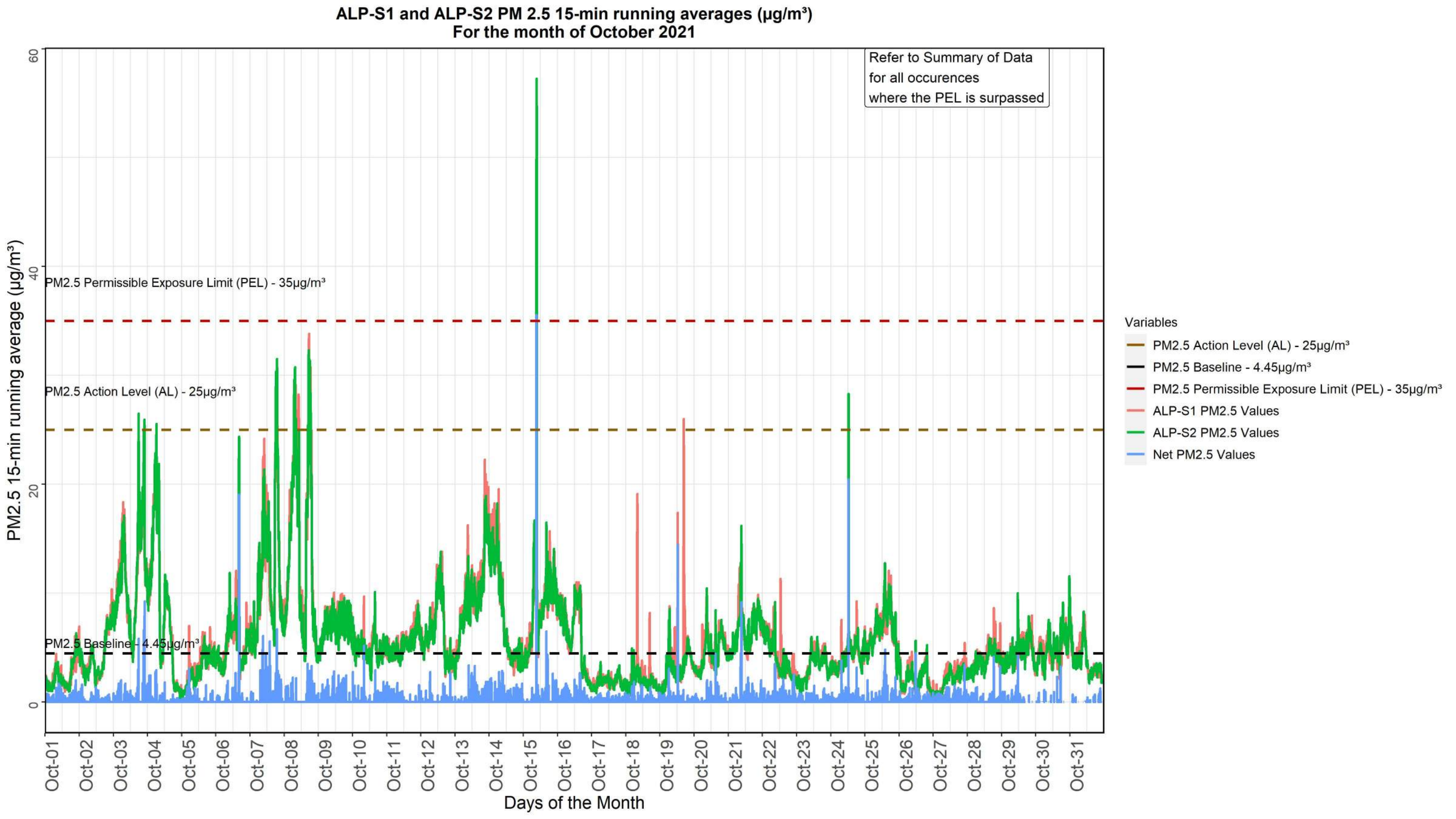
Oct-22
Oct-23
Oct-24
Oct-25
Oct-26
Oct-27
Oct-28
Oct-29
Oct-30
Oct-31
Days of the Month
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
ALP-S1 PM10 Values
ALP-S2 PM10 Values
Net PM10 Values


ALP-S1 and ALP-S2 PM 2.5 15-min running averages (µg/m³)
For the month of October 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
PM2.5 15-min running average (µg/m³)
0
20
40
60
Oct-01
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
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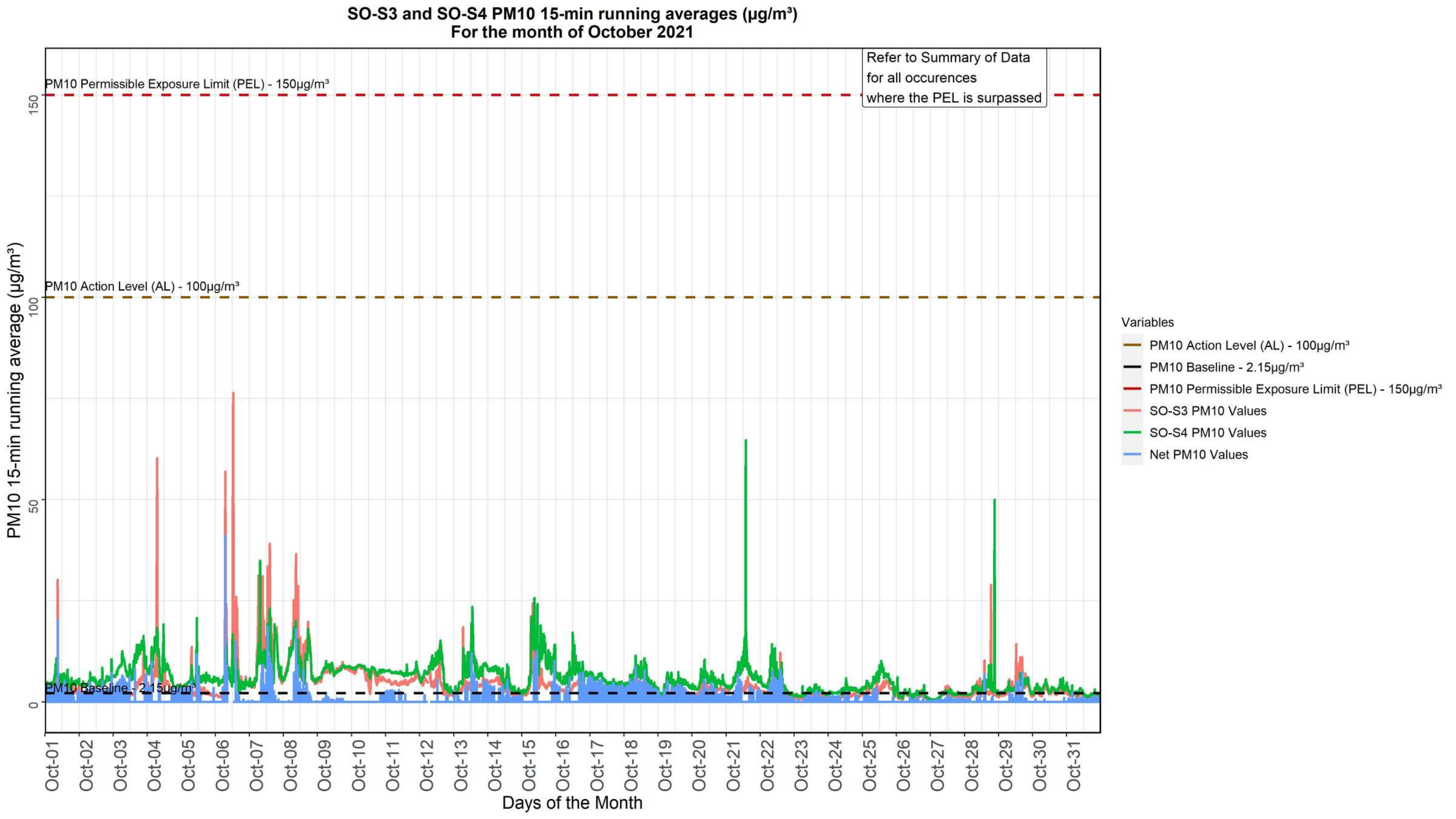
Oct-25
Oct-26
Oct-27
Oct-28
Oct-29
Oct-30
Oct-31
Days of the Month
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
ALP-S1 PM2.5 Values
ALP-S2 PM2.5 Values
Net PM2.5 Values


SO-S3 and SO-S4 PM10 15-min running averages (µg/m³)
For the month of October 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 2.15µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Oct-01
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Oct-16
Oct-17
Oct-18
Oct-19
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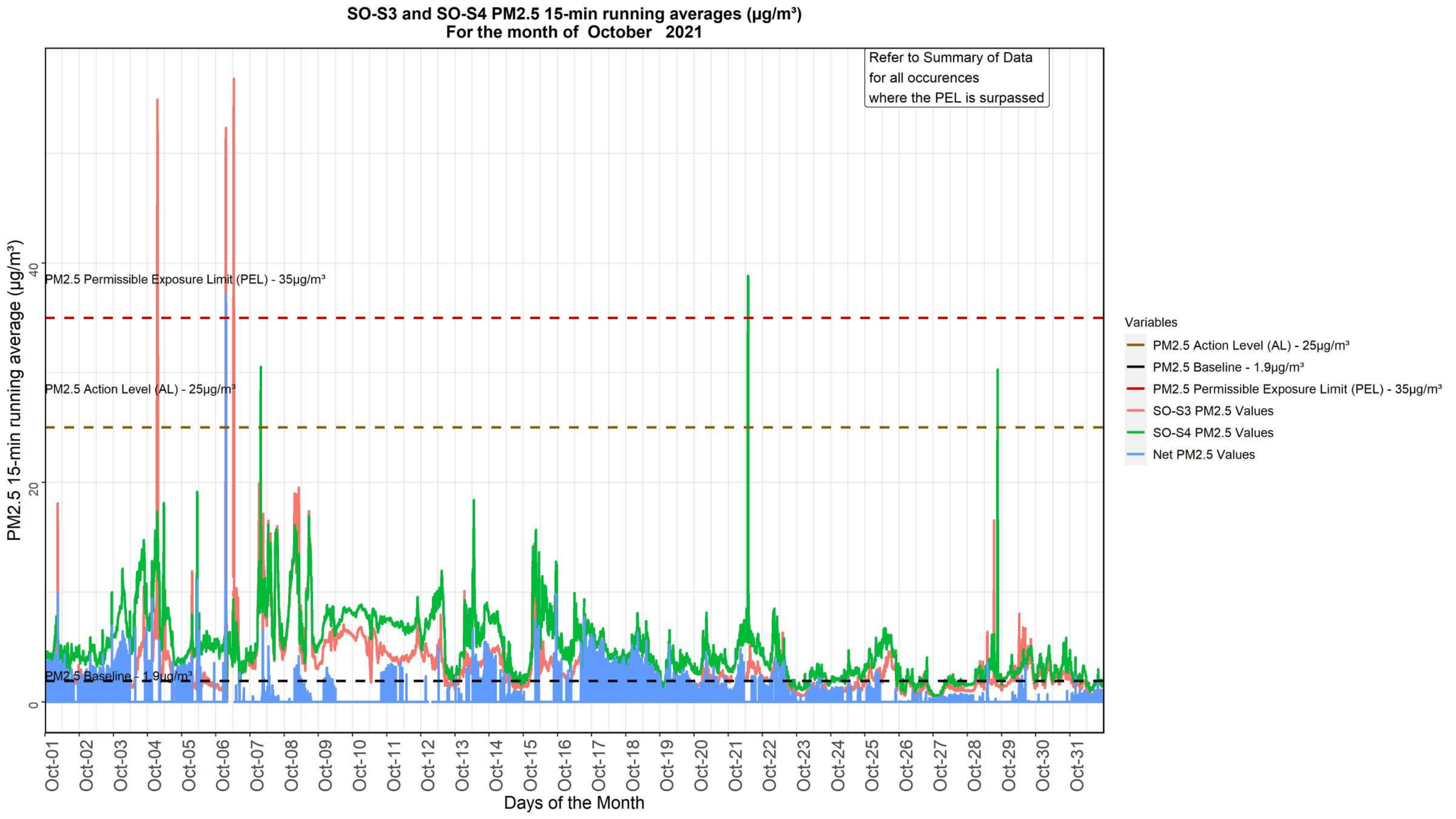
Oct-21
Oct-22
Oct-23
Oct-24
Oct-25
Oct-26
Oct-27
Oct-28
Oct-29
Oct-30
Oct-31
Days of the Month
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 2.15µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
SO-S3 PM10 Values
SO-S4 PM10 Values
Net PM10 Values


SO-S3 and SO-S4 PM2.5 15-min running averages (µg/m³)
For the month of October 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 15-min running average (µg/m³)
0
20
40
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 1.9µg/m³
Oct-01
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
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Oct-25
Oct-26
Oct-27
Oct-28
Oct-29
Oct-30
Oct-31
Days of the Month
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 1.9µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
SO-S3 PM2.5 Values
SO-S4 PM2.5 Values
Net PM2.5 Values

Summary of Data November 2021:

There were no PM10 readings recorded above the Permissible Exposure Limit (PEL) at Solar One and Asser Levy Playground in the month of November.

There were two occasions where the PM2.5 readings were above the Permissible Exposure Limit (15-minute TWA) at Asser Levy Playground for the month of November. The PM2.5 readings were below the Permissible Exposure Limit at Solar One.

For the month of November 2021, construction related Particulate Matter (PM) net 2.5 or 10 levels did not surpass Daily Permissible Exposure Limits (PEL) (24-hour time weighted average).

PM10 µg/m3

- **Asser Levy Playground (ALP):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).
- **Solar One (SO):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).

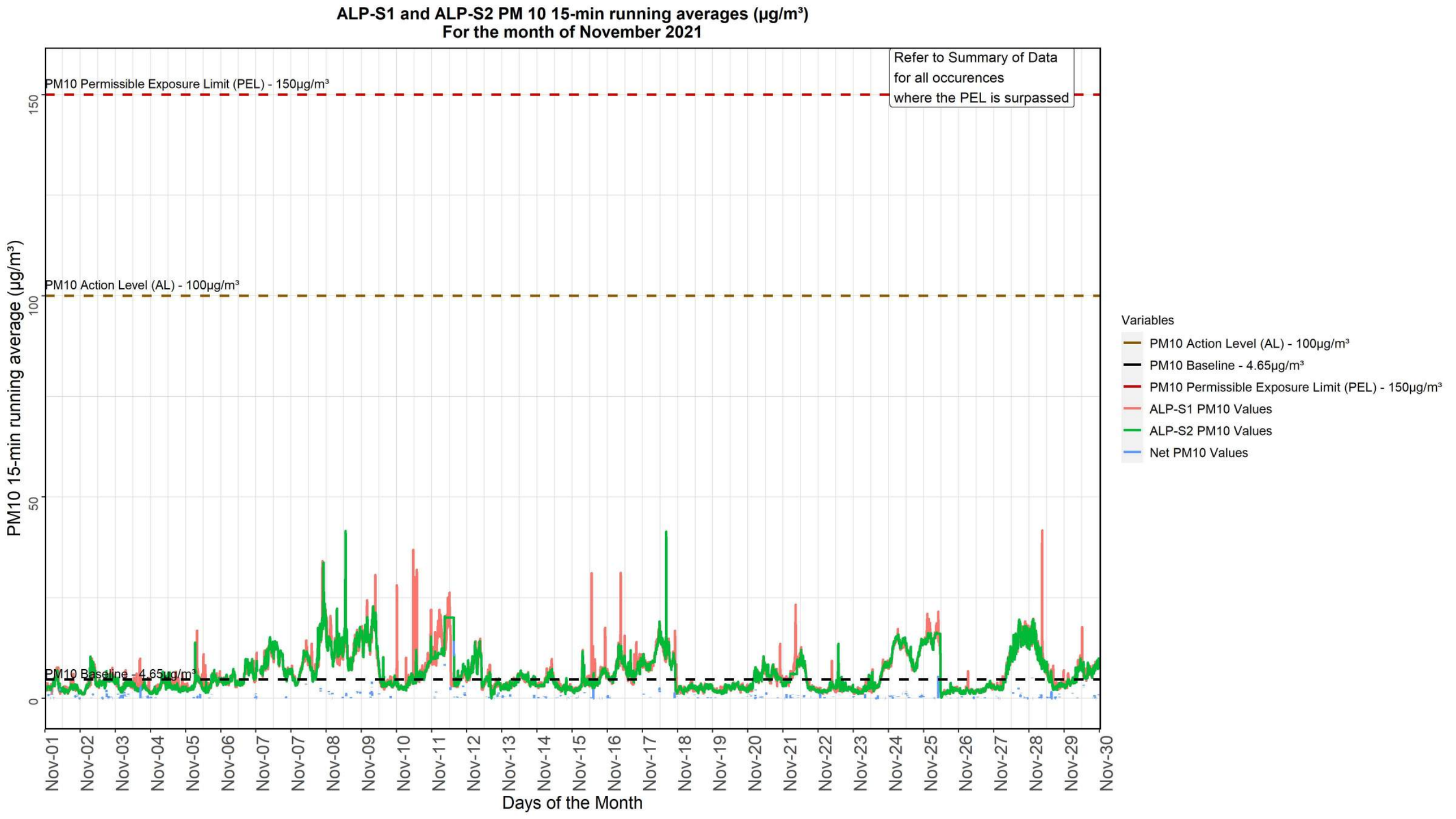
PM2.5 µg/m3

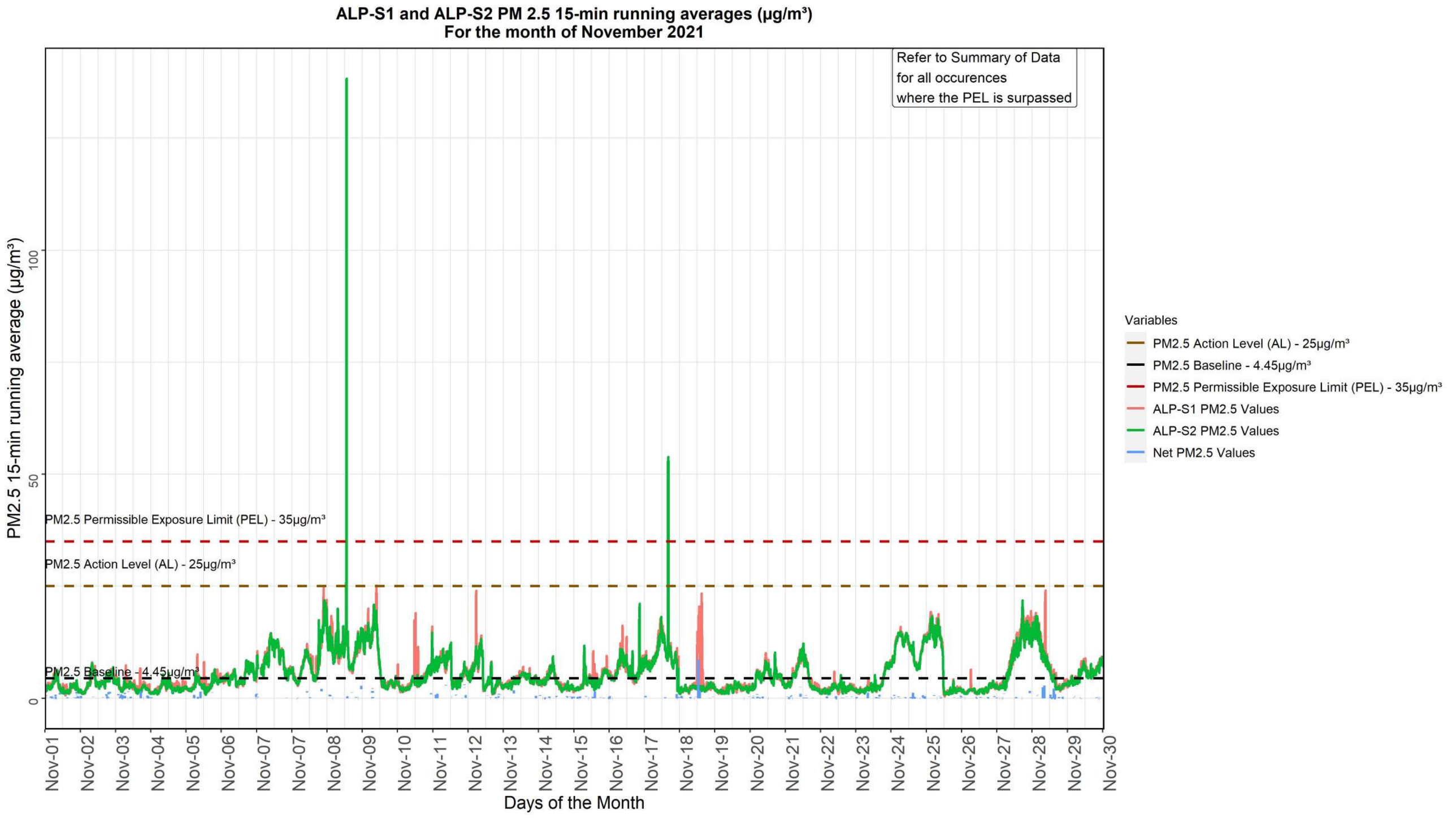
- **Asser Levy Playground (ALP):** PM2.5 µg/m3 levels surpassed the Permissible Exposure Limit (PEL) at the ALP-02 monitor on two occasions when there was no construction activity occurring adjacent to the monitor. The Net PM did not surpass the PEL on either occasion.
    1. On 11/9/21, PM levels increased for a 15-minute duration just after noon, which coincides with lunch break (12:00 pm to 12:30 pm).
    2. On 11/18/21, PM levels increased for a 15-minute duration starting at 3:11 pm, which coincides with the end of shift (typically 3:15 pm to 3:30 pm).
- It was concluded that these readings are a result of car exhaust from idling vehicles adjacent to the monitor. Many cars park near this monitor adjacent to the entrance of the Asser Levy Recreation Center.
- **Solar One (SO):** PM2.5 µg/m3 levels remained under the Permissible Exposure Limit (PEL).

Mitigation Action

- Construction activity was closely monitored, and dust mitigation techniques were continuously implemented to contain airborne particles due to construction activities.

NOVEMBER 2021 DATA PLOTS


ALP-S1 and ALP-S2 PM 10 15-min running averages (µg/m³)
For the month of November 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Nov-01
Nov-02
Nov-03
Nov-04
Nov-05
Nov-06
Nov-07
Nov-07
Nov-08
Nov-09
Nov-10
Nov-11
Nov-12
Nov-13
Nov-14
Nov-15
Nov-16
Nov-17
Nov-18
Nov-19
Nov-20
Nov-21
Nov-22
Nov-23
Nov-24
Nov-25
Nov-26
Nov-27
Nov-28
Nov-29
Nov-30
Days of the Month
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
ALP-S1 PM10 Values
ALP-S2 PM10 Values
Net PM10 Values


ALP-S1 and ALP-S2 PM 2.5 15-min running averages (µg/m³)
For the month of November 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 15-min running average (µg/m³)
0
50
100
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
Nov-01
Nov-02
Nov-03
Nov-04
Nov-05
Nov-06
Nov-07
Nov-07
Nov-08
Nov-09
Nov-10
Nov-11
Nov-12
Nov-13
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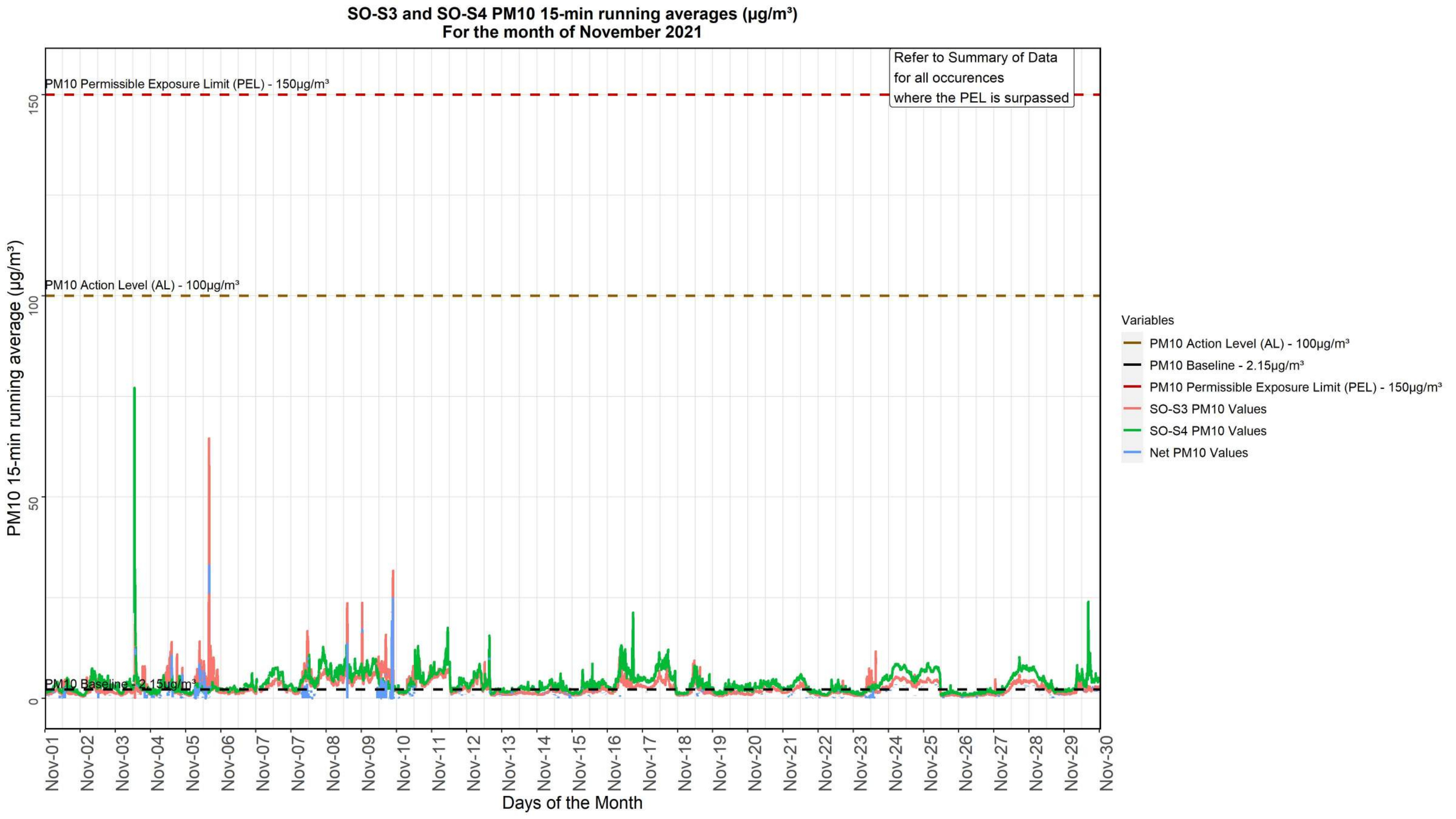
Nov-15
Nov-16
Nov-17
Nov-18
Nov-19
Nov-20
Nov-21
Nov-22
Nov-23
Nov-24
Nov-25
Nov-26
Nov-27
Nov-28
Nov-29
Nov-30
Days of the Month
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
ALP-S1 PM2.5 Values
ALP-S2 PM2.5 Values
Net PM2.5 Values


SO-S3 and SO-S4 PM10 15-min running averages (µg/m³)
For the month of November 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 2.15µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Nov-01
Nov-02
Nov-03
Nov-04
Nov-05
Nov-06
Nov-07
Nov-07
Nov-08
Nov-09
Nov-10
Nov-11
Nov-12
Nov-13
Nov-14
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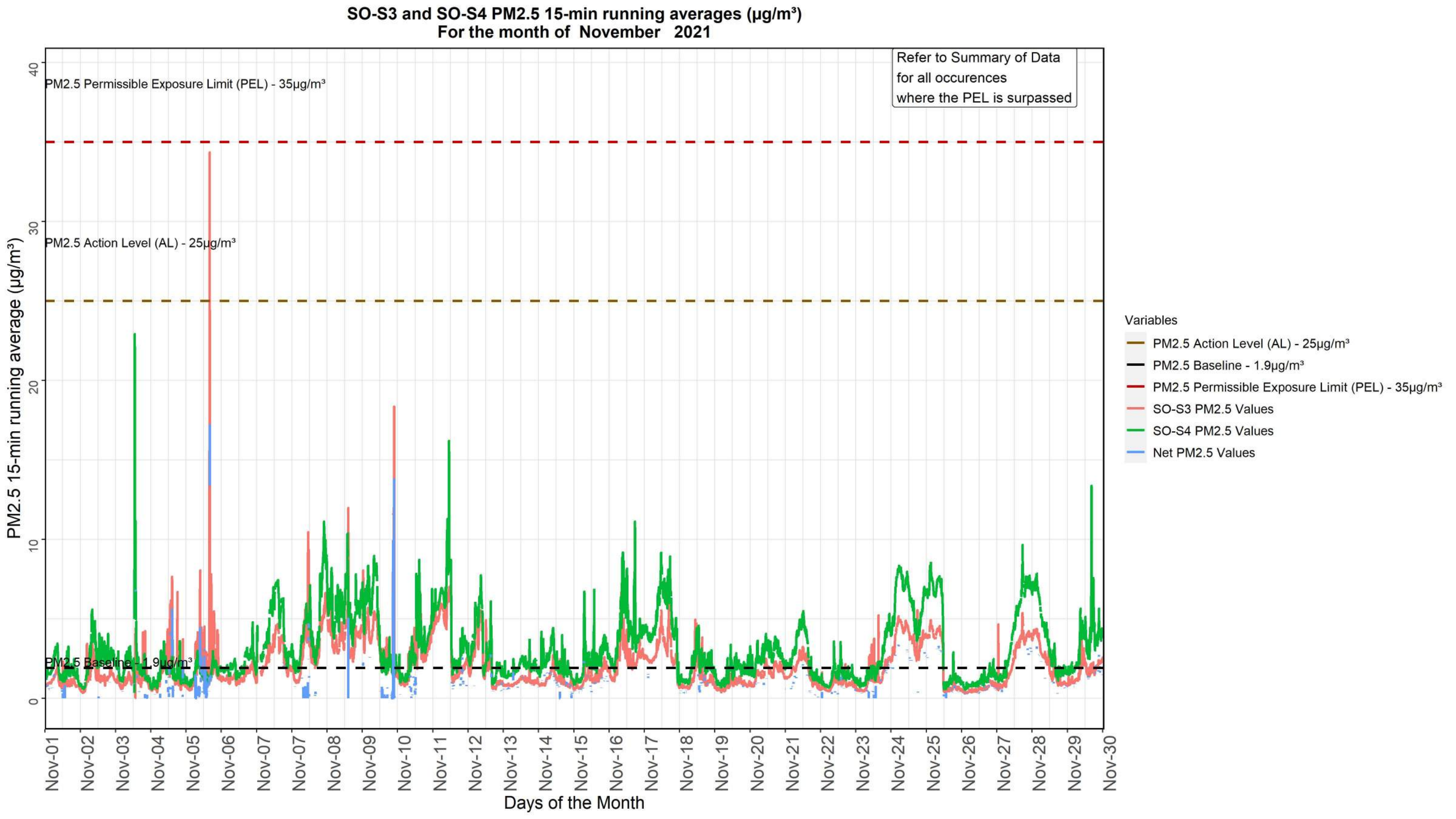
Nov-21
Nov-22
Nov-23
Nov-24
Nov-25
Nov-26
Nov-27
Nov-28
Nov-29
Nov-30
Days of the Month
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 2.15µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
SO-S3 PM10 Values
SO-S4 PM10 Values
Net PM10 Values


SO-S3 and SO-S4 PM2.5 15-min running averages (µg/m³)
For the month of November 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 1.9µg/m³
PM2.5 15-min running average (µg/m³)
0
10
20
30
40
Nov-01
Nov-02
Nov-03
Nov-04
Nov-05
Nov-06
Nov-07
Nov-07
Nov-08
Nov-09
Nov-10
Nov-11
Nov-12
Nov-13
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Nov-22
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Nov-24
Nov-25
Nov-26
Nov-27
Nov-28
Nov-29
Nov-30
Days of the Month
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 1.9µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
SO-S3 PM2.5 Values
SO-S4 PM2.5 Values
Net PM2.5 Values

Summary of Data December 2021:

PM levels remained under the Permissible Exposure Limit for PM10 at Asser Levy Playground and Solar One in the month of December.

PM levels surpassed the Permissible Exposure Limit (15-minute TWA) for PM2.5 at Asser Levy Playground on 12/10, 12/25, 12/29, 12/30, and 12/31. PM levels surpassed the Permissible Exposure Limit (15-minute TWA) for PM2.5 at Solar One on 12/10/21.

For the month of December 2021, construction related Particulate Matter (PM) net 2.5 or 10 levels did not surpass Daily Permissible Exposure Limits (PEL) (24-hour time weighted average).

PM10 µg/m3

- **Asser Levy Playground (ALP):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).
- **Solar One (SO):** PM10 µg/m3 levels remained under the Permissible Exposure Limit (PEL).

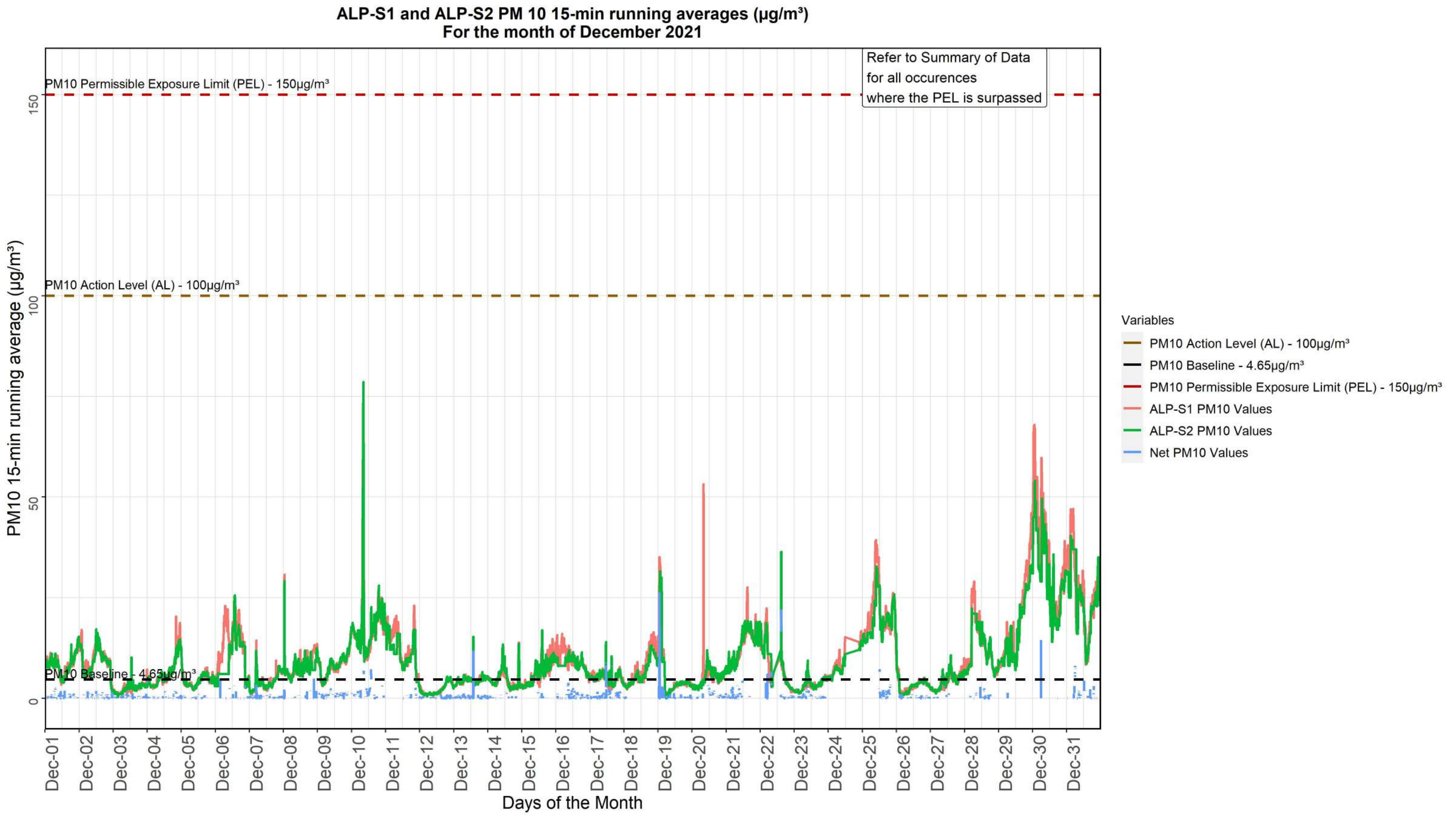
PM2.5 µg/m3

- **Asser Levy Playground (ALP):** PM2.5 µg/m3 levels surpassed the Permissible Exposure Limit (PEL) on five occasions, however the Net PM did not exceed the PEL.
    1. On 12/10/21, PM2.5 levels about the PEL were recorded for a duration of 50 minutes. These high readings were observed during morning rush, when there were a number of material deliveries and construction vehicles on-site/lining up to enter the site.
    2. On 12/25, 12/29, 12/30, and 12/31, the high levels of PM2.5 were recorded when there were no construction activities occurring and the majority of these were observed after hours/on the weekend/during an observed holiday.
- **Solar One (SO):** PM2.5 µg/m3 levels surpassed the Permissible Exposure Limit (PEL) on 12/10/21 for a duration of 18 minutes. The values recorded were only slightly over the PEL and the Net PM did not surpass it.

Mitigation Action

- Construction activity was closely monitored, and dust mitigation techniques were continuously implemented to contain airborne particles due to construction activities.

DECEMBER 2021 DATA PLOTS


ALP-S1 and ALP-S2 PM 10 15-min running averages (µg/m³)
For the month of December 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
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Dec-10
Dec-11
Dec-12
Dec-13
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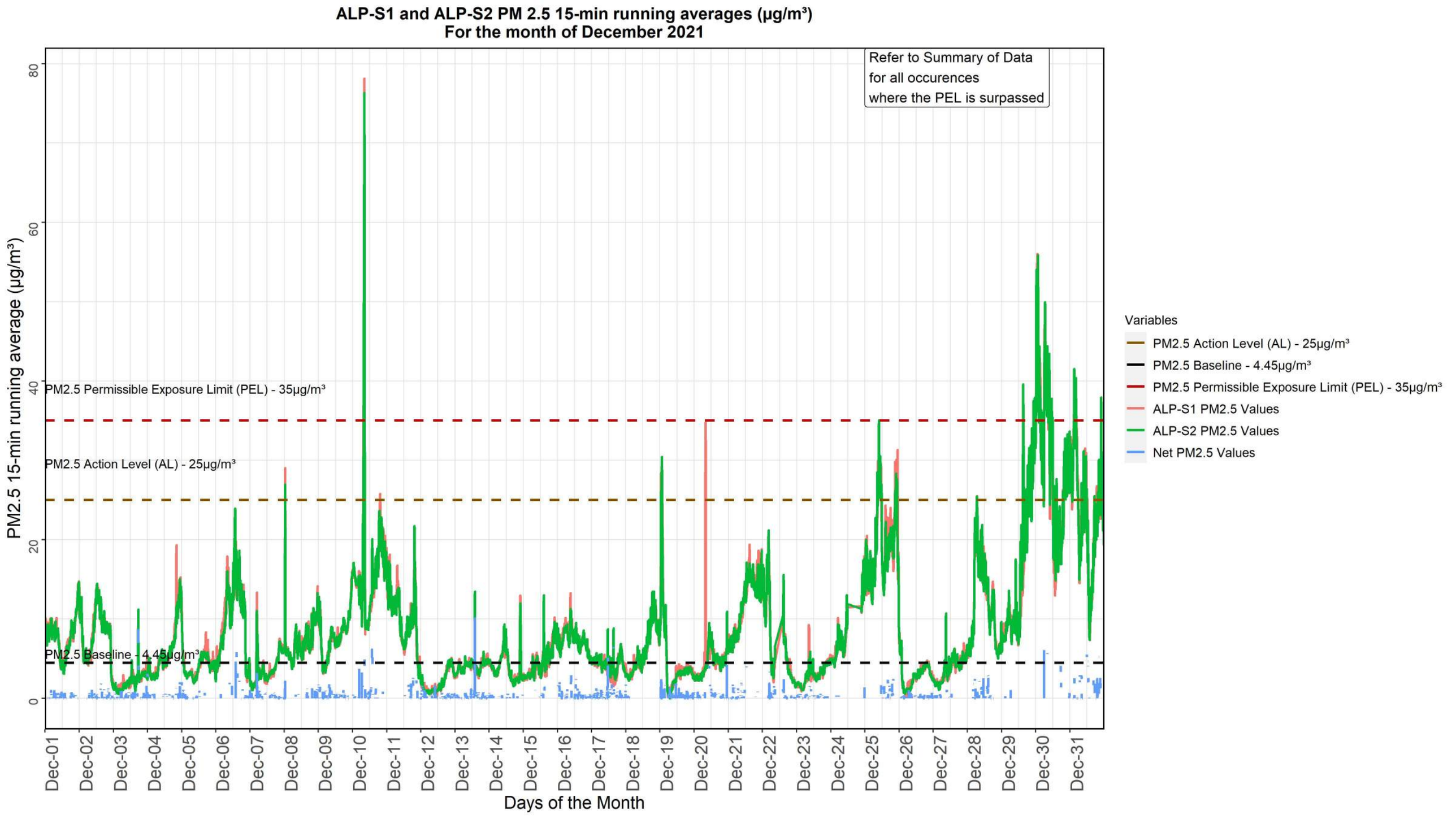
Dec-25
Dec-26
Dec-27
Dec-28
Dec-29
Dec-30
Dec-31
Days of the Month
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 4.65µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
ALP-S1 PM10 Values
ALP-S2 PM10 Values
Net PM10 Values


ALP-S1 and ALP-S2 PM 2.5 15-min running averages (µg/m³)
For the month of December 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 15-min running average (µg/m³)
0
20
40
60
80
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
Dec-01
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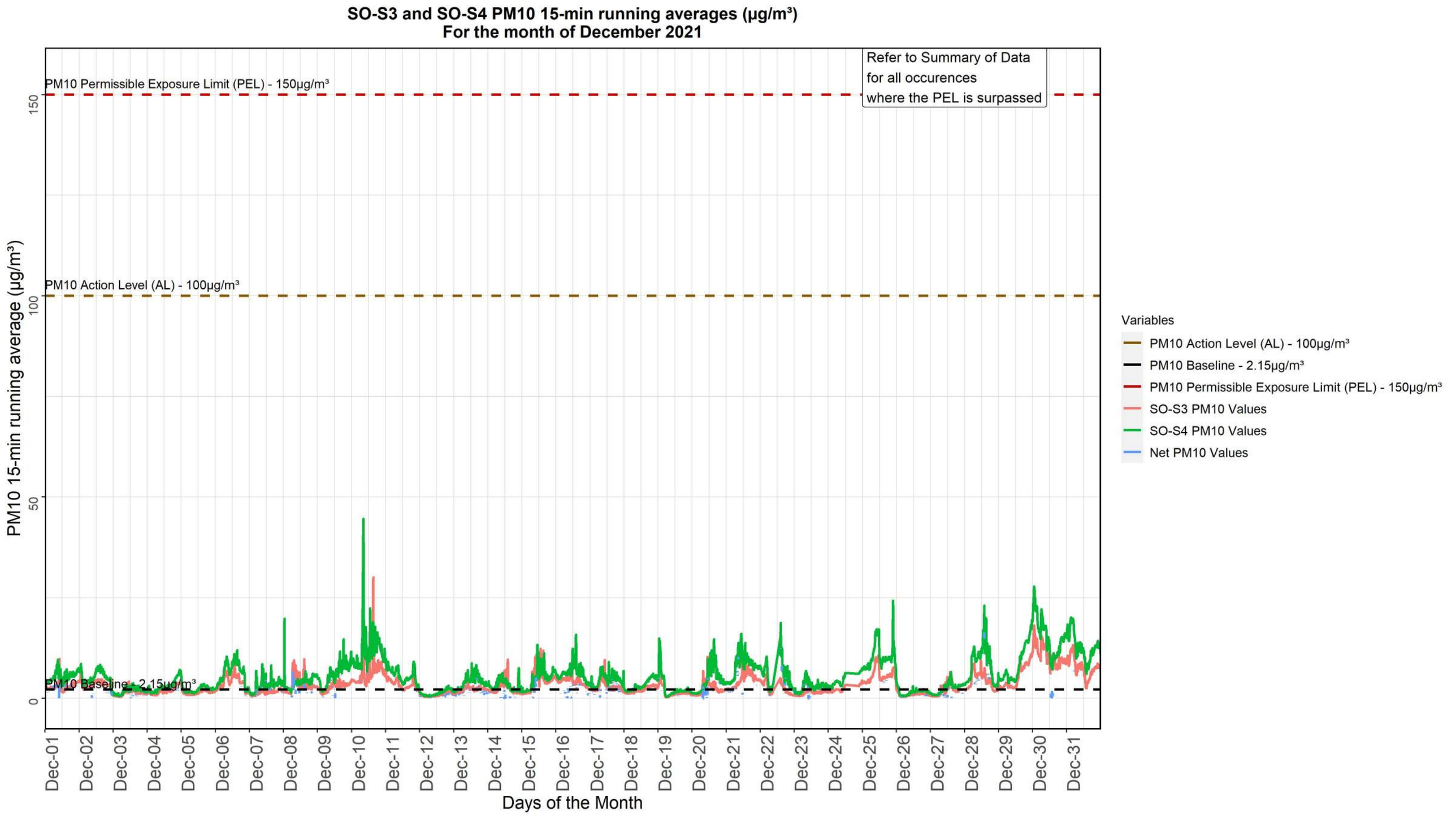
Dec-30
Dec-31
Days of the Month
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 4.45µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
ALP-S1 PM2.5 Values
ALP-S2 PM2.5 Values
Net PM2.5 Values


SO-S3 and SO-S4 PM10 15-min running averages (µg/m³)
For the month of December 2021
Refer to Summary of Data for all occurences where the PEL is surpassed
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 2.15µg/m³
PM10 15-min running average (µg/m³)
0
50
100
150
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
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Dec-09
Dec-10
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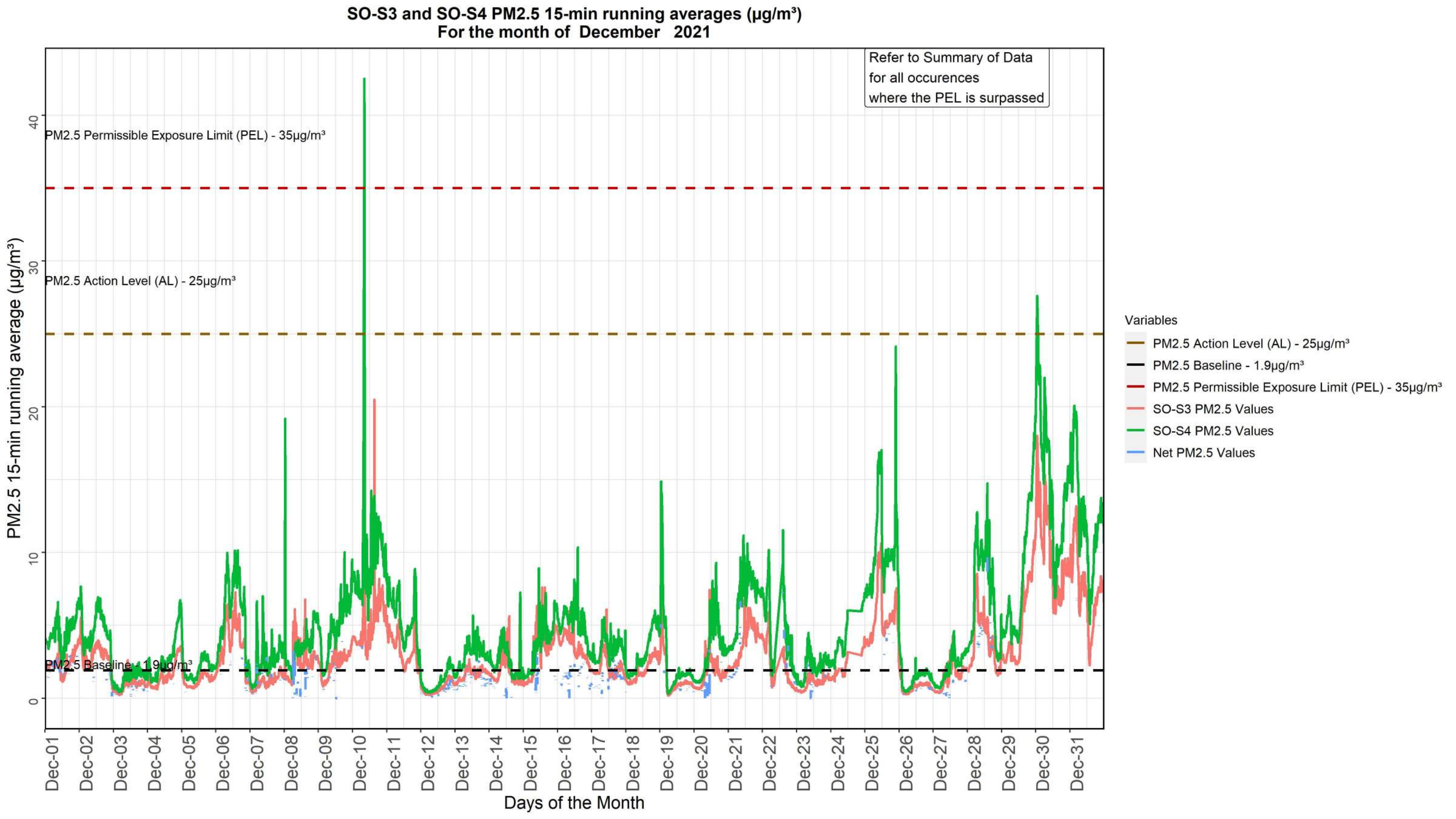
Dec-21
Dec-22
Dec-23
Dec-24
Dec-25
Dec-26
Dec-27
Dec-28
Dec-29
Dec-30
Dec-31
Days of the Month
Variables
PM10 Action Level (AL) - 100µg/m³
PM10 Baseline - 2.15µg/m³
PM10 Permissible Exposure Limit (PEL) - 150µg/m³
SO-S3 PM10 Values
SO-S4 PM10 Values
Net PM10 Values


SO-S3 and SO-S4 PM2.5 15-min running averages (µg/m³)
For the month of December 2021
Refer to Summary of Data
for all occurences
where the PEL is surpassed
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 1.9µg/m³
PM2.5 15-min running average (µg/m³)
0
10
20
30
40
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Dec-19
Dec-20
Dec-21
Dec-22
Dec-23
Dec-24
Dec-25
Dec-26
Dec-27
Dec-28
Dec-29
Dec-30
Dec-31
Days of the Month
Variables
PM2.5 Action Level (AL) - 25µg/m³
PM2.5 Baseline - 1.9µg/m³
PM2.5 Permissible Exposure Limit (PEL) - 35µg/m³
SO-S3 PM2.5 Values
SO-S4 PM2.5 Values
Net PM2.5 Values

APPENDIX

I. Project Area 2 Phasing

Project Area 2
The construction in Project Area 2 will occur in three main phases from north to south and will be staggered to minimize open space impacts. The construction timeline will be broken down as follows by area (subject to change):

- **Phase I:** Asser Levy Playground Flood Wall/Gates and Park Restoration: **Early 2021 to Mid-2022**
- **Phase I:** Stuyvesant Cove Park: Solar One Flood Wall and Gate: **Early 2021 to Late 2021**
- **Phase II & III:** Stuyvesant Cove Park Flood Wall and Restoration: **Mid-2021 to Mid-2024**
  ***Construction of Stuyvesant Cove Park will occur in phases, starting with closures from East 20th Street northwards and moving to the southern end of the Park upon completion of the northern side.
- **Phase IV:** Murphy Brothers Playground Flood Wall and Restoration: **Late 2022 to Late 2024**

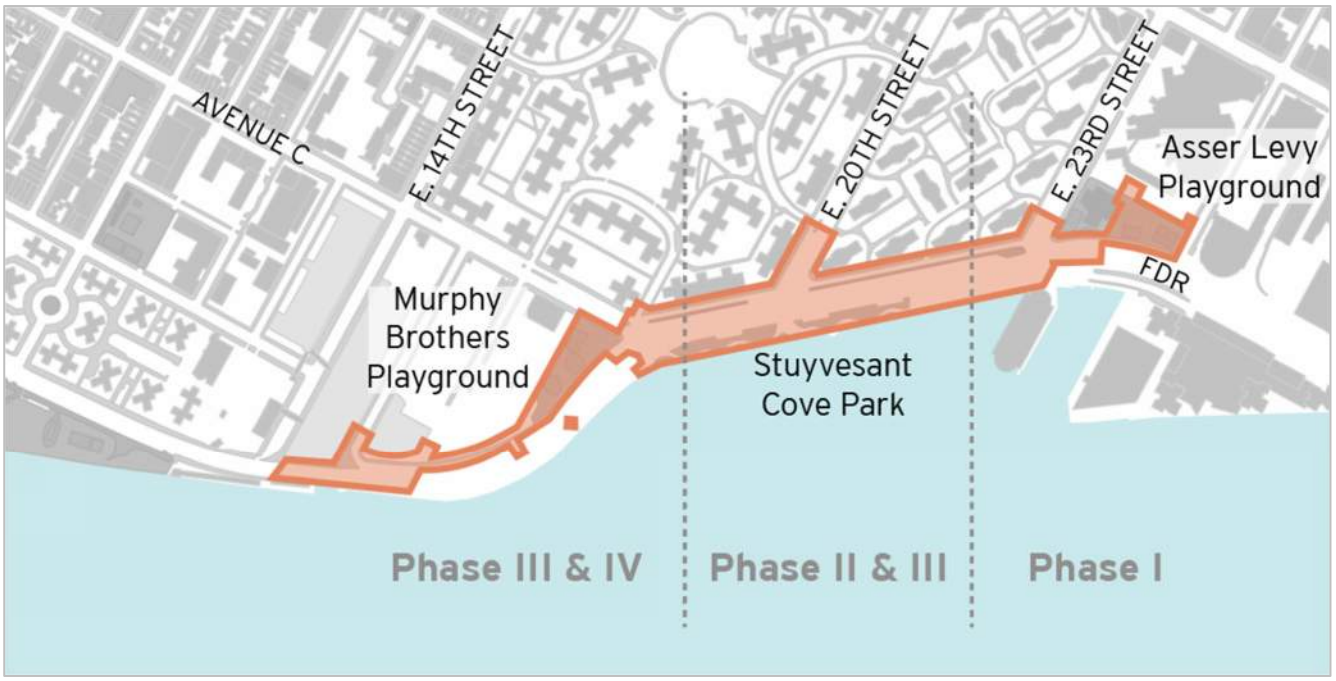


Fig.5 East Side Coastal Resiliency **Project Area 2** Proposed Phasing (subject to change)

II. 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 24hours, the ESCR project is analyzing levels more frequently at 15min 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. x East Side Coastal Resiliency Air Quality Monitoring Flow Chart*

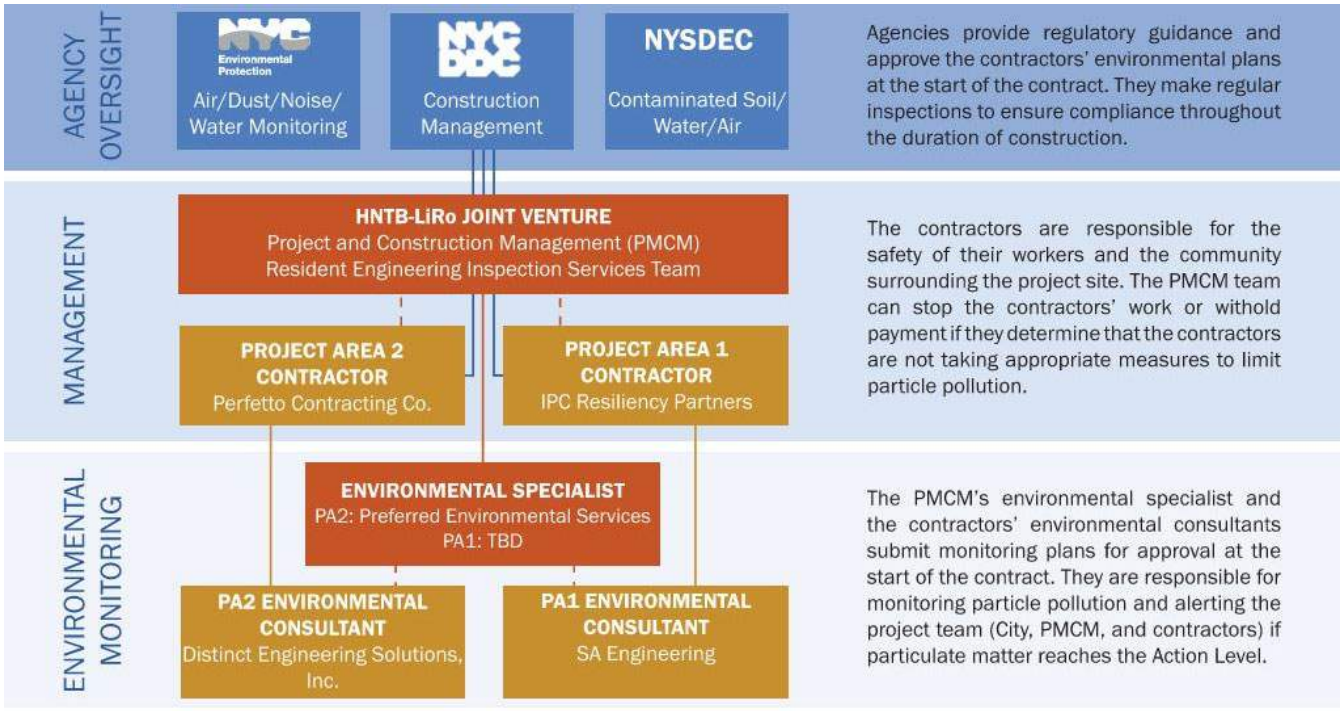
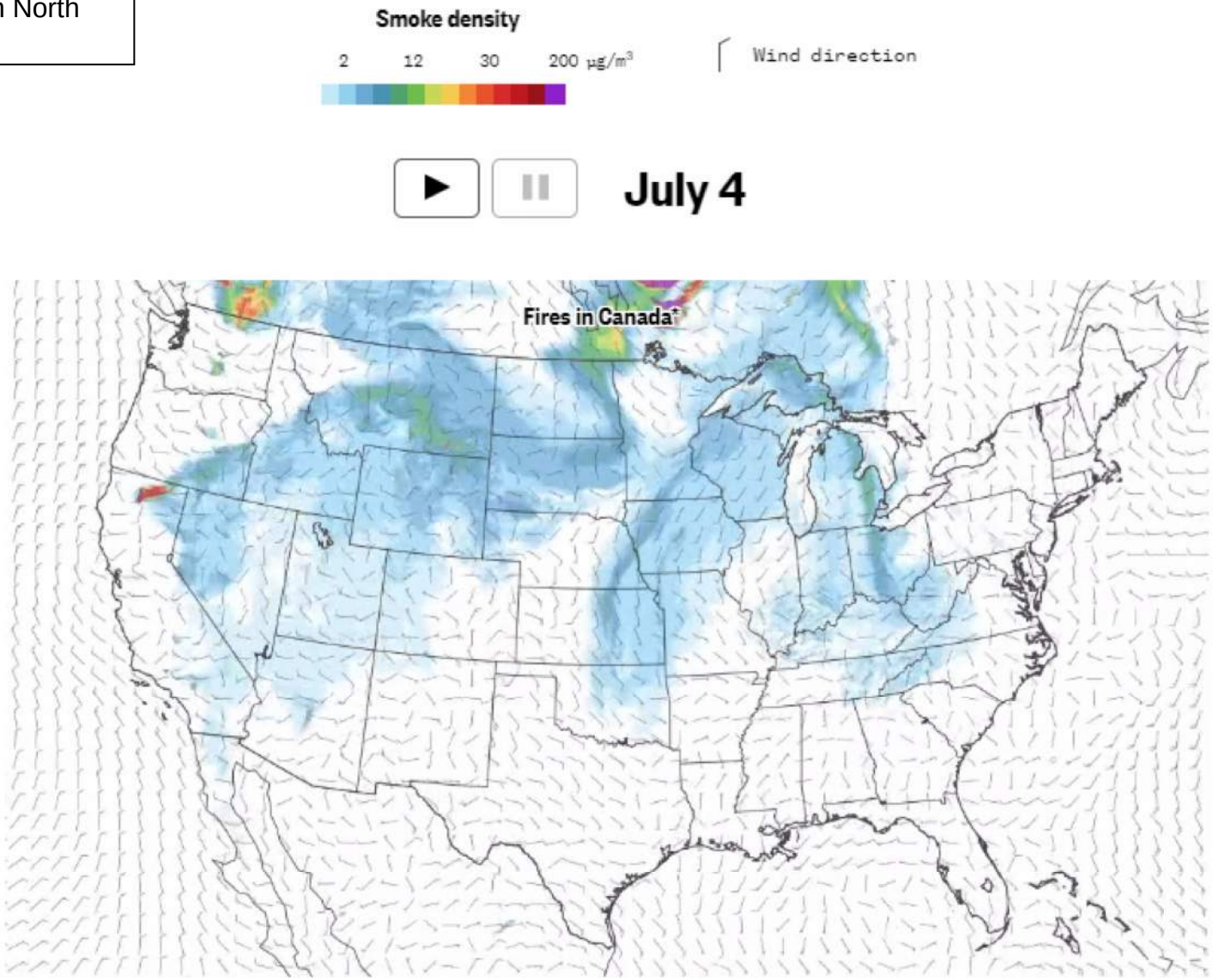


Fig.6 East Side Coastal Resiliency Air Quality Monitoring Flow Chart

III. July 2021 – Background Air Quality Data

The following figures include smoke density maps from the National Oceanic and Atmospheric Administration and PM 2.5 data from AQICN.org showing the impact of the west coast wildfires on air quality throughout New York City and the country during the month of July.

Data for smoke density measured across the USA due to wildfires in North America.

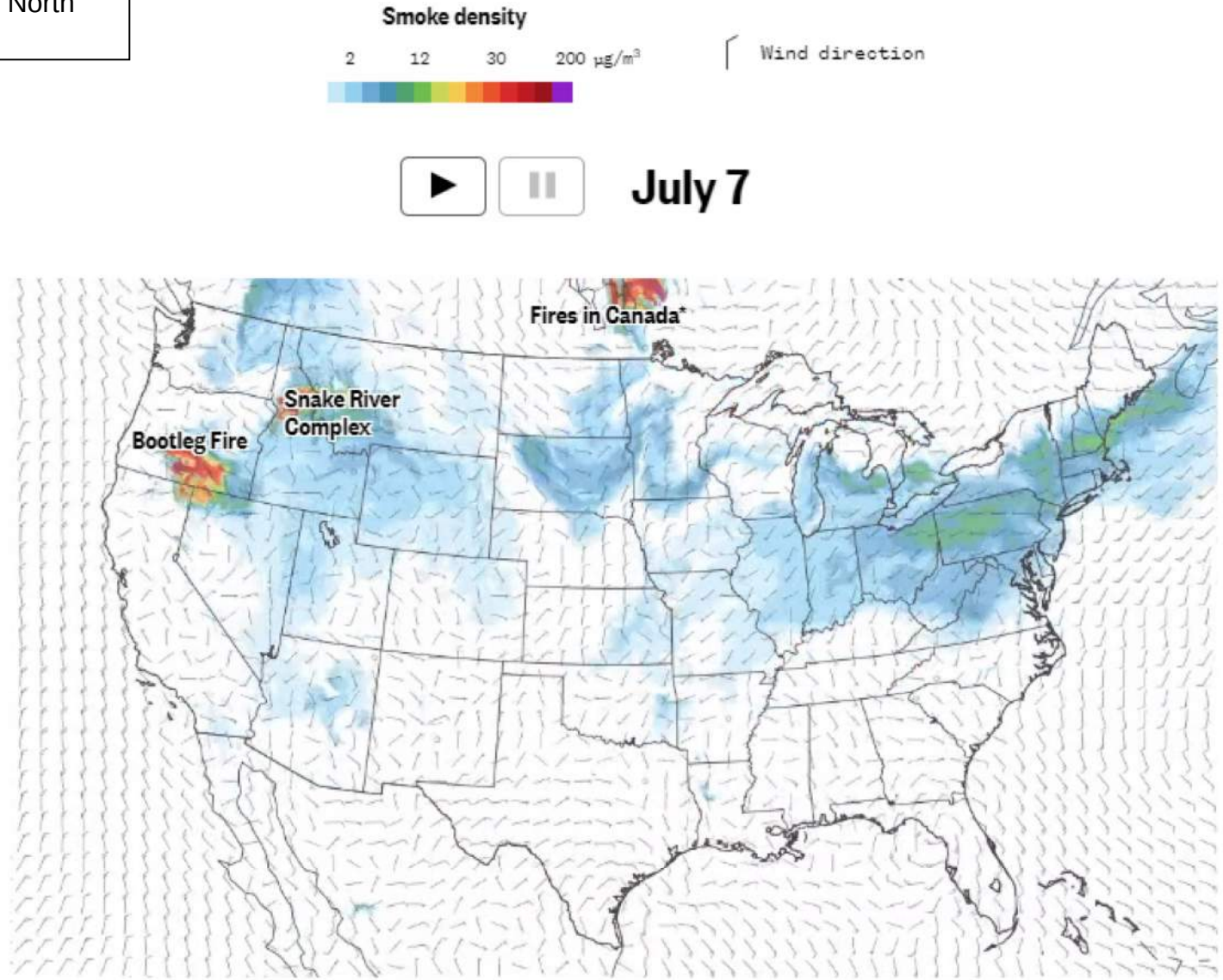


* Fires in Ontario, Canada are assigned codes, not names.

Sources: National Oceanic and Atmospheric Administration and InciWeb

Graphic: Jiachuan Wu, Monica Hersher and Robin Muccari / NBC News

Data for smoke density measured across the USA due to wildfires in North America.

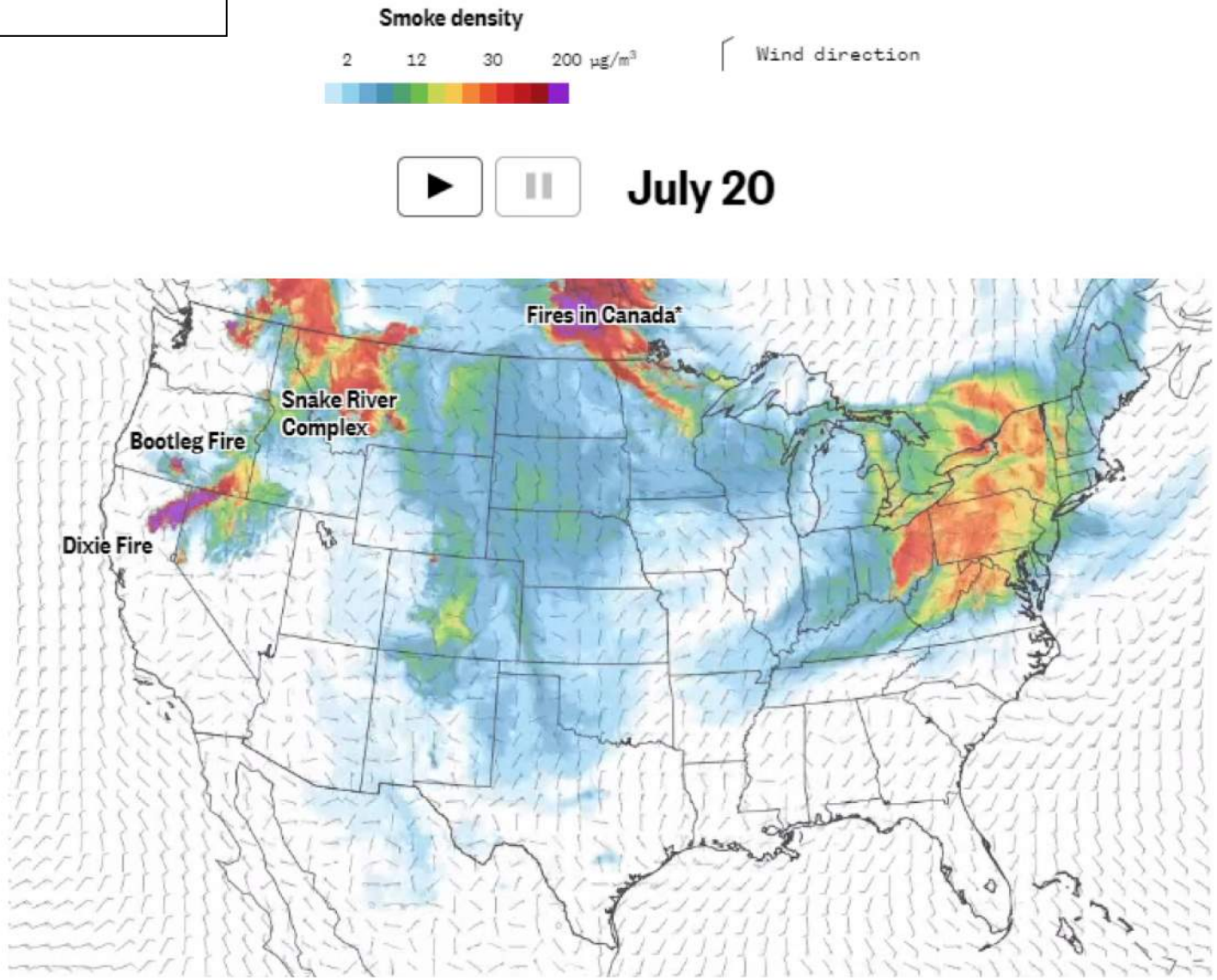


* Fires in Ontario, Canada are assigned codes, not names.

Sources: National Oceanic and Atmospheric Administration and InciWeb

Graphic: Jiachuan Wu, Monica Hersher and Robin Muccari / NBC News

Data for smoke density measured across the USA due to wildfires in North America.

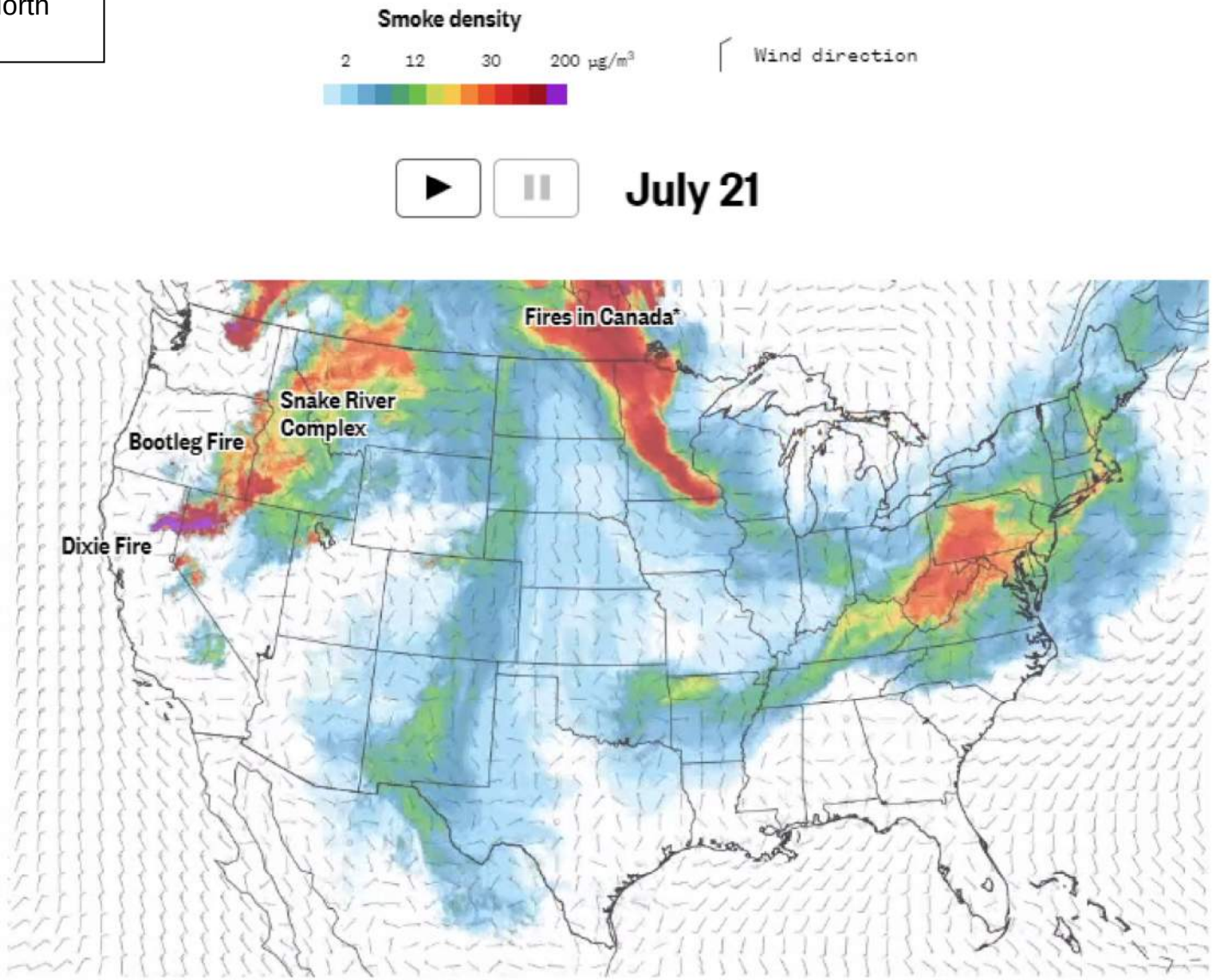


* Fires in Ontario, Canada are assigned codes, not names.

Sources: National Oceanic and Atmospheric Administration and InciWeb

Graphic: Jiachuan Wu, Monica Hersher and Robin Muccari / NBC News

Data for smoke density measured across the USA due to wildfires in North America.



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Sources: National Oceanic and Atmospheric Administration and InciWeb

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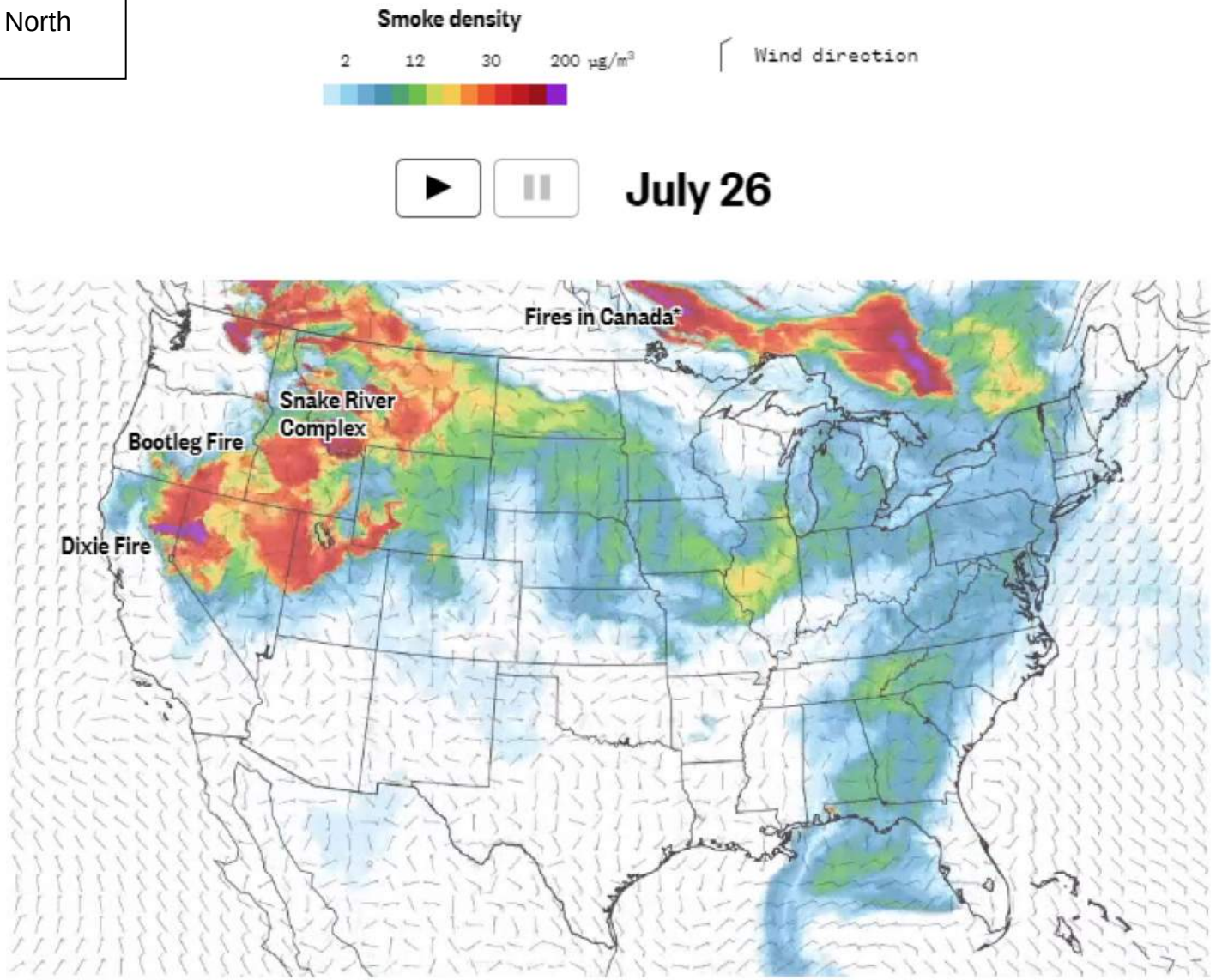
Data for smoke density measured across the USA due to wildfires in North America.

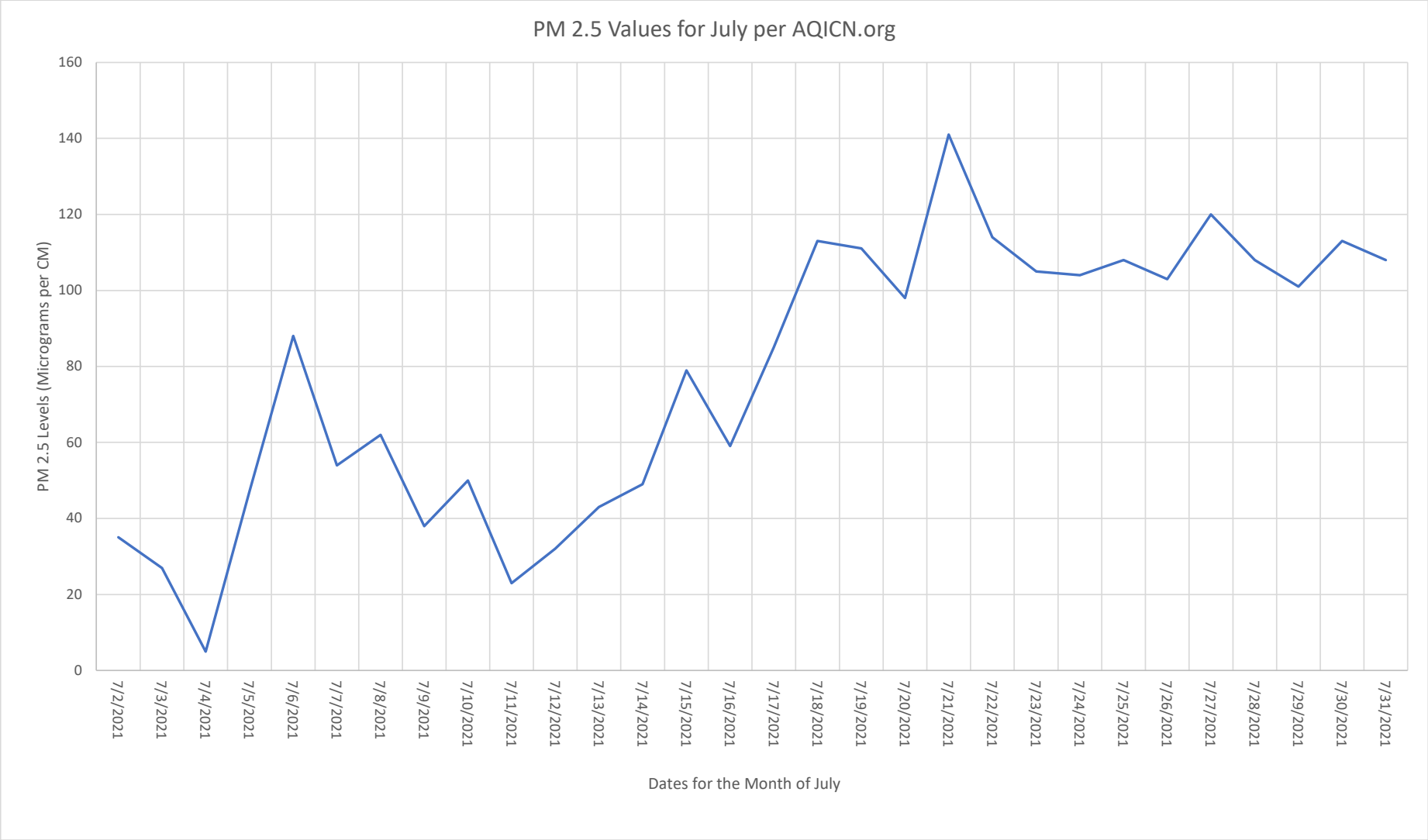


* Fires in Ontario, Canada are assigned codes, not names.

Sources: National Oceanic and Atmospheric Administration and InciWeb

Graphic: Jiachuan Wu, Monica Hersher and Robin Muccari / NBC News

Data for PM2.5 levels in NYC for the month of July per AQICN.org (to show that overall levels in NYC were very high for the month of July)



IV. 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