

PM2.5 National Ambient Air Quality Standard Health Exceedances on February 21, 2025

On Friday, February 21, 2025, the South Camden PM2.5 monitor reported a 24-hour average PM2.5 concentration of 57.4 ug/m³ which exceeded the National Ambient Air Quality Standard (NAAQS) for PM2.5 (24-hour average of 35 micrograms/cubic meter, ug/m³). A PM2.5 exceedance of the 24-hour NAAQS is measured when the concentration is 35.5 ug/m³ or greater. The PM2.5 levels were impacted by a fire at Camden Iron and Metal (EMR).

Note, all of NJ is in attainment for the PM2.5 annual and 24-hour NAAQS and there are no downwind nonattainment areas from NJ.

Table 1. Preliminary New Jersey PM2.5 Concentrations on 2/21/2025

STATION	24-Hour Average (ug/m ³)
Atlantic City	0.0
Brigantine	2.0
Chester	2.4
Clarksboro	2.5
Columbia	1.2
Elizabeth Lab	No Data
Flemington	5.7
Fort Lee Near Road	1.5
Jersey City Firehouse	1.9
Millville	2.6
Paterson	1.6
Pennsauken	0.0
Rahway	3.3
Rider University	4.5
Rutgers University	1.8
South Camden	57.4
Toms River	2.7
Trenton	2.0
Union City High School	1.4
TOTAL EXCEEDANCES	1

From the out-of-state stations adjacent to New Jersey, there were no exceedances of the PM2.5 NAAQS. See Table 2.

Table 2. Preliminary PM_{2.5} Concentrations at Out-of-State Monitoring Stations Adjacent to New Jersey on 2/21/2025

STATE	STATION	24-Hour Average (ug/m ³)
CT	Bridgeport	2.3
CT	Danbury	2.8
CT	New Haven - Criscuolo Park	2.4
CT	Waterbury	2.6
DE	KILLENS (Kent Co.)	4.2
DE	LUMS 2 (New Castle Co.)	4.1
DE	MLK (New Castle Co.)	3.9
DE	Rte 9 Del City	4.3
DE	SEAFORD (Sussex Co.)	4.6
MD	Fair Hill	3.6
NY	Bklyn - PS274	4.5
NY	CCNY	3.5
NY	Division Street	No Data
NY	Eisenhower Park	No Data
NY	Fresh Kills	3.2
NY	Holtsville	3.0
NY	Manhattan/IS143	6.6
NY	Maspeth	8.0
NY	Queens	4.1
NY	Queens Near-Road	No Data
NY	White Plains	5.4
PA	Allentown	3.5
PA	Chester	4.2
PA	Freemansburg	3.8
PA	Marcus Hook	4.1
PA	New Garden	3.6
PA	Norristown	3.6
PA	FAB (Philadelphia Co.)	5.1
PA	MON (Philadelphia Co.)	No Data
PA	NEW (Philadelphia Co.)	4.9
PA	RIT (Philadelphia Co.)	4.5
PA	TOR (Philadelphia Co.)	4.2
	TOTAL EXCEEDANCES	0

Weather

A regionally clean air mass was in place on Friday, February 21st, 2025, as a strong low-pressure system had impacted the region the day prior, providing a clean northwesterly flow, seasonable temperatures, and mostly sunny skies. A steady northwest wind was observed throughout the day on Friday as air rotated clockwise around high pressure to the west, eventually decreasing in magnitude by late afternoon/early evening as high pressure continued to push towards the region.

By 5:00 pm on Friday, a large industrial fire had erupted at the Camden Iron and Metal (EMR) facility in Camden, New Jersey. As seen in Figure 1, the South Camden air quality monitor is located about half a mile southeast of the facility where the industrial fire occurred. With a steady northwesterly flow throughout the day, smoke from the fire was transported directly southeast towards the South Camden monitor. The close proximity and decreased late-day winds likely aided in enhanced concentrations at the South Camden monitor and areas immediately downwind of the fire. The fire continued to burn for several hours before it was extinguished at 5:00 am the following morning, resulting in several hours of locally elevated PM_{2.5} levels. As a result, an exceedance of the PM_{2.5} NAAQS at the South Camden monitor occurred on Friday, February 21st, 2025.

Figure 1. Site Location Map Relative to South Camden Monitor

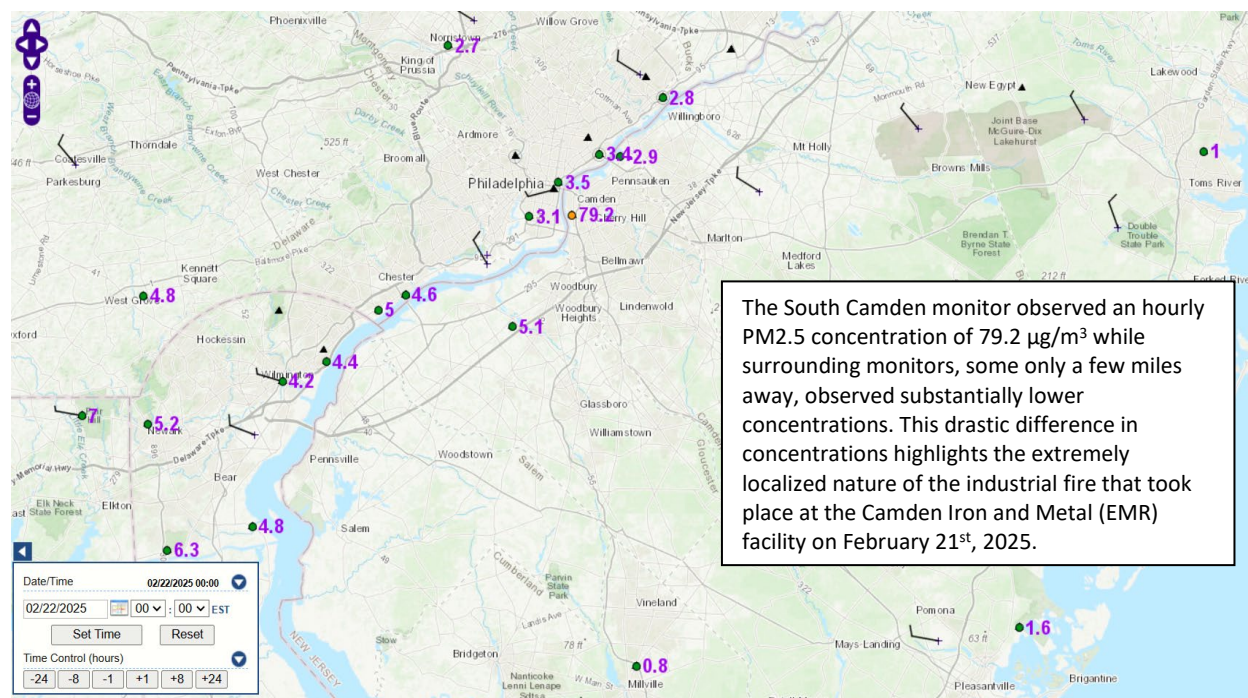


Where Did the Air Pollution that Caused PM2.5 Come From?

The fire at Camden Iron and Metal (EMR) in Camden, NJ started at approximately 5:00 pm Friday, February 21st. A lithium-ion battery was improperly sent to the scrapyard causing the fire¹. PM2.5 levels rapidly increased at the South Camden monitor, which is located about half a mile from the facility, before gradually decreasing back down to good levels. As seen in Figure 2, locations just a few miles from the South Camden monitor observed substantially lower PM2.5 concentrations, indicating the extremely localized nature of this event. The smoky blaze was brought under control at 1:15 am and was extinguished by 5:00 am.

Light winds by early evening allowed for minimal dispersion of the smoke plume. Due to the close proximity, elevated fine particulate levels at the South Camden monitor led to an exceedance. Figure 3 below shows 1-hr average concentrations of PM2.5 at the South Camden monitor on February 21st. Elevated levels were experienced during the evening hours before dropping by early the next morning.

Figure 2. Hourly PM2.5 Concentrations at Midnight on February 21, 2025



For PM2.5 terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage: <https://www.nj.gov/dep/airmon/glossary.html>

¹<https://www.nj.com/camden/2025/02/lithium-ion-battery-caused-massive-camden-scrapyard-fire-company-says.html>

Figure 3. PM2.5 1-hr Concentrations for February 21, 2025

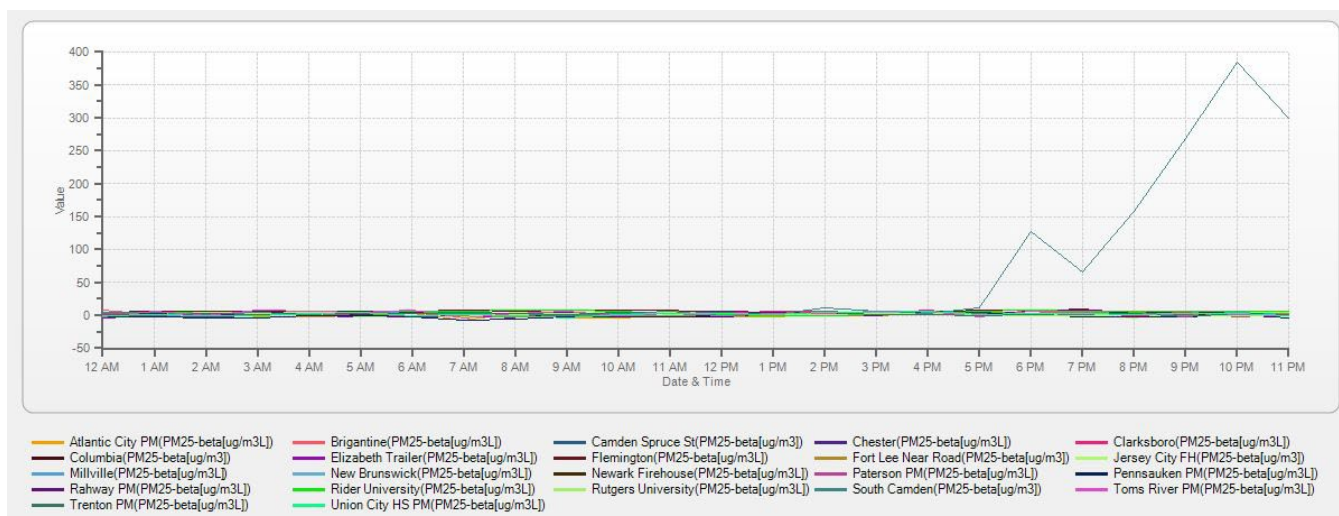
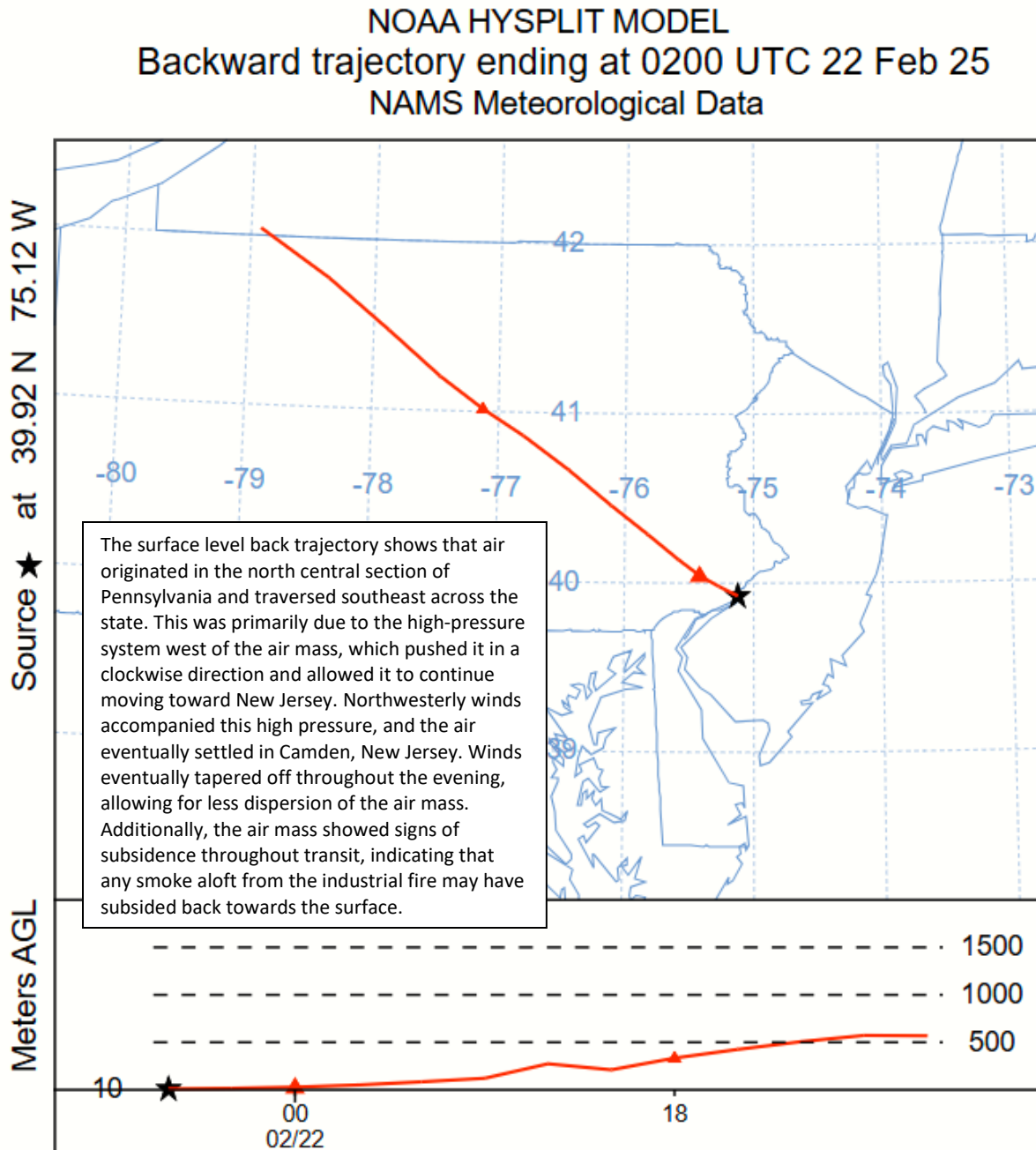


Figure 4 shows the surface-level back trajectory at 10 meters for the monitored exceedance(s) on this day. The figure illustrates where the air came from during the 12 hours preceding the 24-hour PM2.5 exceedance. A transport analysis is provided with the trajectory shown below along with a map of the National Air Quality Index for the previous day (Figure 5). The monitoring station chosen to model the back trajectory is listed in Table 3.

Table 3. Monitoring Stations with a 24-hr PM2.5 Exceedance that were selected to Run 12-hr Back Trajectories

STATE	STATION	Daily Maximum 24-Hr Average (ug/m ³)
NJ	South Camden	57.4

Figure 4. 12-hour Back Trajectory for February 21, 2025 at 10 meters





Learn more about your local PM2.5 air quality forecast by visiting the “What's Your Air Quality Today?” page at <https://dep.nj.gov/airplanning/aqi-today/>.