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west virginia department of environmental protection

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Harold D. Ward, Cabinet Secretary  
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May 28, 2024

Mr. Brett Gantt  
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Office of Air Quality Planning and Standards (OAQPS)  
Mail Code: C304-04  
Office of Air and Radiation (OAR)  
U.S. Environmental Protection Agency (EPA)  
109 T.W. Alexander Drive  
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Via email to [gantt.brett@epa.gov](mailto:gantt.brett@epa.gov)

**Subject:** West Virginia Department of Environmental Protection responses to EPA's Update of PM<sub>2.5</sub> Data from T640/T640x PM Mass Monitors (Docket ID No. EPA-HQ-OAR-2023-0642)

Dear Mr. Gantt:

The West Virginia Department of Environmental Protection (DEP), Division of Air Quality (DAQ) appreciates the opportunity to provide comments on the United States Environmental Protection Agency's (EPA) "Update of PM<sub>2.5</sub> Data from T640/T640X PM Mass Monitors."<sup>1</sup> EPA's application of the correction factor directly impacts DAQ, which has primary responsibility for monitoring West Virginia's air quality and will need to certify the Agency's retroactive correction of biased fine particulate matter (PM<sub>2.5</sub>) data from Teledyne T640/T640X Particulate Matter (PM) Mass Monitors after applying a Network Data Alignment equation. This update has important implications for implementing the 2024 PM<sub>2.5</sub> National Ambient Air Quality Standards (NAAQS), including for attainment/nonattainment designations, state implementation plans (SIPs), exceptional events demonstrations, and permitting.

DAQ supports the idea of EPA retroactively applying the Network Data Alignment equation to all of the hourly unaligned T640 and T640X PM<sub>2.5</sub> concentrations in the EPA's Air Quality System (AQS) for data beginning in 2017."<sup>2</sup> However, EPA's implementation of this update is

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<sup>1</sup> [89 Fed. Reg. 42847](#) (May 16, 2024).

<sup>2</sup> EPA's Overview to the "[Proposal to Update PM<sub>2.5</sub> Data from T640/T640X PM Mass Monitors.](#)"

problematic. DAQ has communicated to EPA via membership in AAPCA regarding its concerns with data comparability issues between Federal Reference Methods (FRM) for monitoring PM in ambient air and the Teledyne T640/T640X PM Mass Monitors that received Federal Equivalent Method (FEM) designation in July 2016. In November 2022, AAPCA transmitted a letter, on behalf of its membership, to EPA's Office of Air Quality Planning and Standards (OAQPS) with considerations for improving the observed bias in FEM data.<sup>3</sup> As EPA notes in its proposal, the T640/T640X FEMs consistently produce PM<sub>2.5</sub> data with an approximate 20 percent positive bias relative to collocated FRMs operated by state, local, and tribal agencies, and there were about 400 T640/T640X PM FEMs in operation in 2023.

In April 2023, EPA's Office of Research and Development (ORD) Reference and Equivalency Program approved a modification to Teledyne T640/T640X FEMs that included a Network Data Alignment firmware update to correct the positive bias moving forward, which has since been adopted by nearly all agencies operating the Teledyne continuous monitors for PM. Applying the Network Data Alignment to correct data back to 2017, as EPA proposes, is important to providing consistent and accurate monitoring data for regulatory, scientific, and public use.

Via March 14, 2024, letter, DAQ provided recommendations to EPA on the proposal to update T640/640X data. While EPA did act quickly, and has now provided the equation used to correct biased data from the Teledyne T640/T640X PM Mass Monitors, we remain concerned for the following reasons:

- The equation does not adequately correct WV's data compared with FRM data at the same locations. As an example, the attached chart shows 2023 data at the Moundsville, WV site. The historical uncorrected T640X FEM (31.44% above FRM) was corrected using the alignment factor, however, the corrected data (22.46% above FRM) does not sufficiently align the FEM data to within 5-10% of the FRM data as expected.
- The Temperature factor in the equation is unnecessary and will make the FEM data even less comparable to FRM data.
- WV is aware the state of Georgia has undertaken a comprehensive review of EPA's implementation of the alignment factor on historical data, and has found numerous errors, as well as continuing lack of good comparison between FRMs and the corrected FEM data. The state of GA proposes an alternate alignment factor of 0.813233
- GA's alternate alignment factor allows the FEM data to match more closely with FRM data and is simpler to use (no Temperature measurements to add in). The attached scatter plot of 2023 PM<sub>2.5</sub> data at Moundsville, WV show the unadjusted FEM and EPA adjusted FEM data do not correlate as well as using GA's proposed alternate alignment factor. The final chart shows that using GA's alternate alignment factor on 2023 data at Moundsville would

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<sup>3</sup> AAPCA [letter](#) to Mr. Peter Tsigotis, Director, U.S. EPA OAQPS (November 23, 2022).

result in an average of the FEM running 8.33% higher than the FRM. This is much closer than the current EPA alignment factor.

- EPA should continue to update the AQS Design Value report to ensure that appropriate PM<sub>2.5</sub> data is used for Design Value calculations. This is a known issue of national significance. EPA is currently working on this issue, and it has been partially, but not completely, corrected. Even though EPA concurred with DAQ that some FEM T60X PM<sub>2.5</sub> data is excluded from NAAQS determination, the AQS DV report continues to incorrectly include data that should be excluded.

Thank you for your consideration of DAQ's comments on EPA's plan to retroactively correct higher positive PM<sub>2.5</sub>, and ideally PM<sub>10</sub>, data biases associated with the Teledyne T640/T640X PM Mass Monitors by using GA's alternate alignment factor, or a WV state-specific alignment factor.

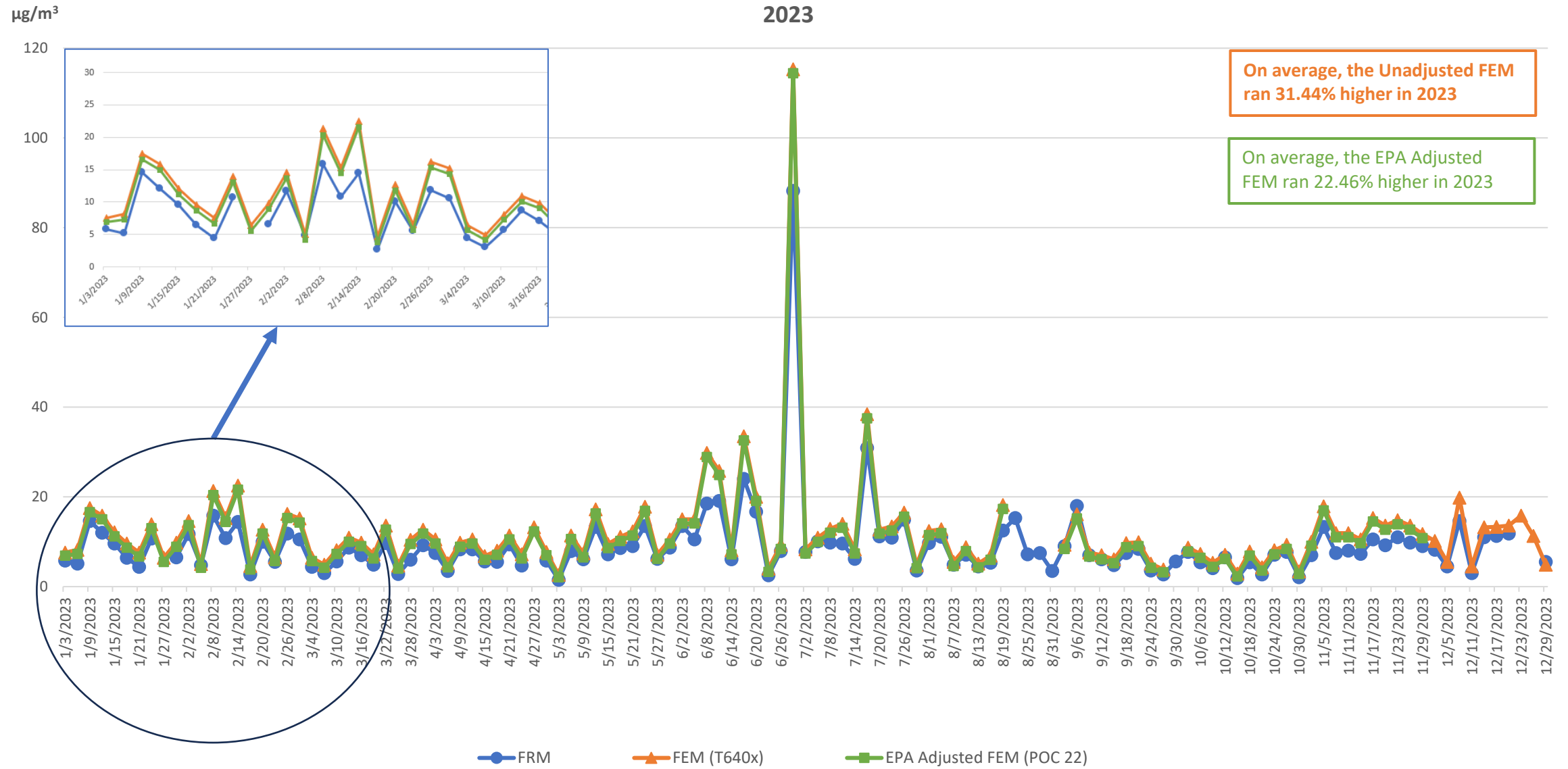
Enclosures: 3

Sincerely,

Laura M. Crowder  
Director, Division of Air Quality

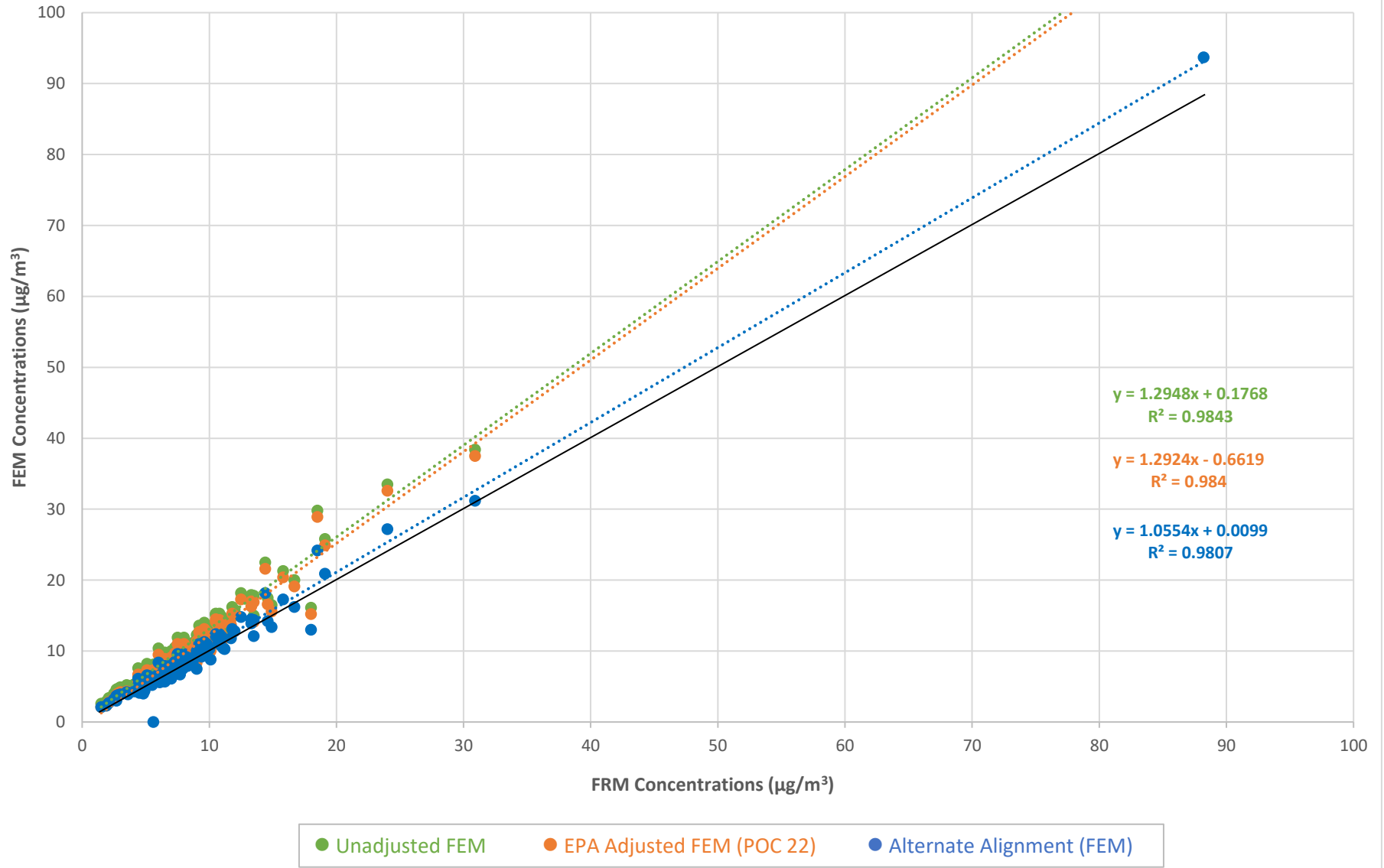
Cc: Alice Chow, Branch Chief, Air and Radiation Division, US EPA Mid-Atlantic Region 3,  
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### Moundsville PM<sub>2.5</sub> Mass Comparisons FRM - Unadjusted FEM - EPA Adjusted FEM 2023



# Moundville FRM-FEM Comparisons

1/1/2023 - 11/30/2023



# Moundville PM<sub>2.5</sub> Mass Comparisons

## Alternate Alignment Algorithm

### 2023

