Summary of and Responses to Public Comments on the EPA's Plan to Update $PM_{2.5}$ Data from T640/T640X PM Mass Monitors

Docket ID No. EPA-HQ-OAR-2023-0642

U.S. Environmental Protection Agency
May 13, 2024

1. Introduction

On February 15, 2024, the Environmental Protection Agency (EPA) requested comment on its plan to retroactively apply a Network Data Alignment to Teledyne Advanced Pollution Instrumentation (TAPI) Models T640 and T640X particulate matter (PM) mass monitor data in the EPA's Air Quality System (AQS) for cases where these monitors have data reported that are not yet upgraded with the Network Data Alignment. During the 30-day comment period ending on March 15, 2024, 25 non-duplicative comments were received. The comments mainly came from State/local/Tribal air agencies (SLTs) (15 comments), industry groups (3 comments), environmental/advocacy groups (3 comments), air agency associations (2 comments), consulting firms (1 comment), and individuals (1 comment). These comments can be found in the docket for this action at *https://www.regulations.gov* under Docket ID No. EPA-HQ-OAR-2023-0642.

A vast majority of the commenters support the planned retroactive update to the T640 and T640X $PM_{2.5}$ data with caveats, including concerns with transparency, timelines, and the treatment of meteorological data. Several of the commenters from SLTs noted the improved comparability between their T640/T640X and Federal Reference Method (FRM) monitors in 2023 after the approved modification was implemented and they adopted it. The commenters who were not supportive of the planned retroactive update cited transparency concerns, questioned whether the EPA has the legal authority to make this change, alleged a lack of an adequate scientific basis for the change, expressed concern that the EPA has not considered the public health impact of the proposed plan, or, because the data alignment will be implemented nationwide, a concern that the update that may not be appropriate for local conditions.

2. Proprietary Data Alignment Equation

Many commenters, whether supportive or critical of the planned retroactive update, are concerned by the proprietary nature of the Network Data Alignment equation to be used for the T640/T640X method update and the EPA's lack of transparency in evaluating its impacts on concentrations. The EPA again relayed those concerns to TAPI, and TAPI agreed to make public the Network Data Alignment equations included in the modification of the T640/T640X methods. Copies of the TAPI letter withdrawing their Confidential Business Information (CBI) claim and their document detailing the Network Data Alignment equations and analysis that led to its request for method modification are available in the docket for this action. Additionally, as stated in the EPA's final Supplemental Information document, both the unaligned and aligned concentrations will be available in AQS to enable a transparent evaluation of the correction.

3. Timelines

Many commenters, whether supportive or critical of the planned retroactive update, are concerned by the short timelines proposed for evaluating the update, certifying the data, and using the values in permitting, exceptional events demonstrations, initial area designations for the revised primary annual $PM_{2.5}$ NAAQS, and other regulatory and non-regulatory applications. The EPA acknowledges these timelines and has endeavored to conduct this update as expeditiously as possible while still giving time for public comment and thoughtful consideration

of the comments. As of May 13, 2024, the updated data have been added to AQS for review and evaluation. To allow for sufficient review time, the EPA anticipates finalizing the 2021-2023 $PM_{2.5}$ design values in June 2024. Requests to extend the effective date for the $PM_{2.5}$ NAAQS are beyond the scope of this action.

4. Meteorology

Several commenters requested clarification of the eligibility of various non-collocated meteorological datasets for use in the Network Data Alignment. In the Supplemental Information document, the EPA has clarified that only hourly ambient temperature data in AQS will be used for the Network Data Alignment but that air agencies are encouraged to pair T640/T640X sites without meteorological data with an AQS site within the same Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA) that has meteorological data. The EPA believes that ambient temperatures within a CBSA or CSA are consistent enough that the Network Data Alignment will be accurately applied to the paired T640/T640X site. SLTs with T640/T640X sites in CBSAs/CSAs or rural areas without ambient temperature data are also encouraged to pair with AQS sites within 50 km that have ambient temperature data.

5. Nationwide Applicability

Some commenters asserted that the EPA's proposed plan would arbitrarily apply a uniform downward adjustment metric nationwide without regard to site- and monitor-specific variables other than temperature. The EPA disagrees that this modification is "arbitrary;" it is based on data demonstrating that across monitor locations, 20°C is the ambient temperature at which the Federal Equivalent Method (FEM)/FRM comparability shifts, with the T640/T640X having a more significant bias compared to the SLT FRM data when ambient temperature falls below 20°C versus periods when the ambient temperature is at or above 20°C. This is why the Network Data Alignment is temperature-dependent and does not consider other factors. Preliminary analyses of data from all available years both with and without the Network Data Alignment indicated that a significantly higher number of sites had improved data quality compared to collocated FRMs, regardless of location.

An SLT may request to opt out of the update of past of $PM_{2.5}$ concentration data for the years in question if they can demonstrate that the un-corrected data is more representative of a given monitoring site because of local meteorology, topography, or other specific conditions that could make a monitoring site unique. The opt-out request must be technically supported through comparability assessments with collocated FRMs. The process for SLTs to submit opt-out requests and the EPA regional office to review any requests as part of required annual Ambient Network Monitoring Plans is described in the Supplemental Information on the EPA's Update of $PM_{2.5}$ Data from T640/T640X PM Mass Monitors.

6. Public Health

One commenter asserted that this comprehensive Network Data Alignment is improper because the EPA failed to consider the potential health effects associated with the action. This comment is beyond the scope of this action, as any health impacts related to $PM_{2.5}$ monitoring and NAAQS attainment are addressed through the 2024 Final $PM_{2.5}$ NAAQS rule and will likely be addressed by any future NAAQS-setting actions.

One thing to note is that the epidemiological studies referenced in the 2024 Final $PM_{2.5}$ NAAQS rule were mostly based on data collected before the deployment of the T640 and T640X monitors. Therefore, the main public health impact of retroactively applying the Network Data Alignment to T640 and T640 $PM_{2.5}$ concentrations will be an improvement in the quality of future epidemiological studies that will be based on data more representative of the FRM monitors.

Additionally, this action will not have health effects because it is a simple Network Data Alignment ensuring that the $PM_{2.5}$ data being reported by the nation's monitoring networks are meeting regulatory measurement quality objectives (MQOs). As discussed below, any future regulatory actions that rely on the updated data will be required to fulfill any CAA requirements to assess health effects.

7. Applicability to PM_{10}

Several commenters suggested the retroactive update also be applied to PM_{10} data using the approved modification of the T640X method. Given the statutory schedule associated with implementing the 2024 revised primary annual $PM_{2.5}$ NAAQS, the EPA has prioritized this $PM_{2.5}$ data update. The EPA is not updating PM_{10} data at this time due to several factors including: 1) low PM_{10} concentrations at most T640X sites (primarily located in the eastern U.S.), 2) rounding conventions for daily PM_{10} concentrations (rounded to the nearest ten) that would minimize the impact of an update, and 3) and the form of the PM_{10} NAAQS being exceedance-based. Regardless, the EPA anticipates engaging with SLTs about the retroactive update to PM_{10} data after completion of the $PM_{2.5}$ data alignment process.

8. Scientific Basis

Several commenters questioned the scientific basis for a national data update, including references to peer-reviewed studies and Clean Air Scientific Advisory Committee (CASAC) advice in the Supplemental Information document, citing inadequate evaluation of the alleged positive bias.

As an initial matter, the EPA disagrees that there has not been enough evaluation of this issue. As described in the Proposal to Update $PM_{2.5}$ Data from T640/T640X PM Mass Monitors, since implementing the methods in 2017, the comparability of the data from collocated TAPI T640/T640x FEMs and FRMs has been an issue of concern for SLTs. This retroactive data update uses the already approved and widely implemented modification of the FEM designation for the T640/T640X method. TAPI itself evaluated a robust dataset, including tens of thousands

of 24-hour data points over multiple years and seasons. TAPI found by evaluating the collocated data comparability over the past several years that the T640/T640x instruments have demonstrated a consistent positive bias relative to the SLTs FRM sampler data. Further analysis revealed the bias to be slightly higher in cooler temperatures with a 20°C inflection point. For a further description of this analysis, see the document "Development of an FRM alignment factor for the Teledyne API (TAPI) Model T640/x Instruments," dated April 11, 2024, in the docket for this action.

Under 40 C.F.R. part 53, subpart A, the FEM designations at issue in this notice (Table 1) were evaluated by the EPA and in 2016 approved as being comparable to $PM_{2.5}$ FRMs deployed across the country (81 FR 45285). In 2023, the EPA evaluated and approved a modification request from TAPI for the Teledyne T640/T640X PM FEM monitors. As such, the concentration data generated by the modified T640/T640X methods are more representative of concentrations than the un-modified T640/T640X data, whether for concentrations measured in 2020 or 2024.

Table 1. Teledyne Designation and Modification Numbers

Teledyne Model	PM Metric	Designation No.	Modification Request No.
T640	$PM_{2.5}$	EQPM-0516-236	MM23-057
T640X	$PM_{2.5}$	EQPM-0516-238	MM23-094
T640X	$PM_{10-2.5}$	EQPM-0516-240	MM23-095
T640X	PM_{10}	EQPM-0516-239	MM23-086

The EPA also disagrees with the commenters who suggest that because CASAC did not provide the level of detail matching this action in its recommendation during its scientific review of the EPA's Policy Assessment for the Reconsideration of the PM NAAQS quoted in the proposed action—stating in its March 18, 2022 letter only, "The FEM bias needs to be addressed to make the FRMs and FEMs more comparable"—the EPA cannot rely on that policy recommendation as part of the justification for this Network Data Alignment action. That argument is unavailing; the CASAC provides scientific and policy advice to the EPA, which then applies its legal authorities and scientific expertise to address that advice. In this instance, the action to align the data produced by the TAPI monitors definitively shown to have a positive bias (monitors that have now been updated at the majority of SLT sites to correct that bias) makes scientific and policy sense.

As for some commenters' suggestion that the EPA failed to take into account that some FRMs underreport $PM_{2.5}$ levels, that is an issue beyond the scope of this action. Any request for the EPA to specify a new reference method or a new measurement principle and calibration procedure on which a reference method is based should be made pursuant to 40 C.F.R. § 53.16.

9. Method Codes

One commenter suggested changes to the procedure used in the retroactive correction including the proposed use of a 4-digit alphanumeric method code. As explained in the EPA's Supplemental Information document, the EPA will instead utilize a standard 3-digit method code.

10. Legal Authority

Three commenters oppose the EPA's proposed action, asserting that update of past T640/T640X $PM_{2.5}$ data is improper because specific regulatory applications for the updated data are not cited, and the EPA has no authority to make such an update of AQS data.

The EPA disagrees with these commenters. The data update being implemented for $PM_{2.5}$ is not subject to CAA section 307 notice-and-comment requirements because this action does not meet the requirements of section 307(d). The EPA issued notice of the plan to update the data and offered the 30-day comment period to ensure transparency in implementing this data update.

After receiving predominantly supportive comments on this aspect of the proposed NAAQS reconsideration rule, the EPA announced the intention to separately and subsequently take today's action and others related to implementation, stating:

> The issue of how prior and future monitoring data will be used in the implementation of this NAAQS, such as for designations, and for air quality regulatory programs is outside the scope of this rulemaking and will therefore be addressed by the EPA in a subsequent relevant action or actions.[1]

This retroactive update of data in AQS to correct the bias associated with the method pre-modification is the first such "subsequent relevant action."

Nor does this action violate the Administrative Procedures Act, as asserted by one commenter, who suggests that this action to implement the Network Data Alignment outside of the context of the specific rules for which this data may be relevant in the future is akin to "a game of hunt the peanut." To the contrary, as the EPA recognized in the proposal for this plan, the use of this data for future regulatory purposes—including, but not limited to, initial area designations, future redesignation actions, attainment planning, findings of attainment, and exception event demonstrations—will be subject to any legally applicable notice-and-comment or other procedural requirements. And because both the un-updated T640/640X concentration data and the updated data will be available in AQS for the years in question (2017–2023), any issues raised by using the updated data in a specific regulatory application will be addressed at that time, as stated in the proposed plan on page 4:

> EPA expects to consider any regulatory implications (e.g., attainment planning and redesignations to attainment) on a case-by-case basis and encourages air agencies to consult with their EPA Regional office contacts on this topic. Similarly, with regard to exceptional events demonstrations, EPA anticipates the possibility that affected and adjusted T640 and T640X monitors also may have experienced event-influenced exceedances/violations. This data update may impact exceptional events demonstrations associated with any initial area designations process, or any other action of regulatory significance regarding a $PM_{2.5}$ NAAQS. For this reason, EPA encourages air agencies to

[1] 89 Fed. Reg. 16202, 16355 (March 6, 2024).

work with EPA regional offices to determine a path forward on the updated data and its impact on any upcoming exceptional event demonstrations.

Two commenters argue that the EPA has not explained how a retroactive alteration of monitoring data years after the fact is consistent with these requirements. These commenters point to a few regulatory provisions: 40 C.F.R. § 58.15 that requires SLTs to certify their monitoring results for each year by May 1 of the following year; 40 C.F.R. §§ 58.10(a)(2) and 58.11(e) under which SLTs must submit an annual monitoring network plan (AMNP) that, among other things, identifies any new determination that a monitor's data is not of sufficient quality for determination of compliance with the NAAQS; and 40 C.F.R. § 59.10(a)(2) that requires the EPA to approve or disapprove AMNPs within 120 days of submittal.

Nowhere in the regulatory provisions cited by these commenters is there a prohibition against correction of data after certification. Under 40 C.F.R. § 53.35, the EPA has an ongoing responsibility to ensure that $PM_{2.5}$ FEMs such as the T640/T640X method are comparable to the EPA's reference method. In this instance, as highlighted during the development of the $PM_{2.5}$ NAAQS rule, the EPA determined that this Network Data Alignment based on the TAPI modification request is appropriate, given the widespread use of T640/T640X monitors nationwide since 2017 and evidence that this positive bias has been persistent and consistent. TAPI itself approached the EPA approximately 2 years ago regarding the bias identified at collocated monitoring sites and proposed to implement the method modification under 40 C.F.R. § 53.14 and the EPA certified that modification request. To avoid having a nationwide inconsistency in $PM_{2.5}$ measurements starting in 2017, the EPA has determined that an update of the data is appropriate in this instance.

The EPA is implementing this Network Data Alignment pursuant to 40 C.F.R. part 58, Appendix A, section 2.3.1.1, which will result in a much higher number of $PM_{2.5}$ monitoring sites using these methods meeting the bias requirements of 40 C.F.R. §§ 53.34 and 53.35. Under the authority of 40 C.F.R. § 58.10, the EPA routinely evaluates and updates FRM and FEM use and data quality in the ambient air quality network to ensure that SLTs are meeting their 40 C.F.R. part 58 data quality performance requirements.[2] In situations where the EPA determines that unrepresentative data are being reported to AQS, the EPA routinely conducts Network Data Alignments to ensure the data meet the EPA's MQOs.[3] Such updates are not a regulatory action, but a routine technical process by which the EPA maintains accuracy while fulfilling its data collection obligations. Furthermore, there is no temporal component to this provision.

It is pursuant to the EPA's authority to conduct Network Data Alignment activities that provides the EPA the ability to take actions such as this one. While it is admittedly unusual to update this magnitude of data at one time for past years, the EPA has determined that this data update is appropriate as a companion action to the recently revised $PM_{2.5}$ NAAQS, for which many of the

[2] For an example of how the EPA has coordinated its 40 C.F.R. part 58 $PM_{2.5}$ network assessment activities in the past, see *https://www.epa.gov/sites/default/files/2016-09/documents/comparabilityassessmenttool.pdf.*

[3] To learn more about the EPA's MQO, see QA Handbook, Vol. II, section 3.3, *available at https://www3.epa.gov/ttnamti1/files/ambient/pm25/qa/vol2sec03.pdf.*

subsequent actions will rely on the past three years of data. The TAPI T640/640X modification has been widely adopted nationwide, in some areas as early as 2017. While this Network Data Alignment may be overdue, it is scientifically appropriate and within the EPA's authority.

In the event that another FEM not meeting the part 58 data quality performance requirements—whether because of a positive or a negative bias—comes to the attention of an SLT, the EPA, an instrument manufacturer, or another stakeholder, the EPA could take similar action as part of its ongoing 40 C.F.R. part 53, subpart C obligation to ensure that FEMs are comparable to candidate methods.

And finally, the EPA disagrees with one commenter who is concerned that the data update will not be transparent to the public. As described in the plan proposal, the updated data will be added to the AQS alongside the unadjusted data. This AQS data are also accessible to SLTs and the public in various reports on the EPA's AirData website.[4] Also, the updated data will be used by SLTs for their upcoming July 2024 Air Monitoring Network Plans themselves, which are subject to public participation requirements under 40 C.F.R. § 58.10. As described by the proposed plan, it is through the AMNPs that SLTs may seek monitor-specific exemptions from the Network Data Alignment if desired, which will also be subject to the AMNP's public notice requirements.

[4] *See https://www.epa.gov/outdoor-air-quality-data.*