#3231

September 15, 2020

Via Email

Independent Regulatory Review Commission
irrc@irrc.state.pa.us

Re: Comments on IRRC Number 3231 / Regulation #7-536: Air Quality Fee Schedule Amendments

To whom it may concern:

Clean Air Council (the "Council") hereby submits the following comments on the Environmental Quality Board's ("EQB") final-form rulemaking listed as Regulation #7-536, or IRRC Number 3231 (Air Quality Fee Schedule Amendments, or "Amendments") for consideration by the Independent Regulatory Review Commission ("IRRC") at its meeting on Thursday, September 17, 2020.

The Council is a non-profit environmental and health organization headquartered at 135 South 19th Street, Suite 300, Philadelphia, Pennsylvania 19103. For more than 50 years, the Council has fought to improve air quality and the environment across Pennsylvania. The Council has members throughout Pennsylvania who support its mission to protect everyone's right to a healthy environment.

The Council is joined in these comments by Earthjustice, PennEnvironment Research & Policy Center, and the Breathe Project (collectively, "Commenters").

Earthjustice is a non-profit public interest law firm dedicated to protecting the magnificent places, natural resources, and wildlife of this earth, and to defending the right of all people to a healthy environment.

PennEnvironment Research & Policy Center is an environmental organization working to promote clean air and clean water and to protect Pennsylvania's great natural heritage.

Breathe Project is a clearinghouse for information on air quality in Pittsburgh, southwestern Pennsylvania and beyond. We use the best available science and technology to better understand the quality of the air we breathe and provide opportunities for citizens to engage and take action.

Commenters strongly support the Amendments. There is an urgent need for increased fees to make ends meet at the Department of Environmental Protection (the "Department"). Raising the level of funding at the Department is not only warranted, it is required by law. Therefore, Commenters urge IRRC to vote in favor of the Amendments to fully staff the air

quality program and bring Pennsylvania into compliance with the Clean Air Act.

The Air Quality Fee Schedule Amendments are Authorized, Required, and Justified

The authority and indeed the requirement for the Amendments are presented in the Department's Regulatory Analysis Form ("Form") received by IRRC on August 14, 2020. The Department writes on page 2 of the Form,

> Section 6.3(a) of the APCA [Air Pollution Control Act] authorizes the Board to establish fees sufficient to cover the indirect and direct costs of administering the air pollution control plan approval process, operating permit program required by Title V of the CAA [Clean Air Act], other requirements of the CAA and the indirect and direct costs of administering the Small Business Stationary Source Technical and Environmental Compliance Assistance Program, the Small Business Compliance Advisory Committee, and the Office of Small Business Ombudsman.

The key phrase is "fees sufficient to cover the indirect and direct costs." The Clean Air Act, through the Pennsylvania State Implementation Plan, requires that funding be sufficient to cover adequate personnel and funds to carry out the Plan. 42 U.S.C.A. § 7410(a)(2)(E)(i).

Thus there is no question that the Department has the authority under the Air Pollution Control Act to raise fees to cover its costs. Absent additional funding from another source, the Clean Air Act compels it to do so. Assuming the Department's accounting as expressed in the Form and in its attached Clean Air Fund Fiscal Analysis and Fee Report ("Fiscal Analysis") is roughly accurate, its Title V Account will dwindle rapidly toward nothing within the next five years, and the Non-Title V Account will be in the red within the next year.

EPA has corroborated the Department's accounting. A 2014 report of the US EPA Office of Inspector General criticized the Commonwealth for not raising sufficient Title V revenues to cover its costs.[1] In four out of the five years from 2008–2012, annual Title V expenses exceeded annual Title V revenues. *Id.* at page 14, Table 3. While Title V costs declined 3% from 2008 to 2012, Title V revenues declined 21% over that period. *Id.* at page 15, Table 4. This is the greatest disparity among all the analyzed states. According to a 2013 Pennsylvania rulemaking, "a deficit of $7.235 million is projected for the Title V Major Emission Facilities Account by the end of Fiscal Year 2015–2016. Funds sufficient to support the program need to be collected before the fund is in deficit." *Id.*

Fee increases are not just needed, they are urgent and have been urgent for years.

On page 7 of the final regulation, the Department explained that

[1] *See* Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues, dated October 20, 2014, available at https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf.

> The revenue from the increases to existing plan approval application and operating permit fees and the establishment of new fees would support: current staffing levels and restoration of a portion of the lost staffing positions for Title V plan approval application and operating permit application reviews, compliance inspections, and complaint response activities; the ambient air monitoring network; ambient air impact modeling activities; major source SIP planning and regulatory development activities; emissions inventory and tracking; development and maintenance of an electronic permit application system for general plan approvals and general operating permits; development of an electronic fee payment system; and general administrative costs.

This is not an ambitious program of work, but rather a minimal level of upkeep the Department is proposing.

In reality, the Department is understaffed and—despite its great efforts—unable to fully comply with its legal obligations under the Clean Air Act.

EPA conducted an audit of the Department's air monitoring network and found major non-conformance of the program—which was unacceptable and must be remedied—due to understaffing.[2] Merely reaching compliance with federal law required hiring, EPA concluded: "Vacant positions need to be filled in order to continue operating air monitoring program pursuant to 40 CFR 58 Appendix A." *Id.*

The Department at the time acknowledged that "Staffing levels have been a major issue. Critical work is being completed, however the program has had to operate in reactive mode instead of proactive. Hiring has begun again in mid-2015 with a full complement expected by mid-2016." *Id.* That complement did not materialize. In a comment-response document the Department drafted in October 2017, it responded to comments requesting the Department to enhance its monitoring network by remarking, "In addition, please be aware that the Department continues to be constrained by insufficient staffing levels."[3]

Plenty of other evidence underscores the Department's lack of compliance due to understaffing. For example, the data show that the Department has not managed to timely process Title V Operating Permit applications. The Group Against Smog and Pollution recently analyzed the Department's records from its regional offices to determine the backlog of Title V

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[2] *See* US EPA Region 3, Technical Systems Audit of the Pennsylvania Department of Environmental Protection, Bureau of Air Quality, 2015, appended hereto, pages 5-6.

[3] Pennsylvania's 2017 Ambient Air Monitoring Network Plan Comment/Response Document, October 2017, page 6, available at http://www.depgreenport.state.pa.us/elibrary/PDFProvider.ashx?action=PDFStream&docID=12300&chksum=&revision=0&docName=02+2017+ANNUAL+AMBIENT+AIR+MONITORING+NETWORK+PLAN+COMMENT+AND+RESPONSE+DOCUMENT.PDF.

application.[4] It discovered that 26 major source Title V Operating Permits were backlogged or unissued (i.e. the facility is operating without the required permit), across all but one regional office. *Id.*

The Department is unable to shift significant resources to the Air Quality Program from other programs because the Commonwealth has starved them too. A couple years ago, PA Environment Digest gathered documentation of deficiencies in many of the Department's programs, including four water programs and a mining program.[5] In 2014, the Auditor General conducted a Special Performance Audit on "DEP's performance in monitoring potential impacts to water quality from shale gas development, 2009 -2012."[6] The audit concluded that "as evidenced by this audit, DEP needs assistance. It is underfunded, understaffed, and does not have the infrastructure in place to meet the continuing demands placed upon the agency by expanded shale gas development." *Id.*

The evidence is stark that the Department has not been able to fulfill its obligations due to underfunding and understaffing. Legal compliance is important, and for that reason alone, IRRC should vote in favor of the final-form regulation to put the Department in a better stead going forward to meet its obligations.

However, we should not lose track of the crucial role the Department's air quality program plays in preventing premature deaths, chronic disease, crop damage, and overall harm to Pennsylvania residents and local ecologies. Our lives depend on the purity and stability of our air and climate. The Department is the agency at the front lines charged with preserving them.

Better funding would remedy the main complaint industry has about the Department as well—its slowness in processing permit applications. Without enough staff, the Department can neither process nor enforce permits adequately.

The specifics of the regulations are entirely justified in order to make up this gap in funding, and not at all unreasonable in comparison to other states. The Department has presented extensive accounting explaining the need for the minimal fee schedule hikes it proposes. Viewed in comparison to similar types of fees that neighboring jurisdictions charge, the proposed fee schedule appears somewhat higher than average. *See* Form at page 9, Table 6. That is simply because the legislatures of most neighboring states have allocated more funding for their air quality programs.

The Bureau of Air Quality gets significantly less than $9 million in general funding. *See* Fiscal Analysis at page 10, Table 2. Delaware has the lowest fees among neighboring states.

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[4] *See* GASP, "By the Numbers: A Look at Allegheny County Health Department, DEP Title V Permit Backlog Reduction Efforts," April 19, 2019, available at https://gasp-pgh.org/2019/04/19/by-the-numbers-a-look-at-allegheny-county-health-department-dep-title-v-permit-backlog-reduction-efforts/.

[5] David E. Hess, "EPA: DEP Lacks Resources To Enforce Minimum Federal Safe Drinking Water Regs," *PA Environment Digest*, January 31, 2017, available at http://www.paenvironmentdigest.com/newsletter/default.asp?NewsletterArticleID=38651.

[6] Available at https://www.paauditor.gov/Media/Default/Reports/speDEP072114.pdf.

But Delaware has a similar nominal budget allocation for its smaller air quality program to much larger Pennsylvania.[7] The second lowest fees are in Ohio, a state comparably sized to Pennsylvania. Ohio's air pollution control budget allocation is over $46 million.[8] Given the far smaller budget allocations that the Pennsylvania Department receives from its legislature, the proposed permitting fees are stunningly low.

In short, increases in the current fee schedule are warranted, required, and very much needed.

Contrary to Some Comments, the Need for the Fee Adjustments is More than Justified

Commentators strongly support the proposal to increase fees to cover costs. In fact, the increases are not enough rather than too much, as some have claimed.

The Department is systematically asking to set fees at levels that are less than the estimated costs from past years, despite costs going up over time due to inflation among other things. *See* Fiscal Analysis at pages 30-31, Table 20. The Department then relies on the stability of its General Fund funding and federal grants to make up the difference. *Id.* at page 29.

Pennsylvania has a structural deficit, and even before the global pandemic, official projections showed economic growth slowing in the upcoming years.[9] Now, Pennsylvania, like many states, has a revenue shortfall crisis. Historically, the Department has seen draconian cuts worse than the average state agency. According to analysis from the Pennsylvania Budget and Policy Center, "General Fund support for DEP has decreased 39% since 2007-08 (Figure 22); adjusted for inflation the cut is about 50%. This year [FY 2020], the Department of Environmental Protection would see a further 13% decrease in nominal dollar funding under Governor Wolf's proposal, from $158.5 million to $137.8 million."[10] Although Pennsylvania only has an interim budget at the moment, with the revenue crisis, the situation is not promising for fully funding the Department.

The Department writes, "However, if either or both of the General Fund Appropriation money allocated to the Air Quality Program or Federal Grant funding decrease significantly, this will create additional pressure to implement increases to the plan approval application and

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[7] *See* Delaware Senate Bill No. 240, Fiscal Year 2021 Operating Budget Supplement at page 45, available at https://legis.delaware.gov/json/BillDetail/GetPdfDocument?fileAttachmentId=310856.

[8] *See* Ohio Environmental Protection Agency, LBO Analysis of Enacted Budget "Greenbook," September 2019, at page 3, Table 3, available at https://www.lsc.ohio.gov/documents/budget/133/MainOperating/greenbook/EPA.PDF.

[9] Commonwealth of Pennsylvania Budget in Brief, 2019-20, available at https://www.budget.pa.gov/PublicationsAndReports/CommonwealthBudget/Documents/2019-20%20Proposed%20Budget/2019-20_Budget_in_Brief_Web.pdf, page 20.

[10] Keystone Research Center and PA Budget and Policy Center, "Pointing in the Right Direction but Limited by a Lack of Revenue: An Analysis of the Governor's Proposed 2019-20 Budget," March 2019, available at https://www.pennbpc.org/sites/default/files/2019_BudgAnalysisFinal.pdf, page 32.

operating permit fees and consider additional new fees to maintain the solvency of the Clean Air Fund." *See* Fiscal Analysis at page 29.

It is crucial that IRRC vote in favor of the final-form regulation to ensure that, at the very least, the Department is moving in the direction of fiscal solvency and having the resources to fully carry out its legal obligations.

The Fee Schedule Amendments are Solidly in the Realm of Rulemaking and are not a Matter for the General Assembly

In its own comments on the proposed rulemaking, IRRC wrote, "In light of the comments received from lawmakers and the regulated community, we believe the proposal being offered by the EQB maybe a policy decision of such a substantial nature that it requires legislative review." The Department itself did a thorough job in explaining how the regulation is fully authorized and indeed mandated under the Air Pollution Control Act. Commenters agree. But Commenters also wish to highlight a silent dynamic here.

A certain minority of Pennsylvania legislators disagree with the mission of the Department and would rather polluters be left free to police themselves with no or minimal government oversight. As explained above, federal law affirmatively requires a minimum level of government oversight and regulation of air pollution sources. The solution of these legislators has been to apply a strategy sometimes referred to as "starving the beast"—using whatever means available to deny adequate funding to the agency, so that it cannot carry out its mission. With respect to the Department, this strategy includes three common elements: (1) pushing to reduce general funding to the Department; (2) hampering the Department's ability to assess adequate fees; and (3) criticizing the Department for any slowness in issuing permits that inevitably results from the staffing shortages caused by its lack of funding.

The comments from legislators and some other suggesting that the Air Pollution Control Act does not empower the Department to go forward with a perfectly reasonable fee framework should be understood not as a reasoned critique, but simply as a tool to stymie the Department from carrying out its mission.

Just because certain legislators disagree with that mission does not mean that a regulation is so "substantial" that it should be left to the General Assembly. The fact is that the public interest is expressed through the Air Pollution Control Act itself and the laws establishing the Department and its mission. The public interest is also expressed in Article I, Section 27 of the Pennsylvania Constitution, which guarantees to all Pennsylvanians "a right to clean air." This necessarily implies a substantial public interest in ensuring that the Department is adequately funded to carry out its mission.

IRRC should see this regulation for what it is: a modest and overly conservative proposal to set fees at a more reasonable level to get closer to legal compliance with Clean Air Act standards.

Conclusion

Commenters strongly urge IRRC to vote in favor of the Air Quality Fee Schedule Amendments, which are necessary for legal compliance, and crucial to protect the public interest in clean air and a healthy environment.

Sincerely,

Joseph Otis Minott, Esq.
Executive Director and Chief Counsel
Clean Air Council
135 South 19th Street, Suite 300
Philadelphia, PA 19103
215.567.4004
joe_minott@cleanair.org

Charles McPhedran
Earthjustice
1617 John F. Kennedy Blvd., Suite 1130
Philadelphia PA 19103
(215) 717-4521
cmcphedran@earthjustice.org

David Masur
Executive Director, PennEnvironment
1429 Walnut St #1100, Philadelphia, PA 19102
(215) 732-5897
davidmasur@pennenvironment.org

Matthew Mehalik, Ph.D.
Executive Director
Breathe Project
Energy Innovation Center
1435 Bedford Ave. Suite 140
Pittsburgh, PA 15219
412-514-5008
mmehalik@breatheproject.org

Appendix

TECHNICAL SYSTEMS AUDIT
OF THE
PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY
2015

Conducted by US EPA Region 3
Air Protection Division
Office of Air Monitoring and Analysis

November 2015

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1.0 EXECUTIVE SUMMARY

This document is a final report on the findings made by the United States Environmental Protection Agency (EPA), Region 3 Air Protection Division, Office of Air Monitoring and Analysis, following a Technical Systems Audit (TSA) for the Pennsylvania Department of Environmental Protection (PADEP) Bureau of Air Quality (BAC) ambient air monitoring program in accordance to 40 CFR 58 Appendix A Section 2.5:

> *"Technical systems audits of each ambient air monitoring organization shall be conducted at least every 3 years by the appropriate EPA Regional Office and reported to the AQS."*

A TSA is an on-site review and inspection of a state or local agency's ambient air monitoring program to assess its compliance with established regulations governing the collection, analysis, validation, and reporting of ambient air quality data. It includes (but is not limited to) on-site interviews with key program personnel, evaluations of ambient air monitoring sites operated by the state or local, and a review of quality assurance and data reported to EPA's Air Quality System (AQS).

The TSA primarily focused on PA DEP's: network management, quality assurance/quality control, data management, field and laboratory operations, and facilities. Region 3 identified several major findings. Those findings are discussed in detail with recommendations and corrective actions in Section 3 of this report. The most significant findings are:

- The Field Operations & Maintenance Section (FOMS) does not have adequate personnel resources to operate PA DEP's SLAMS network.
- Missing approved QAPPs for several NAAQS pollutants. Missing approved QAPPs for several NAAQS pollutants.
- Ozone sensors are not traceable to the Regional Standard Reference Photometer (SRP).
- Backup temperature and humidity sensors used for $PM_{2.5}$ filter weighing are not verified.
- Standard Operating Procedures for ambient air analyzers and samplers need to be updated.
- $PM_{2.5}$ continuous FEM and $PM_{2.5}$ FRM at the Farrell site (AQS ID: 42-085-0100) do not satisfy the siting criteria for collocation.

2.0 INTRODUCTION

PA DEP operates the Commonwealth of Pennsylvania Air Monitoring System (COPAMS) and Air Toxics network. Combined there are a total of 72 monitoring sites located throughout six regions (Southeast, Northeast, South Central, North Central, Southwest and Northwest) in Pennsylvania. COPAMS sites monitor and sample for criteria pollutants [Carbon Monoxide (CO), Ozone (O_3), Lead (Pb), Nitrogen Dioxides (NO_2) and Particulate Matter ($PM_{2.5}$, and PM_{10},), and Sulfur Dioxide (SO_2)], Meteorology, PM Coarse and Speciated $PM_{2.5}$. Air Toxic sites collect samples that are analyzed for heavy metals (ex. mercury and chromium) and VOCs (ex. benzene, trichloroethylene, and methylene chloride). Heavy metals, lead (Pb), PM filter weighing and TO-15 canisters are analyzed by the Bureau of Laboratories (BOL) in Harrisburg PA.

On July 27-30, 2015 the Region 3 audit group, comprised of Kia Hence, Loretta Hyden and Elizabeth Gaige, conducted a Technical Systems Audit for PA DEP's air monitoring network. Prior to the audit, PA DEP submitted the Appendix H TSA Questionnaire for Region 3's review. Table 1 lists DAQ, BOL Laboratory and EPA audit participants. Region 3 greatly appreciates the efforts made by PA DEP to make the TSA audit successful.

TABLE 1: TSA PARTICIPANTS

PA DEP PARTICIPANTS	
NAME	**POSITION**
Don Torsello	Field Operations and Maintenance – Section Chief
Sean Nolan	Quality Assurance & Data Assessment – Section Chief
Brian Hurzing	Quality Assurance and Quality Control
Larry Schaeffer	Quality Assurance and Quality Control
Dave Hoffman	Field Operations
Rob Valentich	Field Operations
David Fenstermacher	Field Operations
Jon Ferdinand	Field Operations
Roger Briggs	Field Operations
Tim Matzik	Field Operations
Jim McAvoy	Field Operations
Doug Schardt	Field Operations
PA BUREAU OF LABORATORIES	
Taru Upadhyay	Technical Director
Jim Yoder	Quality Assurance and Safety
EPA REGION 3 AUDITORS	
NAME	**POSITION**
Kia Hence	Physical Scientist
Loretta Hyden	Environmental Engineer
Elizabeth Gaige	Life Scientist

3.0 TSA FINDINGS

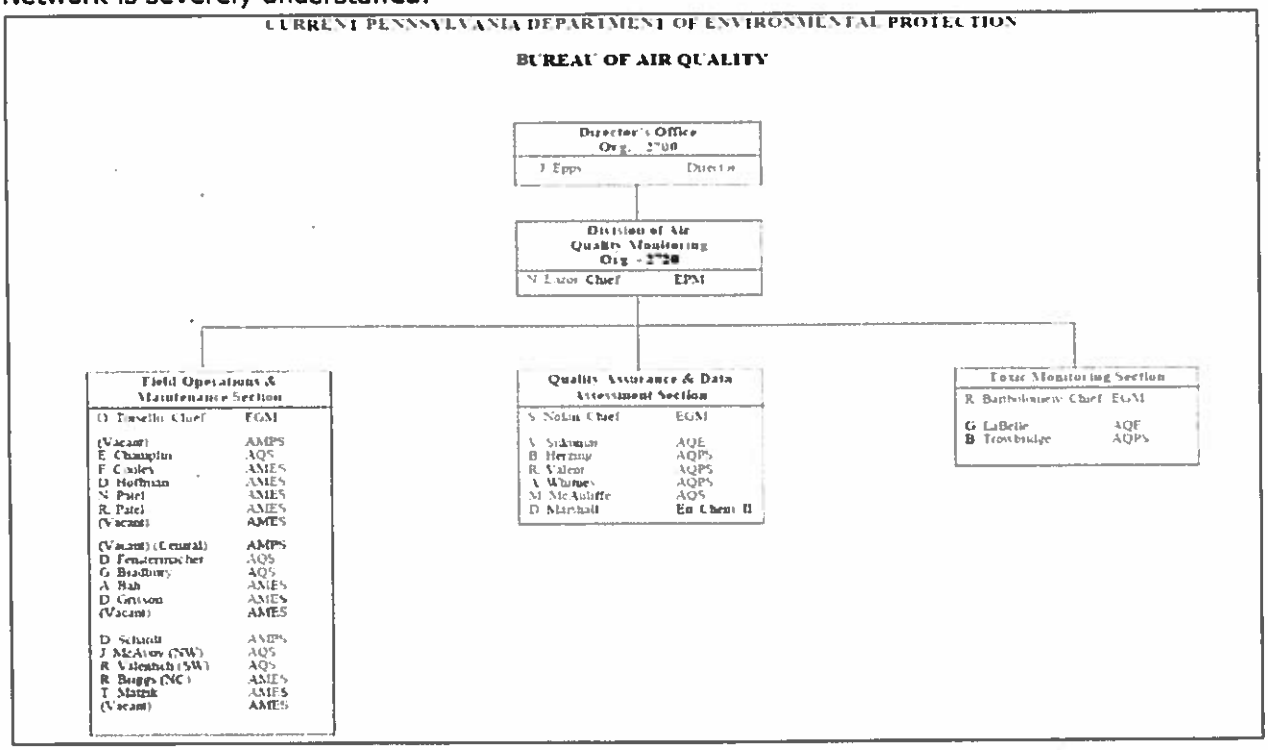
This section lists audit findings made by the EPA Region 3 audit team. In September 2015, Region 3 sent an initial audit findings summary (Appendix A) to PADEP for their review. Subsequent calls and emails between Region 3 and PADEP to discuss the findings. PADEP responded to the findings summary; those comments are in Appendix B of this report. Region 3 found issues in the areas of network management, quality assurance/quality control, and laboratory and field operations.

TSA findings are categorized and defined as:

Major	Nonconformance of high importance which is unacceptable and must be remedied. Such nonconformances impact data quality, indicate unacceptable procedures are in use (per guidance documents), endanger staff members, and/or obscure the traceability of data.
Minor	Nonconformance of somewhat lesser importance as compared to a major finding, but one that should be remedied. Such nonconformances have marginal impact on data quality. Action taken to address such nonconformances will yield improvements in data quality and/or bring procedures into full compliance with guidance documents and/or quality system standards.
Observation	Either a nonconformance with no impact to data quality or a recommendation for an improved or best practice

MONITORING NETWORK (MN)

Finding MN1: The Field Operation & Maintenance Section (FOMS) responsible for maintaining the SLAMS Network is severely understaffed.



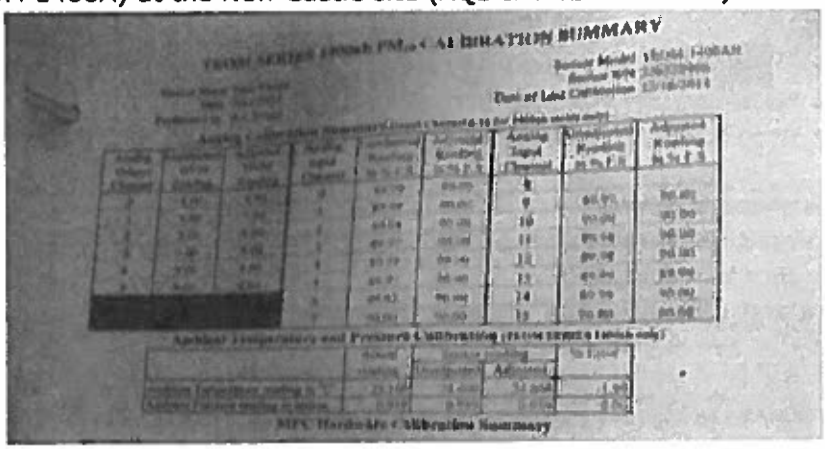
Finding Type: MAJOR
Discussion: *"The monitoring organization's quality system must have adequate resources both in personnel and funding to plan, implement, assess and report on the achievement of the requirements of this appendix and its approved QAPP".*40 CFR Part 58 Appendix A 2.1.3
At the time of the audit, there were five (5) vacant staff positions in FOMS. PADEP stated in the TSA Appendix H Questionnaire that: *"Staffing levels have been a major issue. Critical work is being completed, however the program has had to operate in a reactive mode instead of proactive. Hiring has begun again in mid-2015 with a full complement expected by mid-2016."* EPA auditors found significant concerns with PADEP's field staff shortage. Critical tasks/operations are being performed, however the work is done by personnel who have to shoulder their workload with that of the vacant positions. In some cases, field supervisors are operating field sites in addition to their own responsibilities.
Recommendation/Corrective Action: Vacant positions need to be filled in order to continue operating air monitoring program pursuant to 40 CFR 58 Appendix A.

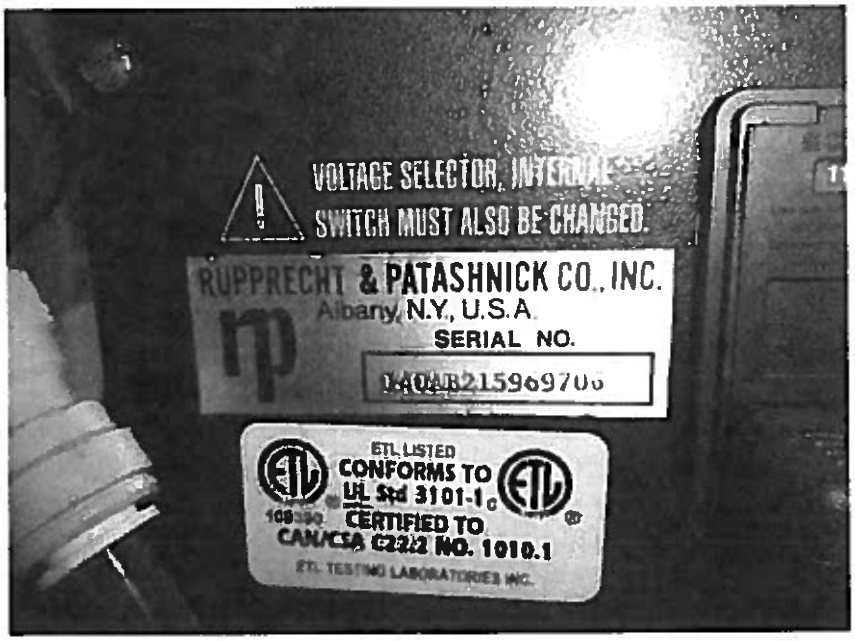
QUALITY ASSURANCE (QA)

Finding QA1: It's not clear if PADEP receives $PM_{2.5}$ & PM_{10} weighing room conditions (temperature and humidity) from BOL.
Finding Type: MAJOR
Discussion: Weighing room environmental conditions for $PM_{2.5}$ & PM_{10} are critical criteria that must be met for sample validation. As part of their QA/QC validation procedures PADEP should periodically review BOL's 24 hour average temperature and humidity data to ensure that these criteria are met.
Recommendation/Corrective Action: PADEP should request and review weighing room conditions periodically for $PM_{2.5}$ and PM_{10}.

Finding QA2: $PM_{2.5}$ instrument serial number on QC data sheets does not match instrument's serial number at the Erie site (AQS ID: 42-049-0003).
Finding Type: MAJOR
Discussion: Inaccurate reporting adversely affects the data quality. There were no quality control records for the current $PM_{2.5}$ instrument at the site. The site operator did not have the correct $PM_{2.5}$ serial number on the electronic worksheets. EPA auditors found that the site operator was using a partially prefilled worksheet with the previous $PM_{2.5}$ instrument's serial number. It appears that the incorrect serial number was carried over from sheet to sheet for long period of time.
Recommendation/Corrective Action:
1. Field sheets must be filled in accurately and completely.
2. The information contained on the sheets must be verified and checked for accuracy as part of the validation process. This should be done by field staff, managers and the quality assurance staff.
3. Specify the verification procedures in the QAPP and SOP.

Finding QA3: The $PM_{2.5}$ (TEOM 1400A) serial number on the QC data sheet does not match serial number of $PM_{2.5}$ (TEOM 1400A) at the New Castle site (AQS ID: 42-073-0015).





Finding Type: MAJOR

Discussion: The field data sheets reported the site's TEOM instrument (S/N 140AB215969706) as S/N 140AB226529906. There were no quality control records for the current $PM_{2.5}$ instrument at the site. The site operator did not have the correct $PM_{2.5}$ serial number on the electronic worksheets. EPA auditors found that the site operator was using a partially prefilled worksheet with the previous $PM_{2.5}$ instrument's serial number. It appears that the incorrect serial number was carried over from sheet to sheet for long period of time.

Recommendation/Corrective Action:

1. Field sheets must be filled in accurately and completely.
2. The information contained on the sheets must be verified and checked for accuracy as part of the validation process. This should be done by field staff, managers and the quality assurance staff.
3. Specify the verification procedures in the QAPP and SOP.

Finding QA4: Inconsistent and incomplete recording field data into logbooks and/or electronic files. The amount of data and information recorded in logs is inconsistent and varies from operator to operator.
Finding Type: MAJOR
Discussion: PADEP uses standard worksheets and electronic logs for recording QC checks and instrument diagnostics. However, the information recorded in the logbooks ranged from detailed to vague and incomplete. In our interviews, the field staff had differing opinions as to what information should be recorded.
Recommendation/Corrective Action:

1. Develop standard procedures for documenting QC and instrument maintenance information (ex. worksheet template for manual PCs).
2. Train staff to ensure that the new procedures are followed.

Finding QA5: Ozone station analyzers (sensors) responsible for generating 1-point QC and Span checks are not verified against a higher Level O_3 standard traceable to the Regional Standard Reference Photometer (SRP).
Finding Type: MAJOR
Discussion: The station analyzer (sensor) is calibrated three times a year but it is not verified according to the *Transfer Standards For Calibration of Air Monitoring Analyzers for Ozone Technical Assistance Document*. All O_3 transfer standards must be traceable to a Level 1 standard.
http://www.epa.gov/ttnamti1/files/ambient/qaqc/OzoneTransferStandardGuidance.pdf
Recommendation/Corrective Action: The transfer standards used for generating the span and 1-point QC checks must be verified according to the Transfer Standard TAD. Initially, each sensor will need 6x6 verifications then 6x1 thereafter according to the schedule specified in Table 3-1 of the TAD.

Finding QA6: Missing approved QAPPs for several NAAQS pollutants.
Finding Type: MAJOR
Discussion: QAPPs are a major component of a quality system. They are a "blueprint" for obtaining quantity and quality of data needed to support environmental decision making. The QAPP documents all quality assurance (QA), quality control (QC) and technical activities and procedures associated with planning, implementing, documenting and assessing environmental data operations. Region 3 reviewed the QAPPs submitted by PADEP and is awaiting revisions. PADEP is working on those revisions and plans to re-submit QAPPs for approval.
Recommendation/Corrective Action: PADEP must submit a QAPP schedule to EPA Region 3 on anticipated QAPP submissions. All QAPPs need to be submitted by 12/31/2015.

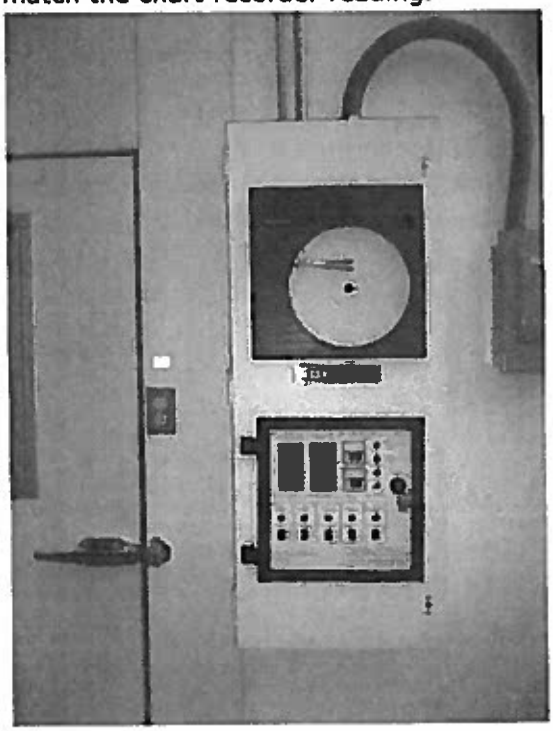
Finding QA7: Bureau of Laboratories: Standard Operating Procedure for $PM_{2.5}$ "*Determination of PM2.5 Particulate Matter in Ambient by Gravimetric Analysis EPA Title 40 CFR Appendix L to Part 50*" Revision 002, the SOP does not indicate what actions are taken if the weighing room temperature and humidity exceeds the criteria.
Finding Type: MAJOR
Discussion: The SOP doesn't indicate if filter weighing is suspended when the weighing room is outside acceptable criteria for temperature and humidity.
Recommendation/Corrective Action: Update the SOP to indicate the actions taken when the weighing room's temperature and humidity exceed criteria.

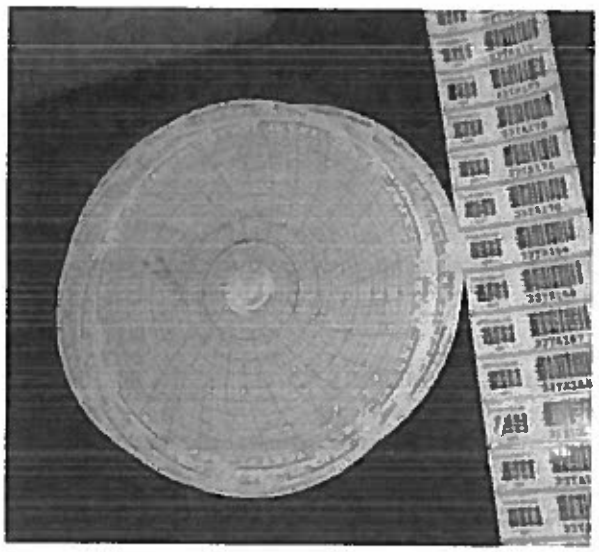
Finding QA8: Standard Operating Procedures for ambient air analyzers and samplers need to be updated.
Finding Type: MAJOR
Discussion: SOPs for criteria pollutants are not up to date.
Recommendation/Corrective Action: Update standard procedures for all data collecting activities.

Finding QA9: At the Erie site (AQS ID: 42-049-0003) Electronic files were disorganized on the Operator's computer.
Finding Type: MINOR
Discussion: The EPA audit team found no standard filing system for electronic records. QC and maintenance files were disorganized; the station operator couldn't produce all of the QC records at the time of the audit. Field staff save the QC and maintenance records on a central server but not all site operators retain a copy for their records.
Recommendation/Corrective Action:
1. Develop standard filename conventions and organize files into folders.
2. Update SOPs and QAPPs to include PADEP's electronic file system.

LABORATORY (LAB)

Finding LAB1: $PM_{2.5}$ filter weighing: backup temperature and humidity sensors not verified. The backup system has a digital output and uses a Dixon chart to record the room's conditions. At the time of the audit the digital reading did not match the chart recorder reading.



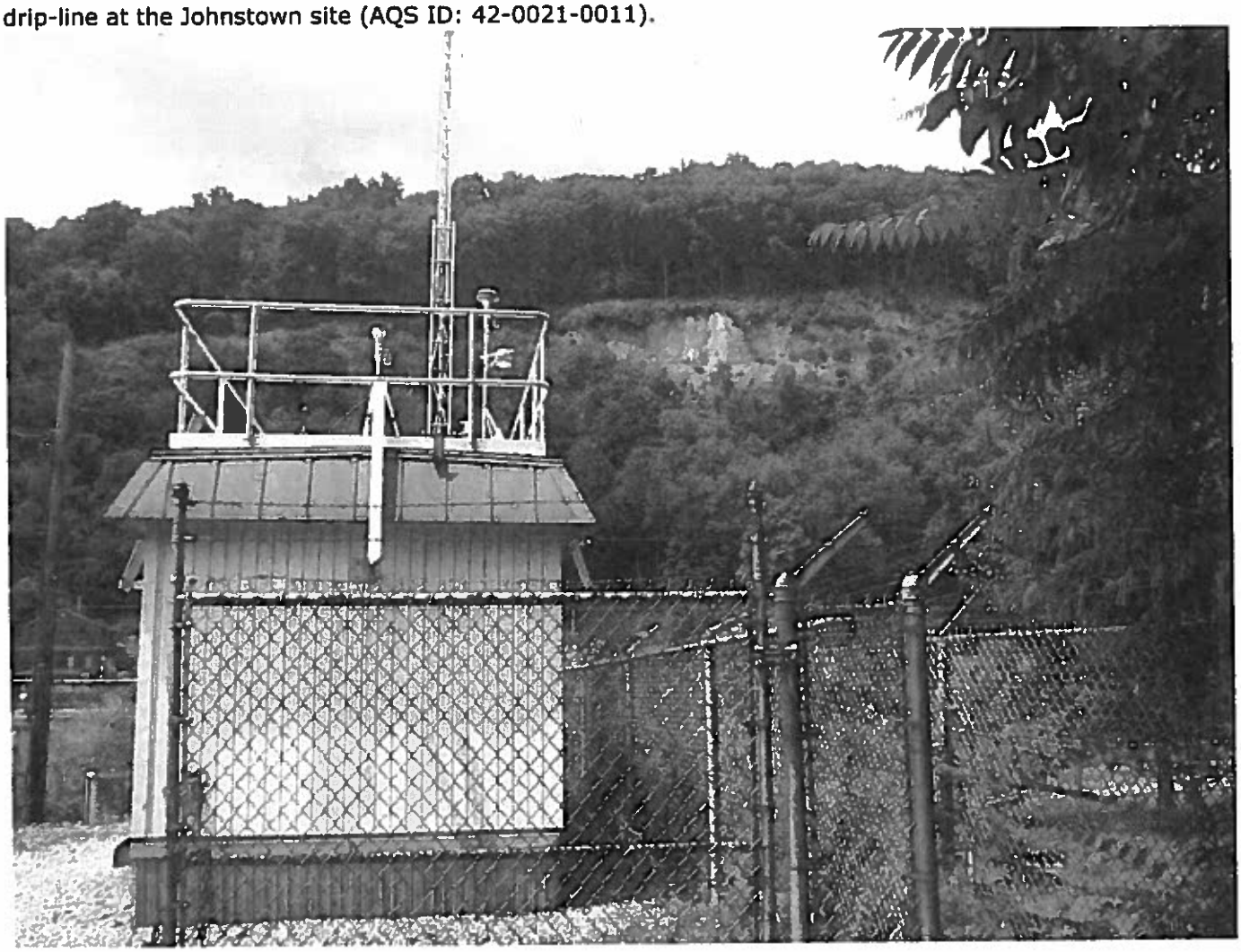


Finding Type: MAJOR
Discussion: BOL should have backup temperature and humidity sensors in addition to the Building's maintenance system. These backup sensors should be checked periodically and verified annual.
Recommendation/Corrective Action:
1. Install secondary temperature and humidity sensors as a backup to the primary MDL system.
2. Verify the sensors against a NIST traceable standard annually and check them routinely

Finding LAB2: PM_{10} filter weighing log had RH% above 45% that exceeded the weighing criteria.
Finding Type: MAJOR
Discussion: The lab recorded humidity values above the acceptance criteria. There were no comments for values greater than 45% RH in the logbook. It's not clear if filters were weighed outside of the acceptance criteria. The PM_{10} filter conditioning requirement is a humidity range between 20% - 45% RH. Filters must be conditioned and weighed according 40 CFR 50 Appendix J Section 7
Recommendation/Corrective Action: Flag PM_{10} data (in AQS) for the last three years where the weighed filters exceeded the humidity and/or temperature criteria using the QA code "1" (Deviation from a CFR/Critical Criteria Requirement).

FIELD SITES (FSE)

Finding FSE1: Spacing from trees: BAM 1020 continuous $PM_{2.5}$ monitor is 7.62m (25ft.) from the tree drip-line at the Johnstown site (AQS ID: 42-0021-0011).

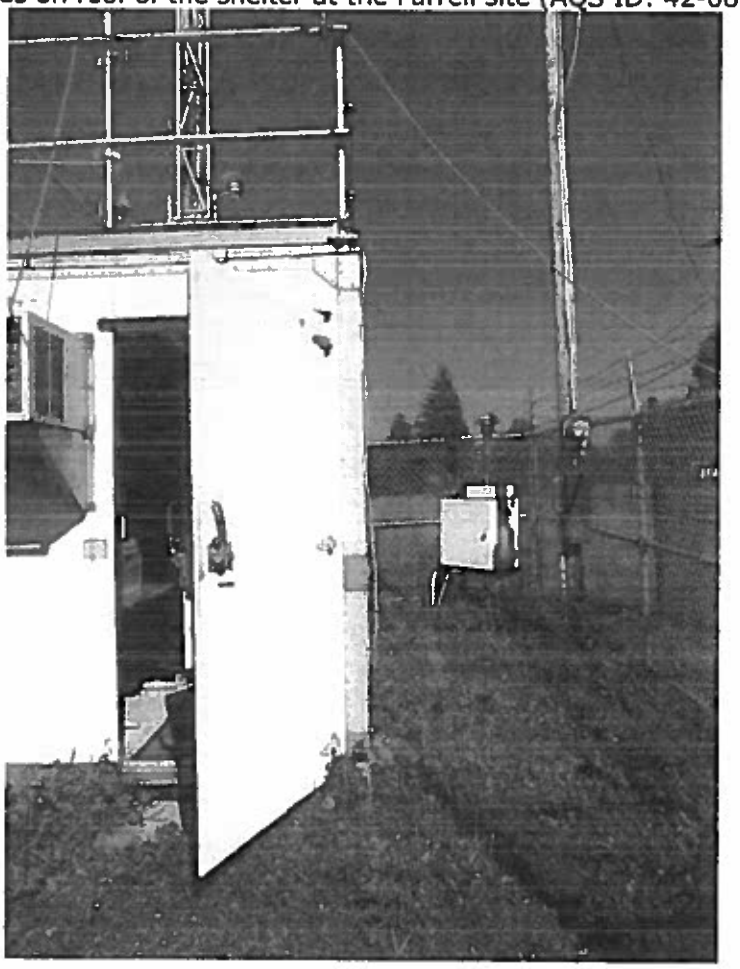


Finding Type: MAJOR

Discussion: $PM_{2.5}$ inlets must be 10m from the dripline and should be greater than 20m from the dripline when tree(s) act as an obstruction. 40 CFR part 58 Appendix E Table E-4.

Recommendation/Corrective Action: (1) The tree(s) must be removed or cutback or (2) the inlet must be moved to adhere to the minimum requirements in Appendix E.

Finding FSE2: The collocated $PM_{2.5}$ continuous and $PM_{2.5}$ FRM monitors are 6m apart. The FRM is on the ground and the continuous on roof of the shelter at the Farrell site (AQS ID: 42-085-0100).



Finding Type: MAJOR

Discussion: $PM_{2.5}$ collocating FRM and FEM: The inlets to be within 1-4 meters horizontally and 1 meter vertically. EPA can accept a vertical difference of 3 meters if PADEP requests a waiver from the Regional Administrator. *"A waiver allowing up to 10 meters horizontal distance and up to 3 meters vertical distance (inlet to inlet) between a primary and collocated sampler may be approved by the Regional Administrator for sites at a neighborhood or larger scale of representation."* 40 CFR 58 Appendix 3.2.5.6

Recommendation/Corrective Action: PADEP must either:

1. Move FRM to roof of the station to meet the vertical collocation requirements from inlet to inlet.
2. Request a waiver from the R3 Administrator attached to 2016 Annual Network Plan.

Finding FSE3: The Met One BAM 1020 inlet tube at the Washington site (AQS ID: 42-125-0020) was slightly angled and not perpendicular to the base of the instrument.

Finding Type: MAJOR

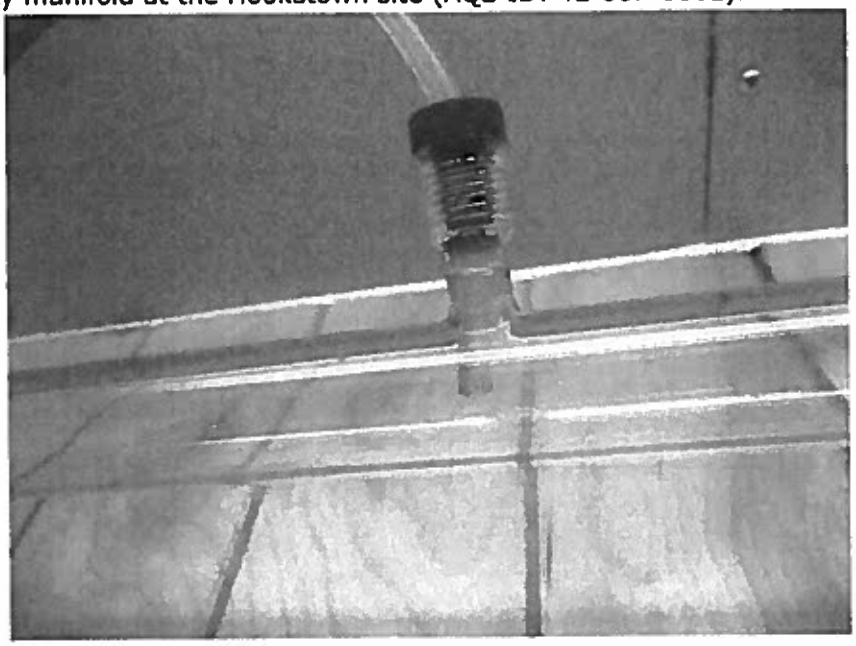
Discussion: *"To achieve proper alignment, the BAM-1020 must be level, and the inlet tube must be absolutely vertical. This alignment is important to avoid transverse stress on the inlet as it enters the top of the BAM-1020. Stress may interfere with nozzle movement or cause air leaks at the BAM inlet."* Standard Operating Procedure for the Continuous Measurement of Particulate Matter, Met One BAM-1020 $PM_{2.5}$ Federal Equivalent Method EQPM-0308-170 Section 9.5.1 page 9-7.

Recommendation/Corrective Action:

1. Straighten the inlet and downtube so that it's perpendicular to the base.

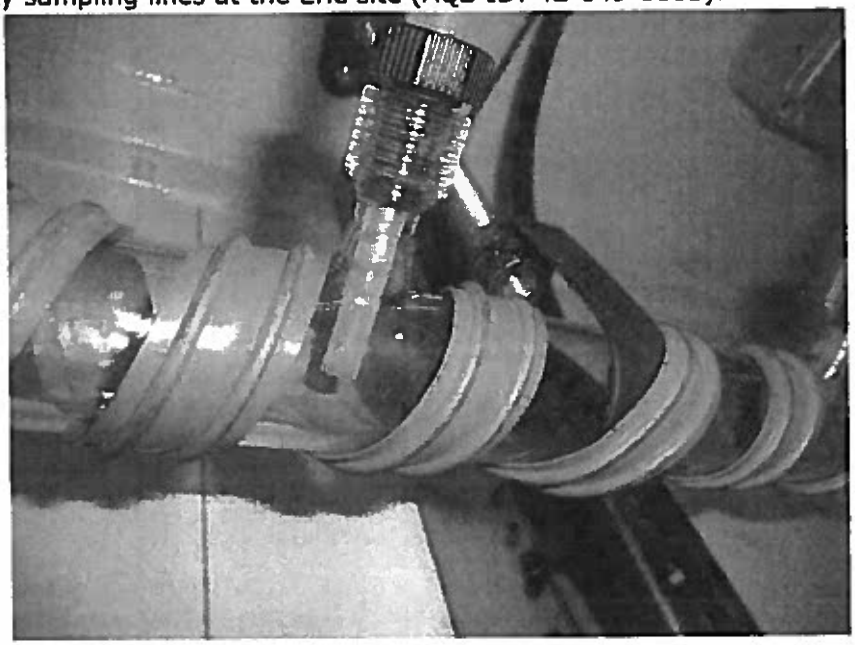
2. Review data and flag or invalidate data as appropriate.

Finding FSE4: Dirty manifold at the Hookstown site (AQS ID: 42-007-0002).



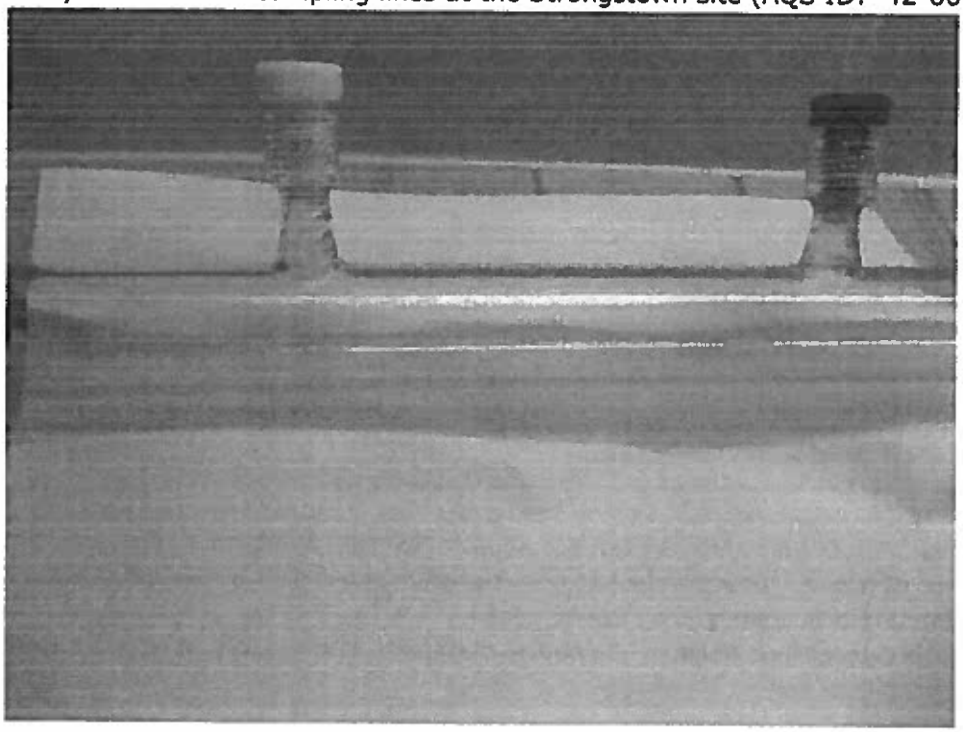
Finding Type: MINOR
Discussion: Small insects and particles can accumulate inside of the tubing. This can cause blockage and affect the response of the instruments. In addition, particles can collect inside the tubing, especially at the entrance, thus affecting precursor gas concentrations.
Recommendation/Corrective Action: Clean the manifold. It's recommended that manifolds be cleaned every 6 months or sooner if needed.

Finding FSE5: Dirty sampling lines at the Erie site (AQS ID: 42-049-0003).



Finding Type: MINOR
Discussion: Small insects and particles can accumulate inside of the tubing. This can cause blockage and affect the response of the instruments. In addition, particles can collect inside the tubing, especially at the entrance, thus affecting precursor gas concentrations.
Recommendation/Corrective Action: Replace dirty sampling lines.

Finding FSE6: Dirty manifold and sampling lines at the Strongstown site (AQS ID: 42-063-0004).

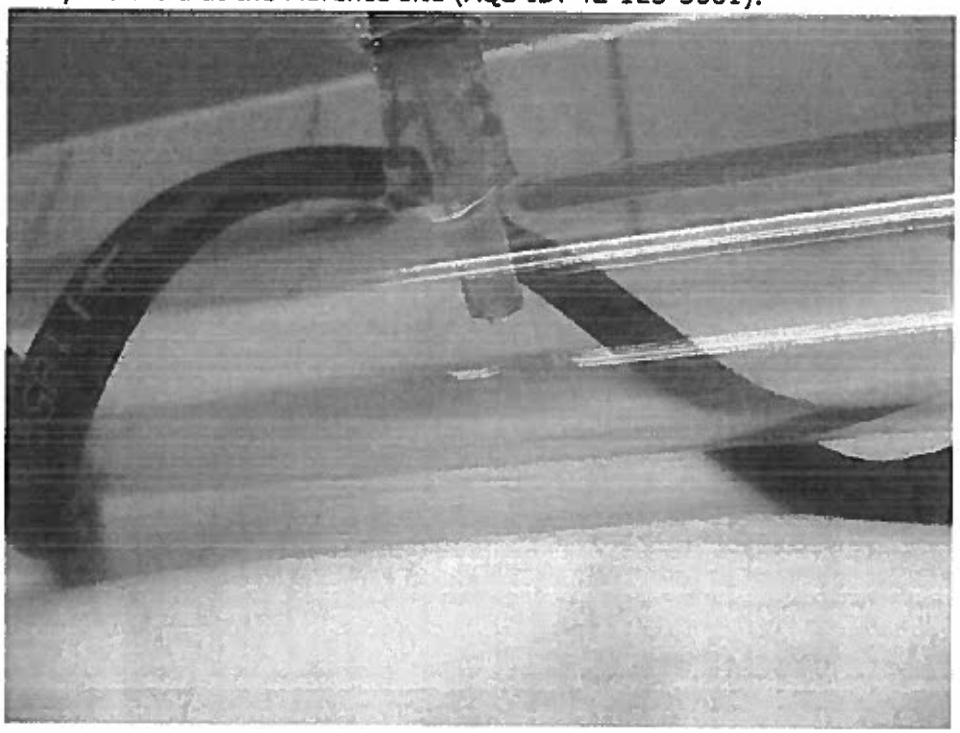


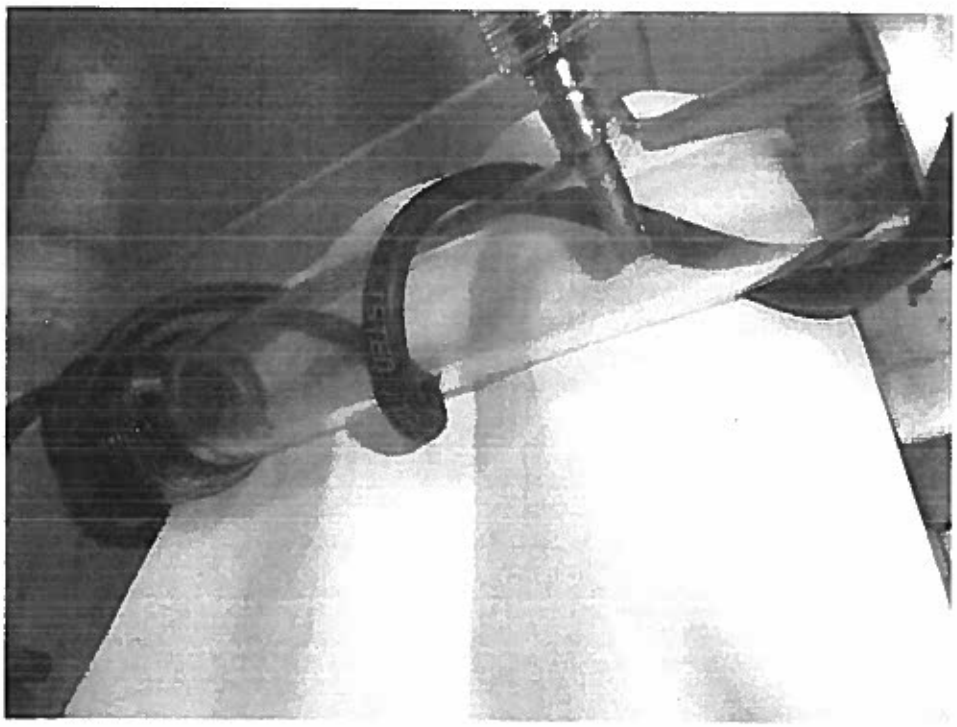
Finding Type: MINOR
Discussion: Small insects and particles can accumulate inside of the tubing. This can cause blockage and affect the response of the instruments. In addition, particles can collect inside the tubing, especially at the entrance, thus affecting precursor gas concentrations.
Recommendation/Corrective Action: Clean the manifold and replace dirty sampling lines. It's recommended that manifolds be cleaned every 6 months or sooner if needed.

Finding FSE7: Meteorological tower less than 10 meters high at the Farrell site (AQS ID: 42-085-0100).

Finding Type: MINOR
Discussion: *"To accommodate wind speed/wind direction sensors, a meteorological tower must be able to reach a height of 10 m. The standard exposure of the wind instruments over level, open terrain is 10 meters above ground."* References found In *Quality Assurance Handbook for Air Pollution Measurement Systems Volume IV: Meteorological Measurements Version 2.0 (Final)* 2008.
Recommendation/Corrective Action: Raise tower to 10 meters.

Finding FSE8: Dirty manifold at the Florence site (AQS ID: 42-125-5001).





Finding Type: MINOR

Discussion: Small insects and particles can accumulate inside of the tubing. This can cause blockage and affect the response of the instruments. In addition, particles can collect inside the tubing, especially at the entrance, thus affecting precursor gas concentrations.
Recommendation/Corrective Action: Clean the manifold. It's recommended that manifolds be cleaned every 6 months or sooner if needed.

Finding FSE9: The Greensburg site's (AQS ID: 42-129-0008) collocated FEM $PM_{2.5}$ BAMS sampler's concentration (26.64 ug/m^3) read 2x greater than the primary $PM_{2.5}$ FEM sampler (12.69ug/m^3).
Finding Type: MAJOR
Discussion: The collocated BAMS unit is located next to the air conditioner's vent. Cold air is blows directly on the unit. This could be affecting the sampler's operations and causing the higher concentrations and disparity between the primary and collocated units.
Recommendation/Corrective Action:

1. Both instruments are reported to AQS (POC 3 & POC 4). Data should be reviewed and analyzed. Questionable data should be flagged.
2. Block the air from the vent of move the instrument father away.

Finding FSE10: Water marks found near inlet receiver where downtube meets the unit at the Washington site (AQS ID: 42-125-0020). Dirt was visible on unsampled tape.
Finding Type: Observation
Discussion: Water marks found can indicate that the shelter seal around the downtube is leaking.
Recommendation/Corrective Action: Replace or tighten the seal.

Finding FSE11: PADEP doesn't use control/strip charts in the ambient air monitoring network.
Finding Type: Observation
Discussion: With the objective to minimize data loss, quality control data are most beneficial when they are assessed as soon as they are collected. Information management systems can play a very important role in reviewing QC data and flagging or identifying spurious data for further review. These information management procedures can help the technical staff review the QC checks coming from a number of monitoring sites in a consistent and time efficient manner. There are many graphical techniques (e.g., control charts and outlier checks) that can be employed to quickly identify suspect data.
Recommendation/Corrective Action: Recommend using graphical tools to chart data and perform trends analysis.

APPENDIX A
Region 3's PADEP 2015 TSA Findings Summary

PADEP BUREAU OF AIR QUALITY (BAQ) TSA 2015 Finding Summary

MONITORING NETWORK (MN)

FINDING No.	Finding Type	SITE	AIRS CODE	FINDING	DISCUSSION	CORRECTIVE ACTION / RECOMMENDATION	PADEP Comments
MN-1	MAJOR	PADEP	N/A	The Field Operation & Maintenance Section (FOMS) responsible for maintaining the SLAMS Network is severely understaffed	"The monitoring organization's quality system must have adequate resources both in personnel and funding to plan, implement, assess and report on the achievement of the requirements of this appendix and its approved QAPP." 40 CFR Part 58 Appendix A 2.1.3. Currently there are six (6) vacant staff positions in FOMS. Critical tasks/operations are in danger of not being performed. FOMS personnel are tasked with providing coverage for the vacant positions in addition to performing their own duties. For example, one of the field supervisors is operating field sites in addition to his other responsibilities due to the staffing shortage. Additional staff are needed to continue to operate the PADEP's SLAMS network.	Vacant positions need to be filled in order to continue operating air monitoring program pursuant to 40 CFR 58 Appendix A	

QUALITY ASSURANCE (QA)

FINDING No.	Finding Type	SITE	AIRS CODE	FINDING	DISCUSSION	CORRECTIVE ACTION / RECOMMENDATION	PADEP Comments
QA-2	MAJOR	N/A	N/A	It's not clear if BAQ receives PM2.5 & PM10 weighing room conditions (temperature and humidity) from BOL. See comment LAB-2	Weighing room environmental conditions for PM2.5 & PM10 are critical criteria that must be met for sample validation. As part of their QA/QC validation procedures PADEP should periodically review BOL's 24 hour average temperature and humidity data to ensure that these criteria are met.	BAQ should request weighing room conditions for PM_{10} and $PM_{2.5}$	
QA-1	MAJOR	Erie	42-049-0003	$PM_{2.5}$ instrument serial number on QC data sheets does not match instrument's serial number at the station	No quality control records for the $PM_{2.5}$ instrument at the site. The site operator didn't update the serial number on the electronic worksheet was using sheet with a different serial number. We observed that portions of the worksheet are prefilled. It appears that the incorrect serial number was carried over from sheet to sheet for long period of time. Inaccurate reporting adversely affects the quality of data	(1) Field sheets must be filled in accurately and completely. (2) The information contained on the sheets must be verified and checked for accuracy as part of the validation process. This should be done by field staff, managers and the quality assurance staff. (3) Specify the verification procedures in the QAPP and SOP	
QA-2	MAJOR	New Castle	42-073-0015	$PM_{2.5}$ (TEOM 1400A) instrument serial number on QC data sheet does not match serial number of instrument in station.	The field data sheets reported the site's TEOM instrument (sn 140AB21[illegible]) as S/N 140AB22[illegible]. No quality control records for the $PM_{2.5}$ instrument at the site. The site operator didn't update the serial number on the electronic worksheet was using sheet with a different serial number. We observed that portions of the worksheet are prefilled. It appears that the incorrect serial number was carried over from sheet to sheet for long period of time. Inaccurate reporting adversely affects the quality of data	(1) Field sheets must be filled in accurately and completely. (2) The information contained on the sheets must be verified and checked for accuracy as part of the validation process. This should be done by field staff, managers and the quality assurance staff. (3) Specify the verification procedures in the QAPP and SOP	
QA-3	MINOR	PADEP	All	Inconsistent and incomplete recording field data into logbooks and/or electronic files. The amount of data and information recorded in logs is inconsistent and varies from operator to operator	PADEP uses standard worksheets and electronic logs for recording QC checks and instrument diagnostics. However the information recorded in the logbooks ranged from detailed to vague and incomplete. In our interviews, the field staff had differing opinions as to what information should be recorded.	(1) Develop standard procedures for documenting QC and instrument maintenance information (ex. worksheet template for manual PCs). (2) Train staff to ensure that the new procedures are followed.	
QA-4	MAJOR	PADEP	All O_3 Sites	Ozone station analyzers (sensors) responsible for generating 1-point QC and Span checks are not verified against a higher Level O_3 standard traceable to the Regional Standard Reference Photometer (SRP)	The station analyzer (sensor) is calibrated three times a year but it is not verified according to the *Transfer Standards For Calibration of Air Monitoring Analyzers for Ozone Technical Assistance Document*. All O_3 transfer standards must be traceable to a Level 1 standard. http://www.epa.gov/ttnamti1/files/ambient/qaqc/OzoneTransferStandardGuidance.pdf	The transfer standards used for generating the span and 1-point QC checks must be verified according to the Transfer Standard TAD. Initially, each sensor will need 6x6 verifications then 1x1 thereafter according to the schedule specified in Table 3-1	
QA-5	MAJOR	PADEP	N/A	Missing approved QAPPs for several NAAQS pollutants	QAPPs are a major component of a quality system. They are a "blueprint" for obtaining quantity and quality of data needed to support environmental decision making. The QAPP documents all quality assurance (QA), quality control (QC) and technical activities and procedures associated with planning, implementing, documenting and assessing environmental data operations. Region 3 reviewed the QAPPs submitted by PADEP and is awaiting revisions. PADEP is [illegible]	PADEP must submit a time line for when the QAPPs will be submitted. All QAPPs need to be submitted by 12/31/2015	
QA-6	MAJOR	Bureau of Laboratories	N/A	Standard Operating Procedure for $PM_{2.5}$ "*Determination of PM2.5 Particulate Matter in Ambient by Gravimetric Analysis EPA Title 40 CFR Appendix L to Part 50*" Revision 002, the SOP does not indicate what actions are taken if the weighing room temperature and humidity exceeds the criteria	The SOP doesn't indicate if filter weighing is suspended when the weighing room is outside acceptable criteria for temperature and humidity	Update the SOP to indicate the actions taken when the weighing room's temperature and humidity exceed criteria	
QA-7	MAJOR	PADEP	N/A	Standard Operating Procedures for ambient air analyzers and samplers need to be updated are outdated	SOPs for criteria pollutants are not up to date	Update standard procedures for all data collecting activities	
QA-8	MINOR	Erie	42-049-0003	Electronic files are disorganized on the Operator's computer. There were loose files without a consistent naming structure	There is no standard filing system for electronic records. QC and maintenance files were disorganized. The station operator couldn't produce all of the QC records at the time of the audit. Field staff save the QC and maintenance records on a central server but not all retain a copy for their records	(1) Develop standard filename conventions and organize files into folders. (2) Update SOPs and QAPPs to include PADEP's electronic file system	

LABORATORY (LAB)

FINDING No.	Finding Type	SITE	PROGRAM	FINDING	DISCUSSION	CORRECTIVE ACTION / RECOMMENDATION	PADEP Comments
LAB-1	MAJOR	Bureau of Laboratories	$PM_{2.5}$ filter weighing	$PM_{2.5}$ filter weighing: backup temperature and humidity sensors not verified. The backup system has a digital output and uses a Chart chart to record the room's conditions. At the time of the audit the digital reading did not match	BOL should have backup temperature and humidity sensors in addition to the Building's maintenance system. These backup sensors should be checked periodically and verified annual.	(1) Install secondary temperature and humidity sensors as a backup to the primary BOL system. (2) Verify the sensors against a NIST traceable standard annually and check them routinely	
LAB-2	MAJOR	Bureau of Laboratories	PM_{10} filter weighing	PM_{10} filter weighing log had RH% above 45% that exceeded the weighing criteria.	The lab recorded humidity values above the acceptance criteria. There were no comments for values greater than 45% RH in the logbook. It's not clear if filters were weighed outside of the acceptance criteria. The PM10 filter conditioning requirement is a humidity range between 20% - 45% RH. Filters must be conditioned and weighed according 40 CFR 50 Appendix J	Flag PM10 data (in AQS) for the last three years where the weighed filters exceeded the humidity and/or temperature criteria using the QA code "1" (Deviation from a CFR/Critical Criteria Requirement)	

FIELD SITE EVALUATIONS (FSE)

FINDING No.	Finding Type	SITE	AIRS CODE	FINDING	DISCUSSION	CORRECTIVE ACTION / RECOMMENDATION	PADEP Comments
FSE-1	MAJOR	Johnstown	42-0021-0011	Spacing from trees: BAM 1020 continuous $PM_{2.5}$ monitor is 7.62m (25') from the tree drip-line	Must be 10m from the dripline and should be greater than 20m from the dripline when tree(s) act as an obstruction. 40 CFR part 58 Appendix E Table E-4	(1) The tree(s) must be removed or cutback or (2) the inlet must be moved to adhere to the minimum requirements in Appendix E	
FSE-2	MAJOR	Farrell	42-085-0100	Collocated $PM_{2.5}$ FEM continuous and $PM_{2.5}$ FRM are 6m apart. FRM is on the ground and FEM on roof of the shelter	$PM_{2.5}$ collocating FRM and FEM: need inlet to be within 1-4 horizontally and 1 meter vertically. EPA can accept vertical difference of 3 meters if they request a waiver from the Regional administrator. "A waiver allowing up to 10 meters horizontal distance and up to 3 meters vertical distance (inlet to inlet) between a primary and collocated sampler may be approved by the Regional Administrator for sites at a neighborhood or larger scale of representation." 40 CFR 58 Appendix A 3.2.5.6	PADEP must (1) move FRM to roof of the station to meet the vertical collocation requirements from inlet to inlet. Or (2) request a waiver from the R3 Administrator attached to 2016 ANP	

FSE-3	MAJOR	Washington	42-125-0020	BAM 1020 inlet slightly angled and not perpendicular to the base	Not operating the instrument according to manufacturer's design and instructions affects sample collections and data quality	(1) Straighten the inlet and downtube so that it's perpendicular to the base. (2) Review data and flag or invalidate data as appropriate	
FSE-4	MINOR	Hookstown	42-007-0002	Dirty manifold	See Comment for FSE-8	Clean the manifold. It's recommended that manifolds be cleaned every 3 months or sooner if needed	
FSE-5	MINOR	Erie	42-049-0003	Dirty sampling lines	See Comment for FSE-8	Replace dirty sampling lines	
FSE-6	MINOR	Strongstown	42-063-0004	Dirty manifold and sampling lines	See Comment for FSE-8	Clean the manifold and replace dirty sampling lines. It's recommended that manifolds be cleaned every 3 months or sooner	
FSE-7	MINOR	Forest	42-053-0102	Meteorological tower less than 10 meters high	The meteorological tower should be at 10 meters high	Raise tower to the minimum required height of 10m	
FSE-8	MINOR	Florence	42-125-5001	Dirty manifold	Small insects and particles can accumulate inside of the tubing. This can cause blockage and affect the response of the instruments. In addition, particles can collect inside the tubing, especially at the entrance, thus affecting measured gas concentrations	Clean the manifold. It's recommended that manifolds be cleaned every 3 months or sooner if needed	
FSE-9	OBSERVATION	Washington	42-125-0005	Water marks found near inlet receiver where downtube meets the unit. Dirt visible on associated tube.	Water marks found can indicate that the shelter seal around the downtube is leaking	Replace or tighten the seal	
FSE-10	MAJOR	Greensburg	42-129-0008	The collocated $PM_{2.5}$ continuous BAMS sampler's concentration (28.84 ug/m³) read 2x greater than the primary $PM_{2.5}$ continuous sampler (12.66ug/m³)	The collocated BAMS unit is located next to the air conditioner's vent. Cold air is blown directly on the unit. This could be affecting the sampler's operations and causing the higher concentrations and disparity between the primary and collocated units	(1) Both instruments are reported to AQS (POC 3 & POC 4). Data should be reviewed and analyzed. Questionable data should be flagged. (2) Block the air from the vent or move the instrument farther	
FSE-11	OBSERVATION	All PADEP	All Sites	Control/Strip charts are not used	With the objective to minimize data loss, quality control data are most beneficial when they are assessed as soon as they are collected. Information management systems can play a very important role in reviewing QC data and flagging or identifying spurious data for further review. These information management procedures can help the technical staff review the QC checks coming from a number of monitoring sites in a consistent and time efficient manner. There are many graphical techniques (e.g. control charts and outlier checks) that can be employed to quickly identify suspect data.	Recommend using graphical tools to chart data and perform trends analyses	

DEFINITIONS:

MAJOR — Nonconformance of high importance which is unacceptable and must be remedied. Such nonconformances impact data quality, indicate unacceptable procedures are in use (per guidance documents), endanger staff members, and/or obscure the traceability of data.

MINOR — Nonconformance of somewhat lesser importance as compared to a major finding, but one that should be remedied. Such nonconformances have marginal impact on data quality. Action taken to address such nonconformances will yield improvements in data quality and/or bring procedures into full compliance with guidance documents and/or quality system standards.

OBSERVATION — Either a nonconformance with no impact to data quality or a recommendation for an improved or best practice.

APPENDIX B
PADEP Responses to the U.S. Environmental Protection (EPA) Region 3 Technical System Audit

PA Department of Environmental Protection (PADEP)
Responses to the U.S. Environmental Protection (EPA) Region 3 Technical System Audit
Conducted on July 27 – July 30, 2015

PADEP BUREAU OF AIR QUALITY (BAC) TSA 2015 Findings

1. EPA Finding MN-1:

The Field Operation & Maintenance Section (FOMS) responsible for maintaining the SLAMS Network is severely understaffed.

PADEP Response:

The PA DEP is committed to restoring the Air Quality Monitoring (AQM) Division to its full complement in the Field Operations & Maintenance Section (FOMS). To this end, the DEP has hired a new Air Monitoring Program Supervisor (AMPS) and is awaiting completion of the hiring process for the AMPS position. DEP has also hired a new Air Monitoring Equipment Specialist (AMES) for the Cambria area. The status of recent personnel actions is summarized below.

- Position # 00052998 (Central AMPS) has been filled from within. The resulting vacancy (AMES in Westmoreland County) is in the process of being filled but must wait for State Civil Service -- testing opened in mid-October 2015.
- Position # 00060697 (Cambria AMES) was filled and the new hire starts 10/19/15.
- Position # 00009000 (Eastern AMPS) has been offered and are now awaiting final approval from HR.

Additionally in the FY2015-2016 Clean Air Fund Spending Plan, two AQM positions were approved—we anticipate authorization to move forward with the hiring process following the enactment of Pennsylvania's FY2015-2016 Budget. Barring additional hiring freezes or compliment losses, AQM is expected to have a full complement by mid-2016.

2. EPA Finding QA-2 (first one):

It's not clear if BAC [PADEP Bureau of Air Quality] receives $PM_{2.5}$ & PM_{10} weighing room conditions (temperature and humidity) from BOL. See comment LAB-2.

PADEP Response:

For the $PM_{2.5}$ weighing room, the old weighing robot, which was custom built by Zymark and in use up to 4/27/15, logged room conditions into a Microsoft Access database (labeled epa2.mdb) which is stored on the state network. A copy of the epa2.mdb database has been

extracted, using data from the past 3 years (1/1/12 to 4/27/15) into Microsoft Excel and provided for your convenience. The new weighing robot (MTL), which has been in use since 4/27/15, also logs room conditions but extracts the data into an internal SQL database. The MTL software is currently programmed to produce two output reports (one for weights that are inputted into Blaze LIMS and the other for weights that are forwarded to AQM staff in a format for use within the Mid-Atlantic Regional Air Management Association's (MARAMA) database). The Lab will contract with the manufacturer to develop a third report specifying room conditions (showing dates, filter numbers, weights, temperature and RH) that will be sent to AQM staff on a monthly basis for compliance verification of EPA criteria. This procedure should be in place by January 1, 2016, barring any unforeseen circumstances.

For the PM_{10} weighing room, the temperature and relative humidity conditions are logged manually into a "Humidity" logbook (which includes information for date, time, initials, temperature (temp), and relative humidity (RH)). A separate "Filter Weights" logbook is used to record the filter weighing event (which includes information for date, initials, filter number or lab number ranges). Unfortunately, the two logbooks cannot be cross-referenced in all cases. The Lab will modify the Filter Weights logbook to record temp and RH conditions at the actual time of weighing and implement as soon as possible. The template of the logsheet has been revised for the TSP and PM_{10} filter weights.

It is important to reemphasize that Lab personnel do not conduct filter weighing in either the $PM_{2.5}$ or PM_{10} rooms when environmental conditions are outside of criteria. There was some confusion, however, on the upper % relative humidity limit for the PM_{10} filter weight measurements with the Lab using 50% (instead of 45%) as a cutoff. This probably is a result of confusion with 40 CFR Part 50, Appendix B criteria, pertaining to TSP filter weight measurements, which are also conducted in the PM_{10} room. Additionally Table 9-1 in the EPA Quality Assurance Handbook, Volume II incorrectly references the relevant appendix of 40 CFR Part 50, thereby adding to the confusion as to the proper upper humidity limit. The Lab is currently following procedures for PM_{10} in 40 CFR Part 50 Appendix J. The Lab will attempt to compile a list of filter and/or Lab ID numbers where the room relative humidity was between 45% and 50%, and provide to Air Quality to allow affected data to be flagged. As noted in LAB-2, manual PM_{10} sampling and analysis will end by January 1, 2016. Contrary to the language of the finding, in 40 CFR Part 50 Appendices B and J (pertaining to TSP and manual PM_{10} filters), there is no requirement to conduct filter weighing under the same temperature and humidity conditions as when the filters are conditioned.

3. EPA Finding QA-1, QA-2 (second one) and QA-3:

QA-1 - *$PM_{2.5}$ instrument serial number on QC data sheets does not match instrument's serial number at the station.*

QA-2 (second one) - *$PM_{2.5}$ (TEOM 1400A) instrument serial number on QC data sheet does not match serial number of instrument in station.*

QA-3 - *Inconsistent and incomplete recording field data into logbooks and/or electronic files. The amount of data and information recorded in logs is inconsistent and varies from operator to operator.*

PADEP Response:

Once approval to add Microsoft Access to operator laptops is given, FOMS will transition from the use of excel- based spreadsheets and implement/improve use of a "Tracking" database being created to address these concerns by January 1, 2016. The access database manages sensor inventory, maintenance histories and deployment/location information. The database will consolidate maintenance information to allow, for instance, the ability to see the maintenance performed over the life of a sensor. FOMS/Quality Assurance (QA) management will provide training and direction to field staff at the December 2015 Division Meeting. Technicians at the Lab will also be directed to enter bench repair information into database. QA is also developing/testing a Quality Control (QC) database to replace QC spreadsheets. If workable, advantages would include the following: consolidate information in one location (which is backed up multiple times a day by IT), reduce input errors (i.e. serial numbers must match what is in the system), and implement updates easier (the main database will be updated by management personnel; there will be no need to get updated spreadsheets to operators and get them training on how to use them). QA is also working on a longer term project which includes implementing a web-based system to manage all inventory and QA / QC related information. Field operators will be able to remotely connect to the AQM servers to fill out forms and instantaneously send all necessary data to QA/QC staff and management for their review.

AQM is investigating the implementation of other initiatives such as labeling front of sensors with serial numbers and a check-in/check-out procedure when sensors come in and out of the Lab. Check-in/check-out procedures would include a designated drop-off location at the lab, logbook for sensors, and the physical tagging of equipment.

The use of the access database applications is a temporary measure to quickly add capabilities and improve maintenance tracking. In the future, the Division will look at integrating the "Tracking," "Maintenance" and "QC" databases into a single web-based application (will require contracting with a vendor) or the purchase of an off-the-shelf software package designed for this purpose.

4. EPA Finding QA-4:

Ozone station analyzers (sensors) responsible for generating 1-point QC and Span checks are not verified against a higher Level O3 standard traceable to the Regional Standard Reference Photometer (SRP).

PADEP Response:

AQM is in the process of purchasing new calibrators, which will be a permanent fixture in each monitoring station. These calibrators will be verified twice annually by a higher level ozone standard traceable to the Regional Standard Reference Photometer (SRP). In the meantime, we will continue to calibrate our sensors twice annually. On a different day, we will verify the individual ozone sensors with the field operators' ozone calibrators, which are traceable back to the Regional SRP, twice annually and on an as needed basis.

5. EPA Finding QA-5:

Missing approved QAPPs for several NAAQS pollutants.

PADEP Response:

The final lead QAPP was submitted for signature to EPA Region 3 in June 2015. The remaining QAPPs (a continuous multi-pollutant (ozone, SO_2, NO_2, and CO) QAPP and a $PM_{2.5}/PM_{10}$ QAPP) will be submitted to EPA Region 3 by the December 31, 2015 deadline.

6. EPA Finding QA-6:

Standard Operating Procedure for $PM_{2.5}$ "Determination of $PM_{2.5}$ Particulate Matter in Ambient by Gravimetric Analysis EPA Title 40 CFR Appendix L to Part 50" Revision 002, the SOP does not indicate what actions are taken if the weighing room temperature and humidity exceeds the criteria.

PADEP Response:

The Lab Standard Operating Procedures (SOPs) for both for both $PM_{2.5}$ and PM_{10} will be edited to include the following information:

- Temperature and relative humidity criteria ranges and the reference to Federal Regulations or other sources.
- Procedure for checking environmental conditions, when conditions are acceptable to weigh and what to do when conditions are outside the criteria range.
- Identification of the primary and backup temperature and relative humidity sensors for each room.
- Procedure for certifying all temperature and relative humidity sensors annually against a NIST-traceable standard.

SOP updates will be completed by 12/31/2015.

7. EPA Finding QA-7:

Standard Operating Procedures for ambient air analyzers and samplers need to be updated.

PADEP Response:

The Department will replace the entire network of aging air monitoring and sampling equipment within five years. SOPs for the older models will be updated by FOM Supervisors as position vacancies are filled and supervisors no longer have to service field sites. SOPs for new equipment will be written as equipment is integrated into the network by QA AQPS, FOM Supervisor and FOM AQS personnel.

8. EPA Finding QA-8:

Electronic files are disorganized on the Operator's computer. There were loose files without a consistent naming structure.

PADEP Response:

The FOMS management team will update and redistribute policy on maintaining electronic QC spreadsheet files on laptop and paper Preventative Maintenance (PM) files at site (down to the file-naming formats)

9. EPA Finding LAB-1 (PM2.5 Room):

$PM_{2.5}$ filter weighing: backup temperature and humidity sensors not verified. The backup system has a digital output and uses a Dixon chart to record the room's conditions. At the time of the audit the digital reading did not match the chart recorder reading.
PADEP Response:

The new weighing robot uses a Vaisala brand sensor for temperature and relative humidity measurements. The robot temperature and relative humidity sensors will be the primary system. The secondary system for both will be the Dixon chart recorder located on the outside of the weighing room. The digital display that is part of the HVAC system and typically reads 3 to 4 % high has been marked with a sign that says "DIGITAL DISPLAY NOT TO BE USED FOR COMPLIANCE PURPOSES." Lab personnel will utilize robot settings that will stop weighing when environmental conditions are outside criteria.

The Lab will secure a vendor to certify robot and room temperature and relative humidity sensors on an annual basis. The Lab currently uses Garber Metrology to conduct certifications of other temperature-measuring equipment in the building. Garber's services are outlined

here: http://www.garbermetrology.com/services-capabilities/metrologycalibration-capabilities/temperaturehumidity-calibration/.

10. EPA Finding LAB-2 (PM10 room):

PM_{10} filter weighing log had RH% above 45% that exceeded the weighing criteria.

PADEP Response:

By January, 2016, the Department will replace all remaining manual PM10 samplers with continuous units. Nevertheless for special projects, TSP toxics/metals, and lead sampling analysis the following changes will be made:

- Purchase a certifiable primary and secondary Temperature/Relative Humidity sensor with large display and install in weighing room.
- Conditioning boxes for new and sampled glass and quartz filters do not have built-in Temp and RH sensors. The boxes do contain large desiccant pads that are maintained by color indication. The Lab will use Temp/RH devices to routinely check conditions at the beginning and end of conditioning periods. The devices will be compared to PM_{10} room primary or secondary sensors. A log book will also be maintained and all aspects of this new procedure included in SOP.
- Vendors will be secured to provide annual certification of Temp and RH sensors.

11. EPA Finding FSE-1:

At the Johnstown monitor, regarding the spacing from trees: BAM 1020 continuous $PM_{2.5}$ monitor is 7.62 meters (25 feet) from the tree drip-line.

PADEP Response:

The operator of the Johnstown site received permission from the neighboring property owner to remove the large spruce tree that was within the drip line limits. A contractor provided a quote on 9/11/15 and DEP Purchasing approved the request. The removal of the tree was completed on October 28th 2015.

12. EPA Finding FSE-2:

At the Farrell monitor, the collocated $PM_{2.5}$ continuous and $PM_{2.5}$ FRM are 6 meters apart. FRM is on the ground and Continuous on roof.

PADEP Response:

The Department will raise all $PM_{2.5}$ Federal Reference Method (FRM) samplers (Thermo 2025 and 2025i's) by re-locating the entire unit and existing stand, on to high-volume platforms. The FOMS staff will ensure FRM and Beta Attenuation Monitoring (BAM) inlets meet horizontal collocation distance requirements (< 4 meters). Where the move to platforms still does not allow compliance with vertical collocation requirements (< 1 meter), the PADEP will request a waiver from the EPA Administrator.

13. EPA Finding FSE-3:

At the Washington monitor, the BAM 1020 inlet is slightly angled and not perpendicular to the base.

PADEP Response:

Operator will fix the table that unit is mounted on. Note: Even though the inlet tube appears at a slight angle, the seal at the sampler was tight and the unit has been passing all QC checks with no data lost.

14. EPA Findings FSE-4, FSE-5, FSE-6 and FSE-8:

There are dirty manifold and sampling lines at various monitoring sites.

PADEP Response:

All manifolds were cleaned before the audit. However, FOMS management will review manifold cleaning and sample line replacement procedures and will provide training during the Division meeting in December 2015. Sample lines at Erie and Strongstown have since been replaced. Furthermore, when Supervisory staff is at full complement, Supervisors will be conducting twice-a-year state-level (in-house) technical systems audits at all sites in their jurisdiction.

15. EPA Finding FSE-7:

At the Farrell site, the meteorological tower less than 10 meters high.

PADEP Response:

Due to the age and condition of the unit, the shelter at the Farrell site is scheduled for replacement by January 2016. The replacement shelter will include a 10 meter meteorological tower to address the issue this finding.

16. EPA Finding FSE-9:

At the Washington site, water marks were found near inlet receiver where downtube meets the unit. There was also dirt visible on unsampled tape.
PADEP Response:

The operator was not able to locate water marks or dirt visible on unused tape. If pictures of this finding are available, the Department will conduct further investigations.

17. EPA Finding FSE-10:

The collocated $PM_{2.5}$ continuous BAMS sampler's concentration (26.64 $\mu g/m^3$) read 2x greater than the primary $PM_{2.5}$ continuous sampler (12.69 $\mu g/m^3$).

PADEP Response:

The following were maintenance reports for the collocated BAMS at Greensburg since the TSA audit.

- 7/22- verifications on both BAMS were done and passed
- 8/7- calibrated both BAMS, reset BKGD value to 0 and installed zero air filter.
- 8/13- replaced BAM tape to see if bad tape causing high zero air readings.
- 8/21- found co-located BAM in test mode and changed tape in primary BAM.
- 9/29- Bryan Herzing did bi-annual audit on both BAMS and all passed.

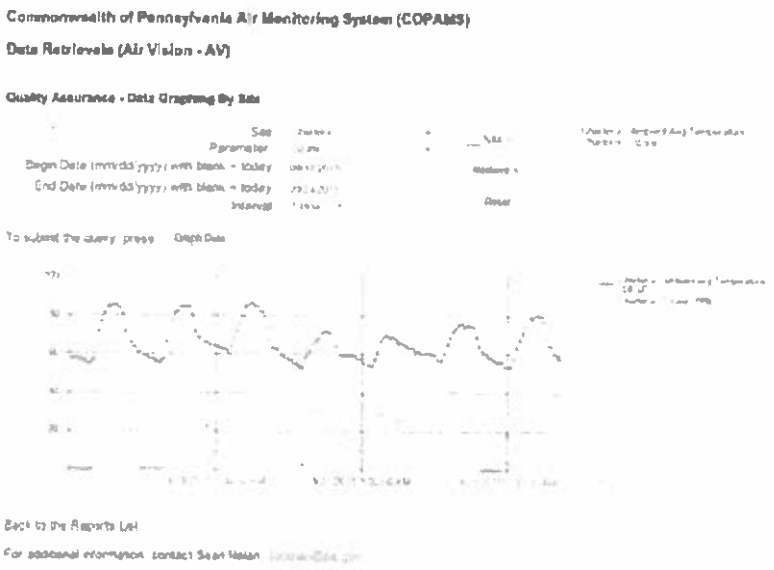
Although verifications and audits on the sensors pass, the discrepancy between the collocated BAMS has been an ongoing issue. Repeated efforts to resolve the issue have been tried including: thorough inspections of each sampler to confirm latest firmware and recommended manufacturer settings; replacement of sensors, simultaneous zero background checks, and so on. The Department will continue FRM sampling as the primary source of $PM_{2.5}$ data, but will also try to resolve issue by: moving the collocated setup to another site under a different operator, comparing historical FRM data with each set of BAM data to determine any patterns that may provide a clue to a fix. The PADEP believes this discrepancy illustrates longstanding issues with the fundamental operation of these continuous $PM_{2.5}$ samplers and their inability to replicate FRM readings.

18. EPA Finding FSE-11:

Control/Strip charts are not used at any of the PADEP COPAMS sites.

PADEP Response:

The FOMS currently utilizes daily reports (although not graphical) to review hourly and nightly calibration and precision data from all sites and sensors. This review takes place at 6:30 am each morning and all operators are then called and given priority assignments. Although not utilized on a daily basis by FOMS personnel, the QA staff does have graphical tools (strip charts) available and utilized them on a regular basis. Further capabilities will be planned for/added to unifying web-based application.


Commonwealth of Pennsylvania Air Monitoring System (COPAMS)

Data Retrievals (Air Vision - AV)

Quality Assurance - Data Graphing By Site

Site

Parameter

Begin Date (mm/dd/yyyy) with blank = today

End Date (mm/dd/yyyy) with blank = today

Interval

Reset

To submit the query press Graph Data

Back to the Reports List

For additional information contact Sean Nolan