



Florida Department of Environmental Protection
Office of Air Monitoring

Network Changes and Requirements

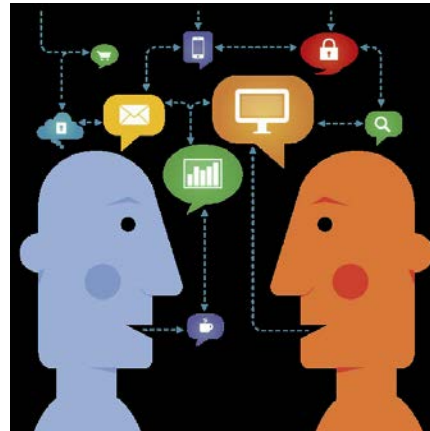
March 24, 2016





Overview

- Network Changes
 - o Importance of communication
 - o Pitfalls to avoid
 - o Approval process
- Network Requirements
 - o Objectives
 - o Site types
 - o Other





Why is Notification Important?

Members of the PQAO are impacted

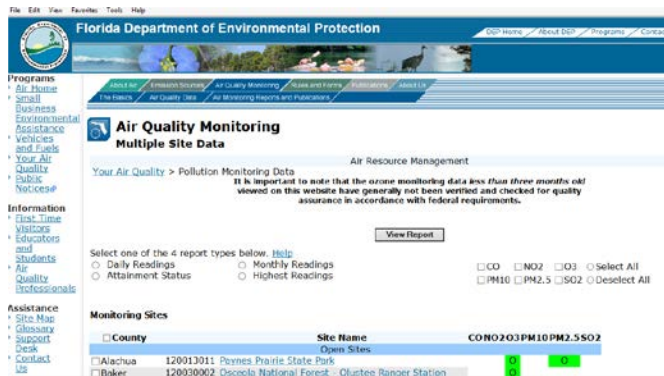
Monitoring Requirements

Collocation

Lab Support

Audit & QA Services

Data Submittal/Network Plans





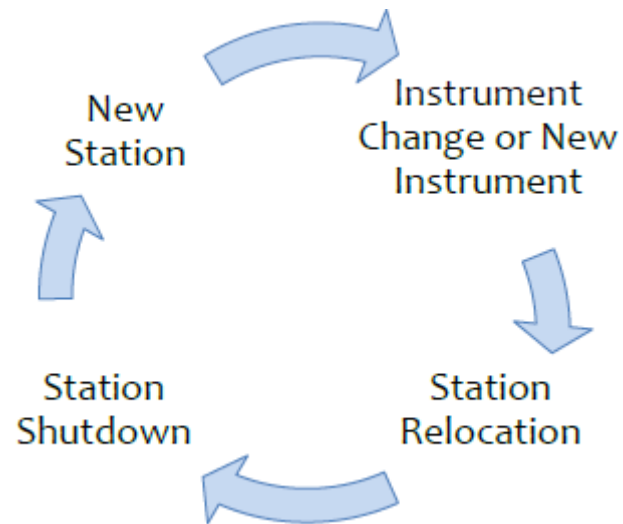
Pitfalls of Inefficient Communication

- Inability to meet CFR Collocation Requirements
- Failure to schedule audits timely
- Incomplete data records affect attainment decisions
 - o With frequent changes to the NAAQS, attainment designations are common and require complete datasets for attainment decisions
 - o Incomplete data could result in designations of Unclassifiable; but can be used for Nonattainment decisions



Impact on the Network

Each change has an impact on the entire network





What Types of Changes need Approval from DEP/EPA R4?

Require Formal Approval

- Starting a new monitor
- Shutdown of a site/monitor
- Relocation of a site/monitor

Do Not Require Formal Approval

- Moving a monitor within a site configuration
- Changes in instrumentation
 - Does require working with the Data Validation team to amend the method code and to verify any collocation requirements



Preferred Notification Process

Informally notify DEP of anticipated changes



For changes requiring approval,
Formal request for site modification



Receive approval in writing from EPA R4 and
DEP



Implement change!



Notification Process

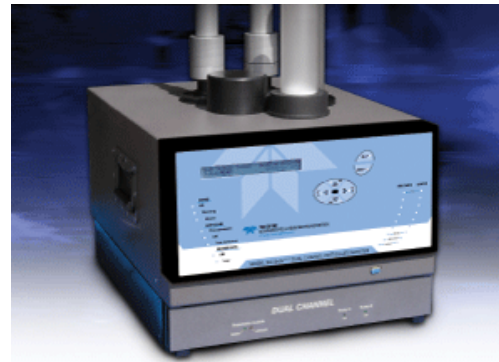
- The earlier the conversation starts regarding a site closure, the better.
- Site closures may be at the land owner's request; consider what options may exist to create a complete dataset if a designation decision is pending:
 - o Could the move be postponed if the land owner were informed of the impact of the move?
 - o Could a relocation be approved and accomplished to provide a complete dataset with the combined sites?



Instrument Changes

When changing or installing a new/different instrument be sure to:

- Evaluate collocation requirements
- Determine where changes need to be documented
- Identify any instrument performance issues
- Determine the appropriate monitor type (i.e. SLAMS or SPM).





New Site

- Coordinate early with DEP and EPA R4
- Discuss if your monitors should be SLAMS or SPM
- EPA approval needed
- Other requirements may need to be followed





Typical Reasons for Site Closures

- The land owner requests removal of the site
- The site no longer meets monitoring objectives
- Resources necessitate reallocation to higher priority monitoring needs





Closing a SLAMS Site

- To qualify for shutdown, the network must:
 - o Continue to meet Appendix D (minimum monitoring) requirements
 - o Continue to meet SIP requirements (if applicable)
 - o Ensure that the monitor does **not** have the highest design value!
 - o Meet one of the six criteria listed in 40 CFR 58.14 :
 - Most commonly used criterion is 40 CFR 58.14(c)(1)
 - Show attainment for 5 years
 - **Design value probability of < 10% of exceeding 80% of the standard**

And just how do you do that you ask?



Example 40 CFR 58.14(c)(1) Analysis

Annual PM2.5 NAAQS							
Site	Average 5 yr Design Value	Std. Dev.	Student's t Value (90% Confidence)	Number Data Points (Years used)	90% Upper Confidence Interval ($\mu\text{g}/\text{m}^3$)	80% NAAQS ($\mu\text{g}/\text{m}^3$)	Decision
Example A	7.28	0.779102	2.13	5	8	9.6	Pass



Relocation Requirements

- Typically, it is more tedious to relocate a site. However, it may allow for a continuous data record to be obtained.
 - o The data of the 2 sites would be treated as one .
- Parallel monitoring may be required based on an assessment of comparability between new and old sites
- Relocation requires approval by DEP and EPA



Monitoring Design Objectives

- Federal Monitoring Design objectives:
 - o Provide air pollution information to the general public
 - o Determine compliance with air quality standards
 - o Support air pollution research studies
- The Annual Air Monitoring Plan provides evidence that the ambient air monitoring network for the state of Florida meets the federal monitoring design objectives.



Monitoring Design Requirements

- Locations must be representative of appropriate scale
- Locations must represent populations/sources
- Data must represent actual concentrations
- Requirements and documentation must demonstrate uniform and appropriate data quality



Monitoring Design Site Types

- The site type describes the monitoring objective:
 - o Highest concentration
 - o Population oriented
 - o Source impacts
 - o Background
 - o Transport
 - o Visibility and other welfare impacts



Air Monitoring

- All required air monitoring must do one or more of the following:
 - o Meet minimum monitoring requirements, (or have a waiver)
 - o Be part of a Federally-required program (e.g., NCore, CSN, NATTS)
 - o Be the highest concentration site, or provide information about a boundary, in an attainment or nonattainment area
 - o Monitor transport
 - o Support exceptional events
 - o Be required by a SIP or maintenance plan
 - o Meet state or local needs



Near Road NO₂

- There are six near road NO₂ sites currently required in Florida.
- Two NO₂ sites are required in each CBSA with more than 2.5 million people:
 - Miami-Fort Lauderdale-Pompano Beach
 - Tampa-St. Petersburg-Clearwater
- Near road sites also require CO and PM_{2.5} monitoring
- A NO₂ site is required in each CBSA with more than one million people:
 - Jacksonville
 - Orlando-Kissimmee-Sanford



Near Road NO₂

- Phase III sites, due in operation by January 2017, are required in CBSAs with more than 500,000 people include:
 - o North Port-Bradenton-Sarasota
 - o Lakeland
 - o Cape Coral-Fort Myers
 - o Deltona-Daytona Beach-Ormond Beach
 - o Palm Bay-Melbourne-Titusville
 - It was anticipated that the requirement for these monitors would be removed in the NO₂ NAAQS revision; however, the requirement remains
 - A waiver of this requirement will be included in the 2016 Annual Monitoring Plan



SO₂ Monitoring

CBSA Statistical Areas	2014 Census Population	PWEI 2012 NEI	PWEI SO ₂ Needed	SO ₂ Monitors in Place
Miami-Fort Lauderdale-Pompano Beach	5,929,819	147,762	2	3
Tampa-St. Petersburg-Clearwater	2,915,582	94,280	2	7
Orlando-Kissimmee-Sanford	2,321,418	13,157	1	1
Jacksonville	1,419,127	32,408	1	5
North Port-Bradenton-Sarasota	728,708	5,030	1	1
Lakeland	616,158	10,666	1	1
Pensacola-Ferry Pass-Brent	474,081	13,122	1	1
Homosassa Springs	139,377	9,456	1	1

Eleven sources that emit more than 2,000 tons per year of SO₂ have to show compliance with the standard either through monitoring at the location of highest concentration or through modeling.



Ozone Monitoring

Number of Stations – Ozone

MSA Population	Design Value $\geq$ 85% of NAAQS	Design Value $<$ 85% of NAAQS
> 10 million	4	3
4 – 10 million	3	2
350,000 – 4 million	2	1
50,000 - < 350,000	1	0

- Recent changes to the NAAQS, required increased monitoring in certain areas in the state:
 - o Miami-Fort Lauderdale-Pompano Beach - 3
 - o Tallahassee - 2



PM_{2.5} Monitoring

Number of Stations - PM_{2.5}

MSA Population	Design Value $\geq$ 85% of NAAQS	Design Value $<$ 85% of NAAQS
> 1,000,000	3	2
500,000 - 1,000,000	2	1
50,000 - <500,000	1	0

- PM_{2.5} must be sited to represent area-wide air quality
- At least one monitor must be located in an area of expected maximum concentration
- In CBSAs with populations over 1,000,000, at least one monitor must be collocated at a near road location.
- FRMs or FEMs may meet these requirements



PM_{2.5} Monitoring

CBSA Statistical Areas	Required PM _{2.5} Monitors	Required Continuous Monitors
Miami-Fort Lauderdale-Pompano Beach	2	1
Tampa-St. Petersburg-Clearwater	2	1
Orlando-Kissimmee-Sanford	1	1
Jacksonville	1	1
North Port-Bradenton-Sarasota	1	1
Lakeland	1	1
Cape Coral- Fort Myers	1	1
Deltona-Daytona Beach-Ormond Beach	1	1
Palm Bay-Melbourne-Titusville	1	1

- Continuous monitoring is required at half of the required monitoring sites in each MSA
 - o Both requirements may be met by a continuous FEM or continuous ARM
 - o There are 28 FRMs in the network



PM₁₀ Monitoring

Number of Stations – PM₁₀

CBSA Population	Expected Maximum Concentration		
	High ¹	Medium ²	Low ³
> 1,000,000	6 - 10	4 - 8	2 - 4
500,000 - 1,000,000	4 - 8	2 - 4	1 - 2
250,000 - 500,000	3 - 4	1 - 2	0 - 1
100,000 - 250,000	1 - 2	0 - 1	0

¹ Exceeding NAAQS by 20% or more, or 95% Probability of PM₁₀ Nonattainment

² Exceeding 80% of NAAQS, or 20% to 95% Probability of PM₁₀ Nonattainment

³ Less than 80% NAAQS, or < 20% Probability of PM₁₀ Nonattainment

- All areas of Florida are in the low concentration range
- There are 20 PM₁₀ monitors in the network



Lead Monitoring

- Required near industrial lead sources that emit half a ton or more per year
- Required near airports that emit one ton or more per year
- Required at NCore sites in a CBSA with 500,000 people or more
 - o This requirement is expected to be removed in the update to Appendix A.



References

ELECTRONIC CODE OF FEDERAL REGULATIONS

View past updates to the e-CFR.
Click here to learn more.

e-CFR data is current as of March 14, 2016

[Title 40](#) → [Chapter I](#) → [Subchapter C](#) → [Part 58](#)

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Title 40: Protection of Environment

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

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Subpart C—Special Purpose Monitors

§58.20 Special purpose monitors (SPM).

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Subpart E [Reserved]

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Appendix A to Part 58—Quality Assurance Requirements for SLAMS, SPMs and PSD Air Monitoring
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Appendix D to Part 58—Network Design Criteria for Ambient Air Quality Monitoring
Appendix E to Part 58—Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring
Appendix F to Part 58 [Reserved]
Appendix G to Part 58—Uniform Air Quality Index (AQI) and Daily Reporting



Near-road NO₂ Monitoring Technical Assistance Document



Quality Assurance Handbook for Air Pollution Measurement Systems

Volume II

Ambient Air Quality Monitoring Program

40 CFR Part 58

Near-road NO₂ TAD

QA Handbook Vol II



In Summary

- Communicate, Communicate, Communicate!
- Work with DEP to discuss possible implications before you take action
- The site approval process is more formalized than before due to increased air monitoring scrutiny.



Questions?



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❖ Thanks to the CARB PQAO for sharing their training slides.