



Florida Department of Environmental Protection

Field Proficiency Overview

April 27, 2017





Overview

- What is Field Proficiency?
- Survey & pre-test



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What is Field Proficiency?

- Knowledge and skills required to collect high-quality, legally defensible ambient air monitoring data
- Combination of training records, testing, and demonstration
- Ensure consistency across the PQAO
- Documented process to:
 - Identify strengths and areas for improvement
 - Share best practices
 - Distribute information and techniques



Common Ground

What should field technicians know and be able to do?

- Big Picture – Clean Air Act, EPA, NAAQS, CFR, attainment
- Science – air pollution, sources, chemical properties, health & environmental effects, network design, instrument principles of detection
- Technical – site & shelter criteria & maintenance, instrument operating parameters (temp, pressure, flow rate, voltage, calibration), standards, met data, site communications, software/hardware, electronics, sampling & sample preservation, safety
- QA – data reduction, trends, qualifiers, documentation, QC check frequency & limits, audits, certifications, troubleshooting, corrective actions



Implementation

- Training records
- Proficiency exams
- Proficiency demonstrations

Examples: Perform and document a SLIC, leak check, or flow audit, adjust lamp & PMT voltage, troubleshoot and diagnose equipment or QC failure, change out equipment, site review, FAMAS tools and reporting

- Documentation
- Logistics
- Assessment



Survey & Pre-Test

Field technicians to the front

~20 minutes

Quiet please!



Agenda

- Teledyne-API Model T640 presentation
- Break
- Morning Rotations 1-4
- Lunch
- Afternoon Rotations 1-3
- Break
- Vendor tech support & resources, training
- Pre-test review



Field Proficiency Pre-Test Review

April 27, 2017



Results

Florida DEP Office of Air Monitoring

Annual Hands-On Training Workshop

FIELD PROFICIENCY

SURVEY

Name: 25 respondents

Agency:

Years Air Monitoring Experience:

237 total; 9.5 average

Area of Degree or Technical Training:

Env. or Science degree: 56%
Electronics: 20%

What type of monitors are you primarily responsible for operating?

Ozone: 80% Particulate: 72% SO₂: 52% NO₂: 36% CO: 36%

PRE-TEST

1. Define the acronym NAAQS: 25/25 correct = 100%
2. Name the federal legislation that established the EPA and the NAAQS in 1970: 23/25 = 92%
3. There are two types of NAAQS: primary and secondary. What is the purpose of the primary NAAQS? 13/25 = 52%
4. List the six criteria pollutants: 23/25 = 92%
5. What is meant by attainment? 15/25 = 60%
6. What is the NAAQS level for ozone? 18/25 = 72%
7. Define the acronyms ppm and ppb: 25/25 = 100%
8. Ozone is reported to the EPA in units of ppm, but most monitors display the data in units of ppb. Convert the measurement 35 ppb to units of ppm: 15/25 = 60%
9. Define the acronym PM_{2.5}: 25/25 = 100%
10. PM_{2.5} data is reported to EPA in units of µg/m³. Two pieces of data are required to calculate the final result: a measured value in µg, and a measured value in m³. How are these measured values obtained? In other words, what are the sources of those two pieces of data?

19/25 = 76%

overall
avg. 80%
correct.



1

- Define the acronym NAAQS:

National Ambient Air Quality Standards



2

- Name the federal legislation that established the EPA and the NAAQS in 1970:

Clean Air Act



3

- There are two types of NAAQS: primary and secondary. What is the purpose of the primary NAAQS?

To protect human health



4

- List the six criteria pollutants:

Carbon monoxide, CO

Lead, Pb

Nitrogen dioxide, NO₂

Ozone, O₃

Particle pollution, PM

Sulfur dioxide, SO₂



5

- What is meant by attainment?

The air quality in a geographic area meets or is better than the NAAQS

*Attainment decision process is called "Designation"



6

- What is the NAAQS level for ozone?

0.070 ppm

*Primary and secondary, 8 hour

*Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years



7

- Define the acronyms ppm and ppb:

parts per million and parts per billion



8

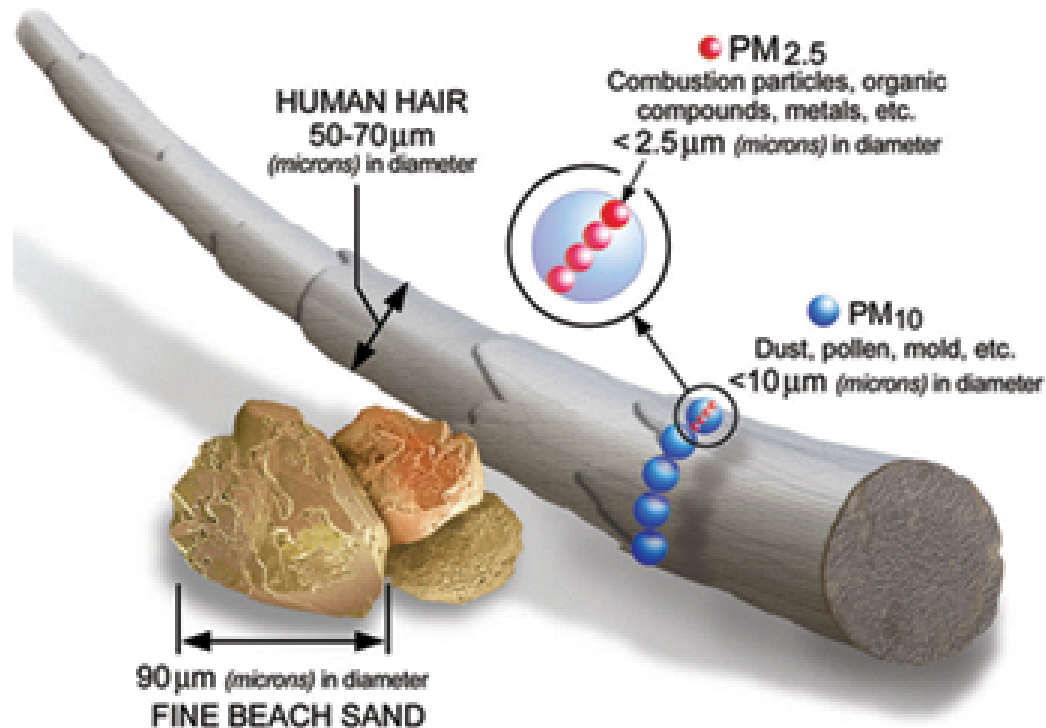
- Ozone is reported to the EPA in units of ppm, but most monitors display the data in units of ppb. Convert the measurement 35 ppb to units of ppm:

$$35 \text{ ppb} = 0.035 \text{ ppm}$$

- Define the acronym PM_{2.5}:

Particulate Matter less than 2.5 microns in diameter

Relative Size of Particulate Matter





10

- PM_{2.5} data is reported to EPA in units of $\mu\text{g}/\text{m}^3$. Two pieces of data are required to calculate the final result: a measured value in μg , and a measured value in m^3 . How are those measured values obtained? In other words, what are the sources of those two pieces of data?

μg - mass of PM_{2.5} collected on a filter

m^3 - volume of air passing over the filter during sample collection



Thank you!



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