



Florida Department of Environmental Protection

Office of Air Monitoring

Field Operations

March 22, 2016





Successful Operation

- Requires:
 - o Careful planning
 - o Coordination of efforts
 - o Following established procedures
 - o Continuous oversight

And much, much, more!



Field Operations

Overview

- Daily Checks
- Best Practices
- Scheduling and Preparation
- Routine/Preventative Maintenance
- Recordkeeping
- Site Area Maintenance





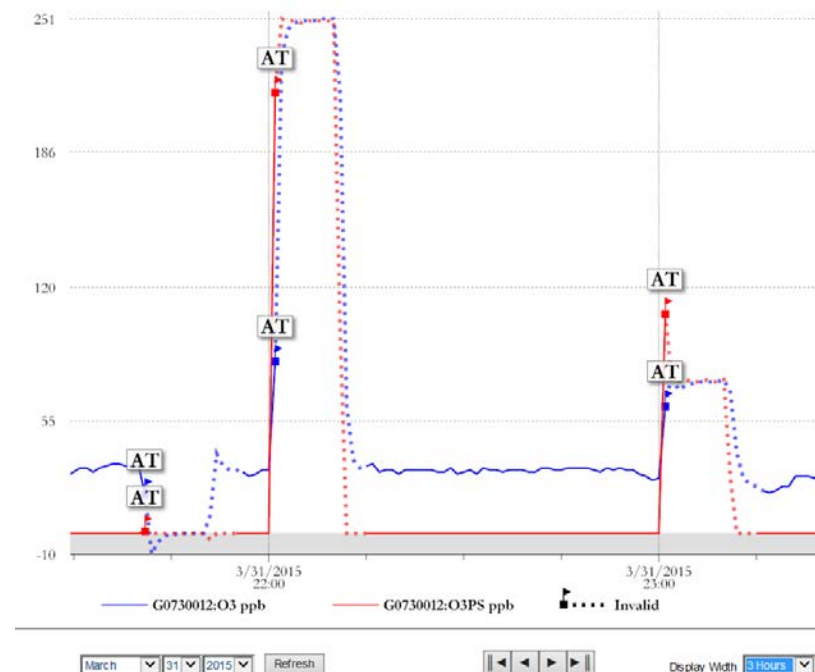
Daily Checks

- Poll the site daily.
- Check if there are data issues and how the equipment is performing.
- Check for trends in the data to identify possible upcoming faults with the site equipment.
- Review your schedule.
 - o Any upcoming/overdue maintenance
 - o Any upcoming/overdue calibrations/audits
- Prepare your schedule accordingly.



Strip Chart Review

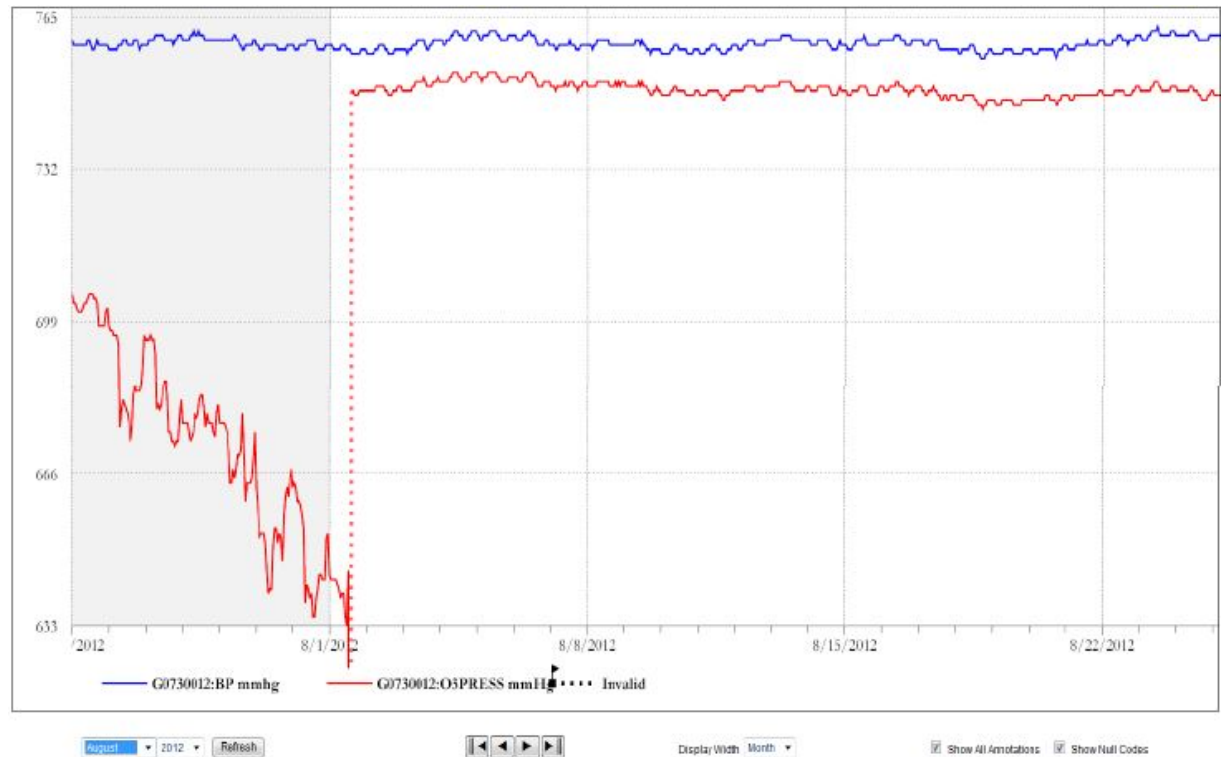
- Use the Strip Chart feature to graph the data and see how the equipment is performing.





Strip Chart Review

- A great tool to use to see when something has gone right.





Scheduling and Preparation

- Alternate monthly site checks so they are scheduled on different weeks (avoiding crisis management).
- Schedule site checks to be performed geographically; avoiding long drive times between sites.
- Avoid multiple trips to a site by combining the run time schedule and the monthly site checks.



Scheduling and Preparation

- Combine the monthly site checks with your quarterly site checks that roll into your semi-annual site checks.
- Ensure that monthly and quarterly site checks are reasonably spaced.
- Plan around the weather.
- It is recommended to perform the time consuming semi-annual and annual site checks along with the seasons to avoid exposure to inclement weather.



Scheduling and Preparation

- Carry extra filters (ozone, TEOM) when traveling to the sites to avoid a wasted trip.
- Ensure the NIST standards that are used to perform maintenance are within the certification date before going to the site.
- Carry extra batteries in the vehicle.
- If possible, avoid performing maintenance on the site equipment on a Friday. If something goes wrong two extra days of data loss is added.



Routine/Preventative Maintenance

- Site Check
 - o Note outside conditions (weather conditions, trees, fires/smoke, etc.)
 - o Note inside conditions (temperature, sounds, odors, etc.)
 - o Check instruments and computer condition
 - o Check clocks and/or timers
 - o Ensure certifications have not expired
 - o Check/log cylinder pressures
 - o Check/record instrument test values
 - o Check spares and consumables



Routine/Preventative Maintenance

- Site Check
 - o Check integrity of the trailer
 - Water stains/leaks
 - Mold intrusion
 - Soft flooring
 - o Check the AC/Heating unit for proper operation
 - o Ensure the dehumidifier is functioning properly
 - o Note the Status of the Zero Air compressor
 - o Ensure that all power cords are safely secured
 - o Remove old documentation/equipment from site
 - o Ensure the surge protectors are functioning



Routine/Preventative Maintenance

- Site Check
 - o Check for corrosion on external electrical outlets
 - o Check flow gauges for proper flow
 - o Check wiring connections
 - o Turn off the monitor and lights when leaving
 - o Ensure that trailer and gate have been locked



Routine/Preventative Maintenance

Best Practices:

- Automate routine precision and zero checks
- Leak check sample line connections
- Changing filters – do not handle with bare hands
- Inspect, clean and replace sample lines
- Minimize periods of data loss by going offline in the last 10 minutes of the hour and going back online before 10 minutes past the hour



Documentation and Recordkeeping

- Air Monitoring Documents (QMP, QAPPs, SOPs, etc.)
 - o Establish a solid foundation for consistency of operations
 - o Improve quality control
 - o Provide excellent training material for new staff
- Air Monitoring Records
 - o Demonstrate compliance
 - o Establish traceability



Documentation

A critical element of field operations involves using approved/agreed upon documentation and forms!

Florida Department of Environmental Protection DEP 06-9
REV. NO. 1: 02-2016

OZONE Z/S/P LOG

Required Signature: _____ Signature _____

Form DEP 06-9-D, Ozone Z/S/P Log
TEI 49i Analyzer
Z/S/P

Date: _____ Site Location: _____ Site AQS #: _____

Thermo 49i Analyzer Thermo 49i-PS Calibrator

Serial #: _____ Serial #: _____
Sample Flows A: _____ B: _____ Sample Flows A: _____ B: _____
Temp: _____ Pressure: _____ Temp: _____ Pressure: _____
Intensities A: _____ B: _____ Intensities A: _____ B: _____
Cal. Factors BKG: _____ COEF: _____ Cal. Factors BKG: _____ COEF: _____
Data Logger Channel #: _____ Data Logger Channel #: _____
Alarm Status: _____ Ozonator Output Flow (L/min): _____
Time Check: _____ Transfer-Primary Comp. Date: _____
Alarm Status: _____ Time Check: _____

Data Logger
Model: _____ Serial #: _____ Zero Air Pack/Generator
Calibration Date: _____ Charcoal Service Date: _____

	Data Logger Primary Standard	Data Logger Analyzer	QC Checks	Control Limits
Pre				
Zero				$\leq \pm 10 \text{ppb}$
Span				$\leq \pm 7\%$
Precision				$\leq \pm 7\%$
Post				
Zero				$\leq \pm 10 \text{ppb}$
Span				$\leq \pm 7\%$
Precision				$\leq \pm 7\%$

*Use a one minute average from data logger
**Limits should be truncated

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QUALITY ASSURANCE PROJECT PLAN
FOR THE STATE OF FLORIDA
AMBIENT AIR
PARTICULATE MATTER 2.5
MONITORING PROGRAM



Prepared for
The US EPA
Region 4

Submitted by
The Florida Department of Environmental Protection
Division of Air Resource Management



Documentation

Benefits

- Provide continual development of quality operations
- Improve communication
- Simplify new employee training
- Share experience, knowledge and ideas



Recordkeeping

A critical element of field operations involves good recordkeeping practices!





Recordkeeping

- Records are “proof” or “evidence” that all required procedures were performed and in a timely manner
 - o What occurred during that time
 - o Was the equipment working properly
- Helps reconstruct the actions performed
- Creates confidence in the data (legal defensibility)



Air Monitoring Records

Types of Records

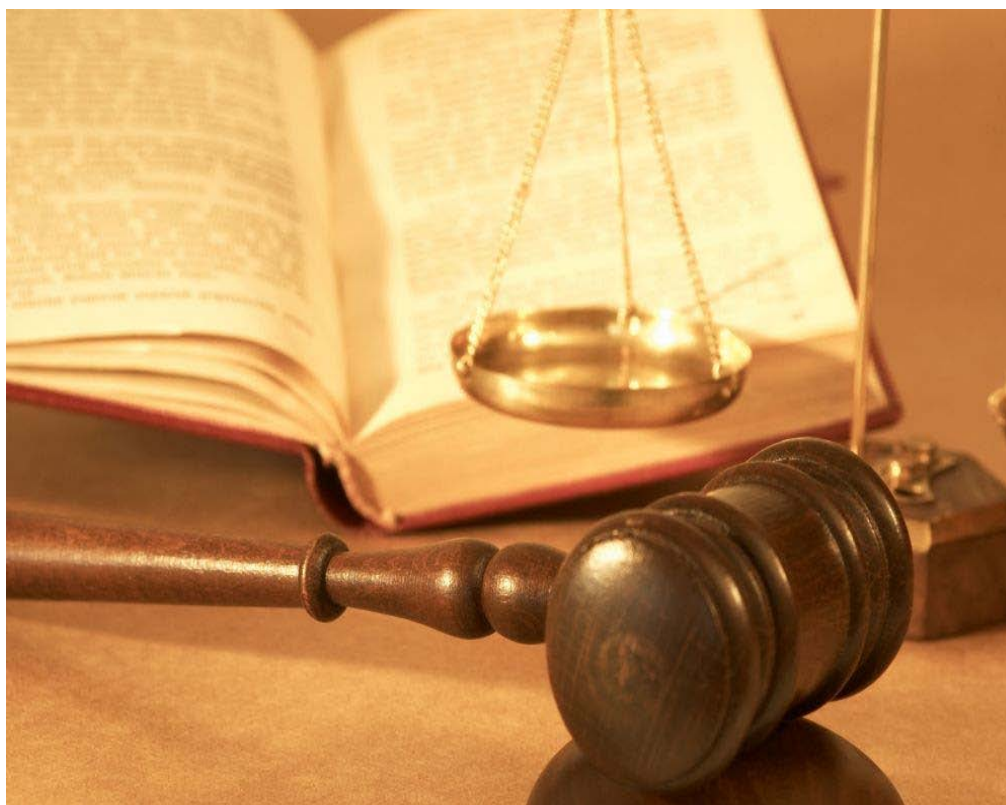
- Logbooks
- Forms
 - o Precision/QC Checks
 - o Calibrations
 - o Maintenance
- Electronic and/or Paper Charts
 - o Minute Data
- Chain-of-Custody Forms
- Databases





Always remember....

If it's not documented, it did not happen!





Document Troubleshooting

- Document what happened, or what you suspected happened
 - When? For how long?
 - How did you find out?
 - What you did to resolve the problem? Did you change out parts? Talk to the manufacturer?
- Saves time in the long run
- Resource for you and others
- Helps in planning and budgets – maybe it's time to buy a new instrument!



Site Area Maintenance

- **Site Area Maintenance**

- o Lawn is mowed, bushes are trimmed and weeds are removed
- o Wasps/Bees and Ants have been eradicated from site area
- o No trash or food is to be left behind after a site visit
- o Trailer floor has been swept and trip hazards removed
- o All chemicals have been safely stored and away from equipment
- o Gaseous bottles are correctly secured in the trailer
- o Blown light bulbs are to be replaced
- o Instrument covers should be reattached after scheduled maintenance



Summary

Day in the life of a Field Technician

- Starts in the office
 - o Review of new data
- Field
 - o Site check
 - o Routine operations
 - o PM/Repairs/Maintenance
- Documentation and Records
 - o Use approved SOPs and forms
 - o Have good recordkeeping habits

SUPPORTS HIGH QUALITY, LEGALLY DEFENSIBLE DATA!



Questions

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