

Mid-Atlantic Regional Air Management Association, Inc. (MARAMA)
Module No. 1: Introduction to Continuous Monitoring Systems (CMS)
Presented by All4 Inc. (www.all4inc.com)

Audience: State and Local government regulators with different level of exposure to the CMS subject matter.

Title: *Module No. 1: Introduction to Continuous Monitoring Systems (CMS)*

Presentation Type: Webinar

Date/Time: November 9, 2017 10:00 AM - 11:30 AM ET

Length: 1 – 1.5 hrs

Objective: Introduce the fundamentals of compliance demonstrations using Continuous Monitoring Systems (CMS) from the various types of hardware and software solutions to the processes and structures that facilities used to generate valid CMS data. The primary objective of Module No. 1 is to provide the building blocks for a successful CMS program. This foundation will be used in subsequent training modules as part of this webinar series for an audience of various degrees of expertise in CMS.

Agenda:

- What is a successful CMS Program?
 - Discuss the “ultimate objective” of a successful CMS program.
 - Allowing the Certifying Official to confidently sign the following statement as it relates to CMS data used for compliance purposes reasonable inquiry, information in the report is true, accurate, and complete.
- What are CMS?
 - Discuss the different types of CMS. These CMS include:
 - Continuous Opacity Monitoring System (COMS)
 - Continuous Emissions Monitoring System (CEMS)
 - Continuous Emissions Rate Monitoring System (CERMS)
 - Continuous Parameter Monitoring System (CPMS)
 - Other (e.g., Infrared Cameras)
- What Elements are Part of a Successful CMS Program?
 - Discuss each element of a successful CMS program that are designed to provide valid, quality-assured CMS data (with minimal downtime) for use in compliance demonstrations. These elements included:
 - Hardware
 - Software
 - People & Procedures
- Who is Involved in a Successful CMS Program?
 - Discuss the typical roles and responsibilities at facility personnel in implementing a successful CMS program. These roles include:
 - Environmental
 - Instrumentation
 - Operations
 - Management
- Why is a Successful CEMS Program Important?
 - Discuss the importance to a facility and regulatory agencies of generating a valid, quality-assured CMS data for use in compliance demonstrations.
- What CMS Resources are Available?
 - Discuss how to use the readily available resources for providing guidance on CMS. These resources include:
 - 40 CFR Part 60

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- 40 CFR Part 63
- 40 CFR Part 75
- U.S. EPA's Applicability Determination Index
- Questions & Open Discussion

Mid-Atlantic Regional Air Management Association, Inc. (MARAMA)
Module No. 2: Good & Bad Continuous Monitoring System (CMS) Data
Presented by All4 Inc. (www.all4inc.com)

Audience: State and Local government regulators with different level of exposure to the CMS subject matter. It would be expected that most of the audience would have attended Module 1.

Title: *Module No. 2: Good vs. Bad Continuous Monitoring System (CMS) Data*

Presentation Type: Webinar

Date/Time: November 16, 2017 10:00 AM - 11:30 AM ET

Length: 1 – 1.5 hrs

Objective: Describe how good data (used for compliance purposes) is generated by a CMS. The focus will be on the relationship of various quality assurance and quality control (QA/QC) procedures on data quality. Module No. 2 will build on the concepts established in Module No. 1.

Agenda:

- How is Good (Valid) vs. Bad (Invalid) Data Used?
 - Good
 - Compliance Demonstration
 - Quality Assured
 - Accurate
 - Bad
 - Downtime
 - Out-of-control (OOC)
 - Non-representative
- How is CMS data quality assured?
 - Discuss the process by which CMS data is used to comply with an applicable standard. The process includes:
 - Identifying the applicable **monitoring** regulations and
 - Once identified, how does the applicable monitoring regulation define the quality assurance tests.
- What types of quality assurance tests are required and how are they conducted?
 - Daily (Calibration Drift)
 - Quarterly (Cylinder Gas Audit, Linearity)
 - Annual (Relative Accuracy Test Audit)
 - Post-maintenance
- How does quality assurance activities validate data?
 - Discuss the process by which data is deemed as good.
- How is data invalidated?
 - Malfunctions (i.e., inoperative or not generating accurate data)
 - Offline (Preventive maintenance and QA/QC activities)
 - Out-of-control (OOC)
- What are the Impacts of Invalid Data?
 - Data Availability Thresholds
- How is Good (Valid) and Bad (Invalid) Data Reported?
 - Compliance Demonstration
 - CMS downtime “buckets”
 - Malfunction
 - Monitoring equipment or non-monitoring equipment
 - OOC
 - Maintenance

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- QA/QC Activity
- Working examples of reviewing data for validity.
- Questions & Open Discussion

Mid-Atlantic Regional Air Management Association, Inc. (MARAMA)
Module No. 3: Compliance Demonstration (Data Averaging & Validation)
Presented by All4 Inc. (www.all4inc.com)

Audience: State and Local government regulators with different level of exposure to the CMS subject matter. It would be expected that most of the audience would have attended Module 1 & 2.

Title: *Module No. 3: Compliance Demonstration (Data Averaging & Validation)*

Presentation Type: Webinar

Date/Time: December 7, 2017 10:00 AM - 11:30 AM ET

Length: 1 – 1.5 hrs

Objective: Describe how good CMS data goes from collection to compliance demonstration. The focus will be on the relationship between the regulatory requirements, interpretations, gray areas, and the compliance demonstrations. Module No. 3 will build on the concepts established in Module Nos. 1 & 2.

Agenda:

- What is data averaging?
 - Definition
- Why is data averaging important?
 - Regulatory requirements
 - Compliance demonstration
 - Documentation of procedure
- Regulations Requiring Monitoring
 - Federal
 - State
- How is data averaged? (general 3-hour average example)
 - Building averages
 - Data is built from smaller to larger time periods
 - There is more than one way to build a valid hour of data from valid minutes
 - Example: Audience to determine validity of three example hours
 - Visual representation of building averages
 - Review the nuances of using this representation
 - Only valid data can be used to build valid averages
 - Block averages
 - Visual representation
 - Review advantages and disadvantages
 - Rolling averages
 - Animated representation
 - Review advantages and disadvantages
 - Review different ways to implement a rolling average
 - Data average validity
 - Review possible criteria for a valid data average
- Writing and interpreting permit requirements for CMS Data Averaging & Validation
- Questions & Open Discussion

Mid-Atlantic Regional Air Management Association, Inc. (MARAMA)
Module No. 4: Reporting of Continuous Monitoring System (CMS) Data
Presented by All4 Inc. (www.all4inc.com)

Audience: State and Local government regulators with different level of exposure to the CMS subject matter. It would be expected that most of the audience would have attended Module 1 & 2.

Title: *Module No. 4: Reporting of Continuous Monitoring System (CMS) Data*

Presentation Type: Webinar

Date/Time: December 14, 2017 10:00 AM - 11:30 AM ET

Length: 1 – 1.5 hrs

Objective: Introduce the process by which compliance demonstrations are reported using CMS data and how those reports should be reviewed. Module No. 4 will be the end result to the items discussed in Module Nos. 1 – 3 and will be the information seen by the regulating agency.

Agenda:

- U.S. EPA's Next-Generation Compliance Initiative
 - Discuss U.S. EPA's Next-Generation Compliance Initiative including:
 - What it looks like?
 - How it can be used?
 - When is it required?
- Report Types
 - Discussed the different types of reports required for CMS data for U.S. EPA to State-by-State:
 - Electronic
 - Hardcopy
- Report Development
 - Discussed how a facility generates CMS reports including:
 - How the data is reconciled?
 - How compliance is demonstrated?
- Report Review
 - Discussed how a CMS report should be reviewed including:
 - What are some commonly seen errors?
 - What are some anticipated breakdowns in successful CMS Programs?
 - What story that the CMS data is telling about a facility?
- Report Generating Resources
 - Discussed the relevant resources for generating reports:
- Questions & Open Discussion