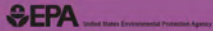



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United States Environmental Protection Agency

MACT EEE Training Workshop


Dallas, Texas November 3-7, 2008



C.8 Observation of Continuous Monitoring System Performance Evaluation Test (CMS PET)




This module reviews some key activities that agency observers can review related to Continuous Monitoring System Performance Evaluation Tests or “CMS PETs”.

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
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Observation of Continuous Monitoring System
Performance Evaluation Test (CMS PET)

Presentation Overview

- Planning
- Instruments
- Control and data storage systems
- AWFCO system
- CEMs/COMs
- Calculations



The topics to be discussed in the module are included on this slide.

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Planning

- Discuss with facility how they were planning on conducting
 - All at once
 - Over a period of time
- Work out a schedule to witness activities and review any other aspects
- Consider same safety and site access issues as for CPT observation, but probably won't need as much time



The conduct of a CMS PET can be different and distinct from conducting the actual CPT in the very often, this is done by facility staff internally. Therefore, if observation of this is of interest to agency personnel, it is important to discuss that with the facility to see how they had envisioned actually doing the work and then establish a schedule so that the various activities can be observed. Site access and safety issues are similar to what has been discussed in the previous module, however, it is likely that less time on site will be needed for observation activities.


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
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Instrument Review

- Discuss with facility how they manage their instrument program
 - Staff
 - Calibration and repair activities
 - Documentation
- To the extent possible, tour HWC to visually inspect instruments
 - Verify locations
- Review calibration procedures and documentation
 - Facility should have specific written procedures for each in the CMS QC Plan or as part of overall plant instrument program



Of central importance to this effort is to gain a good understanding of how the facility manages their instrument program. Once onsite, using the list of CMS instruments referred to in the CMS PET and CPT Plan, physically tour and to the extent possible, verify locations of the instruments. This may not always be possible as some may be located under insulation or in area, such as an elevated pipe rack, that cannot easily be seen or reached. The facility should have specific written calibration procedures for each of their CMS instruments and be able to have someone responsible for that work explain how the work is accomplished and documented.

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Common Calibration Approaches and Frequencies

- Scales – quarterly to annually
- Liquid flow meters – typically annually and some require physical removal from service
 - In-house or vendor calibration
- Flue gas flow devices – quarterly to annually
 - Varies with type
 - Sometimes a flow RATA is used EPA PS 6
- Level devices – semi-annually to annually.
 - Mostly in-situ, calibration procedure depends on instrument type. Procedure can often be the same as for pressure device
- pH sensors – weekly to bi-weekly
 - Systems are often “spared”, procedure done manually
- Pressure devices – semi-annually or annually
 - Mostly in-situ, calibration procedure depends on instrument type
- Thermocouples – quarterly to annually
 - Typical units come factory calibrated, typical ongoing is done on output signal only



This slide provides some typical approaches and frequencies used at HWCs for their various CMS instruments. Other approaches and frequencies can be appropriate as well.


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
Observation of Continuous Monitoring System
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Process Control and Data Storage

- Discuss with facility how field indicating and control instruments are linked back to the control system(s)
- Review how MACT limits
 - are programmed,
 - input signals are received and
 - logic to shut-off feeds is initiated
- Review how calculations are done for rolling averages
- Review data storage system



To understand how the actual process control system manages the HWC's operation, discuss with the facility how field instrument that sense process conditions, communicate with the process control system and then in turn, how output from that is communicated back to control equipment in the process. In addition, most process control systems in use today, utilize some form of programming or software that collects the process instrument data, performs calculations, and then either adjusts the process or initiates an AWFCO. MACT limits should be programmed in so that AWFCOs are automatically initiated. In addition to ongoing process control, rolling average calculations and data storage of process data should also be discussed.


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AWFCO system

- Review how AWFCOs are handled
 - How limits are chosen
 - How control system collects process information to evaluate whether a limit has been reached
 - What device actually shuts feeds down
 - For solid or batch feeds, should be some kind of interrupt to the feed conveyor, or interlock with airlock doors
 - For liquids and vents, should be a “block” valve, not a control valve
- Review AWFCO records for trends
 - Frequent repeats of the same AWFCO should be understood and facility should be working to minimize or reduce these



Expanding on the topic of the AWFCO system, the observer should understand how the limits are chosen, how the shutoff logic is actually programmed and then how, physically, the shut off stops hazardous waste feeds. There are several ways to stop solids feeding activities, but stopping of liquid or vent feeds should be done with a block valve versus a control valve. Finally, the observer can review that actual AWFCO log to evaluate whether there are any trends or indications that there are frequent AWFCOs caused by the same issue.

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CEMs

- This should mostly be covered by the daily, quarterly and annual testing required under Specification 4b
- Match physical system with what is included in the
 - CPT Plan
 - CEMs QA Plan and/or
 - CMS QC plan
- Discuss system reliability issues with facility
 - This will give an indication of their program and focus on the CEMs system



Operation and performance of the permanently installed CEMs system should be addressed by the daily, quarterly and annual calibration and testing required by the relevant Performance Specification (e.g., 4b). The physical system should match what has been described in the relevant documents and system reliability issues will be evident from reviewing the AWFCO logs and will provide an indication of how well the system performs and is maintained.