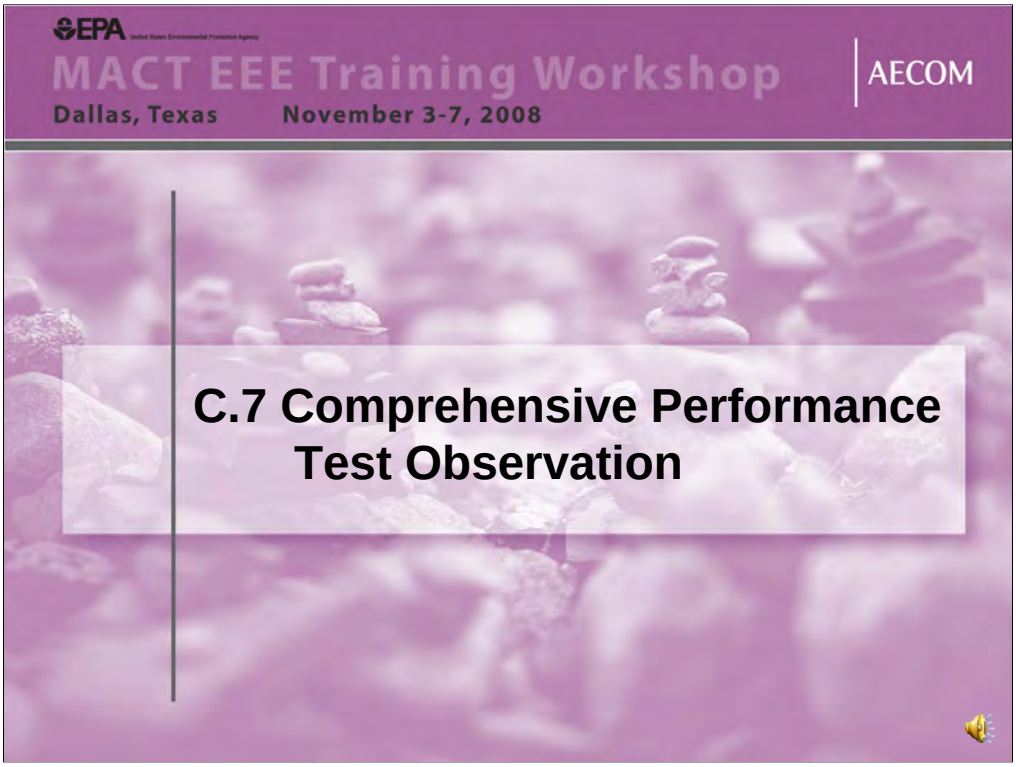
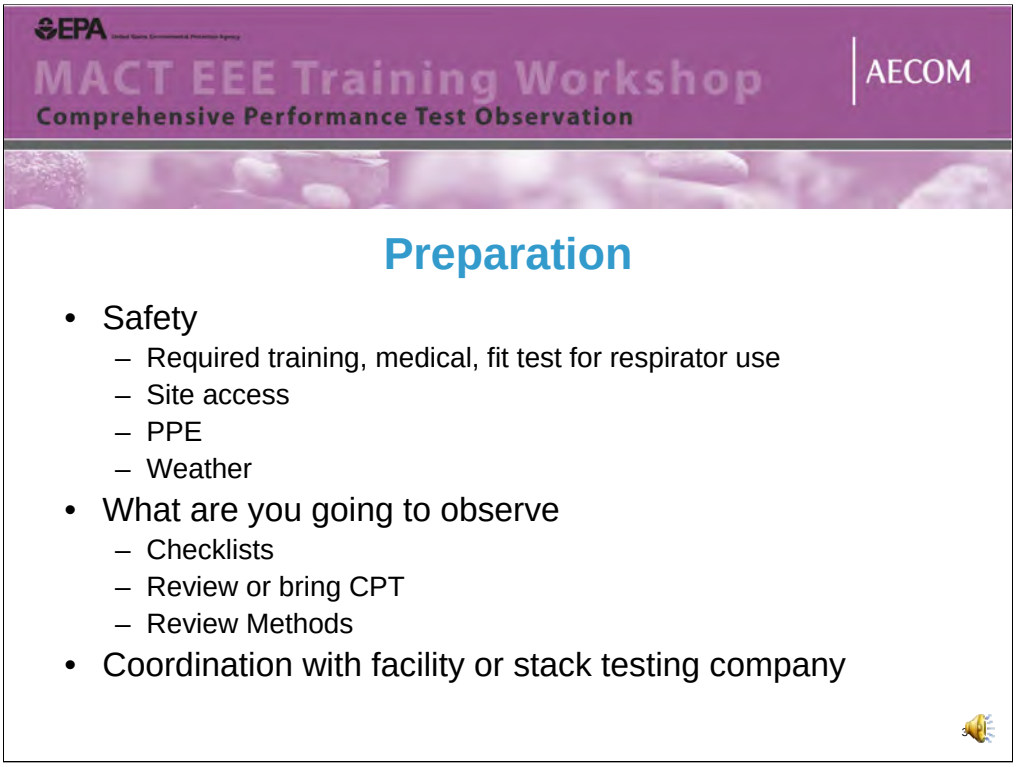


In this module, field observation of the CPT will be reviewed.

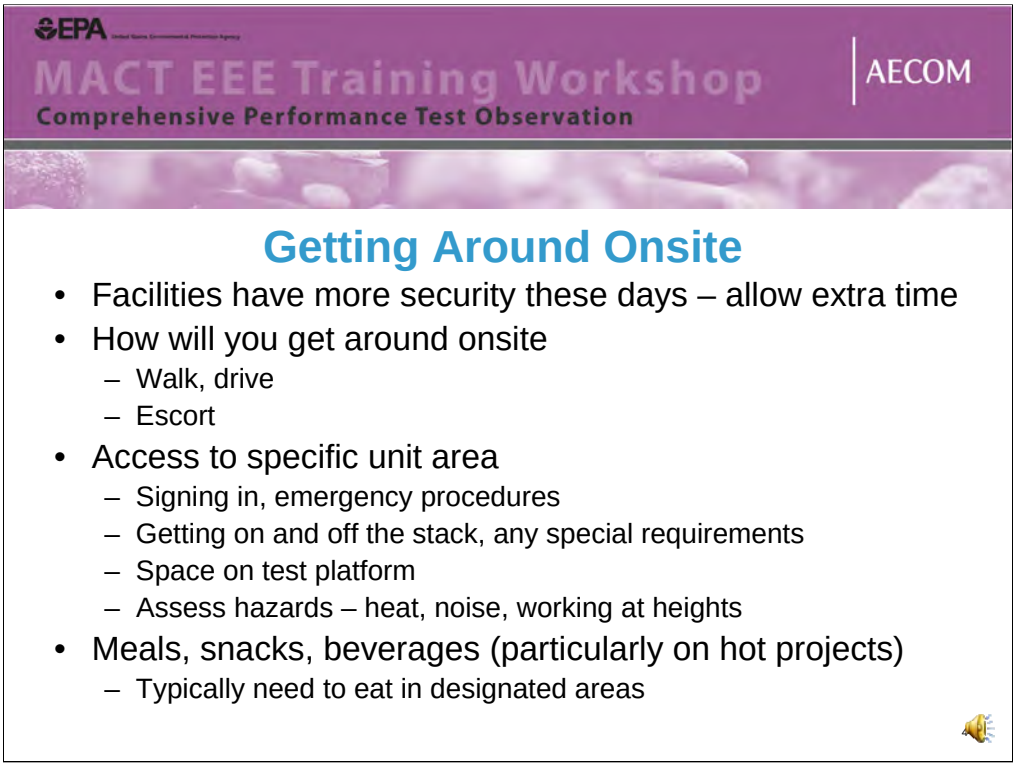
Presentation Overview

- Preparation prior to arriving at site
- Getting onsite
- Orientation to the test program
- Observation activities
- Details

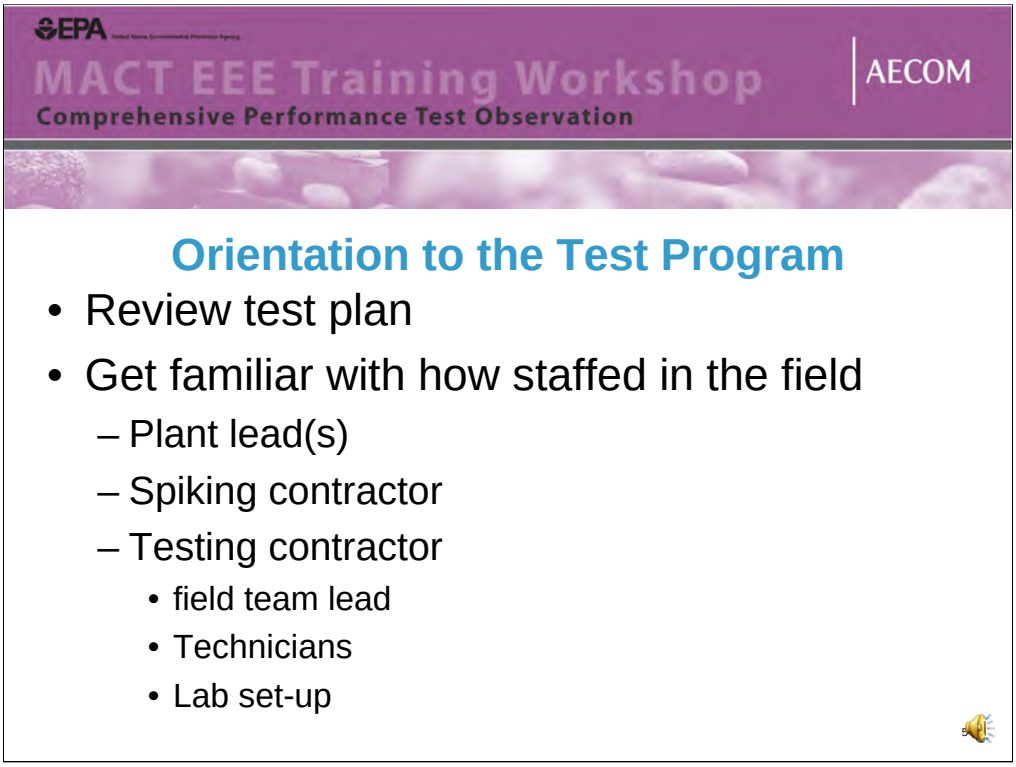
Effective oversight of any field testing program involves several different activities that are discussed in the following slides.



In preparing to conduct an oversight effort, it is first and foremost to understand the safety aspects of working on site at the HWC for the duration of the test. Making sure you have the necessary safety training and equipment, arranging for getting on site and anticipating weather issues all fall into that category of preparation. Subsequent to that is making sure you have planned for what to focus on while onsite. This will typically start with a thorough review of the test plan to familiarize yourself with the unit(s) to be tested, the daily schedule and scope of the testing. From this, you can make sure you are familiar with the methods that will be used and then compile any specific checklists that may be useful in your observation activities. Finally, it is important to coordinate with the facility when actually going there so that getting onsite and ready to perform the oversight occurs efficiently for all involved.



From a site access perspective, it is important to understand that new security requirements are the norm in gaining access to many manufacturing and waste management facilities these days, so allow extra time for that. Also, some facilities allow personal vehicles to be driven inside the gate while others do not and some facilities require escorts to with you at all times. Further, it is important to be cognizant of facility sign-in/sign-out and accountability procedures and follow them strictly in the event some type of emergency occurs during your visit. Getting up to the test location may also require special requirements, such as body harnesses and emergency respirators, plus once you are there, space on the test platform may be limited and you want to be aware of the potential hazards that may exist such as heat (test equipment itself, such as probes can burn) and stack temperatures may be quite high. Finally, make sure you have anticipated food and beverage needs, be aware of facility requirements for where food consumption is actually allowed and if hot weather or sunny conditions will exist, plan accordingly with adequate liquids and sunscreeen.

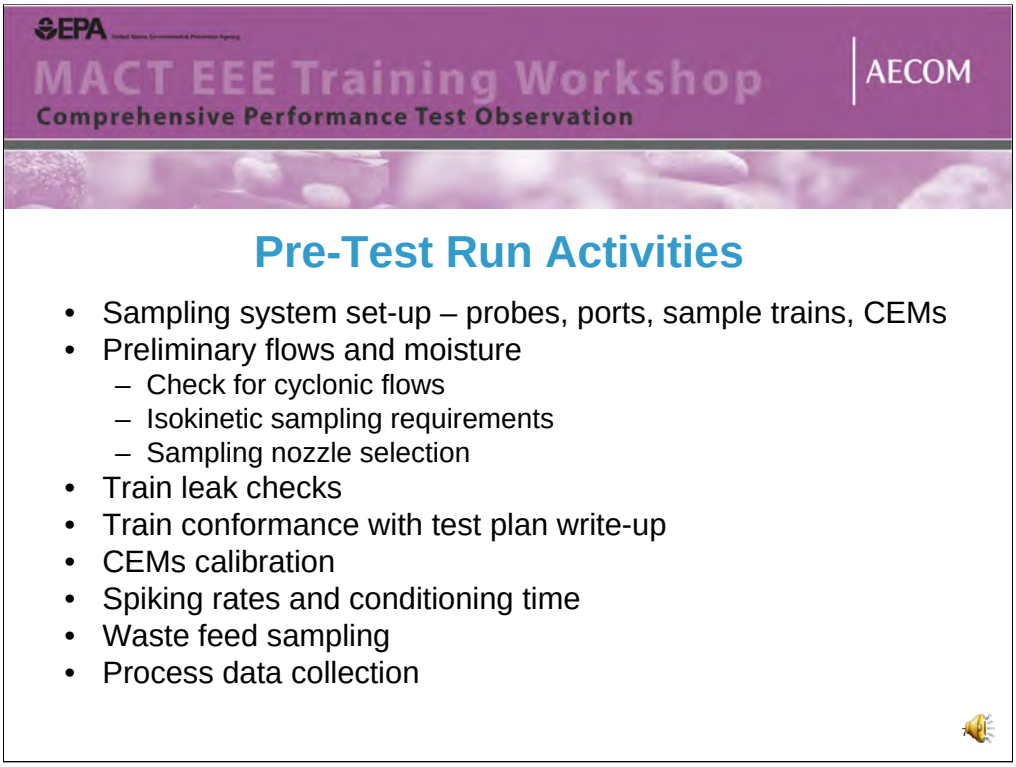


As part of getting familiar with the test plan, its is important to understand how the project is staffed in the field. Knowing who is staffing what roles on the project will enable you to understand who is directing the program and what various individuals will be responsible for during testing so that key activities can be observed.

Observation Activities

- Pre-test, safety meetings
- Test schedule and expected start times
- Train set-ups
- CEMs set-up
- Lab set-up, including sample recovery, handling, storage and shipping
- Test runs
- Be aware of test team work loads and safe access around test activities

Test programs typically start with a pre-test meeting of participants and a safety meeting. As part of the pre-test meeting, the actual test schedule will be discussed and the times for various activities such as setting up trains and CEMs testing equipment can be determined so that observation of these can be done. In addition, the observer can find our about the lab set-up where samples recovery, handling and shipping of samples is usually performed, so that these activities can be viewed as well.



Pre-test activities that can be observed will include sample train and CEM system set-ups, then prior to actual testing, preliminary flow and moisture checks are performed so that final train assemble can be completed, such as nozzle selection and whether provisions are needed to address high moisture content. Once fully assembled, leak checks are performed and must be passed before sampling can begin. Observers can verify sample trains match test plan descriptions, CEMs have been properly calibrated, spiking rates and the appropriate conditioning time are in accordance with the CPT Plan and waste feed and process data collection activities are ready to be started.

Test Run Activities

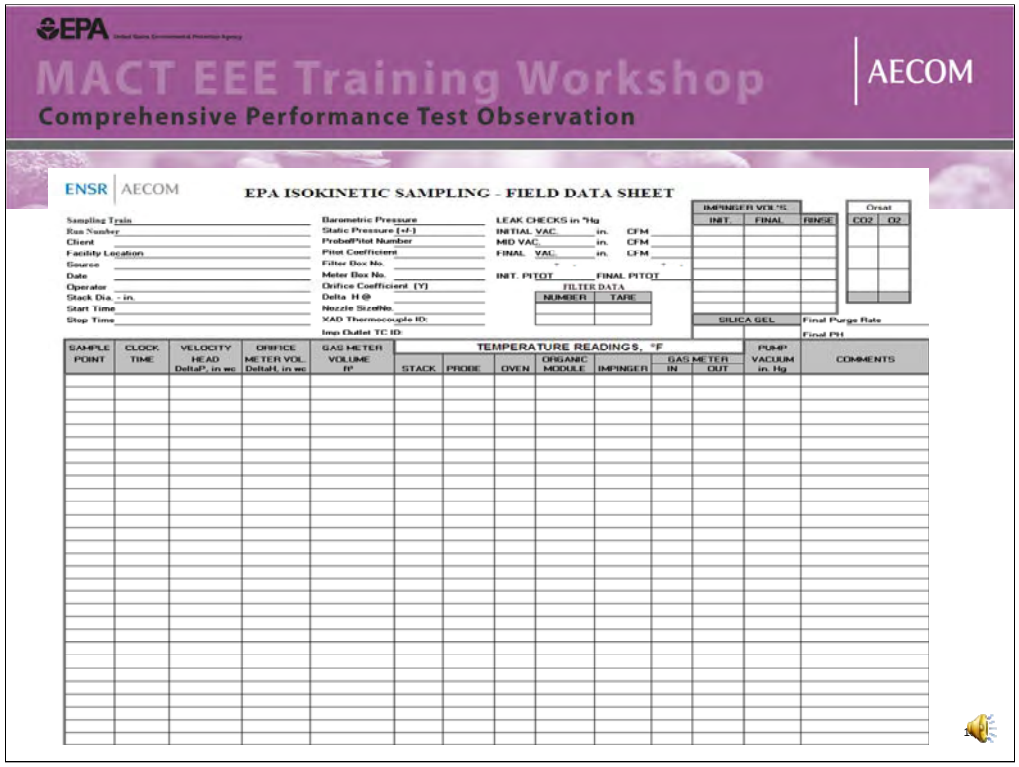
- Unit is “at condition”
  - Note differences from CPT Plan
- Use of field data sheets
- Waste sampling
- Isokinetic sampling
- CEMs sampling
- Lab operations

The HWC should be at condition before testing begins and any differences from the test plan should be noted by the observer. Observers can verify the use of appropriate field data sheets are being used for all aspects of the test program. This would include specific data sheets for the different trains being used, waste sampling log sheets and CEMs data recording. Some examples of these are shown on the following slides. In addition, the field recovery lab should be set up and this is discussed in more detail later in this module.

SOLID/LIQUID GRAB SAMPLING FIELD DATA SHEET

ENSR Project No.					
Client:		**Facility:**			
Stream Sampled:					
Sampling Location:					
Date:		**Date:**		**Date:**	
Condition:		**Condition:**		**Condition:**	
Run No.		**Run No.**		**Run No.**	
Start Time:		**Start Time:**		**Start Time:**	
Stop Time:		**Stop Time:**		**Stop Time:**	
Grab Interval	Clock Time (actual)	Grab Interval	Clock Time (actual)	Grab Interval	Clock Time (actual)
Beginning		Beginning		Beginning	
Middle		Middle		Middle	
End		End		End	
Comments :					
Signature of Sampler:					

This is an example waste sample data sheet.



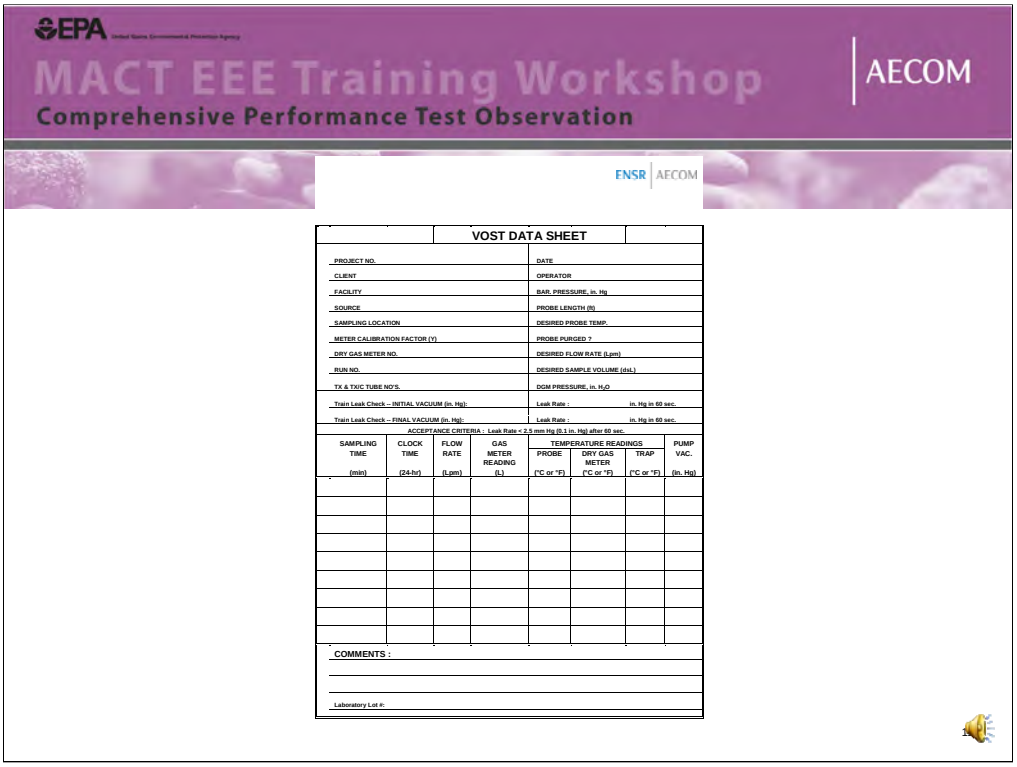
This is an example isokinetic sampling field data sheet that should be used for PM, metals, HCl/Cl2, dioxins and furans and the SVOC train if a SVOC POHC is used and measured in a separate train from the dioxins and furans.

SAMPLE TRAIN MOISTURE RECOVERY DATA SHEET

Reference Method / Sampling Train :

Recovered by :				**Recovered by :**				**Recovered by :**			
Run No. **Date :**				**Run No.** **Date :**				**Run No.** **Date :**			
XAD Module No. :				**XAD Module No. :**				**XAD Module No. :**			
Filter No. :				**Filter No. :**				**Filter No. :**			
Impinger No. and Volume				**Impinger No. and Volume**				**Impinger No. and Volume**			
No.	Initial (mL)	Final (mL)	Rinse (mL)	No.	Initial (mL)	Final (mL)	Rinse (mL)	No.	Initial (mL)	Final (mL)	Rinse (mL)
1				1				1			
2				2				2			
3				3				3			
4				4				4			
5				5				5			
6				6				6			
7				7				7			
			DIFF :				**DIFF :**				**DIFF :**
Totals				**Totals**				**Totals**			
	Initial (g)	Final (g)	**DIFF :**		Initial (g)	Final (g)	**DIFF :**		Initial (g)	Final (g)	**DIFF :**
Silica Gel				Silica Gel				Silica Gel			
Final Net Moisture Gain:				**Final Net Moisture Gain:**				**Final Net Moisture Gain:**			

This moisture content calculation data sheet is an example of what is used when moisture is determined from an isokinetic sampling train.



VOST DATA SHEET

PROJECT NO.	DATE
CLIENT	OPERATOR
FACILITY	BAR. PRESSURE, in. Hg
SOURCE	PROBE LENGTH (ft)
SAMPLING LOCATION	DESIRED PROBE TEMP.
METER CALIBRATION FACTOR (Y)	PROBE PURGED ?
DRY GAS METER NO.	DESIRED FLOW RATE (Lpm)
RUN NO.	DESIRED SAMPLE VOLUME (dsL)
TX & TXIC TUBE NO'S.	DGM PRESSURE, in. H_2O
Train Leak Check – INITIAL VACUUM (in. Hg):	Leak Rate : in. Hg in 60 sec.
Train Leak Check – FINAL VACUUM (in. Hg):	Leak Rate : in. Hg in 60 sec.

ACCEPTANCE CRITERIA : Leak Rate < 2.5 mm Hg (0.1 in. Hg) after 60 sec.

SAMPLING TIME (min)	CLOCK TIME (24-hr)	FLOW RATE (Lpm)	GAS METER READING (L)	TEMPERATURE READINGS PROBE (°C or °F)	DRY GAS METER (°C or °F)	TRAP (°C or °F)	PUMP VAC. (in. Hg)

COMMENTS :

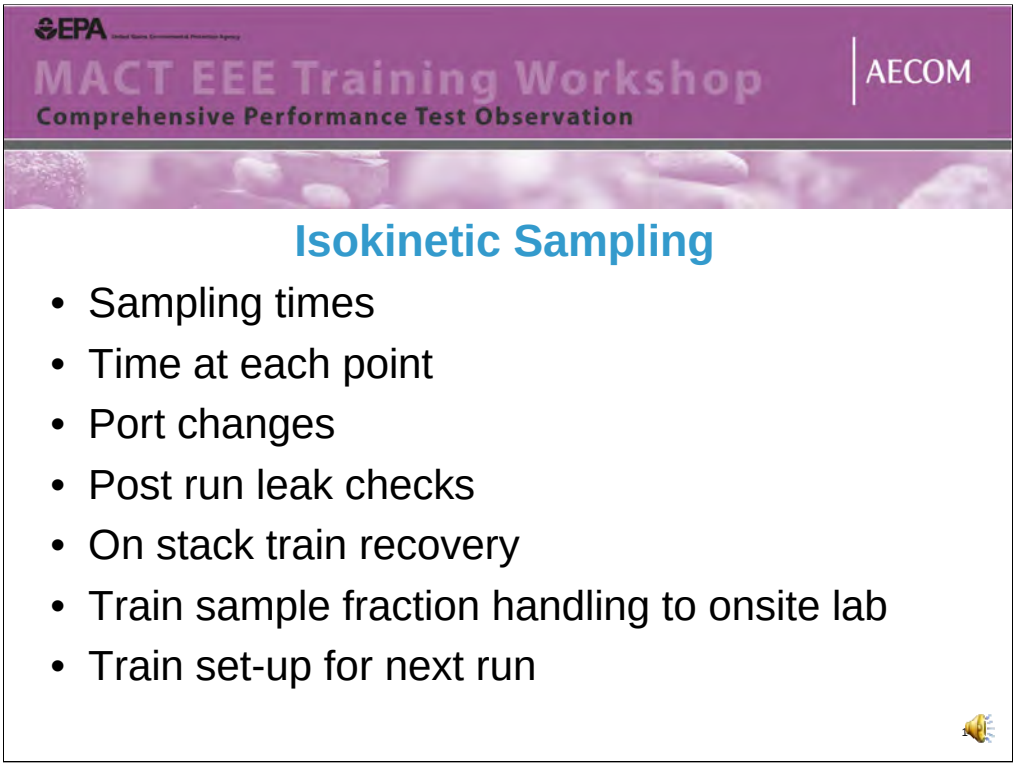
Laboratory Lot #:

This is an example VOST data sheet used when sampling using EPA Method 0030.

Waste Sampling

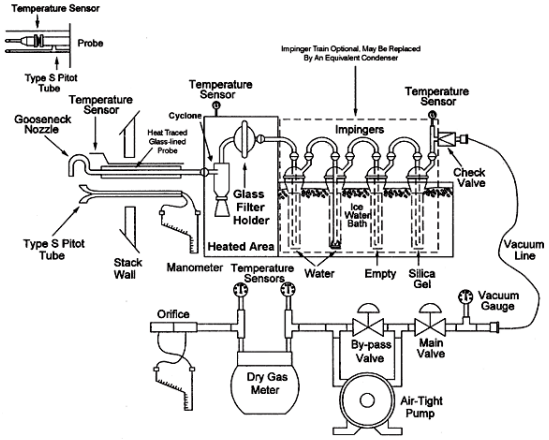
- How many waste types will be sampled
- Sampling procedures for each
  - Waste variability, sampling frequencies
  - Grabs and composites
- Sample types
  - VOCs
  - Metals, inorganics, physical properties

From a waste sampling perspective, the observer should understand how many different types of wastes are to be sampled for, what the sampling procedures for each of these are and what types of containers the samples should be collected. Samples for VOC analysis are collected in VOA vials while most others are typically placed into amber glass wide mouth containers.

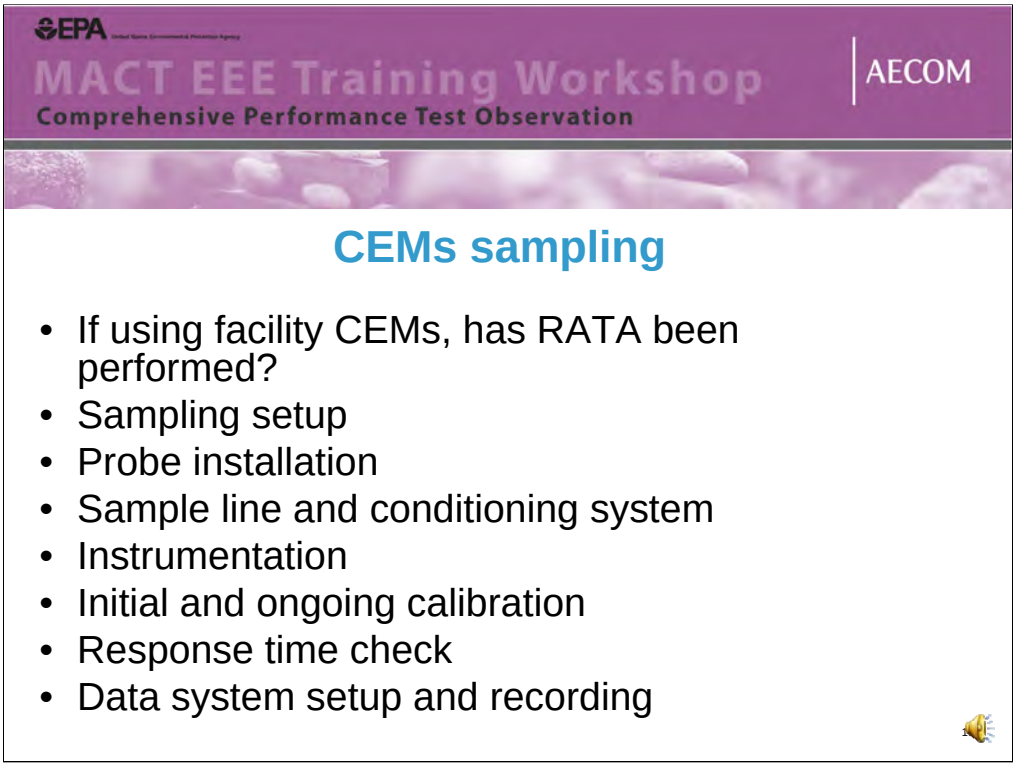


For isokinetic trains, the observer can verify the sampling time lengths to make sure that the actual time is what is specified in the plan, unless and alternative time is agreed to in the field. He observer can also witness how well the sampling technician keeps the impingers iced down. This dictates the number of minutes sampling will be performed for at each traverse point. Port changes can also be observed to make sure nozzles don't get chipped or lost or dirt or rust that can accumulate in the port does not get into the nozzle. Once the run is over, post run leak checks can be verified, on stack train recovery and train sample handling back to the onsite field recovery lab can be observed as well. In the lab and on the stack, preparation of train components for subsequent test runs can also be observed.

Isokinetic Sampling Train



Just as a reminder, this slide shows the components of a typical isokinetic train. The number/type of impingers, their reagents and other glassware, like XAD traps for dioxin and furan analysis, will vary depending on the method.



From the CEMs testing perspective, the observer should note whether the HWC is using its own system or whether the stack testing contractor is bringing theirs in. If the facility is using their own CEMs, a RATA should have recently been performed and that system should be being operated in accordance with its site specific QA/QC Plan. If a portable CEMs systems has been brought in, then the observer can evaluate several aspects relating to its set-up and can also view the calibration and response time checks and how the data recoding system is configured and set-up.

A typical portable CEMS system should look something like the schematic shown in this slide.

Things to Look For

- Process variation
- Spiking issues
- Train leak check issues
- Isokinetic sampling issues
- Sample port cleanliness
- Lab area cleanliness
- Equipment calibrations
- Recovery Procedures

In summary, there are a number of issues that can be focused on during oversight observation. Some of the key areas are included on this slide. The best approach for preparing for and performing this however, is to have a thorough understanding of the CPT Plan and HWC facility being tested.