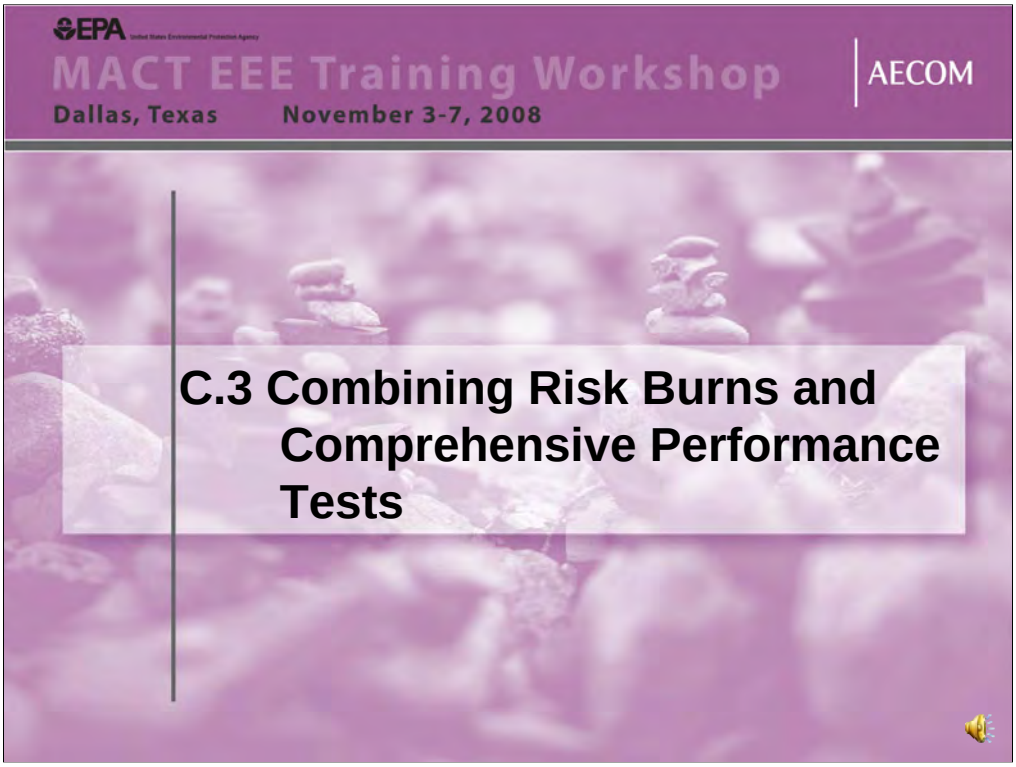


This module will discuss the advantages and disadvantages of combining risk burns performed to generate input data for a risk assessment and the HWC MACT Comprehensive Performance Test.

Presentation Overview

- Risk Burn Objectives
- CPT Objectives
- How Can Programs be Combined
- Advantages of Combining Testing
- Disadvantages of Combining Testing

The objectives of both types of programs will be reviewed, the mechanics of how they could be combined will be discussed and then the module will conclude with a discussion of the pros and cons of combing these programs.

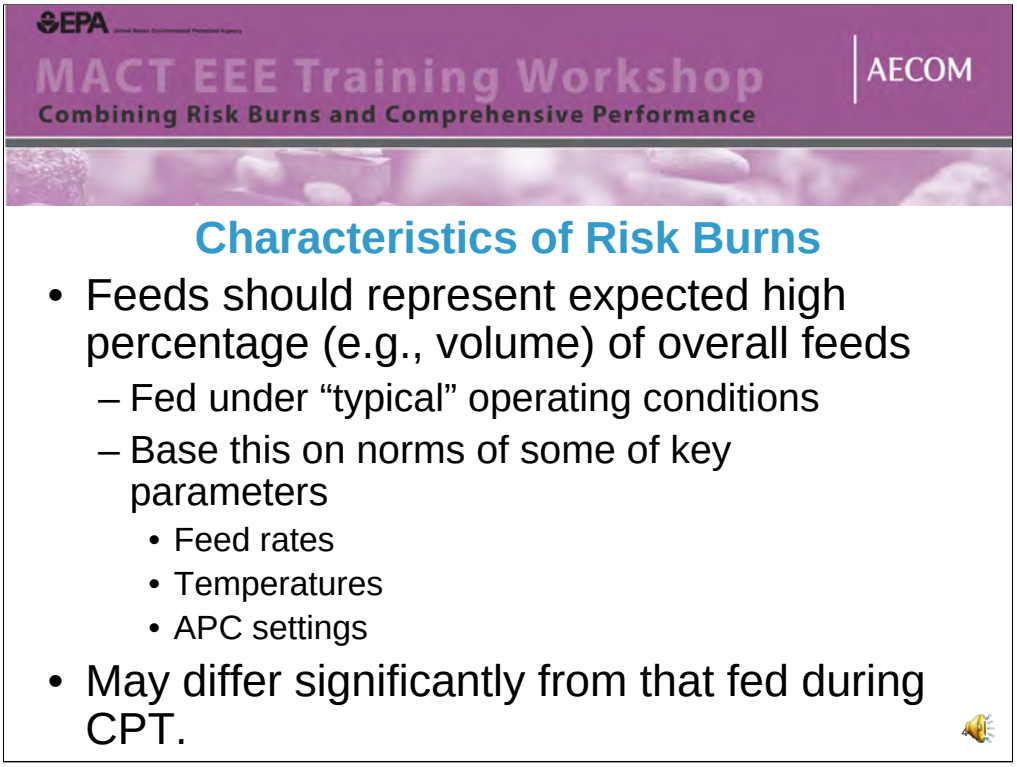
Objectives of Risk Burn

- Characterize long-term average, or normal, emissions profile
- Develop input for screening level or full risk assessment
- Establish facility specific permit limits to address any risk related concerns
  - Acute/Chronic
  - Direct or indirect

The risk burn operating mode affects the outcome of the risk assessment, and may also affect the final permit terms. To assure that the combustor continues to operate within the range where emissions have been found to be protective, the RCRA permit may limit control parameters based on the risk burn. Ultimately, the risk burn generally should strike a balance between operating modes which achieve desired permit flexibility, while also achieving protective emissions levels.

Because the risk assessment evaluates the potential for chronic long-term health impacts, a primary objective of the risk burn is to collect emission data that represent the average emission levels expected over the operating life of the unit. However, the permit should generally ensure that those emissions, on average, are not exceeded over the long term.

Data from the risk burn serve as input for the risk assessment. The risk burn is conducted to establish permit limits that address concerns about potential risk that could be associated with a facility's emissions.

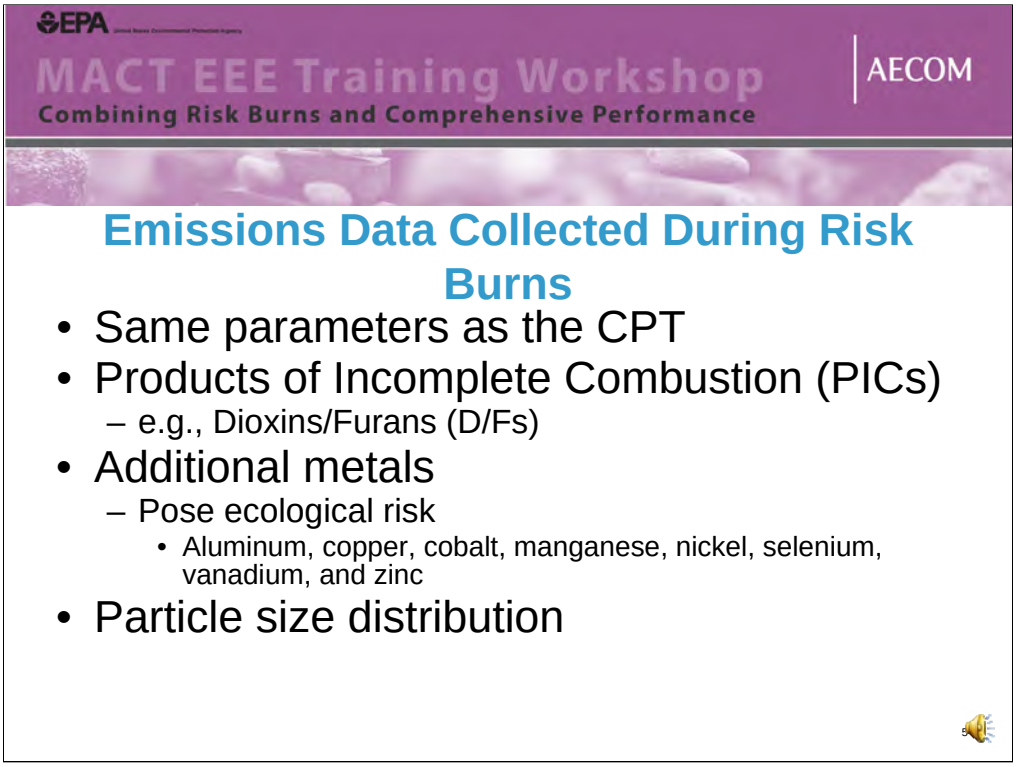


Representative, but challenging feeds should be fed during the risk burn. Representative waste can be defined as those representing a high percentage or volume of overall feeds. Feeds that are burned during the risk burn may differ significantly from those fed during the CPT.

Typically, wastes are fed under "typical" or "normal" operating conditions in a risk burn. These typical operating conditions are generally based on norms of key parameters such as feed rates, temperatures, and air pollution control settings.

While long-term average operating conditions are a good starting point, they are not always the most appropriate conditions for a risk burn. Anyone reviewing a risk burn plan should be cognizant of the potential for the exponential increase in the emission rate of PICs and D/F under certain off-normal conditions that may be, nevertheless, within the allowable operating limits established by the CPT. If such conditions are identified, it may be necessary to incorporate a "normal" frequency of them into the risk burn.

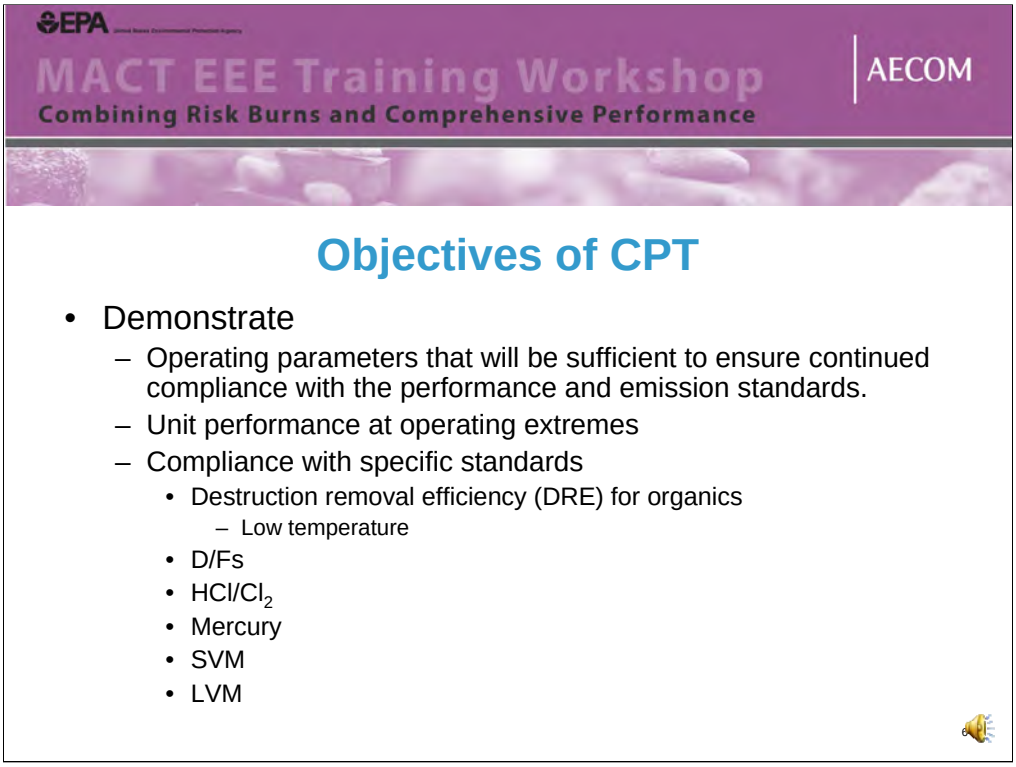
Waste tracking and record keeping could become a condition of the permit.



Much of the data collected during a risk burn is the same as that collected during a CPT. However, additional data to be collected during the risk burn includes volatile and non-volatile products of incomplete combustion.

In addition to the standard metals data collected in a CPT, there are eight additional metals that are compounds of potential concern for ecological receptors. These eight additional metals are aluminum, copper, cobalt, manganese, nickel, selenium, vanadium, and zinc.

Information on particle-size distribution (presented as particle diameters in micrometers, referred to as microns) is needed for the air dispersion and deposition modeling that supports the risk assessments. Because particle dispersion and subsequent deposition are directly related to particle size, potential risks are directly dependent on particle-size distribution.



Comprehensive Performance Tests are typically conducted at extreme "worst-case" operating conditions of the unit in order to define the maximum operating range (or operating envelope) that assures compliance.

As long as the unit continues to operate within the operating envelope demonstrated during a successful CPT, it is presumed to be in compliance with the regulatory performance standards.

Testing at “worst-case” conditions generally involves at least one performance test condition conducted at a minimum combustion temperature to demonstrate Destruction Removal Efficiency. The CPT is also designed to demonstrate compliance with specific standards for:

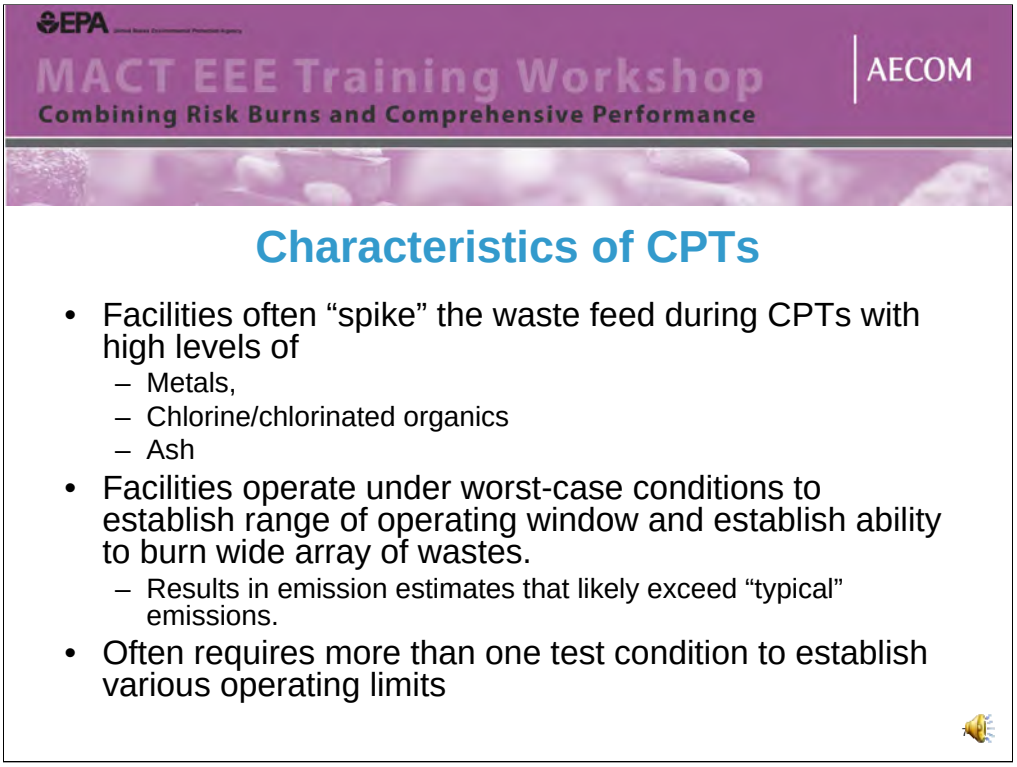
Dioxins/Furans

HCl/Cl_2

Mercury

Semi-Volatility Metals

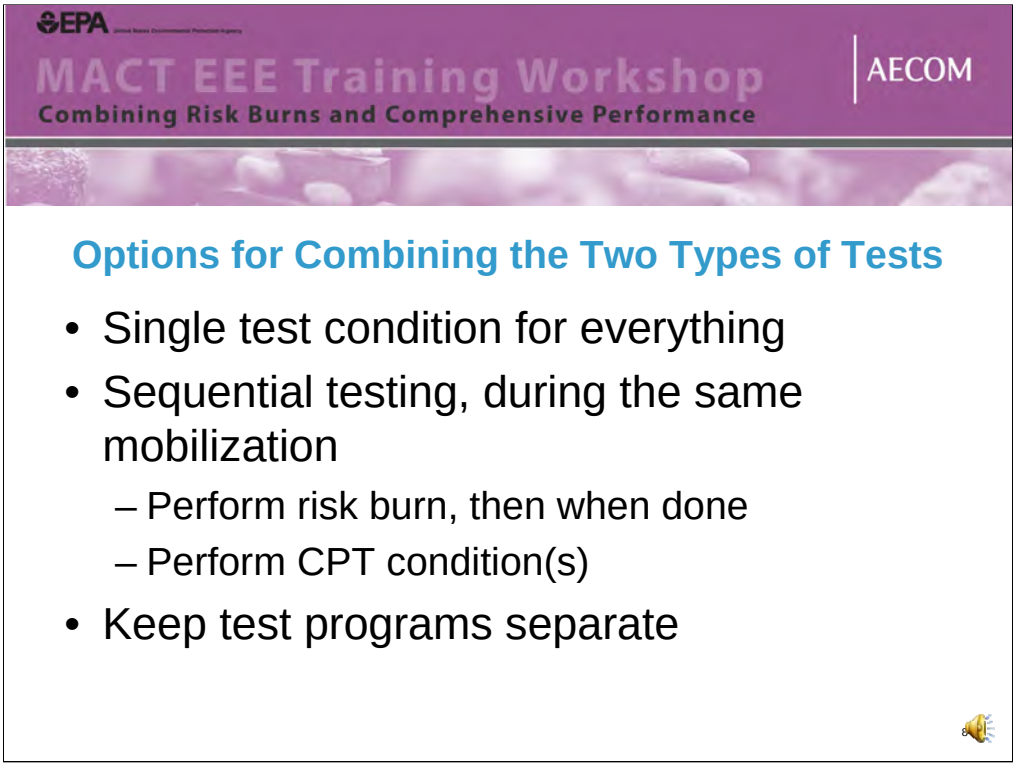
Low-Volatile Metals



Facilities may choose to spike the wastes used during the CPT with metals, chlorine, and ash to demonstrate performance at maximum feed rates. Spiking helps to ensure that sufficiently flexible feed rate limits are established.

When CPTs are conducted under worst-case conditions, a range of operating windows and the ability to burn a wide array of wastes is established. However, performance tests conducted under such conditions also result in emission estimates that are likely to exceed typical daily emission rates.

Conducting CPTs under worst-case conditions usually requires more than one test condition to establish the various operating limits.



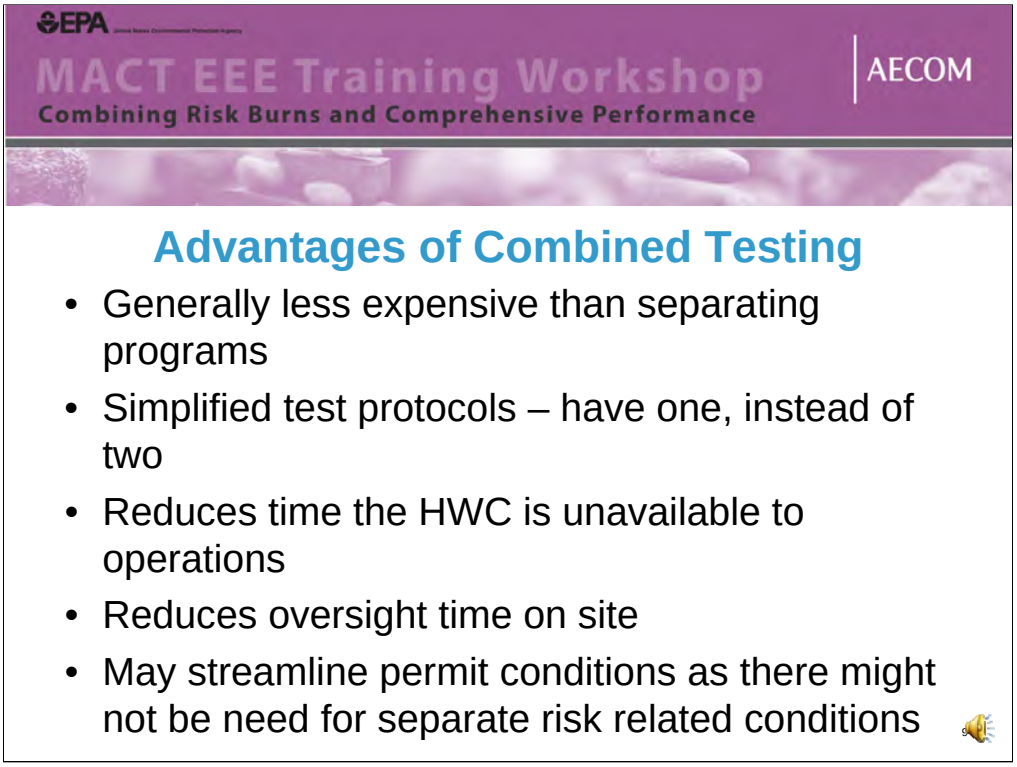
Since EPA may consider the results of a risk assessment and use such information to establish risk-based permit limits under the omnibus authority of RCRA as described in 40 CFR § 270.32(b)(2), the risk burn should generally be integrated with trial burn or performance testing to the extent necessary to produce a consistent set of enforceable permit conditions.

There are several options for combining the tests.

A single test condition can be used to collect data on all of the necessary parameters for both the CPT and risk burn. However, the only way in which both compliance and risk data can be derived from a single test is if the facility is certain that risk issues will not arise even when operating under worst case conditions. This is very rare. At almost every facility where data are needed for a risk assessment, tests will have to be done under at least 2 test conditions. (The CPT alone may also require multiple conditions.)

Sequential testing during the same mobilization can be conducted. For example, the risk burn could be conducted and then when that is complete, the CPT could be conducted. However, this option would make for some very long days.

Or, the two test programs can be conducted separately



The advantages of combined testing include:

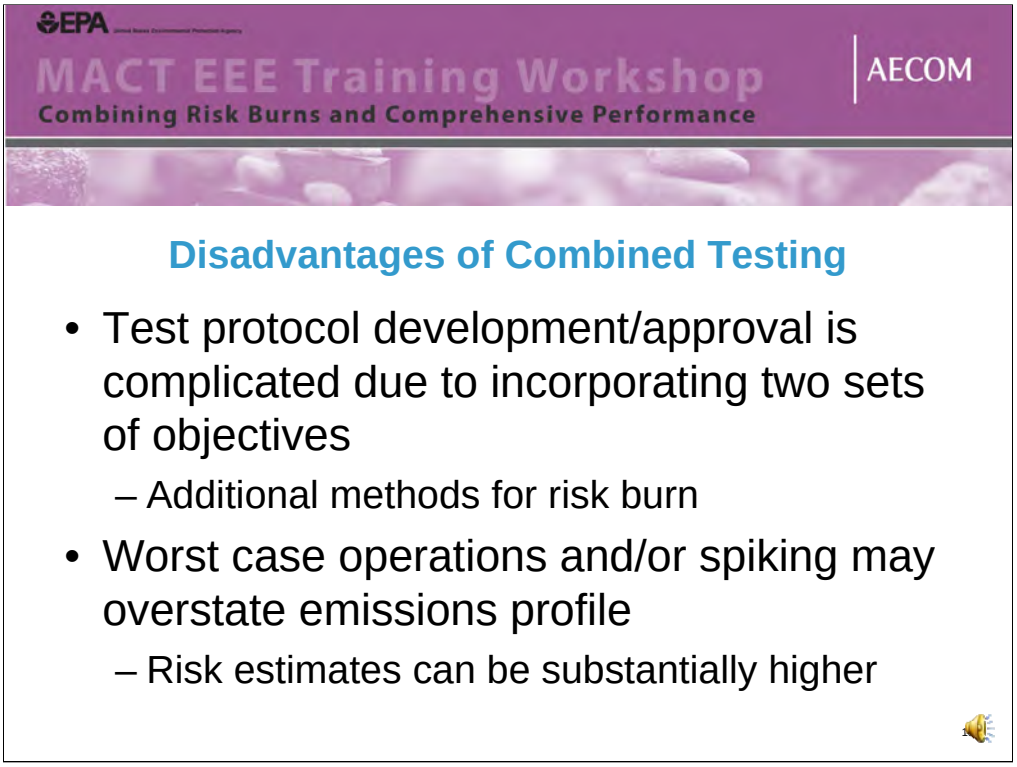
Lower cost, since there is a single mobilization and other efficiencies gained by combined testing.

Simplified test protocols – have one, instead of two

Reduces time the HWC is available to operations

Reduces oversight time on site

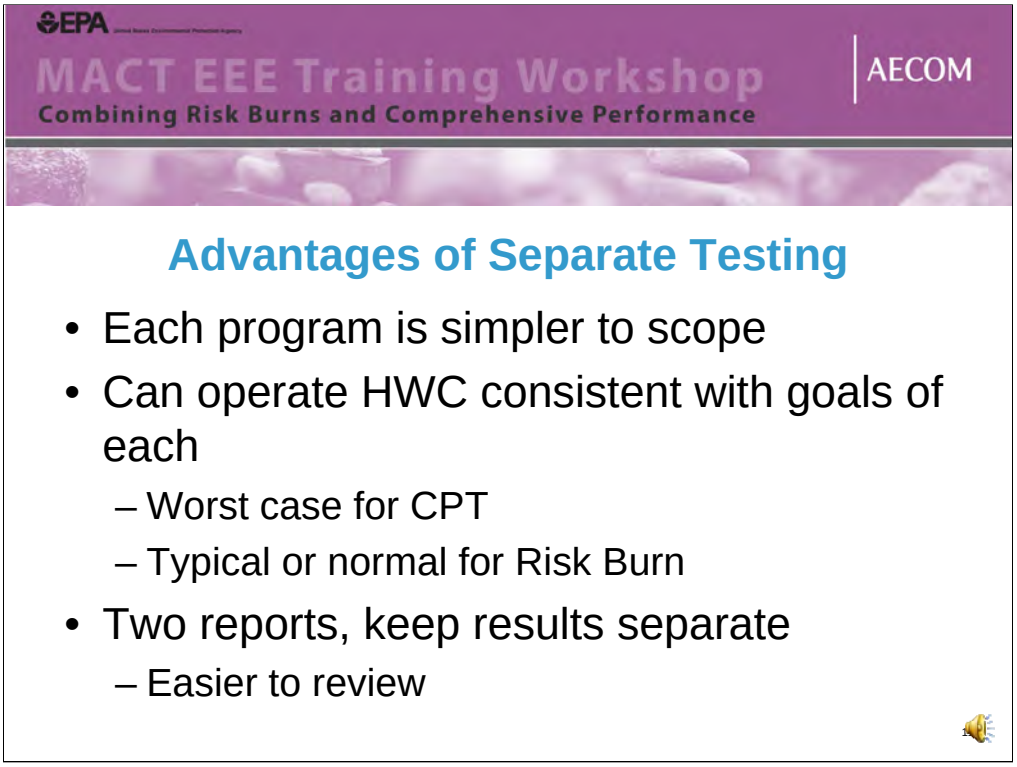
May streamline permit conditions as there might not be need for separate risk related conditions



Disadvantages of combined testing include:

Complications that arise as a result of the incorporation of two sets of objectives in the test protocol and obtaining subsequent approval of those differing objectives.

If testing is combined, data for the risk assessment may represent worst-case operations or waste feed characteristics, which may result in estimated risks that are substantially higher.

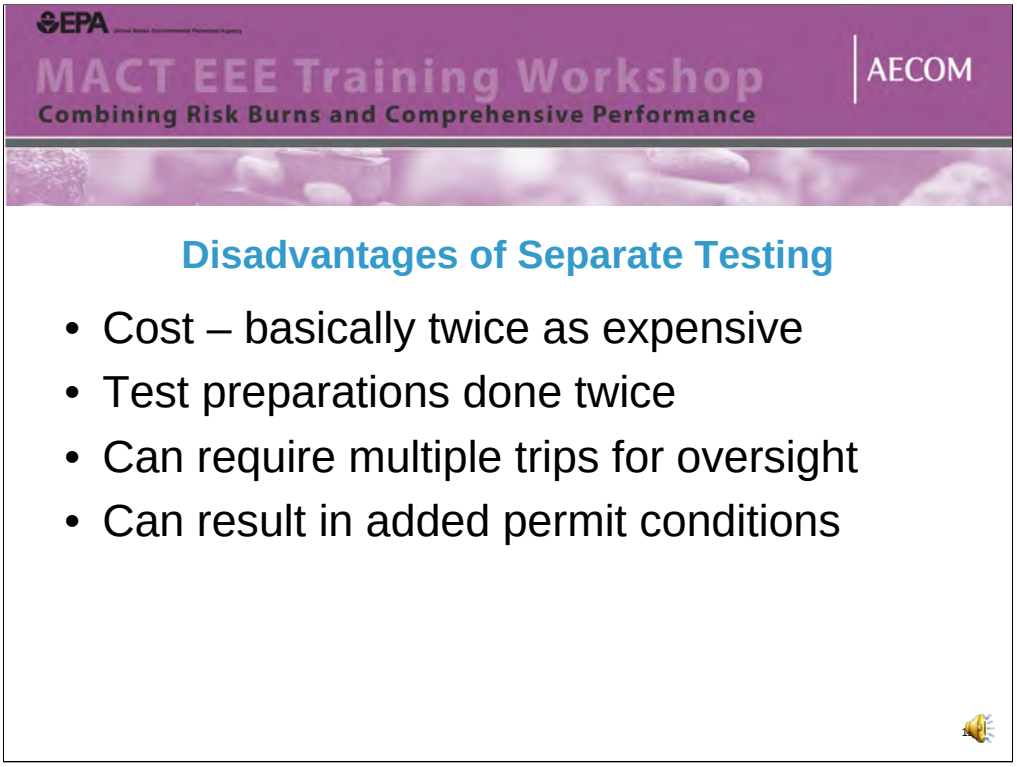


Advantages of separate testing include:

Each program is easier to scope. separate testing will help avoid logistical conflicts, such as timing.

The combustion unit can be operated consistently with the goals of each testing program. For example, the CPT can be performed under worst-case conditions, while the risk burn is conducted under normal or typical conditions.

The results are kept separate, making review easier



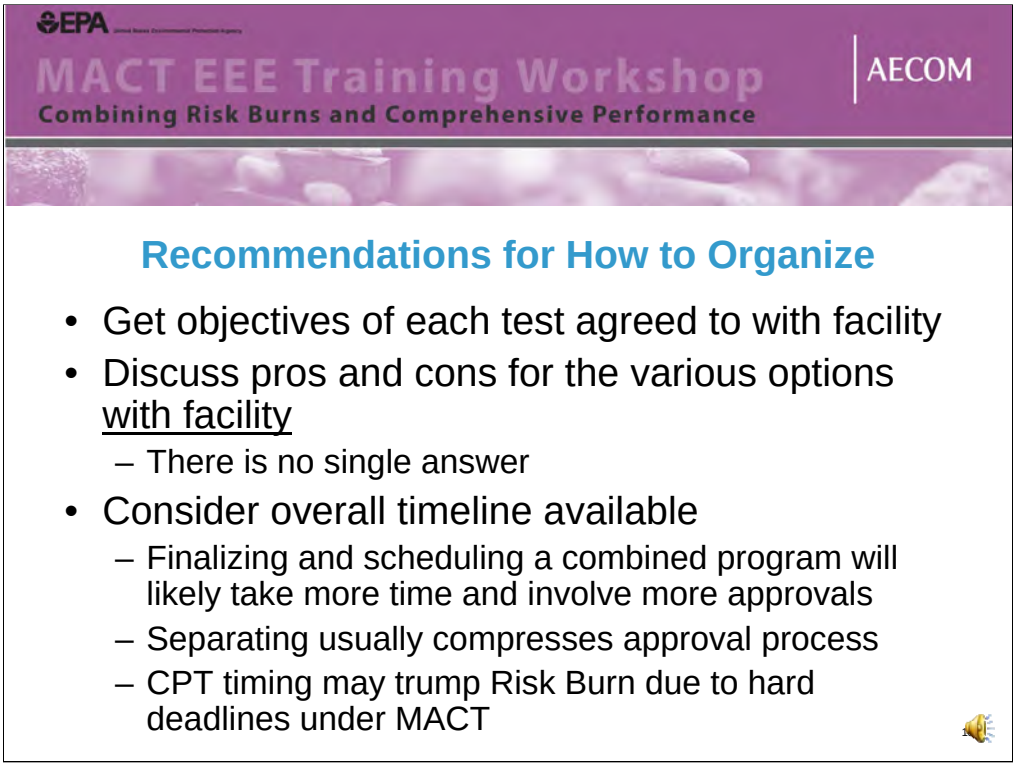
Disadvantages of conducting the testing separately include:

Added cost. In fact, the cost may be double if the two tests are conducted separately.

Test preparations are basically done twice, adding to the cost

Separate tests may require multiple trips for oversight.

Conducting tests separately may result in additional permit conditions. Additional permit limitations may be needed to ensure that conditions represented as normal during the risk burn are, in fact, normal over the long-term operation of the facility.



Planning is critical to ensure that the objectives of the CPT and the risk burn are met. A few recommendations for organizing the testing include:

Getting the objectives of each test agreed upon

Discussing the pros and cons of the various options with facility personnel, as there is no one approach that works best for all facilities.

Considering the overall timeline, keeping in mind that

* Finalizing and scheduling a combined program will likely take more time and involve more approvals

* Separating usually compresses approval process

* CPT timing may trump Risk Burn due to hard deadlines under MACT