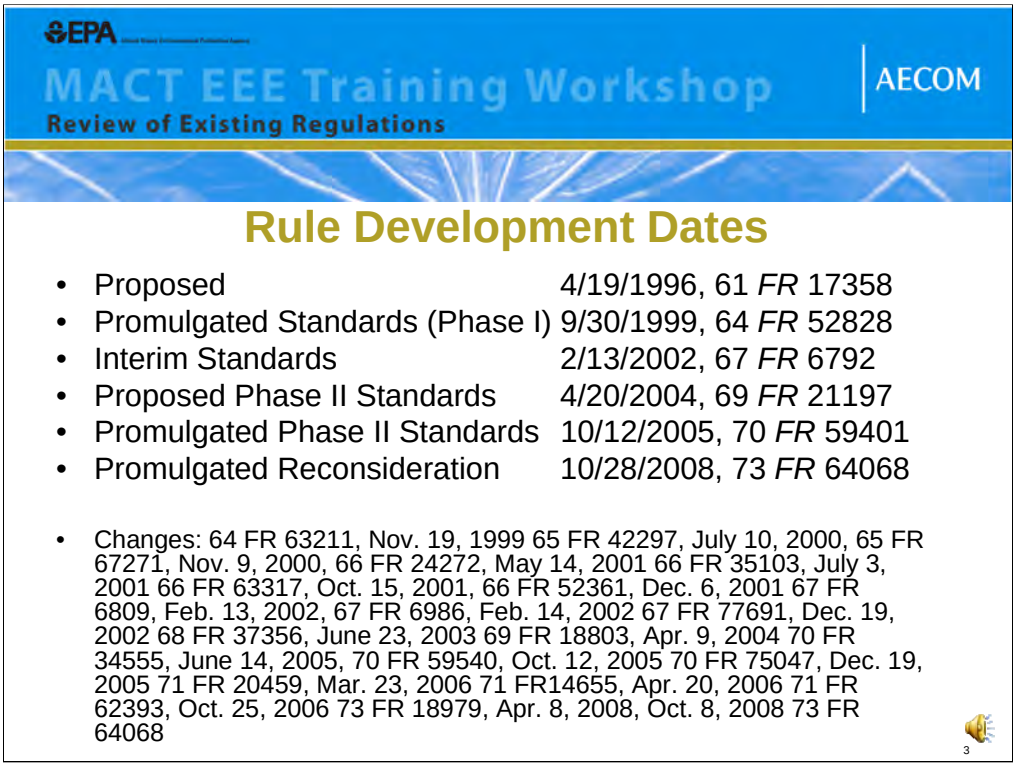
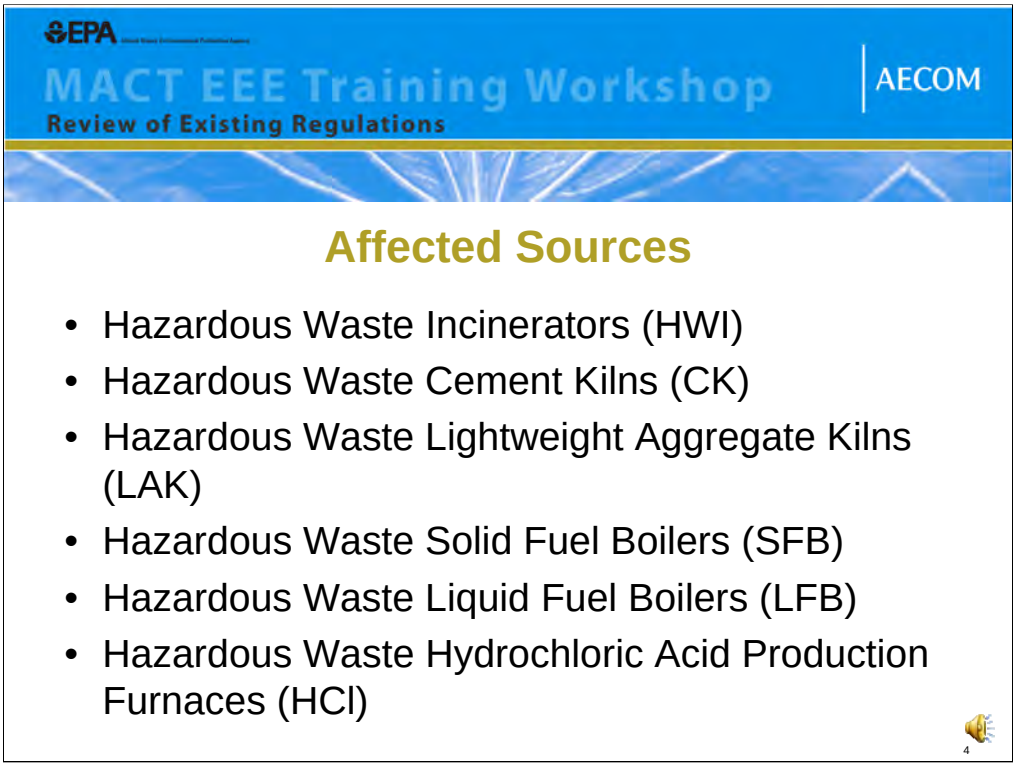
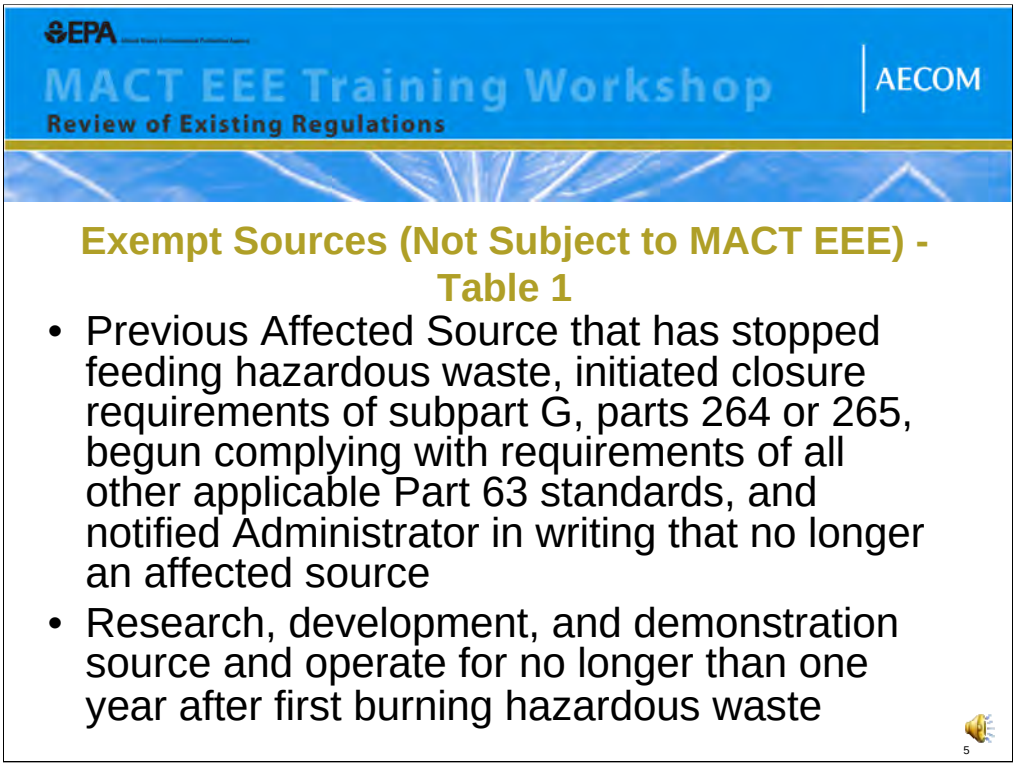
This module will focus on the MACT EEE regulation. The discussion will include definition of affected source, how the rule is organized, pertinent dates, review of the standards, monitoring, notifications, record keeping and reporting required of affected source.



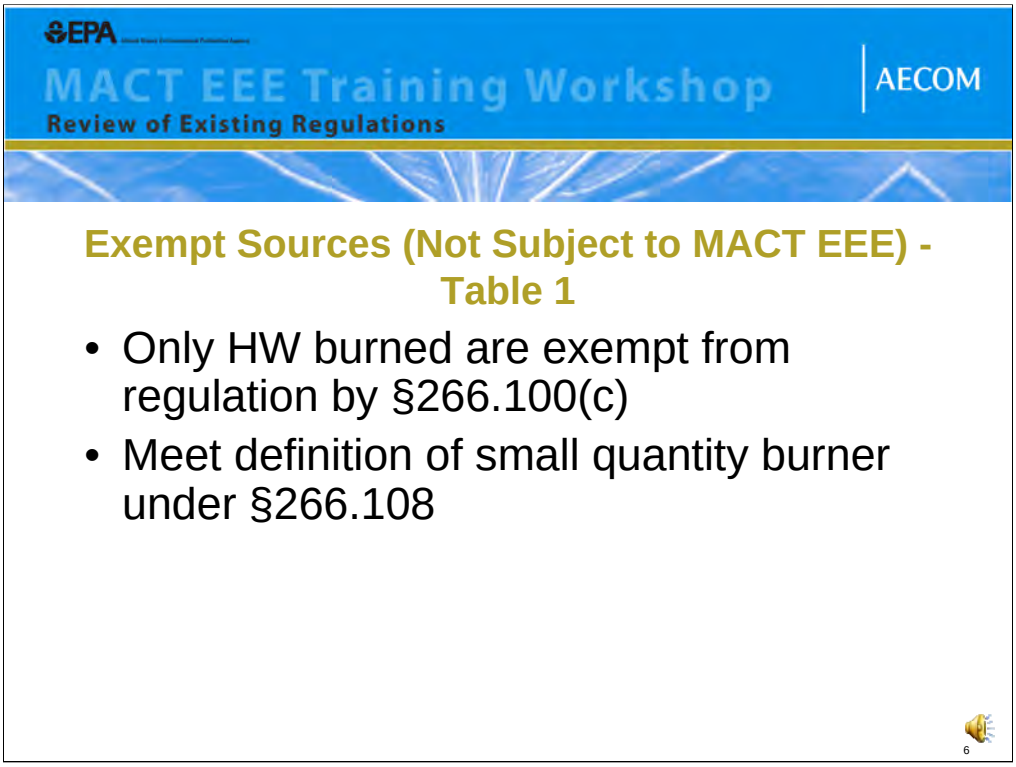
Some of the important dates of the Phase I rule are its proposal on April 19, 1996 and promulgation on September 30, 1999. Following promulgation, the interim standards were promulgated on February 13, 2002. Phase II standards were proposed on April 20, 2004 followed by promulgation on October 12, 2005. Most recently, reconsideration changes were promulgated on October 28, 2008. This slide also includes a listing of changes that have been published in the Federal Register.



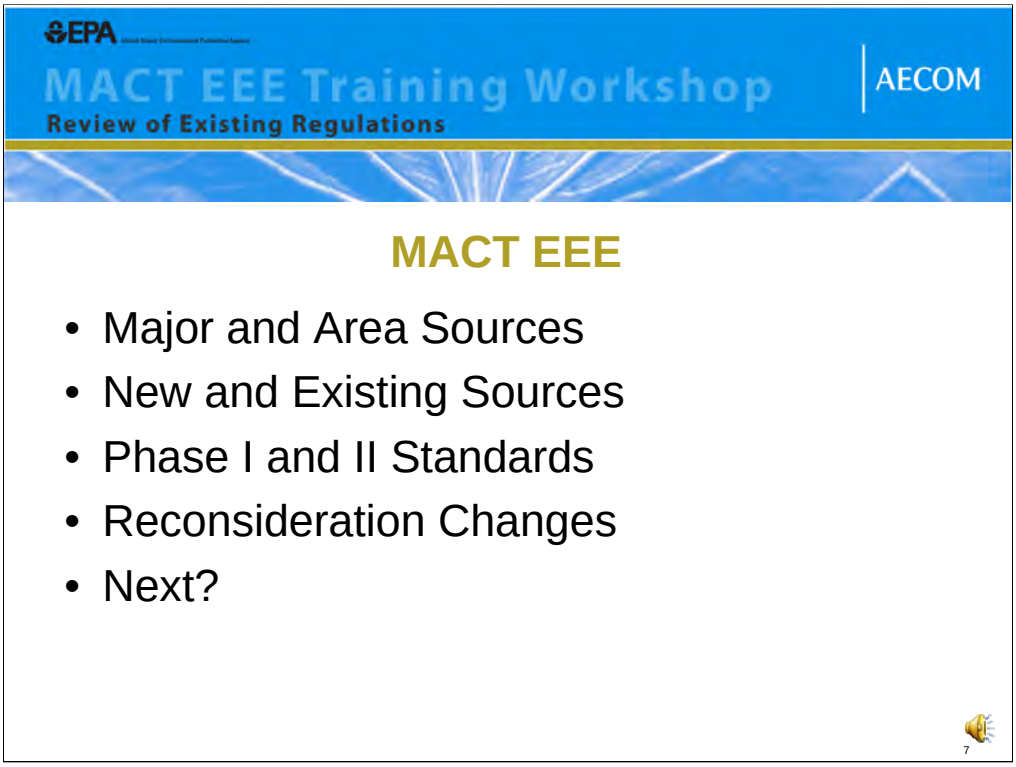
The MACT EEE rule defines affected sources as hazardous waste incinerators, hazardous waste cement kilns, hazardous waste lightweight aggregate kilns, hazardous waste solid fuel boilers, hazardous waste liquid fuel boilers and hazardous waste hydrochloric acid production furnaces.



Exempted sources, which are not subject to the requirements of MACT EEE, include a previous affected source that has stopped feeding hazardous waste, initiated closure requirements of subpart G of parts 264 or 265, begun complying with the requirements of other applicable Part 63 standards and has notified the Administrator in writing that the source no longer is an affected source under MACT EEE. Also, a research, development and demonstration source that operates for no longer than one year after first burning hazardous waste.

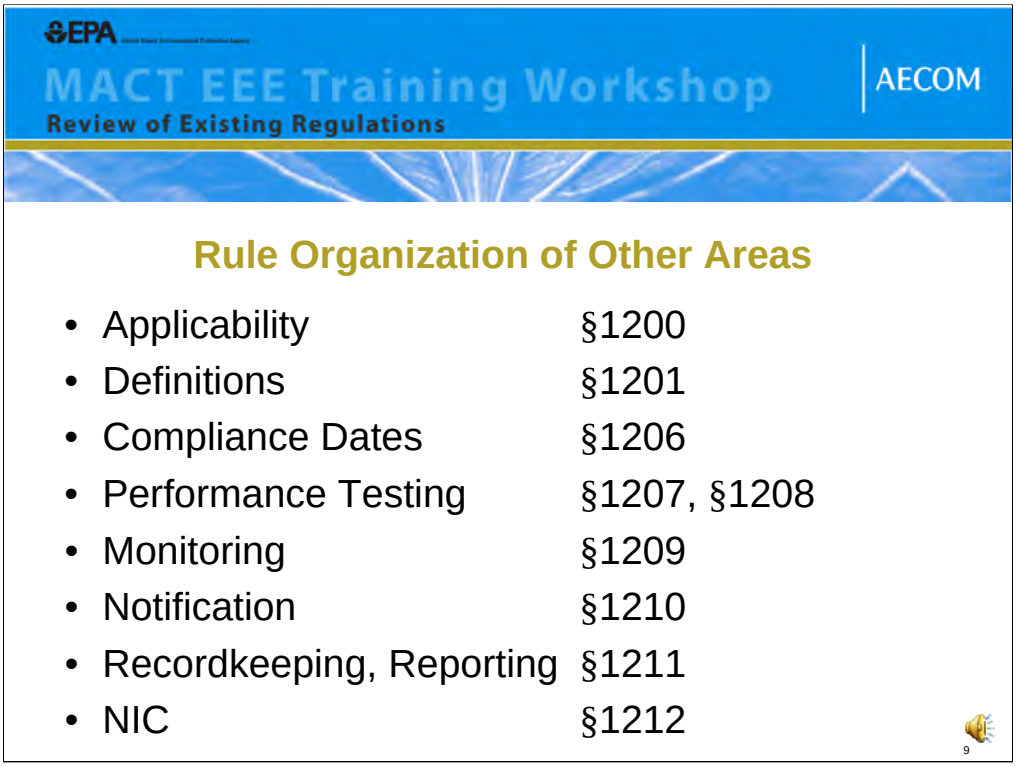


In addition, if the source has only burned hazardous wastes that are exempt form regulations according to section 266.100(c) are exempt from MACT EEE, as well as those sources that meet the definition of a small quantity burner according to section 266.108.



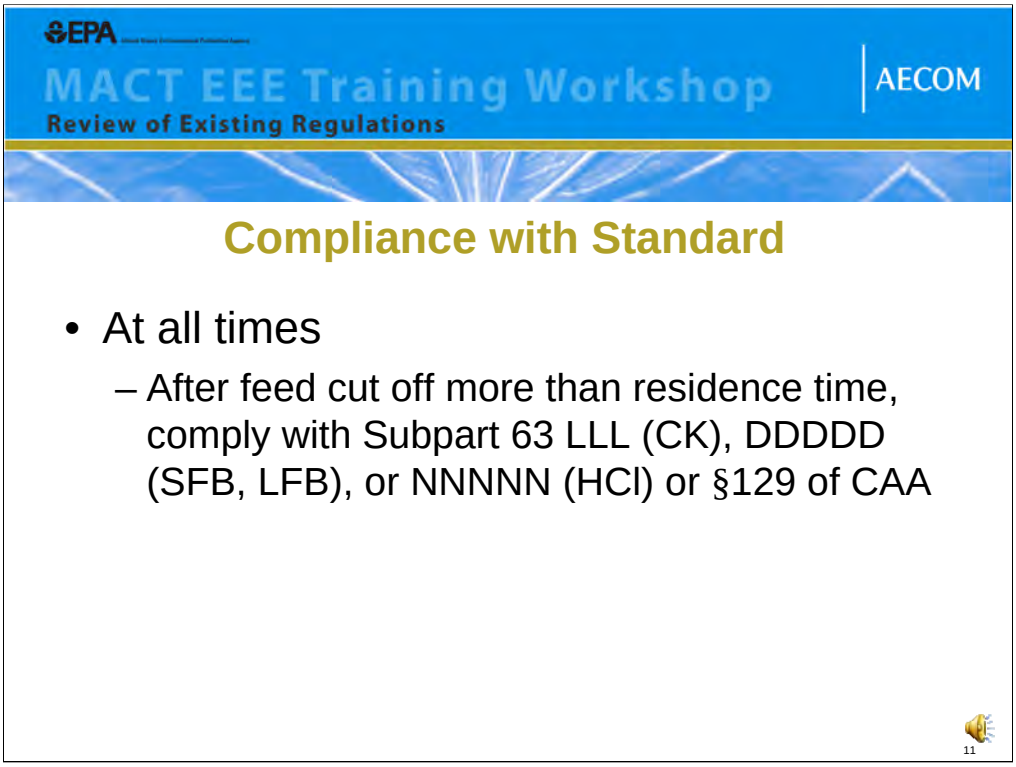
The MACT EEE rule applies to sources that are classified as Major for HAPs and those that are area sources. Area sources are those that are not major HAP sources, that is, they do not emit or have the potential to emit more than 10 tons per year of a single HAP or 25 tons per year of total HAPs. The MACT EEE rule also addresses sources that are new and those that are existing. The general definition of new sources are those that have been constructed or reconstructed after the date the rule was proposed. Recent changes that came out of a reconsideration effort also have created changes to the MACT EEE rule.

This slide lists the organization of the MACT EEE emission standards as of November 2008. Notice that Phase II changes incorporated standards for solid fuel and liquid fuel boilers and hydrochloric acid production furnaces and created Phase II standard for hazardous waste incinerators, cement kilns and lightweight aggregate kilns.

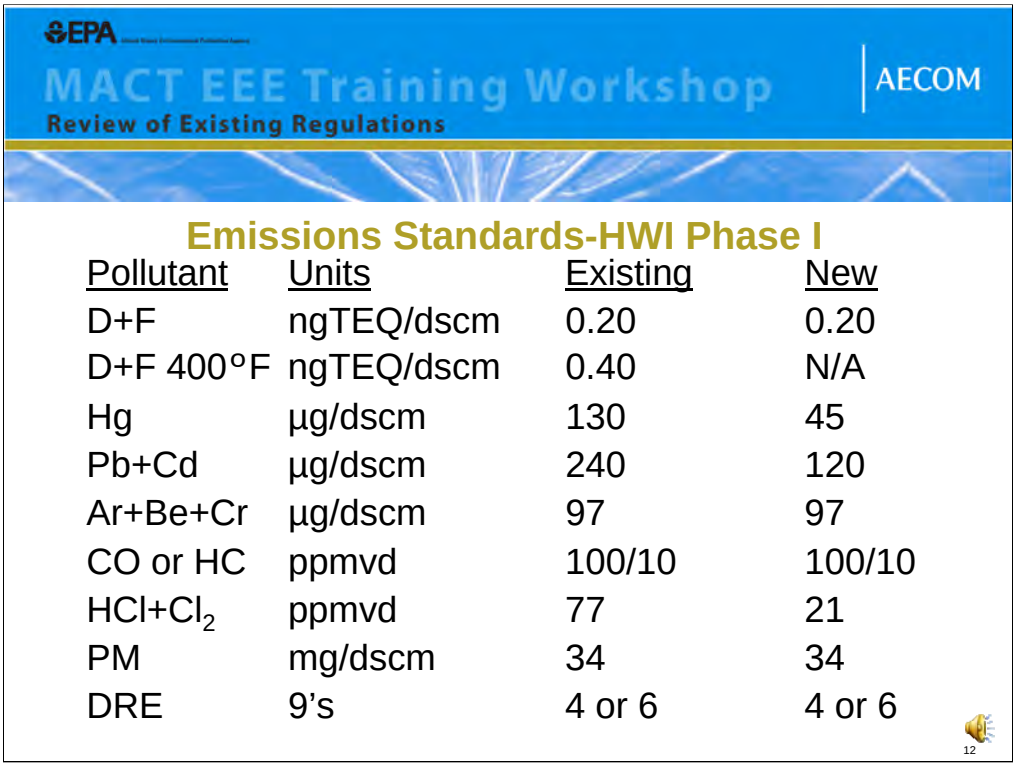


This slide lists the organization of the MACT EEE as of November 2008 for the areas of the rule other than the emission standards.

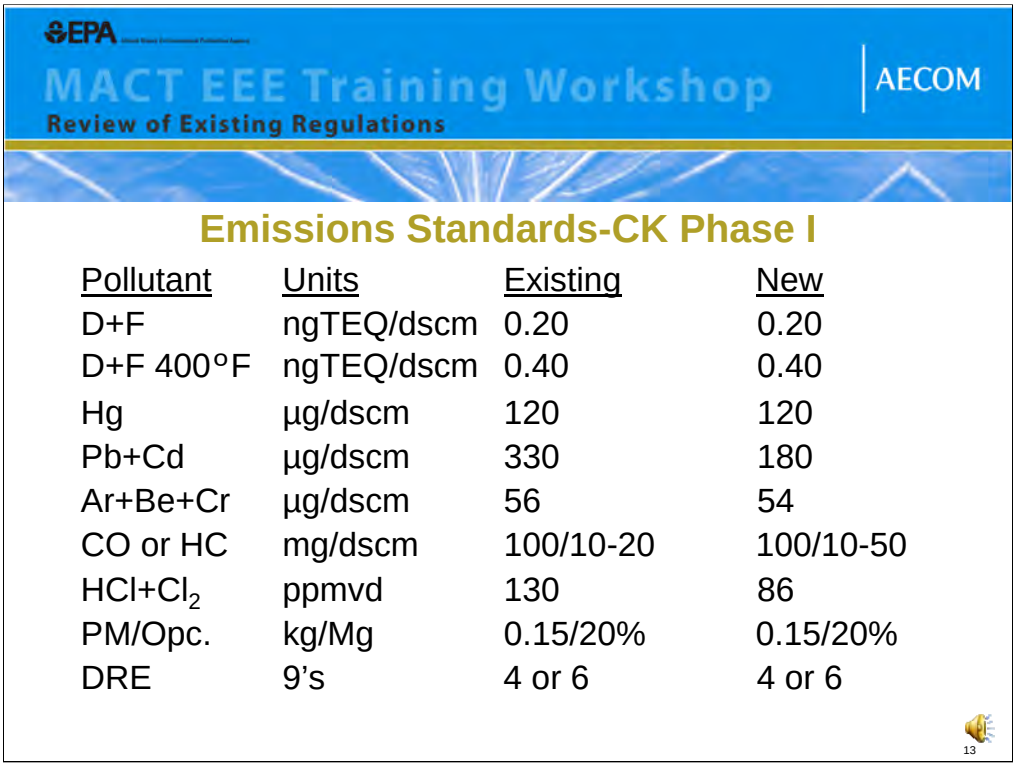
This slide lists the compliance dates of the affected sources of the MACT EEE rule. Newly constructed or reconstructed hazardous waste incinerators, hazardous waste cement kilns, and hazardous waste lightweight aggregate kilns that had applicability to the Phase I standards were required to be in compliance with the rule in 1999, whereas units that were existing at the time the rule was proposed were required to be in compliance with the rule in 2003. Newly constructed or reconstructed units hazardous waste incinerators, hazardous waste cement kilns, and hazardous waste lightweight aggregate kilns, hazardous waste solid fuel boilers, hazardous waste liquid fuel boilers and hazardous waste hydrochloric acid production furnaces that had applicability to Phase II standards were required to be in compliance with the Phase II rule by October 2005 and more stringent standards by October 2008, whereas units that were existing at the time the rule was proposed were required to be in compliance with the rule in October 2008.



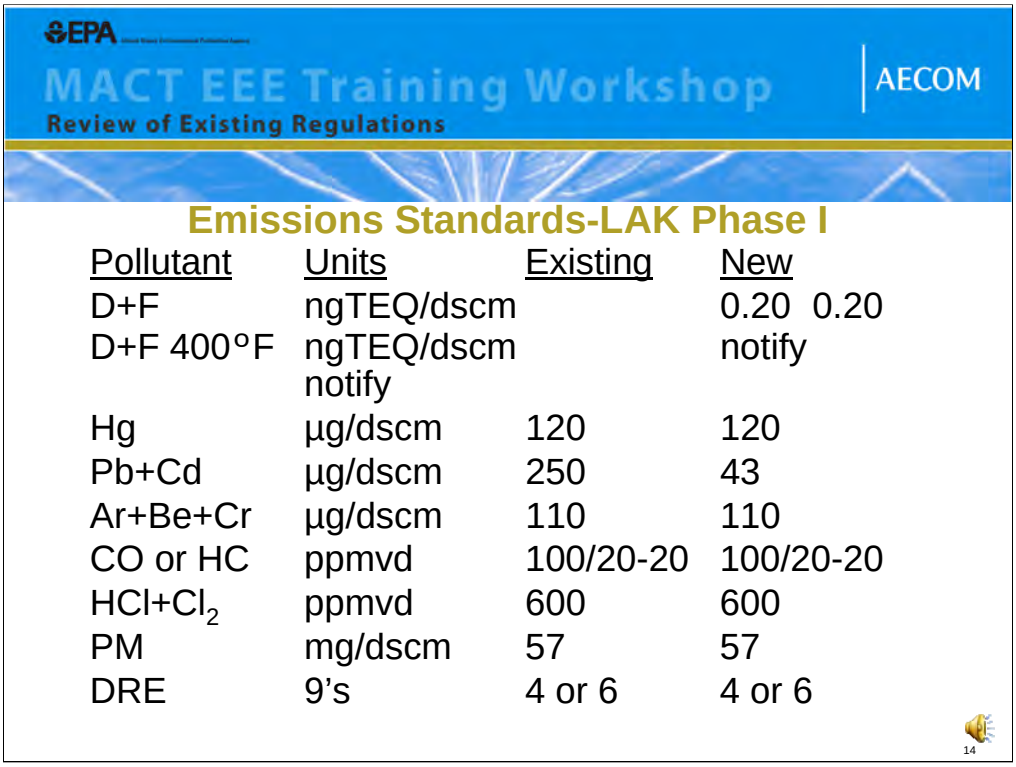
As noted, once the hazardous waste feed is shut off to the affected source and the feed material has had time to clear the combustion unit, that is the residence time, a cement kiln must then comply with Subpart LLL, solid fuel boilers and liquid feed boilers must comply with Subpart DDDDD, hydrochloric acid production furnaces must comply with Subpart NNNNN, or the unit must comply with Section 129 or the Clean Air Act, as these rules are applicable to the unit. In other words, when the combustor is not burning hazardous waste, the hazardous waste combustor MACT EEE is not applicable and the unit must comply with any other MACT rule that potentially could be applicable.



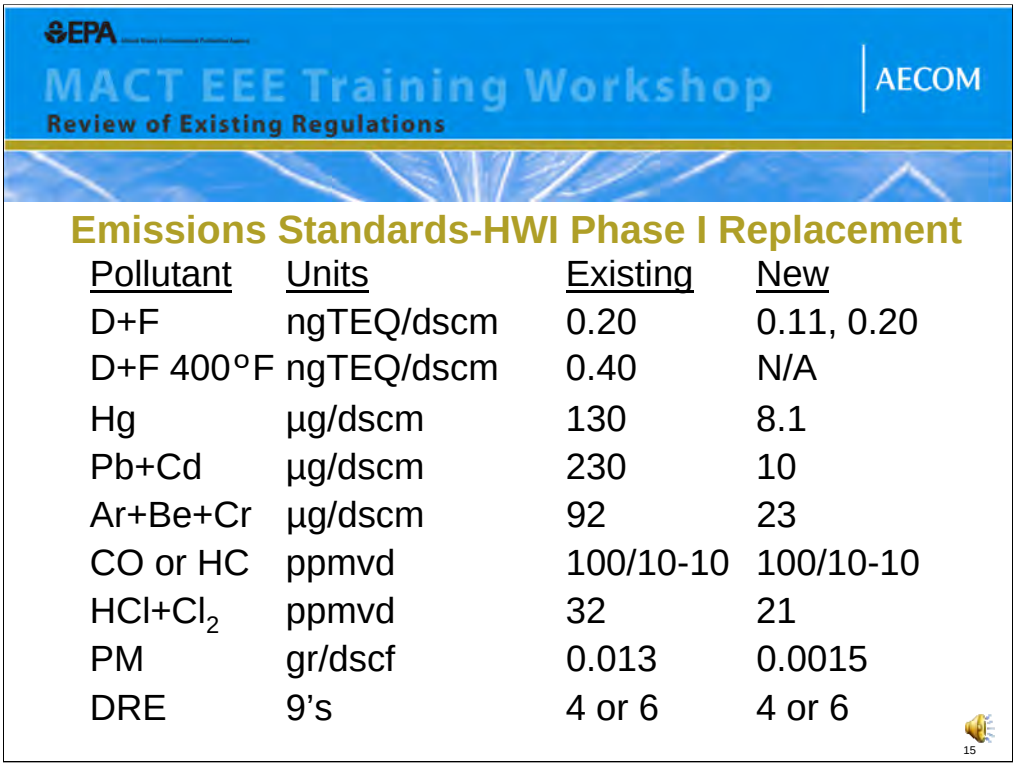
This slide lists the Phase I Emission Standards for hazardous waste incinerators. The standards are listed for each pollutant type for existing and newly constructed or reconstructed units. The pollutants are dioxin and furans and dioxin and furans provided that the combustion gas temperature at the inlet to the initial dry particulate matter control device is 400 °F or lower based on the average of the test run average temperatures. Other pollutants are mercury, lead and cadmium, combined arsenic, beryllium, and chromium, carbon monoxide and hydrocarbons, hydrogen chloride and chlorine, particulate, and destruction and removal efficiency, the DRE, of the pollutant. Note that the DRE if 6 9's, which is 99.9999%, for dioxin and furans, whereas otherwise the DRE is 4 9's, or 99.99%.



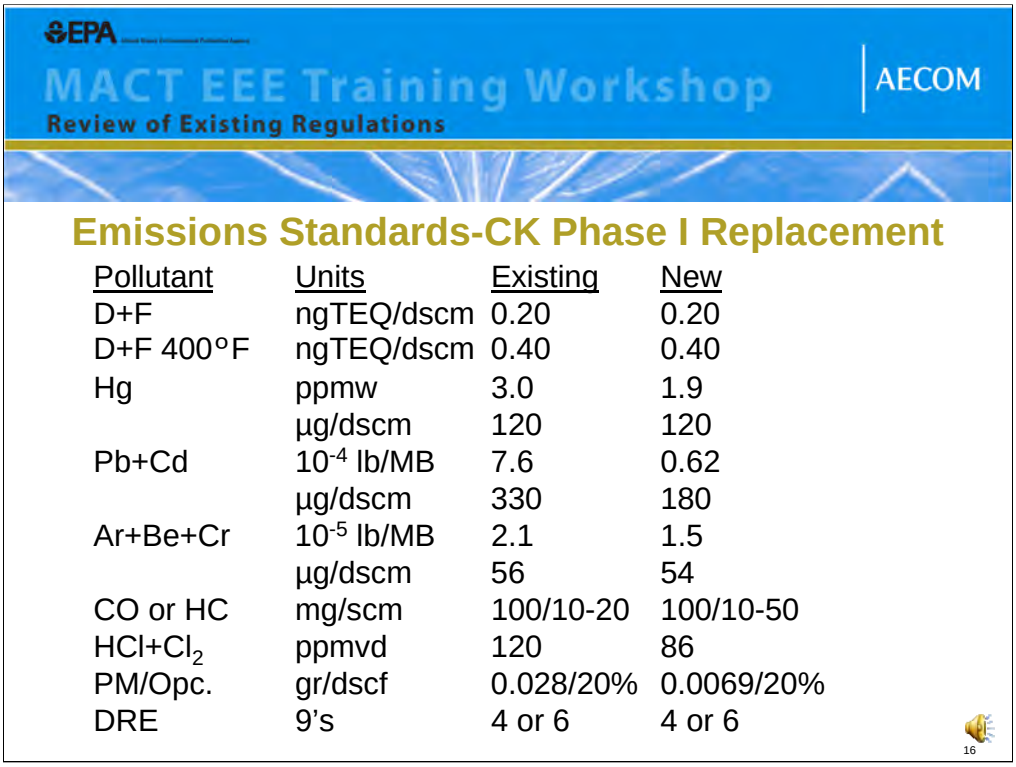
This slide lists the Phase I Emission Standards for hazardous waste cement kilns. Note that opacity is added to the cement kiln standard.



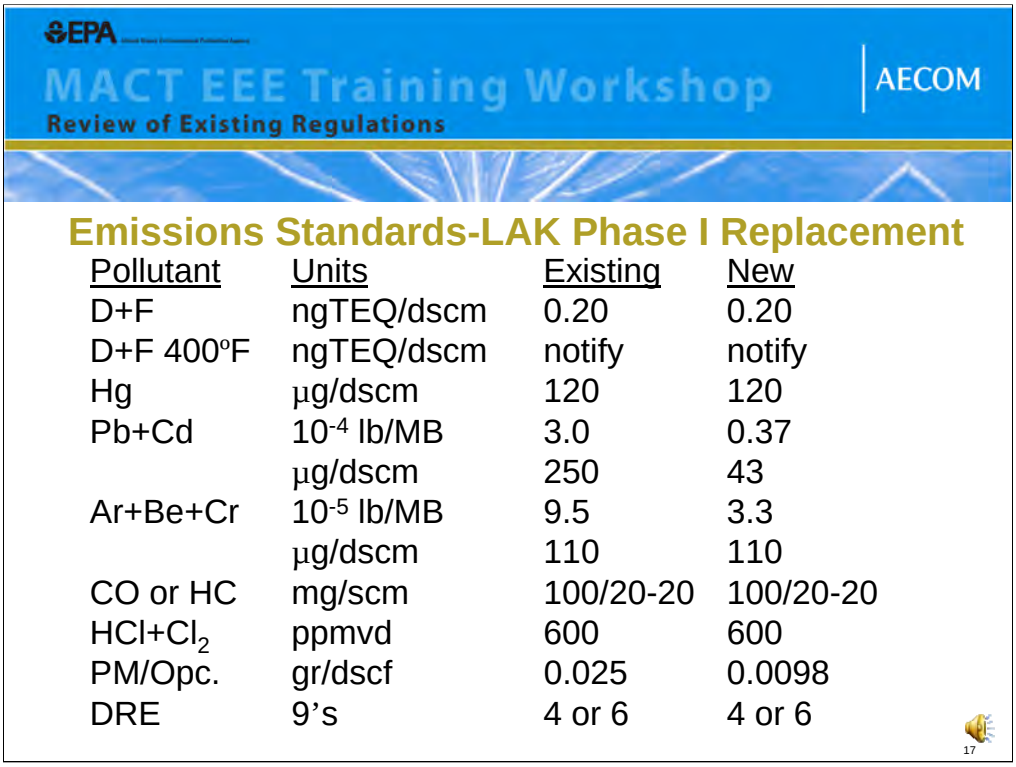
This slide lists the Phase I Emission Standards for hazardous waste lightweight aggregate kilns.



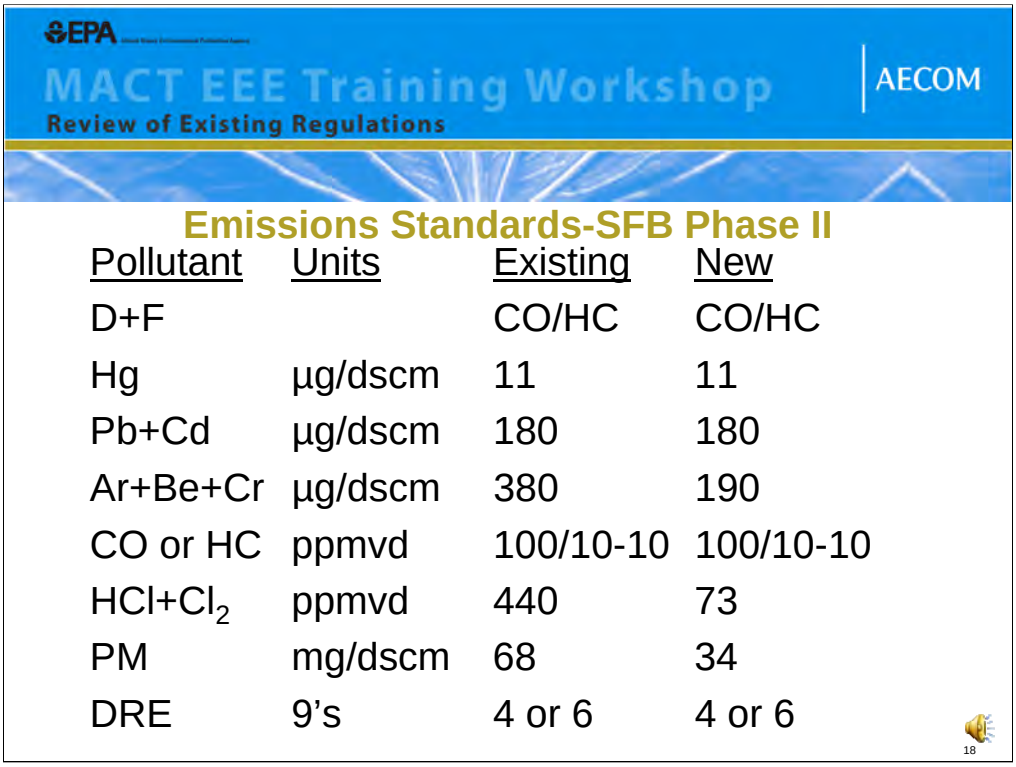
This slide lists the Phase II Emission Standards for hazardous waste incinerators.



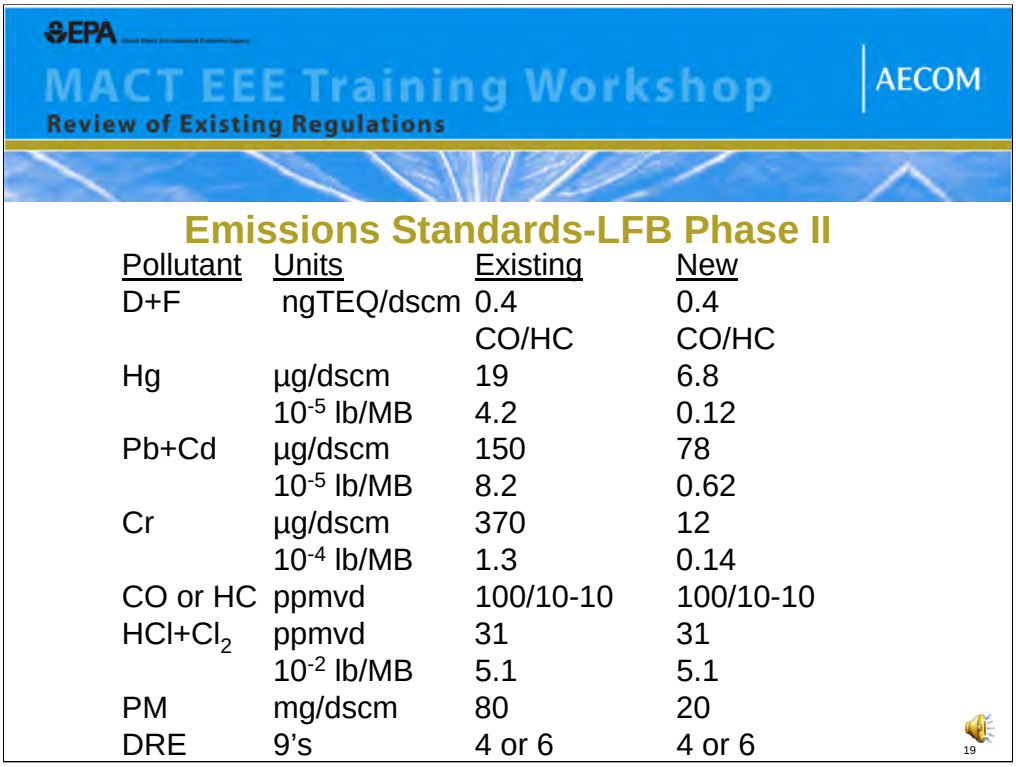
This slide lists the Phase I Replacement Emission Standards for hazardous waste cement kilns. Note that mercury, lead and cadmium, and arsenic, beryllium and chromium have standards in different units of measure. For mercury, lead and cadmium, combined arsenic, beryllium, and chromium, both standards must be met. For particulate both the concentration and opacity standards must be met.



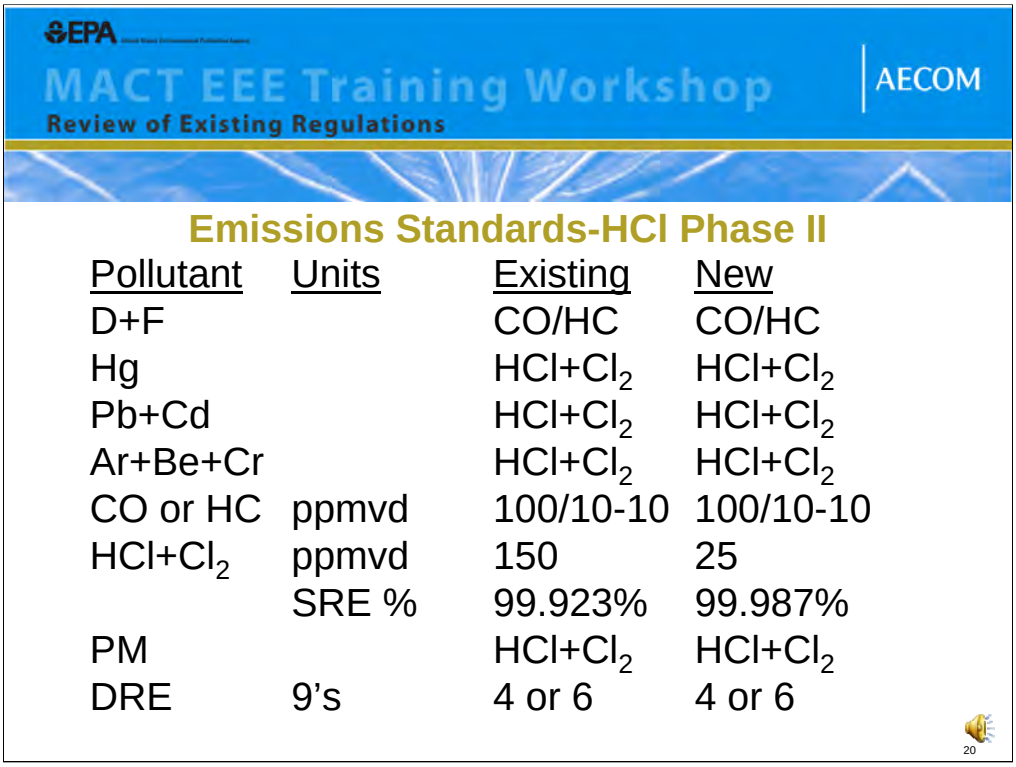
This slide lists the Phase I Replacement Emission Standards for hazardous waste lightweight aggregate kilns.



This slide lists the Phase II Emission Standards for hazardous waste solid fuel boilers.



This slide lists the Phase II Emission Standards for hazardous waste liquid fuel boilers. Note that a requirement for the dioxin and furan pollutant, the carbon monoxide and hydrocarbon concentrations must be met if the unit is not equipped with a particulate control device. Also note the different units of measure for hydrogen chloride and chlorine. The parts per million standard applies to units that burn hazardous waste with an as-fired heating value less than 10,000 BTUs per pound and the pounds per million BTU standard applies to units that burn hazardous waste with an as-fired heating value of 10,000 BTUs per pound or greater.



This slide lists the Phase II Emission Standards for hazardous waste hydrochloric acid production furnaces. Note that for hydrogen chloride and chlorine, either a parts per million standard or System Recovery Efficiency (SRE) standards is required. Also note that mercury, lead and cadmium, combined arsenic, beryllium and chromium, and particulate pollutants must comply with the hydrogen chloride and chlorine standard.

Emissions Standards-Existing HWI

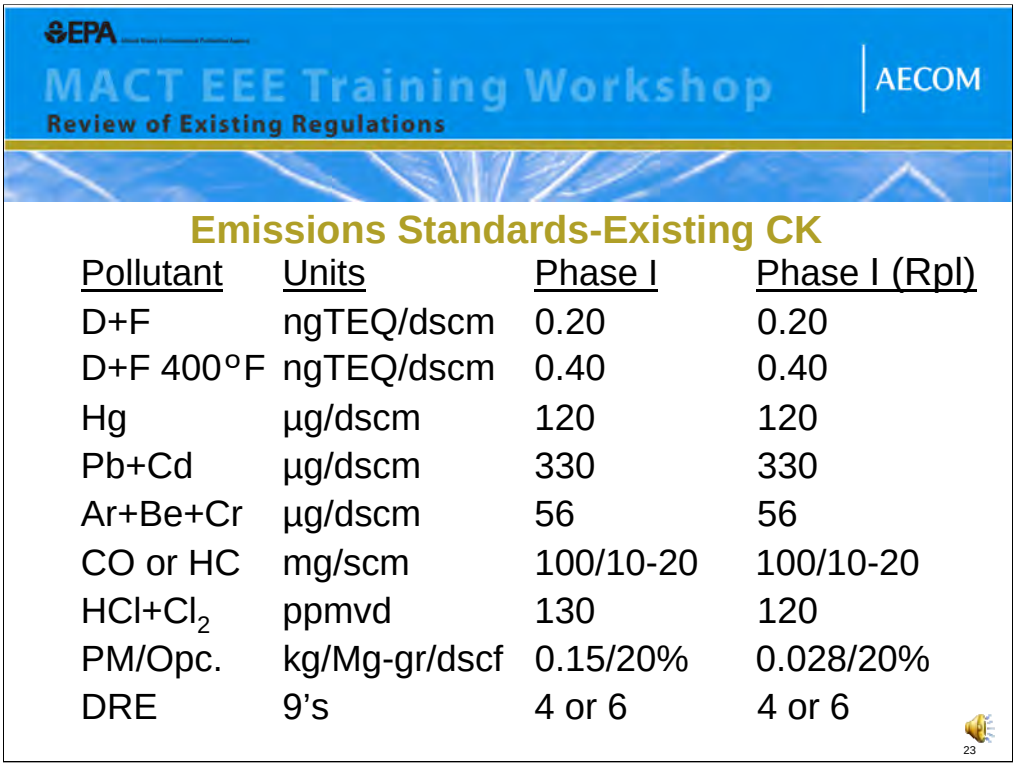
Pollutant	Units	Phase I	Phase I (Rpl)
D+F	ngTEQ/dscm	0.20	0.20
D+F 400°F	ngTEQ/dscm	0.40	0.40
Hg	µg/dscm	130	130
Pb+Cd	µg/dscm	240	230
Ar+Be+Cr	µg/dscm	97	92
CO or HC	ppmvd	100/10	100/10
HCl+Cl_2	ppmvd	77	32
PM	gr/dscf	0.015	0.013
DRE	9's	4 or 6	4 or 6

This slide compares the Phase I and I Replacement Emission Standards for existing hazardous waste incinerators.

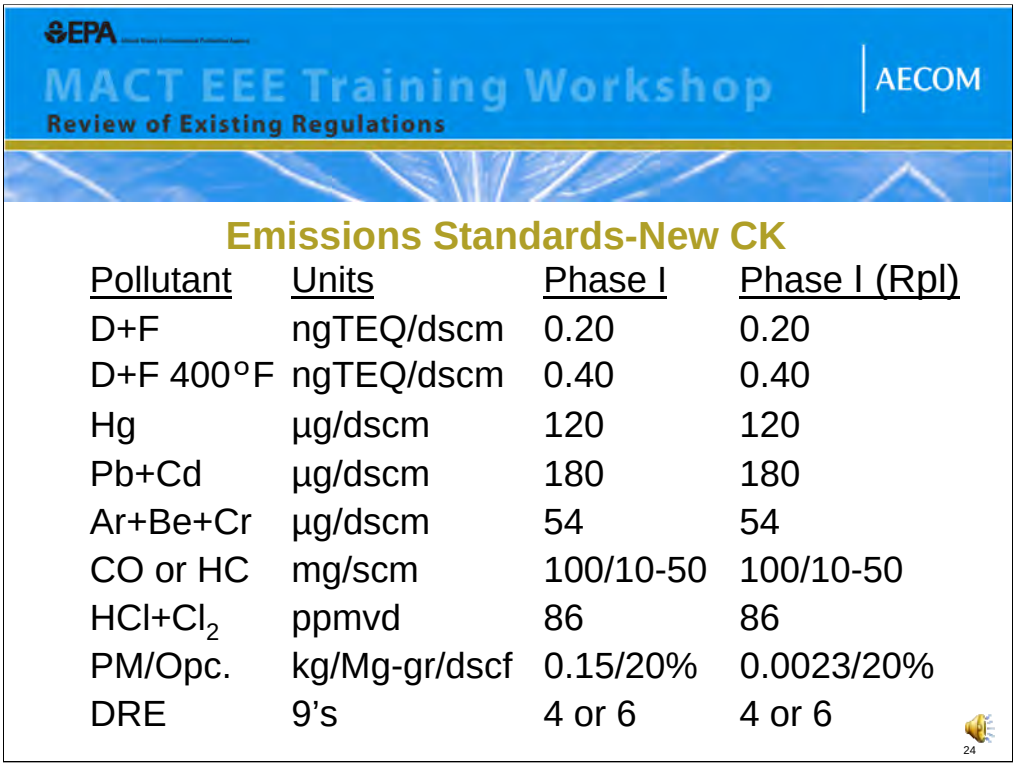
Emissions Standards-New HWI

Pollutant	Units	Phase I	Phase I (Rpl)
D+F	ngTEQ/dscm	0.20	0.11, 0.20
D+F 400°F	ngTEQ/dscm	N/A	N/A
Hg	µg/dscm	45	8.1
Pb+Cd	µg/dscm	120	10
Ar+Be+Cr	µg/dscm	97	23
CO or HC	ppmvd	100/10	100/10
$HCl+Cl_2$	ppmvd	21	21
PM	gr/dscf	0.015	0.0015
DRE	9's	4 or 6	4 or 6

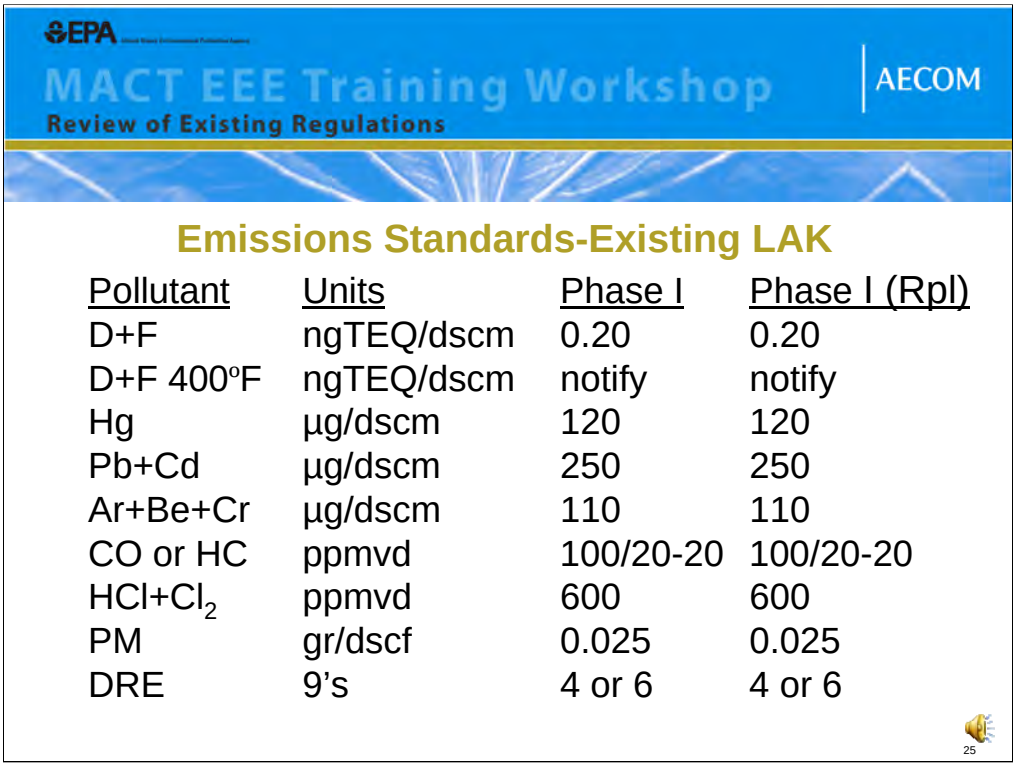
This slide compares the Phase I and I Replacement Emission Standards for newly constructed or reconstructed hazardous waste incinerators.



This slide compares the Phase I and I Replacement Emission Standards for existing hazardous waste cement kilns.



This slide compares the Phase I and I Replacement Emission Standards for newly constructed or reconstructed hazardous waste cement kilns.



This slide compares the Phase I and I Replacement Emission Standards for existing hazardous waste lightweight aggregate kilns.

Emissions Standards-New LAK

Pollutant	Units	Phase I	Phase I (Rpl)
D+F	ngTEQ/dscm	0.20	0.20
D+F 400°F	ngTEQ/dscm	notify	notify
Hg	µg/dscm	120	120
Pb+Cd	µg/dscm	43	43
Ar+Be+Cr	µg/dscm	110	110
CO or HC	ppmvd	100/20-20	100/20-20
HCl+Cl_2	ppmvd	600	600
PM	gr/dscf	0.025	0.0098
DRE	9's	4 or 6	4 or 6

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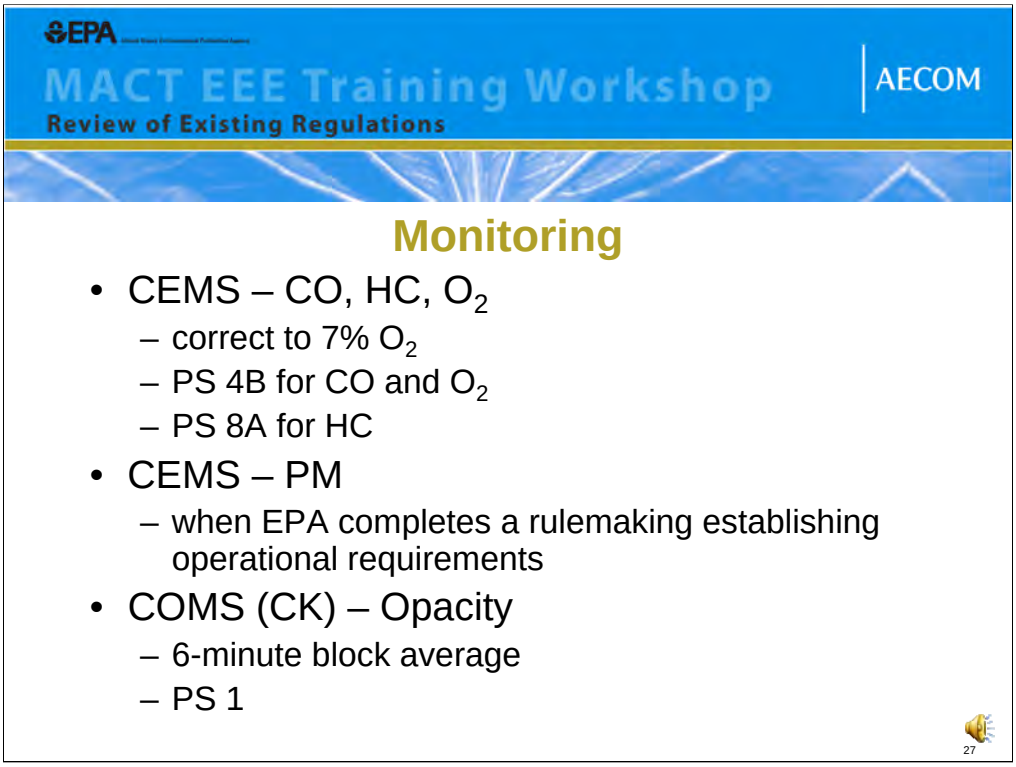
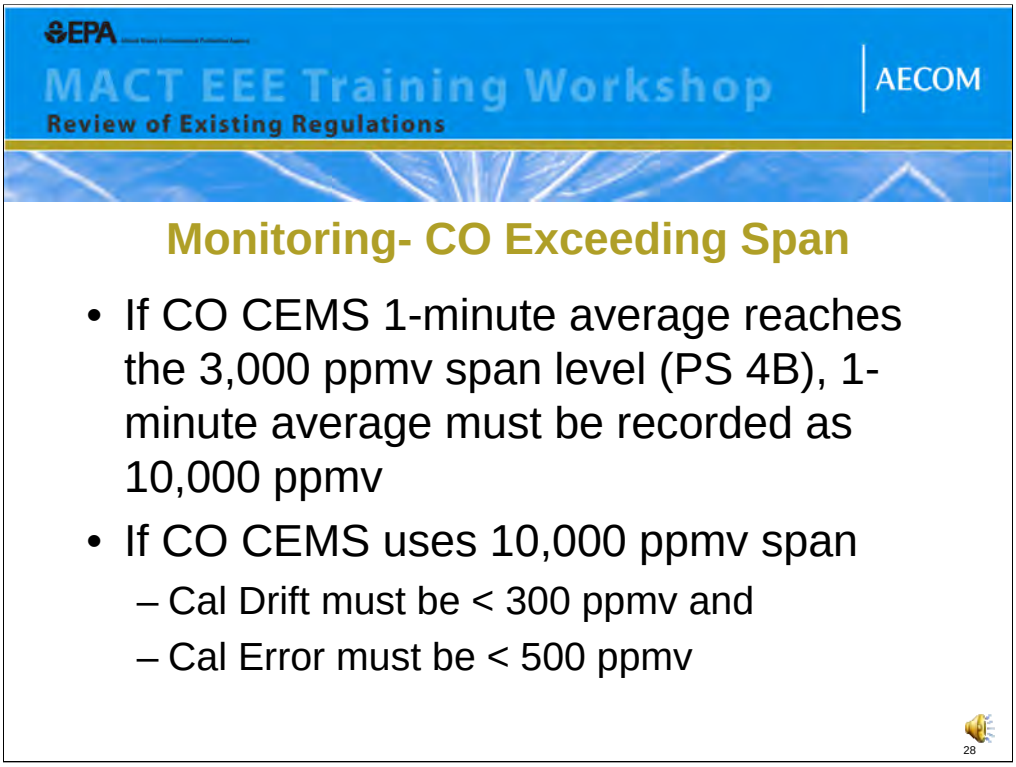
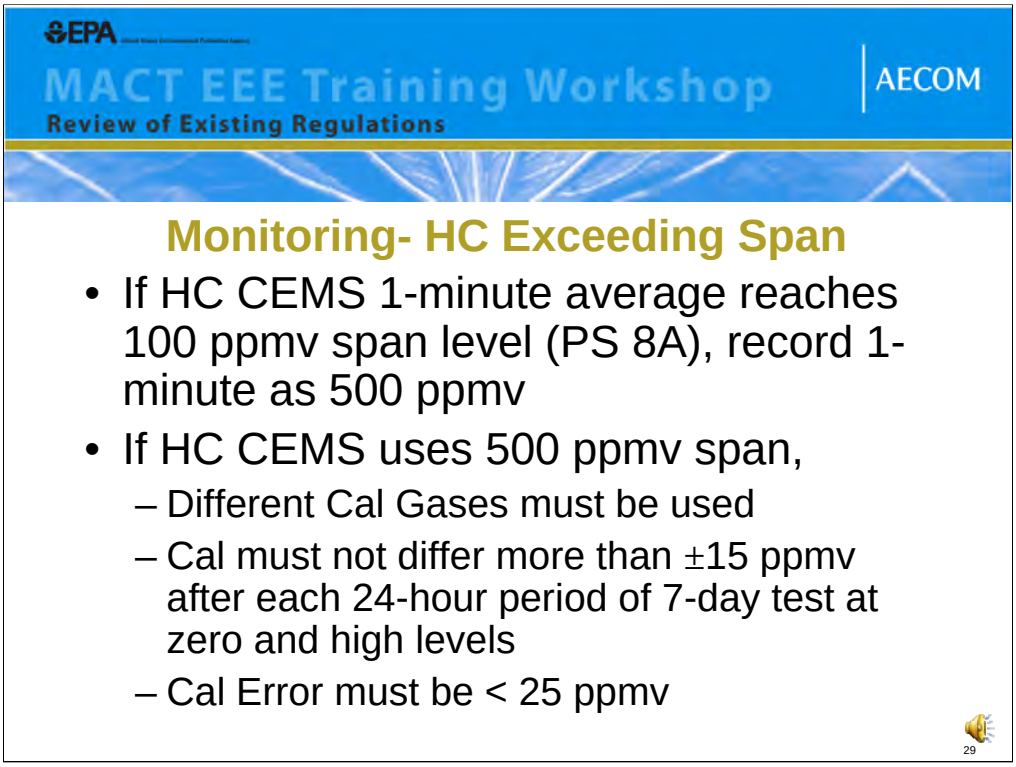
This slide compares the Phase I and I Replacement Emission Standards for newly constructed or reconstructed hazardous waste lightweight aggregate kilns.



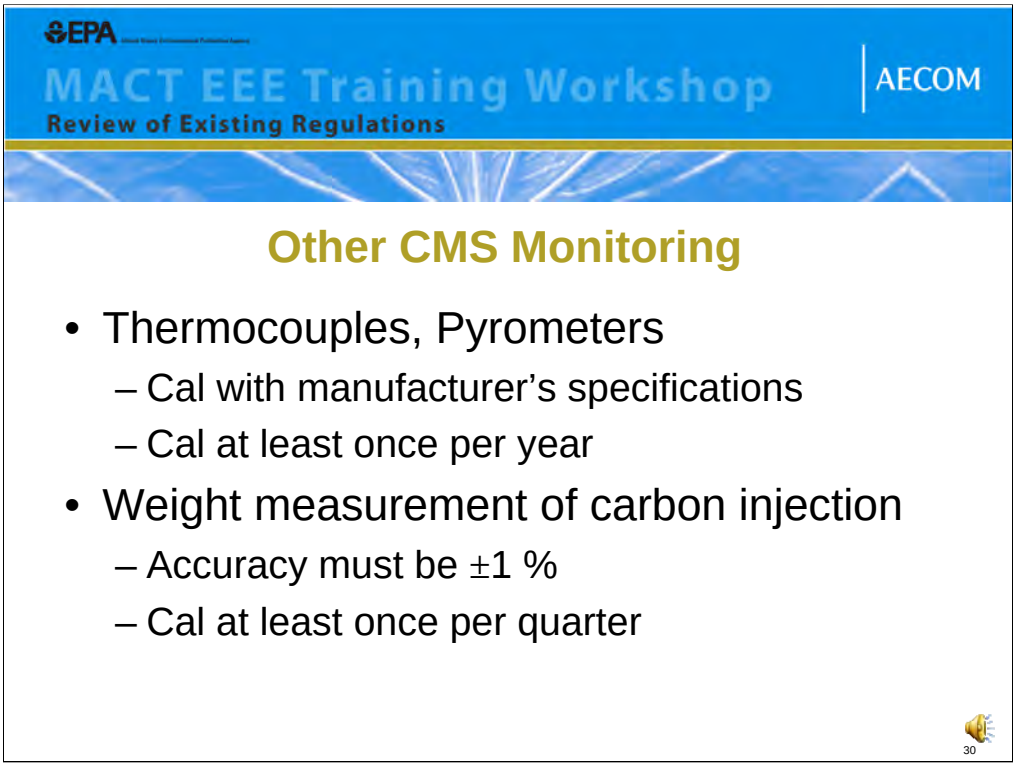
This slide identifies the continuous emissions monitoring systems, or CEMS, and continuous opacity monitoring systems, or COMS, for MACT EEE. CEMS monitoring of carbon monoxide and oxygen must follow Performance Specification 4B and monitoring of hydrocarbons must follow Performance Specification 8A. The oxygen CEMS data are used to correct various pollutant measurements to 7 percent oxygen. Particulate CEMS must follow the requirements for PM CEMS when EPA completes rulemaking that establishes operational requirements. COMS, which monitor opacity, record opacity in 6-minute block averages and must follow Performance Specification 1.



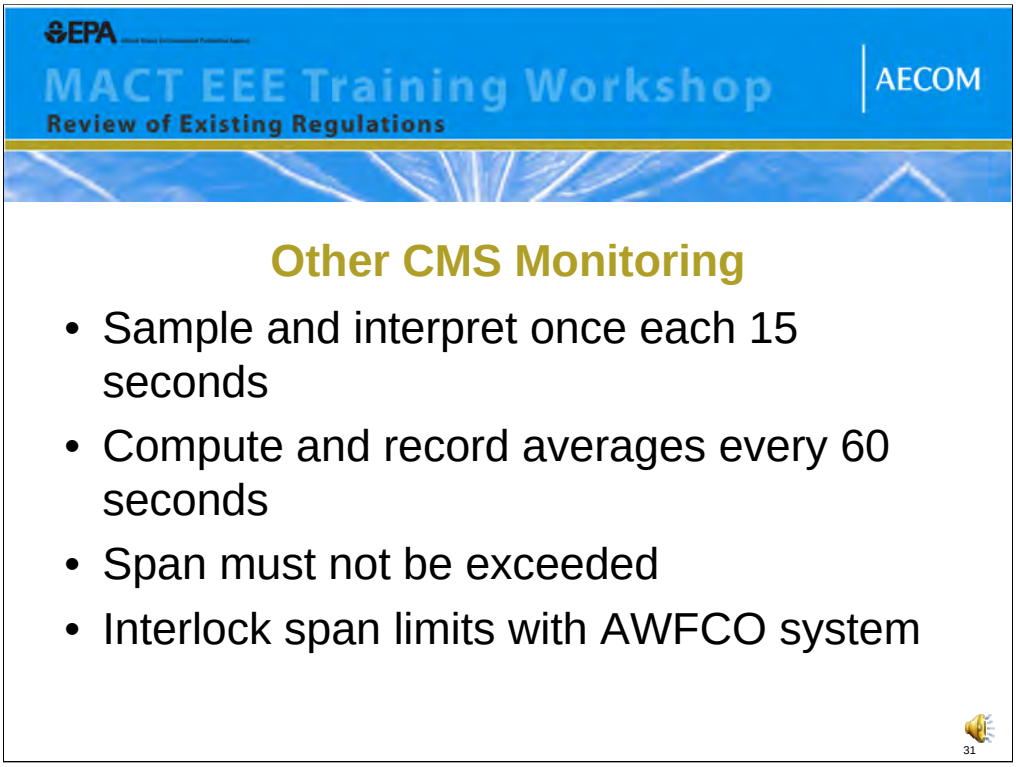
When monitoring carbon monoxide and 1-minute averages reach the 3000 part per million span level, the 1-minute average value must be recorded as 10,000 parts per million. If the carbon monoxide CEMS uses a 10,000 parts per million span, then the calibration drift must be less than 300 parts per million and the calibration error must be less than 500 parts per million.



If the hydrocarbon CEMS 1-minute average value reaches a 100 parts per million span level, the recorded value must be 500 parts per million. If the hydrocarbon CEMS uses a 500 parts per million span, a different calibration gas must be used, the calibration must not differ more than plus or minus 15 parts per million after each 24-hour period of a 7 day test at zero and high levels, and the calibration error must be less than 25 parts per million.



For other continuous monitoring systems such as thermocouples and pyrometers, the sensors must be calibrated to the manufacturer's specifications and calibrated at least once per year. For weight measurement of carbon injection systems, the accuracy of weighing must be within 1 percent and the device must be calibrated once each 3 month period.



Other requirements include that monitoring systems must sample and interpret the measured data once each 15 seconds. The systems must compute and record averages every 60 seconds. The required span value for the instrument must not be exceeded and span limits must have an interlock with the automatic waste feed cutoff system to stop hazardous waste feed when the span value is exceeded.

MACT EEE requires that each feedstream be analyzed in order to document that the feedstream is compliant with the required feedstream limits. A Feedstream Analysis Plan is required to be developed and implemented.

DRE Compliance

- Establish operating limits during CPT for parameters below
  - Minimum hourly combustion chamber temperature
  - Maximum hourly flue gas flow rate or production rate (gas residence time indicator)
  - Maximum hourly hazardous waste feedrate
  - Operation of waste firing system

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During the comprehensive performance test, operating limits must be established for the minimum hourly combustion chamber temperature, the maximum hourly flue gas flow rate or the production rate as an indicator of the gas residence time, the maximum hourly hazardous waste feedrate and the parameters of operating the waste firing system.

To comply with the Dioxin and Furan emission standard, MACT EEE requires the establishment and compliance with operating parameter limits for the maximum hourly gas temperature at the inlet to the dry particulate control device, the minimum hourly combustion chamber temperature, the maximum flue gas flow rate, or the maximum production rate, and the maximum hourly hazardous waste feed rate.

Carbon Injection Compliance

- If activated carbon injection system used, establish
  - Minimum hourly Carbon feed rate at each injection location
  - Minimum hourly carrier fluid flow rate or pressure drop
  - Specify manufacturer and type of carbon used during CPT or equivalent substitute

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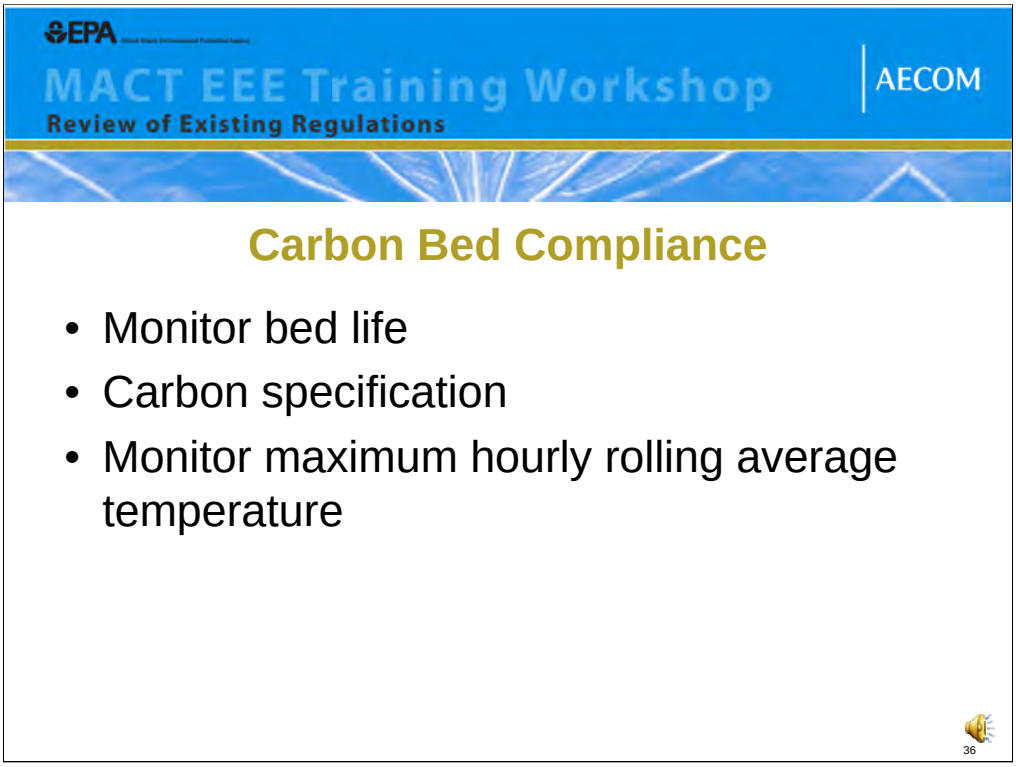
If an affected unit uses a carbon injecting system, MACT EEE requires establishment of the minimum hourly carbon feed rate at each injection location, the minimum hourly carrier fluid flow rate or minimum pressure drop, and specification of the manufacturer and type of carbon used during the comprehensive performance test, or an equivalent carbon substitute.



For use of a carbon bed, the carbon bed life must be monitored, the carbon used must be specified, and the maximum hourly rolling average temperature of the carbon bed must be established.

Particulate Matter Compliance

- Control device operating parameter limits (OPLs)
- Maximum flue gas flow rate or production rate (as indicator of gas residence time)
- Maximum ash feedrate

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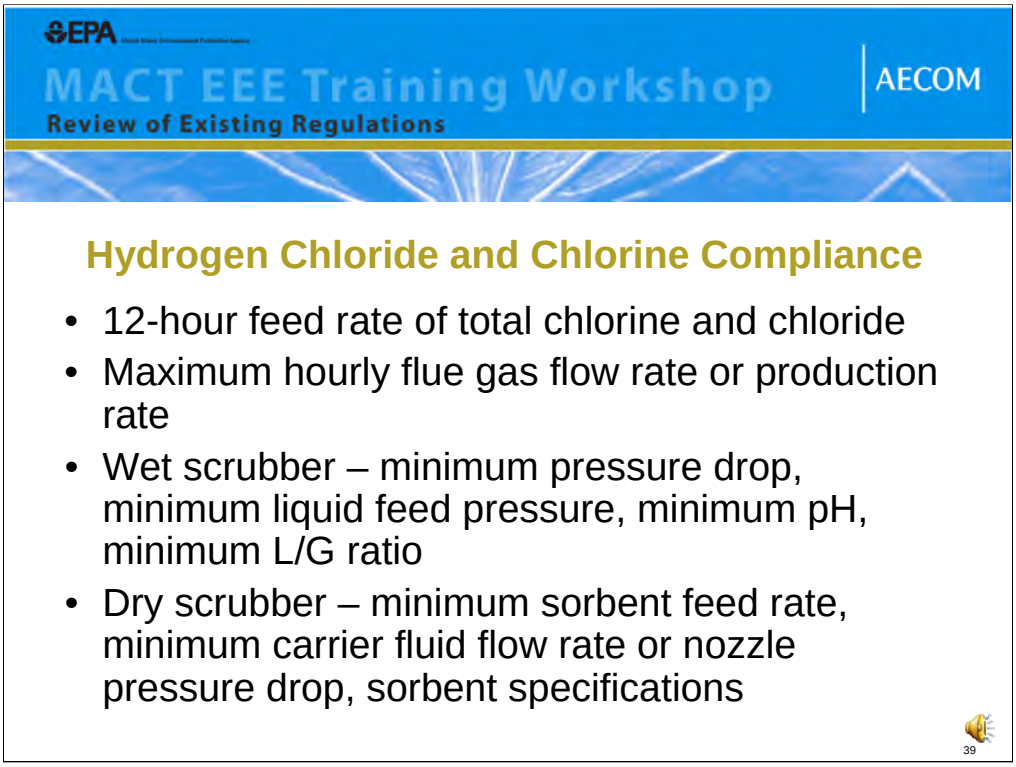
For compliance with the Particulate Matter standard, control device operating parameter limits, or OPLs, maximum flue gas flow rate or production rate, and maximum ash feed rate must be established during the comprehensive compliance test or according to the manufacturer's specifications.

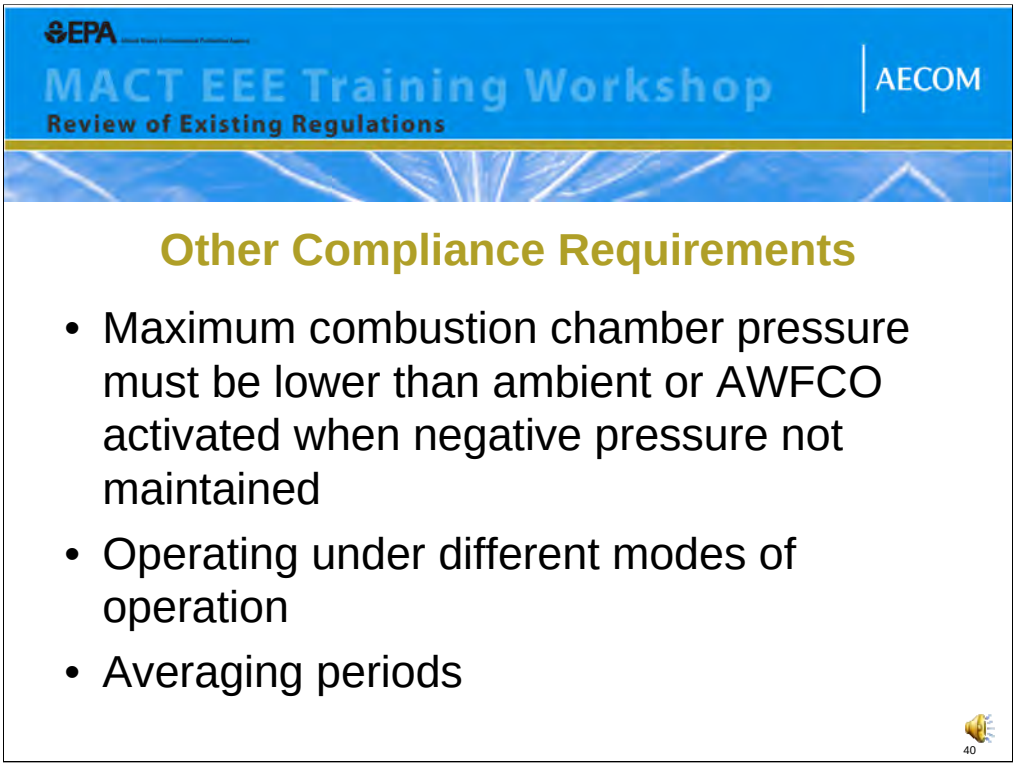
SVM and LVM Compliance

- Semi-volatile Metals (SVM) – Cd+Pb
- Low Volatility Metals (LVM) – Ar+Be+Cr
- Maximum hourly inlet temperature to dry particulate control device
- Maximum hourly feed rate of SVM and LVM
- Control device operating parameter limits (OPLs) for particulate
- Maximum 12-hour total chlorine and chloride feedrate
- Maximum hourly flue gas flow rate or production rate

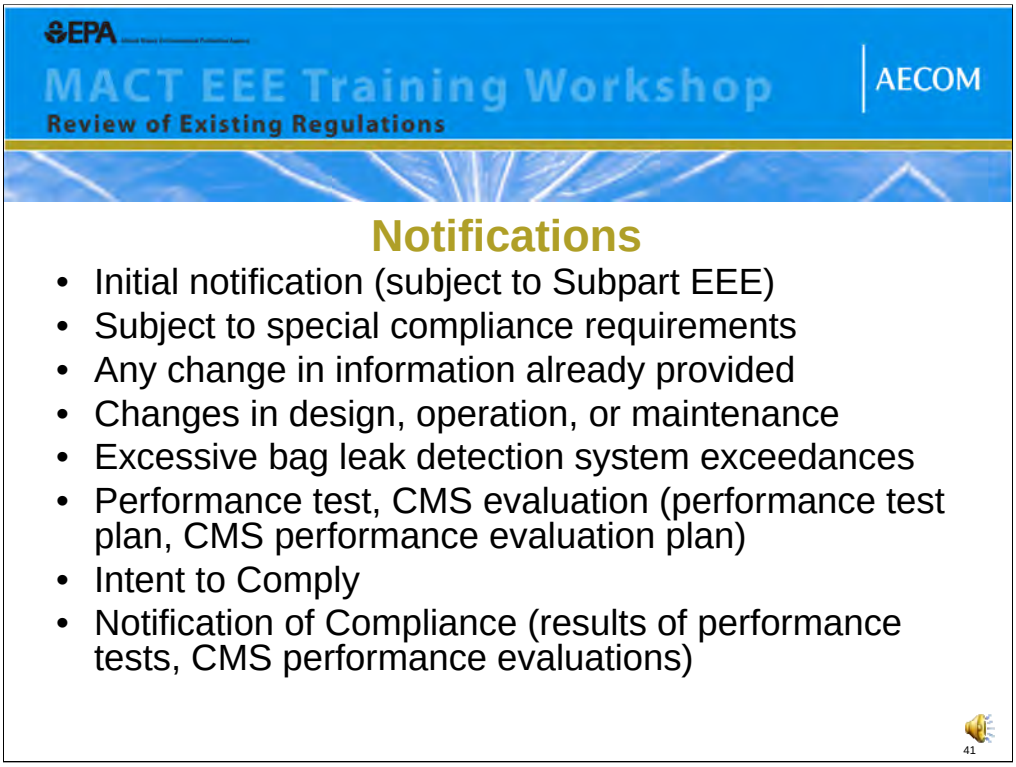
Semi-volatile metals (SVM) include cadmium and lead and low volatility metals (LVM) include arsenic, beryllium, and chromium. For compliance with the SVM and LVM standards, operating parameter limits must be established for maximum hourly temperature at the inlet to the particulate control device, the maximum hourly feed rate of SVM and LVM pollutants, the operating parameter limits, particulate, of the control device, the maximum 12-hour total chlorine and chloride feed rate, and the maximum hourly fuel gas flow rate or production rate.



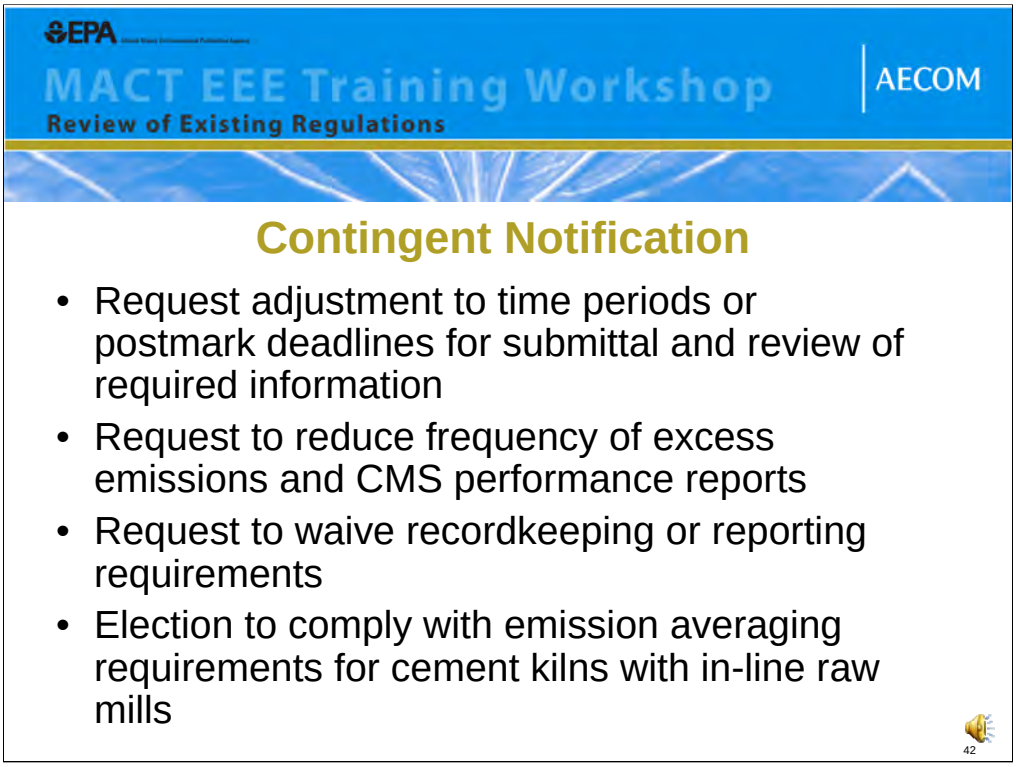
To comply with the hydrogen chloride and chlorine gas standards, operating parameter limits must be established and complied with for 12-hour feed rate of total chlorine and chloride, maximum hourly flue gas flow rate of production rate, and for a wet scrubber, the minimum pressure drop, the minimum liquid feed pressure, minimum pH, and minimum liquid to gas ratio, or for a dry scrubber, the minimum sorbent feed rate, minimum carrier fluid flow rate or nozzle pressure drop, and specifications for the sorbent.



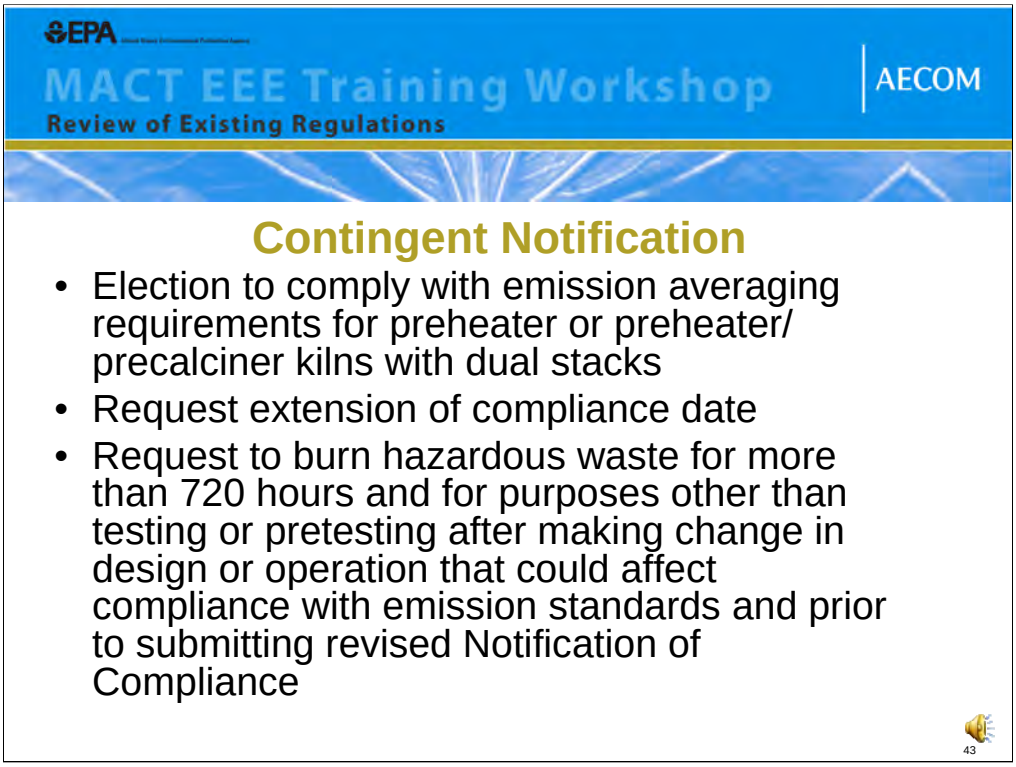
Other compliance that is required by MACT EEE includes monitoring the combustion chamber pressure so that it is always lower than the ambient pressure and activating the automatic waste feed cut off when the combustion chamber pressure is not maintained below ambient pressure. Also, if the combustion unit operates under different modes of operation, operating parameter limits must be established under each mode of operation. Averaging periods allowed in the rule are not to exceed periods meaning that a 12-hour required averaging period can be averaged over a shorter time period like 1-hour.



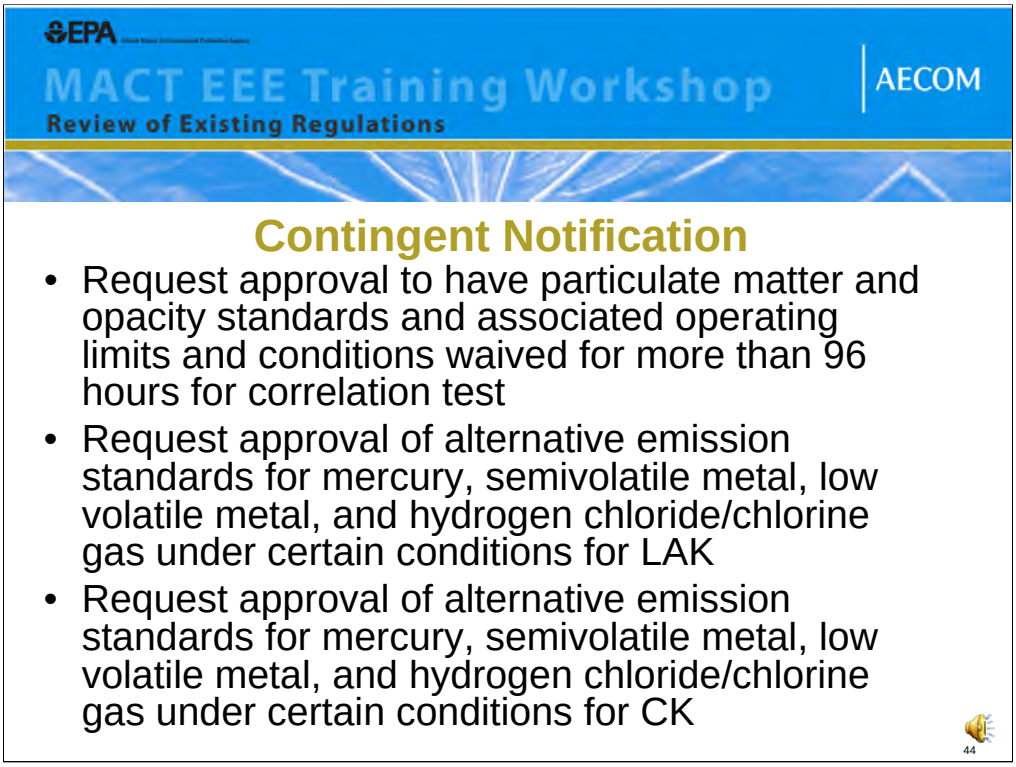
MACT EEE has several required notifications. The initial notification that the emission unit is subject to Subpart EEE is the first notification. Other notifications include that a unit is subject to special compliance requirements, changes in information previously provided to a permitting authority, excessive bag leak detection system exceedances, the performance test plan and compliance monitoring system performance evaluation plan, the intent to comply with the standards, and notification of compliance including the results of performance tests and compliance monitoring systems performance evaluations.



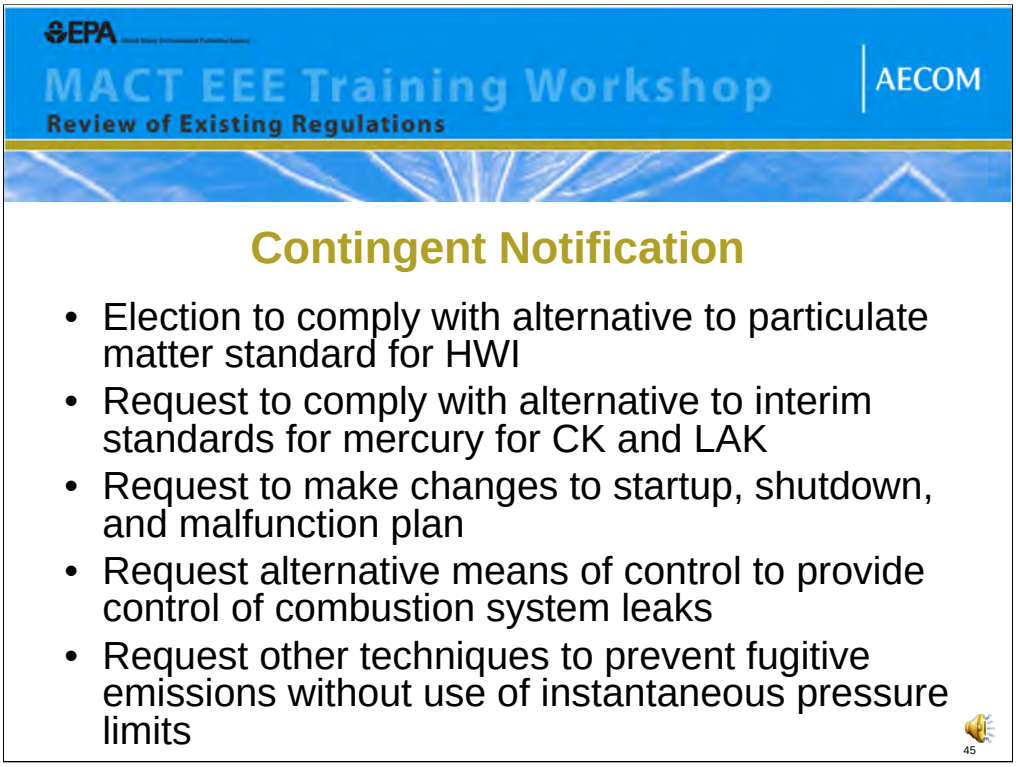
MACT EEE includes several notification requirements that are contingent on other situations. A notification request for adjustment to time periods or postmark deadlines for submittal and review of required information. Another notification is a request to reduce the frequency of reports on excess emissions and CMS performance. Also a notification can be made for a request to waive record keeping or reporting requirements. Another notification is for the election to comply with emission averaging requirements for cement kilns with in-line raw mills.



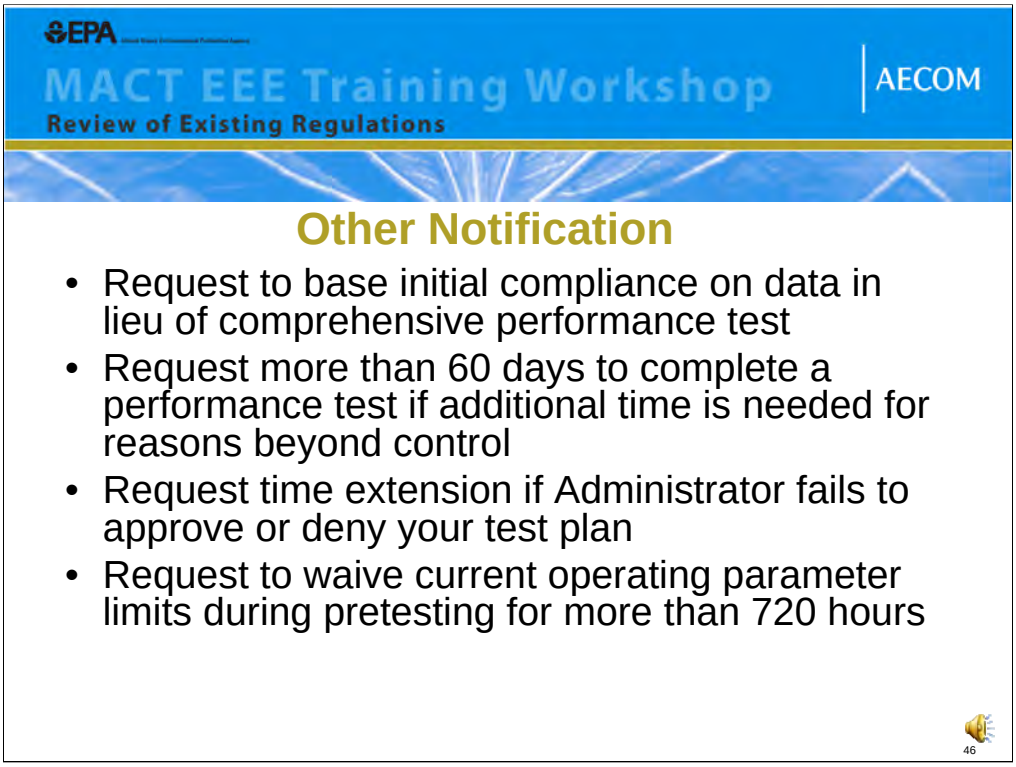
More notifications include the election to comply with emission averaging requirements for preheater or preheater/precalciner kilns with dual stacks. Anther notification is for a request to extend the compliance date. Also a notification can be made for a request to burn hazardous waste for more than 720 hours and for purposes other than testing or pretesting after making a change in design or operation that could affect compliance with emission standards and prior to submitting a revised Notification of Compliance.



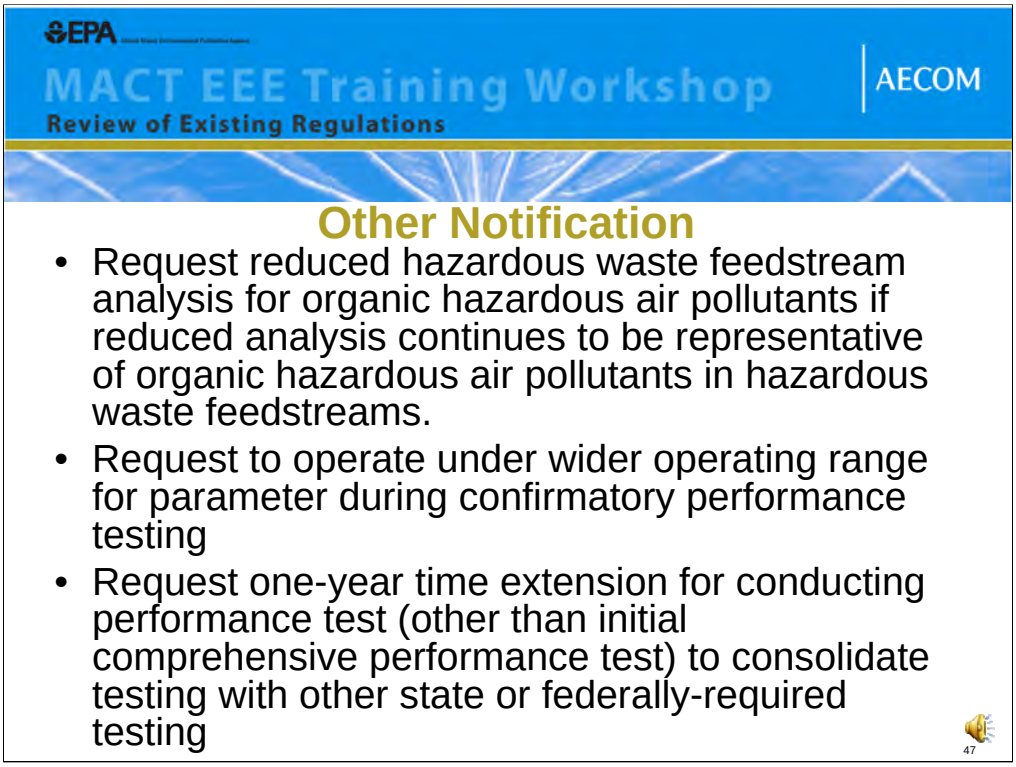
Other contingent notifications include a request for approval to have particulate matter and opacity standards and associated operating limits and conditions waived for more than 96 hours for a correlation test and a request for approval of alternative emission standards for mercury, semi-volatile metals, low volatile metals and hydrogen chloride/chlorine gas under certain conditions for lightweight aggregate kilns or cement kilns.



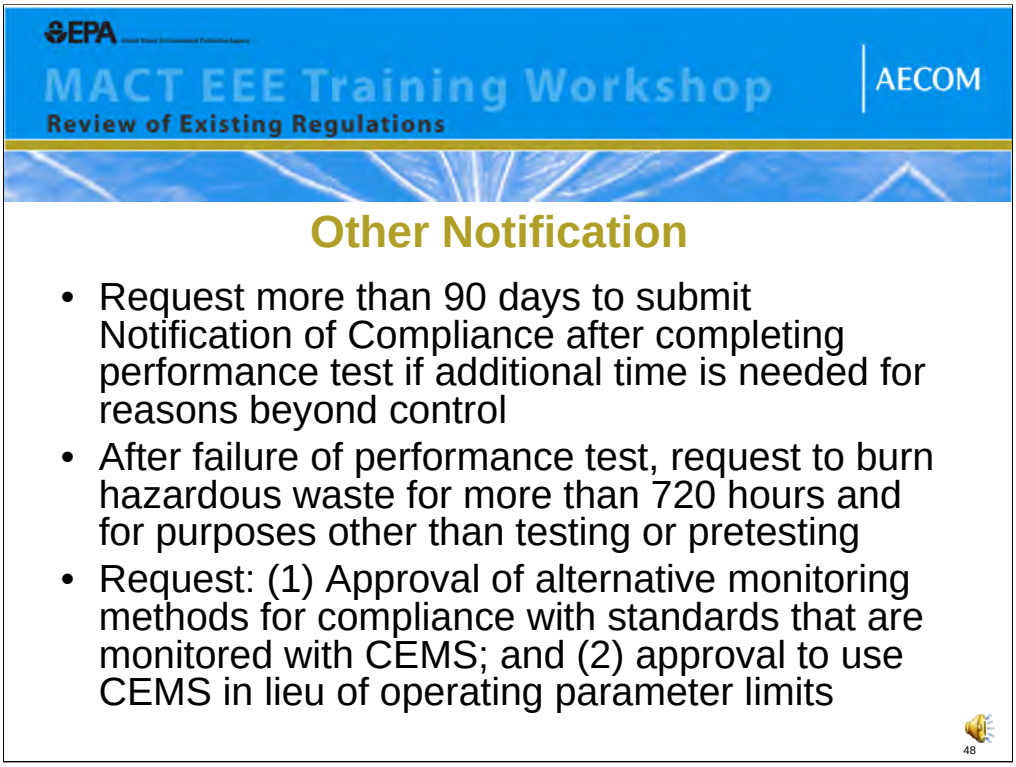
Other contingent notification includes the notification that the site has elected to comply with an alternative to the particulate matter standard for a hazardous waste incinerator or a request to comply with an alternative to the interim standards for mercury for cement and lightweight aggregate kilns. Also, a notification of a request to make changes to a SSM plan, use of an alternative control of combustion system leaks, or use of other techniques to prevent fugitive emissions without use of instantaneous pressure limits.



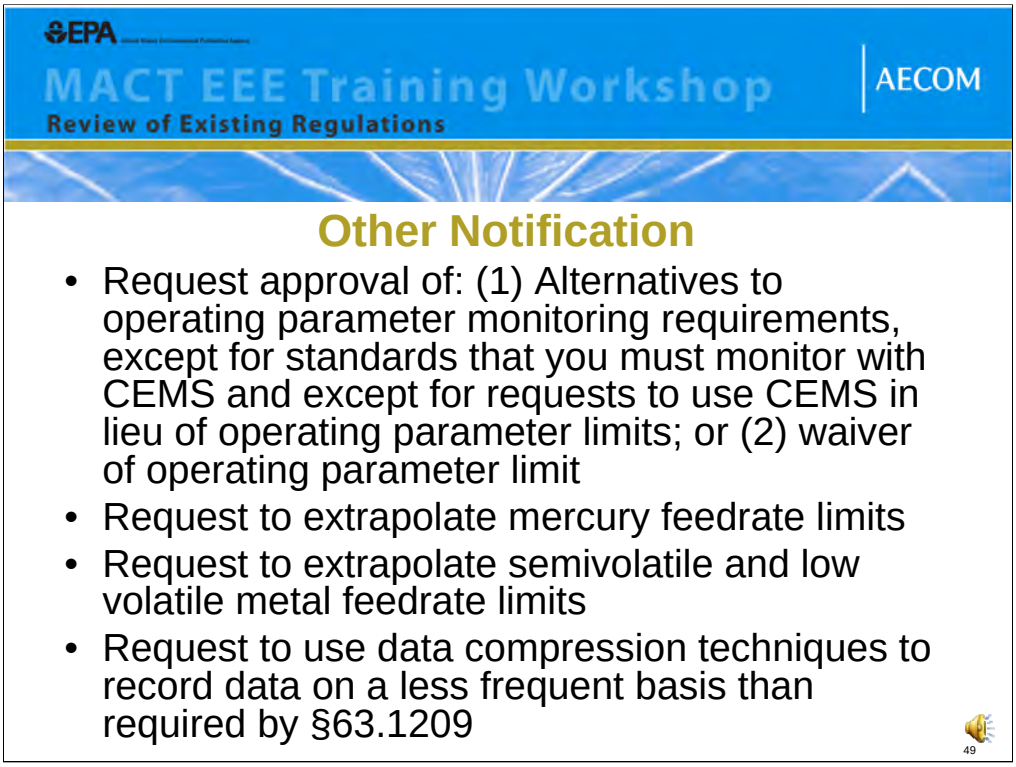
Other notifications required are a request to base the initial compliance on data in lieu of the comprehensive performance test, a request for more than 60 days to complete a performance test if additional time is needed for reasons that are beyond the site's control, a request for a time extension if the Administrator fails to approve or deny a test plan, and a request to waive the current operating parameter limits during a pretesting period of more than 720 hours duration.



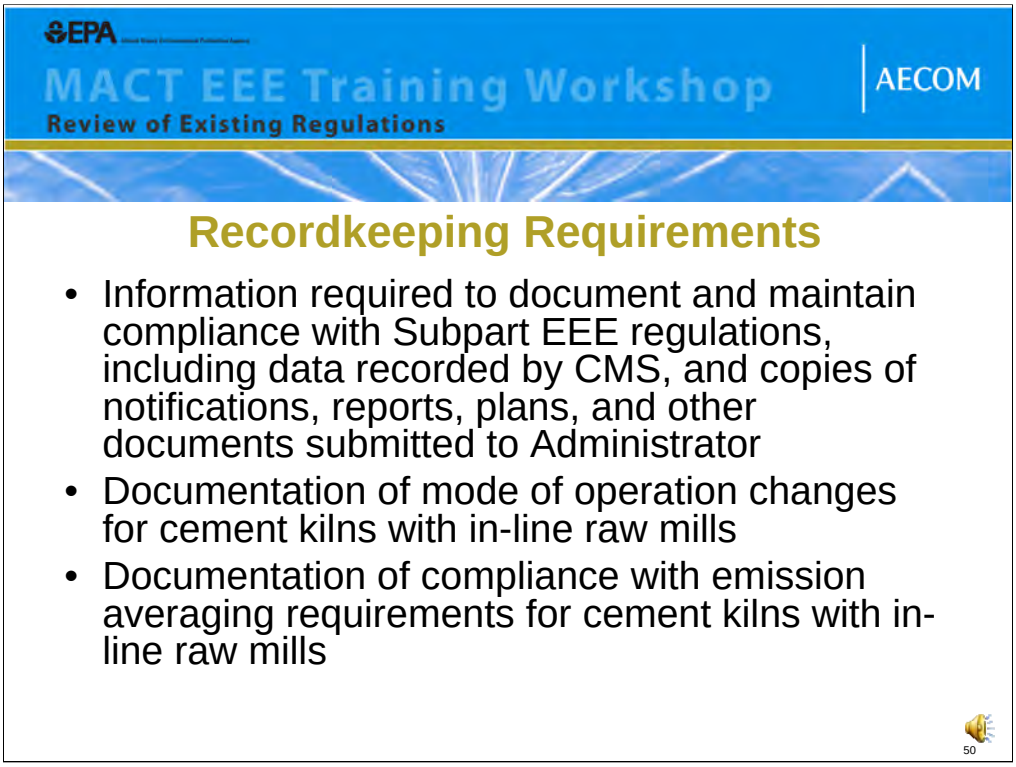
Additional notifications include a request for reduced hazardous waste feedstream analysis for organic HAPs if the reduced analysis will continue to be representative of the organic HAPs in the hazardous waste feedstreams, a request to operate under a wider operating range for parameter during confirmatory performance testing, and a request for a one-year extension for conducting a performance test other than the initial comprehensive performance test to consolidate testing with other state of federally-required testing.



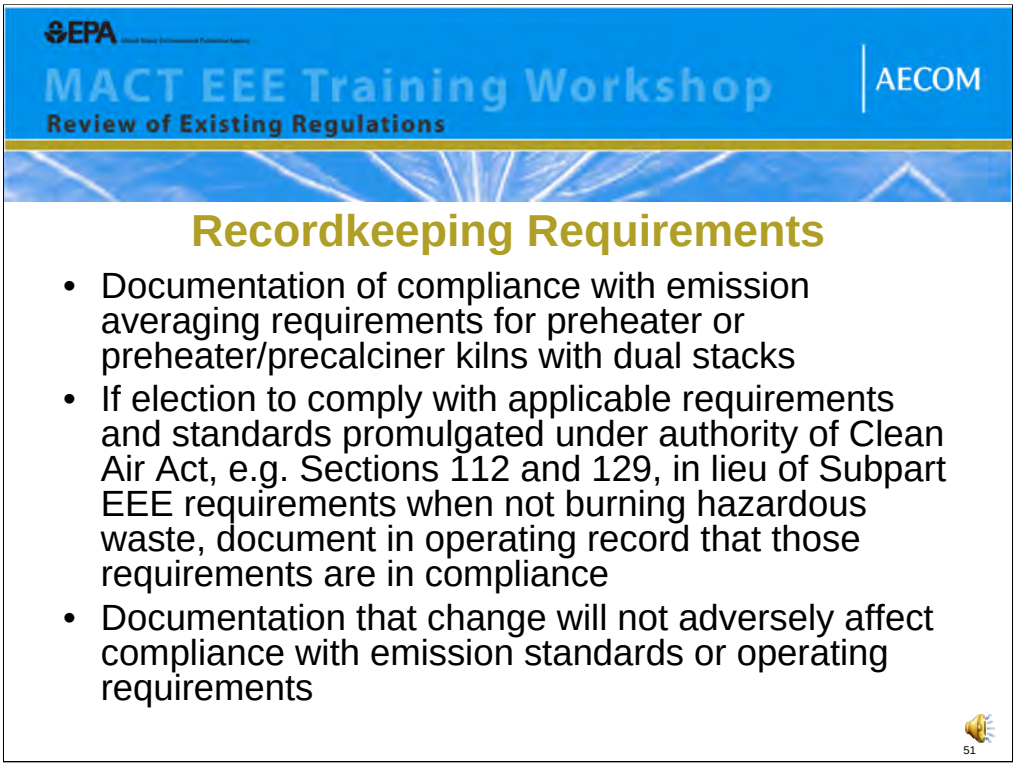
More notifications possible under MACT EEE are a request for more than 90 days to submit the Notification of Compliance after completing a performance test if additional time is need for reasons that are beyond the site's control, a request to burn hazardous waste for more than 720 hours and for purposes other than testing after a failure of a performance test, and to request approval of alternative monitoring methods for compliance with standards that are monitored with CEMS and approval to use CEMS in lieu of operating parameter limits.



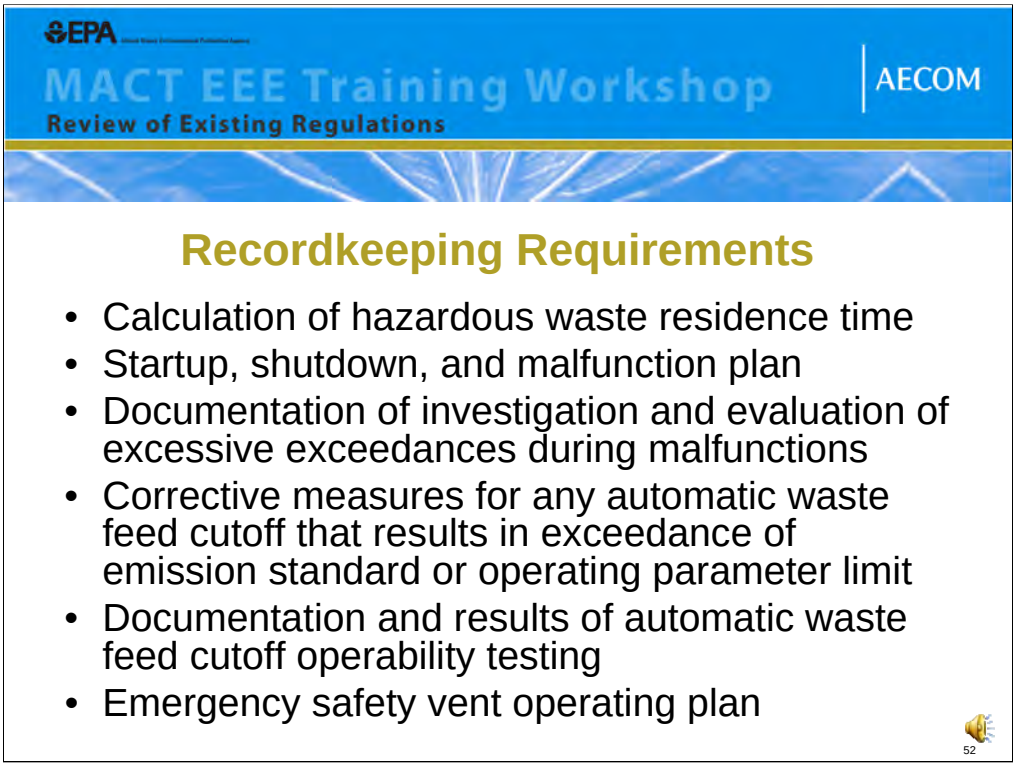
Finally, other notifications that can be made are a request for approval of alternatives to operating parameter monitoring requirements, except for standards that must be monitored with CEMS and except for requests to use CEMS in lieu of operating parameter limits or for a waiver of an operating parameter limit, a request to extrapolate mercury feedrate limits, a request to extrapolate SVM or LVM feedrate limits, and a request to use data compression techniques to record data on a less frequent basis that required by the rule.



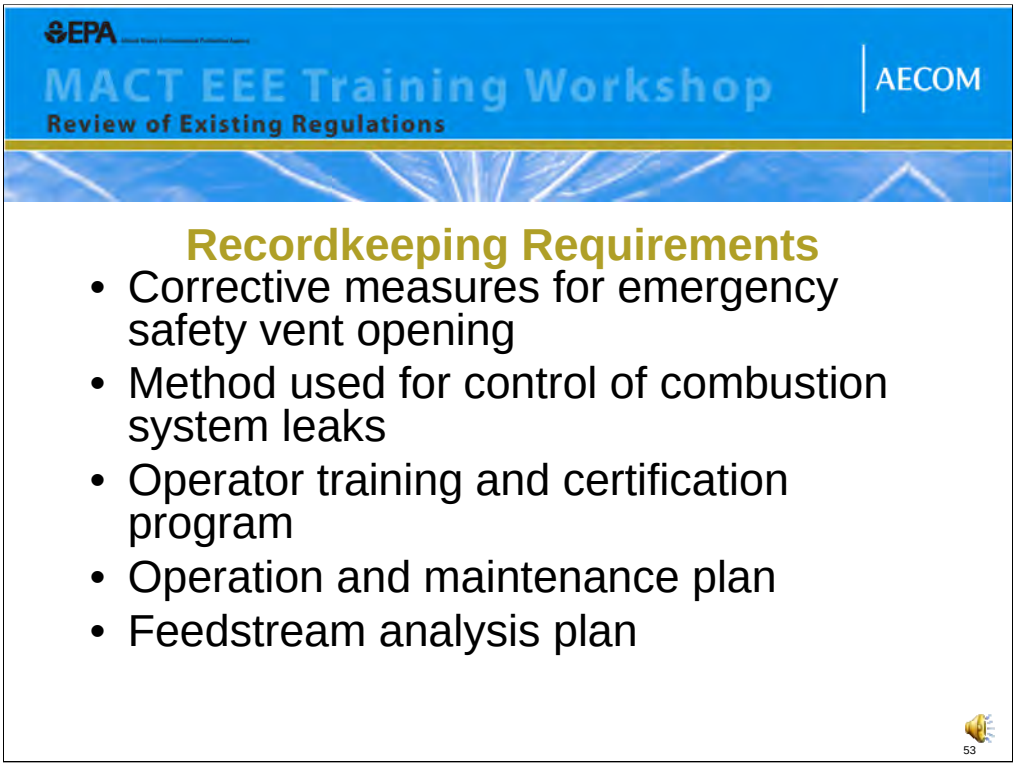
We will now look at the many recordkeeping requirements of MACT EEE. Information required to document and maintain compliance with MACT EEE regulations, including data recorded by CMS, and copies of notifications, reports, plans, and other documents submitted to the Administrator must be maintained. Also, documentation of the mode of operation changes for cement kilns with in-line raw mills, and documentation of compliance with emission averaging requirements for cement kilns with in-line raw mills.



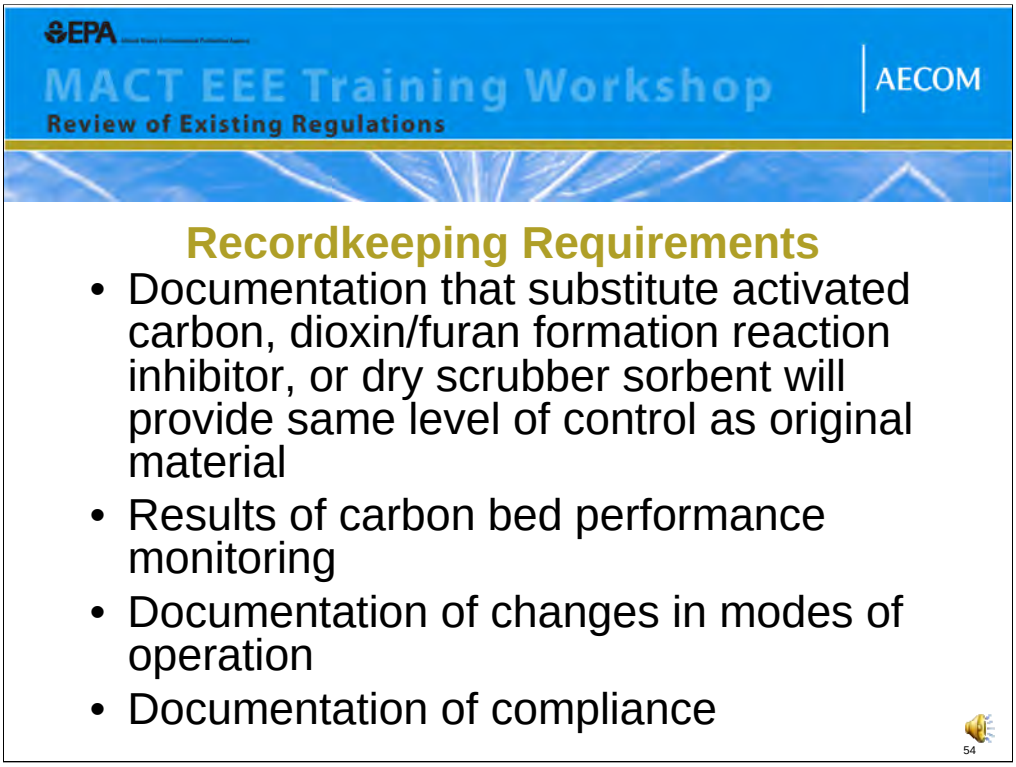
Other recordkeeping requirements include documentation of compliance with emissions averaging requirements for preheater or preheater-precalciner kilns with dual stacks, documentation of different requirements of other standards when not burning hazardous waste, and documentation that a change will not adversely affect compliance with emission standards or operating requirements.



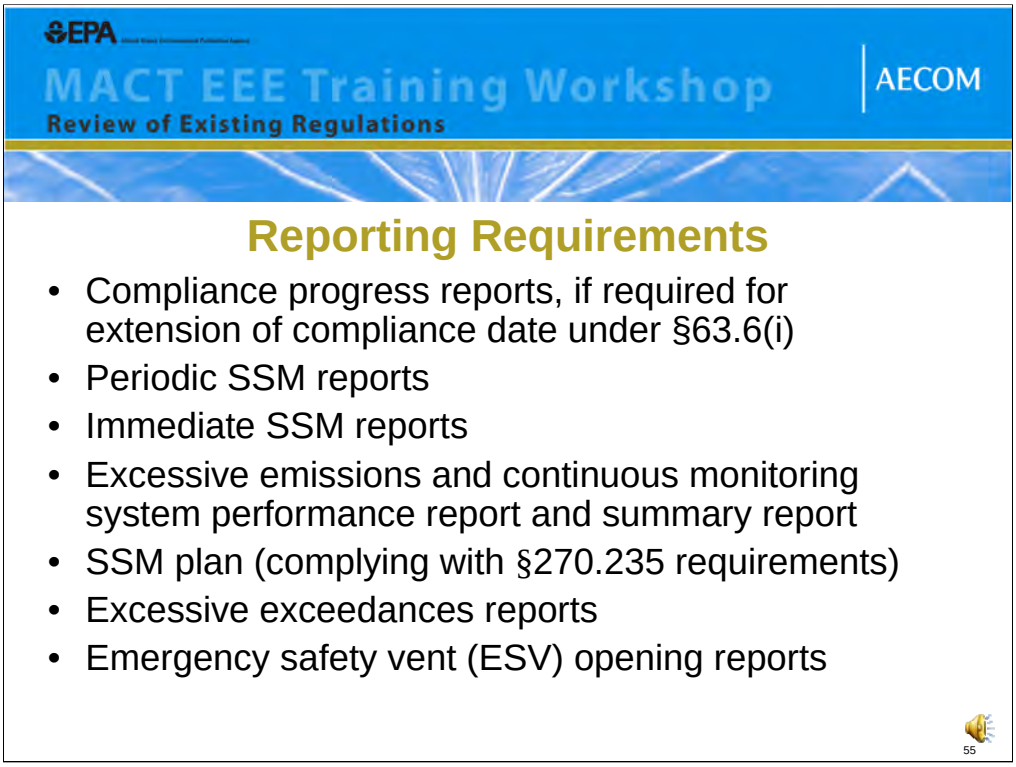
Additional recordkeeping requirements include calculation of hazardous waste residence time, startup, shutdown and malfunction plan, documentation of investigation and evaluation of excessive exceedances during malfunctions, corrective measures for any automatic waste feed cutoff that results in exceedance of emission standard or operating parameter limit, documentation and results of automatic waste feed cutoff operability testing, and emergency safety vent operating plan.



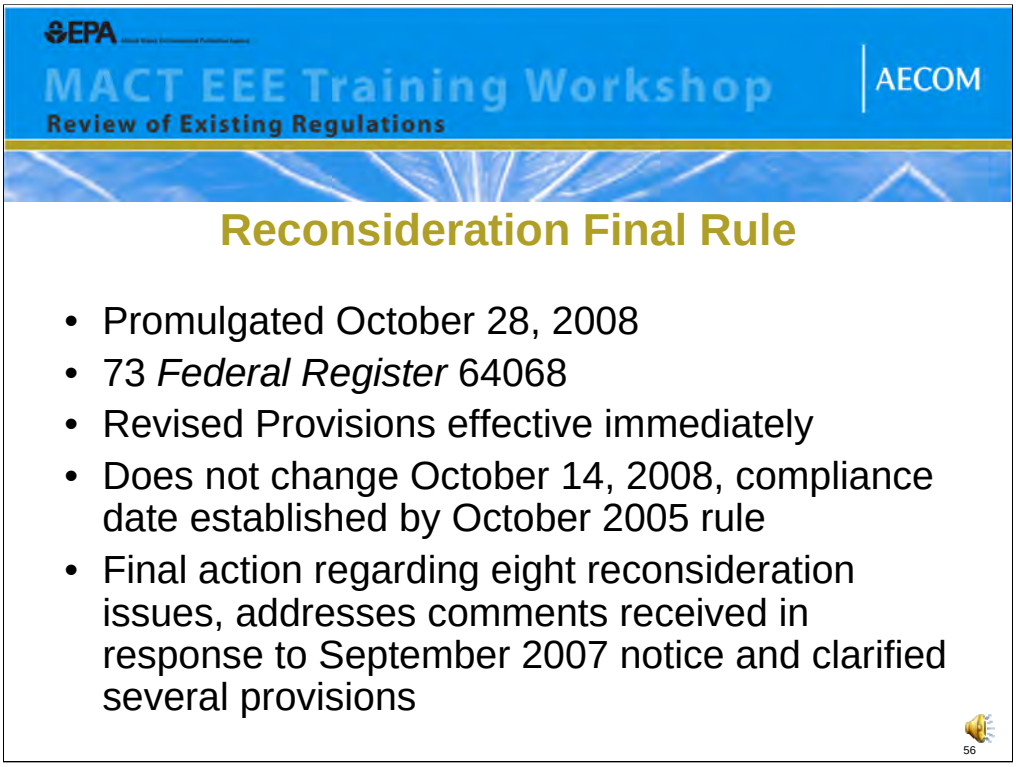
More recordkeeping requirements include records of corrective measures for emergency safety vent opening, method used for control of combustion system leaks, operator training and certification program, operation and maintenance plan, and feedstream analysis plan.



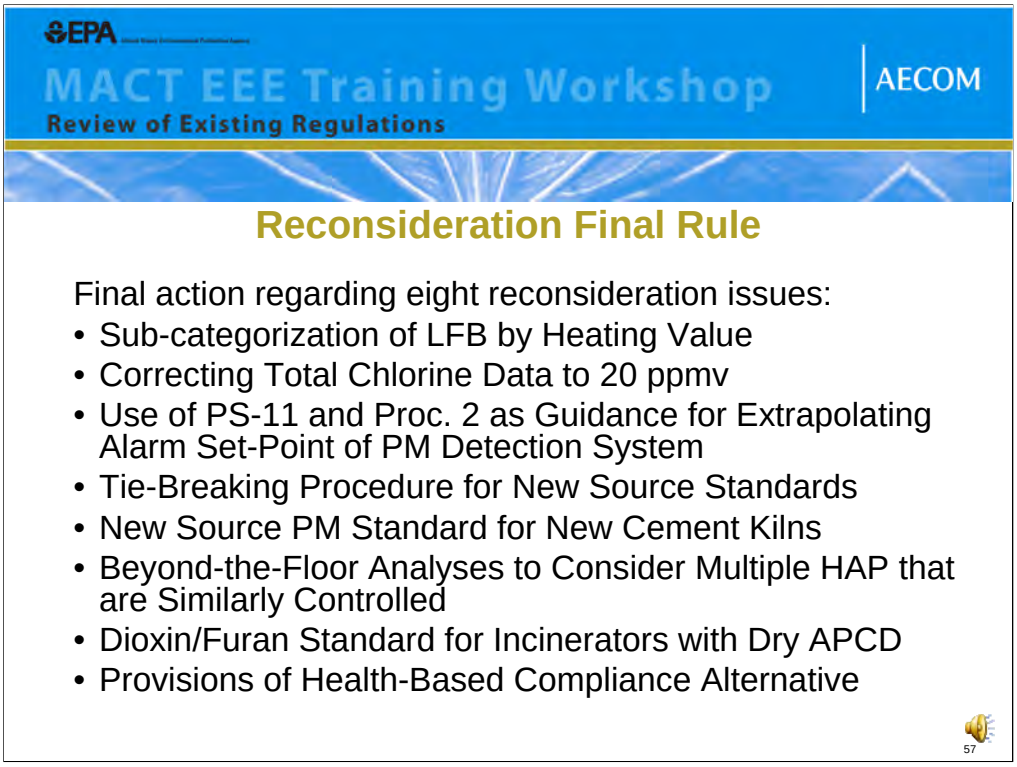
Finally, the remaining recordkeeping requirements include documentation that substitute activated carbon, dioxin and furan formation reaction inhibitor, or dry scrubber sorbent will provide same level of control as original material, results of carbon bed performance monitoring, documentation of changes in modes of operation, and documentation of compliance.



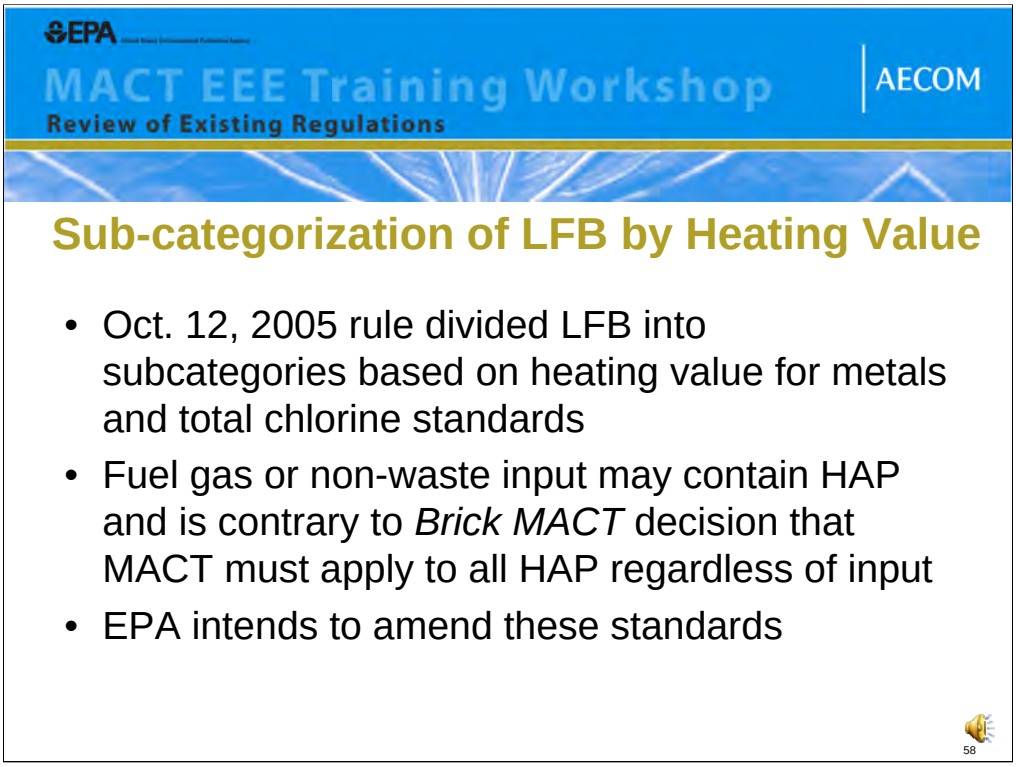
This slide lists the reporting requirements for MACT EEE. Compliance progress reports, if required for extension of compliance date under section 63.6(i), periodic and immediate SSM reports, excessive emissions and continuous monitoring system performance report and summary report, SSM plan (if complying with section 270.235 requirements), excessive exceedances reports, and emergency safety vent (ESV) opening reports.



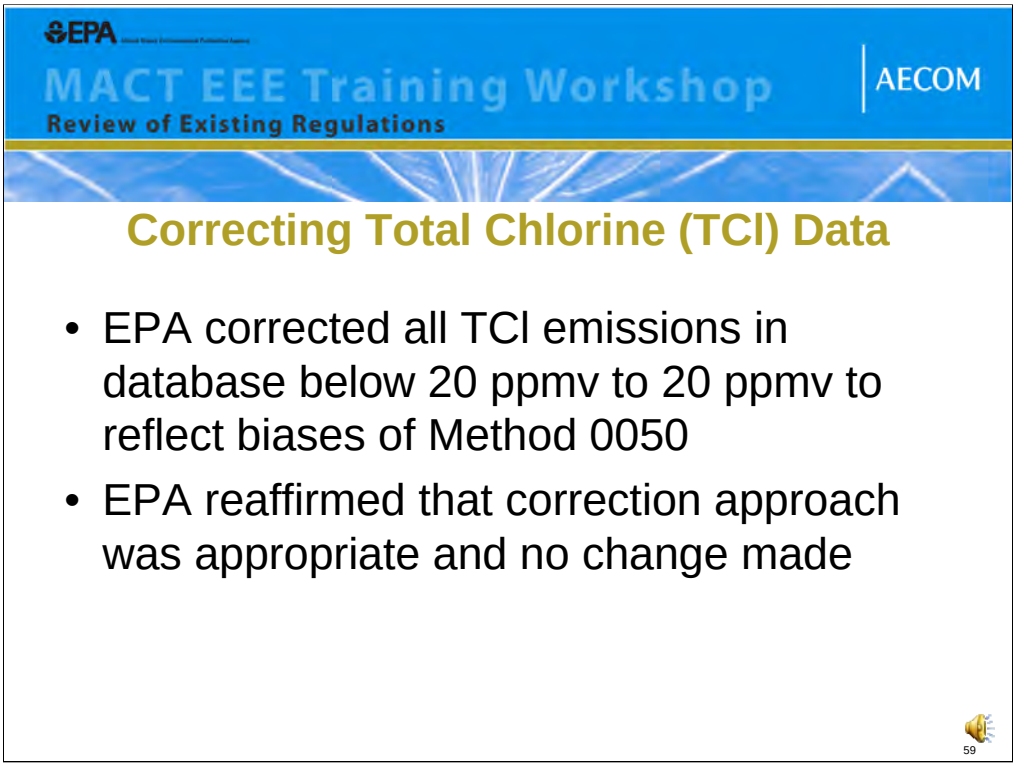
In a more recent action, EPA promulgated final action on eight reconsideration issues that address comments received in response to a September 2007 notice on October 28, 2008. The revised provisions of the reconsideration rule became effective immediately upon promulgation. The final changes to the rule did not change the October 14, 2008 compliance date established by the earlier rule. In addition to addressing comments received from the September 2007 notice, EPA also clarified several provisions of the rule.



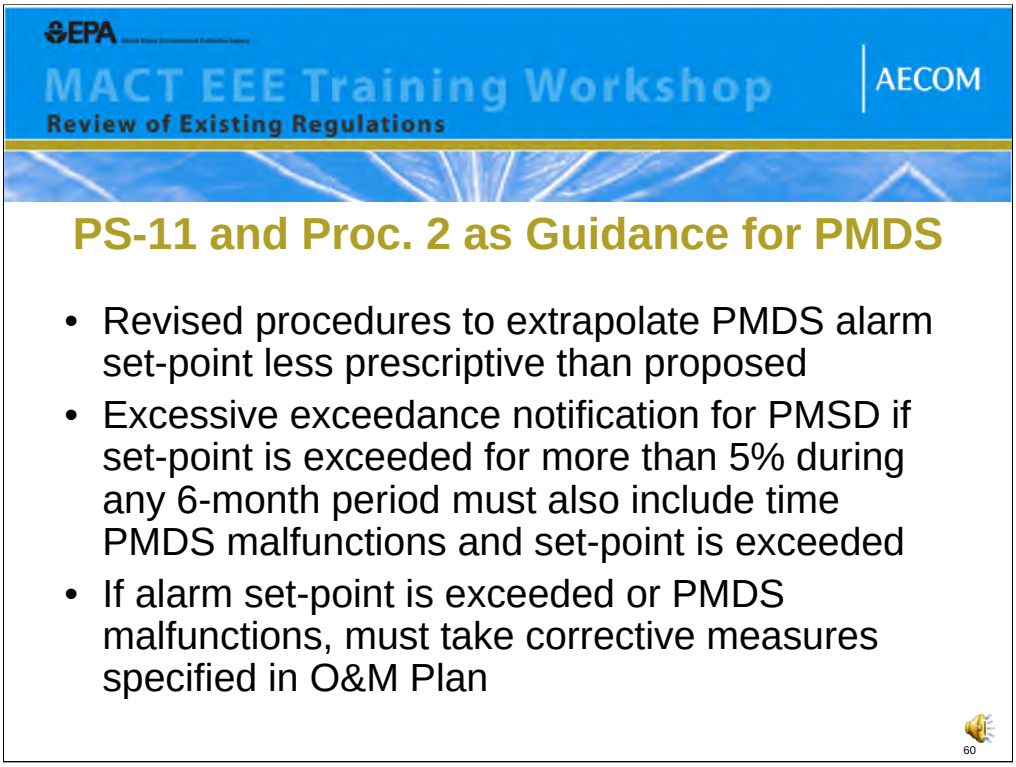
The final action EPA took was regarding the following eight reconsideration issues: Sub-categorization of Liquid Fuel Boilers by Heating Value, correcting Total Chlorine Data to 20 parts per million, use of Performance Specification 11 and Procedure 2 as guidance for extrapolating alarm set-point of PM detection system, tie-breaking procedure for new source standards, a new PM standard for New Cement Kilns, beyond-the-floor analyses to consider multiple HAP that are similarly controlled, Dioxin and Furan standard for Incinerators with dry APCD, and provisions of health-based compliance alternative.



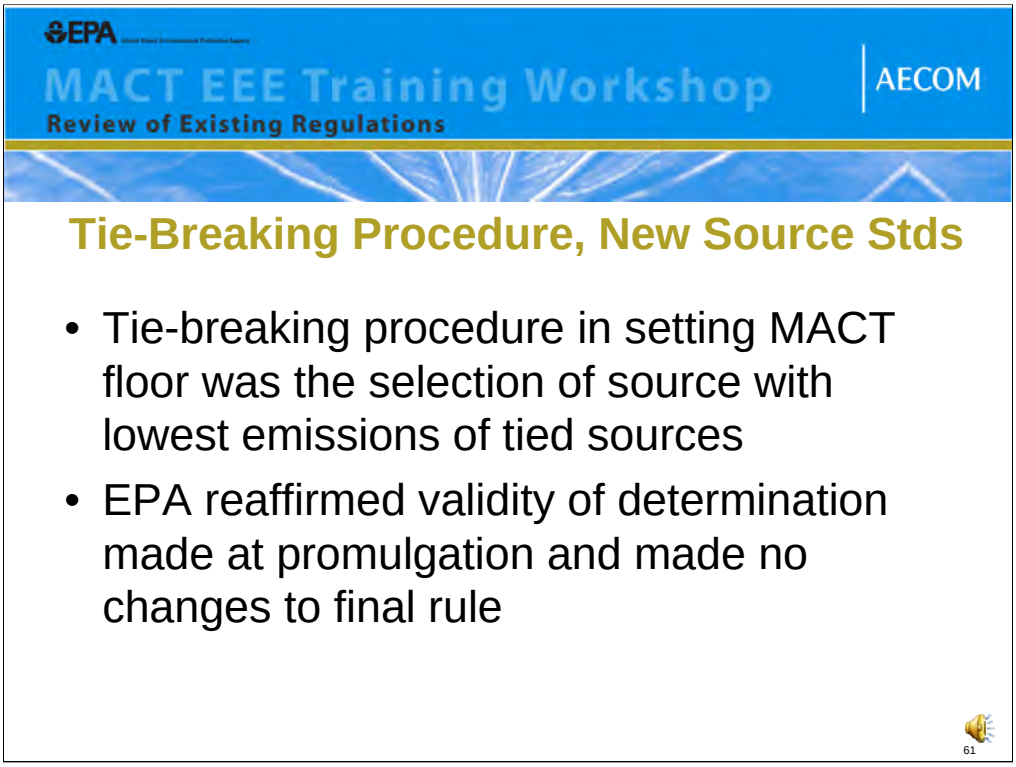
The October 12, 2005 rule divided Liquid Fuel Boilers into subcategories based on heating value for metals and total chlorine standards. Because fuel gas or non-waste input may contain HAP, not counting for these HAP is contrary to the Brick MACT decision that MACT must apply to all HAP regardless of input. EPA intends to amend these standards at a later time.



The correction of Total Chlorine data involved EPA corrected all Total Chlorine emissions in the database below 20 ppmv to 20 ppmv to account for potential negative biases of Method 0050. In the reconsideration rule, EPA reaffirmed that correction approach was appropriate and no change made.



EPA reconsidered use of Performance Specification 11 and Procedure 2 as Guidance for extrapolating the alarm set-point of a PM Detection System. The action taken was that EPA revised procedures to extrapolate PMDS alarm set-point that are less prescriptive than proposed. Also with respect to excessive exceedance notification for PMSD, if set-point is exceeded for more than 5% during any 6-month period, the source must also include time PMDS malfunctions and set-point is exceeded. Finally, if the alarm set-point is exceeded or PMDS malfunctions, the source must take corrective measures specified in O&M Plan



Tie-breaking procedure that was used in setting MACT floor was the selection of source with lowest emissions of tied sources. In the reconsideration rule, EPA reaffirmed validity of determination made at promulgation and made no changes to final rule.

New Source PM Standard for New CK

- Promulgated revised PM standards for new sources
  - CK PM Standard 0.0069 gr/dscf at 7% O_2
  - HWI PM Standard 0.0016 gr/dscf at 7% O_2
- Did not revise LFB PM standard as proposed
- New CK compliance date changed to Oct. 28, 2008 or on start up

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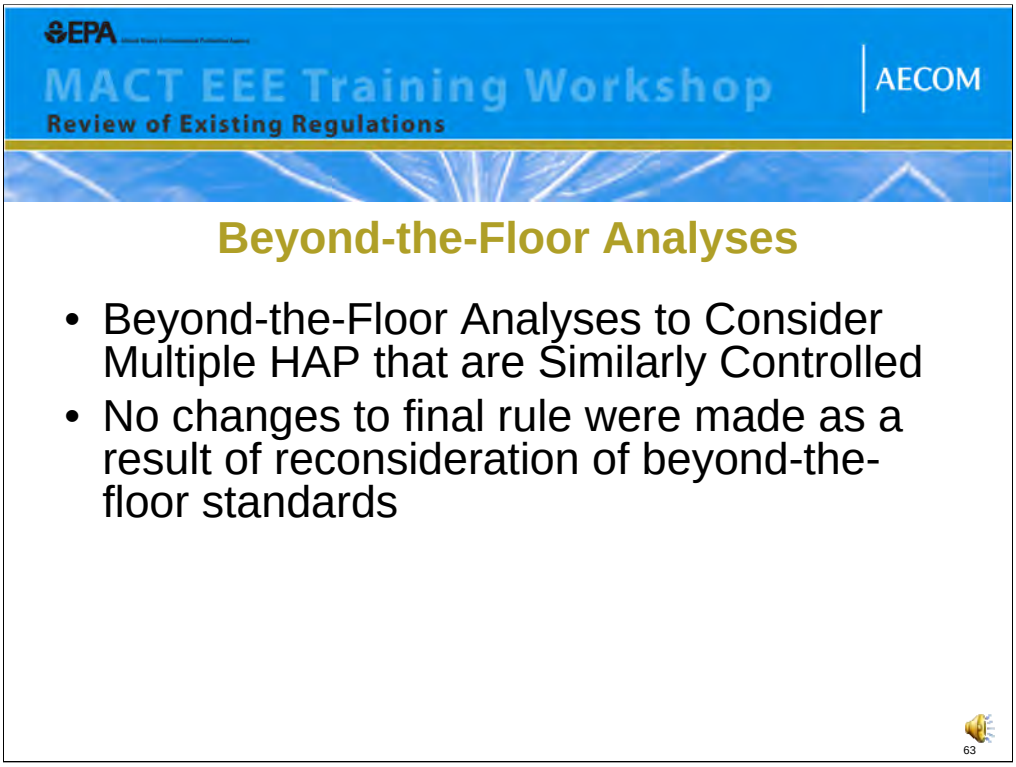
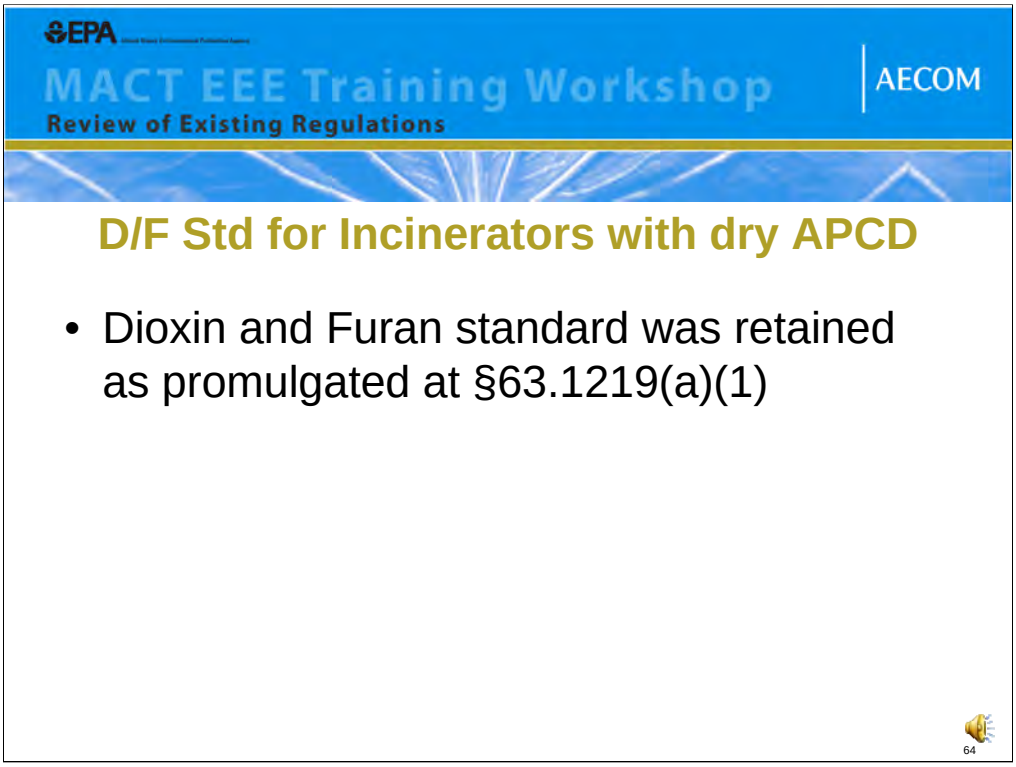
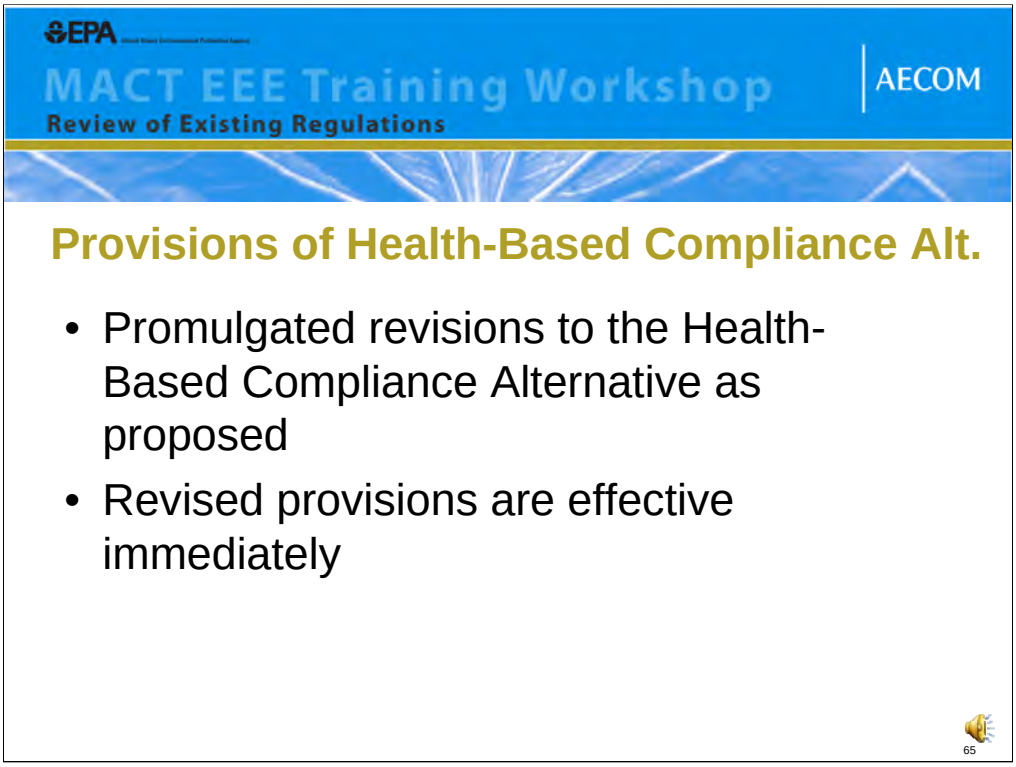
EPA promulgated revised PM standards for new sources as follows: The Cement Kiln PM Standard was changed to 0.0069 gr/dscf at 7% O_2 and the PM Standard for Hazardous Waste Incinerators was change to 0.0016 gr/dscf at 7% O_2. EPA did not revise the Liquid Fuel Boiler PM standard as previously proposed. Also EPA change the new Cement Kiln compliance date to October 28, 2008 or upon start up.



The Beyond-the-Floor analyses was to consider multiple HAP that are similarly controlled. EPA made no changes to final rule as a result of reconsideration of beyond-the-floor standards.



EPA reviewed the Dioxin-Furan standard for incinerators with dry air pollution control devices; however, the Dioxin/Furan standard was retained as promulgated without change.

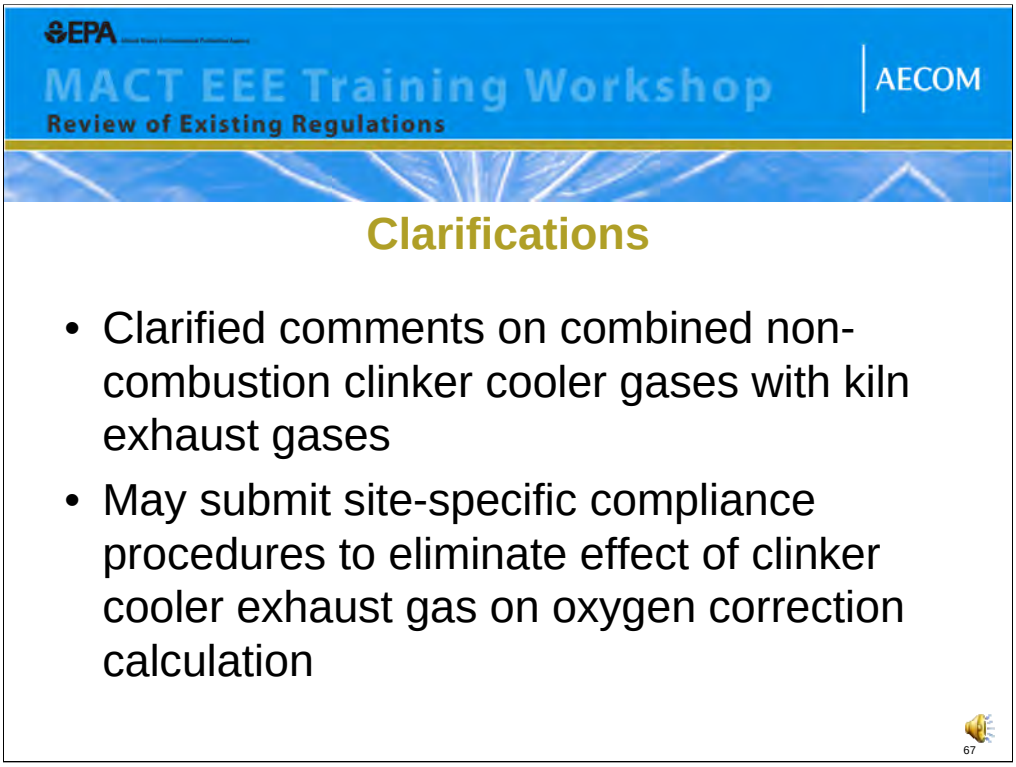


EPA also promulgated revisions to the health-based compliance alternative as it was proposed. The revised provisions were effective immediately.

Corrections

- §63.1207(d) revised to clarify “replacement” standards are §§63.1219, 63.1220, and 63.1221
- §63.1207(m)(1) revised to remove 12-hour rolling average requirement in 10/2005 rule
- Removed §63.1220(a)(2)(iii) and (b)(2)(iii), which were incorporated in §63.1220(a)(2)(ii) and (b)(2)(ii)

EPA made several revisions to correct parts of the rule as listed in this slide.



EPA made several revisions to clarify parts of the MACT EEE rule as listed in this slide.

This ends the presentation of this module.