

**Inspector Checklist for  
The Wood Building Products Maximum Achievable Control Technologies (MACT)**

**National Emission Standards for Hazardous Air Pollutants (NESHAP)  
For Surface Coating of Wood Building Products  
40 CFR Parts 63.4680 – 63.4781 (Subpart QQQQ) and General Provisions in 40 CFR Part 63**

**Summary:** The purpose of this rule is to reduce emissions of HAP from wood building products surface coating sources. The source category is for major sources only -- area sources are not included.

This Subpart QQQQ describes the actions that must be taken to reduce emissions of organic hazardous air pollutants (HAP) from wood building products surface coating operations. It also establishes emission standards for surface coating lines and specifies how facilities must comply if they own or operate a facility with wood building products surface coating lines that are a major source of HAP emissions.

## Checklist Sections

- I. [Pre Site Visit Review....Page 2](#)
- II. [Applicability and Affected Sources....Page 2](#)
- III. [Emission Standards, Operating Limits and Compliance Dates....Page 4](#)
- IV. [General Requirements for Compliance with Emissions Standards....Page 8](#)
- V. [Notifications, Reports, and Records....Page 9](#)
- VI. [Compliance Requirements for Compliant Materials \(Option 1\)....Page 17](#)
- VII. [Compliance Requirements for Emission Rate Without Add-on Controls \(Option 2\)....Page 19](#)
- VIII. [Compliance Requirements for Emission Rate With Add-on Controls \(Option 3\)....Page 21](#)
- IX. [Performance Testing and Monitoring ....Page 25](#)
- X. [Definitions ....Page 33](#)
- XI. [Compliance Timeline....Page 36](#)
- XII. [Subpart QQQQ Table 4 – Applicability of General Provisions....Page 38](#)
- XIII. [Subpart QQQQ Table 5 – Default Organic HAP Mass Fraction for Solvent and Solvent Blends....Page 41](#)
- XIV. [Subpart OOOO Table 6 – Default Organic HAP Mass Fraction for Petroleum Solvent Groups....Page 41](#)
- XV. [Summary of Equations....Page 42](#)
- XVI. [Shutdown, Startup and Malfunction \(SSM\) Plan Requirements....Page 51](#)

## I. Pre Site Visit Review

### 1. What should I do before I visit the facility to be inspected?

- Review any available information on the facility. This can be found in agency files containing construction and/or operating permits, reports, enforcement actions or by contacting facility personnel.

Facility ID/Permit Number(s):	
Facility Name/Address:	
Facility Contact Name:	
Facility Number/E-mail/Fax:	
Facility Contact Address:	

- Review Inspection History

Inspector	Title/Agency	Phone Number	Date of Inspection

- Review any agency or facility specific safety procedures.

## II. Applicability and Affected Sources

### 2. Is facility subject to the NESHAP? 63.4681

- New, Reconstructed, or Existing Major Source for HAP emissions that own or operate any wood building products surface coating operation are subject to this MACT if “yes” to the following:

- Does the facility operate a commercial wood building products surface coating source? A wood building product surface coating source is any source engaged in the finishing or laminating of a wood building product. A wood building product is any product that contains more than 50 percent by weight wood or wood fiber, excluding the weight of any glass components and is used in the construction of a residential, commercial or institutional building.  
 Yes  No  N/A
- Does this source use 4,170 liters (1,100 gallons) per year or more of coatings?  
 Yes  No  N/A

- Is this source a major source, located at a major source or is part of a major source of HAP emissions? (**Note:** A Major Source is any stationary source located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (Mg) (10 tons) or more per year or any combination of HAP at a rate of 22.68 Mg (25 tons) or more per year.  Yes  No  N/A
  
- Does the facility have operations that are **excluded** from this MACT? If excluded, the requirements of this MACT do not apply. Check applicable exclusions:  Yes  No  N/A
  - Wood building products surface coating operations located at an area source.  Yes  No  N/A
  
  - The manufacture or application of surface coatings to prefabricated or pre-manufactured of mobile/modular homes.  Yes  No  N/A
  
  - Surface coating operations that is part of plywood and composite wood product manufacturing NESHAP (Subpart DDDD).  Yes  No  N/A
  
  - Surface coating of wood furniture including finishing, gluing, cleaning, and washoff operations associated with the production of wood furniture or wood furniture components (covered by the Wood Furniture Manufacturing NESHAP Subpart JJ).  Yes  No  N/A
  
  - Surface coating operations that occurs at research or laboratory facilities; janitorial, building, and facility construction or maintenance operations; or hobby shops that are operated for personal rather than commercial purposes?  Yes  No  N/A
  
  - Wood treatment or fire operations that involve impregnating the wood with the wood treatment chemicals or fire retardant by using a retort or other pressure vessel?  Yes  No  N/A

**Note:** If an affected source has surface coating operations subject to the requirements of another NESHAP that account for at least 95% of the annual coating usage for the source, then the requirements (including all applicable emission limitations, operating limits and work practice) of the predominant NESHAP can be applied to all coating operations that are subject to a NESHAP.

### 3. What emission sources at the facility are affected by this subpart? 63.4682

- Does the **new, reconstructed or existing** affected sources identified by the facility include the collection of all operations associated with the surface coating of wood building products, including the following operations:
  - All coating operations as defined in the definitions section in this subpart (63.4781).  Yes  No  N/A
  
  - All storage containers and mixing vessels in which coatings, thinners, and cleaning materials are stored or mixed.  Yes  No  N/A
  
  - All manual and automated equipment and containers used for conveying coatings, thinner and cleaning materials.  Yes  No  N/A
  
  - All storage containers and all manual and automated equipment and containers used for conveying waste material generated by a coating operation.  Yes  No  N/A

**Note 1:** An affected source is a **new** affected source if its construction commenced after June 21, 2002 and the construction is of a completely new wood building products surface coating source where previously no wood building products surface coating source had existed.

**Note 2:** An affected source is **reconstructed** if you meet the criteria as defined in the general provisions (63.2).

**Note 3:** An affected source is an **existing** source if it is not new or reconstructed.

**4. What compliance dates are affected sources subject to? 63.4683**

- For a new or reconstructed affected source:
  - If initial startup is before May 28, 2003 then did the facility comply by May 28, 2003?  Yes  No  N/A
  - If initial startup is after May 28, 2003 then did the facility comply on the date of initial startup?  Yes  No  N/A
- If the facility is an existing affected source, then did the facility comply by May 28, 2006?  Yes  No  N/A
- For an area source that increases its emissions or potential to emit such that it becomes a major source of HAP emissions:
  - If the area source becomes a new or reconstructed source, then did the facility show compliance by May 28, 2003 or the date of initial startup, whichever is later?  Yes  No  N/A
  - If the area source was an existing source, then did the facility show compliance 1 year after the source becomes a major source or 3 years after May 28, 2003, whichever is later?  Yes  No  N/A
- Does the facility meet the notification requirements in 63.4710?  Yes  No  N/A

**III. Emission Standards, Operating Limits and Compliance Dates**

**5. Does the facility meet applicable emissions standards for affected sources? 63.4690**

- If the facility is a new or reconstructed affected source, does the facility limit HAP emissions (**Table 1**) for the subcategory or subcategories present in the facility?  Yes  No  NA

**Table 1 to Subpart OOOO – Emission Limits for New or Reconstructed Affected Sources**

If your affected source applies coating products in the following subcategory:	The organic HAP emission limit for the affected source is: [grams HAP/liter solids (lb HAP/gal solids)] <sup>1, 2</sup>
Exterior siding and primed doorskins	0 (0.00)
Flooring	0 (0.00)
Interior wall paneling or tileboard	5 (0.04)
Other interior paneling	0 (0.00)
Doors, windows and miscellaneous	57 (0.48)

Notes to Table 1:

1. Determined as a rolling 12-month emission rate according to the requirements in 63.4741 & 63.4761, as applicable.
2. If the affected source applies to coatings to products in more than one of the subcategories listed in the table, then facility must determine the applicable emission limit according to 63.4690(c).

- If the facility is an existing affected source, does the facility limit HAP emissions (**Table 2**) for the subcategory or subcategories present in the facility?  Yes  No  NA

**Table 2 to Subpart QQQQ – Emission Limits for Existing Affected Sources**

If your affected source applies coating products in the following subcategory:	The organic HAP emission limit for the affected source is: [grams HAP/liter solids (lb HAP/gal solids)] <sup>1, 2</sup>
Exterior siding and primed doorskins	7 (0.06)
Flooring	93 (0.78)
Interior wall paneling or tileboard	183 (1.53)
Other interior paneling	20 (0.17)
Doors, windows and miscellaneous	231 (1.93)

Notes to Table 2:

1. Determined as a rolling 12-month emission rate according to the requirements in 63.4741 and 63.4761, as applicable.
2. If the affected source applies to coatings to products in more than one of the subcategories listed in the table, then you must determine the applicable emission limit according to 63.4690(c).

- If the affected source applies coatings to products that are in different subcategories, did the facility demonstrate initial and continuous compliance by one of the following methods?
- Conducting separate compliance demonstrations for each applicable emission limit for the appropriate subcategory and reflect determinations in the notifications, reports and records, or  Yes  No  NA
  - Demonstrate compliance with the most stringent of the applicable subcategory emission limits?  Yes  No  NA

**6. Which options are being used to meet applicable emission limits? 63.4691**

**Note:** The facility must include all coatings, thinners and cleaning materials used in the affected source when determining whether the organic HAP emission rate is less than or equal to an applicable emission limit.

- If the facility has chosen the Compliant Materials Option (**Option 1**), have all the following criteria been met:
- Demonstration that the organic HAP content of each coating applied is less than or equal to the applicable emission limit in Table 1, and  Yes  No  NA
  - Each thinning and cleaning material, as purchased, contains no organic HAP, and  Yes  No  NA
  - All compliance requirements of the Compliant Materials Option have been met?  Yes  No  NA



**Table 3 to Subpart QQQQ: Operating Limits if Using Option 3 (Emission Rate with Add-On Controls Option)**

<b>Control Device:</b>	<b>Meet the following Operating Limit:</b>	<b>Demonstrate Continuous compliance with Operating Limits By:</b>
Thermal Oxidizer	The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to §63.4767(a).	<ul style="list-style-type: none"> <li>Collecting the combustion temperature data according to 63.4768(c).</li> <li>Reducing the data to 3-hour block averages; and</li> <li>Maintaining the 3-hour average combustion temperature at or above the temperature limit</li> </ul>
Catalytic oxidizer	The average temperature difference measured across the catalyst bed in any 3-hour period must not fall below the combustion temperature limit established according to §63.4767(b), or	<ul style="list-style-type: none"> <li>Collecting the temperature data according to 63.4768(c);</li> <li>Reducing the data to 3-hour block averages; and</li> <li>Maintaining the 3-hour block temperature difference across the catalyst bed at or above the temperature limit.</li> </ul>
	The inlet temperature of the catalyst bed in any 3 hour period must not fall below the limit established according to §63.4767(b)(2). Develop and implement an inspection maintenance plan according to §63.4767(b)(3) and (4).	<ul style="list-style-type: none"> <li>Collecting the catalyst bed inlet and outlet temperature data according to 63.4363(c); Reducing the data to 3-hour block average temperature rise across the catalyst bed at or above the limit; Maintaining the 3-hour average catalyst bed temperature rise at or above the temperature limit.</li> <li>Complying with the inspection and maintenance plan developed according to §63.4767(b)(3) and (4).</li> </ul>
Carbon Absorber	The total regeneration desorbing gas mass flow for each carbon bed regeneration cycle must not fall below the total regeneration desorbing gas mass flow limit established according to §63.4767(c)	<ul style="list-style-type: none"> <li>Measuring the total regeneration desorbing gas mass flow for each regeneration cycle according to §63.4768(d); and</li> <li>Maintaining the total regeneration desorbing gas mass flow at or above the mass flow limit.</li> </ul>
	The temperature of the carbon bed, after completing each regeneration and any cooling cycle, must not exceed the carbon bed temperature limit established according to §63.4767(c)	<ul style="list-style-type: none"> <li>Measuring the temperature of the carbon bed, after completing each regeneration and any cooling cycle, according to §63.4768(d); and</li> <li>Operating and carbon beds such that each carbon bed is not returned to service until completing each regeneration and any cooling cycle until the recorded temperature of the carbon bed is at or below the temperature limit.</li> </ul>
Condenser	The average condenser outlet (product side) gas temperature in any 3-hour period must not exceed the temperature limit established according to §63.4767(d).	<ul style="list-style-type: none"> <li>Collecting the condenser outlet (product side) gas temperature according to §63.4768(e);</li> <li>Reducing the data to 3-hour block averages; and</li> <li>Maintaining the 3-hour block average gas temperature at the outlet at or below the temperature limit.</li> </ul>
Emission Capture System that is a PTE according to §63.4765(a)	The direction of the air flow at all times must be into the enclosure; and either	<ul style="list-style-type: none"> <li>Collecting the direction of the air flow; and either the facial velocity of air through all natural draft openings according to §63.4768(g)(1) or the pressure drop across the enclosure according to §63.4768(g)(2); and</li> <li>Maintaining the facial velocity of air flow through all natural draft openings according or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.</li> </ul>
	The average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minute; or	<ul style="list-style-type: none"> <li>See items 5.a.i and 5.a.ii</li> </ul>
	The pressure drop across the enclosure must be at least 0.007 inch H <sub>2</sub> O, as established in Method 204 of Appendix M to 40 CFR part 51	<ul style="list-style-type: none"> <li>See items 5.a.i. and 5.a.ii</li> </ul>
Emission Capture System that is not a PTE according to §63.4765(a)	The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to §63.4767(f).	<ul style="list-style-type: none"> <li>Collecting the gas volumetric flow gas or duct static pressure for each capture device according to §63.4768(g);</li> <li>Reducing the data to 3-hour block averages; and</li> <li>Maintaining the 3-hour block average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit</li> </ul>
Concentrators, including zeolite wheels and rotary carbon absorbers	The average gas temperature of the desorption concentrate stream in any 3-hour period must fall below the limit established according to §63.4767(e); and	<ul style="list-style-type: none"> <li>Collecting the temperature data according to §63.4768(f)</li> <li>Reducing the data to 3-hour block averages; and</li> <li>Maintaining the 3-hour block average temperature at or above the temperature limit</li> </ul>
	The average pressure drop of the dilute stream across the concentrator in any 3-hour period must not exceed the limit established according to §63.4767(e)	<ul style="list-style-type: none"> <li>Collecting the pressure drop data according to §63.4768(f); and</li> <li>Reducing the pressure drop data to 3-hour block averages; and</li> <li>Maintaining the 3-hour block average pressure drop at or below the pressure drop limit</li> </ul>

- If the facility has a controlled coating operation in which the emission rate with add-on controls option, except for those in which a solvent recovery system is used and a liquid-liquid material balance is conducted, is used has the facility met the operating limits specified in Table 3 of this subpart?  
 Yes  No  NA
- Were the operating limits established during the performance test according to 63.4767?  
 Yes  No  NA
- Were these operating limits met at all times after they were established?  Yes  No  NA
- If the facility uses an add-on control device other than those listed in Table 3 to this subpart or monitors an alternative parameter and complies with a different operating limit, has the facility applied to the Administrator for approval of alternative monitoring [63.8(f)]?  Yes  No  NA

**8. Does the facility meet the applicable work practice standards? 63.4693**

**Note:** Facilities are not required to meet any work practice standards for any coating operation in which the compliant materials option or the emission rate without add-on controls option is used.

- For facilities that use the emission rate with add-on controls option did the facility:
  - Develop and implement a work practice plan to minimize organic HAP emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, the coating operation; or  Yes  No  NA
  - Meet an alternative standard [as provided in General Provisions 63.6(g)] that specifies practices and procedures to ensure that, at a minimum, the all of the following elements are implemented:
    - All organic HAP coatings, thinners, cleaning materials and waste materials are stored in closed containers, and  Yes  No  NA
    - Spills of organic HAP coatings, thinners, cleaning materials and waste materials are minimized, and  Yes  No  NA
    - Organic HAP coatings, thinners, cleaning materials and waste materials are transported in closed containers or pipes, and  Yes  No  NA
    - Mixing vessels which contain organic HAP must be closed except when adding to, removing, or mixing the contents, and  Yes  No  NA
    - Emissions of organic HAP must be minimized during cleaning of web coating/printing or dyeing/finishing storage, mixing, and conveying equipment.  Yes  No  NA

**IV. General Requirements for Compliance with Emissions Standards**

**9. Has the facility met applicable general compliance requirements of this subpart? 63.4700**

- Did the facility with any coating operation that chose the compliant materials option or the emission rate without add-on controls option meet the applicable emission limit in the applicable table?  
 Yes  No  NA

- Did the facility with any coating operation that chose the emission rate with add-on controls option meet the following emission limitations:
- The coating operation must be in compliance with the applicable emission limit in Table 1 or 2 except during periods of startup, shutdown and malfunction (SSM) at all times,  Yes  No  NA
  - The controlled coating operation must be in compliance with the operating limits for emission capture systems and add-on control devices except for solvent recovery systems and periods of SSM,  Yes  No  NA
  - The controlled coating operation must be in compliance with the work practice standards in 63.4791(j) at all times.  Yes  No  NA
- Did the facility operate and maintain their affected source, including air pollution and monitoring equipment, for purposes of complying with this subpart?  Yes  No  NA
- If the affected source uses an emission capture system and add-on control device, is there a log detailing the operation of the emission capture system, add-on control device and continuous parameter monitors from the initial compliance date to the date of the performance tests?  Yes  No  NA
- If the affected source uses an emission capture system and add-on control device, has a startup, shutdown and malfunction plan been developed and implemented?  Yes  No  NA

**Note:** This requirement does not apply to a solvent recovery system for which liquid-liquid material balances are conducted.

**10. Has the facility determined and complied with the General Provisions? 63.4701**

- Did the facility comply with applicable General Provisions in Table 4 (See Section XIII)?  Yes  No  NA

**V. Notifications, Reports and Records**

**11. Has the facility prepared and submitted the required notifications and reports? 63.4710**

**Initial Notification**

- If the facility has an existing source, was an initial notification submitted no later than 120 days after May 28, 2003?  Yes  No  NA
- If the facility has a new or reconstructed source, was the initial notification submitted by the due date of 120 days after initial startup or 120 days after May 28, 2003, whichever is later?  Yes  No  NA

### Compliance Status Notification

- Was the semi-annual compliance reports submitted no later than 30 calendar days after the end of the initial compliance period?  Yes  No  NA
- Did the Notification of Compliance Status contain the following:
- Company name and address  Yes  No  NA
  - Statement by a responsible official with name, title and signature certifying the accuracy of the content of the report?  Yes  No  NA
  - Date of report and beginning and ending dates of the reporting period?  Yes  No  NA
  - Identification of which compliance option was chosen during the initial compliance period for the coating operation?  Yes  No  NA
  - Statement that shows whether or not the affected source achieved the emission limitations?  Yes  No  NA
  - Description on all deviations from emission limits and a statement of the cause of the deviation?  Yes  No  NA
- If the facility failed to meet the applicable emission limit, were all calculations used to determine the grams organic HAP emitted per liter of coating solids used included?  Yes  No  NA
- Did the facility include calculations and supporting data for all of the following items:
- Mass fraction of organic HAP for one coating, for one thinner, and for one cleaning material?  Yes  No  NA
  - Volume fraction of coating solids for one coating?  Yes  No  NA
  - Density for one coating, one thinner and one cleaning material, except if the compliant materials option was chosen, only coating density example is required?  Yes  No  NA
  - Amount of waste materials and the mass of organic HAP contained in the waste materials in which the facility is claiming an allowance using Equation 1 of 63.4751?  Yes  No  NA
- Did the facility include the calculation of the organic HAP emitted per liter coating solids used for the compliance option chosen:
- For the compliant materials option, did the facility provide a calculation of the organic HAP content for one coating using Equation 2 of 63.4741?  Yes  No  NA
  - For the emission rate without add-on controls option, provide the following calculations:
    - The calculation of the total mass of organic HAP emissions for each month using Equation 1 and 1A through 1C of 63.4751; and  Yes  No  NA
    - The calculation of the total volume of coating solids used each month using Equation 2 of 63.4751; and  Yes  No  NA

- The calculation of the 12-month organic HAP emission rate using Equation 3 of 63.4751?  Yes  No  NA
- For the emission rate with add-on controls option, did the facility provide the following calculations:
  - The calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month using Equations 1 and 1A through 1C of 63.4751; and  Yes  No  NA
  - The calculation of the total volume of coating solids used each month using Equation 2 of 63.4751; and  Yes  No  NA
  - The calculation of the mass of organic HAP emission reduction each month by emission capture systems and add-on control devices using Equation 1, 1A through 1D, 2, 3, and 3A through 3C of 63.4761 as applicable; and  Yes  No  NA
  - The calculation of the total mass of organic HAP emissions each month using Equation 4 of 63.4761; and  Yes  No  NA
  - The calculation of the 12-month organic HAP emission rate using Equation 5 of 63.4761?  Yes  No  NA
- If the facility chose the emission rate with add-on controls option that uses an emission capture system and add-on control device other than a solvent recovery system, were the following items provided:
  - A summary of the data and copies of calculations supporting the determination that the emission capture system is a permanent total enclosure (PTE) or a measurement of the emission capture system efficiency  Yes  No  NA
  - A description of the protocol followed for measuring capture efficiency  Yes  No  NA
  - Summaries of any capture efficiency tests conducted  Yes  No  NA
  - Calculations supporting the capture efficiency determination ( If using the data quality objective (DQO) or the lower confidence limit (LCL) approach, statistical calculations must be included to show that criteria in Appendix A to Subpart KK is met)  Yes  No  NA
  - Summary of the results of each add-on control device performance test  Yes  No  NA
  - List of each emission capture system's and add-on control device's operating limits  Yes  No  NA
  - Statement of whether a work practice plan was developed and implemented  Yes  No  NA

## 12. Has the facility submitted the required reports? 63.4720

### Semi-annual Reports

- Were the semi-annual compliance reports submitted in a timely manner (Due by June 30 and December 31 each year)?  Yes  No  NA
- Does each semi-annual report submitted cover the appropriate compliance period?  Yes  No  NA
- Were each semiannual compliance report postmarked and delivered by July 31 or January 31, whichever is the first date following the end of the semiannual reporting period?  Yes  No  NA
- If the facility submits semiannual reports does each report contain all of the following:
- Company name and address  Yes  No  NA
  - Statement by a responsible official with name, title and signature certifying the accuracy of the content of the report?  Yes  No  NA
  - Date of report and beginning and ending dates of the reporting period?  Yes  No  NA
  - Identification of the compliance option chosen for each web coating/printing and dyeing/finishing operation?  Yes  No  NA
  - If a switch in compliance option occurred, the dates beginning and ending dates for the new option?  Yes  No  NA
  - The calculation results for each compliance period for web coating/printing operations that chose the emission rate without add-on controls option, emission rate with add-on controls option or the organic HAP overall control efficiency or for dyeing/finishing operations that chose the emission rate without add-on controls option or emission rate with add-on controls option?  Yes  No  NA
- If there were no deviations, did the semiannual report contain a statement stating that there were no deviations or a statement stating that there were no periods during which the continuous parameter monitoring system (CPMS) were out of control?  Yes  No  NA
- If there was a deviation from the applicable organic HAP content requirements using the compliant material option, did the semiannual compliance report include the following:
- Identification of each material applied that deviated from the emission limit and dates and time periods each material was applied?  Yes  No  NA
  - Calculation of the organic HAP content using Equation 2 of 63.4741?  Yes  No  NA
  - Determination of mass fraction of organic HAP for each regulated material?  Yes  No  NA
  - Statement of the cause of each deviation?  Yes  No  NA

If there was a deviation from the applicable organic HAP content requirements using the emission rate without add-on controls option, did the semiannual compliance report include the following:

- The beginning and ending dates of each compliance period in which the emission limit was not met?  Yes  No  NA
- Calculation of the organic HAP emission rate for the compliance period during which the deviation occurred?  Yes  No  NA
- Calculation used to determine the mass of organic HAP in waste materials?  Yes  No  NA
- Statement of the cause of each deviation?  Yes  No  NA

If there was a deviation from the applicable organic HAP content requirements (including periods when emissions bypassed the add-on control device) using the emission rate with add-on controls option, did the semiannual compliance report include the following:

- The beginning and ending dates of each compliance period in which the emission limit was not met?  Yes  No  NA
- Calculation of the organic HAP emission rate for the compliance period during which the deviation occurred?  Yes  No  NA
- Calculation used to determine the 12-month organic emission rate, which includes all of the following:
  - The calculation of the total mass of organic HAP emissions using Equation 1 and 1A through 1C of 63.4751?  Yes  No  NA
  - The calculation used to determine the mass of organic Hap in waste materials?  Yes  No  NA
  - The calculation of the total volume of coating solids used each month using Equation 2 of 64.4751?  Yes  No  NA
  - The calculation of the mass of organic HAP reduction each month using Equations 1 and 1A through 1D of 63.4761 and Equations 2, 3, and 3A through 3C of 63.4761?  Yes  No  NA
  - The calculation of the total mass of organic HAP emissions each month using Equation 4 of 63.4761?  Yes  No  NA
  - The calculation of the 12 month organic HAP emission rate using Equation 5 of 63.4761?  Yes  No  NA
- Date and time each malfunction started and stopped?  Yes  No  NA
- A brief description of the CPMS?  Yes  No  NA
- The date of the latest CPMS certification or audit?  Yes  No  NA
- The date, time, and duration that each CPMS was out-of-control?  Yes  No  NA

- The date and time period of each deviation from an operating limit, date and time period of any bypass of the add-on control device, and whether each deviation occurred during a period of startup, shutdown, or malfunction of during another period?  Yes  No  NA
- A summary of the total duration of each deviation and the duration as a percent of the total source operating time?  Yes  No  NA
- A breakdown of the total deviations from the operating limits in Table 3 during the semiannual compliance period?  Yes  No  NA
- A summary of the total duration of CPMS downtime?  Yes  No  NA
- A description of any changes in the CPMS?  Yes  No  NA
- For each deviation from the work practice standards, a description of the deviation, date and time period of the deviation and the actions taken to correct the deviation?  Yes  No  NA
- A statement of the cause of the deviation?  Yes  No  NA

#### **Performance Tests and Test Reports**

- If the facility is complying with the emission rate with add on controls option, were the performance test report results submitted no later than 60 days after completing the tests?  Yes  No  NA

#### **Startup, Shutdown and Malfunction Reports**

- If the facility is complying with the emission rate with add-on controls option and has a startup, shutdown or malfunction during the semiannual reporting period, has the facility completed the following:
- If actions taken were consistent with the startup, shutdown, and malfunction plan was the information specified in 63.10(d) included in the report?  Yes  No  NA
  - If actions taken were inconsistent with the startup, shutdown, and malfunction plan was the following information included in the report:
    - A description of the actions taken during the event submitted within 2 working days after starting actions that were inconsistent?  Yes  No  NA
    - A letter to the administrator within 7 working days after the end of the event, unless alternative arrangements have been made?  Yes  No  NA

#### **13. Did the facility keep the appropriate records? 63.4730**

- Did the facility keep a copy of each notification and report that was submitted to comply with this subpart, including supporting documentation?  Yes  No  NA
- Did the facility keep a current copy of formulation data or test data provided by materials suppliers or manufacturer?  Yes  No  NA
- When the facility performed coating operations, was a copy of the following items recorded:

- A record of the operations on which each compliance option was used and time period the option was used?
  - For the compliant materials option, a record of the calculation of the organic HAP content, as purchased, for each material applied using Equation 2 of 63.4741?  
 Yes  No  NA
  - For the emission rate without add-on controls option:
    - A record of the calculation of the total mass of organic HAP emissions for the materials applied?  Yes  No  NA
    - A record of the calculation used to determine the mass of organic HAP in waste materials?  Yes  No  NA
    - A record of the calculation of the total volume of coating solids used each month?  Yes  No  NA
    - A record of the calculation of the organic HAP emission rate for each compliance period?  Yes  No  NA
  - For the emission rate with add-on controls option,
    - A record of the calculation of the total mass of organic HAP in waste materials?  Yes  No  NA
    - A record of the calculation used to determine the mass of the solids contained in all coating and printing materials applied?  Yes  No  NA
    - A record of the calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices?  Yes  No  NA
    - A record of the calculation of the total mass of organic HAP emissions each month?  Yes  No  NA
    - A record of the calculation of the organic HAP emission rate for each compliance period?  Yes  No  NA
- Did the facility keep a record of the name and volume of each coating, thinner, and cleaning material used during each compliance period?  Yes  No  NA
- Did the facility keep a record of the mass fraction of organic HAP for each coating, thinner, and cleaning material used during each compliance period?  Yes  No  NA
- Did the facility keep a record of the volume fraction of coating solids for each coating used during the compliance period? (If the facility used the emission rate with or without add-on controls option, the density for each thinner and cleaning material used must also be recorded).  Yes  No  NA
- If the facility used an allowance in Equation 1 of 63.4751 for organic HAP contained in waste materials, did the facility keep records of the following:
  - The name and address of each treatment, storage, and disposal facility (TSDF) to which the waste materials were sent?  Yes  No  NA

- A statement of which subparts under 40 CFR parts 262, 264, 265 and 266 apply to the facility?  
 Yes  No  NA
  - The date of the shipment?  Yes  No  NA
  - Identification of the coating operations producing waste materials?  Yes  No  NA
  - Methodology used to determine the total amount of waste materials sent or the amount collected, stored, and designated for transport to a TSD facility each month?  
 Yes  No  NA
  - Methodology to determine the mass of organic HAP contained in these waste materials?  
 Yes  No  NA
- Did the facility keep records of the date, time and duration of each deviation?  
 Yes  No  NA
- If the facility used the emission rate with add-on controls option, were all of the following records kept:
- A record of whether any deviations occurred during a period of SSM?  
 Yes  No  N/A
  - Records in 63.6(e)(3)(iii) through (v) related to SSM?  Yes  No  N/A
  - Records required showing continuous compliance with each operating limit specified in Table 3?  
 Yes  No  N/A
  - For each capture system that is a PTE, data and documentation used to support a determination that the capture system meets criteria in Method 204 of Appendix M to 40 CFR Part 51 and has an efficiency of 100%?  
 Yes  No  N/A
  - For each capture system that is not a PTE, data and documentation used to support a determination that the capture system efficiency according to general requirements for performance tests and any of the following that may apply:
    - If using a liquid-to-uncaptured gas protocol using a temporary enclosure or building enclosure:
      - Records of the mass of total volatile hydrocarbon (TVH) for each regulated material?  Yes  No  N/A
      - Records of the total TVH for all materials applied during each capture efficiency and test run?  Yes  No  N/A
      - Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run?  Yes  No  N/A
      - Records documenting showing that the enclosure used for the capture efficiency test run meets the criteria in Method 204 of Appendix M?  
 Yes  No  N/A
    - If using a gas-to-gas protocol with a temporary total enclosure or building enclosure:



- For coating, did the facility apply coating or printing material with an organic HAP content that does not exceed the applicable emission limit in Table 1 and apply coating or printing material that contains no organic HAP?  Yes  No  NA
- If the facility determines compliance with the compliant materials option, does the facility determine the organic HAP mass fraction of each coating material by one of the following:
- Method 311 is used to determine organic HAP content. Each organic HAP present  $\geq 0.1$  weight percent for OSHA defined carcinogens and  $\geq 1.0$  weight percent for other organic HAP is included in the determination. The mass fraction is expressed as a value truncated to four decimal places. The total mass fraction is the sum of the individual HAP mass fraction, truncated to three decimal places. (Note: This determination may be completed by the manufacturer.)  Yes  No  NA
  - Method 24 is used to determine the volatile organic content (for each coating) as mass fraction of non-aqueous volatile matter and use it as a substitute for organic HAP? (Note: This determination may be completed by the manufacturer.)  Yes  No  NA
  - Alternative test method to determine the mass fraction of organic HAP, mass fraction of solids, or fraction of organic HAP emitted from a reactive coating. (Note: This method must be Administrator approved according to 63.7f.)  Yes  No  NA
  - Formulation data is used to determine the organic HAP mass fraction. Each organic HAP present  $\geq 0.1$  weight percent for OSHA defined carcinogens and  $\geq 1.0$  weight percent for other organic HAP is included. (Note: The formulation data may be provided by the manufacturer.)  Yes  No  NA
  - Solvent Blends. If the test and manufacturer's data for solvent blends is not available, did the facility use the default values for the mass fraction of organic HAP in these solvent blends listed in Table 4 or 5?  Yes  No  NA

**Note 1:** If there is a discrepancy between Method 311 test data and the formulation data, and the Method 311 data is higher, the facility must use the Method 311 data.

**Note 2:** If the facility does not use one of the methods above to determine organic HAP content values, has approval from the Administrator for an alternative test method been obtained? The recovery efficiency of the test method must be determined for all target organic HAP and a correction factor, if necessary, must be determined and applied (63.7(f)).

- If the facility determines compliance with emission standards by the compliant materials option, does the facility determine the volume fraction of coating solids by one of the following methods?
- ASTM Method D2697-86 (Reapproved 1998) or D6093-97 to determine the volume fraction of coating solids for each coating?  Yes  No  NA
  - Information from the supplier or manufacturer of the material for obtaining the mass fraction of solids for each coating and printing material?  Yes  No  NA
  - Using Equation 1 of 63.4741 if the previous methods cannot be used?  Yes  No  NA

**Note 1:** If there is a discrepancy between information from the supplier and the test method results, the facility must use the test method results.

- Did the facility determine the density of each coating using ASTM Method D1465-90 or information from the supplier or manufacturer of the material?  Yes  No  NA
- Does the facility calculate the organic HAP content of each coating and printing material using Equation 2 of 63.4741?  Yes  No  NA
- Does the facility follow proper compliance demonstration by each of the following:
  - The calculated organic HAP content is less than or equal to the applicable emission limit in Table 1?  Yes  No  NA
  - Each thinning and cleaning material applied during the initial compliance period contains no organic HAP?  Yes  No  NA
  - Each thinner and cleaning material applied contains no organic HAP?  Yes  No  NA
  - The Notification of Compliance Status requirements are met by identifying all operations that the compliant materials option was chosen and submitted statements saying each operation was in compliance with the emission limitations during the initial compliance period?  Yes  No  NA

**17. How has the facility demonstrated continuous compliance with the emission limitations for the Compliant Materials Option? 63.4742**

Note: The facility must answer yes to all of the following to be in continuous compliance and avoid deviations.

- Did the facility avoid applying coating material for which the organic HAP content determined using Equation 2 of 63.4741 exceeds the applicable emission limit?  Yes  No  NA
- Did the facility avoid using thinner or cleaning material that contains organic HAP as defined in 63.4741(a)?  Yes  No  NA
- Did the facility identify any web coating/printing, slashing, or dyeing/finishing operation that used the compliant materials option?  Yes  No  NA
- Did the facility submit a statement stating that there were no deviations from the applicable emission limits in Table 1, if applicable and that the thinners and cleaning materials applied contained no organic HAP?  Yes  No  NA
- Did the facility maintain records as specified in 63.4730 and 63.4731?  Yes  No  NA

**VII. Compliance Requirements for the Emission Rate without Add-On Controls Option**

**18. What is the initial compliance date for the Emission Rate without Add-On Controls Option? 63.4750**

- Did the facility begin its initial compliance period on the applicable compliance date specified in 63.4683 and end on the last day of the 12th full month after the compliance date?

Yes  No  NA

**19. Did the facility demonstrate initial compliance with the emission limitations for the Emission Rate without Add-On Controls Option? 63.4751**

**Note:** If the facility operates any coating operation in which the emission rate without add-on controls option, there are no operating limits or work practice standards to meet in 63.4292 and 63.4293, respectively.

- Did the facility meet the applicable emission limit in Table 1?  Yes  No  NA
- Did the facility determine the mass fraction of organic HAP for each material?  Yes  No  NA
- Did the facility determine the volume fraction of coating solids for each coating?  Yes  No  NA
- Did the facility determine the mass density of each coating, thinner, and cleaning material used during each month?  Yes  No  NA
- Did the facility determine the volume of each coating, thinner, and cleaning material used during each month?  Yes  No  NA
- Did the facility determine the combined mass of organic HAP emissions for each coating, printing, thinning or cleaning material applied using Equation 1 of 63.4751?  Yes  No  NA
- Did the facility calculate the mass of organic HAP in the coatings using Equation 1A of 63.4751?  Yes  No  NA
- Did the facility calculate the mass of organic HAP in the thinners using Equation 1B of 63.4751?  Yes  No  NA
- Did the facility calculate the mass of organic HAP in the cleaning materials using Equation 1C of 63.4751?  Yes  No  NA
- If the facility chose to account for the mass of organic HAP contained in the waste materials sent or designated for shipment to a hazardous waste TSDF, did the facility complete all of the following?
- Include only waste materials that are generated by coating operations and materials that will be treated or disposed of by a facility that is regulated as a TSDF?  Yes  No  NA
  - Determine the amount of waste materials sent to a TSDF or determine the amount collected and stored during the compliance period?  Yes  No  NA
  - Determine the total mass of organic HAP contained in the waste materials?  Yes  No  NA
  - Document the methodology used to determine the amount of waste materials and the total mass of organic HAP?  Yes  No  NA
- Did the facility calculate the total volume of coating solids applied using Equation 2 of 63.4751?  Yes  No  NA
- Did the facility calculate the organic HAP emission rate for the compliance period using Equation 3 of 63.4751?  Yes  No  NA

- Did the facility show the proper compliance demonstration by keeping the organic HAP emission rate for the initial compliance period less than the applicable limit in Table 1; keeping all records as required by Notifications, Records and Reports Section; identify the web coating/printing operations for which the emission rate without add-on controls option was chosen and submit a statement that the web coating/printing operations were in compliance?  Yes  No  NA

**20. Did the facility demonstrate continuous compliance with the emission limitations of the Emission Rate without Add-On Controls Option? 63.4752**

- Was the organic HAP emission rate calculated using Equation 3 of 63.4751 for each compliance period less than or equal to the applicable emission limit in Table 1?  Yes  No  NA
- If the facility did not meet the emission limitation in Table 1, was the deviation reported as required?  Yes  No  NA
- Did the facility identify any coating operation in which the emission rate without add-on controls option was used?  Yes  No  NA
- If there were no deviations, did the facility submit a statement, as required, stating that the operations were in compliance?  Yes  No  NA
- Did the facility maintain records as specified by the Notifications, Reports and Records section?  Yes  No  NA

**VIII. Compliance Requirements for the Emission Rate with Add-On Controls Option**

**21. What is the initial compliance date for the Emission Rate with Add-On Controls Option? 63.4760**

- If the facility is a new or reconstructed affected source, then all of the following met:
- Did the facility install and operate all emission capture systems, add-on control devices, and CPMS no later than May 28, 2003 (excluding solvent recovery systems)?  Yes  No  NA
    - If the facility used solvent recovery systems in which they conducted liquid-liquid material balances then did the facility conduct a performance test of each capture system and add-on control device and establish operating limits within 180 days of May 28, 2003?  Yes  No  NA
  - Did the facility develop and begin implementing a work practice plan no later than May 28, 2003?  Yes  No  NA
  - Did the facility complete the compliance demonstration for the initial compliance period as required?  Yes  No  NA
  - Did the facility maintain a log detailing the operation and maintenance of the emission capture system, add-on control device and continuous parameter monitors during the periods between the compliance period and the performance tests (This does not apply to solvent recovery systems)?  Yes  No  NA
- If the facility is an existing affected source, then all of the following met:

- Did the facility install and operate all emission capture systems, add-on control devices, and CPMS no later than May 28, 2006 (excluding solvent recovery systems)?  
 Yes  No  NA
  - If the facility used solvent recovery systems in which they conducted liquid-liquid material balances then did the facility conduct a performance test of each capture system and add-on control device and establish operating limits within 180 days of May 29, 2006?  
 Yes  No  NA
- Did the facility develop and begin implementing a work practice plan no later than May 29, 2006?  
 Yes  No  NA
- Did the facility complete the compliance demonstration for the initial compliance period as required?  
 Yes  No  NA

**22. Did the facility demonstrate initial compliance with the emission limitations for the Emission Rate with Add-On Controls Option? 63.4761**

- Did the facility meet the applicable emission limits in Table 1?  Yes  No  NA
- Did the facility establish and demonstrate continuous compliance with the operating limits during the initial compliance period, except for solvent recovery systems in which a liquid-liquid material balance is conducted?  Yes  No  NA
- Did the facility develop, implement and document implementation of the work practice plan during the initial compliance period?  Yes  No  NA
- Did the facility comply with all of the following requirements:
  - Did the facility determine the mass fraction of organic HAP, density, volume used, and volume fraction of coating solids applied during each month?  Yes  No  NA
  - Did the facility calculate the mass of organic HAP emissions before add-on controls using Equation 1 of 63.4751?  Yes  No  NA
  - Did the facility calculate the organic HAP emissions reduction for each controlled coating operation?  Yes  No  NA
  - Did the facility calculate the organic HAP emission reduction using Equation 1 of 63.4761 for each controlled coating operation that does not use the liquid-liquid material balance by completing all of the following:
    - Did the facility calculate the total mass of organic HAP in the controlled coating operation using Equation 1A of 63.4761?  Yes  No  NA
    - Did the facility calculate the total mass of organic HAP in the thinners used in the controlled coating operations using Equation 1B of 63.4761?  Yes  No  NA
    - Did the facility calculate the total mass of organic HAP in the cleaning materials used in the controlled coating operations using Equation 1C of 63.4761?  Yes  No  NA

- Did the facility calculate the mass of organic HAP in the coatings, thinners, and cleaning materials applied in the controlled coating operation using Equation 1D of 63.4761?  Yes  No  NA
- Did the facility calculate the organic HAP emissions reduction for controlled coating operation using liquid-liquid materials balances (solvent recovery systems) by completing all of the following:
  - Did the facility install, calibrate, maintain and operate, according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system?  Yes  No  NA
  - Did the facility determine the mass of volatile organic matter recovered for the compliance period for each solvent recovery system?  Yes  No  NA
  - Did the facility determine the mass fraction of volatile organic matter for each coating, thinner and cleaning material applied in the coating operation controlled by the solvent recovery system?  Yes  No  NA
  - Did the facility determine the density of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the month?  Yes  No  NA
  - Did the facility measure the volume of each coating, thinner and cleaning material applied in the coating operation controlled by the solvent recovery system?  Yes  No  NA
  - Did the facility calculate the solvent recovery system's volatile organic matter collection and recovery efficiency using Equation 2 of 63.4761?  Yes  No  NA
  - Did the facility calculate the mass of organic HAP emission reductions using Equation 3 of 63.4761 for the coating operation controlled by the solvent recovery system by completing the following:
    - Did the facility calculate the total mass of organic HAP in the coatings applied in the coating operation controlled by the solvent recovery system using Equation 3A of 63.4761?  Yes  No  NA
    - Did the facility calculate the total mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system using Equation 3B of 63.4761?  Yes  No  NA
    - Did the facility calculate the total mass of organic HAP in the cleaning materials applied in the coating operation controlled by the solvent recovery system using Equation 3C of 63.4761?  Yes  No  NA
- Did the facility calculate the total mass of coating and printing solids applied?  Yes  No  NA
- Did the facility calculate the organic HAP emission rate with add-on controls for each month using Equation 4 of 63.4761?  Yes  No  NA
- Did the facility calculate the organic HAP emission rate for the 12-month compliance period using Equation 5 of 63.4761?  Yes  No  NA

- Did the facility show the proper compliance demonstration by keeping the organic HAP emission rate for the compliance period less than the applicable limit in Table 1; keeping all records as required by Notifications, Records and Reports Section; identify the coating operations for which the emission rate with add-on controls option was chosen and submit a statement that the coating operations were in compliance?  Yes  No  NA

**23. Did the facility demonstrate continuous compliance with the emission limitations of the Emission Rate with Add-On Controls Option? 63.4763**

*\*All of the following must be yes to fully demonstrate continuous compliance.*

- Was the organic HAP emission rate for each compliance period less than or equal to the applicable emission limit in Table 1?  Yes  No  NA

**Note:** Each month following the initial compliance period is a compliance period consisting of that month and the 11 preceding months. The calculations must be performed on a monthly basis.

- If the organic HAP emission rate with add-on controls for any compliance period exceeded the applicable limit in Table 1, was the deviation reported?  Yes  No  NA

- Did the facility demonstrate continuous compliance with each operating limit that is applicable in Table 2?  Yes  No  NA

- If there was a deviation from the operating limit in Table 2, was the deviation reported?  Yes  No  NA
- If there was a deviation, did the facility treat the regulated materials applied during the deviation on a controlled operation as if they were applied on an uncontrolled operation? **Note:** This includes assuming that the emission capture system and add-on control device were achieving zero percent efficiency during the time of the deviation.  Yes  No  NA

- Did the facility meet the requirements for bypass lines for controlled operations that do not perform liquid-liquid material balances?  Yes  No  NA

- If there was a deviation, did the facility treat the regulated materials applied during the deviation on a controlled operation as if they were applied on an uncontrolled operation?  Yes  No  NA

- Did the facility demonstrate continuous compliance with the work practice standards?  Yes  No  NA

- Did the facility identify the coating operations for which the emission rate with add-on controls option was used?  Yes  No  NA

- If there were no deviations from the applicable emission limit in Table 1, did the facility submit a statement stating this?  Yes  No  NA

- Did the facility operate in accordance with the startup, shutdown, or malfunction plan during periods of startup, shutdown, or malfunction of the emission capture system? Note: Deviations that occur during a period of startup, shutdown, or malfunction that may affect the emission capture or control device efficiency are not violations if it is demonstrated, to the administrator's satisfaction, that the startup, shutdown, and malfunction plan was operated accordingly.  Yes  No  NA

- Did the facility maintain records as specified in the Notification, Reports, and Recordkeeping section?  
 Yes  No  NA

## IX. Performance Testing and Monitoring Requirements

### 24. Did the facility meet the requirements to correctly perform the performance tests? 63.4764

- Did the facility conduct the performance test under representative operation conditions for coating operations?  
 Yes  No  NA
- Did the facility record the process information that is necessary to document operating conditions?  
 Yes  No  NA
- Did the facility conduct the performance test for the emission capture system and add-on control device are operating at representative flow rate and inlet concentration, respectively?  
 Yes  No  NA
- Did the facility conduct each performance test of an emission capture system and add-on control device according to the requirements?  
 Yes  No  NA

### 25. Did the facility determine the emission capture efficiency? 63.4765

- Did the facility determine the emission capture efficiency as part of the performance test by one of the following options below:
- Assuming 100 percent capture efficiency; in which both of the following below have to be performed,
    - Did the capture system meet the criteria in Method 204 appendix M to 40 CFR Part 51 and direct all exhaust gases to an add-on control device?  Yes  No  NA
    - Were all regulated materials applied in the operation applied within the capture system?  
 Yes  No  NA
  - Measuring the capture efficiency; by liquid-to-uncaptured gas protocol using a temporary total enclosure or building enclosure by completing all of the following,
    - Did the facility use a building enclosure or construct an enclosure around the operation where regulated materials are applied?  Yes  No  NA
    - Did the facility use Method 204A or 204F of appendix M to 40 CFR Part 51 to determine the mass fraction of TVH liquid input from each regulated material?  
 Yes  No  NA
    - Did the facility calculate the total mass of TVH liquid input from all the regulated materials using Equation 1 of 63.4765?  Yes  No  NA
    - Did the facility use Method 204D or 204E of appendix M to 40 CFR Part 51 to measure the total mass of TVH emissions that are not captured by the system?  
 Yes  No  NA
    - Did the facility determine the percent capture efficiency of the emission capture system for each efficiency test run using Equation 2 of 63.4765?  Yes  No  NA

- Did the facility determine the capture efficiency of the emission capture system as the average capture efficiencies?  Yes  No  NA
- Measuring the capture efficiency; by gas-to-gas protocol using a temporary total enclosure or building enclosure by completing all of the following:
  - Did the facility use a building enclosure or construct an enclosure around the operation where regulated materials are applied?  Yes  No  NA
  - Did the facility use Method 204B or 204C of appendix M to 40 CFR Part 51 to determine the total mass of TVH emissions captured by the emission capture system?  Yes  No  NA
  - Did the facility use Method 204D or 204E of appendix M to 40 CFR Part 51 to measure the total mass of TVH emissions that are not captured by the system?  Yes  No  NA
  - Did the facility determine the percent capture efficiency of the emission capture system for each efficiency test run using Equation 3 of 63.4765?  Yes  No  NA
  - Did the facility determine the capture efficiency of the emission capture system as the average capture efficiencies?  Yes  No  NA
- Measuring the capture efficiency by using any other capture efficiency protocol and test methods that satisfy the criteria of either the DQO or LCL approach as described in Appendix A to subpart KK?  Yes  No  NA

**Note:** If the liquid-to-uncaptured gas protocol or the gas-to-gas protocol option is used then the capture efficiency measurement must consist of three test runs that are at least 3 hours duration or up to 8 hours

**26. Did the facility determine the add-on control device emission destruction or removal efficiency?**  
**63.4766**

**Note: The facility must conduct three test runs that last at least one hour each.**

- For all the different types of control devices, did the facility use the appropriate test method:
  - Did the facility use Method 1 or 1A of Appendix A to 40 CFR Part 60 to select sampling sites and velocity traverse points?  Yes  No  NA
  - Did the facility use Method 2, 2A, 2C, 2D, 2F, or 2G of Appendix A to 40 CFR part 60 to measure the gas volumetric flow rate?  Yes  No  NA
  - Did the facility use Method 3, 3A, OR 3B of Appendix A to 40 CFR part 60 for gas analysis to determine dry molecular weight?  Yes  No  NA
  - Did the facility use Method 4 of Appendix A to 40 CFR Part 60 to determine the stack gas moisture?  Yes  No  NA
  - Did the facility perform the methods for determining gas volumetric flow rate, dry molecular weight and stack gas moisture during each test run?  Yes  No  NA

- Did the facility measure the total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously by the following?  Yes  No  NA
  - Use Method 25 if the ad-on control device is an oxidizer and the total gaseous organic concentration as carbon is expected to be more than 60 ppm at the outlet?  
 Yes  No  NA
  - Use Method 25A if the add-on control device is an oxidizer and the total gaseous organic concentration as carbon is expected to be more than 50 ppm at the outlet?  
 Yes  No  NA
  - Use Method 25A if the add-on control device is not an oxidizer?  Yes  No  NA
- Did the facility measure the emissions at the outlet to the atmosphere of each device if two or more add-on control devices are used for the same emission stream?  Yes  No  NA
- Did the facility determine the total gaseous organic emissions mass flow rate for the inlet and outlet of the add-on control device using Equation 1 of 63.4766?  Yes  No  NA
- Did the facility determine the emission destruction or removal efficiency of the add-on control device using Equation 2 of 63.4766?  Yes  No  NA
- Did the facility determine the emission destruction or removal efficiency of the add-on control device as an average of the efficiencies using Equation 2 of 63.4766?  Yes  No  NA

**27. Did the facility establish the add-on control device operating limits during the performance tests? 63.4767**

- If the facility add-on control device is a thermal oxidizer, was both of the following completed:
- Did the facility monitor and record the temperature in the firebox or immediately downstream of the firebox before any substantial heat exchange occurred?  Yes  No  NA
  - Did the facility record the combustion temperature at least once every 15 minutes during each of the three test runs?  Yes  No  NA
  - Did the facility use the data collected during the performance test to calculate and record the average combustion temperature maintained?  Yes  No  NA
- If the facility add-on control device is a catalytic oxidizer, was either 1 & 2 completed or 3 & 4 completed:
- 1) Did the facility monitor and record the temperature at the inlet to the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes?  
 Yes  No  NA
  - 2) Did the facility use the data collected during the performance tests to calculate and record the average temperature at the inlet to the catalyst bed and the average temperature difference across the catalyst bed?  
 Yes  No  NA
  - 3) Did the facility monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for the catalytic oxidizer?  
 Yes  No  NA

- 4) Did the facility develop and implement an inspection and maintenance plan that addressed all of the following:
- Annual sampling and analysis of the catalyst activity?  Yes  No  NA
  - Monthly inspection of the oxidizer system?  Yes  No  NA
  - Annual internal and monthly external visual inspection of the catalyst bed?  Yes  No  NA
- If the facility add-on control device is a carbon absorber, was both of the following completed:
- Did the facility monitor and record the total regeneration desorbing gas mass flow for each regeneration cycle, and the carbon bed temperature after each carbon bed regeneration and cooling cycle either immediately before or after the performance test?  Yes  No  NA
  - Did the facility define the operating limits as the minimum total desorbing gas mass flow recorded during the regeneration cycle and the maximum carbon bed temperature?  Yes  No  NA
- If the facility add-on control device is a condenser, was both of the following completed:
- Did the facility monitor and record the condenser outlet (product side) of the gas temperature at least once every 15 minutes?  Yes  No  NA
  - Did the facility calculate and record the average condenser outlet gas temperature maintained during the performance test?  Yes  No  NA
- If the facility add-on control device is a concentrator, was all of the following completed:
- Did the facility monitor and record the desorption concentrate stream gas temperature in the firebox at least once every 15 minutes?  Yes  No  NA
  - Did the facility use the data collected during the performance test to calculate and record the average temperature maintained?  Yes  No  NA
  - Did the facility monitor and record the pressure drop of the dilute stream across the concentrator at least once every 15 minutes during each of the three performance test runs?  Yes  No  NA
  - Did the facility use the data collected during the performance test to calculate and record the average pressure drop?  Yes  No  NA
- If the facility add-on control device is an emission capture system, was both of the following completed:
- Did the facility monitor and record the gas volumetric flow rate or the duct static pressure for each separate capture device in the emission capture system at least once every 15 minutes?  Yes  No  NA
  - Did the facility calculate and record the average gas volumetric flow rate or duct static pressure for each capture device?  Yes  No  NA

**28. Did the facility fulfill the requirements for CPMS installation, operation, and maintenance?**  
**63.4364**

- If the facility consisted of thermal or catalytic oxidizers, condensers, concentrators or a capture system and control device, the facility must meet the following requirements:
- Did each CPMS complete a minimum of one cycle of operation for each successive 15 minute period?  Yes  No  NA
  - Did the facility determine the average of all recorded readings for each successive 3-hour period of operation?  Yes  No  NA
  - Did the facility record the results of each inspection, calibration, and validation check of the CPMS?  Yes  No  NA
  - Did the facility maintain the CPMS at all times and have available necessary parts for routine repairs?  Yes  No  NA
  - Did the facility operate the CPMS and collect emission capture system and add-on control device parameter data at all times that the controlled coating operation is operating?  Yes  No  NA
  - Did the facility exclude emission capture system and add-on control device parameter data recorded during periods when the control device is not receiving emissions, monitoring malfunctions, associated repairs, out-of-control periods or required quality assurance or control activities when calculating averages?  Yes  No  NA

**Note:** Any period for which the monitoring system is out-of-control and data are not available for a required calculation is a deviation from the monitoring requirements.

- If the facility consisted of capture system bypass line or a carbon adsorber, the facility must meet the following requirements:
- Did the facility record the results of each inspection, calibration, and validation check of the CPMS?  Yes  No  NA
  - Did the facility maintain the CPMS at all times and have available necessary parts for routine repairs?  Yes  No  NA
  - Did the facility operate the CPMS and collect emission capture system and add-on control device parameter data at all times that the controlled coating operation is operating?  Yes  No  NA

- If the facility consisted of a capture system bypass line did the facility complete both of the following?
- Did the facility monitor or secure the valve closure mechanism controlling the bypass line in a non-diverting position by a method that meets one of the following requirements:
    - Flow control position indicator – Did the facility install, calibrate, maintain and operate according to the manufacturer’s specifications a flow control indicator that takes a reading at least every 15 minutes?  Yes  No  NA
    - Car-seal or lock-and-key valve closures – Did the facility secure any bypass line valve in the closed position with a car-seal or lock-and-key type configuration?

Yes  No  NA

- Valve closure continuous monitoring – Did the facility ensure that any bypass line valve is in the closed position through monitoring of the valve position at least once every 15 minutes?  
 Yes  No  NA
- Automatic shutdown system – Did the facility use an automatic shutdown system in which the operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the operation is running?  
 Yes  No  NA

- If any bypass line is opened, did the facility include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports?  
 Yes  No  NA

If the facility consisted of thermal or catalytic oxidizers, did the facility complete all of the following?

- For a thermal oxidizer, did the facility install the gas temperature monitor in the firebox of the thermal oxidizer or in the duct immediately downstream of the firebox?  
 Yes  No  NA

- For a catalytic oxidizer, did the facility install a gas temperature monitor in the gas stream immediately before the catalysts bed?  
 Yes  No  NA

- If the facility established operating limits for the catalytic oxidizer by recording the temperature before the catalyst bed and the temperature difference across the bed, did the facility install a gas temperature monitor in the gas stream immediately after the catalyst bed?  
 Yes  No  NA

- If the facility established operating limits for the catalytic oxidizer by recording the temperature before the catalyst bed and the temperature difference across the bed, did the facility install a gas temperature monitor both upstream and downstream of the catalyst bed?  
 Yes  No  NA

- If the facility established operating limits for the catalytic oxidizer by recording the temperature at the inlet to the catalyst bed and implementing a site-specific plan for the catalytic oxidizer, did the facility install a gas temperature monitor upstream of the catalyst bed?  
 Yes  No  NA

- Did the facility meet all of the following requirements for all thermal oxidizers and catalytic oxidizers?

- Locate the temperature sensor in a position that provides a representative temperature?  
 Yes  No  NA

- Use a temperature system with a measurement sensitivity of 4 degrees Fahrenheit or 0.75% of the temperature value, whichever is larger?  
 Yes  No  NA

- Shield the temperature sensor system from electromagnetic interference and chemical contaminants?  
 Yes  No  NA

- If a chart recorder is used, was the measurement sensitivity in the minor division of at least 20 degrees Fahrenheit?  
 Yes  No  NA

- Perform an electronic calibration at least semiannually according to the manufacturer's owner manual?  
 Yes  No  NA

- Conduct calibration and validation checks at any time the sensor exceeds the manufacturer's specified maximum operating temperature range?  
 Yes  No  NA
  - Inspect components for integrity and electrical connections for continuity, oxidation and corrosion at least once a month?  
 Yes  No  NA
- If the facility consisted of carbon absorbers, did the facility complete all of the following:
- Did the facility monitor the total regeneration desorbing gas mass flow for each regeneration cycle and the carbon bed temperature after each regeneration and cooling cycle?  
 Yes  No  NA
  - Did the facility use a regeneration desorbing gas mass flow monitor that has a measurement sensitivity of  $\pm 10\%$ ?  
 Yes  No  NA
  - Did the facility use a carbon bed temperature monitor that has a sensitivity of 1% of the temperature recorded or 1 degree Fahrenheit, whichever is greater?  
 Yes  No  NA
- If the facility add-on control device is a condenser, was both of the following completed:
- Did the facility monitor and record the condenser outlet (product side) of the gas temperature?  
 Yes  No  NA
  - Did the facility use a gas temperature monitor with a measurement sensitivity of 1% of the temperature recorded or 1 degree Fahrenheit, whichever is greater?  
 Yes  No  NA
- If the facility add-on control device is a concentrator, was all of the following completed:
- Did the facility install a temperature monitor in the desorption gas stream?  
 Yes  No  NA
  - Did the facility install a device to monitor pressure drop across the zeolite wheel or rotary carbon bed?  
 Yes  No  NA
  - Did the facility install a pressure monitoring device that meets all of the following:
    - Locate the pressure sensor in or as close to a position that provides representative measurement of pressure?  
 Yes  No  NA
    - Minimize or eliminate pulsating pressure, vibration, and internal or external corrosion?  
 Yes  No  NA
    - Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1%?  
 Yes  No  NA
    - Check the pressure tap daily?  
 Yes  No  NA
    - Use a manometer to check gauge calibration quarterly and transducer calibration monthly?  
 Yes  No  NA

- Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range?  Yes  No  NA
- Inspect components for integrity, electrical components for continuity, and mechanical components for leakage at least once a month?  Yes  No  NA

If the facility add-on control device is an emission capture system, was the following completed:

- For each flow measurement device was all of the following completed:
  - Locate a flow sensor in a position that provides representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device?  Yes  No  NA
  - Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances?  Yes  No  NA
  - Conduct a flow sensor calibration check?  Yes  No  NA
  - Inspect components for integrity, electrical components for continuity, and mechanical components for leakage at least once a month?  Yes  No  NA
- For each pressure drop measurement device was all of the following completed:
  - Locate the pressure sensor in or as close to a position that provides representative measurement of pressure drop across each opening?  Yes  No  NA
  - Minimize or eliminate pulsating pressure, vibration, and internal or external corrosion?  Yes  No  NA
  - Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1%?  Yes  No  NA
  - Check the pressure tap pluggage daily?  Yes  No  NA
  - Use an inclined manometer with a sensitivity of 0.0002 inch to check gauge calibration quarterly and transducer calibration monthly?  Yes  No  NA
  - Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range?  Yes  No  NA
  - Inspect components for integrity, electrical components for continuity, and mechanical components for leakage at least once a month?  Yes  No  NA

## X. Definitions

The following definitions are for terms used in this Subpart QQQQ and are also defined in the Clean Air Act (CAA) in 40 CFR 63.2 and in the general provisions of this part.

**Add-on control** – an air pollution control device that reduces pollution in an air stream before discharge to the atmosphere

**Adhesive** – the any chemical substance that is applied for the purpose of bonding two surfaces together.

**Block average** – an average of data points collected over any specified, continuous 180 minute block of time.

**Capture efficiency** – the fraction of all organic HAP emissions generated by a process that is delivered to a control device, expressed as a percentage.

**Capture device** – a hood, enclosed room, or other means of collecting organic HAP emissions into a closed-vent system that exhausts to a control device.

**Capture system** – a collection of capture devices intended to collect organic HAP emissions into a closed-vent system that exhausts to a control device.

**Cleaning Material** – a solvent used to remove contaminants and other materials from a textile or from equipment associated with an operation.

**Coating** – the application of all inks, varnishes, adhesives, primers, solvents, reducers, and other coating materials applied to a textile web substrate.

**Coating Operation** – equipment used to apply cleaning materials to a web substrate to prepare it for coating material application, to apply coating material to a web substrate and dry or cure the coating material after application or clean coating operation equipment.

**Coating Solids** – all the nonvolatile portion of the coating that makes up the dry film

**Continuous Parameter Monitoring System** – the total equipment that may be required to meet the data acquisition and availability requirements that is used to provide a record of capture system or add-on control device parameters.

**Controlled Coating Operation** – a coating operation for which some or all of the organic HAP emissions are routed through an emission capture system or add-on control device

**Deviation** – any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:

1. Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;
2. Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or
3. Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during start-up, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

**Emission Limitation** – an emission limit, operating limit or work practice standards

**Enclosure** – a structure that surrounds a source of emissions and captures and directs the emissions

**Exempt compound** – a specific compound that is not considered a VOC due to negligible photochemical reactivity.

**Finished wood product**– any wood building product to which a protective, decorative, or functional layer has been applied. Materials used include, but are not limited to, paints, stains, topcoats, basecoats, primers, enamels, inks, and adhesives.

**Laminated wood product** – any wood building product to which a protective, decorative, or functional layer has been bonded with adhesive. Products that are produced by bonding layers to the substrate as part of the substrate manufacturing process are not considered laminated products under this subpart.

**Formulation Data** – data on the organic HAP mass fraction, volatile matter mass fraction, or coating solids mass fraction of a material that is generated by the manufacturer or means other than a test method specified in this subpart or an approved alternative method.

**Mass Fraction of Organic HAP** – the ratio of the mass of organic HAP to the mass of material in which it is contained.

**Millwork** – lumber that has been remanufactured into a wood building product or component such as door, window, and staircase parts or decorative trim.

**Month** – a calendar month or pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

**Organic HAP** – the mass of organic HAP per mass of solids for a coating or printing material

**Permanent Total Enclosure (PTE)** – a permanently installed enclosure that meets the criteria of Method 204 Appendix M, 40 CFR Part 51 (directs all the exhaust gases from the enclosure to an add-on control device.

**Protective Oil** – an organic material that is applied to metal for the purpose of providing lubrication or protection from corrosion without forming a solid film.

**Research or Laboratory Facility** – any facility for which the primary purpose is to conduct research and development into new processes and products where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce except in a de-minimis manner.

**Responsible Official** – responsible official as defined in 40 CFR 70.2.

**Startup, initial** – the first time equipment is brought online to a facility

**Surface Preparation** – chemical treatment of part or all of a substrate to prepare it for coating or printing material application

**Temporary Total Enclosure** – an enclosure constructed for the purpose of measuring the capture efficiency of pollutants emitted from a given source

**Thinning Material** – means an organic solvent that is added to a coating after the coating material is received from the supplier.

**Tileboard** – means hardboard that meets the specifications for Class I given by the standard ANSI/AHA A135.4-1995 as approved by the American National Standards Institute. The standard specifies

requirements and test methods for water absorption, thickness swelling, modulus of rupture, tensile strength, surface finish, dimensions, squareness, edge straightness, and moisture content for five classes of hardboard.

**Total Volatile Hydrocarbon (TVH)** – the total amount of non-aqueous volatile organic material determined according to Methods 204A through C

**Uncontrolled Coating Operation** – a operation from which none of the organic HAP emissions are routed through an emission capture system and add-on control device

**Volatile Organic Compounds (VOC)** – any compounds defined as VOC in 40 CFR 51.100(s)

**Volume fraction of Coating Solids** – the ratio of volume of coating solids (nonvolatiles) to the volume of coating; liters of coating solids per liter of coating

**Wastewater** – water that is generated in a web coating, web printing, slashing, dyeing or finishing operation and is collected, stored or treated prior to being discarded or discharged

**Wood Building Product** – any product that contains more than 50% by weight of wood or wood fiber, excluding the weight of any glass components, and is used in the construction, either interior or exterior, of a residential, commercial or institutional building.

## XI. Compliance Timeline – Surface Coating of Wood Building Products NESHP [68 FR 31746]

### A. Existing Sources

Event	Timeline	
	For Compliance Options 1 & 2	For Compliance Option 3
<b>Effective Date</b>	May 28, 2008 or Effective Date of Subpart	May 28, 2008 or Effective Date of Subpart
<b>Initial Notification</b>	September 25, 2003 or 120 days after Promulgation Date	September 25, 2003 or 120 days after Promulgation Date
<b>Notification of Intent to Conduct Performance Test</b>		60 days before Performance Test
<b>Begin Initial Compliance Period</b>	May 28, 2006 or on Compliance Date	
<b>Performance test Completed – Begin Initial Compliance Period</b>		May 28, 2006 or on Compliance Date
<b>Performance Test Report</b>		60 days after Performance Test
<b>End of Initial Compliance Period</b>	1 year after Compliance Date (May 31, 2007)	1 Year after Compliance Date (May 31, 2007)
<b>Notification of Compliance Status</b>	1 year and 30 days after Compliance Date (June 30, 2007)	1 year and 30 days after Compliance Date (June 30, 2007)
<b>First Semiannual compliance Report</b>	July 31, 2007	July 31, 2007

### B. New and Reconstructed Sources with Startup before Promulgation Date

Event	Timeline	
	For Compliance Options 1 & 2	For Compliance Option 3
<b>Begin Initial Compliance Period</b>	Effective Date, Promulgation Date and Compliance Date (May 28, 2003)	Effective Date, Promulgation Date and Compliance Date (May 28, 2003)
<b>Initial Notification</b>	September 25, 2003 or 120 days after Compliance Date	September 25, 2003 or 120 days after Compliance Date
<b>Notification of Intent to Conduct Performance Test</b>		60 days before Performance Test
<b>Performance Test Completed</b>		November 24, 2003 or 180 days after Compliance Date
<b>Performance Test Report</b>		60 days after Performance Test completed
<b>End of Initial Compliance Period</b>	May 31, 2004 or 1 year after Compliance Date	May 31, 2004 or 1 year after Compliance Date
<b>Notification of compliance Status</b>	June 30, 2004 or 1 year and 30 days after Compliance Date	June 30, 2004 or 1 year and 30 days after Compliance Date
<b>First Semiannual Compliance Report</b>	July 31, 2004	July 31, 2004

**C. New and Reconstructed Sources with Startup after Promulgation Date**

Event	Timeline	
	For Compliance Options 1 & 2	For Compliance Option 3
<b>Promulgation Date</b>	May 28, 2003 or Effective Date of Subpart	May 28, 2003 or Effective Date of Subpart
<b>Begin Initial Compliance Period</b>	Startup date (compliance date)	May 28, 2003 or Effective Date of Subpart
<b>Initial Notification</b>	120 days after compliance date	120 days after compliance date
<b>Notification of Intent to Conduct Performance Test</b>		60 days before Performance Test
<b>Performance Test Completed</b>		180 days after Compliance Date
<b>Performance Test Report</b>		60 days after Performance Test completed
<b>End of Initial Compliance Period</b>	1 year after compliance date	1 year after compliance date
<b>Notification of Compliance Status</b>	1 year and 30 days after compliance date	1 year and 30 days after compliance date
<b>First Semiannual Compliance Report</b>	July 31 or January 31	July 31 or January 31

## XII. Table 4 – Applicability of General Provisions to Subpart QQQQ

**Note:** As stated in this Subpart, facilities must comply with applicable general provisions

General Provision Reference	Subject	Applicable to Subpart QQQQ	Explanation
63.1 (a)(1)-(14)	General Applicability	Yes	
63.1 (b)(1)-(3)	Initial Applicability Demonstration	Yes	Applicability in subpart QQQQ is also specified in §63.4681
63.1 (c)(1)	Applicability After Standard Established	Yes	
63.1 (c)(2)-(3)	Applicability of Permit Program for Area Sources	No	Area sources are not subject to subpart QQQQ
63.1 (c)(4)-(5)	Extensions and Notifications	Yes	
63.1 (e)	Applicability of Permit Program Before Relevant Standard is Set	Yes	
63.2	Definitions	Yes	Additional Definitions are specified in §63.4781
63.3 (a)-(c)	Units and Abbreviations	Yes	
63.4 (a)(1)-(5)	Prohibited Activities	Yes	
63.4 (b)-(c)	Circumvention/Severability	Yes	
63.5 (a)	Construction/Reconstruction	Yes	
63.5 (b)(1)-(6)	Requirements for Existing, Newly Constructed, and Reconstructed Sources	Yes	
63.5 (d)	Application for Approval of Construction/Reconstruction	Yes	
63.5 (e)	Approval of Construction/Reconstruction	Yes	
63.5 (f)	Approval of Construction/Reconstruction Based on Prior State Review	Yes	
63.6 (a)	Compliance With Standards and Maintenance Requirements – Applicability	Yes	
63.6 (b)(1)-(7)	Compliance Dates for New and Reconstructed Sources	Yes	Section 63.4683 specifies the compliance dates
63.6 (c)(1)-(5)	Compliance Dates for Existing Sources	Yes	Section 63.4683 specifies the compliance dates
63.6 (e)(1)-(2)	Operation and Maintenance	Yes	
63.6 (e)(3)	Startup, Shutdown, and Malfunction Plan	Yes	Only sources using an add-on control device to comply with the standards must complete startup, shutdown, and malfunction plans.
63.6 (f)(1)	Compliance Except During Startup, Shutdown and Malfunction	Yes	Applies only to sources using an add-on control device to comply with the standards
63.6 (f)(2)-(3)	Methods for Determining Compliance	Yes	
63.6 (g)(1)-(3)	Use an Alternative Standard	Yes	
63.6(h)	Compliance With Opacity/Visible Emission Standards	No	Subpart QQQQ does not establish opacity standards and does not require continuous opacity monitoring systems (COMS)
63.6 (i)(1)-(16)	Extension of Compliance	Yes	
63.6 (j)	Presidential Compliance Exemption	Yes	
63.7 (a)(1)	Performance Test Requirements – Applicability	Yes	Applies to all affected sources. Additional requirements for performance testing are specified in §§63.4360, 63.4361 and 63.4362.
63.7 (a)(2)	Performance Test Requirements – Dates	Yes	Applies only to performance tests for capture systems and control device efficiency at sources using these to comply with the standard. 63.4760 specifies the schedule for performance test requirements that are earlier than those specified in 63.7(a)(2)
63.7 (a)(3)	Performance Test Required by the Administrator	Yes	
63.7 (b)-(e)	Performance Test Requirements – Notification, Quality Assurance, Facilities Necessary for Safe Testing, Conditions During Test	Yes	Applies only to performance tests for capture system and control device efficiency at sources using these to comply with the standard

General Provision Reference	Subject	Applicable to Subpart QQQQ	Explanation
63.7 (f)	Performance Test Requirements – Use of Alternative Test Methods	Yes	Applies to all test methods except those used to determine capture system efficiency
63.7 (g)-(h)	Performance Test Requirements – Data Analysis, Recordkeeping, Waiver of Test	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standards.
63.8 (a)(1)-(3)	Monitoring Requirements – Applicability	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standards. Additional requirements for monitoring are specified in §63.4768.
63.8 (a)(4)	Additional Monitoring Requirements	No	Subpart QQQQ does not have monitoring requirements for flares
63.8 (b)	Conduct of Monitoring	Yes	
63.8 (c)(1) – (3)	Continuous Monitoring System (CMS) Operation and Maintenance	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standards. Additional requirements for CMS operations and maintenance are specified in §63.4768
63.8 (c)(4)	CMS	No	Section 63.4768 specifies the requirements for operation of CMS for capture system and add-on control devices at sources using these to comply
63.8 (c)(5)	COMS	No	Subpart QQQQ does not have opacity or visible emission standards
63.8 (c)(6)	CMS Requirements	No	Section 63.4364 specifies the requirements for monitoring systems for capture systems and add-on control devices at sources using these to comply.
63.8 (c)(7)	CMS Out of Control Periods	Yes	
63.8 (c)(8)	CMS Out of Control Periods Reporting	No	63.4720 requires reporting of CMS out-of-control periods
63.8 (d)-(e)	Quality Control Program and CMS Performance Evaluation	No	Subpart QQQQ does not require the use of continuous emissions monitoring systems.
63.8 (f)(1)-(5)	Use of an Alternative Monitoring Method	Yes	
63.8 (g)(1)-(5)	Data Reduction	No	Sections 63.4747 and 63.4768 specify monitoring data reduction
63.9 (a)-(d)	Notification Requirements	Yes	
63.9 (e)	Notification of Performance Test	Yes	Applies only to capture system and add-on control device performance tests at sources using these to comply with the standards
63.9 (f)	Notification of Visible Emissions/Opacity Tests	No	Subpart QQQQ does not have opacity or visible emissions standards
63.9 (g)(1)-(3)	Additional Notifications when using CMS	No	Subpart QQQQ does not require the use of continuous emissions monitoring systems
63.9 (h)	Notification of Compliance Status	Yes	Section 63.4710 specifies the dates for submitting the notification of compliance status
63.9 (i)	Adjustment of Submittal Deadlines	Yes	
63.9 (j)	Change in Previous Information	Yes	
63.10 (a)	Recordkeeping/Reporting – Applicability and General Information	Yes	
63.10 (b)(1)	General Recordkeeping Requirements	Yes	Additional Requirements are specified in §§63.4730 and 63.4731
63.10 (b)(2)(i)-(v)	Recordkeeping Relevant to Startup, Shutdown, and Malfunction Periods	Yes	Requirements for Startup, Shutdown, and Malfunction records only apply to add-on control devices used to comply with the standards
63.10 (b)(2)(vi)-(xi)		Yes	
63.10 (b)(2)(xii)	Records	Yes	
63.10 (b)(2)(xiii)		No	Subpart OOOO does not require the use of continuous emissions monitoring systems
63.10 (b)(3)	Recordkeeping Requirements for Applicability Determinations	Yes	
63.10 (c)(1)-(6)	Additional Recordkeeping Requirements for Sources with CMS	Yes	
63.10 (c)(7)-(8)		No	The same records are required in §63.4720(a)(7)
63.10 (c)(9)-(15)		Yes	

<b>General Provision Reference</b>	<b>Subject</b>	<b>Applicable to Subpart QQQQ</b>	<b>Explanation</b>
63.10 (d)(1)	General Reporting Requirements	Yes	Additional Requirements specified in 63.4720
63.10 (d)(2)	Report of Performance Test Results	Yes	Additional Requirements are specified in §63.4720(b)
63.10 (d)(3)	Reporting Opacity or Visible Emissions Observations	No	Subpart QQQQ does not require opacity or visible emissions observations
63.10 (d)(4)	Progress Reports for Sources with Compliance Extensions	Yes	
63.10 (d)(5)	Startup, Shutdown, and Malfunction Reports	Yes	Applies only to add-on control devices at sources using these to comply with the standards
63.10 (e)(1)-(2)	Additional CMS Reports	No	Subpart QQQQ does not require the use of continuous emissions monitoring systems
63.10 (e)(3)	Excess Emissions/CMS Performance Reports	No	Section 63.470(b) specifies the contents of periodic compliance reports
63.10 (e)(4)	COMS Data Reports	No	Subpart QQQQ does not specify requirements for opacity or COMS
63.10 (f)	Recordkeeping/Reporting Waiver	Yes	
63.11	Control Device Requirements/Flares	No	Subpart QQQQ does not specify use of flares for compliance
63.12	State Authority and Delegations	Yes	
63.13	Addresses	Yes	
63.14	Incorporation by Reference	Yes	Test Methods ASNI/ASME PTC 19.10-1981, Part 10, ASTM D2697-86 (Reapproved 1998), and ASTM D6093-97 (incorporated by reference, see §63.14)
63.15	Availability of information/Confidentiality	Yes	

**XIII. Table 5 – Default Organic HAP Mass Fraction for Solvents and Solvent Blends to Subpart QQQQ**

Solvent/Solvent Blend	CAS No.	Average Organic HAP Mass Fraction	Typical Organic HAP, percent by mass
Toluene	108-88-3	1.0	Toluene
Xylene(s)	1330-20-7	1.0	Xylenes, ethylbenzene
Hexane	110-54-3	0.5	n-hexane
n-Hexane	110-54-3	1.0	n-hexane
Ethylbenzene	100-41-4	1.0	Ethylbenzene
Aliphatic 140		0	None
Aromatic 100		0.02	1% xylene, 1% cumene
Aromatic 150		0.09	Naphthalene
Aromatic naphtha	64742-95-6	0.02	1% xylene, 1% cumene
Aromatic solvent	64742-94-5	0.1	Naphthalene
Exempt mineral spirits	8032-32-4	0	None
Ligroines (VM & P)	8032-32-4	0	None
Lactol spirits	64742-89-6	0.15	Toluene
Low aromatic white spirit	64742-82-1	0	None
Mineral spirits	64742-88-7	0.01	Xylenes
Hydrotreated naphtha	64842-48-9	0	None
Hydrotreated light distillate	64742-47-8	0.001	Toluene
Stoddard solvent	8052-41-3	0.01	Xylenes
Super high-flash naphtha	64742-95-6	0.05	Xylenes
Varsol solvent	8052-49-3	0.05	0.5% xylenes, 0.5% ethylbenzene
VM & P naphtha	64742-89-8	0.06	3% toluene, 3% xylene
Petroleum distillate mixture	68477-31-6	0.08	4% naphthalene, 4% biphenyl

**XIV. Table 6 – Default Organic HAP Mass Fraction for Petroleum Solvent Groups<sup>a</sup> to Subpart QQQQ**

Solvent Type	Average Organic HAP Mass Fraction	Typical Organic HAP, percent by mass
Aliphatic <sup>b</sup>	0.03	1% Xylene, 1% Toluene, and 1% Ethylbenzene
Aromatic <sup>c</sup>	0.06	4% Xylene, 1% Toluene, and 1% Ethylbenzene

**Notes:**

- Use this table only if the solvent blend does not match any of the solvent blends in Table 4 to this subpart and you only know whether the blend is aliphatic or aromatic
- Mineral spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naphtha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend
- Medium flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent

## XV. Summary of Equations for Subpart QQQQ

### Section 63.4741 Equations – Emission Limitations for Compliant Materials Option

- **Equation 1:** Use this equation to calculate organic the volume fraction of coating solids

$$V_S = 1 - \left( \frac{M_{VOLATILES}}{D_{AVG}} \right)$$

Where:

- $V_S$  = Volume fraction of coating solids, liters coating solids per liter coating.
  - $M_{VOLATILES}$  = Total volatile matter content of the coating, including HAP, volatile organic compounds (VOC), water, and exempt compounds, grams volatile matter per liter coating.
  - $D_{AVG}$  = Average density of volatile matter in the coating, grams volatile matter per liter volatile matter
- **Equation 2:** Use this equation to calculate organic HAP content of each coating.

$$H_C = \frac{(D_C)(W_C)}{V_S}$$

Where:

- $H_C$  = Organic HAP content of the coating, grams organic HAP per liter of coating solids.
- $D_C$  = Density of coating, grams coating per liter coating
- $W_C$  = Mass fraction of organic HAP in the coating, grams organic HAP per gram coating.
- $V_S$  = Volume fraction of coating solids, liter coating solids per liter coating.

### Section 63.4751 Equations – Emission Limitations for Emission Rate Without Add-On Controls Option

- **Equation 1:** Use this equation to calculate the mass of organic HAP emissions

$$H_E = A + B + C - R_W$$

Where:

- $H_E$  = Total mass of organic HAP emissions during the month, grams.
  - $A$  = Total mass of organic HAP in the coating applied during the month, kg (Equation 1A).
  - $B$  = Total mass of organic HAP in the thinners applied during the month, kg (Equation 1B).
  - $C$  = Total mass of organic HAP in the cleaning materials used during the month, grams (Equation 1C).
  - $R_W$  = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous TSDF, kg
- **Equation 1A:** Use this equation to calculate the kg organic HAP in the coating and printing materials applied.

$$A = \sum_{i=1}^m (Vol_{C,I})(D_{C,I})(W_{C,I})$$

Where:

- A = Total mass of organic HAP in the coating applied during the month, grams.
- Vol<sub>C,i</sub> = Total volume of coating, i, applied during the month, liters.
- D<sub>C,i</sub> = Density of coating, i, applied during the month, grams coating per liter coating.
- W<sub>C,i</sub> = Mass fraction of organic HAP in coating, i, gram organic HAP per gram of coating
- m = Number of different coating applied during the month

- **Equation 1B:** Use this equation to calculate the mass of organic HAP in the thinners.

$$B = \sum_{j=1}^n (Vol_{T,j}) (D_{T,j}) (W_{T,j})$$

Where:

- B = Total mass of organic HAP in the thinners applied during the month, liters.
- Vol<sub>T,j</sub> = Total volume of thinner, j, applied during the month, liters.
- D<sub>T,j</sub> = Density of thinner, j, grams per liter.
- W<sub>T,j</sub> = Mass fraction of organic HAP in thinner, j, grams organic HAP per gram thinner.
- n = Number of different thinners applied during the month.

- **Equation 1C:** Use this equation to calculate the mass of organic HAP in the cleaning materials.

$$C = \sum_{k=1}^p (Vol_{S,k}) (D_{S,k}) (W_{S,k})$$

Where:

- C = Total mass of organic HAP in the cleaning materials applied during the month, grams.
- Vol<sub>S,k</sub> = Total volume of cleaning material, k, applied during the month, liters.
- D<sub>S,k</sub> = Density of cleaning material, k, grams per liter.
- W<sub>S,k</sub> = Mass fraction of organic HAP in cleaning material, k, grams organic HAP per gram material.
- p = Number of different cleaning materials applied during the month.

- **Equation 2:** Use this equation to calculate the total volume of coating solids

$$V_{ST} = \sum_{i=1}^m (Vol_{C,i}) (V_{S,i})$$

Where:

- V<sub>ST</sub> = Total volume of coating solids applied during the month, liters
- Vol<sub>C,i</sub> = Total volume of coating, i, applied during the month, liters
- V<sub>S,i</sub> = Volume fraction of coating solids for coating, i, liter solids per liter of coating
- m = Number of different coating during the month

- **Equation 3:** Use this equation to calculate the organic HAP emission rate for the compliance period.

$$H_{Y,R} = \frac{\sum_{y=1}^{12} H_E}{\sum_{y=1}^{12} V_{ST}}$$

Where:

- $H_{Y,R}$  = Organic HAP emission rate for the 12 month compliance period, grams of organic HAP emitted per liter of coating solids
- $H_E$  = Total mass organic HAP emissions from all materials applied during the month,  $y$ , calculated using Equation 1.
- $V_{ST}$  = Total volume of coating solids applied during the month calculated using Equation 2.
- $Y$  = Identifier for months

### Section 63.4761 Equations – Initial Compliance Demonstration for Emission Rate with Add-On Controls

- **Equation 1:** When the operation is not performing a liquid-liquid material balance, use this equation to calculate the organic HAP emission reduction for each controlled coating operation.

$$H_C = (A_C + B_C + C_C - H_{UNC}) \left( \frac{CE}{100} \times \frac{DRE}{100} \right)$$

Where:

- $H_C$  = Mass of organic HAP emission reduction for the controlled operation during the month, grams.
  - $A_C$  = Total mass of organic HAP in the coatings applied in the controlled operation during the month (Equation 1A), grams.
  - $B_C$  = Total mass of organic HAP in the thinners applied in the controlled operation during the month (Equation 1B), grams.
  - $C_C$  = Total mass of organic HAP in the cleaning materials applied in the controlled operation during the month (Equation 1C), grams
  - $H_{UNC}$  = Total mass of organic HAP in the coatings, thinners and cleaning materials applied during deviations in the controlled operation during the month (Equation 1D), grams.
  - $CE$  = Capture efficiency of the emission capture system vented to the add-on control device, %.
  - $DRE$  = Organic HAP destruction removal efficiency of the add-on control device, %.
- **Equation 1A:** Use this equation to calculate the total mass of organic HAP in the coatings applied in the controlled coating operation during the compliance period.

$$A_C = \sum_{i=1}^m (Vol_{C,I}) (D_{C,I}) (W_{C,I})$$

Where:

- $A_C$  = Total mass of organic HAP in the coatings applied in the controlled operation during the month, grams.
- $Vol_{C,I}$  = Total volume of coating,  $i$ , applied during the month, liters.

- $D_{C,i}$  = Density of coating, i, applied during the month, grams coating per liter coating.
- $W_{C,i}$  = Mass fraction of organic HAP in coating, i, gram organic HAP per gram of coating
- $m$  = Number of different coating applied during the month

- **Equation 1B:** Use this equation to calculate the total mass of organic HAP in the thinners applied in the controlled coating operations.

$$B_C = \sum_{j=1}^n (Vol_{T,j}) (D_{T,j}) (W_{T,j})$$

Where:

- $B_C$  = Total mass of organic HAP in the thinners applied in the controlled operation during the month, grams.
- $Vol_{T,j}$  = Total volume of thinner, j, applied during the month, liters.
- $D_{T,j}$  = Density of thinner, j, grams per liter.
- $W_{T,j}$  = Mass fraction of organic HAP in thinner, j, grams per gram.
- $n$  = Number of different thinners applied during the month.

- **Equation 1C:** Use this equation to calculate the mass of organic HAP in the cleaning materials.

$$C_C = \sum_{k=1}^p (Vol_{S,k}) (D_{S,k}) (W_{S,k})$$

Where:

- $C_C$  = Total mass of organic HAP in the cleaning materials applied in the controlled coating operation during the month, grams.
- $Vol_{S,k}$  = Total volume of cleaning material, k, applied during the month, liters.
- $D_{S,k}$  = Density of cleaning material, k, grams per liter.
- $W_{S,k}$  = Mass fraction of organic HAP in cleaning material, k, grams per gram.
- $p$  = Number of different cleaning materials applied during the month.

- **Equation 1D:** Use this equation to calculate the mass of organic HAP in the coatings, thinners and cleaning materials applied in the controlled coating operation during deviations.

$$H_{UNC} = \sum_{h=1}^q (Vol_H) (D_H) (W_H)$$

Where:

- $H_{UNC}$  = Total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations in the controlled coating operation, grams.
- $Vol_H$  = Total volume of coating, thinner, or cleaning material, h, applied in the controlled coating operation during the month, liters
- $D_H$  = Density of coating, thinner, or cleaning material, h, grams per liter
- $W_H$  = Mass fraction of organic HAP in coating, thinner, or cleaning material, h, grams organic HAP per gram coating
- $q$  = Number of different coating, thinners, or cleaning materials during the month

**Equation 2:** Use this equation to calculate the solvent recovery system's volatile organic matter collection and recovery efficiency when the controlled web coating/printing operation is using liquid-liquid material balances.

$$R_V = 100 \times \frac{M_{VR}}{\sum_{i=1}^m (Vol_i)(D_i)(WV_{c,i}) + \sum_{j=1}^n (Vol_j)(D_j)(WV_{t,j}) + \sum_{k=1}^p (Vol_k)(D_k)(WV_{s,k})}$$

Where:

- $R_V$  = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the month, %.
  - $M_{VR}$  = Mass of volatile organic matter recovered by the solvent recovery system during the month, grams.
  - $Vol_i$  = Volume of coating, i, used in the coating operation controlled by the solvent recovery system, liters.
  - $D_i$  = Density of coating, i, grams per liter
  - $WV_{c,i}$  = Mass fraction of volatile organic matter for coating, i, grams volatile organic matter per grams coating.
  - $Vol_j$  = Volume of thinner, j, used in the coating operation controlled by the solvent recovery
  - $D_j$  = Density of thinner, j, grams per liter.
  - $WV_{t,j}$  = Mass fraction of volatile organic matter for thinner, grams volatile organic matter per gram coating or printing material.
  - $Vol_k$  = Volume of cleaning material, k, used in the coating operation controlled by the solvent recovery system during the month, liters
  - $D_k$  = Density of cleaning material, k, grams per liter
  - $WV_{s,k}$  = Mass fraction of volatile organic matter for cleaning material, grams volatile organic matter per gram cleaning material.
  - $m$  = Number of different coatings applied in the operation controlled by the solvent recovery system.
  - $n$  = Number of different thinning or cleaning materials applied in the operation controlled by the solvent recovery system.
  - $p$  = Number of different cleaning materials used in the coating operation controlled by the solvent recovery system during the month.
- **Equation 3:** Use this equation to calculate the mass of organic HAP emissions reduction for the coating operation controlled by the solvent recovery system.

$$H_{CSR} = (A_{CSR} + B_{CSR} + C_{CSR}) \left( \frac{R_V}{100} \right)$$

Where:

- $H_{CSR}$  = Mass of organic HAP emission reduction for the controlled operation controlled by the solvent recovery system during the month, grams.
- $A_{CSR}$  = Total mass of organic HAP in the coating and printing materials applied in the controlled operation by the solvent recovery system during the month (Equation 3A), grams.
- $B_{CSR}$  = Total mass of organic HAP in the thinners applied in the controlled operation by the solvent recovery system during the month (Equation 3B), grams.
- $C_{CSR}$  = Total mass of organic HAP in the cleaning materials applied in the controlled operation by the solvent recovery system during the month (Equation 3C), grams
- $R_V$  = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the compliance period, %.

- **Equation 3A:** Use this equation to calculate the total mass of organic HAP in the coatings applied in the coating operations controlled by the solvent recovery system.

$$A_{CSR} = \sum_{i=1}^m (Vol_{C,i})(D_{C,i})(W_{C,i})$$

Where:

- $A_{CSR}$  = Total mass of organic HAP in the coatings applied in the coating operations controlled by the solvent recovery system during the compliance period, grams.
  - $Vol_{C,i}$  = Total volume of coating, i, applied during the month, liters.
  - $D_{C,i}$  = Density of coating, i, applied during the month, grams coating per liter coating.
  - $W_{C,i}$  = Mass fraction of organic HAP in coating, i, gram organic HAP per gram of coating
  - $m$  = Number of different coating applied during the month
- **Equation 3B:** Use this equation to calculate the total mass of organic HAP in the thinners applied in the coating operations controlled by the solvent recovery system.

$$B_{CSR} = \sum_{j=1}^n (Vol_{T,j})(D_{T,j})(W_{T,j})$$

Where:

- $B_{CSR}$  = Total mass of organic HAP in the thinning and cleaning materials applied in the web coating/printing operations controlled by the solvent recovery system during the compliance period, kg.
  - $Vol_{T,j}$  = Total volume of thinner, j, applied during the month, liters.
  - $D_{T,j}$  = Density of thinner, j, grams per liter.
  - $W_{T,j}$  = Mass fraction of organic HAP in thinner, j, grams per gram.
  - $n$  = Number of different thinners applied during the month.
- **Equation 3C:** Use this equation to calculate the mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system.

$$C_{CSR} = \sum_{k=1}^p (Vol_{S,k})(D_{S,k})(W_{S,k})$$

Where:

- $C_{CSR}$  = Total mass of organic HAP in the cleaning materials applied in the controlled coating operation during the month, grams.
- $Vol_{S,k}$  = Total volume of cleaning material, k, applied during the month, liters.
- $D_{S,k}$  = Density of cleaning material, k, grams per liter.
- $W_{S,k}$  = Mass fraction of organic HAP in cleaning material, k, grams per gram.
- $p$  = Number of different cleaning materials applied during the month

- **Equation 4:** Use this equation to calculate the mass of organic HAP emissions for each month.

$$H_{HAP} = H_E - \sum_{i=1}^q (H_{C,I}) - \sum_{j=1}^r H_{CSR,j}$$

Where:

- $H_{HAP}$  = Total mass of organic HAP emissions for the month, grams.
  - $H_E$  = Total mass of organic HAP emissions before add-on controls from all coatings, thinners, and cleaning materials used during the month, grams
  - $H_{C,I}$  = Total mass of organic HAP emissions reduction for controlled coating operation, i, not using a liquid-liquid material balance during the month, grams.
  - $H_{CSR,J}$  = Total mass of organic HAP emissions reduction for coating operation, j, controlled by a solvent recovery system using a liquid-liquid material balance during the month, grams (Equation 3).
  - q = Number of controlled operations not using a liquid-liquid material balance.
  - r = Number of coating operations controlled by a solvent recovery system using a liquid-liquid material balance.
- **Equation 5:** Use this equation to calculate the organic HAP emission rate for the 12-month compliance period.

$$H_{ANNUAL} = \frac{\sum_{y=1}^{12} H_{HAP,Y}}{\sum_{y=1}^{12} V_{ST,Y}}$$

Where:

- $H_{ANNUAL}$  = Organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids
- $H_{HAP,Y}$  = Organic HAP emission rate for month, y, determined by Equation 4.
- $V_{ST,Y}$  = Total volume of coating solids, liters, used during month, y, from Equation 2 of §63.4751.
- Y = Identifier for months

### Section 63.4765 Equations – Emission Capture System Efficiency for Performance Testing and Monitoring Requirements

- **Equation 1:** Use this equation to calculate the total mass of TVH liquid input from all the coatings, thinners, and cleaning materials applied in the operation during the capture efficiency test run.

$$TVH_{applied} = \sum_{i=1}^n (TVH_i)(Vol_i)(D_i)$$

Where:

- $TVH_{applied}$  = Mass of liquid TVH in regulated materials applied in the coating operation during the capture efficiency test run, grams.

- $TVH_i$  = Mass of fraction of TVH in coating, thinner, or cleaning material,  $i$ , applied coating operation during the capture efficiency test run, grams TVH per kg material.
  - $Vol_i$  = Total volume of coating, thinner, or cleaning material,  $i$ , used in the coating operation during the capture efficiency test run, liters.
  - $D_i$  = Density of coating, thinner, or cleaning material,  $i$ , grams material per liter material
  - $n$  = Number of different coatings, thinners, and cleaning materials applied in the coating operation during the capture efficiency test run.
- **Equation 2:** Use this equation to determine the percent capture efficiency of the emission capture system.

$$CE = \frac{(TVH_{applied} - TVH_{uncaptured})}{TVH_{applied}} \times 100$$

Where:

- CE = Capture efficiency of the emission capture system vented to the add-on control device, %.
  - $TVH_{applied}$  = Total mass of TVH liquid input applied in the coating operation during the capture efficiency test run, kg.
  - $TVH_{uncaptured}$  = Total mass of TVH that is not captured by the emission capture system and that exits from the enclosure during the capture efficiency test run, kg.
- **Equation 3:** Use this equation to determine the percent capture efficiency of the emission capture system for the capture efficiency test run.

$$CE = \frac{TVH_{captured}}{(TVH_{captured} + TVH_{uncaptured})} \times 100$$

Where:

- CE = Capture efficiency of the emission capture system vented to the add-on control device, %.
- $TVH_{captured}$  = Total mass of TVH captured by the emission capture system measured at the inlet of the add-on control device during the emission capture efficiency test run, grams.
- $TVH_{uncaptured}$  = Total mass of TVH that is not captured by the emission capture system and that exits from the enclosure during the capture efficiency test run, grams.

### Section 63.4766 Equations – Add-On Control Device Emission Destruction or Removal Efficiency for Performance Testing and Monitoring Requirements

- **Equation 1:** Use this equation to determine the total gaseous organic emissions mass flow rates for the inlet and outlet of the add-on control device

$$M_f = Q_{sd} C_c [12][41.6][10^{-6}].$$

Where:

- $M_f$  = Total gaseous organic emissions mass flow rate, grams/hour.
- $C_c$  = Concentration of organic compounds as carbon in the vent gas, ppmv, dry basis.
- $Q_{sd}$  = Volumetric flow rate of gases entering or exiting the add-on control device, dry standard cubic meters per hour.

- 41.6 = Conversion factor for molar volume, kg-moles per cubic meter.
- **Equation 2:** Use this equation to determine the add-on control device organic emissions destruction or removal efficiency

$$DRE = 100 \times \frac{(M_{FI} - M_{FO})}{M_{FI}}$$

Where:

- DRE = Organic emissions destruction or removal efficiency of the add-on control device, %.
- $M_{FI}$  = Total gaseous organic emissions mass flow rate at the inlet to the add-on control device, grams/hour.
- $M_{FO}$  = Total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, grams/hour.

## XVI. Startup, Shutdown and Malfunction (SSM) Plan Checklist

The following is a Summary of Requirements for MACT Standard's Startup, Shutdown, and Malfunction Plans. This document was originally prepared in September 2003 by EC/R Incorporated for the U.S. Environmental Protection Agency and is only a tool for assessing a facility's plan.

It should be noted that on April 20, 2006, EPA issued a final amendment to the general provisions of the national emissions standards for hazardous air pollutants (NESHAP) and other specific national emissions standards affecting the SSM plan requirements. An SSM plan is still required, as applicable, however, a source is now allowed to deviate from its SSM plan in order to have more flexibility to address emissions during such SSM periods. However, sources must still operate to minimize emissions during periods of startup, shutdown and malfunction. Refer to [http://www.epa.gov/ttn/oarpg/t3/fact\\_sheets/genprov\\_fs.html](http://www.epa.gov/ttn/oarpg/t3/fact_sheets/genprov_fs.html) for additional details.

### • What is meant by Startup, Shutdown and Malfunction?

- **Startup** is defined as "setting in operation of an affected source or portion of an affected source for any purpose" (40 CFR 63.2). Startup is what you do when you start your process equipment.
- **Shutdown** is defined as "the cessation of operation of an affected source or portion of an affected source for any purpose" (40 CFR 63.2). Shutdown is what you do when you turn your process equipment off.
- **Malfunction** is defined as "any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions" (40 CFR 63.2). A malfunction is what happens when your equipment stops working properly because of unforeseeable equipment or other process-related failure. It does not include what happens to your equipment if you fail to maintain the equipment properly or are careless during operation so that the equipment breaks down or stops working properly.

### 2. What requires a facility to prepare a SSM Plan?

The Federal air pollution control requirements published by the EPA require owners and operators of MACT sources to write and put into use a Startup, Shutdown, and Malfunction Plan (SSM Plan). See Section 63.6(e)(3)(i) of the EPA "General Provisions" for these requirements.

### 3. What is the purpose of a SSM Plan?

The purpose of the SSM Plan is to make sure that:

- A facility runs (and keep in good running order) their MACT sources so that the facility's air emissions are minimized during all startups, shutdowns, and malfunctions (SSM) to the greatest extent which is consistent with safety and good air pollution control practices [§63.6(e)(3)(i)(A)];
- A facility is ready to correct (for example, repair) malfunctions as soon as practical after they happen so as to minimize any emissions that might occur as a result of the malfunction (§63.6(e)(3)(i)(B)); and

- A facility's reporting duty is simplified when a SSM happens since the procedures followed during the startup or shutdown or to correct a malfunction are already described in a SSM Plan [§63.6(e)(3)(i)(C)].

#### **4. When must an SSM Plan be developed?**

An SSM Plan must be developed by the compliance date of a facility's NESHAP [§63(e)(3)(i)] or as otherwise specified for its MACT source.

#### **5. What information should an SSM Plan contain?**

An SSM Plan should describe how a facility is going to startup and shutdown the MACT source. The SSM Plan should also describe how the facility will handle malfunctions of its processes to minimize emissions, as well as malfunctions of the devices that control and monitor the emissions from regulated air pollution sources including continuous emissions monitoring systems (CEMS) [§63.6(e)(3)].

A facility's SSM Plan should describe the information listed below [§63.6(e)(3)]:

- How the facility plans to operate, or in other words, how the facility will run the MACT process equipment during startups and shutdowns to minimize emissions;
- How the facility plans to operate the MACT source during malfunctions to minimize emissions; and
- How the facility plan's to correct/repair malfunctioning equipment as soon as practical after malfunctions occur.

It may also be helpful to address in the SSM Plan the information that will be recorded during each SSM [§§63.6(e)(3) and 63.10(b)]. See Item 9 of this document for the list of information that needs to be recorded. The records may take the form of a "checklist" or any other type of recordkeeping that keeps track of the same information [§§63.6(e)(3)(iii) and 63.10(b)(2)(v)].

A facility may use a standard operating procedures (SOP) manual, an Occupational Safety and Health Administration (OSHA) plan, or other plan to satisfy the requirements for writing a SSM Plan as long as the other plan meets all the requirements of a SSM Plan, as described here [§63.6(e)(3)(vi)]. Some MACT sources reference portions of their SOP manual in their SSM Plan.

#### **6. When is a facility required to use a SSM Plan?**

A facility must use the SSM Plan during all SSM occurrences of their MACT sources, and run and keep in good running order the MACT source using the procedures described in the SSM Plan [§63.6(e)(3)(ii)]. If it is impracticable in a given situation to follow the procedures in the SSM plan, newly promulgated amendments to the general provisions allows the flexibility to deviate from the SSM plan. See [http://www.epa.gov/ttn/oarpg/t3/fact\\_sheets/genprov\\_fs.html](http://www.epa.gov/ttn/oarpg/t3/fact_sheets/genprov_fs.html) for additional details.

#### **7. Who sees the SSM Plan and how long should it be kept?**

- A facility's SSM Plan is a public document and may be requested by the public. You must submit your plan to your permitting authority when asked to do so in response to a request from the public. It may also need to be submitted as required by the NESHAP for your source.
- Under a facility's permit required by Title V (part 70 and 71) of the 1990 Clean Air Act

Amendments facilities are required to have an SSM plan. The Title V permit also requires facilities to follow the procedures in their SSM Plan during all times of startups, shutdowns, and malfunctions as they operate the equipment at their facility. Revisions made to an SSM Plan are not considered Title V permit revisions. Also, none of the procedures in the SSM Plan fall within the “permit shield” provision in Section 504(f) of the Clean Air Act [§63.6(e)(3)(ix)].

- Facilities should keep a copy of their SSM Plan in a safe place with other important records so that it can be read or copied by EPA or any other regulatory agency for as long as they continue to operate their MACT processes and for five (5) years after they stop operating the process [§63.6(e)(3)(v)].
- If an SSM Plan is ever revised, facilities should also keep the previous versions for five (5) years afterwards so that it can be available to EPA or any other regulatory agency and the public [§63.6(e)(3)(v)].

## **8. When must a facility modify the SSM Plan?**

A facility must modify their current SSM Plan in the following situations:

- To reflect changes to MACT operations or SSM procedures since the SSM Plan was last prepared [§63.6(e)(viii)]; and
- If the current SSM Plan:
  - Does not include instructions for a SSM that has occurred [§63.6(e)(3)(vii)(A)];
  - Does not include instructions for what will be done during a SSM -- i.e., safe procedures and good air pollution control practices that minimize emissions to the greatest extent [§63.6(e)(3)(vii)(B)];
  - Does not include enough instructions for correcting/repairing the malfunctioning process, air pollution control, or monitoring equipment as quickly as practical (§63.6(e)(3)(vii)(C)); or
  - Includes instructions for anything that is not a SS&M, as defined above (§63.6(e)(3)(vii)(D));

Note: If the current SSM Plan leaves out or does not include enough instructions to correctly handle any incident that occurs that can be called a malfunction, the facility must revise its SSM Plan within 45 days after the incident. The facility must add to the revised SSM Plan information on what will be done in case this type of incident happens again [§63.6(e)(3)(viii)]. Depending on what the SSM Plan revisions are, the permitting authority and/or EPA may ask to see a copy of the revised SSM Plan. If the facility revises its SSM Plan, it must report that the SSM Plan has been revised in the next semiannual SSM Report for its NESHAP (or Title V) compliance certification. These reports are typically due within 60 days following the end of each 6-month period [§§63.6(e)(viii) and 63.10(d)(5)(i); §70.5(c)(9)], although the permitting authority can approve less frequent reporting in some cases. If the revisions to the SSM Plan include changes to the scope of activities considered to be SSM events or otherwise changes how any emission limit, work practice requirement, or other requirement in your NESHAP will apply to the facility, the revised SSM Plan is not effective until the permitting authority receives written notice from the facility describing these SSM Plan revisions [§63.6(e)(3)(viii)]. Until then, continue following the existing approved SSM Plan.

## **9. Does a facility have to keep any SSM records?**

A facility is required to keep the following records (including all reports and notifications) for five years (§§63.6(e)(3) and 63.10(b)(2)):

- When and how long each malfunction of MACT operations, or air pollution control and monitoring equipment happened;
- What was done to correct/repair the malfunctioning equipment;

- Whether the facility followed their current SSM Plan;
- What was done, if at all, that was different from what is in the current SSM Plan; and
- Any other information required by the facility's NESHAP, such as the cause of the malfunctions.

#### 10. Does a facility have to submit SSM Reports?

If you revise your SSM Plan to reflect changes to your MACT source operation or procedures, you must report that you have revised your SSM Plan in your next semiannual SSM Report for your NESHAP (or Title V compliance certification) which is typically due within 60 days following the end of each 6-month period (§§63.6(e)(viii) and 63.10(d)(5)(i); §70.5(c)(9)).

If a SSM occurs and you correctly followed the procedures in your SSM Plan, you must submit the following in a letter in your next semiannual SSM Report, due within 60 days following the end of each 6-month period (§§63.6(e)(iii) and 63.10(d)(5)(i)):

- Facility contact name and title;
- Certifying signature of the owner/operator or other responsible official;
- Statement that current SSM Plan was followed or deviation occurred; and
- How many SSM happened, how long the SSM were, and a brief description of each SSM. (Note: This information may take the form of a checklist)

If what you did during a SSM was not as written in your SSM Plan and/or the type of SSM was not covered by your current SSM Plan and your source exceeds any of the applicable emission limitations in the relevant standard, you must report exactly what your actions were and/or the type of SSM that occurred by telephone or facsimile (FAX) transmission within two (2) working days afterwards. Also, you must send a letter within seven (7) working days after the end of the SSM. The letter should include the following information (§§63.6(e)(3)(iv) and 63.10(d)(5)(ii)):

- Facility contact name and title;
- Certifying signature of the owner/operator or other responsible official;
- How the recent SSM happened;
- What was done during the SSM;
- The reason(s) that current SSM Plan was not followed; and
- Whether any emissions and/or parameters that were monitored were higher or different than their allowable values during the SSM.

If, as above, what was done during a SSM was not as written in the current SSM Plan and/or the type of event was not covered by the current SSM Plan, the facility must also revise the SSM Plan within 45 days after the SSM so as to describe what will be done in case a similar SSM happens again.

A facility may also have reports to make that are required by the State Implementation Plan (SIP). Check with local permitting authority to find out about these additional requirements.

#### 11. Startup, Shutdown and Malfunction (SSM) Plan Checklist:

- a. Has the facility described what will be done to operate, in other words, how the facility run all **process equipment** at the MACT sources during **startups and shutdowns** to minimize emissions?
- b. Has the facility included how they will record what will be done during a **startup or shutdown** if this information is not already included in the plan?

- c. Has the facility included what they will do to find and record the circumstances of malfunctions of the **process, air pollution control, and air pollution monitoring** equipment?
- d. Has the facility included what they will do to correct (for example, repair) the malfunctioning **process, air pollution control, and air pollution monitoring** equipment as soon as practical after the malfunctions happens to minimize emissions, and how they will record these corrections?
- e. Has the facility included how they will obtain any other information required by the applicable NESHAP, such as the cause of the malfunction?

**Note:** This is the least amount of information that a facility should have in their SSM Plan. The facility can include more information so that employees can operate the facility as best as possible during any startup, shutdown, or malfunction. They may also include any or all of the following as additional requirements: (1) the SSM Plan should be kept in a place where everyone who operates any equipment can find it quickly; (2) a manager should sign off any SSM Plan revisions and be notified of each SSM; or (3) all employees must be trained in the SSM procedures.

## 12. Sample SSM Recordkeeping Checklist:

- a. At what piece of equipment or where in the process did the startup, shutdown, or malfunction occur?
- b. What was the date and time of the startup and how long did it last?
- c. What was the date and time of the shutdown and how long did it last?
- d. What was the date and time of the malfunction and how long did it last?
- e. What did you do to correct the malfunctioning equipment?
- f. Is what was done during the startup, shutdown, or malfunction exactly as described in the SSM Plan?
- g. If the facility did anything that was not in the current SSM Plan, what was the result?
- h. Did the facility include all other information required by the applicable NESHAP, such as the cause of the malfunctions?

**Note:** This is the least amount of information that a facility should write down during any startup, shutdown, and malfunctions. The facility can include more information so that they can describe as best as possible what happened during any startup, shutdown, or malfunction.