

**Inspector Checklist for  
The POWC Maximum Achievable Control Technologies (MACT)**

**National Emission Standards for Hazardous Air Pollutants (NESHAP)  
For Paper and Other Web Coating**

**40 CFR Parts 63.3280 – 63.3420 (Subpart JJJJ) and General Provisions in 40 CFR Part 63**

**Summary:** The purpose of this rule is to reduce emissions of HAP from paper and other web coating major sources. The source category is for major sources only -- area sources are not included.

The organic HAP emitted from typical paper and other web coating processes include toluene, methanol, methyl ethyl ketone, xylenes, phenol, methylene chloride, ethylene glycol, glycol ethers, hexane, methyl isobutyl ketone, cresols and cresylic acid, dimethylformamide, vinyl acetate, formaldehyde and ethyl benzene. These pollutants can cause reversible or irreversible toxic effects following sufficient exposure. The potential toxic effects include eye, nose, throat, and skin irritation, and blood cell, heart, liver, kidney damage and possibly cancer. The degree of adverse effects from exposure can range from mild to severe, depending upon the concentration, frequency and duration of exposure, as well as the characteristics of the exposed individual.

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

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## 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 POWC NESHAP? 63.3290

- New or Existing Major Source facility for HAP emissions that own or operate a web coating line.

1. Is the facility a Major Source?  Yes  No  N/A
2. Does the facility operate any web coating lines?  Yes  No  N/A
3. This facility is subject to the POWC NESHAP  Yes  No  N/A

### 3. If not a major source, what type of records does the facility have to prove its status? 63.1(b)(3) and 63.10(b)(3)

- Records of the total amount of materials used each month, and, if necessary, the HAP content of each material and the calculation of the total HAP consumed each month.  Yes  No  N/A

- Records that began 12 months before the source's compliance date.  Yes  No  N/A
- Records are kept for 5 years after they are created.  Yes  No  N/A

**4. What emission sources at the facility are affected by this subpart? 63.3300**

1. Does the affected sources identified by the facility include the collection of all web coating lines at the facility, which may include:

- 1. Web coating lines engaged in the coating of metal webs that are used in flexible packaging
- 2. Web coating lines engaged in the coating of fabric substrates used in pressure sensitive tape and abrasive materials.

Yes  No  N/A

2. Does the facility **exclude** any of the following as part of an affected source:

- 1. Any web coating line that is stand-alone equipment under Subpart KK (National Emission Standards for the Printing and Publishing Industry) which is included in the affected source under Subpart KK.  Yes  No  N/A
- 2. Any web coating line that is a product and packaging rotogravure or wide-web flexographic press under Subpart KK (National Emission Standards for Printing and Publishing Industry) which is included in the affected source under Subpart KK.  Yes  No  N/A
- 3. Web coating in lithography, screen printing, letter press and narrow-web flexographic printing processes.  Yes  No  N/A
- 4. Any web coating line subject to Subpart EE (National Emissions Standards for Magnetic Tape Manufacturing Operations).  Yes  No  N/A
- 5. Any web coating line that will be subject to the national emissions standards for hazardous air pollutants (NESHAP) for surface coating of metal coil currently under development.  Yes  No  N/A
- 6. Any web coating line that will be subject to the NESHAP for the printing, coating, and dyeing of fabric and other textiles currently under development. This would include any web coating line that coats both a paper or other web substrate and a fabric or other textile substrate, except for a fabric substrate used for pressure sensitive tape and abrasive materials.  Yes  No  N/A
- 7. Any web coating line that is defined as research or laboratory equipment in 63.3310.  Yes  No  N/A

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

**5. Does the facility meet applicable emissions standards for affected sources? 63.3320**

- Does the facility limit HAP emissions to no more than 5 percent of the organic HAP applied for each month (95% reduction) at existing affected sources, and no more than 2 percent of the organic HAP applied for each month (98% reduction) at new affected sources; or  Yes  No  NA

- Does the facility limit HAP emissions to no more than 4 percent of the mass of coating materials applied for each month at existing affected sources, and no more than 1.6 percent of the mass of coating materials applied for each month at new affected sources; or  Yes  No  NA
- Does the facility limit HAP emissions to no more than 20 percent of the mass of coating solids applied for each month at existing affected sources, and no more than 8 percent of the coating solids applied for each month at new affected sources.  Yes  No  NA
- If the facility uses an oxidizer to control organic HAP emissions, is the oxidizer operated such that an outlet organic HAP concentration of no greater than 20 parts per million by volume (ppmv) by compound on a dry basis is achieved and the efficiency of the capture system is 100 percent?  Yes  No  NA

**6. Does the facility meet applicable operating limits for its affected sources? 63.3321**

- If the facility has a web coating line or group of web coating lines for which they use an add-on control device (unless the device is a solvent recovery system and the facility conducts a liquid-liquid material balance), has the facility met the operating limits specified in Table 1 of this subpart?  Yes  No  NA
- Were the operating limits established during the performance test according to 63.3360(e)(3)?  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 1 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

**Table 1 to Subpart JJJJ – Operating Limits if Using Add-On Control Devices and Capture System**

<b>For the Following 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 63.3360(e)(3)(i).	<ul style="list-style-type: none"> <li>• Collecting the combustion temperature data according to 63.3350 (e)(9);</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 at the inlet to the catalyst in any 3-hour period must not fall below the combustion temperature limit established according to 63.3360(e)(3)(ii).	<ul style="list-style-type: none"> <li>• Collecting the catalyst bed inlet temperature data according to 63.3350(e)(9);</li> <li>• Reducing the data to 3-hour block averages; and</li> <li>• Maintaining the 3-hour average catalyst bed inlet temperature at or above the temperature limit.</li> </ul>
	The temperature rise across the catalyst bed must not fall below the limit established according to 63.3360(e)(3)(ii).	<ul style="list-style-type: none"> <li>• Collecting the catalyst bed inlet and outlet temperature data according to 63.3350(e)(9);</li> <li>• Reducing the data to 3-hour block average temperature rise across the catalyst bed at or above the limit.</li> </ul>
Emission Capture System	Submit monitoring plan to the Administrator that identifies operating parameters to be monitored according to 63.3350(f)	<ul style="list-style-type: none"> <li>• Conduct monitoring according to the plan [63.3350(f)(3)].</li> </ul>

**7. Has the facility met the compliance date for its affected sources? 63.3330**

- For **existing affected sources**, the facility has met the compliance date of December 5, 2005.
  - Yes  No  NA
  - All performance tests for affected existing sources as required by 63.3360 have been completed within the limits specified in 63.7(a)(2).
    - Yes  No  NA
- For **new affected sources**, the facility complied with this subpart upon start-up of the source or by December 4, 2002, whichever is later.
  - Yes  No  NA
  - All performance tests for affected new sources as required by 63.3360 have been completed within the limits specified in 63.7(a)(2).
    - Yes  No  NA
- For **reconstructed affected sources**, did the facility comply with this subpart immediately upon startup of the affected source or by December 4, 2002, whichever is later?
  - Yes  No  NA
  - All performance tests for affected reconstructed sources as required by 63.3360 have been completed within the limits specified in 63.7(a)(2).
    - Yes  No  NA

**Note 1:** Existing affected sources that have undergone reconstruction as defined in 63.2 are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution equipment is not considered when determining whether the existing affected source has been reconstructed.

**Note 2:** The costs for retrofitting and replacing of equipment that is installed specifically to comply with this subpart are not considered reconstruction costs.

**IV. General Requirements for Compliance with Emissions Standards and Monitoring and Performance Tests**

**8. Has the facility met applicable general requirements of this subpart? 63.3340**

- Facility has determined which provisions of Table 2 to this subpart (See Section IX) that they are subject to, such as startup, shutdown and malfunction (SSM) plan. See Section XI for SSM Plan requirements.
  - Yes  No  NA
- Adequate records exist to demonstrate general compliance.
  - Yes  No  NA

**9. If the facility uses a control device to comply with the emission standard, has the monitoring requirements been determined, equipment installed and operated as specified? 63.3350**

The following is a summary of monitoring requirements, depending upon the control device selected:

If operating a web coating line and have the following:	Then a facility must:
Intermittently-controlled work stations	Record parameters related to possible exhaust flow bypass of control device and to coating use [63.3350(c)].
Solvent recovery unit	Operate continuous emission monitoring system and perform quarterly audits or determine volatile matter recovered and conduct a liquid-liquid material balance [63.3350(d)].
Control device	Operate continuous parameter monitoring system [63.3350(e)].
Capture system	Monitor the capture system operating parameter [63.3350(f)].

- For **intermittently-controlled work stations**, are the bypasses of the control devices and the mass of each coating material applied at the work station during any such bypass being monitored?  
 Yes  No  NA
  
- Is the bypass monitoring conducted using at least one of the procedures listed below for each work station and associated dryer:
  - A **flow control position indicator** at each work station, such that 1) the indicator provides an accurate record of whether the exhaust stream from the dryer was directed to the control device or diverted from it, 2) the time and flow control position is recorded at least once per hour and every time the flow direction was changed, 3) a flow control position indicator is installed at the entrance of all bypass lines that could divert the exhaust stream away from the control device.  
 Yes  No  NA
  
  - A **car-seal or lock-and-key valve closure**, such that 1) all bypass line valves have been secured in the closed position with either configuration, 2) the facility maintains records of the manner in which each bypass line valves have been secured in the closed position, and 3) a visual inspection of each seal or closure mechanism is performed at least once every month to insure that the valves/dampers are maintained in the closed position.  
 Yes  No  NA
  
  - A **valve closure continuous monitoring system** such that all bypass line valves or dampers are determined to be in the closed position by continuous monitoring of the valve position and the monitoring system is inspected at least once every month.  Yes  No  NA
  
  - An **automatic shutdown system**, such that the web coating line stops when flow is diverted away from an operational control device to any bypass line and the shutdown system is inspected at least every month to ensure proper operation.  Yes  No  NA
  
- If the facility uses a **solvent recovery unit** to comply with emission standards in 63.3320, has either of the following monitoring requirements been met, depending on how control efficiency is determined?  
 Yes  No  NA
  - If compliance with emission standards is met through **continuous emissions monitoring** of a control device, has that continuous emissions monitoring system (CEMS) been installed, calibrated, operated and maintained such that 1) the total organic volatile matter mass flow rates at both the control device inlet and the outlet are measured so that the reduction efficiency can be determined; 2) the CEMS complies with performance specification 6, 8 or 9 or 40 CFR Part 60, Appendix B, as appropriate; 3) Quarterly audits of the monitoring are performed and quality assurance procedures of Procedure 1, Appendix F of 40 CFR Pat 60 are being followed when audits are conducted; and 4) There is valid data from at least 90% of the hours during which the process is operated.  Yes  No  NA
  
  - If compliance with emission standards is met with **the performance of a liquid-liquid material balance**, does the solvent recovery unit have a device installed that indicates the cumulative amount of volatile matter recovered by the solvent recovery unit on a monthly basis and is the device operated according to manufacturer specifications and certified by the manufacturer to be accurate to within plus/minus 2%, by mass?  Yes  No  NA
  
- If the facility uses a **control device other than a solvent recovery unit** to comply with emission standards in 63.3320, has the facility put in place a **continuous parameter monitoring system** (CPMS)?  Yes  No  NA

- Does the CPMS complete a minimum of one cycle of operation for each successive 15-minute period? (Note: For one hour of valid data, there must be a minimum of four equally spaced successive cycles of CPMS operation.)  Yes  No  NA
- Does the facility have valid data from at least 90% of the hours during which the process operated?  Yes  No  NA
- Does the facility determine the hourly average of all recorded readings? (Note: To calculate a valid hourly value, the facility must have at least three of four equally spaced data values from that hour from a continuous monitoring system (CMS) that is not out-of-control. It is not necessary for the facility to calculate the hourly average if all readings recorded clearly demonstrate continuous compliance.)  Yes  No  NA
- Does the facility determine the rolling 3-hour average of all recorded readings for each operating period and using only valid data? (Note: The facility must have at least two out of 3 hourly averages for that period and the data must not be from an out-of-control period.)  Yes  No  NA
- Does the facility record the results of each inspection, calibration and validation check of the CPMS (including flow control position indicators, car-seal or lock-and-key valve closures, valve closure continuous monitors and automatic shutdown systems)?  Yes  No  NA
- Does the facility, at all times, maintain the monitoring system in proper working order, including maintaining necessary parts for routine repairs of the monitoring equipment?  Yes  No  NA
- Does the facility conduct all monitoring at all times that the CPMS unit is operating? (Excludes monitor malfunctions, associated repairs, or required quality assurance and control activities. All valid data collected during all other periods must be used in assessing compliance of the control device an associated control system.)  Yes  No  NA
- For every averaging period for which there is no valid monitoring data, as required, has the Administrator been notified of the deviation?  Yes  No  NA
- If the facility uses an **oxidizer** to comply with the emission standards, has the facility installed and operated temperature monitoring equipment in accordance with manufacturer specifications; and does the facility verify the calibration of the chart recorder, data logger, or temperature indicator every three months or replace the applicable device?  Yes  No  NA
- If the facility uses an **oxidizer other than a catalytic oxidizer**, does the unit have a properly operating temperature monitoring device equipped with a continuous recorder?  Yes  No  NA
  - Does the temperature monitoring device have an accuracy of +/- 1% of the temperature being monitored in degrees Celsius or +/- 1 degree Celsius, whichever is greater?  Yes  No  NA
  - Is the thermocouple or temperature sensor installed in the combustion chamber at a location in the combustion zones?  Yes  No  NA
- If the facility uses a **catalytic oxidizer**, does the unit have a properly operating temperature monitoring device equipped with a continuous recorder?  Yes  No  NA
  - Does the temperature monitoring device have an accuracy of +/- 1 percent of the temperature being monitored in degrees Celsius, or +/- 1 degree Celsius, whichever is greater?  Yes  No  NA

- Is the thermocouple or temperature sensor installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed?  Yes  No  NA
- Does the facility calculate the temperatures rise across the catalyst?  Yes  No  NA
- If the facility uses **other types of control devices** (other than an oxidizer), or wish to monitor an alternative parameter and comply with a different operating limit, has approval from the Administrator for use of an alternative monitoring method under 63.8(f) been requested and received?  Yes  No  NA
  - Did the facility document the type of control device being used?  Yes  No  NA
  - Did the facility document the alternative parameters being monitored and the operating limit?  Yes  No  NA
- If the facility uses a **capture system and control device** for complying with the emissions limits, for one or more web coating lines, has the facility developed a site-specific monitoring plan?  Yes  No  NA
  - Does the plan identify the operating parameters to be monitored and explain why the parameter is appropriate for demonstrating ongoing compliance?  Yes  No  NA
  - Does the plan identify the specific monitoring procedures?  Yes  No  NA
  - Does the plan specify the operating parameter values(s) or range of values that demonstrate compliance?  Yes  No  NA
  - Does the value(s) or range of values represent the conditions present when the capture system is being properly operated and maintained?  Yes  No  NA
  - Is all the capture system monitoring conducted in accordance with the plan?  Yes  No  NA
  - Is the capture system monitoring plan reviewed and updated at least annually?  Yes  No  NA

**10. Has the facility conducted applicable performance tests? 63.3360**

Certain performance tests are required to determine compliance according to the method used to comply. The performance test methods that must be conducted are as follows:

If controlling organic HAP on any individual web coating line or any group of web coating lines by:	The facility must:
1) Limiting organic HAP or volatile matter content of coatings	Determine the organic HAP or volatile matter and coating solids content of coating materials according to procedures in 63.3360(c) and (d). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to 63.3360(g).
2) Using a capture and control system	Conduct a performance test for each capture and control system to determine: the destruction or removal efficiency of each control device other than solvent recovery according to 63.3360(e), and the capture efficiency of each capture system according to 63.3360(f). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to 63.3360(g)

- Is the facility using a control device to comply with the emission standards [63.3360(b)]?  
 Yes  No  NA
  
- If the facility is using a control device to comply, then a “yes” answer to at least one of the following means that no performance test is required to demonstrate compliance:
  - Is the control device equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration and has capture efficiency been properly determined such that an overall organic HAP control efficiency can be calculated?  
 Yes  No  NA
  
  - Does the facility meet the requirements for a waiver of performance testing, provided the facility has applied for and received a waiver of performance testing from the administrator?  
 Yes  No  NA
  
  - Is the control device a solvent recovery system where the facility complies by means of a monthly liquid-liquid material balance?  
 Yes  No  NA
  
- If the facility determines compliance with emission standards by means other than determining the overall organic HAP control efficiency of a control device, does the facility determine the organic HAP mass fraction of each coating material “**as-purchased**” 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
  
  - 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

**Note 1:** If there 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 means other than determining the overall organic HAP control efficiency of a control device, does the facility determine the organic HAP mass fraction of each coating material “**as-applied**” by one of the following:
  - Does the facility add any solvent or other material to the as-purchased coating material? If not, the as-applied organic HAP mass fraction equals the as-purchased mass fraction?  
 Yes  No  NA

- If solvent or other material is added to the coating material, has the facility calculated an as-applied organic HAP mass fraction for each coating material using Equation 1a of 63.3370?  
 Yes  No  NA
- Does the facility determine compliance with the emission standard by determining **volatile organic content and coating solids content** of each coating material [63.3360(d)]?  Yes  No  NA
  - For as-purchased coatings, is Method 24 used to determine the mass fraction for the VOC and coating solids (the determination may be performed by the manufacturer), or has the facility requested an alternative technique for determining these values?  Yes  No  NA
  - Or, for as-purchased coating, is the facility using formulation data to determine the volatile organic content and coating solids content (the formulation data may be provided by the manufacturer)?  Yes  No  NA

**Note:** If there is a discrepancy between Method 24 and the formulation data, and the Method 24 data is higher, the facility must use the Method 24 determination.

- For each “as-applied” coating material, does the facility add any solvent or other material to the coating? If not, the as-applied VOC content is equal to the as-purchased content.  
 Yes  No  NA
- If solvent or other material has been added to the coating material, has the facility calculated the “as-applied” VOC content using Equation 1b of 63.3370, and the “as-applied” coating solids content for each coating material using Equation 2 of 63.3370?  Yes  No  NA
- If the facility is **using an add-on control device other than solvent recovery**, such as an oxidizer, to comply with emission standards, did the facility conduct a performance test to determine the destruction or removal efficiency of the device?  Yes  No  NA
- During such performance test, were operating limits of the control device established?  
 Yes  No  NA
- Did the facility conduct an initial performance test such that the control device inlet and outlet were tested simultaneously?  Yes  No  NA
- Test data were reduced in accordance to the following test methods and procedures of 40 CFR 60, Appendix A:
  - Method 1 or 1A was used for sample and velocity traverses to determine sampling locations.  
 Yes  No  NA
  - Method 2, 2A, 2C, 2D, 2F, or 2G was used to determine the gas volumetric flow rate.  
 Yes  No  NA
  - Method 3, 3A or 3B to determine the dry molecular weight.  Yes  No  NA
  - If Method 3, 3A or 3B was not used, did the facility use the ANSI/ASME manual method as an alternative?  Yes  No  NA
  - Method 4 was used to determine stack gas moisture.  Yes  No  NA
  - Did the facility determine the gas volumetric flow rate, dry molecular weight, and stack gas moisture for each test run?  Yes  No  NA

- Method 25 or 25A was used to determine total gaseous non-methane organic matter concentration? (Note: The same test method must be used for both inlet and outlet measurements.)  Yes  No  NA
- Method 25A must have been used if any of the following was applicable to the control device:
  - The control device is not an oxidizer; or  Yes  No  NA
  - The control device is an oxidizer but an exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the emission standards; or  Yes  No  NA
  - The control device is an oxidizer but the volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or  Yes  No  NA
  - The control device is an oxidizer but because of the high efficiency of the control device the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of the inlet concentration.  Yes  No  NA
- The facility submitted the required advance notice of the intended test method along with the notification of the performance test.  Yes  No  NA
- The facility conduct three test runs for each performance test with each run lasting at least one hour and test conditions were under normal operating conditions.  Yes  No  NA
- The facility used the average of results of all runs to determine VOC compound concentrations and mass flow rates.  Yes  No  NA
- VOC mass flow rates were determined using **Equation 1** of this section (63.3360).  Yes  No  NA
- The facility determined the control device destruction or removal efficiency as the average of the efficiencies determined in test runs and calculated in **Equation 2** of this section (63.3360).  Yes  No  NA
- The facility recorded process information as necessary to determine the conditions in existence of the time of the performance? (Note: Operations during periods of SSM do not constitute representative conditions for the purpose of a performance test.)  Yes  No  NA
- If the facility is **using an add-on control device other than solvent recovery**, such as an oxidizer, to comply with emission standards, did the facility establish operating limits for each control device during the performance tests?  Yes  No  NA
- If the add-on control device is a **thermal oxidizer**, were the operating limits established according to the following:
  - During the performance test, was the combustion temperature monitored and recorded at least once every 15 minutes during each of three test runs?  Yes  No  NA
  - Was the temperature monitored in firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurred?  Yes  No  NA

- During the performance test, was the data collected during the performance test used to calculate and record the average combustion temperature maintained during the performance test?  Yes  No  NA
- Did the facility use the average combustion temperature as the minimum operating limit for the thermal oxidizer?  Yes  No  NA
- If the facility's add-on control device is a **catalytic oxidizer**, have the following requirements been met in establishing operating limits for the device:
  - During the performance test, did the facility monitor and record the temperature just before the catalyst bed and the temperature across the catalyst bed at least once every 15 minutes during each of the three test runs?  Yes  No  NA
  - Using the data collected during the performance test, did the facility use the average temperature values just before the catalyst bed and across the catalyst bed as the minimum operating limits?  Yes  No  NA
  - As an alternative to monitoring the temperature difference across the catalyst bed, did the facility choose to 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
  - Does the site specific inspection and maintenance plan for its catalytic oxidizer(s) include all of the following: 1) annual sampling and analysis of the catalytic activity, i.e., conversion efficiency; 2) monthly inspection of the oxidizer system including the burner assembly and fuel supply lines; and 3) annual internal and monthly external visual inspection of the catalysts bed to check for channeling, abrasion, and settling?  Yes  No  NA
  - If problems were found during the annual internal and monthly external visual inspections of the catalyst bed, was corrective action consistent with the manufacturer's recommendations and was a new performance test conducted to determine destruction efficiency in accordance with the requirements of this section?  Yes  No  NA
- Does the facility need to determine **capture efficiency** according to 63.3360(f)? [Note: Determination of capture efficiency is required if the facility demonstrates compliance by meeting the requirements of 63.3370(e), (f), (g), (h), (i)(2), (k), (n)(2) or (3), or (p).]  Yes  No  NA
- If the facility is required to determine capture efficiency, have the following requirements been met:
  - If the capture system is a permanent total enclosure, it may be assumed that the capture efficiency equals 100%. If this is the case, has the facility confirmed that the system is a permanent total enclosure by demonstration that it meets the requirements of section 6 of EPA Method 204 of 40 CFR Part 51, Appendix M, and that all exhaust gases from the enclosure are delivered to the control device; or  Yes  No  NA
  - The facility has determined capture efficiency according to the protocols for testing with temporary total enclosures that are specified in Methods 204 and 204A-F of 40 CFR Part 51, Appendix M? (Note: never-controlled work stations may be excluded from this determination); or  Yes  No  NA
  - The facility uses a capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in Appendix A of Subpart KK of this part? (Note: Never-controlled work stations may be excluded from this determination.)  Yes  No  NA

- When determining compliance with emission standards, did the facility take into account the mass of VOC material retained in the coated web after curing or drying or otherwise not emitted to the atmosphere?  Yes  No  NA
  - If yes, were the following requirements met:
    - Was a testing protocol developed to determine the mass of VOC material retained in the coated web or otherwise not emitted to the atmosphere?  Yes  No  NA
    - Was the testing protocol submitted to the Administrator for approval along with a site-specific test plan?  Yes  No  NA
    - Does the test protocol determine the mass of organic HAP retained in the coated web or otherwise not emitted to the atmosphere? Otherwise, compliance must be shown using the volatile organic matter content as a surrogate for the HAP content in the coatings.  Yes  No  NA
- Does the facility use multiple control devices in series to comply with emission standards?  Yes  No  NA
  - If yes, do the performance tests, at a minimum, include data for the inlet to the first control device in the series, the outlet of the last control device in the series, and all intermediate streams that are not subsequently treated by any of the control devices in the series?  Yes  No  NA

Inspector notes/comments:

## V. Requirements for Showing Compliance

### 11. How is the facility demonstrating compliance with the emission standards? 63.3370

A summary of how compliance must be demonstrated is as follows:

If demonstrating compliance by:	Then the facility must demonstrate that:	To accomplish this:
1. Use of "as-purchased" compliance coating materials	Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-purchased, or	Follow the procedures set out in 63.3370(b)
	Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-purchased.	Follow the procedures set out in 63.3370(b)
2. Use of "as-applied compliant coating materials	Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-applied; or	Follow the procedures set out in 63.3370(c)(1). Use either Equation 1a or 1b of 63.3370 to determine compliance with 63.3320(b)(2) in accordance with 63.3370(c)(5)(i).
	Each coating material used as an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating as-applied; or	Follow the procedures set out in 63.3370(c)(2). Use Equations 2 and 3 of 63.3370 to determine compliance with 63.3320(b)(3) in accordance with 63.3370(c)(5)(i).
	The monthly average of all coating materials used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and the monthly average of all coating materials used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-applied on a monthly average basis; or	Follow the procedures set out in 63.3370(c)(3). Use Equation 4 of 63.3370 to determine compliance with 63.3320(b)(2) in accordance with 63.3370(c)(5)(ii).
	The monthly average of all coating materials used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and monthly average of all coating materials used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-applied on a monthly average basis.	Follow the procedures set out in 63.3370(c)(4). Use Equation 5 of 63.3370 to determine compliance with 63.3320(b)(3) in accordance with 63.3370(c)(5)(ii).
3. Tracking total monthly organic HAP applied	The total monthly organic HAP applied does not exceed the calculated limit based on emission limitations	Follow the procedures set out in 63.3370(d). Show that total monthly HAP applied (Equation 6 of 63.3370) is less than the calculated equivalent allowable organic HAP (Equation 13a or 13b of 63.3370).

Summary continued:

If demonstrating compliance by:	Then the facility must demonstrate that:	To accomplish this:
4. Use of a capture system and control device	The overall organic HAP control efficiency is equal to 95% at an existing affected source and 98% at a new affected source on a monthly basis; or oxidizer outlet organic HAP concentration is no greater than 20 ppmv by compound and capture efficiency is 100%; or operating parameters are continuously monitored; or	Follow the procedures set out in 63.3370(e) to determine compliance with 63.3320(b)(1) according to 63.3370(i) if using a solvent recovery device, or 63.3370(j), if using a control device and CPMS, or 63.3370(k) if using an oxidizer.
	The overall organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic Hap per kg coating solids for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in 63.3370(f) to determine compliance with 63.3320(b)(3) according to 63.3370(i) if using a solvent recovery device, or 63.3370(k) if using an oxidizer.
	The overall organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as –applied basis; or	Follow the procedures set out in 63.3370(g) to determine compliance with 63.3320(b)(2) according to 63.3370(i) if using a solvent recovery device, or 63.3370(k) if using an oxidizer.
	The overall organic HAP emission rate does not exceed the calculated limit base on emission limitations.	Follow the procedures set out in 63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of 63.3370). Calculate the monthly organic HAP emission rate according to 63.3370(i) if using a solvent recovery device, or 63.3370(k) if using an oxidizer.
5. Use of multiple capture and/or control devices	The overall organic HAP control efficiency is equal to 95% at an existing affected source and 98% at a new affected source on a monthly basis; or	Follow the procedures set out in 63.3370(e) to determine compliance with 63.3320(b)(1) according to 63.3370(e)(1) or (2).
	The average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in 63.3370(f) to determine compliance with 63.3320(b)(3) according to 63.3370(n).
	The average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in 63.3370(g) to determine compliance with 63.3320(b)(2) according to 63.3370(n).
	The average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations.	Follow the procedures set out in 63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of 63.3370) according to 63.3370(n).
6. Use of a combination of compliant coatings and control devices	The average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in 63.3370(f) to determine compliance with 63.3320(b)(3) according to 63.3370(n).
	The average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or	Follow the procedures set out in 63.3370(g) to determine compliance with 63.3320(b)(2) according to 63.3370(n).
	The average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations.	Follow the procedures set out in 63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of 63.3370) according to 63.3370(n).

*As-purchased "compliant" coating materials*

- For an **existing affected source** that chooses to demonstrate compliance by using coating materials that individually meet the emission standards, does the facility demonstrate that each coating materials applied during the month contains no more than 0.04 mass fraction organic HAP or 0.2 kg organic HAP per kg coating solids.  Yes  No  NA
- For a **new source**, does the facility demonstrate that each coating material applied during the month contains no more that 0.016 kg organic HAP per kg coating material or no more that 0.08 kg organic HAP per kg coating solids on an "as-purchased" basis?  Yes  No  NA

**Note:** A facility is deemed in compliance with the **as-purchased** emission standard if each coating material applied at an existing affected source is applied as-purchased and contains no more than 0.04 kg organic HAP per kg coating material. A facility is deemed in compliance with the as-purchased emission standard if each coating material applied at a new affected source is applied as-purchased and contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

*As-applied "compliant" coating materials*

- If the facility has existing sources and chooses to demonstrate compliance by using "**as-applied**" coating materials to meet emission standards:
  - Does it demonstrate that each coating material applied during the month contains no more than 0.04 kg organic HAP per kg coating material as-applied?  Yes  No  NA
  - Does it demonstrate that each coating material applied contains no more than 0.20 kg organic HAP per kg coating solids, "as-applied"?  Yes  No  NA

**Note:** The as-applied organic HAP content of as-purchased coating materials which are reduced, thinned, or diluted prior to application must be calculated. **Equation 1a** of 63.3370(c)(1)(ii) must be used to calculate the as-applied organic HAP content of each coating material. **Equation 1b** of 63.3370(c)(1)(ii) must be used to calculate the as-applied volatile organic content of each coating material. **Equation 2** of 66.3370(c)(2)(i) must be used to calculate the as-applied coating solids content of coating materials which are reduced, thinned, or diluted prior to application. **Equation 3** of 66.3370(c)(2)(ii) must be used to calculate the as-applied organic HAP coating solids ratio.

- Does it demonstrate that the monthly average "as-applied" organic HAP content of all coating materials is less than 0.04 kg organic HAP per kg of coating material applied as determined by **Equation 4** of 66.3370(c)(2)(ii)?  Yes  No  NA
- Does it demonstrate that the monthly average "as-applied" organic HAP content of all coating materials is less than 0.20 kg organic HAP per kg of coating solid applied as determined by **Equation 5** of 66.3370(c)(2)(ii)?  Yes  No  NA
- If the facility has new sources and demonstrates compliance by using "**as-applied**" coating materials to meet emission standards:
  - Does it demonstrate that each coating material applied during the month contains no more than 0.016 kg organic HAP per kg coating material, "as-applied"?  Yes  No  NA
  - Does it demonstrate that each coating material applied contains no more than 0.08 kg organic HAP per kg coating solids, "as-applied"?  Yes  No  NA

**Note:** The as-applied organic HAP content of as-purchased coating materials which are reduced, thinned, or diluted prior to application must be calculated. **Equation 1a** of 63.3370(c)(1)(ii) must be used to calculate the as-applied organic HAP content of each coating material. **Equation 1b** of 63.3370(c)(1)(ii) must be used to calculate the as-applied volatile organic content of each coating material. **Equation 2** of 66.3370(c)(2)(i) must be used to calculate the as-applied coating solids content of coating materials which are reduced, thinned, or diluted prior to application. **Equation 3** of 66.3370(c)(2)(ii) must be used to calculate the as-applied organic HAP coating solids ratio.

- Does it demonstrate that the monthly average “as-applied” organic HAP content of all coating materials is less than 0.016 kg organic HAP per kg of coating material applied as determined by **Equation 4** of 66.3370(c)(2)(ii)?  Yes  No  NA
- Does it demonstrate that the monthly average “as-applied” organic HAP content of all coating material is less than 0.08 kg organic HAP per kg of coating solid applied as determined by **Equation 5** of 66.3370(c)(2)(ii)?  Yes  No  NA

#### *Monthly allowable organic HAP applied*

- If the facility demonstrates compliance by tracking total monthly organic HAP applied, does it demonstrate that the total monthly organic HAP applied (as determined by **Equation 6**) is less than the calculated equivalent allowable organic HAP, as calculated using **Equation 13a or 13b** of 63.3370(l)?  Yes  No  NA

#### *Capture System and Control Device*

- If the facility has an affected source and chooses to demonstrate compliance with the use of a capture system and control device to reduce emissions to no more than the allowable limit, does the facility demonstrate an overall organic HAP control efficiency of at least 95% for an existing affected source and at least 98% for a new affected source on a monthly basis.  Yes  No  NA
- If the facility uses a capture and control system to achieve a mass fraction of coating solids applied limit, does the facility operate the system such that organic HAP emission rate from an existing affected source to no more than 0.20 kg organic HAP emitted per kg coating solids applied, and from a new affected source to no more than 0.08 kg organic HAP emitted per kg coating solids applied as determined on a monthly average as-applied basis?  Yes  No  NA
- If the facility operates a capture and control system to achieve mass fraction limit, does the facility limit the organic HAP emission rate to no more than 0.04 kg organic HAP emitted per kg coating material applied at an existing affected source, and no more than 0.016 kg organic HAP emitted per kg coating material applied at a new affected source as determined on a monthly average as-applied basis?  Yes  No  NA
- If the facility operates a capture and control system to achieve an allowable emission rate, does the facility limit the monthly organic HAP emissions to less than the monthly allowable HAP emissions as calculated using **Equation 13a** for existing affected sources and **Equation 13b** for new affected sources?  Yes  No  NA
- If the facility operates a capture system with an oxidizer, is it operated such that the oxidizer outlet organic HAP concentration is no greater than 20 ppmv by compound on a dry basis, with a capture efficiency of 100%?  Yes  No  NA
- If the emissions from an affected source are controlled by an oxidizer, does the facility demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and

continuing compliance through continuous monitoring of capture system and control device operating parameters; and does the facility use **Equations 9 – 12**, as applicable, to calculate the organic HAP emission rate based on coating solids, the organic HAP emission rate based on coating material applied, the overall organic HAP control efficiency achieved each month and the organic HAP emitted each month.  Yes  No  NA

- If the emissions from an affected source are controlled by a solvent recovery device, does the facility demonstrate compliance by performing a monthly liquid-liquid material balance and using **Equations 7 - 10**, as applicable, to calculate VOC collection and recovery efficiency, the amount of organic HAP emitted, the organic HAP emission rate based on coating solids applied, and the organic HAP emission rate based on coating material applied.  Yes  No  NA
- If the facility demonstrates compliance for a web coating line by operating each capture system and each control device and continuous parameter monitoring, is compliance demonstrated according to proper procedures such as determining the control device destruction or removal efficiency, determining the emission capture efficiency and continuously monitoring the established operating parameters whenever a web coating line is operated?  Yes  No  NA

**Note:** the facility is deemed in compliance with emission standards if the control device is operated such that the average operating parameter value is greater than or less than (as appropriate) the operating parameter value established in accordance with proper procedure for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriated) the operating parameter value established in accordance with proper procedures; and

- The overall organic HAP control efficiency is 95% or greater at an existing affected source and 98% or greater at a new affected source; or
  - The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or
  - The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or
  - The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined by appropriate procedures and methods using **Equation 13a** and/or **13b**.
- If the facility uses an alternative method of determining compliance which involves the installation of a PTE (Protective Total Enclosure) around the web coating line that achieves 100% capture efficiency and ventilation of all organic HAP emissions from the total enclosure goes to an oxidizer, is compliance demonstrated by showing that the organic HAP concentration at the outlet of the incinerator is not greater than 20 ppmv by compound on a dry basis?  Yes  No  NA
- Does the facility demonstrate that the total enclosure is installed correctly and that the enclosure meets the required specifications such that it will be considered a total enclosure?  Yes  No  NA
- Does the facility determine the HAP concentration at the outlet of the total enclosure and control device efficiency using applicable test methods, procedures and equations (e.g. **Equation 2** for control device efficiency)?  Yes  No  NA
- Does the facility use a CEMS to determine the organic HAP emission rate according to applicable test methods, procedures and equations (e.g. **Equation 11** for organic HAP control efficiency achieved, **Equation 12** for organic HAP emitted, **Equation 9** for organic HAP emissions rate based on coating solids, **Equation 10** for organic HAP emission rate based on coating material applied).  Yes  No  NA

*Multiple Capture and/or Control Devices*

- If the facility's affected source has only always-controlled work station and operates multiple capture systems or control devices, does the facility demonstrate compliance with the emission standard, by one of the following:
  - Showing that all operating parameters required to be monitored were maintained at established values, and
    - The total mass of organic HAP emitted by the affected source based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or  Yes  No  NA
    - The total mass of organic HAP emitted by the affected source based on material applied is no more than 0.04 kg organic HAP per kg material applied at an existing affected source and no more than 0.016 kg organic HAP per kg material applied at a new source; or  Yes  No  NA
    - The total mass of organic HAP emitted by the affected source was not more than 5% or the total mass of organic HAP applied for the month at a new affected source, where the total mass of organic HAP applied is calculated using Equation 6.  Yes  No  NA
  - Showing that the VOC collection and recovery efficiency is at least 95% for an existing affected source and at least 98% for a new affected source; and that the organic HAP control efficiency for each web coating line or group of web coating lines served by the control device and common capture system is at least 95% for existing affected sources and at least 98% for new affected sources; and that the overall organic HAP control efficiency for each web coating line or group of web coating lines served by the control device and common capture system is at least 95% for an existing affected source and at least 98% for a new affected source?  Yes  No  NA

*Combination of Compliant Coatings and Control devices*

- If the facility's affected source operates more than one capture system, more than one control device, one or more never-controlled work stations or one or more intermittently-controlled work stations to achieve mass fraction of coating solids applied, mass fraction limit or allowable emission rate, does the facility demonstrate that they are in compliance as follows:
  - The total mass of organic HAP emitted by the affected source based on coating solids applied is no more than 0.02 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or  Yes  No  NA
  - The total mass of organic HAP emitted by the affected source based on material applied is not more than 0.04kg organic HAP per kg material applied at an existing affected source and no more than 0.016 kg organic HAP per kg material applied at a new affected source; or  Yes  No  NA
  - The total mass of organic HAP emitted by the affected source during the month is less than the calculated allowable organic HAP; or  Yes  No  NA
  - The total mass of HAP emitted by the affected source was not more than 5% of the total mass of organic HAP applied for the month at an existing affected source and no more than 2% of the total mass of organic HAP applied for the month at a new affected source.  Yes  No  NA

## VI. Notifications, Reports and Records

### 15. Has the facility prepared and submitted the required notifications and reports? 63.3400

#### Initial Notification

- If the facility has an existing source, was an initial notification submitted by the due date of December 5, 2004?  Yes  No  NA
- If the facility has a new or reconstructed source that was subject to the standard as of December 4, 2002, was the initial notification submitted by the due date of April 3, 2003?  Yes  No  NA
- If the source is using a permit application in lieu of an initial notification, was it submitted by the same due date specified for the initial notification?  Yes  No  NA

#### Semi-annual Reports

- Were the semi-annual compliance reports submitted in a timely manner (Due by July 31 and January 31 each year)?  Yes  No  NA
- Does each semi-annual report submitted cover the appropriate compliance period?  Yes  No  NA
- If the facility submits semiannual reports on an alternative schedule established under Part 70 or 71, does each report contain the following:  Yes  No  NA
  - Company name and address
  - Statement by a responsible official with name, title and signature certifying the accuracy of the content of the report?
  - Date of report and beginning and ending dates of the reporting period?
  - Detail on all deviations from emission limits or a statement that no deviations occurred during the reporting period and that no CMS was inoperative, inactive, malfunctioning, out-of-control, repaired or adjusted?

#### Performance Tests and Test Reports

- If the facility is complying with the emission standard using a control device, has the performance test required for the device been completed in a timely manner?  Yes  No  NA
- Was notification of the performance test submitted as required in a timely manner?  Yes  No  NA
- Does the facility have a site specific test plan?  Yes  No  NA
- Were the operating parameters to be monitored in the performance test identified in the notification and in the test plan?  Yes  No  NA
- If no performance test is required, has the facility submitted a notification of compliance status?  Yes  No  NA

## Records

- Depending upon the compliance option selected, does the facility keep the following records:
- Organic HAP content data for compliance demonstration?  Yes  No  NA
  - VOC material and coating solids content data for compliance demonstration  Yes  No  NA
  - Material usage, organic HAP usage, VOC material usage and coatings solids usage for compliance demonstration?  Yes  No  NA
  - Documentation of the occurrence and duration of each startup, shutdown or malfunction operation?  Yes  No  NA
  - Documentation on the occurrence and duration of each malfunction of the required air pollution control and monitoring equipment (if applicable)?  Yes  No  NA
  - All required maintenance performed on air pollution control and monitoring equipment?  Yes  No  NA
  - Actions taken during periods of SSM (including corrective actions) when actions are different from the procedures specified in the SSM plan?  Yes  No  NA
  - Information necessary to demonstrate conformance with the SSM plan when actions taken are consistent with the plan?  Yes  No  NA
  - Each period during which a CMS is malfunctioning or inoperative?  Yes  No  NA
  - All results of performance tests, CMS performance evaluations, and opacity and visible emission operations (as applicable)?  Yes  No  NA
  - All measurements necessary to determine the conditions of performance test and performance evaluations?  Yes  No  NA
  - All CMS calibration checks?  Yes  No  NA
  - All adjustments and maintenance performed on the CMS?  Yes  No  NA
  - Records on continuous emission monitor data? (Note: CEM monitors are not required if the facility uses a solvent recovery device and a liquid-liquid mass balance or if a performance test is conducted.)  Yes  No  NA
  - Overall control efficiency determination using capture efficiency and control device destruction or removal efficiency test results?  Yes  No  NA
- For each continuous monitoring system (CMS) operated, does the facility maintain the following records on a monthly basis, in accordance with standard requirements (63.10(c) [63.3410(a)(2)]:
- All required CMS measurements (including monitoring data recorded during CMS breakdowns and out-of-control periods)?  Yes  No  NA
  - Date and time identifying each period the CMS was inoperative (except for zero and high-level checks)?  Yes  No  NA

- Date and time identifying each period the CMS was out of control?  Yes  No  NA
- Date and time of commencement and completion of each period of excess emissions and parameter monitoring exceedances that occurs during SSM events?  Yes  No  NA
- Date and time of commencement and completion of each period of excess emissions and parameter monitoring exceedances that occurs during non-SSM events?  Yes  No  NA
- Nature and cause of any malfunction (if known)?  Yes  No  NA
- Any corrective action taken or preventive measures adopted?  Yes  No  NA
- The nature of repairs or adjustments to all CMS that were inoperative or out of control?  Yes  No  NA
- The total process operating time during the reporting period?  Yes  No  NA
- Procedures that are part of a quality control program developed and implemented for all CMS?  Yes  No  NA
- For solvent recovery systems, does the facility maintain records or all liquid-liquid material balances performed in accordance with the requirements of 63.10(b)?  Yes  No  NA

Inspector Notes/Comments:

## VII. Definitions for POWC NESHAP [63.3310]

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

**Always-controlled work station** – a work station associated with a dryer from which the exhaust is delivered to a control device with no provision for the dryer exhaust to bypass the control device unless there is an interlock to interrupt and prevent continued coating during a bypass. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

**Applied** – for the purpose of this subpart, the amount of organic HAP coating material or coating solids (as appropriate for the emissions standards in 63.3320(b) used by the affected source during the compliance period.

**As-applied** – the condition of a coating at the time of application to a substrate, including any added solvent.

**As-purchased** – the condition of a coating as delivered to the user.

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

**Car-seal** – a seal that is placed on a device that is used to change the position of a valve or damper (e.g. from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

**Coating Material (s)** – all inks, varnishes, adhesives, primers, solvents, reducers, and other coating materials applied to a substrate via a web coating line. Materials used to form a substrate are not considered coating materials.

**Control Device** – a device such as a solvent recovery device or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

**Control Device Efficiency** – the ratio of organic HAP emissions recovered or destroyed by a control device to the total organic HAP emissions that are introduced into the control device, expressed as a percentage.

**Day** – a consecutive 24-hour period.

**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.

**Existing Affected Source** – any affected source the construction or reconstruction of which is commenced on or before September 13, 2000, and has not undergone reconstruction as defined in subpart 63.2.

**Fabric** – any woven, knitted, plaited, braided, felted, or non-woven material made of filaments, fibers, or yarns including thread. This term includes material made of fiberglass, natural fibers, synthetic fibers, or composite materials.

**Facility** – all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

**Flexible Packaging** – any package or part of a package the shape of which can be readily changed. Flexible packaging includes, but is not limited to bags, pouches, labels, liners and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials.

**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.

**HAP** – any hazardous air pollutant listed in, or pursuant to section 112(b) of the Clean Air Act. For list of hazardous air pollutants, go to [www.epa.gov/ttn/atw/orig189.html](http://www.epa.gov/ttn/atw/orig189.html).

**HAP Applied** – the organic HAP content of all coating materials applied to a substrate by web coating line at an affected source.

**Intermittently-Controlled Work Station** – a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device through a bypass line, depending on the position of a valve or damper. Sampling lines for analyzers, relief valves needed for the safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

**Metal Coil** – a continuous metal strip that is at least 0.15 millimeter (0.006 inch) thick that is packaged in a roll or coil prior to coating. After coating, it may or may not be rewound into a roll or coil. Metal coil does not include metal webs that are coated for use in flexible packaging.

**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.

**Never-controlled work station** – a work station that is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.

**New affected source** – any affected source the construction or reconstruction of which commenced after September 13, 2000.

**Overall Organic HAP Control Efficiency** – the total efficiency of a capture and control system.

**Pressure Sensitive Tape** – a flexible backing material with a pressure-sensitive adhesive coating on one or both sides of the backing. Examples include, but are not limited to, duct/duct insulation tape and medical tape.

**Research or Laboratory Equipment** – any equipment 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.

**Rewind or Cutting Station** – means a unit from which substrate is collected at the outlet of a web coating line.

**Uncontrolled Coating Line** – a coating line consisting of only never-controlled work stations.

**Unwind or Feed Station** – a unit from which the substrate is fed to a web coating line.

**Web** – a continuous substrate (e.g. paper, film, foil) which is flexible enough to be wound or unwound as rolls.

**Web Coating Line** – means any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station.

**Work Station** – a unit on a web coating line where coating material is deposited onto a web substrate.

Inspector Notes/Comments:

## VIII. Paper and Other Web Coating MACT Compliance Timeline (67 FR 72330)

Event <sup>2</sup>	Compliance Timeline <sup>1</sup>	
	Existing Sources	All New <sup>3</sup> or Reconstructed Sources
<b>Effective Date</b>	December 4, 2002 [67 FR 72330]	December 4, 2002 [67 FR 72330]
<b>Submit Initial Notification<sup>4</sup></b>	December 5, 2004 [63.3400(b)(1)]	Within 120 days from start-up or April 3, 2003 [63.3400(b)(2)]
<b>Compliance Date</b>	December 5, 2005 [63.3330(a)]	Upon start-up, or December 4, 2002, whichever is later [63.3330(b)]
<b>Submit Notification of Intent to Conduct a Performance Test<sup>5</sup></b>	At least 60 days before the performance test is scheduled to begin, but no later than April 4, 2006 [63.7(a) and (b) and 63.9(e)]	By April 3, 2003 or at least 60 days before the performance test is scheduled to begin, whichever is later [63.7(a) and (b) and 63.9(e)]
<b>Conduct Initial Performance Test<sup>6</sup></b>	No later than June 3, 2006 [63.3330(a) and 63.7(a)(2)]	By June 2, 2003 or within 180 days from startup, whichever is later [63.3330(b) and (c), and 63.7(a)(2)]
<b>Performance Test Report</b>	Within 60 days after completing the initial performance test, but no later than August 2, 2006 (submit results with the "Notification of Compliance Status" report. [63.3400(f)]	By August 1, 2003 or within 240 days after initial startup, whichever is later (submit results with the "Notification of Compliance Status" report). [63.3400(f)]
<b>Notification of Compliance Status</b>	No later than August 2, 2006 [63.3400(e) and 63.9(h)]	No later than August 1, 2003, or within 60 days following the completion of the performance test [63.3400(d) and 63.9(h)]
<b>Semiannual Compliance Reports</b>	No later than July 31, 2006 and semiannually thereafter <sup>7</sup> [63.3400(c)]	No later than July 31 or January 31, whichever date is the first date after the end of the initial compliance date, and semiannually on July 31 or January 31 thereafter <sup>8</sup> [63.3400(c)]

**Notes:**

1. This timeline does not take into account special situations such as compliance extensions.
2. Example notification and reports have been developed under the General provisions. See [www.epa.gov/ttn/atw/gp/gppg.html](http://www.epa.gov/ttn/atw/gp/gppg.html) for more information.
3. New affected source: an affected source that the construction or reconstruction of which was begun after September 13, 2000 [63.3310].
4. A Title V permit application may be used in lieu of the initial notification, provided that the information specified in 63.9(b) is included, the State has an approved Part 70 operating permit program, and the State has received delegation of authority from EPA.
5. You only have to conduct a performance test if you are using the add-on controls option.
6. Applies to emission rate with add-on controls option.
7. The initial semiannual report must cover the period beginning on December 5, 2005 and June 30, 2006. The compliance date ends on June 30 or December 31, whichever date is the first date following the end of the calendar half immediately following the compliance date. (63.3400(c)(1))
8. The initial semiannual report must cover the period beginning on startup or December 4, 2002, whichever is later, and ends on June 30 or December 31, whichever date is the first date six months immediately following the compliance date. (63.3400(c)(1))

## IX. Table 2 – Applicability of General Provisions to Subpart JJJJ

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

General Provision Reference	Applicable to Subpart JJJJ	Explanation
63.1 (a)(1)-(4)	Yes	
63.1 (a)(5)	No	Reserved
63.1 (a)(6)-(8)	Yes	
63.1 (a)(9)	No	Reserved
63.1 (a)(10)-(14)	Yes	
63.1 (b)(1)	No	Subpart JJJJ specifies applicability
63.1 (b)(2)-(3)	Yes	
63.1 (c)(1)	Yes	
63.1(c)(2)	No	Area sources not subject to emission standards of Subpart JJJJ
63.1(c)(3)	No	Reserved
63.1 (c)(4)	Yes	
63.1 (c) (5)	Yes	
63.1 (d)	No	Reserved
63.1 (e)	Yes	
63.1 (e)(4)	No	
63.2	Yes	Additional definitions in Subpart JJJJ
63.3 (a)-(c)	Yes	
63.4 (a)(1)-(3)	Yes	
63.4 (a)(4)	No	Reserved
63.4 (a)(5)	Yes	
63.4 (b)-(c)	Yes	
63.5 (a)(1)-(2)	Yes	
63.5 (b)(1)	Yes	
63.5(b)(2)	No	Reserved
63.5 (b)(3)-(6)	Yes	
63.5 (c)	No	Reserved
63.5 (d)	Yes	
63.5 (e)	Yes	
63.5 (f)	Yes	
63.6 (a)	Yes	Applies only when capture and control system is used to comply with the standard
63.6 (b)(1)-(5)	No	
63.6 (b)(6)	No	Reserved
63.6 (b)(7)	Yes	
63.6 (c)(1)-(2)	Yes	
63.6 (c)(3)-(4)	No	Reserved
63.6 (c)(5)	Yes	
63.6 (d)	No	Reserved
63.6 (e)	Yes	Provisions pertaining to SSMP and CMS do not apply unless an add-on control system is used to comply with the emissions limitations
63.6 (f)	Yes	
63.6 (g)	Yes	
63.6 (h)	No	Subpart JJJJ does not require continuous opacity monitoring systems (COMS)
63.6 (i)(1)-(14)	Yes	
63.6 (i)(15)	No	Reserved
63.6 (i)(16)	Yes	
63.6 (j)	Yes	
63.7	Yes	
63.8 (a)(1)-(2)	Yes	
63.8 (a)(3)	No	Reserved
63.8 (a)(4)	No	
63.8 (b)	Yes	
63.8 (c)(1)-(3)	Yes	63.8(c)(1)(i) & (ii) only applies if you use capture and control systems and are required to have a start-up, shutdown and malfunction plan.
63.8 (c)(4)	Yes	

General Provisions Reference	Applicable to Subpart JJJJ?	Explanation
63.8 (c)(5)	No	Subpart JJJJ does not require COMS
63.8 (c)(6)-(c)(8)	Yes	COMS provisions are not applicable
63.8 (d) –(f)	Yes	63.8(f)(6) only applies if CEMS is used
63.8 (g)	Yes	Only applies if CEMS used
63.9 (a)	Yes	
63.9 (b) (1)	Yes	
63.9 (b)(2)	Yes	Except 63.3400 (b)(1) requires submittal of initial notification for existing affected sources no later than 1 year before compliance date.
63.9 (b)(3)-(5)	Yes	
63.9 (c)-(e)	Yes	
63.9 (f)	No	Subpart JJJJ does not require opacity or visible emissions observations
63.9 (g)	Yes	COMS provisions are not applicable
63.9 (h)(1) – (3))	Yes	
63.9 (h)(4)	No	Reserved
63.9 (h)(5)-(6)	Yes	
63.9 (i)	Yes	
63.9 (j)	Yes	
63.10 (a)	Yes	
63.10 (b) (1)-(3)	Yes	63.10(b)(2)(i) through (v) only applies if a capture and control system is used.
63.10 (c)(1)	Yes	
63.10 (c)(2)-(4)	No	Reserved
63.10 (c)(5)-(8)	Yes	
63.10 (c)(9)	No	Reserved
63.10 (c)(10)-(15)	Yes	
63.10 (d)(1)-(2)	Yes	
63.10 (d)(3)	No	Subpart JJJJ does not require opacity and visible emissions observations
63.10 (d)(4)-(5)	Yes	
63.10 (e) (1)-(2)	Yes	COMS provisions are not applicable
63.10 (e) (3)-(4)	No	
63.10 (f)	Yes	
63.11	No	
63.12	Yes	
63.13	Yes	
63.14	Yes	Subpart JJJJ includes provisions for alternative ASME test methods that are incorporated by reference
63.15	Yes	

Inspector Notes/Comments:

## X. Summary of Equations for Subpart JJJJ [63.3360 and 63.3370]

### Section 63.3360 Equations – Performance Tests

- **Equation 1:** Use this equation to calculate volatile organic matter mass flow rates for each performance test run as required by this section.

$$M_f = Q_{sd} C_c [12] [0.0416] [10^{-6}]$$

Where:

- $M_f$  = Total organic volatile matter mass flow rate, kilograms (kg)/hour (h).
  - $Q_{sd}$  = Volumetric flow rate of gases entering or exiting the control device, as determined according to § 63.3360(e)(1)(ii), dry standard cubic meters (dscm)/h.
  - $C_c$  = Concentration of organic compounds as carbon, ppmv.
  - 12.0 = Molecular weight of carbon.
  - 0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mol/m<sup>3</sup>) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).
- **Equation 2:** Use this equation to calculate the emission control device destruction or removal efficiency for each performance test run as required by this section.

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \quad \text{Eq. 2}$$

Where:

- E = Organic volatile matter control efficiency of the control device, percent.
- $M_{fi}$  = Organic volatile matter mass flow rate at the inlet to the control device, kg/h.
- $M_{fo}$  = Organic volatile matter mass flow rate at the outlet of the control device, kg/h.

### Section 63.3370 Equations – Demonstrating Compliance with Emission Standards

- **Equation 1a:** When complying with emission standards using as-purchased compliant coatings use this equation to calculate the as-applied HAP content of each coating. Compare results with MACT limit.

$$C_{ahi} = \frac{\left( C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}}$$

Where:

- $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.
- $C_{hi}$  = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.
- $M_i$  = Mass of as-purchased coating material, i, applied in a month, kg.

- $q$  = number of different materials added to the coating material.
  - $Ch_{ij}$  = Organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
  - $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
- **Equation 1b:** As an alternative to Equation 1a, use this equation to calculate the as-applied VOC of each coating material. Compare results with MACT limit.

$$C_{avi} = \frac{\left( C_{vi}M_i + \sum_{j=1}^q C_{vij}M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}}$$

Where:

- $C_{avi}$  = Monthly average, as-applied, volatile organic content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $C_{vi}$  = Volatile organic content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
  - $q$  = Number of different materials added to the coating material.
  - $C_{vij}$  = Volatile organic content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
- **Equation 2:** Use this equation to calculate the as-applied solids content of each coating material which are reduced, thinned or diluted prior to application.

$$C_{asi} = \frac{\left( C_{si}M_i + \sum_{j=1}^q C_{sij}M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}}$$

Where:

- $C_{si}$  = Coating solids content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
  - $q$  = Number of different materials added to the coating material.
  - $C_{sij}$  = Coating solids content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
- **Equation 3:** Use this equation to calculate the as-applied organic HAP to coating solids ratio. Divide the overall HAP content as calculated in Equation 1a by the overall solids content as calculated in Equation 1b to obtain this ratio. Compare results to the MACT limit.

$$H_{si} = \frac{C_{ahi}}{C_{asi}}$$

Where:

- $H_{si}$  = As-applied, organic HAP to coating solids ratio of coating material, i.
  - $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.
  - $C_{asi}$  = Monthly average, as-applied, coating solids content of coating material, i, expressed as a mass fraction, kg/kg.
- **Equation 4:** Use this equation to demonstrate that the monthly average as-applied organic HAP content of all coating meets the required limits. This equation sums the HAP content of all coatings and all added materials and divides the total by the overall mass. This calculation allows the facility to account for any solvent retained in the web or for any solvent not otherwise emitted.

$$H_L = \frac{\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_{ij}}$$

Where:

- $H_L$  = Monthly average, as-applied, organic HAP content of all coating materials applied, expressed as kg organic HAP per kg of coating material applied, kg/kg.
  - $p$  = Number of different coating materials applied in a month.
  - $C_{hi}$  = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.
  - $M_i$  = Mass of as-purchased coating material, i, applied in a month, kg.
  - $q$  = Number of different materials added to the coating material.
  - $C_{hij}$  = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.
  - $M_{ij}$  = Mass of material, j, added to as-purchased coating material, i, in a month, kg.
  - $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.
- **Equation 5:** If choosing to comply with the emission standard using as-purchased materials, use this equation to demonstrate that the monthly average as-applied organic HAP content on the basis of coating solids applies of all coating material applies is less than the MACT limit.

$$H_s = \frac{\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^p C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij}}$$

Where:

- $H_s$  = Monthly average, as-applied, organic HAP to coating solids ratio, kg organic HAP/kg coating solids applied.
  - $p$  = Number of different coating materials applied in a month.
  - $C_{hi}$  = Organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg.
  - $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
  - $q$  = Number of different materials added to the coating material.
  - $C_{hij}$  = Organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
  - $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.
  - $C_{si}$  = Coating solids content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $C_{sij}$  = Coating solids content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
- **Equation 6:** Use this equation to calculate the monthly allowable HAP and demonstrate that this amount, as calculated, is less than the calculated equivalent allowable organic HAP as determined by Equation 13a or 13b.

$$H_m = \sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}$$

Where:

- $H_m$  = Total monthly organic HAP applied, kg.
- $p$  = Number of different coating materials applied in a month.
- $C_{hi}$  = Organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg.
- $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
- $q$  = Number of different materials added to the coating material.
- $C_{hij}$  = Organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
- $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
- $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.

- **Equation 7:** If using a solvent recovery device and a liquid-liquid material balance to demonstrate compliance with emission standards, use this equation to calculate the collection and recovery efficiency of the device.

$$R_v = \frac{M_{vr} + M_{vret}}{\sum_{i=1}^p C_{vi} M_i + \sum_{i=1}^q C_{vij} M_{ij}} \times 100$$

Where:

- $R_v$  = Organic volatile matter collection and recovery efficiency, percent.
  - $M_{vr}$  = Mass of volatile matter recovered in a month, kg.
  - $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.
  - $p$  = Number of different coating materials applied in a month.
  - $C_{vi}$  = Volatile organic content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
  - $q$  = Number of different materials added to the coating material.
  - $C_{vij}$  = Volatile organic content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
- **Equation 8:** When performing a liquid-liquid material balance, use this equation to calculate the organic HAP emitted during the month and compare results to the MACT limit.

$$H_e = \left[ 1 - \frac{R_v}{100} \right] \left[ \sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret} \right]$$

Where:

- $H_e$  = Total monthly organic HAP emitted, kg.
- $R_v$  = Organic volatile matter collection and recovery efficiency, percent.
- $p$  = Number of different coating materials applied in a month.
- $C_{hi}$  = Organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg.
- $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
- $q$  = Number of different materials added to the coating material.
- $C_{hij}$  = Organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg.
- $M_{ij}$  = Mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg.
- $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.

- **Equation 9:** When performing a liquid-liquid mass balance, use the results from Equation 8 and this equation to calculate the organic HAP emission rate based on coating solids applied. Compare results to the MACT limit.

$$L = \frac{H_e}{\sum_{i=1}^p C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij}}$$

Where:

- L = Mass organic HAP emitted per mass of coating solids applied, kg/kg.
  - H<sub>e</sub> = Total monthly organic HAP emitted, kg.
  - p = Number of different coating materials applied in a month.
  - C<sub>si</sub> = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.
  - M<sub>i</sub> = Mass of as-purchased coating material, i, applied in a month, kg.
  - q = Number of different materials added to the coating material.
  - C<sub>sij</sub> = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.
  - M<sub>ij</sub> = Mass of material, j, added to as-purchased coating material, i, in a month, kg.
- **Equation 10:** When performing a liquid-liquid mass balance and using a solvent recovery device to demonstrate compliance with emission standards, use the results from Equation 8 and this equation to calculate the organic HAP emission rate based on coating material applied. Compare results to the MACT limit.

$$S = \frac{H_e}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_{ij}}$$

Where:

- S = Mass organic HAP emitted per mass of material applied, kg/kg.
  - H<sub>e</sub> = Total monthly organic HAP emitted, kg.
  - p = Number of different coating materials applied in a month.
  - M<sub>i</sub> = Mass of as-purchased coating material, i, applied in a month, kg.
  - q = Number of different materials added to the coating material.
  - M<sub>ij</sub> = Mass of material, j, added to as-purchased coating material, i, in a month, kg.
- **Equation 11:** When using a solvent recovery device, use this equation to calculate the overall organic HAP control efficiency, of the control device, achieved for the month.

$$R = \frac{(E)(CE)}{100}$$

Where:

- R = Overall organic HAP control efficiency, percent.

- E = Organic volatile matter control efficiency of the control device, percent.
- CE = Organic volatile matter capture efficiency of the capture system, percent.

- **Equation 12:** Use this equation to calculate the organic HAP emitted during the month for each month.

$$H_e = (1 - R) \left( \sum_{i=1}^p C_{ahi} M_i \right) - M_{vret}$$

Where:

- $H_e$  = Total monthly organic HAP emitted, kg.
- R = Overall organic HAP control efficiency, percent.
- p = Number of different coating materials applied in a month.
- $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.
- $M_i$  = Mass of as-purchased coating material, i, applied in a month, kg.
- $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

- **Equation 13a:** Use this equation to calculate the monthly allowable organic HAP emissions for existing affected sources.

$$H_a = 0.20 \left[ \sum_{i=1}^p M_i G_i C_{si} \right] + 0.04 \left[ \sum_{i=1}^p M_i (1 - G_i) + \sum_{j=1}^q M_{Lj} \right]$$

Where:

- $H_a$  = Monthly allowable organic HAP emissions, kg.
- p = Number of different coating materials applied in a month.
- $M_i$  = mass of as-purchased coating material, i, applied in a month, kg.
- $G_i$  = Mass fraction of each coating material, i, which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.
- $C_{si}$  = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.
- q = Number of different materials added to the coating material.
- $M_{Lj}$  = Mass of non-coating-solids containing coating material, j, added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

- **Equation 13b:** Use this equation to calculate the monthly allowable organic HAP emissions for new affected sources.

$$H_a = 0.08 \left[ \sum_{i=1}^p M_i G_i C_{si} \right] + 0.016 \left[ \sum_{i=1}^p M_i (1 - G_i) + \sum_{j=1}^q M_{Lj} \right]$$

Where:

- $H_a$  = Monthly allowable organic HAP emissions, kg.
- p = Number of different coating materials applied in a month.

- $M_i$  = Mass of as-purchased coating material,  $i$ , applied in a month, kg.
  - $G_i$  = Mass fraction of each coating material,  $i$ , which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.
  - $C_{si}$  = Coating solids content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $q$  = Number of different materials added to the coating material.
  - $M_{Lj}$  = Mass of non-coating-solids containing coating material,  $j$ , added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.
- **Equation 14:** For each web coating line or group of web coating lines, use this equation to calculate the organic HAP emitted during the month. Both controlled and uncontrolled work stations and/or lines are considered in this equation. This equation accounts for any solvent retained in the web or that is not otherwise emitted.

$$H_e = \left[ \sum_{i=1}^p M_{C_i} C_{ahi} \right] \left[ 1 - \frac{R_v}{100} \right] + \left[ \sum_{i=1}^p M_{B_i} C_{ahi} \right] - M_{vret}$$

Where:

- $H_e$  = Total monthly organic HAP emitted, kg.
  - $p$  = Number of different coating materials applied in a month.
  - $M_{C_i}$  = Sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material,  $i$ , as-applied on always-controlled work stations, in a month, kg.
  - $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $R_v$  = Organic volatile matter collection and recovery efficiency, percent.
  - $M_{B_i}$  = Sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material,  $i$ , as-applied on never-controlled work stations, in a month, kg.
  - $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
  - $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.
- **Equation 15:** For each web coating line or group of web coating lines for which combinations of capture and control systems are used, use this equation to calculate the organic HAP emitted during the month. Both controlled and uncontrolled work stations and/or lines are considered in this equation. This equation accounts for any solvent retained in the web or that is not otherwise emitted.

$$H_e = \left[ \sum_{i=1}^p M_{C_i} C_{ahi} \right] \left[ 1 - \frac{R}{100} \right] + \left[ \sum_{i=1}^p M_{B_i} C_{ahi} \right] - M_{vret}$$

Where:

- $H_e$  = Total monthly organic HAP emitted, kg.

- $p$  = Number of different coating materials applied in a month.
- $M_{ci}$  = Sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material,  $i$ , as-applied on always-controlled work stations, in a month, kg.
- $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
- $R$  = Overall organic HAP control efficiency, percent.
- $M_{Bi}$  = Sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material,  $i$ , as-applied on never-controlled work stations, in a month, kg.
- $C_{ahi}$  = Monthly average, as-applied, organic HAP content of coating material,  $i$ , expressed as a mass fraction, kg/kg.
- $M_{vret}$  = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

Inspector Notes/Comments:

## XI. 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.

### 1. 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.