# National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products Manufacturing

## Background Information for Final Standards

## Summary of Public Comments and Responses

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Summary of Public Comments and Responses

Contract No. 68-D-01-079
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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Emission Standards Division
Research Triangle Park, North Carolina 27711

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# Chapter 1
# Summary

On January 9, 2003, the U.S. Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutants (NESHAP) for plywood and composite wood products (PCWP) manufacturing (68 FR 1276) under authority of section 112 of the Clean Air Act (CAA). The public comment period remained open from January 9, 2003 to March 10, 2003. Fifty-seven public comment letters were received during the public comment period from sources consisting mainly of PCWP manufacturers, control device vendors, environmental organizations, various industry trade associations, and government agencies.

All of the comments that were submitted during the public comment period and the responses to those comments are summarized in this document. This summary is the basis for the revisions made to the standards between proposal and promulgation.

## 1.1 SUMMARY OF CHANGES SINCE PROPOSAL

Several changes have been made since the proposal of these standards. Major changes include (1) dividing tube dryers into two separate process units, primary and secondary tube dryers, and adding a new production-based compliance option for secondary tube dryers; (2) revising Maximum Achievable Control Technology (MACT) floor for conveyor strand dryers to require control for zone 1 for existing dryers and zones 1 and 2 for new dryers; (3) changing the press and board cooler enclosure requirement from Method-204-certified permanent total enclosure (PTE) to wood products enclosure, essentially an enclosure designed and maintained to capture all emissions, but not Method 204 certified; (4) allowing facilities to assume zero for nondetect data if the detection limit is less than or equal to 1 ppmvd and all three runs are below the detection limit when determining if they can meet the production-based compliance options; (5) exempting combustion units from testing and monitoring requirements if the exhaust gas to be treated enters the combustion unit flame zone; (6) removing the requirement to monitor the static pressure or flow rate for thermal and catalytic oxidizers, and clarifying requirements for temperature monitoring; (7) adding a requirement for catalytic oxidizers to check catalyst activity of a representative sample annually; (8) revising the biofilter monitoring requirements by removing the requirement to monitor the pH and static pressure, changing the location of the biofilter temperature monitor, allowing sources one year to establish the operating range for new and modified biofilters, and requiring repeat performance tests every two years and every time more than half of the bed media is replaced; (9) providing flexibility for monitoring process units that meet compliance options without the use of a control device; (10) revising wastewater impacts; (11) excluding wastewater from regenerative thermal oxidizer/regenerative catalytic oxidizer (RTO/RCO) washouts, wet electrostatic precipitators (WESPs) upstream of RTO/RCO, and biofilters from effluent guidelines; (12) including a definition of wet control device and requiring facilities using only wet control devices to control hazardous air pollutants (HAP) to submit a plan detailing how they plan to contain or destroy the HAP collected in the water; (13) requiring use of non-HAP coatings for certain miscellaneous coating operations; (14) revising the accuracy requirements and calibration procedures for moisture monitors used with rotary dry dryers and veneer redryers; (15) removing the requirement to schedule maintenance at the beginning of each semi-annual period and modifying requirement to minimize emissions during periods of startup, shutdown, and malfunction; and (16) consolidating and clarifying the entire section outlining requirements during startup, shutdown, and malfunction (SSM).

Other changes have been made to revise certain portions of the rule that were unclear to the commenters, including (1) specifying that the sampling location for a series of control devices should be the functional inlet of the control sequence; (2) clarifying that facilities cannot combine production-based compliance options, add-on controls, and emissions averaging for a single process unit and that the States should determine how multiple add-on control options may be applied and included in a permit; and (3) clarifying the classifications of credit-generating process units and debit-generating process units for the emissions averaging compliance option.  In addition, in order to eliminate inconsistency between the PCWP NESHAP and revisions of the MACT General Provisions, various sections of the rule were revised to reference the General Provisions directly.  Finally, multiple definitions were added, removed, and revised within the definitions section of the rule.

In addition to the changes mentioned above, the final PCWP rule includes an option that would allow individual facilities to be found eligible for membership in a delisted low-risk subcategory if they demonstrate that they do not pose a significant risk to human health or the environment.  The low-risk subcategory delisting in the final PCWP rule is based on EPA's authority under CAA sections 112(c)(1) and (9).  The criteria defining the low-risk subcategory of PCWP facilities are included in Appendix B to the final PCWP rule.  Facilities will have to demonstrate that their emissions qualify them to be included in the low-risk subcategory using the methodology and criteria in Appendix B.  Facilities that are part of the low-risk subcategory are not be subject to the MACT compliance options included in the final PCWP rule.

# Chapter 2
# Summary of Public Comments

The EPA received a total of 57 letters commenting on the proposed standards and supporting technical memoranda for the proposed standards. A list of commenters, their affiliations, and the EPA docket item number assigned to their correspondence is provided in Table 2-1.

To achieve an organized presentation, we have grouped the comments under the following topics:

1. Applicability;
2. Health effects;
3. Existing source MACT;
4. New source MACT;
5. Air pollution control devices;
6. Compliance options;
7. Testing and monitoring requirements;
8. Cost and economic assumptions and impacts;
9. Startup, shutdown, and malfunction (SSM);
10. Risk-based approaches; and
11. Miscellaneous.

The comments, the issues they address, and EPA's responses are discussed in the following sections of this chapter.

**Table 2-1. List of Commenters on Proposed NESHAP for PCWP Manufacturing**

| Docket Item No.[a] | Commenter/Affiliation |
|---|---|
| IV-D-01 | L.L. Eagan, Director, Bureau of Air Management, State of Wisconsin, Department of Natural Resources, Madison, WI. |
| IV-D-02 | J. W. Anderson, President of the Board of Supervisors, Perry County, New Augusta, MS. |
| IV-D-03 | M. L. Steele, Environmental Engineer, CraftMaster Manufacturing Inc. (CMI), Towanda, PA. |
| IV-D-04 | J. D. Thornton, Manager, Policy & Planning Division, Minnesota Pollution Control Agency, St. Paul, MN. |
| IV-D-05 | J. Wallen, Environmental Officer, Hambro Forest Products Inc., Crescent City, CA. |
| IV-D-06 | R. W. Gore, Chief, Air Division, Alabama Department of Environmental Management (ADEM). |
| IV-D-07 | J. W. Sanders, Forest Supervisor, U.S. Department of Agriculture, Duluth, MN. |
| IV-D-08 | J. S. Spadaro, President, SDS Lumber Company, Bingen, WA. |
| IV-D-09 | P. B. Barringer II, Chairman & CEO, Coastal Lumber Company, Weldon, NC. |
| IV-D-10 | J. R. Ferlin, President, Brooks Manufacturing Co., Bellingham, WA. |
| IV-D-11 | J. T. Higgins, Director, Bureau of Stationary Sources Division of Air Resources, New York State Department of Environmental Conservation, Albany, NY. |
| IV-D-12 | J. Bradfield, Director of Environmental Affairs, Composite Panel Association, Gaithersburg, MD. |
| IV-D-13 | P. Quosai, Manager, Environment Health & Safety, Norbord Industries Inc., Toronto, Ontario, Canada. |
| IV-D-14 | D. J. Hejna, Environmental Manager, Potlatch Corp., Bemidji, MN. |
| IV-D-15 | R. Freres, Vice President, Freres Lumber Company Inc., Lyons, OR. |

| Docket Item No.[a] | Commenter/Affiliation |
|---|---|
| IV-D-16 | E. Piliaris, General Manager, Hardel Mutual Plywood Corp., Chehalis, WA. |
| IV-D-17 | T. J. Davis, Mayor, Town of Havana, Havana, FL. |
| IV-D-18 | L. Eagan, Chair, State and Territorial Air Pollution Program Administrators (STAPPA) Air Toxics Committee and R. Colby, Association of Local Air Pollution Control Officials (ALAPCO) Air Toxics Committee, Washington, DC. |
| IV-D-19 | P. J. Vasquez, Senior Manager, Environmental Engineering - Wood Products, Georgia-Pacific Corp., Atlanta, GA. |
| IV-D-20 | D. H. Word, Ph.D., Program Manager, National Council for Air and Stream Improvement Inc. (NCASI), Gainesville, FL. |
| IV-D-21 | S. E. Woock, Federal Regulatory Affairs Manager, Weyerhaeuser, New Bern, NC. |
| IV-D-22 | L. S. Hyde, Manager Environmental Department for Koppers Industries Inc., B. Crossman for Atlantic Wood Industries, J. Ferlin for Brooks Manufacturing Co., M. Lodgeon for Fontana Wood Preserving Inc., D. Devries for Thunderbolt Wood Treating Company Inc., and M. Wright for Wood Preservers Inc. |
| IV-D-23 | R. Strader, Environmental Manager, Boise Building Solutions, Boise Cascade Corp., Boise, ID. |
| IV-D-24 | R. S. Frye, Counsel for Louisiana-Pacific Corp., Collier Shannon Scott PLLC, Washington, DC. |
| IV-D-25 | V. Ughetta, Director Stationary Sources, The Alliance of Automobile Manufacturers, Washington, DC. |
| IV-D-26 | J. Walke, D. McIntosh, J. Devine, Natural Resources Defense Council, Washington, DC. |
| IV-D-27 | T. G. Hunt, Senior Director, Air Quality Programs, American Forest & Paper Association, Washington, DC. |
| IV-D-28 | J. M. Tracy, Vice President East Coast Operations, Moncure, NC. |
| IV-D-29 | D. Burns, Vice President, Southeastern Lumber Manufacturers Association (SLMA). |
| IV-D-30 | S. Ngo, Private Citizen, Houston, TX. |
| IV-D-31 | J. P. Mieure Ph.D., President, The Formaldehyde Epidemiology, Toxicology, and Environmental Group Inc. (FETEG), Washington, DC. |

| Docket Item No.[a] | Commenter/Affiliation |
|---|---|
| IV-D-32 | C. Morretta, Administrative Director, Mercatus Center at George Mason University, Arlington, VA. |
| IV-D-33 | M. A. Round, Senior Air Toxics Program Analyst, The Northeast States for Coordinated Air Use Management (NESCAUM), Boston, MA. |
| IV-D-34 | G. Grimes, Environmental Director, Timber Products Company, Medford, OR. |
| IV-D-35 | D. S. Hill, Executive Vice President, Southern Oregon Timber Industries Association (SOTIA), Medford, OR. |
| IV-D-36 | R. J. Spahr, Mayor, City of Chehalis, Chehalis, WA. |
| IV-D-37 | B. M. Martin II, Director Environmental Affairs, Huber Engineered Woods, Dayton, TN. |
| IV-D-38 | L. Dailey, Mayor, Town of Beaumont, Beaumont, MS. |
| IV-D-39 | J. Galloway, President, Hood Industries, Hattiesburg, MS. |
| IV-D-40 | D. Hatten, President, Stone County Board of Supervisors, Wiggins, MS. |
| IV-D-41 | T. H. O'Melia Jr., President, Scotch Plywood Company, Fulton, AL. |
| IV-D-42 | K. Adams, Vice President Operations, Southern Veneer Products, Fitzgerald, GA. |
| IV-D-43 | D. J. Harvey, Director of Environmental Affairs, Louisiana-Pacific Corporation, Portland, OR. |
| IV-D-44 | J. O. Rabby, President, Bank of Wiggins, Wiggins, MS. |
| IV-D-45 | W. L. Gramm, Director, Regulatory Studies Program, and S. E. Dudley, Senior Research Fellow, George Mason University, Mercatus Center, Arlington, VA. |
| IV-D-46 | M. E. Rock, President & Senior Principal, Omni Professional Environmental Assoc., Research Triangle Park, NC. |
| IV-D-47 | R. Childers, Environmental Coordinator, U.S. Forest Industries Inc., Grants Pass, OR. |
| IV-D-48 | T. DeVore, Plant Environmental Manager, Collins Products LLC, Klamath Falls, OR. |
| IV-D-49 | J. P. Witkowski, Air Subcommittee Chair, Environmental/Technical Committee, South Carolina Chamber of Commerce, Columbia, SC. |

| Docket Item No.[a] | Commenter/Affiliation |
|---|---|
| IV-D-50 | S. Bruggeman, South Coast Lumber Company & Pacific Wood Laminates Inc., Brookings, OR. |
| IV-D-51 | S. Boone, P.E., URS Corporation. |
| IV-D-52 | T. Noteboom, Corporate Environmental Engineer, Pella Corporation. |
| IV-D-53 | J. Murphy, Vice President/COO, Murphy Plywood, Sutherlin, OR. |
| IV-D-54 | D. Wylie, Chief, Air Division, Mississippi Department of Environmental Quality, State of Mississippi. |
| IV-D-55 | M. Peters, McKinney & Stringer, P.C. (comments on behalf of Dominance Industries, Inc. d/b/a Pan Pacific Products, Inc.). |
| IV-D-56 | A. Casey, Sr. Environmental Engineer, Masonite, Chicago, IL. |
| IV-D-57 | R. S. Frye, Counsel for Louisiana-Pacific Corp., Collier Shannon Scott PLLC, Washington, DC. |

[a]The docket number for the PCWP Manufacturing NESHAP is A-98-44.

## 2.1 APPLICABILITY

### 2.1.1 <u>Affected source and major source determination</u>

2.1.1.1 Comment: Commenters requested that EPA clarify that the PCWP affected source includes refining and resin preparation activities such as mixing, formulating, blending, and chemical storage, and suggested that boilers be excluded. Commenters also recommended changing the definition of affected source by revising the definition of “plant site,” which is used in the affected source definition.

Commenter IV-D-27 suggested that EPA modify the definition of “affected source” by adding refining and resin preparation as process operations and by excluding boilers. Commenters IV-D-21 and IV-D-27 requested that mixing, formulating, blending and storage of various chemicals at PCWP plants be subject to the proposed PCWP NESHAP. The commenters contended that the HAP emissions from these four activities at PCWP plants are insignificant, and the emissions associated with them would be impractical to control.

Commenter IV-D-27 noted that they also had submitted comments on the proposed miscellaneous organic NESHAP (MON) rule requesting that such activities at PCWP facilities be excluded from the requirements of the MON.[1] In those comments, the commenter specifically requested that EPA include language in subpart FFFF (Miscellaneous Organic Chemical Manufacturing NESHAP) and subpart HHHHH (Miscellaneous Coating Manufacturing NESHAP) to the effect that those subparts would apply to the manufacture of chemical products rather than to activities associated with the use of a coating by an end user, including mixing and storage of coatings prior to using them. The commenter expressed concern that the proposed MON rule could suggest that a unit process is exempt from the MON rule only if MACT standards for another source category establish control requirements for that particular unit process. If the MON were interpreted this way, any activities such as mixing, blending, and storage of various chemicals at PCWP facilities that would not be required to be controlled under the PCWP NESHAP could be subject to control requirements in the MON rule. Therefore, commenters requested that EPA unambiguously state in the PCWP rule that chemical mixing, formulating, blending, and storage activities that occur at PCWP facilities are covered by the PCWP NESHAP and are not subject to other NESHAP, including the MON rule.

Commenters IV-D-27 and IV-D-21 recommended changing the definition of affected source by revising the definition of "plant site," which is used in the affected source definition. The commenters want EPA to make the definition of "plant site" consistent with the definition of "major source" as defined for title V permitting in 40 CFR §70.2. According to the commenters, the proposed definition of "plant site" expanded the definition of a source beyond that used for title V permitting or MACT applicability in general. Based on the definition of "major source" below, the commenters requested that wording be added to the proposed definition of "plant site" to limit a source to a single major industrial grouping and that the last sentence in the proposed definition of plant site be removed.

> "<u>Major source</u> means any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person (or persons under common control)) belonging to a single major industrial grouping and that are described in paragraph (1), (2), or (3) of this definition. For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties

belong to the same Major Group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987."

Industry's recommended changes to the definitions of "affected source" and "plant site" are as follows (additions are in italics and deletions are in strikeout format):

> Affected source means the collection of dryers, *refiners*, blenders, formers, presses, board coolers, and other process units associated with the manufacturing of plywood and composite wood products at a plant site. The affected source includes, but is not limited to, green end operations, *refining*, drying operations, *resin preparation*, blending and forming operations, pressing and board cooling operations, and miscellaneous finishing operations (such as sanding, sawing, patching, edge sealing, and other finishing operations ~~not subject to other NESHAP~~). The affected source also includes onsite storage *and preparation* of raw materials used in the manufacture of plywood and/or composite wood products, such as resins; onsite wastewater treatment operations specifically associated with plywood and composite wood products manufacturing; and miscellaneous coating operations (defined elsewhere in this section). The affected source includes lumber kilns at PCWP manufacturing facilities and at any other kind of facility. *The affected source does not include boilers.*

> Plant site means all contiguous or adjoining property *belonging to a single major industrial grouping* that is under common control, including properties that are separated only by a road or other public right-of-way. ~~Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof~~.

Response: For the final rule, we changed the proposed definition of affected source as follows:

> Affected source means the collection of dryers, *refiners,* blenders, formers, presses, board coolers, and other process units associated with the manufacturing of plywood and composite wood products~~ at a plant site~~. The affected source includes, but is not limited to, green end operations, *refining,* drying operations, *resin preparation*, blending and forming operations, pressing and board cooling operations, and miscellaneous finishing operations (such as sanding, sawing, patching, edge sealing, and other finishing operations not subject to other NESHAP). The affected source also includes onsite storage of raw materials used in the manufacture of plywood and/or composite wood products, such as resins; onsite wastewater treatment operations specifically associated with plywood and composite wood products manufacturing; and miscellaneous coating operations (defined elsewhere in this section). The affected source includes lumber kilns at PCWP manufacturing facilities and at any other kind of facility.

We added refining and resin preparation activities to the definition of "affected source" to clarify that these activities are part of the PCWP source category and are not subject to the MON. We believe these changes are appropriate because MACT for refining and resin preparation activities was determined under the PCWP rulemaking. Resin preparation includes any mixing, blending, or diluting of resins used in the manufacture of PCWP products that occurs at the PCWP manufacturing facility. We determined that MACT for new and existing atmospheric refiners, blenders, and resin storage/mixing tanks is no emission reduction. For new and existing pressurized refiners, we determined that MACT is based on the use of incineration-based control or a biofilter. The MON subparts FFFF and HHHHH exclude activities included as part of the affected source for other source categories. Thus, refining and resin preparation are not subject to the MON Subparts FFFF or HHHHH.

We deleted the proposed definition of "plant site" from the final rule to eliminate confusion. The term "plant site" was used only in the proposed definitions of "affected source" and "plywood and composite wood products manufacturing facility." The term "plant site" was eliminated from the proposed definition of "affected source" and was replaced by the word "facility" in the definition of "plywood and composite wood products manufacturing facility." These changes leave to title V permit writers the discretion to determine the boundaries around each facility for purposes of both title V and MACT. We believe deleting the term "plant site" clarifies that the requirements of the final rule would apply only to the affected source, which is the PCWP manufacturing facility. However, we note that any major source determination would be based on total emissions from operations that are co-located and under common control according to the definition of major source in the General Provisions (40 CFR part 63, subpart A).

We did not remove the phrase "not subject to other NESHAP" from the list of miscellaneous finishing operations in the definition of "affected source" as suggested by the commenter. The phrase was retained to avoid overlap between the PCWP and Wood Building Products rules. We also did not add "and preparation of raw materials" because this change is not necessary given the addition of "resin preparation" earlier in the definition.

We did not add the commenter's suggested statement that "the affected source does not include boilers" because it is possible for a boiler to be subject to both the PCWP NESHAP and

Boilers/Process Heaters NESHAP (e.g., if a portion of the boiler exhaust is used to direct-fire dryers while the remaining portion of the boiler exhaust is vented to the atmosphere). However, in most cases combustion units would only be subject to one NESHAP (either the PCWP NESHAP for combustion units dedicated to directly firing process units or the Boilers/Process Heaters NESHAP for combustion units that are not used to direct-fire process units).

2.1.1.2 Comment: Commenters IV-D-08, IV-D-09, IV-D-15, IV-D-39, IV-D-41, IV-D-42, and IV-D-53 requested that EPA modify the definition of major source to exclude certain low-HAP resins from plant-wide HAP emission calculations at softwood plywood plants. These commenters contended that the source of most of the emissions from softwood plywood plants is the resin; all of these commenters (except IV-D-08 and IV-D-41) provided a facility-specific mass balance to support their assertion. According to the commenters, if a plant uses a resin with minimal HAP content, then that pollutant should be omitted from the emission calculations around the press. The commenters noted that the resins used 20 years ago had high HAP contents, but since then chemical companies have reduced the HAP content at the plywood companies' request. The reporting thresholds of the Toxics Release Inventory (TRI) program under the Superfund Amendments and Reauthorization Act (SARA) title III, section 313, are less than 1 percent of any HAP and less than 0.1 percent of any carcinogenic HAP. Most of the resins used in today's PCWP plants meet those standards. The commenters requested that EPA adopt these reporting thresholds into the PCWP rule such that if the resin contains less than 1 percent of any HAP or less than 0.1 percent of any carcinogenic HAP, the press emissions should be excluded from the emission calculations. In addition, the commenters stated that emissions of any HAP in an undiluted stream that are less than Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) also should be excluded from the calculations because these low levels do not pose a threat to the environment or human health. The commenters suggested the following addition to section 63.2231(b) (Does this subpart apply to me?):

> "For the purposes of this subpart, emissions from presses where the resin contains less than 1 percent of any HAP and less than 0.1 percent of any HAP that is a carcinogen will be excluded from these emission calculations. Also, any emission of a HAP in an undiluted process stream that is present at concentrations below the PEL established by OSHA shall be excluded from these emission calculations. The HAP content in the resin

> shall be supplied by the resin manufacturer as required by CFR Part 1910.1200. The emissions of HAP in process streams shall be determined by engineering assessments, process knowledge, or test data using EPA approved methods."

Response: The language suggested by the commenters is not included in the final PCWP NESHAP. The CAA requires that major source status be determined by accounting for emissions from all HAP-emitting processes at a facility. According to the proposal background information document (BID), HAP emissions from softwood plywood presses are generally around 7 tons per year (tpy) and HAP emissions from veneer dryers are typically around 5 tpy. A typical softwood plywood plant has at least one press and multiple veneer dryers, and therefore can easily exceed the 10/25-tpy major source thresholds.

The HAP emissions from softwood plywood plants include emissions associated with wood drying; therefore, determination of HAP emissions involves more than documenting resin HAP content as is done for TRI reporting. Also, OSHA sets PELs to protect workers against the health effects of exposure to hazardous substances. The PELs are regulatory limits on the amount or concentration of a substance in the air to which a worker is exposed. The OSHA PEL is designed to protect workers, not for the express purpose of protecting the environment. The CAA requires NESHAP based on MACT for softwood plywood facilities, and MACT for softwood plywood facilities is determined differently (i.e., technology-based standard determination) and for a different purpose (i.e., protection of the environment) than the OSHA PEL. For these reasons, we disagree that calculations associated with TRI or the OSHA PEL have any bearing on facility status as a HAP major source for purposes of the PCWP NESHAP.

2.1.1.3 Comment: Commenter IV-D-47 claimed that the emission factor data upon which major source determinations must be made is variable and "unsubstantiated." As an example, the commenter pointed out that the EPA's AP-42 emission factor for methanol emissions from a plywood press is high enough to classify almost all plywood plants as major sources, but if the NCASI factor is applied to the same plants, they might be well below the major source level. The commenter stated that a lot of the emissions data used to support the emissions factor development were collected from facilities with unique situations and may not be completely accurate for all situations. The commenter noted that the alternative to using emissions factors is to test potential sources of HAP at each facility; however, the commenter argued that some of the EPA's test methods are unreliable.

Response: It is the responsibility of permitting authorities to decide what data are to be used in major/area source determinations (e.g., emissions test data, AP-42 emission factors). Various EPA and NCASI methods are available for testing PCWP emissions. For example, the final PCWP rule lists five methods that can be used for measuring formaldehyde emissions and four methods that can be used to measure methanol emissions.

As further explained in response to comment 2.2, emissions data from three sources were used in development of the MACT standards: (1) data used to develop the September 1997 Plywood AP-42 section 10.5, (2) data from NCASI's 29-mill sampling program submitted to EPA in 1999, and (3) data from test reports collected by EPA in 1998. The Plywood AP-42 section 10.5 was revised to incorporate the new emissions test data received through EPA's industry survey and the NCASI sampling program. The final revised AP-42 section was placed on our Web site (http://www.epa.gov/ttn/chief/ap42/ch10/) in January 2002. We also note that along with the revised AP-42 section, a spreadsheet of emission test results used in developing the AP-42 emission factors has been placed on our Web site. If allowed by the permitting authority, facilities can select data from these spreadsheets that better depict their operations (e.g., by choosing only the indirect-fired veneer dryer, Douglas fir emission factors as opposed to the indirect-fired softwood veneer dryer factors).

### 2.1.2 Equipment groups

2.1.2.1 Comment: Commenters IV-D-19 and IV-D-27 recommended that a number of definitions be added to the rule to better define those processes and process unit groups for which there are no control requirements under subpart DDDD. The commenters recommended that the following definitions be added to the rule:

> Adhesive/additive preparation unit means a production unit designed to prepare or transport adhesives, resins and additives for subsequent use in the production of plywood and composite panels. Preparation includes chemical mixing, formulating, and blending activities. An adhesive/additive preparation unit is a process unit.

Agricultural fiber means the fiber of an annual agricultural crop. Examples of agricultural fibers include (but are not limited to) wheat straw, rice straw, and bagasse.

Agricultural fiber board press means a press used in the production of an agricultural fiber based composite wood product. An agricultural fiber board press is a process unit.

Atmospheric refiner means a piece of equipment operated under atmospheric pressure for refining (rubbing or grinding) the wood material into fibers or particles. Atmospheric refiners are operated with continuous infeed and outfeed of wood material and atmospheric pressures throughout the refining process. An atmospheric refiner is a process unit.

Blender means an enclosed system designed to mix adhesive and other additives with the (wood) furnish of the composite panel. The blender does not include process units for storage of adhesives or additives or process units that prepare adhesives or additives for use. A blender is a process unit.

Engineered wood product press means a composite wood product press, curing chamber or clamping system used in the production of wood I-Joists, glue-laminated beams, laminated strand lumber (LSL), parallel strand lumber (PSL) and laminated veneer lumber (LVL) and similar products. An engineered wood product press is a process unit.

Fiber washer means a unit in which water-soluble components of wood (hemicellulose and derived five carbon sugars) that have been produced during digesting and refining are removed from the wood fiber. Typically wet fiber leaving a refiner is further diluted with water and then passed over wire covered drum filter leaving the cleaned fiber on the surface of the drum where it is picked up and carried to the next step, a device that produces a composite wood product mat either through dry forming or wet forming. A fiber washer is a process unit.

Former means a device that produces a composite wood product mat either through dry forming or wet forming. A former is a process unit.

Humidifier means a process unit used to increase the moisture content of hardboard following pressing or after post-baking. Typically, water vapor saturated air is blown over the hardboard surfaces in a closed cabinet. A humidifier is a process unit.

Maintenance operation means equipment associated with maintenance operations at plywood and composite wood products plants. Maintenance operations include but are not limited to all metal working, vehicle maintenance, and building maintenance activities.

Miscellaneous processing operation means equipment that processes material for plywood and composite wood product operations that is separate from controlled equipment defined in the rule. Miscellaneous processing operations include but are not limited to all conveyors (including pneumatic conveyors) for material transfer, recycling or waste removal, and screens. Miscellaneous processing operations are process units.

Plywood press means a composite wood product press used in the production of plywood. A plywood press is a process unit.

Raw material processing operation means equipment that processes raw material for plywood and composite wood product operations prior to the refiners and dryers defined in the rule. Raw material processing operations include but are not limited to all raw material storage buildings, raw material unloading and transfer equipment, outside raw material storage operations, wood fuel storage piles, log decks, log vats and their related water handling systems (heaters, screens, pumps, tanks, etc.), debarkers, chippers, hogs, conveyors, screens and board breakers. Raw material processing operations are process units.

Rotary agricultural fiber dryer means a rotary dryer operated at elevated temperature and used to reduce the moisture of agricultural fiber. A dry rotary dryer is a process unit.

Shipping and warehousing operation means equipment associated with final preparation shipping of plywood and composite wood products. Shipping and warehousing operations include but are not limited to all truck and rail loading and unloading, wrapping, and warehousing. Shipping and warehousing operations are process units.

Stand alone digester means a pressure vessel used to heat and soften wood chips before the chips are sent to a separate process unit for refining into fiber. A stand alone digester is a process unit.

Storage tank means any storage tank, stock chest, bin, silo, container or vessel connected to plywood and composite wood product production. Storage tanks include but are not limited to storage tanks for in-process material, adhesives, resins, additives, and fuel. A storage tank is a process unit.

Wastewater/process water operation means equipment that processes water in plywood or composite wood product facilities for reuse or disposal. Wastewater/process water operations includes but is not limited to pumps, holding ponds and tanks, cooling and heating operations, settling systems, filtration systems, aeration systems, clarifiers, pH adjustment systems, log storage ponds, log vats, pollution control device water (including wash water), vacuum distillation systems, sludge drying and disposal systems, spray irrigation fields, and connections to POTW facilities. Wastewater/process water operations are process units.

Wood product machining operation means equipment that cuts, mills, or machines wood products to meet either a process requirement or produce an end product feature. Machining operations include but are not limited to all saws, sanders, grooving machines, planers, edge molding, and tongue and groove operations. Wood product machining operations are process units.

Response: We disagree that it is necessary or appropriate to define terms that are not used in the text of the final PCWP rule. Equipment or operations that are not HAP emission sources and/or have no regulatory requirements are not defined in the rule, and adding definitions for such equipment would complicate the rule rather than providing clarity. Therefore, most of the definitions provided by the commenter are not included in the final PCWP rule.

The term "agricultural fiber" appears in our definition of "plywood and composite wood products facility;" therefore, we added the commenters' suggested definition of "agricultural fiber" to the final rule. Note that the definitions of "particle" and "fiber" also mention "cellulosic material" to account for use of agricultural fiber.

2.1.2.2 Comment: Commenters IV-D-03 and IV-D-27 requested that the definition of a tube dryer in section 63.2292 of the proposed rule be changed so that stages in multistage tube dryers are considered as separate tube dryers. Commenter IV-D-03 stated that, under the current definition, a multistage dryer with more than one control device and emissions point would be considered one process unit. Commenter IV-D-03 stated that modifying the tube dryer definition will allow facilities to choose the most cost-effective compliance option. With the modifications (in italics) recommended by the commenters, the tube dryer definition would read as follows:

> Tube dryer means a single-stage *dryer* or *a stage in a* multistage dryer *system* operated at elevated temperature and used to reduce the moisture of wood fibers or particles as they are conveyed (usually pneumatically) through the dryer. Resin may or may not be applied to the wood material before it enters the tube dryer. A tube dryer is a process unit.

Response: Tube dryers are either single-stage or multistage drying systems. Single-stage tube dryers include only a primary tube dryer. Multistage tube drying systems incorporate two stages in series, a primary tube dryer and a secondary tube dryer, which are separated by an emission point (e.g., a cyclonic collector). Annual uncontrolled HAP emissions from primary tube dryers average around 65 tpy, while annual uncontrolled HAP emissions form secondary tube dryers average around 2 tpy.[2] In developing the PCWP proposal, we noted that the function of tube dryers is the same regardless of single-stage or multistage configuration (i.e., to reduce the wood furnish moisture from an initial level to some lower level) and that distinguishing between dryer configurations would not change the results of the MACT floor analysis and could unnecessarily complicate the PCWP regulation. Therefore, we made no distinction between single-stage and multistage tube dryers.[3]

We agree with the commenter that defining the stages of multistage tube dryers separately would allow facilities the flexibility of choosing different compliance options for each stage of the tube dryer. Each stage of a multistage tube dryer functions as an individual dryer, and the MACT floor for both primary tube dryers and secondary tube dryers is the same (e.g., incineration-based control). For example, a facility with a multistage tube dryer could use an add-on air pollution control device (APCD) to reduce emissions from the primary tube dryer and could use emissions averaging to offset the emissions from the secondary tube dryer.

The final PCWP rule includes definitions of "primary tube dryer" and "secondary tube dryer." The final rule also contains separate production-based compliance options (PBCO) for these two types of dryers, reflecting the difference in emissions from primary and secondary tube dryers. The change to the "tube dryer" definition suggested by the commenter was not used because it did not adequately distinguish between the two types of dryers and would have allowed the higher primary tube dryer PBCO to be applied to both primary and secondary tube dryers. Our inclusion of separate definitions of "primary tube dryer" and "secondary tube dryer" provides the flexibility to choose different compliance options for each stage of a multistage tube dryer as requested by the commenter without creating a loophole under the PBCO.

2.1.2.3 Comment: Commenter IV-D-27 recommended that a number of definitions included in the proposed rule be revised to better distinguish among particleboard, medium density fiberboard (MDF), and hardboard and/or to be consistent with definitions developed by the American National Standards Institute (ANSI). The commenter's suggested revisions are as follows (suggested additions are in italics and suggested deletions are in strikeout format):

> Fiber means the ~~slender threadlike~~ *discrete* elements of wood or ~~similar~~ cellulosic material, which are separated by ~~chemical and/or~~ mechanical means, as in *refining and used as the aggregate for a fiberboard, hardboard and MDF* ~~pulping, that can be formed into boards~~. *This definition of fiber can include cellulosic fibers reclaimed from other post-consumer or post-industrial sources including but not limited to newsprint, corrugated boxes, office waste, and printer remands.* (Source: ANSI A208.2).

> Particle means a *discrete, small piece of cellulosic material (usually wood or agricultural fiber)* ~~distinct fraction of wood or other cellulosic material~~ produced mechanically and used as the aggregate for a particleboard. ~~Particles are larger in size than fibers.~~ (Source: ANSI A208.1)

> Hardboard means a composite panel composed of *inter-felted* cellulosic fibers *which are consolidated under heat and pressure in a hot press to a density* ~~made by dry or wet forming and pressing of a resinated fiber mat. Hardboard has a density~~ of 0.50 ~~to 1.20~~ grams per cubic centimeter (31.5 ~~to 75~~ pounds per cubic foot) *or greater. Other materials may be added to improve certain properties, such as stiffness, hardness, finishing properties, resistance to abrasion and moisture, as well as to increase strength, durability and utility. The resinated mat used to produce the panel is made by dry or wet forming and pressing is either dry or wet and a bake oven/humidification step follows the press.*
>
> - *Dry Process Hardboard means hardboard that has been produced using both dry forming and dry pressing.*
> - *Wet Process Hardboard means hardboard that has been produced using fiber mats pressed directly after a wet forming machine.*
> - *Wet/Dry Process Hardboard means hardboard that has been produced using fiber mats that have undergone drying to near zero percent moisture in fiberboard ovens before being placed in the hardboard press.*

Medium density fiberboard (MDF) means a composite panel composed *primarily* of cellulosic fibers (usually wood *or agricultural fiber*) *and a bonding system cured under heat and pressure and which may contain additives. MDF density is typically between 500 kg/m3 (31 lbs/ft3) and 1000 kg/m3 (62 lbs/ft3). The resinated mat used to produce the panel is made by dry forming.* ~~made by dry forming and pressing of a resinated fiber mat~~.

Particleboard means a composite panel *primarily* composed of cellulosic materials (usually wood or agricultural fiber), *generally* in the form of discrete pieces or particles, as distinguished from fibers, ~~which are pressed together with resin~~, *bonded together using a bonding system and a press, and which may contain additives*.

In addition, commenter IV-D-27 recommended revisions to definitions included in the proposed rule as follows (suggested additions are in italics and suggested deletions are in strikeout format):

Dry forming means the process of making a mat of resinated fiber *with a former. Dry formed mats can subsequently* to be compressed into a reconstituted wood product such as particleboard, oriented strand board (OSB), medium density fiberboard (MDF), or *dry process* hardboard.

Wet forming means the process of making a slurry of water, fiber, and additives into a mat of fibers *with a former* to be compressed into a fiberboard or hardboard product.

Plywood means a panel product consisting of layers of wood veneers *with the grains of the wood in each layer typically being at right angles to each other* hot pressed together with resin. Plywood includes panel products made by hot pressing (with resin) veneers to a substrate such as particleboard, MDF, or lumber.

Fiberboard mat dryer means a dryer used to reduce the moisture of *non-chemical pulp* wet-formed wood fiber mats by operation at elevated temperature. A fiberboard mat dryer is a process unit.

Reconstituted wood product board cooler means a piece of equipment designed to reduce the temperature of a board by means of forced air or convection within a controlled time period after the board exits the reconstituted wood product press unloader. Board coolers include wicket and star type coolers commonly found at MDF and particleboard plants. Board coolers do not include cooling sections of dryers (e.g., veneer dryers or fiberboard mat dryers) or coolers integrated into or following hardboard bake ovens or humidifiers *or flatline conveyors*. A reconstituted wood product board cooler is a process unit.

Response: For the final rule, we revised five of the definitions discussed by the commenter. The definitions we have revised for the final rule are as follows:

> Fiber means the ~~slender threadlike~~ *discrete* elements of wood or similar cellulosic material, which are separated by ~~chemical and/or~~ mechanical means, as in ~~pulping~~ *refining*, that can be formed into boards.

> Hardboard means a composite panel composed of *inter-felted* cellulosic fibers made by dry or wet forming and pressing of a resinated fiber mat. Hardboard *generally* has a density of 0.50 ~~to 1.20~~ grams per cubic centimeter (31.5 ~~to 75~~ pounds per cubic foot) *or greater*.

> Medium density fiberboard (MDF) means a composite panel composed of cellulosic fibers (usually wood *or agricultural fiber*) made by dry forming and pressing of a resinated fiber mat.

> Particle means a *discrete, small piece of cellulosic material (usually wood or agricultural fiber)* ~~distinct fraction of wood or other cellulosic material~~ produced mechanically and used as the aggregate for a particleboard. ~~Particles are larger in size than fibers.~~

> Particleboard means a composite panel composed *primarily* of cellulosic materials (usually wood or agricultural fiber) *generally* in the form of discrete pieces or particles, as distinguished from fibers, which are pressed together with resin.

Most of the changes to the definitions suggested by the commenter are not necessary for purposes of the PCWP rule and are discussed below. We do not believe it is necessary for the PCWP rulemaking to be consistent with ANSI definitions, because the PCWP rule has a different structure and purpose than ANSI standards. In addition, we note that the changes suggested by the commenter for the definitions of “fiber,” “particle,” “hardboard,” “medium density fiberboard,” and “particleboard” are not completely consistent with existing ANSI definitions. The final rule directly incorporates the commenter’s suggested definition of “particle” to be more consistent with the ANSI definition and to clarify that agricultural fiber is included.

We did not add the last sentence of the commenter's suggested definition of "fiber" because we are not aware of facilities using newsprint, corrugated boxes, office waste, or printer remands to manufacture PCWP; these materials sound more characteristic of pulp and paper manufacturing than PCWP manufacturing. We also chose not to limit the definition of "fiber" to material used in the manufacture of fiberboard, hardboard, and MDF because we believe other PCWP that are variations of these products could be developed in the future.

Our goal in developing definitions of the various PCWP, including hardboard, particleboard, and MDF, was to broadly define the products. Narrow definitions of the different PCWP would not account for variations in the products. For example, particleboard can be made with extruders rather than hot platen presses (although this practice is uncommon). Extruders are not considered to be presses, and if particleboard is defined narrowly then particleboard dryers at plants making extruded particleboard may not be considered subject to the PCWP rule. Also, we note that products such as a hybrid between particleboard and MDF and thin high density fiberboard (another variation of MDF) are entering the PCWP marketplace. The same manufacturing processes that are covered by the PCWP rule are used to manufacture these newer products. For this reason, we believe it would be inappropriate to include the density range in the MDF definition as suggested by the commenter. The new thin high density fiberboard product can have a density of up to 65 $lb/ft^3$, which exceeds the range suggested by the commenter for MDF. The PCWP is written to encompass existing and future processes that use wood and resin and/or pressure to produce PCWP. In keeping with that goal, the word "generally" has been added to the definitions of "fiberboard" and "softwood veneer dryer" to ensure that these definitions are not interpreted too narrowly.

The term "resin" was defined in the proposed PCWP rule and is included in the final rule as follows:

> Resin means the synthetic adhesive (including glue) or natural binder, including additives, used to bond wood or other cellulosic materials together to produce plywood and composite wood products.

Because resin is already defined, we elected to use the term "resin" instead of the commenter's suggested term "bonding system" in the definitions of the various PCWP. We also note that the term "resin" includes additives, so it is not necessary to mention additives in the definitions of the various PCWP products.

As discussed in response to comment 2.1.2.1, we are not including a definition of "former" in the final PCWP rule. Thus, we disagree that the commenter's suggested changes to the definitions of "dry forming" and "wet forming" are necessary. Also, as discussed elsewhere in this document, the final rule does not distinguish between wet and dry hardboard processes. Therefore, we disagree that it is necessary to add to the definition of "hardboard" the last sentence and bullets suggested by the commenter which describe wet versus dry forming and pressing.

### 2.1.3 Lumber kilns

2.1.3.1 Comment: Several commenters (IV-D-10, IV-D-22, and IV-D-29) opposed including lumber kilns that operate outside of PCWP facilities in the PCWP rule. Commenters IV-D-10 and IV-D-29 stated that, due to the low level of HAP emissions, lumber kiln emissions do not warrant control and should not be categorized with PCWP facilities. Commenter IV-D-29 added that, while including lumber kilns at stand-alone facilities in this rule "would cause no negative effects at this time, any changes that are made to the category in general at a later date could have harmful effects." Commenters IV-D-10 and IV-D-22 stated that, if the rule is promulgated with the inclusion of lumber kilns, the owners and operators of kilns that are not located at a PCWP facility may be subject to other requirements of the rule that do not truly apply to them, including costly monitoring, recordkeeping, and reporting requirements. Commenter IV-D-22 contended that kilns are included in the proposed PCWP rule solely for the convenience of the owners and operators of PCWP facilities, which is unlawful according to section 112 of the CAA. Commenter IV-D-22 was also concerned that the owners and operators of kilns that are not located at a PCWP facility could find themselves in violation of the May 15, 2002 "MACT Hammer" deadline, even though they did not anticipate being included in the rule, and thus, did not apply for the case-by-case consideration.

Response: It is more efficient for EPA, state regulators, and lumber kiln operators for EPA to include all lumber kilns in the PCWP NESHAP. The EPA's alternatives include listing and regulate non-co-located lumber kilns as a separate source category under section 112(c) of the CAA or requiring the case-by-case MACT determinations under the section 112(g) provisions of the CAA. It is not likely that EPA will consider making any revisions to the PCWP NESHAP until EPA performs the residual risk analysis required 8 years after the PCWP NESHAP is promulgated. The residual risk analysis will reveal if any requirements for non-co-located lumber kilns are needed.

Since the MACT floor determination is no emissions reduction for all lumber kilns, there will not be a significant monitoring, recordkeeping, and reporting burden for facilities with only non-co-located lumber kilns. Only those facilities that are major sources of HAP emissions are subject to the PCWP NESHAP. Facilities with non-co-located lumber kilns that are classified as major sources of HAP must submit the initial notification form required by the PCWP NESHAP in addition to the Part 1 "MACT Hammer" application required by section 112(j) of the CAA. We note that both of these forms simply ask the facilities to identify themselves to EPA; therefore, these forms should not cause a large time or cost burden. We acknowledge that operators of non-co-located lumber kilns were not aware that they were included in the PCWP source category until the proposed PCWP NESHAP was printed in the Federal Register on January 9, 2003, and therefore, would not have known to submit a Part 1 application by May 15, 2002.

### 2.1.4 Effluent guidelines for timber products processing

2.1.4.1 Comment: Several commenters (IV-D-03, IV-D-19, IV-D-21, and IV-D-27) requested that EPA address potential conflicts between the PCWP rule and the effluent guidelines for the Timber Products Processing Point Source Category. The commenters noted that the effluent guidelines state that "there shall be no discharge of process wastewater pollutants into navigable waters." However, according to the commenters, at the time that statement was written, air pollution controls were not common, and EPA was not aware of the large volumes of water that can be produced by APCDs. Commenters IV-D-19, IV-D-20, and IV-D-27 recommended that EPA address this issue by revising the effluent guidelines. Specifically, these commenters recommended that EPA exclude wastewater generated by the operation and maintenance of air pollution control equipment at PCWP facilities from the prohibition on the discharge of process wastewater contained in relevant subparts of the effluent guidelines and standards for the Timber Products Processing Point Source Category. These commenter referred to EPA's request for comments on this issue in the preamble to the proposed PCWP rule and noted that the language EPA included in the preamble to the proposed rule would generally accomplish this purpose (*See* 68 Fed. Reg. 1276 at 1305). For clarity, however, the commenters requested that the language be modified slightly to read as follows (suggested additions are in italics):

> "The term 'process wastewater' specifically excludes...wastewater from air pollution control equipment installed *or used* to comply with the proposed *or final* national emission standards for hazardous air pollutants (NESHAP) for plywood and composite wood products (PCWP) facilities (40 C.F.R part 63, subpart DDDD)."

The commenters also provided rationale and data to support their recommendation. The commenters contended that EPA (1) underestimated the volume of wastewater that would be generated by the application of MACT and, as a result, underestimated the associated costs of disposing of this wastewater; (2) failed to address the achievability/feasibility of MACT if the discharge of air pollution control wastewaters is prohibited; and (3) did not consider wastewater from APCDs when the Timber Products "zero discharge" effluent guidelines were originally developed. Commenters IV-D-19 and IV-D-27 submitted several case studies to demonstrate the variability in the volume of wastewater generated at various PCWP facilities and to show how each facility currently recycles, reuses, and disposes of wastewater generated from the operation and maintenance of RTOs, WESPs and biofilters. The case studies also included an analysis of wastewater from an RTO washout for one facility and information on the costs associated with trucking wastewater to offsite disposal sites.

Commenters IV-D-19, IV-D-21, and IV-D-27 also took issue with the two reasons EPA gave in the proposal preamble for not including the requested exemption for APCD wastewaters in the proposal. According to the commenters, the first reason was that many PCWP facilities are already disposing of APCD wastewaters in compliance with the existing regulations, and the second reason was that EPA lacked comprehensive information on these wastewaters, including the volumes of wastewater generated and the pollutants present in these wastewaters. The commenters contended that the first reason is invalid because (1) the case studies show that even those facilities that already have some or all of the control technology required for MACT compliance are having problems managing the wastewater that equipment generates; (2) additional restrictions on publicly owned treatment works (POTW) availability and regulatory resistance to spray irrigation may further erode the ability of PCWP facilities to manage APCD wastewaters; and (3) the fact that some mills currently are able to manage wastewater generated by their APCD does not mean that EPA can "ignore the issue with respect to other facilities" that may not have access to a POTW or have available land (and regulatory approvals) for evaporation ponds or spray irrigation fields. Regarding EPA's concern about a lack of "comprehensive information" available on the APCD wastewaters, the commenters stated that developing a complete and accurate characterization of the quantity and quality of the APCD wastewaters resulting from implementation of the MACT standards would be very difficult. The commenters pointed to the case studies as evidence that the nature of the APCD wastewaters that may have to be discharged "varies greatly from facility to facility, depending upon the air pollution control equipment, the extent of opportunities for internal recycling of wastewater, and availability of other process uses for wastewater." For these reasons, the commenters asserted that the most appropriate way to deal with APCD wastewaters would be to "require individual facilities seeking a discharge permit to characterize their wastewaters, so that the permit writer could determine the appropriate effluent limitations, taking into account receiving water quality, any applicable state water quality standards, and facility-specific information on available wastewater management technologies." The commenters further stated that, "it is both legally and technically appropriate for EPA to acknowledge that these wastewaters are not within the scope of the existing effluent guidelines and to subject them to case-by-case permitting if a mill needs to discharge them to surface waters." Commenter IV-D-03 concurred with the suggestion to allow water discharges by National Pollutant Discharge Elimination System (NPDES) permit on a case-by-case, and noted that simply changing the definition of process wastewater to exclude APCD wastewaters in the effluent guidelines would not help them because all the water in their facility is combined and treated together, and additional storage within the existing system is not possible.

Finally, commenters IV-D-19, IV-D-21, and IV-D-27 disagreed with EPA's suggestion that EPA would need to use the mechanism of a "direct final rule" should EPA choose to exclude these wastewaters from the effluent guidelines definition of "process wastewater," rather than simply incorporating the regulatory language into the rest of the final rule promulgating MACT standards for the PCWP category (68 FR 1276 at 1305). The commenters also noted that, in the

PCWP proposal preamble, EPA asserts that, if EPA receives adverse comment on the wastewater disposal issue in response to the PCWP proposed rule, the Agency would not use a direct final rule, but rather would propose the amendment to 40 CFR 429.11(c) for additional comment prior to promulgating the final rule. The commenters contended that, because the preamble to the proposed rule directly identifies the issue, there would not be a need for any additional comment period because the exclusion would be a logical outgrowth of the proposal. To support their interpretation of EPA's "logical outgrowth doctrine," the commenter cited two D.C. circuit court cases (*First Am. Disc. Corp. v. CFTC,* 222 F.3d 1008, 1016 [D.C. Cir. 2003] and *Husqvarna AB v. EPA*, 254 F.3d 195, 203 [D.C. Cir. 2001]). The commenters further stated that, because the proposed rule specifically identifies the possibility of amending the term "process wastewater" to exclude wastewater from APCDs, "any entity that might consider taking an adverse position to the possibility of changing the term is, without question, on notice." According to the commenters, to allow "an additional round of comments on the matter would be superfluous on both legal and common-sense grounds."

Response: We have carefully reviewed these comments and supporting materials (e.g., Appendix K to comment IV-D-27). While supporting information and data are helpful in understanding these comments, substantial additional information and data are needed to develop a more complete profile regarding the range of this industry's practices, including manufacturing processes and related APCDs, wastewater and pollutant generation rates, wastewater treatment technologies and disposal methods, costs, and effluent reduction benefits. However, sufficient information is available for us to conclude preliminarily that the volume of wastewaters generated by APCDs we expect to be installed to comply with the PCWP NESHAP and available wastewater disposal options may not allow consistent compliance by facilities subject to 40 CFR Part 429, subpart B (Veneer subcategory), subpart C (Plywood subcategory), subpart D (Dry Process Hardboard subcategory), and subpart M (Particleboard subcategory) with the existing regulation, which does not allow discharge of process wastewater pollutants. Therefore, we are excluding wastewater generated by three processes and associated APCDs necessary to meet the PCWP NESHAP from coverage by the existing effluent limitations guidelines. These three processes and associated process wastewaters are: (1) washing out RTOs or RCOs; (2) WESPs used upstream of RTOs/RCOs to protect them from plugging with particulate; and (3) biofilters. We are amending the definition of "process wastewater" found at §429.11(c) to read as follows (new language in italics):

> The term "process wastewater" specifically excludes non-contact cooling water, material storage yard runoff (either raw material or processed wood storage), boiler blowdown, *and wastewater from washout of thermal oxidizers or catalytic oxidizers, wastewater from biofilters, or wastewater from wet electrostatic precipitators used upstream of thermal oxidizers or catalytic oxidizers installed by facilities covered by Subparts B, C, D, or M to comply with the national emissions standards for hazardous air pollutants (NESHAP) for plywood and composite wood products (PCWP) facilities (40 CFR part 63, subpart DDDD)*. For the dry process hardboard, veneer, finishing, particleboard, and sawmills and planing mills subcategories, fire control water is excluded from the definition.

Thereafter, appropriate allowances for effluent discharges generated by compliance with the PCWP NESHAP rule can be determined on a case-by-case basis by NPDES permitting authorities using their best professional judgment (see 40 CFR §125.3). At a later date, as a part of its planning process under section 304(m) of the Clean Water Act, EPA will consider amending the existing regulations for the Timber Products Processing Industry, 40 CFR Part 429, subparts C, D, and M, to provide technology-based effluent limitations guidelines that cover wastewaters generated by these three processes and associated APCDs.

### 2.1.5 Overlap with Boilers/Process Heaters NESHAP

2.1.5.1 Comment: Two commenters (IV-D-21 and IV-D-27) expressed support for EPA's proposed intention to include combustion units associated with direct-fired dryers in the PCWP NESHAP and to exclude them from the requirements of other combustion-related NESHAP, specifically the Boiler NESHAP and the Process Heaters NESHAP, because the emissions from these combustion units will be covered under the proposed PCWP NESHAP. However, the commenters expressed concern about potential NESHAP applicability that could arise during periods when the exhaust gases from these combustion units are not exhausting through the dryers and would bypass any controls applied to these dryers. The commenters noted that in some of the combustion units associated with direct-fired dryers, a small percentage of combustion gas is routed to indirect heat exchange and then is normally and predominantly routed to direct-fired gas flow. According to the commenter, in these "hybrid units," typically only a small fraction of combustion gas (e.g., 30 MMBTU/hr of 250–300 MMBTU, or less than

10 percent of total capacity) is routed to indirect heat exchange for hot oil/steam. This gas generally exhausts through the direct-fired system. The commenters contended that many systems configured this way were included in the PCWP MACT floor calculation and are covered under the PCWP NESHAP, as opposed to the Boiler or Process Heater NESHAP. However, under certain circumstances (e.g., during startups, shutdowns, emergencies, or periods when dryers are down for maintenance and steam/thermal oil is needed for plant and/or press heat) some systems may exhaust directly to the atmosphere without mixing with the direct-fired system. The commenters recommended that this small subset of direct-fired systems be assigned a "primary purpose" (based on the predominant allocation of BTU capacity and/or predominant mode of operation) and regulated accordingly. In the above example, the commenters assumed that the primary purpose is as a direct-fired dryer, such that the equipment would be subject to the PCWP NESHAP and not the Boiler NESHAP.

Response: There are many configurations of combustion units, dryers, and thermal oil heaters in the PCWP industry. While some systems have the "hybrid" configurations described by the commenters, whereby a portion of the combustion gas is routed to indirect heat exchange, other systems do not (i.e., all of the combustion gas remains within the direct-fired system such that combustion emissions are mixed with dryer emissions). We do not have sufficient information (and no such information was provided by the commenters) to fully evaluate the need for a "primary purpose" designation for PCWP combustion units, to establish the percent-of-operating-time or BTU limits for such a "primary purpose" designation, or to determine MACT for combustion units that would meet the "primary purpose" designation. For example, we do not know how many combustion units are configured to incorporate both indirect and direct heat exchange, and for these units we do not know the amount of time or the percent of BTU allocation that is devoted to indirect heat exchange or the controls used to reduce emissions during indirect heat exchange. We expect that all of these factors vary substantially from facility to facility for those facilities that have these "hybrid" combustion units. We also lack information on the emission reduction techniques (e.g., control devices) applied to combustion units associated with direct-fired PCWP dryers that may bypass the dryers for some unknown percentage of time. Therefore, we believe it would be inappropriate for us to establish a "primary purpose" designation that could inadvertently allow for facilities to configure their systems to direct a portion of their uncontrolled emissions to the atmosphere without these emissions being subject to the Industrial Boilers and Process Heaters NESHAP. A permit writer would be supplied the facility-specific information needed to make case-by-case determinations regarding NESHAP applicability. A facility could propose in its SSM plan to route exhaust through the thermal oil heater during periods of dryer downtime. The SSM provisions cover dryer downtime, and a permit writer can decide on a facility-specific basis if heating of the thermal oil heater should be allowed during dryer SSM considering the amount of time that this condition occurs, the fraction of combustion unit BTU used to heat the thermal oil heater, and the type of control used to reduce combustion unit emissions.

Facilities have alternatives to avoid having their combustion units be subject to both the PCWP and Industrial Boilers and Process Heaters NESHAP. Many facilities do not have the "hybrid" combustion units mentioned by the commenters; thus, one option is for facilities to avoid routing combustion emissions to indirect heat exchange without remixing them with the direct-fired combustion exhaust. Facilities could use a separate combustion unit to heat their thermal oil heater instead of the system used for dryers, and this separate combustion unit could be covered (or exempted) under the Industrial Boilers and Process Heaters NESHAP accordingly. Some facilities can switch to natural gas when firing only the thermal oil heater.[4] Natural gas combustion units do not have emission limits (other than a carbon monoxide [CO] limit for new gaseous fuel units) under the Industrial Boilers and Process Heaters NESHAP, and the Industrial Boilers and Process Heaters NESHAP requires "no emission reduction" for small (less than 10 MMBTU/hr) boilers. There is also a category of limited use units in the Industrial Boilers and Process Heaters NESHAP (i.e., large units with capacity utilizations less than or equal to 10 percent as required in a federally enforceable permit). Thus, we believe facilities can configure their combustion systems in a way that complies with both NESHAP rules, or so that their systems are only subject to one NESHAP rule.

#### 2.1.6 Overlap with Wood Building Products NESHAP

2.1.6.1 Comment: Commenter IV-D-12 expressed support for the categories and differentiations developed by the EPA in the proposed PCWP rule and encouraged EPA to ensure that there were no conflicts with the Wood Building Products (Surface Coating) NESHAP. Three other commenters (IV-D-09, IV-D-21, and IV-D-27) expressed concern about the limited scope of the definition of “miscellaneous coating operations” under both the PCWP NESHAP and the Wood Building Products (Surface Coating) NESHAP. Two of the commenters (IV-D-21 and IV-D-27) noted that EPA has proposed no control requirements for “miscellaneous coating operations” as defined in the proposed PCWP rule and that the current definition of “miscellaneous coating operations” only applies to miscellaneous coating operations at PCWP facilities. These commenters stated that similar coating operations at lumber and veneer-only facilities should also be included in the definition of “miscellaneous coating operations,” and thus be exempted from control requirements. These commenters contended that both panels and lumber will need to apply antifungal/moisture retardants to address mold-related concerns. According to the commenters, these wood treatment chemicals typically are applied in dilute form, by nonpressure means, as a temporary measure to protect against surface moisture absorption and bacterial and fungal growth. To address this issue, the two commenters requested that EPA include lumber and veneer-only operations in the definition of “miscellaneous coating operations” and include explicit language to allow wood products plants to apply antifungals/moisture retardants under the PCWP NESHAP, as opposed to having to debate the coverage of these activities under the Wood Building Products (Surface Coating) NESHAP. The commenters’ suggested changes to the definition of “miscellaneous coating operations” are as follows (suggested additions are in italics):

> Miscellaneous coating operations means application of any of the following to plywood or composite wood products: edge seals, moisture sealants, anti-skid coatings, company logos, trademark or grade stamps, nail lines, synthetic patches, wood patches, wood putty, concrete forming oils, glues for veneer composing, *antifungal/moisture retardants*, and shelving edge fillers. Miscellaneous coating operations also include the application of *coatings to full sheets of panel products such as* primer to OSB siding *or fills to create a smooth surface* that occurs at the same site as OSB manufacture.

In addition, commenter IV-D-09 requested that the phrase “glues for foil or paper applicators” be added to the definition of “miscellaneous coating operations” to avoid subjecting a plant to more than one NESHAP.

Response: Veneer-only operations are already included in the definition of “plywood and composite wood products manufacturing facility.” The definition of “plywood and composite wood products manufacturing facility” includes lumber kilns, but not entire lumber manufacturing facilities.  As proposed, only kiln-dried lumber (not all lumber) is considered to be a PCWP.  Therefore, application of coatings such as antifungals/moisture retardants to lumber is outside of the scope of the PCWP source category.

We reviewed information submitted by commenters on the proposed Wood Building Products (Surface Coating) rule relating to application of wood treatments, fire retardants, and antifungal coatings to PCWP products.  We determined that these chemicals can be applied using different techniques during different stages of production (e.g., during blending or forming of the substrate, or after manufacturing of the substrate is complete).  Application of wood treatments, fire retardants, and antifungal coatings to PCWP that occurs after the substrate manufacturing process (i.e., following completion of hot pressing) are subject to the Wood Building Products (Surface Coating) rule.  Likewise, we determined that laminates (e.g., foils and paper) applied to PCWP prior to pressing of the substrate would be covered by the PCWP rule, while laminates applied following pressing are covered by the Wood Building Products (Surface Coating) rule.[5] We believe that wholesale exclusion of broadly defined coating operations (e.g., wood treatments, antifungal coatings, laminating adhesives) is not justified because future coating technologies involving different chemicals could result in increased HAP emissions.  Antifungal coatings are an example of newer wood treatments that will increasingly be applied to wood products in the future, and at this time, there is little certainty as to the chemical makeup and best application technique for these coatings.  Incidental coating users can utilize the low coating-usage applicability cutoff included in the final Wood Building Products (Surface Coating) rule. Also, commercial manufacturers that use less than 1,100 gallons (4,170 liters) per year of surface coatings on wood building products are not required to achieve emissions reductions under wood building products rule.  Therefore, we believe it is appropriate that these wood treatment chemical coatings be considered by permitting authorities under the applicable MACT standards.

The commenter did not provide any rationale for their suggested change to the last sentence of the definition of "miscellaneous coating operations," nor did the commenter provide information on the types of coatings would be applied to full sheets of OSB.  Therefore, we did not include the commenter's suggested changes to the last sentence of the definition.

We received public comments on the proposed Wood Building Products (Surface Coating) NESHAP relating to asphalt-coated fiberboard and ceiling tiles.  Commenters asserted that neither product is coated with HAP-containing materials and regulating such products would be burdensome. We further evaluated the types of coatings and processes used to make asphalt-coated fiberboard and found that only a few facilities in the United States make these products, with varying manufacturing and coating processes. An asphalt emulsion can be added during the fiberboard forming process, or asphalt can be applied to the fiberboard substrate. Depending on the company and the process, the coating can be applied before or after the final dryer, with the product allowed to air dry. Ceiling tiles are usually coated using slurries of titanium dioxide and various clays. Although non-HAP wetting agents or defoamers are occasionally added, no organic solvents are used. These coatings cure by drying and not by chemical reaction and are considered durable only for dry, noncontact indoor exposure. Because most of the coatings associated with these types of products are applied during the substrate forming process (i.e., to the wet mat being formed) or prior to the final substrate drying operation, fiberboard coating operations (including those used in the manufacture of asphalt-coated fiberboard and ceiling tiles) will be covered under the final PCWP rule. These products will not be subject to the final rule for the surface coating of wood building products. Therefore, we have changed the definition of "miscellaneous coating operations" as follows (additions in italics):

> Miscellaneous coating operations means application of any of the following to plywood or composite wood products: edge seals, moisture sealants, anti-skid coatings, company logos, trademark or grade stamps, nail lines, synthetic patches, wood patches, wood putty, concrete forming oils, glues for veneer composing, shelving edge fillers. Miscellaneous coating operations also include the application of primer to OSB siding that occurs at the same site as OSB manufacture *and application of asphalt, clay slurry, or titanium dioxide coatings to fiberboard at the same site of fiberboard manufacture*.

As discussed later in response to comment 2.3.2.2, we have also added a definition of "group 1 miscellaneous coating operations" to the final PCWP rule. The final PCWP rule requires that non-HAP coatings be used for group 1 miscellaneous coating operations.

2.1.6.2 Comment: Commenter IV-D-52 asked EPA to clarify the applicability of the PCWP NESHAP and the Wood Building Products NESHAP to several processes, including the application of hardwood veneer to softwood substrate, finger-jointing, mortise-tenoning, and edge gluing. These processes either strengthen the product (covered under PCWP NESHAP) or provide final finishing touches (covered by Wood Building Products NESHAP). The commenter stated that the company is prepared to apply the PCWP NESHAP to all of the above processes, but they want clarification to ensure that there is no question of compliance.

Response: We did not change the rule in response to this comment. The application of hardwood veneer to a softwood substrate is covered under the PCWP rule. Hot pressing of a hardwood veneer to a softwood substrate is common in hardwood plywood manufacturing. As defined in the proposed and final PCWP rule:

> Plywood means a panel product consisting of layers of wood veneers hot pressed together with resin. Plywood includes panel products made by hot pressing (with resin) veneers to a substrate such as particleboard, MDF, or lumber.

The definition of "plywood" is not specific regarding whether the product is made of hardwood or softwood veneers, and therefore, includes both hardwood and softwood plywood. The final rule includes no requirements for hardwood or softwood plywood presses.

Mortise-tenoning involves cutting a mortise (a rectangular hole) into one piece of wood, and fitting the mortise with a tenon (the piece of wood that fits into the hole). An adhesive may or may not be used in the mortise-tenoning process, and the joint is typically clamped and allowed to air dry. We did not consider mortise-tenoning in development of the PCWP rule because this process usually occurs at furniture or door and window manufacturing plants, as opposed to PCWP plants.

We considered finger-jointing processes at engineered wood products plants (i.e., glu-lam and I-joist plants). Finger-jointing involves cutting a zig-zag pattern, or fingers, into the end of a wood product such as lumber or LVL, and then adhering the ends of multiple pieces of the wood product together to form an end-to-end joint. The finger-jointing resin is usually a phenol-resorcinol-formaldehyde resin, and the end-to-end joint is cured by radio frequency (RF) energy. We did not have emissions data for RF finger-joint curing devices; therefore, we estimated emissions for finger-jointing based on resin mass balance calculations.[6] The resin mass balance calculations resulted in very low levels of HAP. We know of no methods that are being used to reduce emissions from RF-curing devices, and therefore, we determined that MACT for RF curing devices is "no emissions reduction."

Edge seals applied to an exposed edge of a panel to prevent moisture from being absorbed or wicked up into the interior of the board are included in the definition of "miscellaneous coating operation." If edge gluing is similar to the process of edge sealing, then edge gluing is a PCWP process.

### 2.1.7 Overlap with Wood Furniture Manufacturing NESHAP

2.1.7.1 Comment: Commenter IV-D-46 requested a "de minimis" exemption for any facility that is already covered by the Wood Furniture Manufacturing (WFM) NESHAP and has an output of PCWP less than 15 percent of the facility's total annual production. The commenter asked for exemption language to be added to the rule to cut down on excess paperwork for facilities that are minimally affected. The commenter contended that the majority of the HAP emissions have already been reduced from these plants and the processes that would be affected by the PCWP NESHAP emit relatively low amounts of HAP.

Response: The preamble to the proposed WFM NESHAP (59 FR 62652, December 6, 1994) indicated that operations using urea-formaldehyde resins were excluded from the WFM NESHAP, but would be considered under the forthcoming PCWP NESHAP. Urea-formaldehyde resins are used by some furniture manufacturers to produce particleboard and hardwood plywood products. Process units at furniture manufacturing plants that are covered by the PCWP NESHAP include dry or green rotary particle dryers, particleboard presses or extruders, plywood presses, hardwood or softwood veneer dryers, and lumber kilns. We note that the PCWP rule does not include any requirements for particleboard extruders, plywood presses, or lumber kilns and that work practices, not add-on controls, are required for dry rotary particle dryers and hardwood veneer dryers. Wood furniture manufacturing facilities could choose to produce PCWP other than plywood and particleboard or to increase PCWP production in the future, and therefore, inclusion of a production exemption could create a loophole for large manufacturing plants. Furthermore, a 15 percent production cutoff would not be meaningful because the control requirements in the PCWP rulemaking are based on process unit type as opposed to end product (e.g., PCWP versus wood furniture), and production of PCWP is often measured in terms of square feet of product (as opposed to number of furniture units produced). Finally, it has long been EPA's policy and legal position that de minimis exemptions from MACT are not allowed by section 112 of the CAA. See NLA v. EPA, 233 F.3d 625 (D.C. Cir.

2000). For these reasons, we disagree that it is appropriate to provide an exemption in the final PCWP rule for facilities covered by the WFM NESHAP that also produce PCWP.

### 2.1.8 Overlap with New Source Review

Three commenters addressed the overlap of the PCWP rule and the December 31, 2002 major New Source Review (NSR) rule. These comments are described in more detail below.

2.1.8.1 Comment: Three commenters addressed EPA's "pollution control project" (PCP) policy as part of the major NSR reform rule. Commenters IV-D-27 and IV-D-56 stated that the final PCWP NESHAP preamble should be revised to be consistent with recently promulgated reforms to the NSR rule. These commenters noted that the preamble to the proposed PCWP rule mentions only RTOs and refers to the language of EPA's 1994 PCP policy, which can be used by States and other permitting authorities to grant RTOs case-by-case exclusions from NSR. The commenters asserted that EPA's NSR reform rule (67 FR 802384, December 31, 2002) states that a wide range of pollution control technologies, including regenerative thermal oxidizers, catalytic oxidizers, thermal incinerators, adsorbers and absorbers, condensers, and biofilters, are presumed to be "environmentally beneficial." Unless the permitting authority determines that the "environmentally beneficial" finding is unjustified for a device, the "environmentally beneficial" label gives sources the freedom to construct the devices without being subject to major NSR as long as they first give appropriate notice to the permitting authority (see 40 CFR 52.21(z)(4)). Therefore, the two commenters stated that EPA needs to revise the discussion of NSR in the final PCWP preamble to reflect the "environmentally beneficial" presumption for these technologies and to include all current pollution control devices as well as new pollution control devices that may be developed to comply with the PCWP rule. The commenters also stated that, in keeping with the NSR reform rule, the PCP exclusion should apply in non-attainment areas as well as attainment areas, so that sources in non-attainment areas will not have to install lowest achievable emission rate (LAER) on qualifying projects.

Commenter IV-D-26 disagreed with the preceding two commenters and stated that ignoring the increases in $NO_x$ emissions from pollution control devices (such as RTOs) as new sources of pollution subject to NSR is unlawful. The commenter also noted that in one section of the preamble to proposed the PCWP NESHAP (68 FR at 1302), EPA acknowledged that $NO_x$ emissions have harmful health effects, yet in another section (68 FR at 1304), EPA suggested that $NO_x$ emissions increases should be allowed to escape control. The commenter took issue with the rationale in the NSR rule for why PCPs should not be considered modifications covered by major NSR and prevention of significant deterioration (PSD) rules. The commenter contended that the NSR preamble failed to identify any legal authority on which to base this assumption, and instead relied on "a policy argument coupled with an unsupported, unsupportable statement of supposed Congressional intent." The commenter also stated that EPA failed to explain why significant increases in regulated air pollutants from these activities are any different, less dangerous, or less subject to regulation than emissions increases from any other type of activity. For these reasons, the commenter argued that the reading of the modification definition on which EPA relied is unlawful and arbitrary.

Response: Our discussion of the PCP issue in the preamble to the PCWP proposal was not intended to recommend or establish any new policy or approach regarding how potential PCPs could be addressed in implementing the NSR program. This issue is beyond the scope of any NESHAP rulemaking that is focused on just an individual source category, and can be appropriately and comprehensively addressed only within the context of the NSR program and rulemakings regarding that program. When setting MACT standards under section 112(d) of the CAA, EPA is not charged with simultaneously establishing new or revised NSR policy, which is taken under other provisions of the Act. Neither the 1994 policy guidance identified by commenters, the December 2002 final NSR rules, nor the petition for reconsideration of those rules is the subject of this PCWP NESHAP rulemaking. We will respond to comments pertaining to issues such as those regarding the treatment of potential PCPs and NSR applicability in the appropriate forum, to the extent commenters raise them in that context.

2.1.8.2 Comment: Commenters IV-D-27 and IV-D-56 requested that EPA address certain NSR applicability issues that were not addressed in the NSR reform rule. Specifically, the commenters requested that EPA (1) confirm that all methods of PCWP NESHAP compliance are environmentally beneficial and qualify for a PCP exclusion; and (2) confirm the right of PCWP sources to assume that MACT compliance measures will not increase "source activity levels." The commenters stated that incinerators are not necessarily environmentally beneficial when installed on low-risk sources, but they should be presumed to be environmentally beneficial if they are needed to comply with MACT. The commenters further noted that, in the original "cluster" rule for the forest products industry (63 FR 18531), EPA stated that add-on control devices would be "environmentally beneficial" and would qualify for an exclusion from NSR requirements. The commenters stated that similar language should be included in the PCWP final preamble to make sure that both the combustion of HAP in existing boilers and pollution prevention projects qualify for the exclusion and provided text.

The commenters also stated that the final rule needs to clarify how to determine "future actual emissions" for purposes of air quality analysis. The commenters noted that the NSR reform rule allows sources to evaluate the impact of a control project on air quality by comparing past actual emissions to expected future actual emissions caused by the project. The EPA's 1994 policy expressly stated that, in evaluating air quality impact, States should assume that the installation of add-on controls would not increase the operating level of the source. Under this approach, the emissions increase from a qualifying project is determined by subtracting the product of the existing operating rate and the pre-project actual emissions from the product of the post-project hourly potential emissions from the unit and the unit's existing operating rate. The commenters requested that EPA confirm in the final PCWP rule that this prior approach continues to be acceptable under the NSR reform rule. The commenters also asked that EPA extend the right of sources to use this same approach to evaluating air quality impacts to both the oxidation of HAPs in existing boilers and pollution prevention (P2) projects. The commenters stated that previous EPA concerns that P2 projects could improve source efficiency, resulting in higher operating rates and emissions increases, are unjustified in the context of the PCWP rule. The commenters contended that, even if P2 measures result in cost savings, no single PCWP facility will increase its market share as a result because many of its competitors will implement the same P2 measures at the same time. To address these issues, the commenters provided text to be included in the final PCWP rule preamble.

Response: See our response in section 2.1.8.1 above.

2.1.8.3 Comment: Commenters IV-D-27 and IV-D-56 requested that EPA remove language in the proposal preamble that they believe encourages "dual regulation" of sources subject to both MACT and NSR requirements. The commenters stated that, even if EPA revises the preamble language to exclude MACT projects from NSR (as suggested by the commenters), cases will still arise where both MACT requirements and NSR apply to a given unit. The commenters acknowledged that legally, both MACT and NSR can apply to the same unit; however they argued that States should be allowed to assume that MACT controls would also be sufficient to satisfy best available control technology (BACT) requirements. The commenters contended that, instead of addressing this issue, the proposal preamble promotes dual regulation of such units rather than seeking to avoid it. The commenters requested that EPA include specific text in the preamble to the final rule.

The commenters stated that, if EPA does not make these changes, then the regulatory impact analysis (RIA) supporting the rule will be inadequate because it does not discuss the extra costs associated with NSR triggered by MACT compliance efforts. The commenters further contended that, if EPA does not revise the rule to avoid such results, then EPA must redo the RIA to discuss this issue and comply with the requirements of the governing statutes and Executive Orders.

Response: Regarding issues concerning NSR applicability, see our response in section 2.1.8.1 above.

In addition, we note that BACT or LAER and MACT might not always be the same for PCWP facilities. First, the PCWP rule includes emissions averaging provisions that will allow existing PCWP facilities to relax controls on some emission units while increasing controls on other emission units such that the net overall emissions reductions are equivalent to MACT levels. In some cases, that could mean that a total hydrocarbon (THC) emitting source could be "under-controlled" such that the control method in use is less stringent than MACT or BACT for the individual emissions unit, although the overall HAP emission reductions at the source are equivalent to MACT levels. We note that, because the PCWP rule broadly defines the "affected source" as the entire PCWP facility, only "green-field" or reconstructed PCWP facilities would be precluded from using the emissions averaging option.

Second, because the production-based emissions limits are based on HAP emissions, it is possible that an emission unit with high THC emissions but low HAP emissions could be exempted from installing add-on controls under the PCWP rule; in such cases, MACT could be less stringent than BACT. For example, softwood veneer dryers tend to emit much greater quantities of THC than HAP because some of the THC compounds emitted, such as pinenes, are not classified as HAP.

Third, for some PCWP process units, we determined that the MACT floor was equivalent to “no emission reduction,” and that the application of beyond-the-floor add-on controls for HAP was not cost-effective. Because cost-effectiveness is calculated by dividing the annualized costs of control by the total mass of pollutant abated, the cost-per-ton values decrease (i.e. cost-effectiveness improves) as the mass of pollutant abated increases. Therefore, a process unit that emits substantially more THC than HAP may be considered cost-effective to control under BACT even though additional beyond-the-floor controls were rejected under MACT as not being cost-effective.

Regarding the comment that we should redo the RIA for the PCWP rulemaking, we disagree that it is necessary or appropriate to account for additional costs of NSR in the national impacts of this rule. In light of the existing NSR policy regarding PCPs, as reflected in the Agency’s guidance and recent NSR rulemaking, we do not expect that compliance with this NESHAP will trigger major NSR in a widespread or frequent manner. We believe our RIA fully accounts for the costs of the PCWP rule as required by the Executive Order, and direct the commenters to the RIA for our analysis.

## 2.2 HEALTH EFFECTS

2.2.1 Comment: Commenters IV-D-02, IV-D-08, IV-D-09, IV-D-15, IV-D-16, IV-D-17, IV-D-35, IV-D-36, IV-D-38, IV-D-39, IV-D-40, IV-D-41, IV-D-42, IV-D-44, IV-D-50, and IV-D-53 stated that they do not believe emissions from plywood plants are a threat to human health or the environment, and that the expensive controls mandated by the proposed rule are unnecessary. The commenters noted that the softwood plywood industry has existed in the Pacific Northwest since 1905 and the Southeast since 1963, and there have never been any documented cases of damage to human health or the environment. Commenter IV-D-09 stated that they do not believe that their PCWP plant, as-is, poses a significant risk to public health or the environment. The commenters stated that this is evident based on the lack of any history of health or environmental damage caused by these plants over the last 100 years. Several of the commenters (IV-D-15, IV-D-39, IV-D-41, IV-D-42, and IV-D-53) stated that, in the 1997 emission factor manual (AP-42), EPA did not list any HAP emissions for softwood plywood plants using only phenol-formaldehyde (PF) resin, and emission factors for these HAP were not added to AP-42 until January 2002, yet these same plants are now expected to spend millions of dollars to control emissions that EPA believed to be "unlikely" a few years ago.

Commenter IV-D-12 stated that the proposed rule discusses a reduction in cancer risk rates from 0.09 cases per year to 0.02 cases per year. The commenter pointed out that it is difficult to show an impact on a risk level that is already extremely low. The commenter also stated that, given the conservative nature of the risk estimates, it is unlikely that emissions from a worst case particleboard/fiberboard/MDF plant site have ever caused an incidence of cancer. Finally, the commenter pointed out that new source MACT requirements, coupled with normal economic forces that require the replacement of old equipment in this industry, make it unlikely that a particleboard/fiberboard/MDF plant site will ever cause any incidences of cancer.

Response: Section 112(b) of the CAA contains a list of HAP and authorizes EPA to list additional pollutants which present, or may present, adverse effects to human health or the environment. Section 112(c) of the CAA requires us to list all categories and subcategories of major and area sources of HAP and to establish NESHAP for the listed source categories and subcategories under section 112(d) of the CAA. The CAA imposes this requirement without regard to whether the listed source category or subcategory itself presents a risk of adverse effects or has caused a "documented case of damage." Major sources of HAP are those stationary sources or groups of stationary sources that are located within a contiguous area under common control that emit or have the potential to emit, considering controls, 9.07 Mg/yr (10 [tpy]) or more of any one HAP or 22.68 Mg/yr (25 tpy) or more of any combination of HAP. Area sources are those stationary sources or groups of stationary sources that are not major sources. (See CAA sections 112(a)(1) and 112(a)(2), and 40 CFR section 63.2).

Plywood/particle board manufacturing was listed as a category of major sources on the initial source category list published in the Federal Register on July 16, 1992 (57 FR 31576). The name of the source category was later changed to plywood and composite wood products manufacturing to better reflect the types of facilities covered by the standards. The source category name change was published in the Federal Register on November 18, 1999 (64 FR 63025). Standards for the PCWP manufacturing source category, which includes facilities that are major sources of HAP, were then proposed in the Federal Register on January 9, 2003 (68 FR 1275). Because PCWP manufacturing is a source category containing major sources of HAP, we are required by the CAA to establish NESHAP for the source category. Softwood plywood, particleboard, MDF, and fiberboard manufacturing are included in the PCWP source category (along with manufacturing of other PCWP). Many facilities that manufacture PCWP are major sources of HAP. Therefore, it follows that we are required by the CAA to establish NESHAP for the manufacturing of PCWP.

Section 112(d)(2) requires us to base NESHAP on MACT. Because the CAA requires us to set technology-based standards for HAP from listed source categories such as the PCWP source category, we are not required to make any demonstrations relating emissions of particular HAP from PCWP facilities to particular health risks, and any such findings would not be relevant to the MACT decision, were we to make them.

We acknowledge that the 1997 AP-42 Section 10.5 on plywood manufacturing contained few HAP emission factors (i.e., only formaldehyde emission factors were included for urea-formaldehyde (UF) presses and indirect-fired veneer dryers). We develop and update AP-42 sections periodically based on emissions test data that we have received. The September 1997 Plywood AP-42 section 10.5 was based on review of emissions data from five emission test reports, NCASI Technical Bulletin No. 405, and the plywood portion of NCASI Technical Bulletin No. 694. At the time when the 1997 AP-42 Section 10.5 was developed, we did not have the HAP emissions data that we have now. In 1998, we conducted a survey of the PCWP industry. In this survey, we requested that facilities submit HAP emission test reports for tests conducted in 1995 or later. We obtained additional test reports that contained HAP emission data for softwood plywood manufacturing processes (e.g., veneer dryers or presses) in response to the survey. In addition, a large amount of HAP emissions test data was submitted to us by NCASI in 1999. The NCASI conducted a 29-mill emissions testing program to characterize HAP and volatile organic chemical (VOC) emissions from PCWP manufacturing facilities. The purpose of the NCASI sampling effort was to provide emissions test data which could be used by the industry and EPA in development of the MACT standards. The NCASI testing program provided emissions data for approximately 20 HAP. Six of the 29 mills tested by NCASI produce softwood plywood.[7] The Plywood AP-42 section was revised to incorporate the new emissions test data received through our industry survey and the NCASI sampling program. The final revised AP-42 section was placed on our Web site (http://www.epa.gov/ttn/chief/ap42/ch10/) in January 2002.

We would like to point out that MACT standards are based on the emissions information that is available to EPA, and that we are not limited by the emissions information that is included in AP-42 when setting MACT standards. We disagree with the commenters' statement that "plants are now expected to spend millions of dollars to control emissions that EPA believed to be unlikely a few years ago." Less HAP emissions data were available in 1997 than are available today, but this does not mean that we deemed it "unlikely" that HAP are emitted from softwood plywood facilities.

2.2.2 Comment: Commenter IV-D-31 stated that the proposal suggests that pregnancy problems and menstrual disorders have been reported in connection with formaldehyde. The source of this information is unclear, and recent peer-reviewed literature (Collins *et al.,* A Review of Adverse Pregnancy Outcomes and Formaldehyde Exposure in Human and Animal Studies, 34 Reg. Toxicology and Pharmacology 17 (2001)) concludes that formaldehyde is not a reproductive hazard or developmental toxicant, and find that "[g]iven formaldehyde's rapid metabolism and reactivity, reproductive and developmental effects appear unlikely from low inhalation and dermal exposure."

Response: The preamble to the proposed rule inadvertently emphasized results from an epidemiological study in which confounding factors may have played a role in the reported results. We have revised the discussion of formaldehyde health effects such that it n longer refers to reproductive effects.

## 2.3 EXISTING SOURCE MACT

### 2.3.1 Process unit groups

2.3.1.1 Comment: Commenter IV-D-12 requested that EPA group "conventional" particleboard presses with nonconventional particleboard presses (i.e., press molds and extruders) and agriboard presses, instead of grouping them with reconstituted wood products presses, for the purpose of determining the MACT floor. The commenter stated that making these changes to the press groupings would reduce the impacts of the rule on existing particleboard plants. The commenter noted that, while EPA's proposed process unit groupings are logical, they are not necessarily practical given the current and projected economic status of the particleboard industry. The commenter contended that creation of this new press grouping would not violate any technical principles already being applied in the MACT floor analysis because the pressing technologies are similar within the suggested grouping (i.e., all are hot pressing operations) and the product markets generally overlap. The commenter noted that, if the suggested realignment were performed, then only 3.5 percent of particleboard presses would be controlled, resulting in a MACT floor for existing particleboard presses of "no control." The realignment would also force all new particleboard presses, including molded, extruded, and agriboard presses, to install controls whereas the proposed rule does not require new molded particleboard presses, particleboard extruders, or agriboard presses to be controlled. According to the commenter, this more stringent requirement for new sources would not be an added burden because "controls for new presses would be required by PSD/NSR anyway."

The commenter also requested that hardboard presses be divided into three separate groups according to process type (i.e., wet process, wet/dry process, and dry process). The commenter stated that making this change would result in each hardboard press group having less than 30 presses with only 1 controlled press per group, resulting in an existing source MACT floor of "no control" for each group. The commenter further noted that, if the presses mentioned above were exempted from the proposed control requirements, then plants would have the option to control the presses to earn emissions averaging credits.

To help determine the applicability of the proposed realignments, the commenter suggested that EPA use the existing plant list based on the document "Plywood and Composite Wood Products Plant List," which identifies the specific PCWP produced at each plant (Docket Item No. II-B-012). The commenter also suggested that including definitions of particleboard and hardboard based on EPA's proposed definitions and the changes recommended by the American Forest and Paper Association (Commenter IV-D-27) would assist with applicability determinations and would prevent a facility from switching to the production of products where control was required.

Response: Section 112(d)(1) of the CAA allows us to distinguish among classes, types, and sizes of sources when establishing emission standards. However, the CAA does not allow us to group equipment for the sole purpose of generating a MACT floor of no emissions reduction, unrelated to determining what emissions limitations the equipment used at sources are able to achieve. We believe that the commenter's suggestions of grouping particleboard press molds, particleboard extruders, agriboard presses, and conventional particleboard presses has little technical merit, and would only serve to manufacture a no emissions reduction MACT floor for particleboard presses in a way that would mask the emissions levels achieved by better performing sources. Similar results would be obtained if we distinguished among presses included in the different hardboard manufacturing processes. The commenter does not provide valid technical reasons for making the suggested equipment distinctions, but rationalizes the suggested distinctions by the effect the equipment groupings would have on the MACT floor. Therefore, we believe the commenter's suggestions would be inappropriate and inconsistent with the goals of the CAA.

For purposes of determining the MACT floor for PCWP, we grouped process units with respect to similar design, operation, and emissions. Molded particleboard plants operate numerous press molds, which are designed very differently from the platen particleboard presses. In addition, some plants produce particleboard panels using extruders instead of multi-opening presses. The annual HAP emissions from press molds and extruders are estimated to be only a fraction of the annual HAP emissions from conventional particleboard presses. Given the differences in design and annual HAP emissions, both press molds and extruders were included in process unit groups separate from panel presses used at hardboard, MDF, OSB, particleboard, agriboard, and plywood plants for purposes of determining the MACT floor for PCWP presses. We determined that the MACT floors for press molds and extruders were based on no emissions reduction because none of these equipment are controlled.

Agriboard presses are typically smaller (i.e., have fewer openings) with much lower annual throughput compared to conventional particleboard presses. Agriboard is made with agricultural fiber that is pressed using methylene diphenyl diisocyante (MDI) resin. The small amount of information available on agriboard press emissions suggests that the emissions of MDI are very low. Due to the difference in emissions from agriboard presses and conventional particleboard presses, we treated agriboard presses separately from the particleboard presses for purposes of determining the MACT floor. We determined that the MACT floor for agriboard presses was no emissions reduction because none of these presses are controlled.

We further distinguished among plywood presses and reconstituted wood product presses (used at hardboard, MDF, OSB, and particleboard plants) because of different emissions characteristics and the fact that plywood presses are often manually loaded and unloaded (unlike reconstituted wood product presses that have automated loaders and unloaders). We determined that the MACT floor for plywood presses was no emissions reduction because no plywood presses are controlled.

We chose not to distinguish among reconstituted wood product presses used to manufacture hardboard, MDF, OSB, and particleboard because these presses are of similar design and the HAP emissions from these types of presses are similar. The MACT floor for new and existing reconstituted wood products presses is the emission reduction achievable with a control system that incorporates an enclosure and incineration-based controls or biofilters.

Our conclusions regarding the MACT floor for the different types of presses are unchanged from the MACT floors we proposed (except as explained elsewhere that a “wood products enclosure” is now required in lieu of an EPA Method-204-certified PTE). Had we separated reconstituted wood product presses according to product at proposal, MACT control technology (i.e., incineration-based control or biofilter) would have been the same for MDF, OSB, hardboard, and particleboard presses; however, the capture requirements for particleboard and hardboard presses would have been undefined (because less than 6 percent of these presses were believed to have PTEs). The reconstituted wood product board cooler equipment grouping was based on the same criteria as the reconstituted wood product press equipment grouping, and therefore, the MACT floor determination for reconstituted wood product board coolers would also have been different if we had made product distinctions. The MACT floor for new and existing MDF board coolers and for new hardboard board coolers would have been based on a PTE and incineration-based control and biofilter, which for MDF and hardboard is more stringent that the proposed MACT floor for board coolers. Regardless of what the MACT floor determinations for each product type would have been prior to proposal, we maintain that it would be inappropriate to distinguish among particleboard, MDF, hardboard, and OSB presses because these presses have similar design and similar HAP emissions. As discussed in response to comment 2.3.1.2, we also maintain that separating hardboard presses according to process type (i.e., wet process, wet/dry process, and dry process) for purposes of determining the MACT floor is not justified.

The rationale behind our decision not to separate reconstituted wood product presses by product is not concern that facilities will switch products (as the commenter seems to suggest). Our rationale is based on technical distinctions in the design and emissions characteristics of the pressing equipment. In addition, we note that MDF and particleboard compete in the same market, and that hardboard manufactured using both dry and wet pressing competes in the same market. There are new hybrid products coming into the marketplace such as thin high density fiberboard and a particleboard/MDF combination. Molded particleboard and extruded particleboard are usually found in captive markets (e.g., used internally at wood furniture plants) as opposed to commercial markets like those of particleboard and MDF panels. The requirements for presses (and for other equipment used to make different products such as tube dryers, strand dryers, etc.) in the final rule apply uniformly to PCWP competing in the same markets, which will ease applicability determinations and prevent creation of an unfair advantage.

2.3.1.2 Comment: Commenter IV-D-57 argued that hardboard presses, specifically wet/wet-process hardboard presses and especially short-cycle wet hardboard presses, are fundamentally different from other "reconstituted wood products presses" and should be evaluated separately when determining the MACT floor. Of the 40 hardboard presses surveyed by EPA, only one had an incineration-based control device, yet EPA established the floor requirements at a permanent total enclosure and a thermal oxidation device. The commenter stated that when they examined the BID and supporting documents, they did not find any reasoned analysis by EPA as to why hardboard presses, and especially wet/wet-process presses, which traditionally have been accorded their own emission factors (in EPA publication AP-42, for example) and have been regulated separately from other wood panel manufacturing processes (e.g., effluent guidelines for the Wet Process Hardboard subcategory in 40 CFR part 429, subpart

E), should be lumped in with other types of presses for purposes of determining a MACT floor. The commenter also stated that plywood presses are considered separate from other presses, but there is no explanation for that decision. The EPA should consider hardboard presses separately as well, since there are a number of practical considerations in terms of available control technology. Hardboard presses have lower emission rates than other reconstituted wood products presses. Like plywood presses, very few hardboard presses are currently enclosed because of the maintenance that must be performed manually by human operators. If EPA had properly separated hardboard presses from other reconstituted wood products presses, then the MACT floor would have been correctly set at "no control." The commenter pointed out that the arguments for creating a separate MACT floor are even stronger for wet/wet-process hardboard presses. The commenter stated that the large amounts of water involved, both being pressed out of the mat and exiting the press in exhaust gases, makes these presses both much more problematic to enclose and much more costly and difficult to control. Other characteristics of these presses that set them apart from other hardboard presses are a much higher exhaust gas flow and a much lower exhaust gas temperature. The commenter pointed out that EPA has recognized that "it is appropriate to consider differences in processes, exhaust gas flow rates, emissions characteristics, and air pollution control device viability in determining whether to create a subcategory of emission sources. *See* 68 Fed. Reg. 1302." Based on all of the above reasons, EPA should place wet/wet-process hardboard presses in their own subcategory and conclude that the MACT floor is "no control."

The commenter stated that to their knowledge, the only short-cycle wet hardboard press units still in operation in the United States are the two presses at their facility. The presses at this facility are unique because they do not bake the hardboard until the moisture levels are low. Instead, the press cycle is short, usually five minutes or less when producing a board with nominal thickness of 7/16 to 5/8 inch, and the press only reduces the moisture content from 67 percent water to 20 percent water by weight, dry basis. The temperature ranges from 125º F at the inlet to 160º F at the press outlet. Once the board leaves the press, it enters a bake oven, where it is completely dried. The board is in the oven for about 4.5 hours, and the temperature can reach 310º F. For comparison, other wet press process units have a press cycle of up to 28 minutes, and the board is dried to less than 5 percent moisture content. The commenter pointed out that no other short-cycle wet press process unit has an add-on control device, and they do not know of any wet hardboard presses that are controlled. Another difficulty with a press enclosure would be avoiding degradation of the equipment when it is enclosed in a relatively low-temperature, high-moisture environment.

The commenter explained that about 240,000 gallons of water flow from the press unit into the wastewater treatment center every day. Some of that water is squeezed out of the press and some is emitted as water vapor that condenses in the hood above the press. Because the press cycle is so short, there is no point at which the emissions are relatively dry. These factors will make it difficult to design and build an enclosure to control this facility's press vents. The large amount of water removes substantial amounts of HAP from the press exhaust and the condensing water vapor acts as a basic scrubber for the gases exiting the press. Wastewater tested at the facility's biological treatment system had a HAP concentration of 95 ppm. The water flow is important to the removal of HAP and it will be difficult to maintain negative pressure inside a press enclosure without disrupting that water flow.

The commenter stated that press enclosures will present safety problems for the press operators. Every time the press is opened, an operator must inspect the press and remove any boards that are stuck to the press. Removing boards could involve removing the entire screen, bar, and board. Operators also change the caul plates, which emboss various patterns onto the board, several times a day. If the operators are forced to work inside a press enclosure, then they will be exposed to hot, foggy conditions in an unsafe, if not uninhabitable, workplace. The commenter noted that they have considered video cameras or automation, but no technique is available that could completely replace the operators. The commenter provided a video demonstrating the duties of the operators on November 15, 2002 and stated that this is not a problem that can be easily overcome.

The commenter argued that because the hardboard mat is not completely dried and the resin is not set in the press, a significant amount of VOCs exit the press with the board and are emitted from the bake oven. Therefore, the emissions from the short-cycle presses are "high-volume, very high moisture, relatively low temperature, and have low concentrations of VOCs and HAPs" and the bake oven emissions are "lower-volume, higher-concentration exhaust gases." Because of these factors, the commenter noted that the emissions from the presses at this facility are a smaller portion of the overall emissions than the press emissions at other hardboard plants. Table 2-2 summarizes total HAP (sum of the six predominant HAP) emissions and exhaust gas characteristics for one production line based on stack tests performed in December 2002. The commenter noted that press total HAP emissions were equivalent to 0.52 lb/thousand square foot (MSF), $^{7}/_{16}$ inch (equivalent to 0.89 lb/MSF, $^{3}/_{4}$ inch) and the bake oven total HAP emissions are equivalent to 0.46 lb/MSF, $^{7}/_{16}$ inch (equivalent to 0.13 lb/MSF, $^{1}/_{8}$ inch). (No thickness basis for these measurements was provided in the comment letter; however the thicknesses were later provided during a meeting with the commenter.[8]) The commenter pointed out that the total HAP emissions from one press at this facility are above the 20 ppmv limit by less than 3 ppmv, but there is no consistent way that the facility can ensure that they could keep emissions below 20 ppmv. The commenter noted that the hardboard market is highly competitive, and individual facilities work to minimize chemical and production costs. There are currently no real opportunities for raw material substitution, and it seems unlikely that practical and cost-efficient pollution prevention options will be available any time soon.

**Table 2-2. Total HAP Emissions Exhaust Gas Characteristics for one wet/wet Hardboard Production Line**

| Parameter | Press | Bake oven |
|---|---|---|
| Sum of total HAP, ppmv | 22.8 | 61.3 |
| Sum of total HAP, lb/hr | 14.50 | 12.76 |
| Stack temperature, ˚F | 137 | 211 |
| Stack gas flow, cfm | 99,629 | 39,740 |
| Stack moisture, % | 14.1 | 20.0 |

Commenter IV-D-57 stated that controlling two wet/wet-process short-cycle hardboard presses will be very costly. The total exhaust is 200,000 actual cubic feet per minute (acfm), so the RTOs will have to be large and will require large amounts of natural gas. In addition, 10,000 pounds of water vapor per day will have to be raised from about 140º F to the temperature necessary for destruction of the HAP. The commenter estimated that capital costs for the press controls alone will be $5.7 to $9.6 million and annualized costs will be about $3 million, and only 120 tpy of HAP (60 tpy per press) will be controlled.  The commenter noted that this facility is unique among wet/wet-process hardboard facilities because the hardboard is completely dried in a bake oven rather than the press.  As a result, the facility will have to control the bake oven as well as the press, while other wet/wet-process hardboard facilities will only have to control one unit, putting this facility at an economic disadvantage.

The commenter noted that the high levels of moisture in the emissions would quickly degrade the media in an RTO or an RCO.  Also, this facility would need an extremely large RTO or RCO unit to handle all of the emissions from the presses.  Another possible control device is a biofilter, but the commenter believes that biofilters are untested and impracticable for a gas volume as large as that of their facility's press vents.  The commenter pointed out that according to the BID, a biofilter large enough to handle the 200,000 acfm of exhaust would have to have a surface area of 24,000 $ft^2$ to 40,000 $ft^2$, and the BID notes that a 6,000 $ft^2$ Monsanto unit is considered a "large" biofilter.  If this facility were to attempt to use six-foot-diameter biocubes, 857 to 1,428 biocubes would be required.  At costs ranging from $27,000/ton of HAP removed (using a wet scrubber and biofilter) to $35,000/ton of HAP removed (using a wet scrubber and RCO), any control device chosen for this facility will be extremely expensive and would exceed reasonable BACT cost standards.  No controls would be the best VOC/HAP emission control option for the facility.

The commenter suggested two possible solutions to this problem.  The preferred option is to separate hardboard presses, or at least wet/wet-process hardboard presses, into a new subcategory and determine that the MACT floor for this subcategory is "no control."  Beyond-the-floor controls should not be considered because they are too costly.  If EPA decides not to create a separate subcategory, then it should exclude short-cycle wet presses that do not dry the board and set the resin, such as the ones at this facility, from the MACT requirements.  If EPA chooses to exclude the short-cycle presses, then the following statement should be included in the definition of "reconstituted wood product press:"  "It does not include a hardboard press where the daily average moisture content of the board leaving the press is equal to or greater than 20% by weight (dry basis)."

Response:  When we determined the MACT floor at proposal, we grouped process units based on similarities in equipment design, operation, and emissions.  We grouped the wet/wet hardboard presses with other types of hardboard presses at proposal for several reasons: (1) wet/wet hardboard presses manufacture the same product as presses at dry/dry and wet/dry hardboard plants; (2) wet/wet and dry/dry hardboard manufacturing uses phenol-formaldehyde resins; and (3) the presses at wet/wet hardboard plants have emissions similar to those from presses at wet/dry and dry/dry process hardboard plants. We also grouped all hardboard presses with presses used to manufacture MDF, particleboard, and OSB because these presses are of similar design (generally multiplaten presses with loader and unloader) and have HAP emissions of the same magnitude. There was no reason to believe that APCD applicability varied according to product because similar types of enclosures and add-on controls were used on multiple presses making each reconstituted wood product (hardboard, MDF, particleboard, and OSB). We distinguished among plywood presses and reconstituted wood product presses because of different emissions characteristics (i.e., plywood press emissions are much lower) and factors that could affect the ability of plywood presses to be enclosed (i.e., the fact that plywood presses are often manually loaded and unloaded and require constant forklift access for removal of stacks of pressed plywood). We determined that the MACT floor for new and existing reconstituted wood product presses is the emission reduction achievable with a control system that incorporates an enclosure and incineration-based controls or biofilters. We determined that the MACT floor for plywood presses is no emissions reduction because no plywood presses are controlled. Documentation of the proposed process unit groups and MACT floor determinations for each group was provided in a memorandum entitled "Determination of MACT floors and MACT for the Plywood and Composite Wood Products Industry."[3]

We disagree that there is sufficient technical rationale for treating wet/wet hardboard presses or all hardboard presses differently for purposes of determining that MACT floor. While there may be some reasons for treating wet/wet hardboard presses separately (i.e., wet mat pressed), there are also reasons for not treating them separately (i.e., high emissions compared to other reconstituted wood products presses). The final PCWP rule applies uniformly to all reconstituted wood products presses, including wet/wet hardboard presses. The following discussion explains our rationale and addresses specific points raised by the commenter.

The commenter correctly noted that hardboard presses have their own AP-42 chapter; however, the other PCWP (including MDF, OSB, particleboard, plywood, and engineered wood products) also have their own AP-42 chapters. Previous EPA publications, such as AP-42 emission factors, were not a consideration in determining the PCWP MACT process unit groups. Similarly, while we acknowledge that there are separate effluent guidelines for wet process hardboard (because wet process hardboard, including wet/wet and wet/dry hardboard processes, is the only PCWP production process that uses water), we note that the these effluent guidelines were developed pursuant to the Clean Water Act and were not a considered when determining the PCWP MACT process unit groups.

The commenter claimed that hardboard presses have lower emission rates than other reconstituted wood products presses, and stated that wet/wet hardboard presses have a much higher exhaust gas flow and a much lower exhaust gas temperature than other hardboard presses. Our data do not support these conclusions. Our data show that hardboard presses, including wet/wet hardboard presses, have some of the highest uncontrolled HAP emission factors (e.g., 2.2 and 3.0 $lb/MSF_{3/4"}$) within the reconstituted press grouping, which has total HAP emissions ranging from (0.37 to 3.0 $lb/MSF_{3/4"}$). The PBCO for the reconstituted wood product presses, which was based on the maximum of our uncontrolled total HAP data, was based on the emissions of a wet/wet hardboard press.[9] The total HAP emissions from the commenter's press (0.89 $lb/MSF_{3/4"}$) are lower than some of the other wet/wet hardboard presses for which we have data, but are within the range of emissions from reconstituted wood products presses. In terms of annual emissions, the commenter's wet/wet hardboard presses each emit 60 tpy of HAP. In addition, our MACT survey data do not show a large difference in the press exhaust flows and temperatures from wet/wet hardboard presses and other types of reconstituted wood products presses.[10]

We acknowledge that wet/wet hardboard presses differ from other types of reconstituted wood products presses because wet/wet hardboard presses are used to press a wet mat. Wet/wet hardboard presses have water that cascades down the sides of the press as the press closes. The commenter presented concerns regarding potential difficulty with a full enclosure for the subject facility, including equipment degradation, disruption of water flow, and operator safety concerns. Given that none of the other companies with wet/wet hardboard presses presented these concerns to us, we are not able to distinguish which of these concerns are specific to the commenter's facility and which could be problems for other wet/wet hardboard presses. Also, it is unclear how pressing equipment that has water cascading down its sides during normal operation could be adversely affected by a low temperature, high moisture environment inside an enclosure. We acknowledge that safety of the operators inside an enclosure at the subject facility is a major concern. Although a wood products enclosure is required to meet the MACT floor, the final PCWP rule includes alternative options that would minimize operator safety concerns. For example, another process unit could be controlled and used in an emissions average to avoid capturing and controlling all of the press emissions. Another option would be to construct and test a partial wood products enclosure and use a highly efficient control device to achieve a combined capture and control efficiency of 90 percent. In the video provided by the commenter, the press exhaust appears to be very buoyant, rising rapidly within the press hood. The vapor cloud does not appear to spread outside of the hooded area, making it seem feasible that the facility could achieve good capture using a partial wood products enclosure.

The commenter stated that their facility is unique among wet/wet hardboard facilities because the facility uses a short press cycle (5 minutes or less) and uses bake ovens to complete drying of the board to bone dry levels. According to the commenter, other facilities press for up to 28 minutes and do not have bake ovens because the board is pressed to bone dry levels. We cannot conclude with certainty that the commenter's facility is unique because our MACT survey data do not verify the commenter's statements. Our MACT survey data show that there is at least one other wet/wet hardboard facility with bake ovens. The survey data also show that other wet/wet facilities use short press cycles, ranging from 4 to 20 minutes. We do not have data on board outlet moisture content.

The commenter noted that the sum of "total HAP" for their wet/wet presses is above 20 ppm. From this comment, we infer that the commenter believed that they would almost be able to comply with the 20 ppm compliance option in the proposed rule. If so, it appears that the commenter misunderstood the application of the 20 ppm compliance option in the PCWP rule. The 20 ppm value is in terms of THC, not "total HAP." Also, the 20 ppm THC level must be demonstrated at the outlet of an APCD.

The commenter concluded that there is no good way to control the emissions from their facility because the moisture and high airflow would create mechanical difficulties for all control technologies. We disagree with this assertion because high flow and high moisture exhaust streams (e.g., 20 to 25 percent moisture at the outlet of a WESP) are treated by WESP/RTO systems installed on OSB rotary dryers.[11] We also note that the moisture content shown in Table 2-1 above for the bake oven exhaust is higher than that for the press exhaust. We further disagree that wet/wet hardboard press exhaust is problematic for a biofilter. Biofilters are particularly well suited to treat low temperature exhaust streams with a high moisture content. The commenter dismissed the possibility of installing a biofilter by stating that a biofilter large enough to handle the exhaust from their two wet/wet hardboard presses (approximately 100,000 cfm each) has never been constructed or tested. To the contrary, we are aware of a biofilter in use at one PCWP facility that treats 600,000 cfm of exhaust.[12] In addition, the commenter also determined in their own cost analysis that a wet scrubber and biofilter combination would be the most cost-effective control device option. That cost analysis was based on the assumption that a wet scrubber and biofilter combination would only achieve an 80 percent HAP reduction. Based on the data that we have collected, biofilters can easily achieve at least 90 percent control of HAP such as formaldehyde and methanol. If the commenter had reflected a 90 percent HAP control efficiency in their cost analysis, then the cost-effectiveness of the biofilter option would appear more favorable.

The commenter concluded that none of the control options they analyzed would be considered to be cost-effective for a BACT determination and that the "best" control option for their facility would be no control. We note that BACT and MACT levels of control may differ and that the CAA does not allow us to consider cost as a criteria when determining the MACT floor.

The commenter pointed out that if we had separated hardboard presses or wet/wet hardboard presses into their own subcategory, the MACT floor would be "no control" because only one hardboard press has incineration-based control. This may be true for existing hardboard presses (and for new and existing wet/wet hardboard presses if they were placed in their own group), but it would not be true for new hardboard presses because MACT for new sources is based on the best performing similar source, and some hardboard presses are enclosed and controlled. The MACT floor analysis included three controlled hardboard presses (the one mentioned by the commenter with incineration-based control, plus two others with biofilters). The CAA does not allow us to group equipment for the sole purpose of generating a MACT floor based on no emissions reduction (unrelated to determining what emissions limitations the equipment used at sources are able to achieve). Even if wet/wet hardboard presses were not controlled at the MACT floor, we would evaluate beyond the floor options. Because wet/wet presses are some of the highest-emitting presses in the PCWP industry, the costs of a beyond-the floor control option would likely be equivalent to control costs for other press types and justifiable.

The commenter makes reference to the "highly competitive nature of the hardboard market." We note that hardboard is manufactured for the same markets and applications, regardless of the manufacturing process, and that creating a subcategory that includes some hardboard presses and excludes others could change the competitive makeup of the hardboard market.

2.3.1.3 Comment: Commenter IV-D-57 requested that EPA consider including a "fundamentally different factors variance" in the final PCWP rule. The commenter explained that the NESHAP apply to all facilities within a category or subcategory, but occasionally there is one facility that is different from all other facilities within a category. When that situation occurs, EPA should provide a variance from the standards because that facility may be unable to achieve the standards. In this case, the commenter argued that their short-cycle wet/wet-process hardboard press is fundamentally different from other wet/wet-process hardboard presses. The commenter stated that there is precedent and legal basis for providing this "fundamentally different factors variance" in the PCWP NESHAP, and excluding it would "constitute a fatal legal defect." The legal rationale for this variance was given as follows:

> "The United States Supreme Court has recognized the necessity of a fundamentally different factors variance for nationwide, technology-based limitations. In the context of reviewing Best Practicable Technology and Best Available Technology requirements of the Clean Water Act, the Supreme Court approved of uniform, technology-based limitations, "so long as some allowance is made for variations in individual plants." *E.I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 128 (1977). See also *U.S. Steel Corp. v. Train*, 556 F.2d 822, 844-45 (7th Cir. 1977). In fact, with respect to effluent guidelines for the pulp and paper industry in particular, the D.C. Circuit held that "we cannot approve the regulations without finding that they include a sufficiently flexible variance provision." *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1032 (D.C. Cir. 1978). The D.C. Circuit explained that "t[he] importance that the [Supreme] Court assigned to a meaningful variance as a prerequisite to valid general limitations may be seen … in its use of the mandatory phrase 'so long as'." The courts have inferred the need for a "safety valve" variance even where, as in the case of the Best Practicable Technology

requirements Federal Water Pollution Control Act of 1972, no variance was included in the statutory language.

"As a result of these decisions, in 1979 EPA incorporated into its water pollution regulations an explicit fundamentally different factors ("FDF") variance, in 40 C.F.R. part 125, Subpart D. The Water Quality Act of 1987 subsequently incorporated an FDF variance into the Clean Water Act as section 301(n). For the same reasons, a uniform, technology-based standard under Clean Air Act section 112 must be accompanied by some variance provision that would allow for different standards to be applied to facilities that are fundamentally different from those upon which the MACT standards are based.

"The Supreme Court has acknowledged that variances "are appropriate to the regulatory process." Du Pont, 430 U.S. at 138 (quoting the underlying Court of Appeals in *E.I. du Pont de Nemours & Co. v. Train*, 541 F.2d 1018, 1028 (4th Cir. 1976); see also *U.S. v. Allegheny-Ludlum Steel Corp.*, 406 U.S. 742, 755 (1972). ("It is well established that an agency's authority to proceed in a complex area … by means of rules of general application entails a concomitant authority to provide exemption procedures in order to allow for special circumstances."). In explaining the need for a variance provision, the Fourth Circuit relied on the D.C. Circuit's reasoning that "a regulatory system which allows flexibility, and a lessening of firm proscriptions in a proper case, can lend strength to the system as a whole. The limited safety valve permits a more rigorous adherence to an effective regulation." *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 373, 399 (D.C. Cir. 1973) (citations omitted), cert. denied 417 U.S. 921. The Fourth Circuit also cited to the D.C. Circuit's opinion in *International Harvester v. Ruckelshaus*: "Considerations of fairness will support comprehensive and firm, even drastic, regulations, provided a 'safety valve' is also provided." 478 F.2d 615, 641 (D.C. Cir. 1973)."

The commenter suggested that EPA follow the Supreme Court's reasoning and provide a fundamentally different factors variance as a "safety valve" for the PCWP NESHAP. This situation is an example of "how categorical MACT standards that are achievable and applicable to most facilities in a source category or subcategory can be unreasonably stringent and unachievable at a particular facility due to fundamental differences in its situation," and not including the variance could result in requirements that are unlawfully stringent.

<u>Response</u>: We disagree that it is necessary to include "fundamentally different factors variance" in the final PCWP rule. We are not aware of any facilities that would need such a "safety valve," including the wet/wet hardboard facility that is the subject of this comment (for the reasons set forth in response to comment 2.3.1.2 above). EPA has not included such variance provisions in MACT standards under section 112(d) of the CAA, as MACT standards are established to apply generally to categories and subcategories under section 112 (d)(1) and (2),

and are required to meet minimum stringency levels under section 112 (d)(3). Moreover, sections 112(i)(1) and (3) impose compliance deadlines that apply to "any" new or reconstructed source and allow "no person" operating an existing source to violate a MACT standard. As a result, CAA section 112 does not provide authority for the commenter's requested "variance" provision. To maximize flexibility, the final PCWP rule includes three sets of compliance options (six add-on APCD compliance options, PBCOs, and emissions averaging) and many alternative methods for emissions testing and capture efficiency determination. In addition, to the extent any individual source demonstrates a need for more time to install controls to meet a MACT standard, section 112(i)(3)(B) provides for specific extensions to be granted by permitting authorities, and section 112(i)(4) allows the President to grant temporary exemptions to sources in cases where implementing technology is not available and the exemption is in the national security interests of the United States. Congress provided for no other type of "variance" from MACT.

2.3.1.4 Comment: Commenter IV-D-13 requested that further consideration be given to low-temperature OSB strand conveyor dryers. The commenter stated that the current (proposed) definition of a strand dryer is not specific enough to determine if the low-temperature OSB dryers fall under the general category of strand dryers, so a separate definition should be included for them in section 63.2292 (What definitions apply to this subpart?). Also, since these conveyor strand dryers emit less HAP than rotary strand dryers and have been recognized as BACT in Minnesota, the commenter contended that they should be recognized accordingly and exempted from section 63.2240 (What are the compliance options and operating requirements and how must I meet them?). The commenter noted that the 12 conveyor dryers used by their company have three drying zones, each with its own heating system and exhaust vent. When drying hardwoods, no VOC control is required; however, when drying pine, zones 1 and 2 are controlled. Zone 3 serves as a final conditioning zone and is exhausted to the atmosphere without need for VOC control. The commenter stated that preliminary HAP emission test data for drying southern yellow pine indicates that the strand dryer production-based emission limit (PBEL) may be achievable. The commenter suggested that EPA should either include work practice requirements for temperature control of low-temperature OSB dryers or allow facilities operating these dryers to use a combination of PBELs and add-on compliance options.

Response: The final rule does not allow use of an add-on APCD to meet the PBCOs (formerly known as PBELs), nor does the final rule allow combination of the PBCOs and add-on compliance options (e.g., PBCO for exhaust from one dryer zone and one of the six add-on compliance options for the other two zones). The PBCO was developed for and applies to the entire process unit.

In light of the concerns expressed by the commenter, we reviewed our emissions data and MACT analysis for conveyor strand dryers. The MACT analysis we conducted at proposal treated conveyor strand dryers as a separate equipment group from rotary strand dryers. We noted that rotary strand dryers operate at much higher inlet temperatures (often ≥900˚F) than do conveyor dryers (typically <400˚F), and rotary dryers provide greater agitation of the wood strands than do conveyor dryers. As a result, the emissions from conveyor dryers are lower than the emissions from rotary strand dryers. The emissions test data we have for conveyor dryers (only formaldehyde and THC data are available) indicate that formaldehyde emissions from conveyor dryers are one to two orders of magnitude less than for rotary strand dryers. The THC emissions are also lower for conveyor dryers than for rotary dryers. Our MACT analysis for conveyor dryers at proposal concluded that three of the eight conveyor dryers used in the United States operated with process incineration. Because there are fewer than 30 conveyor strand dryers, the MACT floor was based on the control level achieved by the third best-controlled dryer. Thus, at proposal, we determined that the MACT floor control system for new and existing conveyor strand dryers was the emission reduction achievable with incineration-based control. We included one definition of "strand dryers" in the proposed PCWP rule, since MACT for both rotary and conveyor strand dryers was represented by incineration-based control.

As pointed out by the commenter, conveyor dryers have distinct zones with their own heating system and exhaust. We reviewed our MACT survey data and learned that all of the conveyor dryers in the United States have three zones. Upon further scrutiny of the MACT analysis at proposal, we learned that the three conveyor dryers that formed the basis for the MACT floor at proposal were routing the emissions from zone 1 only to an onsite combustion unit for incineration. The remaining five conveyor dryers have no HAP control (four have an electrified filter bed; one routes 80 percent of the exhaust from each zone to a blend chamber, which provides no HAP control, and directs the remaining 20 percent of the exhaust to the atmosphere). Thus, our conclusions regarding the MACT floor for conveyor dryers at proposal were overstated. Only zone 1 of the third best-controlled conveyor dryer has incineration-based control, as opposed to all zones. Therefore, we revised our analysis to reflect that the MACT floor for existing conveyor dryers is the emission reduction achieved with incineration-based control on zone 1.

The commenter mentions operating 12 conveyor dryers. Six of these conveyor dryers are located at new plants that were not included in our pre-proposal MACT floor analysis. These six conveyor dryers route emissions from zones 1 and 2 to a closed loop incineration system for emissions control. Given that newer facilities are incinerating conveyor dryer exhaust from zones 1 and 2, we determined that the MACT floor for new conveyor dryers is the emission reduction achieved with incineration-based control for exhausts from zones 1 and 2.

Beyond-the-floor control options for existing conveyor dryers could include incineration-based control on either zone 2, or zones 2 and 3, in addition to zone 1. A beyond-the-floor control option for new conveyor dryers could be incineration-based control of zone 3 in addition to control of zones 1 and 2. To analyze these beyond-the-floor options, we assumed than on RTO would be installed to control emissions from the additional zones because the combustion unit used to control emissions from zones 1 and/or 2 may be unable to handle the exhaust from additional zones.[13] We determined that the environmental benefit of controlling additional conveyor dryer zones would not justify the cost for existing or new conveyor strand dryers.

2.3.1.5 <u>Comment</u>: Commenter IV-D-37 requested that the EPA divide continuous and batch presses into two different categories for the purpose of this rule. The commenter argued that control requirements in the rule were designed for batch presses, but continuous presses need a different set of capture and control criteria. The commenter provided information from environmental engineering firms on the fundamental differences between the two types of presses, as well as information on continuous presses from suppliers. The commenter noted that continuous presses are much longer than batch presses, reaching lengths of 200 feet, which makes them difficult to completely enclose. The commenter was unaware of any continuous presses that have been Method 204 certified as having PTEs. They stated that operational problems with trying to enclose a continuous press include heat buildup leading to mechanical failures, impaired visibility leading to undetected problems that may cause unscheduled downtime, and an imbalance of heat on the press due to the extraction of air from the enclosure. The commenter further noted that safety concerns include the fire risk from the combination of heat accumulation and lubrication fluids, the possibility of unhealthy levels of HAP trapped in the enclosure, and the loss of mobility that could result if workers have to wear protective clothing. The commenter noted that the capital and operating costs of PTEs applied to continuous presses would exceed those associated with batch presses due to the large size of the enclosure and the increased maintenance costs resulting from heat build-up within the enclosure. In addition, the commenter provided volatile organic emissions data for one of their continuous presses to demonstrate that emissions from the front stages are minimal and that the "overwhelming majority" of emissions are from the last 40 percent of the press length, referred to as the decompression zone. The commenter contended that gathering the emissions from all stages of the continuous press will result in a more dilute stream, which will be less cost-effective to treat, and that the large volume of exhaust to be treated would likely preclude the use of biofilters, which are more practical for treating smaller volumes of air. In addition, because continuous presses have "multiple direct coupled emission extraction points," the use of the proposed tracer gas method of determining capture efficiency would not be applicable (the tracer gas method would only measure emissions not already captured by the multiple direct extraction points).

To remedy the situation, the commenter recommended that EPA divide batch and continuous presses into two different process unit groups for the purpose of determining the MACT floor. Because there are fewer than 30 continuous presses, the MACT floor for existing continuous presses would be determined based on the average emissions limitation achieved by the five best-performing continuous presses. The commenter provided information to support their contention that none of the continuous presses achieved 100 percent capture, and suggested that the MACT floor for capture efficiency is 80 percent capture of emissions from the decompression stages. The commenter also stated that the proposed emission limitations in Table 1B of the proposed rule (e.g., 90 percent reduction) should only apply to the captured emissions; the commenter provided revisions to Table 1B that would incorporate their suggestion. Finally, the commenter provided definitions of "reconstituted wood product *batch* press," "reconstituted wood product *continuous* press," and "decompression stage" that could be included in the final PCWP rule.

Response: The MACT floor determinations for PCWP equipment were based on process units that are similar with respect to design, operation, and emissions. We acknowledge that continuous presses have a different design than multi-opening batch presses. However, based on the data available to us, continuous presses have emissions that are within the same range as those from batch presses on a lb/MSF basis. Therefore, we believe it is reasonable to group batch and continuous together for purposes of determining the MACT floor. The MACT floor for continuous presses would be the same as the MACT floor for batch presses regardless of whether batch and continuous presses were placed in separate equipment groups. As explained below, we disagree that the MACT floor capture efficiency for continuous presses is 80 percent as suggested by the commenter.

The commenter was incorrect in suggesting that there are no continuous presses with Method 204 certified PTEs. On the contrary, the two existing press enclosures in the PCWP industry identified as being Method 204 certified surround continuous presses. These continuous presses are 41.5 ft and 110 ft long. Due to the presence of these presses in the industry, the MACT floor for new and existing continuous presses is a total enclosure and incineration-based control or biofilter regardless of whether or not batch and continuous presses are treated as separate equipment groups. In addition to the two presses with PTE mentioned above, there is a Method-204-certified PTE around a 181-ft long continuous press at a newer PCWP facility; however, this press has had some operational problems associated with the PTE. It is not clear if the operational problems experienced by this 181-ft long press are the result of poor PTE design.

Long continuous presses are generally being installed at new PCWP facilities, as opposed to being retrofit at existing facilities. Given that there is at least one long continuous press (110 ft) with a Method-204-certified PTE that has not experienced operational problems associated with their press enclosure, we believe that wood products enclosures (as defined in the final rule) can be designed around long continuous presses. We recognize that higher cost may be associated with wood products enclosures around long continuous presses than for batch presses, but the CAA does not allow us to consider cost at the MACT floor control level.

Enclosures greater then 200 ft in length are not unheard of. Such enclosures are common in the printing/publishing industry. However, we do recognize there are differences in the enclosures used in the printing/publishing industry and the PCWP industry. Although not cyclical in operation like batch presses, continuous presses are heated operations and may also have internal pressurization issues.[14] There have been operational problems associated with heat buildup inside the enclosure for the 181-ft long continuous press. Therefore, we believe it is appropriate for the same definition of "wood products enclosure" promulgated for batch presses to apply to long continuous presses as well (as opposed to Method 204 certification). As discussed in more detail in section 2.3.2.8, the definition of wood products enclosure included in the final PCWP rule is slightly different from the Method 204 PTE design criteria, and including this definition in the final PCWP rule eliminates the need for Method 204 certification of wood products enclosures. Enclosures meeting the definition of "wood products enclosure" in the final PCWP rule are assumed for all practical purposes to achieve 100 percent capture.

As an alternative to wood products enclosures, the final PCWP rule allows use of partial wood products enclosures. The capture efficiency of the partial wood products enclosure must be tested using either the tracer gas method included in Appendix A of the final PCWP rule, Methods 204 and 204A-F, or an alternative method that is approved by the Administrator. We agree with the commenter that the tracer gas method would be inappropriate for some configurations of partial wood products enclosures around long continuous presses (e.g., if there are no sampling locations that can be used to distinguish between the HAP collected by the pick-up/extraction points and the HAP collected by exhaust fans in the general press area). However, the tracer gas method could be used for other press exhaust capture configurations (e.g., for a partial enclosure covering the length of the press with exhaust ductwork that allows for separate sampling of the pick-up/extraction point exhaust and exhaust from inside the partial enclosure). In addition, the final rule includes Methods 204 and 204A-F for testing of partial wood products enclosures whereby a Method 204 temporary total enclosure (TTE) could be constructed around the press and a gas/gas method such as Method 204D could be used to determine capture efficiency.

2.3.1.6 <u>Comment</u>: Commenter IV-D-04 asked for clarification of the definition of an engineered wood products (EWP) press and stated that the EPA classification of certain presses as EWP presses may not always be valid. The commenter was aware of at least one facility in Minnesota that is a major source of HAP and that operates a press that could fit the definition of an EWP products press. The facility in question operates an LSL press that the commenter contended is very similar in operation to an OSB press. The commenter suggested that, instead of assuming that these presses have very small amounts of HAP, the emissions should be tested to ensure that there are no HAP before exempting these presses from emission control requirements through classification as EWP presses.

Response: Engineered wood product presses are not defined in the regulatory text of the PCWP NESHAP, but were mentioned in the preamble to the proposed rule. Engineered wood products presses include presses at LVL, PSL, LSL, glulam, and I-joist plants. Plants manufacturing engineered wood products such as LVL, PSL, and LSL form and press (often with microwave or radio-frequency) billets that are much thicker than panels. Glulam plants use clamps to press laminated beams at room temperature. I-joist plants do not use presses, but use curing chambers to cure the adhesive in the I-joists. The emissions from EWP presses and curing devices are much lower then the total annual HAP emissions from most panel presses. Given the differences in design and annual HAP emissions, we treated EWP presses and panel presses separately for purposes of determining the MACT floor. Emissions from all of the EWP presses and curing devices in the PCWP industry are uncontrolled; therefore, the MACT floor for new and existing engineered wood product presses is no emission reduction.[3]

The commenter questions whether LSL presses should be grouped with OSB presses. The LSL and OSB manufacturing processes are somewhat similar in that whole logs are debarked and sliced into wood strands, and then the wood strands are dried using rotary or conveyor strand dryers. For purposes of determining the MACT floor for dryers, we included OSB and LSL rotary strand dryers in the same equipment group because these dryers are of the same design and have similar emissions. Similarly, we included conveyor strand dryers used to make OSB and LSL in the same equipment group. Following drying and resin application, LSL and OSB strands are formed into a mat that is inserted into the press. We differentiated among OSB and LSL presses for purposes of determining the MACT floor because of design differences and differences in the emissions from OSB and LSL presses. The presses used for LSL manufacture are single-opening presses, roughly 8 ft long and 4 ft wide (32 $ft^2$ press area).[15]

The LSL press compacts a thick mat of strands into a billet at can be up to 5.5 in thick.[2] Multi-opening presses with 10 to 28 openings and an average pressing area of 166 $ft^2$ per opening are most typically used for OSB manufacture; no single-opening batch presses are used to make OSB. The OSB panels are pressed to an average thickness of 0.6 in.[10] Our MACT survey data indicate that the billet volume pressed annually in LSL presses ranges from 4.9 to 5.4 million $ft^3$/yr.[15] Our data show that OSB press throughput ranges from 172 to 380 MMSF $^3/_8$" of panels per year (equivalent to 5.4 to 12 million $ft^3$/yr).[10] In addition to having lower throughput, our data also indicate that LSL presses have lower emissions that OSB presses on a lb/1000 $ft^3$ basis. Our data show that emissions of formaldehyde from an LSL press are two orders of magnitude less than the emissions from OSB presses. Given the design and size differences between LSL and OSB presses and the difference in emissions, we maintain that it would not be appropriate to group LSL presses with OSB presses (and other reconstituted wood products presses).

#### 2.3.2 Basis for MACT floor

2.3.2.1 Comment: Commenters IV-D-27, IV-D-21, and IV-D-56 agreed that EPA properly followed section 112(d) of the CAA in establishing the PCWP MACT floor and supported the level of control chosen by EPA (i.e., 90 percent control level for some PCWP process units and no reduction for others). According to the commenters, EPA correctly based the MACT floor on process units rather than entire facilities because of the available data and the nature of these facilities. Because pollution control techniques are not widely used throughout the industry and the results are not universal, the MACT floor appropriately focuses on add-on control techniques. According to the commenters, EPA correctly concluded that oxidizers and biofilters resulted in the best and most consistent emission control and used the 94$^{th}$ percentile to determine the best-performing control device for each process unit group. The commenters stated that EPA’s decision to group the data from all of the oxidizers and biofilters together in order to determine the MACT floor was appropriate given that the available data for some process unit groups were limited and not universally compatible. The commenters supported EPA’s conclusion that the typical reduction in HAP emissions by oxidizers and biofilters was 90 percent, and that well-maintained control devices generally only achieve less than 90 percent reduction if the inlet stream has a low HAP concentration. The commenters also supported the inclusion of concentration-based limits at the outlet of the control device that similarly reflect this 90 percent removal efficiency. The commenters further stated that the MACT floor should not be set higher than 90 percent for two reasons. First, there are not enough data to support the conclusion that the control devices are regularly capable of achieving greater than 90 percent reduction. Second, regardless of how well an oxidizer is installed and maintained, the inlet concentration to the oxidizer is the factor that has the most effect on the reduction efficiency. The commenters noted that "at high pollutant loadings, most oxidizers can easily achieve 90 percent removal, but at lower pollutant loadings, even the same well-performing oxidizer will have a lower removal efficiency." The commenters asserted that the 90 percent removal levels were measured under "peak operating levels," so both the inlet HAP concentrations and the removal efficiencies were fairly high. The commenters noted that when EPA established a floor of 90 percent removal efficiency, it recognized that control devices will be able to achieve both higher and lower removal efficiencies. The commenters stated that requiring a removal efficiency higher than 90 percent would penalize sources that have low inlet pollutant concentrations. "[H]aving a low inlet concentration may show that the source was able to utilize pollution prevention techniques to minimize emissions, an activity which should be encouraged, not penalized."

In contrast to the previous three commenters, commenter IV-D-11 disagreed with EPA's determination of an across-the-board MACT floor level of 90 percent control. Although the commenter supports EPA's use of the median of the top 12 percent of sources ($94^{th}$ percentile), the commenter notes that the preamble does not state that the 90 percent reduction of THC, formaldehyde, or methanol represents the $94^{th}$ percentile. The commenter pointed out that the preamble does state that incineration-based controls and biofilters showed THC, methanol, and formaldehyde emissions reductions "equal to or greater than 90 percent." The commenter further noted that the BID shows *average* emissions reduction data, not median, for THC, methanol, and formaldehyde at 97 percent, 89 percent, and 95 percent, respectively. The commenter contended that this "one size fits all approach" of choosing a 90 percent reduction level is not appropriate, and EPA should reevaluate the $94^{th}$ percentile for the individual compliance options for add-on controls. The commenter agreed that concentration-based compliance options were needed as an alternative to the percent reduction options for those sources with dilute emission streams. The commenter also recommended that EPA reserve the percent reduction options for those sources with more concentrated emissions streams by implementing a minimum inlet stack concentration level for sources meeting the percent reduction compliance options.

Response: To determine the MACT floor control level, we reviewed available data on pollution prevention techniques and the performance of add-on control devices and identified those add-on control systems that were best at reducing HAP emissions. We were unable to identify pollution prevention measures that can be universally applied across the industry, and we had no information on the degree of emissions reduction that can be achieved through pollution prevention measures. Therefore, our MACT analysis focused on the performance of add-on control devices. Total hydrocarbon, formaldehyde, and methanol were considered in our analysis of control device performance because these three pollutants are the most prevalent pollutants emitted from the PCWP industry and represent the majority of the available data on control device performance. We concluded that only two types of add-on APCDs consistently and continuously reduced HAP emissions: incineration-based controls (including RTOs, RCOs, and incineration of pollutants in onsite process combustion equipment) and biofilters (used to control PCWP press emissions). The performance data for the incineration-based controls and biofilters showed methanol and formaldehyde emissions reductions equal to or greater than 90 percent, except in those cases where the pollutant loadings of the emission stream entering the control systems were very low. The performance data for THC showed that incineration-based control systems could achieve THC emissions reductions equal to or greater than 90 percent. The average THC emissions reductions achieved with biofilters was about 80 percent. However, biofilters can achieve HAP emissions reductions equal to or greater than 90 percent. Both incineration-based controls and biofilters can achieve identical formaldehyde and methanol emissions reductions.

We ranked the process units within each process unit group according to the HAP control devices that were applied. For process unit groups with at least 30 sources, we based the MACT floor on the emission level achieved by the process unit and its control system that is at the bottom of the top 6 percent of the best-performing process units (i.e., the $94^{th}$ percentile). For those process unit groups where there were fewer than 30 but at least five process units, the emission level achieved by the process unit and its control system that is the median of the best-performing five sources (i.e., the “number 3"source) represents the MACT floor level of control. When a process unit group had fewer than five process units, we determined the appropriate control technology based on the control technology used by the majority of the process units in the process unit group.

When we ranked the process units, we treated process units equipped with any type of incineration-based control system or biofilters as being equivalent with respect to their potential to reduce HAP emissions. We ranked the process units by control device rather than actual unit-specific emissions reductions because we have limited inlet/outlet data on which to calculate control efficiency. We are not aware of any significant design or operational differences among control systems or factors other than the type of control system used that would affect the ranking of process units. For example, there are approximately 303 softwood veneer dryers nationwide, and HAP emissions from approximately 64 of these dryers (21 percent nationwide) are controlled using incineration-based control systems. The HAP emissions from the remainder of the softwood veneer dryers are uncontrolled. In this example, the 94$^{th}$ percentile is represented by the control system applied to the softwood veneer dryer ranked at number 18 (18/303 = 6 percent), which is an incineration-based control system. We only have control efficiency data for nine veneer dryers. Data are not available for the 18$^{th}$ ranked dryer. In order to associate a control efficiency with the 18$^{th}$ ranked dryer, it was necessary to conclude that the control efficiency achieved by the incineration-based controls for which we had data also represented the control efficiency of the 18$^{th}$ ranked veneer dryer. For the reasons discussed in the paragraphs below, we believe this conclusion regarding the performance of APCDs is very appropriate for incineration-based controls and biofilters used to control PCWP process units. As in the softwood veneer dryer example, we were able to identify the APCD but were unable to associate a specific control efficiency with the 94$^{th}$ percentile unit (or number 3 unit for process groups of less than 5 sources) for most of the PCWP process unit groups because control efficiency data were generally unavailable for the 94$^{th}$ percentile (or number 3) ranked unit. Thus, ranking process units based on actual emissions reduction as suggested by commenter IV-D-11 is not possible. We believe that ranking process units based on actual emissions reduction (as opposed to ranking by APCD type) is unnecessary for the PCWP source category for the reasons described below.

For the purpose of establishing the performance level of the MACT floor control systems, we decided to group all of the available data on incineration-based controls and biofilters together. When we reviewed the available data, we found that the data do not show any correlation between the types of process units controlled (e.g., rotary dryers vs. presses) and the performance of the HAP control systems. That is, the HAP control systems can achieve the same level of control (e.g., outlet concentration, percent reduction) regardless of the type of process unit controlled. Some of the control systems treat HAP emissions from multiple types of process units, such as tube dryers, reconstituted panel presses, and board coolers. In those cases, separate determinations of the performance of the control system on emissions from each type of process unit were not possible. Also, limited or no inlet/outlet data were available for the control systems applied to the process units in some groups. Also, in some cases, it was not possible to directly compare the performance of different control systems because data were not available for the same pollutant. For example, for one RTO, we might only have THC emissions data, and for another RTO, we might only have formaldehyde data. Our ability to compare the performance of the different types of incineration-based control systems with each other and with biofilters was also hampered by variability in uncontrolled emissions being treated by the different control systems. For example, the available THC concentration data for the inlet of the control systems ranged from as low as 45 ppmvd to as high as 5,100 ppmvd. With the exception of some control systems with lower pollutant inlet concentrations, the available data for incineration-based controls and biofilters show that these control systems can achieve THC, methanol, or formaldehyde emissions reductions greater than or equal to 90 percent.

To account for the variability in the type and amount of HAP in the uncontrolled emissions from the various process units and the effect of this variability on control system performance, we decided to base the MACT floor performance level on all three of the pollutants we analyzed and include maximum concentration levels in the outlet of the control systems as an alternative to emissions reductions. The MACT floor performance level is a 90 percent reduction in THC or methanol or formaldehyde emissions. The maximum concentration level in the outlet of the MACT floor control system is 20 ppmvd for THC, 1 ppmvd for methanol, or 1 ppmvd for formaldehyde. We chose 20 ppmvd as the alternative maximum concentration for THC because 20 ppmvd represents the practical limit of control for THC. We chose 1 ppmvd as the maximum outlet concentration for both methanol and formaldehyde because this concentration is achievable by MACT control systems and the method detection limits for these compounds using the NCASI impinger/canister method (NCASI Method IM/CAN/WP-99.01, proposed to be incorporated by reference in today's proposed rule) are less than 1 ppmvd.

We acknowledge that some incineration-based controls and biofilters achieve greater than 90 percent reduction in formaldehyde, methanol, or THC. However, we also recognize that the percent reduction achieved varies according to pollutant inlet concentration, as the commenters have stated. Other unknown factors may also cause variability in control system performance. In addition, there is variability related to emission measurements. For example, we have THC percent reduction data for an RTO used to control emissions from three tube dryers and a press at an MDF plant for two emission tests conducted at different times. In 1996, the RTO achieved 92.7 percent reduction of THC, and in 1998 the same RTO achieved 98.9 percent reduction of THC. In addition, we have emissions test data for the same process unit and control system for multiple years, and these data show different emission factors, indicating that variability is inherent within each process unit and control system combination. We disagree with commenter IV-D-11 that a minimum inlet stack concentration is needed for sources meeting the percent reduction compliance options because sources with low inlet concentrations generally would have more difficulty meeting the 90 percent reduction requirement.

2.3.2.2 Comment: Commenters IV-D-27, IV-D-27, IV-D-21, and IV-D-56 concurred with the no emissions reduction MACT floor determinations made for certain process units, including existing fiberboard mat dryers, existing press pre-dryers, and existing reconstituted wood product board coolers. The commenters stated that the method EPA used to come to that conclusion is proper under the CAA; *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855 (D.C. Cir. 2001); and *National Lime Association v. EPA*, 233 F.3d 625 (D.C. Cir. 2000). First, the MACT floor is appropriately set based on emissions reductions achieved by the best-performing sources, rather than on emissions data alone, and is consistent with section 112(d) of the CAA. The commenters cited two provisions of the CAA and language from a D.C. Circuit ruling that support that point. Second, EPA identified the best-performing process units and determined that neither the average of the best-performing 12 percent of sources nor the one best-performing source was achieving emissions reduction through the use of an emissions control system. Therefore, the MACT floor was set at no emissions reduction for both existing and new sources. The commenters noted that §112(d)(3)(A) of the CAA clearly states that the maximum degree of reduction for existing sources of HAP emissions shall not be less stringent than "the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information)[.]" The commenters asserted that, although pollution prevention techniques are used at some facilities, they do not achieve consistent results and cannot be included in the MACT floor. Because the median best-controlled source did not use control technology and because EPA has identified no other universally applicable variable that certain PCWP process units can employ to reduce HAP emissions, the commenters contended that EPA properly set the MACT floor at no emissions reduction. The commenters also noted that EPA's request for comment on the MACT floor for miscellaneous coating operations and wastewater operations included concern about insufficient data, but the commenters agreed that the floor is "no control," and that this accurately reflects current PCWP facility practices.

The commenters further noted that EPA properly addressed the concerns noted by the D.C. Circuit in *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855 (D.C. Cir. 2001) (*Cement Kiln*) and *National Lime Association v. EPA*, 233 F.3d 625 (D.C. Cir. 2000) (*National Lime*). According to the commenters, in *Cement Kiln*, EPA identified the median of the best-performing 12 percent of sources and set the MACT floor at the worst emission level achieved by any source using the same emission control technology that was used by most of the top 12 percent. The D.C. Circuit ruled that this MACT floor was not a valid estimate of the performance of the best-performing sources in practice. EPA assumed that control technology was the only way to reduce HAP emissions, but other factors were influencing the reduction as well. Some of those factors could have been inadequate maintenance or inferior operating practices, in which case the worst-performing sources would certainly not be an estimate of the best-performing sources under the most adverse conditions. The court noted that if EPA could demonstrate that MACT technology significantly controlled emissions, and that factors other than the control had a negligible effect, the MACT approach could be a reasonable means of satisfying the statute's requirements. The commenters noted that, in developing the PCWP rule, EPA again followed the MACT approach, determining that the average of the best-performing 12 percent of certain existing PCWP process units did not reflect the use of any control technology. EPA further determined that no other universally applicable variables would affect HAP emissions, a determination it did not make in *Cement Kiln*. For the PCWP process units for which the MACT floor is 90 percent, EPA again determined that there are no other factors that significantly impact the removal efficiencies of the add-on controls. For these reasons, the commenters contended that EPA corrected the mistakes made in the *Cement Kiln* situation when developing the PCWP MACT.

The commenters noted that in *National Lime*, EPA followed a similar MACT approach to *Cement Kiln*, but it had insufficient data for some HAP. If EPA found an insufficient number of plants in its database controlling a particular HAP with pollution control technology, it determined that the emission floor was "no control." The D.C. Circuit ruled that if EPA did not consider alternative pollution-reducing measures, it could not decline to set emissions standards on the grounds that the best-performing sources did not use control technology.

> "The technologies, practices or strategies which are to be considered in setting emission standards under this subsection go beyond the traditional end-of-the-stack treatment or abatement system. The Administrator is to give priority to technologies or strategies which reduce the amount of pollution generated through process changes or the substitution of materials less hazardous. Pollution prevention is to be the preferred strategy *wherever possible*." (S. Rep. No. 101-228, 168 (1989)) (emphasis added).

The commenters stated that the D.C. Circuit ruling in *National Lime* does not prevent EPA from setting a MACT floor of no emissions reductions, it simply means that EPA must examine all methods of removing HAP before setting a floor. According to the commenters, in developing the PCWP rule, EPA did look at pollution prevention measures and other approaches to determining the MACT floor, but found none that are universally applicable to reduce HAP emissions. Therefore, the commenters contended that EPA is permitted by statute to set the MACT floor for existing sources at any level not less stringent than the average limitation achieved by the best-performing 12 percent, even if that floor level reflects no reduction in emissions.

Commenter IV-D-26 disagreed with the four previous commenters and stated that not establishing emission reduction limits for operations like miscellaneous coating and wastewater is unlawful. The commenter argued that EPA should not make its MACT floor decisions based on "insufficient information" and the fact that there is no current control in place. The commenter stated that, according to *National Lime Ass'n v. EPA*, 233 F.3d 625, 633-634 (D.C. Cir. 2000), EPA cannot set a MACT floor of "no control" because it believes that a pollutant is not controlled by any particular technology. The commenter stated that EPA failed to explain why insufficient data are available and what additional steps could be taken to obtain the necessary data. For these reasons, the commenter stated that EPA's proposed MACT floor levels of "no control" are "unlawful, arbitrary, and capricious."

Response: For those process units not required to meet the control requirements in the final PCWP rule, we determined that (1) the MACT floor level of control is no emissions reductions and beyond-the-floor control options are too costly to be feasible; or (2) insufficient information is available to conclude that the MACT floor level of control is represented by any emissions reductions (miscellaneous coating operations and wastewater operations). We based our MACT floor determinations for PCWP emission sources on the presence or absence of an add-on APCD because we are not aware of any demonstrated pollution prevention techniques that can be universally applied across the industry, and we have no information on the degree of emissions reduction that can be achieved through pollution prevention measures. Therefore, to our knowledge, the use of add-on APCD is the only way in which PCWP sources can currently limit HAP emissions, and the only way to identify the MACT floor for these sources is to identify a level that corresponds to that achieved by the use of add-on APCD. When determining the MACT floor, we ranked the process units by control device rather than by actual unit-specific emissions reductions because we have limited inlet/outlet data (i.e., inlet/outlet data are not available for every controlled process unit) on which to calculate control efficiency (see also the response to comment No. 2.3.2.1 above). Based on the available information, we are not aware of any significant design or operational differences among each type of control system evaluated that would affect the ranking of process units. Furthermore, we are not aware of factors other than the type of control system used that would significantly affect the ranking of process units. An analysis of the available emissions data does not reveal any process variables that can be manipulated (without altering the product) to achieve a quantifiable reduction in emissions.[13] Ranking process units according to control device, we determined that the MACT floor is no emissions reductions for several PCWP process unit groups, including press pre-dryers, fiberboard mat dryers, and board coolers at existing affected sources; and dry rotary dryers, veneer re-dryers, plywood presses, EWP presses, hardwood veneer dryers, humidifiers, atmospheric refiners, formers, blenders, rotary agricultural fiber dryers, agricultural fiber board presses, sanders, saws, fiber washers, chippers, log vats, lumber kilns, storage tanks, wastewater operations, miscellaneous coating operations, and stand-alone digesters at new and existing affected sources. We also determined that beyond-the-floor control options are too costly for these process unit groups.[13]

For miscellaneous coating operations and wastewater operations, we determined at proposal that we had insufficient information to conclude that the MACT floor level of control is represented by any emissions reductions. In the preamble to the proposed rule, we requested comment on whether a MACT floor of no emissions reductions for miscellaneous coating operations and for wastewater operations was appropriate, and we requested information on HAP or VOC emissions from miscellaneous coatings and wastewater operations. We received no comments containing additional information on emission reduction measures or HAP/VOC emissions from miscellaneous coatings and wastewater operations. Following proposal, we reviewed our MACT analyses for miscellaneous coating and wastewater operations. We have no more reason to believe now than we did at proposal that PCWP wastewater operations are in fact subject to any emission control measures. For miscellaneous coating operations, we gathered some additional information and were able to revise our conclusions regarding the MACT floor in the absence of specific information on the emissions reduction achieved.

Prior to proposal, insufficient information was available for miscellaneous coating operations because we did not gather information on measures used to reduce emissions from these operations. Insufficient information was available for wastewater operations because the PCWP survey responses we received were not very informative. Potential HAP emissions from miscellaneous coating and wastewater operations are believed to be minuscule compared to the emissions from PCWP process units such as presses or dryers, and these operations have not been the focus of permit requirements or consent decree actions. Therefore, our PCWP general survey (which was sent to softwood plywood and reconstituted wood products plants) did not gather the same level of detailed information on miscellaneous coating or wastewater operations as for other PCWP process units.

Our PCWP general survey asked questions regarding the use of miscellaneous coating operations because industry trade association representatives had notified us of some minor ancillary processes performed at PCWP facilities that had the potential to be considered finishing processes under the Wood Building Products NESHAP. The industry representatives requested that we consider these processes under the PCWP rule to avoid the potential for PCWP facilities to be subjected to dual coverage under two NESHAP for processes associated with PCWP manufacturing. The intent of the questions related to miscellaneous coating operations in the PCWP survey was to gather information so we could determine the extent to which these processes are being used at facilities covered under the PCWP NESHAP and to gauge whether these processes should be considered under the PCWP NESHAP or the Wood Building Products NESHAP. The PCWP general survey requested that facilities provide information on the types of materials used in these processes, as well as the annual quantities of the materials used.[10] The survey did not request information on potential emissions from these operations or methods for reducing emissions from these miscellaneous processes. Prior to proposal, we noted that if there were HAP emissions from miscellaneous coating operations, then one control strategy to reduce emissions would be a reduction in the amount of HAP contained in the coatings rather than application of an emissions capture and control system. However, we concluded that the MACT floor for miscellaneous coating operations was no emissions reduction in the absence of specific information on potential emission reductions achievable through product substitution. We revisited our MACT analysis for miscellaneous coating operations following proposal. Based on the available information, we have no basis to conclude that the MACT floor for new or existing sources is represented by any emission reduction for several miscellaneous coating processes (i.e., anti-skid coatings, primers, wood patches applied to plywood, concrete forming oil, veneer composing, and fire retardants applied during forming), and we determined that there are no cost-effective beyond-the-floor measures to reduce HAP from these coating processes. However, some facilities reported use of water-based (non-HAP) coatings in their PCWP survey responses for other types of coatings (including edge seals, nail lines, logo paint, shelving edge fillers, and trademark/gradestamp inks). Other facilities reported use of "solvent-based" coatings for these processes. In a few instances, respondents provided information on the percent HAP content of a solvent-based coating. Solvent-based coatings do not always contain HAP (e.g., the solvent may be mineral oil, which does not contain HAP). Water-based coatings typically do not contain HAP. Thus, the water-based and some of the solvent-based coatings reported in the responses to the PCWP survey are "non-HAP" coatings. While the emission reduction that will be achieved as a result of these coating substitutions cannot be determined, it is clear that use of non-HAP coating represents the MACT floor because of the large number of facilities reporting use of non-HAP coatings. Beyond-the-floor options were not considered for edge seals, nail lines, logo paint, shelving edge fillers, and trademark/gradestamp inks because no further emissions reductions can be achieved through methods other than use of non-HAP coatings. Based upon our revised MACT analysis, the final PCWP rule requires use of "non-HAP coating" for processes identified as "Group 1 miscellaneous coating processes," where:

> Non-HAP coating means a coating with HAP contents below 0.1 percent by mass for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4), and below 1.0 percent by mass for other HAP compounds.
>
> Group 1 miscellaneous coating operations means application of edge seals, nail lines, logo (or other information) paint, shelving edge fillers, trademark/gradestamp inks, and wood putty patches to plywood and composite wood products (except kiln-dried lumber) on the same site where the plywood and composite wood products are manufactured. Group 1 miscellaneous coating operations also include application of synthetic patches to plywood at new affected sources.

The definition of non-HAP coating was based on the description of non-HAP coatings in the final Wood Building Products NESHAP (subpart QQQQ). This definition allows for unavoidable trace amounts of HAP that may be contained in the raw materials used to produce certain coatings. Kiln-dried lumber is excluded from the requirement to use non-HAP coatings because application of coatings used at kiln-dried lumber manufacturing facilities is not part of the PCWP source category. Although trademarks/gradestamps are applied to kiln-dried lumber, lumber kilns are the only processes at kiln-dried lumber manufacturing facilities covered under the PCWP source category.

Our PCWP general survey asked questions regarding process water and wastewater generation and wastewater treatment operations at each plant site. The purpose of these questions was to gather information on the quantity, sources, and treatment of process water and wastewater at the plant and to determine the potential for HAP emissions from the water. Another reason for gathering the process water and wastewater information was for use in assessing the potential impacts (and disposal costs) of requiring add-on APCDs that may create new sources of wastewater.[10] Our PCWP survey requested information on annual wastewater flow rate, HAP content of the wastewater, and how the wastewater is handled and treated. The responses relating to wastewater operations were difficult to interpret. From the survey responses, we learned that wastewater operations such as lagoons, log vats, clarifiers, and settling ponds are used at PCWP plants to manage wastewaters because most PCWP plants are not allowed to discharge wastewaters. Wastewater sources at PCWP plants include hardboard process water, various wash waters (e.g., from washing of the glue line, blender, dryers, RTO), control device recirculated and blowdown water, and condensates. Information on wastewater flow was provided in the nonconfidential PCWP survey responses for 241 wastewater operations. (An additional 92 wastewater operations were reported, but no flow rates were provided.) However, HAP concentration data were provided for only 23 of the 241 wastewater operations for which flow rates were provided. When comparing the flow rates and concentrations provided for these 23 wastewater operations to the applicability criteria for the Hazardous Organics NESHAP (HON) wastewater provisions (40 CFR 63, subpart G), it was determined that only two of the operations could emit HAP concentrations high enough to trigger control requirements under the HON. The highest reported concentration would result in only 0.31 tpy of methanol emitted from the wastewater stream. The results from sampling of water streams performed by the NCASI show some water streams with methanol concentrations higher than those reported in the PCWP survey responses. However, no information on the flow rate is available to use in calculating potential emissions from the wastewater operations tested by NCASI, and the samples collected from the wastewater streams may not be representative of the water contained in settling ponds, lagoons, etc., which can be diluted with stormwater. Potential control methods for wastewater operations include handling of the wastewater in order to minimize emissions (e.g., through hard piping or a closed system), use of activated sludge biological treatment systems, or use of closed vent systems and control devices. We are not aware of any PCWP facilities that currently employ these techniques to control air emissions from wastewater operations. We have no data to suggest that HAP emissions from wastewater operations are the subject of control measures that could correspond to an identifiable numerical emission level or reduction rate. Therefore, based on the available information, the MACT floor for new and existing wastewater operations at PCWP facilities was determined to be no emission reduction. Furthermore, given that our best data show that the emissions from wastewater operations are less than 1 tpy, we concluded that application of the control measures mentioned above would not be cost-effective beyond-the-floor options.[13]

There are 115 wastewater storage tanks listed in the nonconfidential responses to the PCWP survey. The HON requires that certain wastewater storage tanks have a fixed roof and requires that other tanks (containing liquid with higher vapor pressures) use a fixed roof and closed vent system that routes vapors to a control device, use a fixed roof and an internal floating roof, or use an external floating roof. We expect that PCWP wastewater storage tanks would meet the HON applicability for tanks required to have a fixed roof, and we expect that most PCWP tanks already have a fixed roof. Use of a fixed roof does not reduce emissions unless coupled with a control device. Therefore, based on the available information, we determined the MACT floor for new and existing wastewater storage tanks at PCWP facilities to be no emission reduction. Based on our analysis of beyond-the-floor control measures for resin tanks, we also concluded that beyond-the-floor control measures for wastewater tanks are not cost effective.

The CAA does not require us to look further; we based our MACT floor analyses on the best data available to us. However, if we had decided to collect more data, we could have re-surveyed facilities to ask them specifically about HAP emissions from their wastewater operations and to ask the facilities if they are taking any steps to reduce HAP emissions from these operations. However, we do not know if better or additional information could be obtained from another survey. The fact that we did not get useful information on wastewater HAP in our first PCWP survey suggests that potential HAP from wastewater operations is not something facilities have been required to track for permitting purposes. Re-surveying facilities would be time consuming and burdensome to facilities. Unlike dryers and presses at PCWP plants, wastewater operations have not been treated by permitting authorities as being significant sources of HAP emissions. We expended much effort in the early stages of the project gathering complete and accurate information on the PCWP processes with the most potential for HAP emissions and the greatest potential for emission control (i.e., the processes that have been the focus of permit requirements limiting HAP/VOC emissions). Had we believed that there were emissions control measures associated with wastewater operations, we would have gathered more information for these processes earlier in the project. In response to the commenter's objection to the incompleteness of the data set for wastewater operations, we note that the D.C. Circuit does not require EPA to obtain complete data as long as we are able to otherwise estimate the MACT floor. *Sierra Club v. EPA*, 167 F.3rd 658, 662 (D.C. Cir. 1999).

2.3.2.3 Comment: Commenter IV-D-26 pointed out that setting control standards for only six HAP is unlawful. The commenter asserted that, according to the CAA and *National Lime Ass'n v. EPA*, 233 F.3d 625, 633-634 (D.C. Cir. 2000), EPA is required to set standards for every HAP listed in 112(b)(1) emitted by PCWP operations, not just the ones that are the easiest to measure. The commenter noted that EPA stated in the proposal preamble that PCWP facilities emit many different HAP, including metals and carcinogens like benzene and chloroform. The commenter stated that EPA's decision not to regulate certain HAP because they are emitted "in low quantities that may be difficult to measure" is arbitrary, and EPA's choice of wording implies that EPA does not know whether or not these HAP are difficult to measure. The commenter also noted that EPA provided no legal basis for this decision.

Commenter IV-D-33 stated that EPA provided inadequate information on the selection of HAP of concern from PCWP sources, which was based on mass of emissions only. For example, the proposal does not provide information on why the HAP selected for regulation include six out of at least 12 HAP emitted from PCWP sources and exclude benzene, carbon tetrachloride, chloroform, and metals, including manganese compounds.

Commenter IV-D-27 disagreed and noted that a requirement that EPA impose an emissions standard for every listed HAP, without regard to whether or not there are applicable methods for reducing HAP emissions or whether the MACT floor sources actually use such method, contradicts the plain language of the statute. Commenter IV-D-27 contended that the statute specifically frames the inquiry in terms of degrees of reduction.

Response: The final PCWP rule contains numerical emission limits in terms of methanol, formaldehyde, THC, or "total HAP" (which is defined in the final rule as the sum of the six HAP acrolein, acetaldehyde, formaldehyde, methanol, phenol, and propionaldehyde). In the proposal preamble, we noted that other HAP are sometimes emitted and controlled along with these six HAP, but in low quantities that may be difficult to measure. Benzene, chloroform, and other HAP have been detected in emissions from some process units in the PCWP industry. We estimate that the nationwide emissions of these HAP from the PCWP industry are 44 tpy of benzene and less than 1.6 tpy of chloroform (0.2 percent and 0.008 percent of the nationwide baseline HAP emissions from the PCWP source category, respectively). Eighty-seven percent of the benzene emission test runs (over 600 runs) in our emissions data base for uncontrolled process units were below the test method detection limit. Chloroform was detected at only one type of process unit (green furnish rotary particle dryers). Similarly, HAP other than the six HAP comprising "total HAP" often are not detected in uncontrolled emissions from process units; if detected, they are emitted in very low mass (e.g., less than 100 tpy nationwide) compared to the emissions of "total HAP." The nationwide emissions of "total HAP" are 18,190 tpy, which is 96 percent of the nationwide emissions of all HAP (19,000 tpy). The six HAP that comprise “total HAP” are found in emissions from all PCWP product sectors that contain major sources and in emissions from most process units.

At proposal, when we stated that certain HAP are emitted “in low quantities that may be difficult to measure,” we were referring to HAP that are often emitted at levels below test method detection limits. We disagree with the suggestion by commenter IV-D-26 that we do not know whether or not these HAP are difficult to measure. Our data clearly show that these HAP are difficult or impossible to measure because they are emitted in very low quantities. Such low quantities are not detectable by the applicable emission testing procedures (which are sensitive enough to detect HAP at concentrations below 1 ppm). As in the examples of benzene and chloroform above, many of the HAP other than those included in “total HAP” were detected in less than 15 percent of test runs, or for only one type of process unit.

Based on our emissions data, we determined that methanol, formaldehyde, THC, or “total HAP” are appropriate surrogates for measuring all HAP emitted by the PCWP source category. The PBCO and emissions averaging compliance options in the final PCWP rule are based on “total HAP.” Review of the emission factors used to develop the emissions estimates for the PCWP source category indicates that uncontrolled emissions of HAP (other than the six HAP) are always lower than emissions of the six HAP for every process unit with MACT control requirements. Thus, process units meeting the PBCO based on total HAP also would have low emissions of other HAP. The emissions averaging provisions and add-on control device compliance options involve use of add-on APCD. The available data show that a reduction in one predominant HAP (or THC) correlates with a reduction in other HAP if the other HAP are present in detectable quantities and at sufficient concentration. The data show that the mechanisms in RTO, RCO, and biofilter control devices that reduce emissions of formaldehyde and methanol also reduce emissions of the remaining organic HAP. In addition, an analysis of the physical properties of the organic HAP emitted from PCWP processes indicates that nearly all of the HAP would be combusted at normal thermal oxidizer operating temperatures. The available emissions data do not reveal any process variables that could be manipulated (without altering the product) to achieve a quantifiable reduction in emissions. Furthermore, nothing in the data suggests that process variables could be manipulated in a way that would alter the relationship between formaldehyde and methanol reduction and reduction of other HAP.[16] We determined that it is appropriate for the final PCWP rule to contain compliance options in terms of "total HAP," THC, formaldehyde, or methanol because the same measures used to reduce emissions of these pollutants also reduce emissions of other organic HAP.

With regard to metal HAP, the preamble to the proposed rule mentioned the potential for metal HAP emissions when discussing risk-based options. The PCWP industry uses combustion to provide process heat to direct-fired processes (in which the combustion gases mix with process gases). We are aware that combustion of certain fuels can result in metal HAP emissions, and that certain metal HAP are relatively potent. Thus, metal HAP emissions were estimated for direct-fired PCWP process units for purposes of conducting a conservative risk screening analysis for the PCWP source category. However, we have no industry-specific emissions test data to verify that there are indeed metal HAP emissions from direct-fired PCWP process units. Our PCWP survey requested information on emissions of all HAP. Approximately 100 emissions test reports containing HAP data were submitted with the responses to the PCWP survey. However, no emissions test data for metal HAP were received. In the absence of industry-specific data, and for the purposes of developing a conservative risk screening analysis, trace element emission factors from AP-42 section 1.6 (Wood Residue Combustion in Boilers) were used to estimate metal HAP emissions from the PCWP industry. There are differences in the types of combustion units used in PCWP processes (e.g., suspension burners) and wood residue fired boilers.[17] All of the emission tests referenced in developing the AP-42 trace element emission factors were boilers as opposed to suspension burners. While use of the AP-42 emission factors may have been appropriate for purposes of developing an estimate of metal HAP emissions, it would not be appropriate to use these same emission factors for purposes of establishing numerical emission limits for PCWP processes. We further note that we did not request particulate matter (PM) emissions data in our PCWP survey. Thus, we have neither the metal HAP data nor the PM data necessary to demonstrate that PM is an appropriate surrogate for metal HAP for the PCWP source category or to establish a PM emissions limit.

2.3.2.4 Comment: Commenter IV-D-30 stated that the EPA followed the CAA Amendments of 1990 well in defining the source category and affected source, setting the MACT standard, determining the best industrial practices, and considering health, environmental, and cost requirements. However, the commenter contended that although EPA analyzed the risks to children per Executive Order 13045, it could have done a better job of assessing risks to other groups and residual risks in general.

Response:  Section 112 of the CAA requires that we establish NESHAP for the control of HAP from both new and existing major sources.  The CAA requires the NESHAP to reflect the maximum degree of reduction in emissions of HAP that is achievable.  This level of control is commonly referred to as the MACT.  Thus, MACT standards are technology-based, not risk-based.  Section 112(f)(2) of the CAA requires us to examine the post-MACT-standard risk (residual risk) within eight years after promulgation of the MACT standard to ensure that the standards provide an ample margin of safety to protect public health.  Therefore, the residual risk posed by PCWP facilities after MACT controls are implemented will be assessed at a later date.  If the MACT standards "... do not reduce lifetime excess cancer risk to the individual most exposed to the emissions... to less than one in a million," then we will consider further measures to reduce the risk to acceptable levels.

2.3.2.5  Comment:  Commenter IV-D-14 argued in favor of a MACT floor of "no control" for small and medium-sized plywood and particleboard mills.  The commenter contended that the existing MACT floor was set by larger mills with controlled softwood veneer dryers and controlled particleboard presses, which is not reflective of smaller facilities.  The commenter believes that two of its mills (one plywood mill and one particleboard mill) will be forced to shut down if the proposed rule is promulgated without changes.  The commenter pointed to the high cost of compliance and minimal health risks posed by these facilities as justification for setting the MACT floor at "no control" for small and medium-sized plywood and particleboard mills.

Response:  We did not distinguish between facility size or total facility production for purposes of determining the MACT floor.  We applied the MACT floor methodology at the process unit level rather than the facility level for several reasons:  (1) this is how controls are installed at PCWP facilities (i.e., controls are installed on process units, rather than on all emission sources at a facility); (2) we had more accurate and complete information for process unit emissions and emissions reductions than for facility-wide emissions and emissions reductions; and (3) applying the MACT floor methodology at the facility level would have produced ambiguous results when some of the equipment (e.g., dryers) at a facility were controlled and other equipment (e.g., the press) remained uncontrolled.  In most cases, there are no design differences in PCWP process units used at high-production plants versus low-production plants.  It was not necessary for us to consider plant production when evaluating which process units had similar design or operation. We would like to point out that we distinguished among particleboard extruders and press molds (used by smaller particleboard plants), and particleboard panel presses (used by larger particleboard plants) based on differences in equipment design. We also distinguished among dry and green rotary particle dryers because of different emissions characteristics. In addition, we distinguished among plywood presses and reconstituted wood products presses due to differences in emissions and design (e.g., plywood presses commonly do not have a loader or unloader like reconstituted wood products presses). These equipment distinctions were made for technical reasons (i.e., based on differing emissions characteristics or equipment design). We do not believe there are technical reasons for distinguishing among facilities (or equipment at those facilities) according to facility production. The CAA does not allow us to consider costs when determining the MACT floor control level or to subcategorize by cost.

The final PCWP rule applies only to facilities that are major sources of HAP emissions; therefore, smaller facilities that are area sources are exempt from the rule. Major sources of HAP are those stationary sources or groups of stationary sources that are located within a contiguous area under common control that emit or have the potential to emit, considering controls, 9.07 Mg/yr (10 tpy) or more of any one HAP or 22.68 Mg/yr (25 tpy) or more of any combination of HAP. Area sources are those stationary sources or groups of stationary sources that are not major sources. Our calculations indicate that there are some small softwood plywood and particleboard facilities that are area sources.

2.3.2.6 Comment: Two commenters (IV-D-23 and IV-D-35) objected to the inclusion of consent decree plants in MACT floor determinations. Commenter IV-D-23 stated that only control devices installed for PSD, not those at companies under consent decree, should be included in the determination of the MACT floor. The commenter argued that control technologies that were installed at many of those facilities are not the ones that the companies would have chosen if they had not been forced to use that specific technology by law. Both commenters contended that the devices that are in use at these plants and proposed by this rule have many technical and operational problems, including massive energy requirements, generation of non-HAP emissions, maintenance issues, and little control of particulates.

Response: We disagree that controls installed as a result of the consent decrees should not have been included in the MACT analysis. The reason controls are installed has no bearing on whether they are included in the MACT analysis, which is required to be based on emissions levels achieved for any reason. However, we note that the results of our MACT floor calculations would have been the same regardless of whether or not the consent decree controls were included in the calculations.

2.3.2.7 Comment: Commenter IV-D-45 stated that if the EPA could not gather enough data to determine the best 12 percent for any one type of process unit, then it should not use insufficient data as a basis for developing a MACT floor for groups that contain process units that are completely different from one another. The commenter stated that, because the data set is incomplete and different process units have such a wide range of operating conditions, EPA should not automatically assume that no control or incineration-based controls and biofilters are the best choices for MACT floors for every type of unit. The commenter further stated that EPA should consider several factors when trying to determine the "best" control technologies, including population density (the number of people affected by the HAP) and other pollutants emitted by the device. According to the commenter, choosing the control device for the MACT floor based on the emissions alone also tends to select the most expensive controls.

Response: See the response to comment 2.3.2.2 regarding insufficient information for MACT floor determinations. Section 112(d)(3) of the CAA dictates the minimum control level allowed for NESHAP, commonly referred to as the "MACT floor." Section 112(d)(3) states that

> "The maximum degree of reduction in emissions that is deemed achievable for new sources in a category or subcategory shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator. Emission standards promulgated under this subsection for existing sources in a category or subcategory may be less stringent than standards for new sources in the same category or subcategory but shall not be less stringent, and may be more stringent than -
>
> > (A) the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information) ...... in the category or subcategory for categories and subcategories with 30 or more sources..."

The CAA requires NESHAP to reflect the maximum degree of reduction in emissions of HAP that is achievable. This level of control is commonly referred to as MACT. Section 112(d)(2) of the CAA dictates how we must establish MACT. The MACT can either be established at the

MACT floor, or can be some control level more stringent than the MACT floor ("beyond the floor"). Section 112(d)(2) states that

> "Emissions standards promulgated under this subsection and applicable to new or existing sources of hazardous air pollutants shall require the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable) that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new or existing sources in the category or subcategory to which such emission standard applies..."

Section 112(d)(3) of the CAA does not allow us to consider cost when determining MACT floors. This is evident because cost is not mentioned in §112(d)(3) regarding minimum stringency levels. Cost is mentioned in §112(d)(2) for purposes of assessing the feasibility of more stringent standards. Thus, we are only allowed to consider costs and other non-air quality environmental or energy impacts when we examine beyond-the-floor control options according to §112(d)(2) of the CAA. Population density and health risk are not considered in either the MACT floor or MACT analysis, and these analyses are based on technology.

2.3.2.8 Comment: Commenters IV-D-19, IV-D-21, IV-D-27, IV-D-34, IV-D-35, IV-D-37, and IV-D-56 argued that Method 204 compliance should not be a part of the PCWP MACT floor because most of the press enclosures that were described as having full, PTEs were never certified by Method 204 criteria. Commenter IV-D-27 argued that Method 204 cannot be applied practically to the hot presses that are used at PCWP facilities. The commenter stated that Method 204 was developed for situations where the gas emissions have consistent properties, but a press with multiple openings emits a variety of gases with different physical properties, and heat changes those properties even further. According to the commenter, instead of mixing and exiting the enclosure, the layers of gases can accumulate with other hazardous substances and create a dangerous environment for employees. The higher layers of gas have a greater pressure than the air outside the press and the lower layers have a pressure less than that of the air outside the press. The commenter maintained that to force the gases outside the enclosure, the operator must decrease the temperature of the gas or increase the airflow through the system. To force the gases out of the enclosure, the airflow would have to be about 3 to 4 times higher than would be necessary for an enclosure operating at a homogenous temperature.

The commenter noted that the majority of the industry's press enclosures used to define the floor were retrofit installations around existing conventional multiple-opening and short continuous presses. Most of these enclosures were designed according to Method 204 design criteria, but their permits never required them to comply fully with Method 204 certification. Of 26 PTEs surveyed by NCASI, only two actually met Method 204 certification. Commenter IV-D-27 noted that EPA identified a total of 207 non-plywood and 431 total panel presses, and the minimum number of presses needed to establish a floor is about 12 for 6 percent of 207 non-plywood presses, or about 26 presses for 6 percent of 431 total panel presses. However, only 2 presses of the 68 percent that responded to the NCASI survey have certified enclosures, indicating that Method 204 certification should not define the MACT floor. Commenters IV-D-34 and IV-D-35 argued that the proposed "containment efficiencies" (capture efficiencies) should be reduced or eliminated in favor of a "best practices" approach and that a total enclosure should only be considered for the installation of a new press. Commenter IV-D-37 argued that neither a Method-204-certified PTE nor a 95 percent capture efficiency should be used to determine the MACT floor.

Several commenters (IV-D-19, IV-D-21, and IV-D-27) suggested that EPA address the press capture efficiency issue by implementing work practice requirements. To reflect this change, commenters IV-D-19 and IV-D-27 requested that EPA modify the definition of permanent total enclosure in section 63.2292 (What definitions apply to this subpart?) as follows:

> <u>Permanent Total Enclosure (PTE)</u> means a permanently installed containment that was designed to meet the following physical design criteria:
>
> 1. Any NDO shall be at least four equivalent opening diameters from each THC-emitting point unless otherwise specified by the Administrator. The MACT floor configuration of the PTE includes capturing emissions from the press unloader. For purposes of determining compliance with criteria 1, the distance from the THC-emitting point will be considered to the press.
> 2. The total area of all NDOs shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.
> 3. The average facial velocity (FV) of air through all NDOs shall be at least 3,600 m/hr (200 ft/min). The direction of airflow through all NDOs shall be into the enclosure.
> 4. All access doors and windows whose areas are not included in section 2 and are not included in the calculation of FV in 3 shall be closed during routine operation of the process.

> 5. Fugitive emissions shall be minimized through appropriate operation and maintenance procedures applied to the PTE system.

Commenter IV-D-21 suggested a similar definition of PTE, but with different wording in item 1 as follows:

> 1. Any natural draft opening (NDO) shall be at least four equivalent opening diameters from each VOC-emitting point, except where mat enter the enclosure and the board from the unloader exists the enclosure, or unless otherwise specified by the Administrator.

Commenters IV-D-19 and IV-D-27 further suggested that the following definition be added for those enclosures that do not meet the design criteria for a PTE (e.g., partial enclosures):

> Non-Permanent Total Enclosure (Non-PTE) means an enclosure that does not meet the Permanent Total Enclosure criteria (see PTE).

Commenters IV-D-19, IV-D-21, and IV-D-27 suggested that any press enclosure that is not considered a PTE should be required to demonstrate a combined 90 percent capture and control efficiency using the tracer gas method, EPA Method 204A through 204F, or some other method subject to the approval of the Administrator, along with the appropriate test method for the compliance pollutant. If the enclosure does not achieve 90 percent capture efficiency, the commenters suggested that it could be balanced either by emissions averaging or by achieving a higher destruction efficiency.

Response: Although EPA Method 204 was developed for enclosures in the printing and publishing industry, EPA Method 204 is a used to evaluate enclosures in many industries other than the printing and publishing industry. At the time of proposal, we believed that many of the PCWP press enclosures for reconstituted wood products presses were meeting EPA Method 204. However, based on review of available permit information, we agree with the commenters' assessment that few permits have required full Method 204 certification for reconstituted wood products press enclosures, although many of these press enclosures were constructed based on the Method 204 design criteria. Prior to proposal, industry explained the technical difficulties associated with evacuating PCWP press enclosures, but we did not distinguish between press enclosures designed to meet EPA Method 204 versus those press enclosures that are actually certified as meeting Method 204. We now understand that the nature of the batch pressing operations in the PCWP industry makes Method 204 certification difficult. Unlike in the printing and publishing industry, operation of batch PCWP presses is cyclical and is a heated operation. A resinated wood mat enters the PCWP press, the press closes and presses the mat under heat (approximately 400˚F) and pressure for about 5 minutes. The press then opens and the hot board exits the press. Some steam and emissions escape from the board while the press is closed, but the majority of the steam and emissions are exhausted from the board as the press opens. Steam and emissions continue to off-gas from the board in the press unloader. The temperature and density of gases inside the press enclosure change as the press opens and closes, creating layers of gases with different physical properties. The introduction of fresh air and/or heat radiated from hot pipes around and underneath the press adds another layer of gas with different characteristics into the press enclosure. The variation in physical properties in these layers of gases prevents the gases from mixing, moving, and exiting the press enclosure. Industry experience with these heated enclosures suggests that a neutral pressure zone is formed by the layers of gases, and this zone fluctuates between the middle and upper sections of the hot press. The top of the enclosure has a higher pressure than the air outside of the enclosure; whereas the bottom of the enclosure has a lower pressure than the outside of the enclosure. Based on computational fluid dynamics modeling, the industry estimates that to overcome these internal pressure zones, the exhaust through the control system must be increased significantly (e.g., 3 to 4 times higher than if the enclosure operated at a homogeneous temperature). Because of the internal pressurization within PCWP press enclosures, small amounts of fugitive emissions may appear around the outside of these enclosures. Even so, the PCWP press enclosure is capturing essentially 100 percent of the press emissions. The concern is that because of these small amounts of fugitive emissions, facilities cannot certify that their Method 204 designed press enclosure can achieve all the Method 204 criteria, in particular the criteria in Method 204 section 6.2 which states that "All VOC emissions must be captured and contained for discharge through a control device." While we believe that PCWP press enclosures should be designed to capture emissions under normal conditions, we do not believe it is necessary for PCWP facilities to increase the flow rate from their press enclosures (and the size of their APCD) 3 to 4 times to overcome the pressurization within the press enclosure. For the PCWP industry, we believe it would be particularly inappropriate to require such a large increase in exhaust flow to the APCD because the exhaust flow from PCWP process equipment, including presses, is a high volume dilute concentration stream. High volume, low concentration exhaust streams generally are more costly to treat than low volume, concentrated emission streams. The best-performing press enclosures that defined the MACT floor surround heated presses and are all believed to have pressurization within the press enclosure. In addition, we note that board cooler exhaust is sometimes directed into press enclosures and that enclosures around board coolers have not been certified according to EPA Method 204. Therefore, instead of requiring EPA Method 204 certification of PCWP press and board cooler enclosures as proposed, today's final rule sets forth slightly different criteria for press and board cooler enclosures. These criteria are based on the design criteria for PTEs included in EPA Method 204. Today's final rule contains the following definitions of "wood products enclosure" and "partial wood products enclosure":

> Wood products enclosure means a permanently installed containment that was designed to meet the following physical design criteria:
>
> 1. Any natural draft opening (NDO) shall be at least four equivalent opening diameters from each HAP-emitting point, except for where board enters and exits the enclosure, unless otherwise specified by the Administrator.
> 2. The total area of all NDOs shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.
> 3. The average facial velocity (FV) of air through all NDOs shall be at least 3,600 m/hr (200 ft/min). The direction of airflow through all NDOs shall be into the enclosure.
> 4. All access doors and windows whose areas are not included in 2 and are not included in the calculation of FV in 3 shall be closed during routine operation of the process.
> 5. The enclosure is designed and maintained to capture all emissions for discharge through a control device.
>
> Partial wood products enclosure means an enclosure that does not meet the design criteria for a wood products enclosure, as defined in this subpart.

The "wood products enclosures" meeting the criteria in the definition above are assumed to achieve 100 percent capture of emissions. Because the capture efficiency of "partial wood products enclosures" is unknown, today's final rule requires facilities to test the capture efficiency of partial wood products enclosures using EPA Methods 204 and 204A-F (as appropriate), or using the alternative tracer gas procedure included in Appendix A to subpart DDDD. In addition, facilities have the option of using other methods for determining capture efficiency subject to the approval of the Administrator. As was proposed and suggested by the commenters, today's final rule requires facilities using partial wood products enclosures to demonstrate a combined 90 percent capture and control efficiency for those facilities showing compliance with the percent reduction requirements for APCDs. If the partial wood products enclosure does not achieve high capture efficiency, then facilities must offset the needed capture efficiency by achieving a higher destruction efficiency or with emissions averaging (with the press being an under0controlled process unit).

Today's final rule also requires, as proposed, that facilities showing compliance with one of the APCD outlet concentration compliance options must meet 95 percent capture. The 95 percent capture requirement was chosen because MACT requires a 90 percent reduction in HAP emissions. Some MACT control devices that perform exceptionally well can get 95 percent control provided that the control device is well maintained and operated over time. In order to use a partial wood products enclosure that achieves less than 100 percent capture, facilities must offset the lesser capture efficiency by a greater control efficiency (i.e., 95 percent). A 95 percent control efficiency must be combined with a 95 percent capture efficiency in order to achieve the 90 percent reduction required to meet MACT.

**2.3.3 <u>Beyond-the-floor analysis</u>**

2.3.3.1 <u>Comment</u>: Commenter IV-D-07 pointed out that EPA makes a good argument for going beyond the MACT floor in the discussion of the emission averaging program in the preamble to the PCWP rule. The commenter pointed to language in the preamble stating that process units such as blenders may emit the same amount or even more HAP than the dryers and presses that the rule will control, and they usually have a lower volume of gas to treat. However, when deciding whether or not to go beyond the MACT floor, EPA says that the environmental benefit of controlling these units would not justify the cost. The commenter noted that 74 percent of the affected facilities will have to install new control devices, and because these other process units have a low exhaust flow rate, it would not be difficult to design the control devices to handle the additional small volume.

<u>Response</u>: We are not allowed to consider costs when determining the MACT floor, and therefore, some process units with high flow rates and low concentrations of pollutants are required to be controlled at the MACT floor control level. However, the CAA gives us the authority to consider costs and environmental benefits when looking beyond the MACT floor. We considered going beyond-the-floor for all process units. We determined that there were no beyond-the-floor control options for process units groups with MACT floors based on incineration-based controls or biofilters because no technology is currently available that

achieves a greater reduction in emissions.  For other process units, we considered beyond-the-floor measures including pollution prevention and incineration-based controls.  The commenter is correct in that some blenders exhibit comparable HAP emissions, but lower exhaust flow, than the dryers and presses with a MACT floor of incineration-based control or biofilter control.  In fact, blenders have the some of the highest emissions of the process units with potential beyond-the-floor options (e.g., 28 tpy).  Most other process units for which beyond-the-floor control options were considered had significantly lower emissions (e.g., many had emissions less than 1 tpy).

At the time of proposal, we estimated that 166 of the 233 major source facilities (i.e., 74 percent) would need to install new APCDs to meet the MACT standards.  Many facilities installed APCDs after we completed our proposal analyses (which were based on April 2000 equipment and APCD counts).  Thus, many facilities have APCDs in place and those APCDs are unlikely to have the capacity to accept additional flow from process units such as blenders. Also, some facilities may have physical difficulty routing emissions from green end operations (e.g., blenders, digesters) to APCDs located after drying or pressing operations, because the dryers and presses may be located a long distance away from the green end emission points.  In addition, our analyses indicated that several plants would need to use most of an RTO's capacity to control emissions from process units with a MACT floor of incineration-based control.  For these reasons, we determined that it would be inappropriate for our beyond-to-floor analysis to assume that all facilities can treat emissions in RTOs installed to meet the MACT floor requirements for most dryers and presses.  In our beyond-the-floor analysis, we determined that the environmental benefit of controlling blenders and other process units would not justify the cost, especially given the already high costs of the PCWP rule at the MACT floor control level. We maintain that we did the beyond-the-floor analysis correctly, and that going beyond-the-floor for these other process units is not warranted.  Our MACT beyond-the-floor analysis for each process unit is documented in a separate memorandum.[13]

## 2.4 NEW SOURCE MACT

Comment:  Commenter IV-D-11 noted that EPA chose to assign the same degree of control for new and existing sources for many process units based on the fact that the best technology is the same for new and existing sources (i.e., thermal incineration or biofilters).

Based on the BID, the commenter pointed out that the maximum percent control efficiency is in the upper 90's for THC, formaldehyde, or methanol. The commenter noted that the CAA requires the MACT floor to be based on the degree of emissions reduction achieved in practice by the best-controlled similar source. Thus, the commenter requested that EPA add new source MACT requirements for process units based upon the greatest reductions recorded and included in the final rule.

Response: To determine the MACT floor control level for new sources, we used an approach similar to the approach used for existing sources (see response to comment 2.3.2.1 for details). First, based on available data, we determined that incineration-based controls (including RTOs, RCOs, and incineration of pollutants in onsite process combustion equipment used to control emissions from various PCWP process units) and biofilters (used to control PCWP press emissions) are the only two types of add-on APCDs that consistently and continuously reduced HAP emissions. The performance data for the incineration-based controls and biofilters showed methanol and formaldehyde emissions reductions equal to or greater than 90 percent, except in those cases where the pollutant loadings of the emission stream entering the control systems were very low. The performance data for THC showed that incineration-based control systems achieved THC emissions reductions equal to or greater than 90 percent. The average THC emissions reductions achieved with biofilters was about 80 percent. However, biofilters achieved HAP emissions reductions equal to or greater than 90 percent. Both incineration-based controls and biofilters achieved identical formaldehyde and methanol emissions reductions.

We ranked the process units within each process unit group according to the HAP control devices that were applied. We based the MACT floor for new sources on the highest ranked process unit (i.e., the best-controlled similar source). When we ranked the process units, we treated process units equipped with any type of incineration-based control system or biofilters as being equivalent with respect to their potential to reduce HAP emissions. We ranked the process units by control device rather than actual unit-specific emissions reductions because we have limited inlet/outlet data on which to calculate control efficiency (i.e., inlet/outlet data are not available for many of the controlled process units). As discussed in responses to comment 2.3.2.1, we believe that ranking process units based on actual emissions reduction (as opposed to ranking by APCD type) is not feasible and is unnecessary for the PCWP source category.

We acknowledge that some incineration-based controls and biofilters can achieve greater than 90 percent reduction in formaldehyde, methanol, or THC during a single performance test or a test run within a performance test. However, we also recognize that the percent reduction achieved varies according to pollutant inlet concentration, a factor that is not directly controllable from a process or control device standpoint. Other unknown factors may also cause variability in control system performance. In addition, there is variability related to emission measurements. For example, we have THC percent reduction data for an RTO used to control emissions from three tube dryers and a press at an MDF plant for two emission tests conducted at different times. In 1996, the RTO achieved 92.7 percent reduction of THC, and in 1998 the same RTO achieved 98.9 percent reduction of THC. In addition, we have emissions test data for the same process unit and control system for multiple years, and these data show different emission factors, indicating that variability is inherent within each process unit and control system combination. Thus, we estimate that the best MACT technology achieves 90 percent HAP reductions when variations in operations and measurements are considered.

As stated previously, no technology is currently available that achieves a greater reduction in emissions than incineration-based controls or biofilters. Therefore, no beyond-the-floor control options were considered for process unit groups at new sources with MACT floors based on incineration-based control or biofiltration. We considered beyond-the-floor measures including pollution prevention and incineration-based controls for other process units at new sources. Our data do not show that any emission reduction is achieved through use of potential pollution prevention measures (e.g., using direct- versus indirect-fired dryers, using a certain fuel to direct fire dryers, etc.) that may be technically feasible for application at new sources. Therefore, our beyond-the-floor analysis focused on add-on controls. Like in our beyond-the-floor analysis for existing sources, we concluded that the costs of beyond-the-floor control measures for process units at new sources are not justified by the environmental benefits.[13]

## 2.5 AIR POLLUTION CONTROL DEVICES

### 2.5.1 General

2.5.1.1 Comment: Commenter IV-D-08 pointed out that if EPA wishes "to encourage private industry investment in emissions reduction, you must consider providing safe assurances that controls installed will remain acceptable." The commenter noted that a WESP, considered to represent "best available control technology (BACT)" in 1997, was voluntarily installed on a veneer dryer at one facility at a cost of $1.5 million. For the PCWP NESHAP, EPA is requiring that RTOs be installed on dryers instead. The commenter contended that companies now will think twice about installing voluntary controls for fear of installing the "wrong" control technology.

Response: Major stationary sources subject to PSD must conduct an analysis to ensure the application of BACT. During each BACT analysis, which is done on a case-by-case basis, the reviewing authority evaluates the energy, environmental, economic and other costs associated with each alternative technology, and the benefit of reduced emissions (e.g., criteria pollutants, VOC) that the technology would bring. The final PCWP rule is based on MACT for HAP emissions; therefore, decisions on control levels and compliance demonstrations are based on HAP reductions. The MACT for veneer dryers was determined to be the emission reduction achievable with incineration-based control. We note that MACT for veneer dryers was established at the MACT floor control level, which does not consider costs. While many of the PCWP provisions for HAP may be used to comply with PSD, the PCWP provisions are not universally applicable. In cases where one rule is more stringent than the other, you must comply with both rules.

We acknowledge that many veneer dryers have been equipped with WESPs or wet scrubbers to reduce blue haze. These wet control devices are effective at reducing blue haze and PM emissions, but are not reliable technologies for reducing gaseous HAP emissions. While WESP and wet scrubbers may absorb some water-soluble HAP, these same HAP will eventually be re-emitted as the recirculating WESP or scrubber water and becomes saturated with these pollutants. We note that facilities may use any control technology to meet the MACT standards provided that the technology meets the compliance options. Facilities choosing to use a WESP to meet the MACT standards may petition the Administrator for approval of site-specific operating requirements that can be used to demonstrate continuous compliance. Alternatively, facilities using WESP may use a THC continuous emissions monitoring system (CEMS) to show that the THC concentration in the WESP exhaust remains below the minimum concentration established during the performance test. Facilities using wet control devices also must submit with their Notification of Compliance Status, a plan for review and approval to address how organic HAP captured in the wastewater from the wet control device is contained or destroyed to minimize re-release to the atmosphere such that the desired emission reduction is achieved.

### 2.5.2 Definition of control device

2.5.2.1 Comment: Two commenters (IV-D-03 and IV-D-27) requested that scrubbers be added to the definition of "control device." Commenter IV-D-27 also requested that adsorbers and scrubbers be added to the definition and that condensers be omitted. Based on the commenters' recommendations, the definition of control device would be modified as follows (suggested additions are in italics and suggested deletions are in strikeout format):

> Control device means any equipment that reduces the quantity of a hazardous air pollutant that is emitted to the air. The device may destroy the hazardous air pollutant or secure the hazardous air pollutant for subsequent recovery. Control devices include, but are not limited to, thermal or catalytic oxidizers, combustion units that incinerate process exhausts, biofilters, *absorbers, adsorbers, and scrubbers* ~~and condensers~~.

Response: We disagree with the commenters that the proposed definition of "control device" should be changed. In the proposed PCWP rule we intentionally left absorbers (e.g., wet scrubbers) out of the list of potential control devices because these technologies generally are not reliable for reducing HAP emissions. These wet systems may achieve short-term reductions in THC or gaseous HAP emissions; however, the HAP and THC control efficiency data, which range from slightly positive to negative values, indicate that the ability of these wet systems to absorb water-soluble compounds (such as formaldehyde) diminishes as the recirculating scrubbing liquid becomes saturated with these compounds.[2] We wished to limit the examples included in the definition of "control device" to those devices for which we have data to demonstrate that they are effective in reducing HAP emissions from PCWP facilities. However, we note that the definition includes the phrase "but not limited to," so the definition does not exclude other types of controls. We are aware that new technologies (some of which may be adsorption-based or absorption-based) may be developed that effectively reduce HAP emissions from PCWP sources. The definition of "control device" does not prevent their development or use.

Facilities using wet scrubbers or WESPs to meet the add-on APCD or emissions averaging compliance options can petition the Administrator for approval of site-specific operating requirements to be used in demonstrating continuous compliance. Alternatively, facilities using a wet scrubber or WESP may use a THC CEMS to show that the THC concentration in the APCD exhaust remains below the minimum concentration established during the performance test. In addition, facilities using wet control devices (e.g., wet scrubber or WESP) as the sole means of reducing HAP emissions must submit with their Notification of Compliance Status a plan for review and approval to address how organic HAP captured in the wastewater from the wet control device is contained or destroyed to minimize re-release to the atmosphere such that the desired emission reduction is achieved. Because wet scrubbers and WESPs are add-on APCDs and have variable effects on HAP emissions, the final rule specifies that sources cannot use add-on control systems or wet control devices to meet the PBCO. Facilities demonstrating compliance with the PBCO for process units equipped with any wet control device that effects HAP emissions must test prior to the wet control device. We added the following definition of "wet control device" to the final rule to clarify that these add-on technologies cannot be used to meet the PBCO:

> Wet control device means any equipment that uses water as a means of collecting an air pollutant. Wet control devices include scrubbers, wet electrostatic precipitators, and electrified filter beds. Wet control devices do not include biofilters or other equipment that destroys or degrades hazardous air pollutants.

2.5.2.2 Comment: Commenter IV-D-55 requested changes to the definition of "control system" so that facilities with certain types of add-on control devices could still comply using the PBELs. The commenter specifically requested that the definition of an "add-on control system" exclude those "control systems" that are designed for the primary purposes of capturing and using alternative sources of fuel and preventing potential storm water impacts. The commenter described a "steam collapse system" that condenses steam from the particleboard press exhaust and then routes the condensate to an onsite wastewater treatment system. The remaining noncondensed gases exiting the steam collapse system are then routed to an onsite boiler where they are combusted as supplemental fuel. The heating value of the gases was reported to be 700 BTU per standard cubic foot. The commenter noted that both the steam collapse system and the boiler reduce HAP emissions, and thus meet the proposed definition of control device, which means that the mills would have to demonstrate compliance using the either the add-on control system compliance options or emissions averaging. The commenter further noted that the add-on control system compliance options would require the installation of a PTE, which the commenter believes would result in negligible emission reductions and would cause operational difficulties as well as a fire hazard. For these reasons, the commenter recommended that the definition of an "add-on control device" be adjusted to refer only to those capture and control devices for which the removal of HAP is the primary goal.

Response: The definition of "control system or add-on control system" refers to the combination of capture and control devices used to reduce HAP. The commenter's concern relates to the definition of "control device." The definition of "control device" in the final PCWP rule includes condensers and combustion units that incinerate process exhausts. For purposes of MACT standard development, the reason a control device was installed is immaterial. All control devices or techniques that reduce HAP emissions are considered when setting MACT standards. The PBCOs were developed and included in the PCWP rule for inherently low-emitting process units or process units with pollution prevention, not for process units with add-on control devices (see Section 2.6.3 for more details on the development of the PBCOs). Emissions data for the outlet of APCD (including wet control devices) were not used in developing the PBCOs. The control system described by the commenter is an add-on control system which cannot be used to comply with the PBCO (unless emissions measured prior to the steam collapse system meet the PBCO, indicating that the press is a low-emitting press without add-on control). Even though the PBCO is not an available compliance option for the outlet of the commenter's control system, there are six add-on control device compliance options plus emissions averaging in the final PCWP rule. We disagree that an enclosure around the press would result in operational problems and fire hazard; enclosures have been successfully installed around particleboard presses. The final PCWP rule defines design criteria for wood products enclosures, and also allows for partial enclosures as long as the overall emission reduction is achieved. Wood products enclosures, as defined in the final rule, are assumed to achieve 100 percent capture; however, partial wood products enclosures must be tested to determine capture efficiency. To determine the percent reduction associated with the commenter's control system, testing would likely need to be conducted prior to the steam collapse system and after the boiler. Additional information on incineration of process exhausts is provided in Section 2.7.12.

**2.5.3 Regenerative thermal and catalytic oxidizers**

2.5.3.1 Comment: Commenters IV-D-34, IV-D-35, IV-D-47, and IV-D-50 requested that EPA reevaluate the benefits of RTO and RCO control devices. The commenters contended that many of these units currently in use are not meeting their design destruction efficiency. Commenters IV-D-34 and IV-D-35 argued that EPA did not take in to account the lack of industry experience with incineration-based control technologies when proposing the rule and suggested that EPA re-evaluate these technologies in light of recent experience to ensure that the units are truly capable of meeting the emissions requirements. Commenter IV-D-50 further argued that RTOs and RCOs are unable to satisfactorily treat press emissions that have low concentrations of VOCs.

Response: We disagree that the PCWP industry does not have experience with RTOs and RCOs. Responses to our PCWP general survey conducted in 1998 indicated that there were 90 of these types of control devices in use on various PCWP process units.[10] Several additional RTOs and RCOs have been installed on PCWP processes since the 1998 survey.[18,19] Our data show that RTOs and RCOs in the PCWP industry routinely achieve 90 percent HAP reduction efficiency regardless of whether these controls are installed on presses, dryers, or a combination of PCWP process units.[20] We note that we have not established standards more stringent than 90 percent reduction to account for units that may not meet their design destruction efficiency; we believe that 90 percent reduction represents the level of control that is continuously achieved accounting for inherent variability over time.

**2.5.4 Biofilters**

2.5.4.1 Comment: Commenter IV-D-27 requested that the proposed definition of biofilter be modified so that rotating biological disk biofilters will meet the definition of biofilter. The suggested changes to the definition are as follows (additions are in italics and deletions are in strikeout format):

> Biofilter means an enclosed control system such as a tank or series of tanks with a fixed roof that ~~are filled with~~ *contact emissions with a solid* media (such as bark) and use microbiological activity to transform organic pollutants in a process exhaust stream to innocuous compounds such as carbon dioxide, water, and inorganic salts. Wastewater treatment systems such as aeration lagoons or activated sludge systems are not considered to be biofilters.

Response: We agree with the suggested change and have modified the definition of biofilter in the final rule as requested.

2.5.4.2 Comment: Commenters IV-D-34, IV-D-35, and IV-D-47 stated that more investigation into biofilters is needed before they are considered a viable alternative. These commenters contended that the large space requirements associated with biofilters would preclude their use at many PCWP facilities, because many of these facilities lack sufficient open property on which to site a biofilter.

Response: Facilities are free to choose whatever control technology works best for their facility (provided that the technology meets the compliance options) based on site-specific concerns such as the process unit to be controlled and available space. Biofilters are a viable alternative for some facilities. Biofilters have been used successfully to control press emissions, and our data show that biofilters can achieve HAP reductions of 90 percent or greater. Biofilters are available in different designs including some modular designs which may be easier to retrofit at facilities with less available space. Nevertheless, we acknowledge that some facilities simply do not have the space to install a biofliter and therefore must use a control technology with a smaller footprint (e.g., RTO, RCO, or incineration in an onsite combustion unit).

**2.5.5 Availability of APCDs**

2.5.5.1 Comment: Commenters IV-D-19, IV-D-27, and IV-D-48 requested that the deadline for existing sources to come into compliance with the PCWP rule be extended. Commenter IV-D-27 recommended that sources installing incineration-based equipment or equivalent emissions control technology be granted a one-year extension because of the limited availability of qualified and financially viable vendors for add-on control systems. The commenter contended that most affected PCWP plants will choose to install RTOs rather than RCOs or biofilters because RTOs can be used in more situations and applications than an RCO or biofilter. The commenter also noted that the use of a process combustion unit as an incineration-based control device would be limited by the amount of airflow that can be controlled and by safety concerns.

Commenter IV-D-27 stated that there are four main challenges facing the PCWP industry under a three-year compliance schedule. First, a large majority of the companies that provide RTOs, RCOs, and biofilters to the wood products industry are relatively new, small businesses with relatively low capitalization. Because less than a handful of vendors have capitalization substantial enough both to support installation and to honor their warranties and guarantees, there will be numerous facilities competing for a limited number of experienced contractors in order to meet the standards at the same time. Commenter IV-D-48 agreed, noting that both PCWP facilities and equipment suppliers dislike the short three-year time period to perform initial compliance testing, select and install control equipment if needed, and perform post-compliance testing. Because of this schedule, facilities may be unable to install equipment from their first choice of supplier and may have to resort to second, third, or fourth choices. Second, there are a limited number of fabricators that the vendors can choose as subcontractors, and they are usually small businesses. Third, there are several MACT standards scheduled to be released over the next year, and any that require incineration-based add-on controls will further increase the demand on the limited resources of the vendors and fabricators. Fourth, the typical biofilter vendor only has one or two installed systems and will propose a newer, often untested version. As a result, biofilter vendors provide even more compliance and cost risks then the RTO/RCO vendors. Commenter IV-D-27 also noted that "over two-thirds" of the vendors who installed the RTOs and RCOs included in the MACT floor determination have gone bankrupt in the past four years.

Commenter IV-D-27 provided a summary of problems experienced by a PCWP company that recently contracted with a vendor to fabricate and install multiple RTOs/RCOs. In this situation, the vendor declared bankruptcy after only one RCO was installed, forcing the PCWP company to negotiate contracts with each subcontractor directly to complete the construction and installation of the remaining RTOs. The PCWP company also lost the money that had been prepaid to the vendor. In addition, the RCO "barely met" the required THC destruction efficiency and has had ongoing problems meeting opacity limits. For the reasons stated above, the commenter requested that the compliance deadline either be extended by one year or that a staggered compliance schedule for the sources affected by the standards be implemented. The commenter suggested that individual companies be granted the option to comply within 2, 3, 4, or 5 years, as long as the average compliance duration does not exceed four years. The commenter stated that a staggered compliance schedule would smooth out demand; enhance the economic viability of the vendor segment; eliminate the need to make case-by-case extension determinations; and provide efficient, effective, and reliable compliance options for the industry.

The commenter also argued that sources choosing pollution prevention should be granted an extension to the compliance schedule to provide the time needed for the development and implementation of these innovative approaches. The commenter noted that add-on controls have multiple environmental disbenefits, including significant increases in energy use and greenhouse gas emissions, so pollution prevention should be encouraged whenever possible. The commenter agreed that pollution prevention options are not widely used by the PCWP industry but noted that the industry has placed a priority on developing pollution prevention techniques. Because pollution prevention projects are more complex, more time consuming, and potentially more capital intensive than simply installing add-on controls, the commenter contended that more compliance time would be necessary. However, with a three-year compliance deadline, the commenter stated that only the add-on control system approach is viable on a widespread basis. The commenter suggested adding four years to the compliance deadline, for a total of seven years, to address the challenges with implementing pollution prevention options. The commenter suggested that EPA could require facilities that implement this approach to declare their commitment to do so within two years after promulgation of the rule and provide annual progress reports to identify progress towards those goals.

Commenter IV-D-19 supported Commenter IV-D-27's recommendation for a one-year extension for plants installing incineration-based control and the three-year extension for plants choosing pollution prevention. Commenter IV-D-19 also recommended that any facility choosing a control technology that does not require natural gas be granted a one-year compliance extension. To qualify for the last option, a facility would have to demonstrate that transporting either natural gas or propane to the site would be technically and/or economically impractical.

Response: Section 112(i)(3) of the CAA states that

> "(A) After the effective date of any emissions standard, ... in the case of an existing source, the Administrator shall establish a compliance date or dates for each category or subcategory of existing sources, which shall provide for compliance as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard, except as provided in subparagraph (B)...
> "(B) The Administrator (or a State with a program approved under title V) may issue a permit that grants an extension permitting an existing source up to 1 additional year to comply with standards under subsection (d) if such additional period is necessary for the installation of controls."

Thus, we are allowing the full length of time permitted by the CAA (i.e., three years as opposed to a shorter time frame) for compliance with the PCWP rule. At this point, based on available information, we disagree that a compliance extension is needed for installation of APCD or for implementation of pollution prevention measures. The three-year compliance date for the final rule is projected in 2007 (assuming publication of the final rule in 2004). As of April 2000, we estimated that 26 percent of facilities were already using the control technologies needed to meet the final PCWP rule. In addition, many facilities have installed controls since April 2000. The final PCWP rule contains various compliance options, some of which will reduce the number or size of controls needed to meet the rule (e.g., PBCOs, emissions averaging). In addition, different types of add-on APCDs can be used to meet the final rule (e.g., RTO, RCO, incineration of process exhaust in an onsite combustion unit, biofilter).

Even conservatively assuming that incineration-based controls are selected by all facilities for compliance with the PCWP rule, we are not convinced that there are not enough vendors to handle the remaining demand for incineration-based control devices during the three years following promulgation of the PCWP rule. A review of journal articles and Internet webpages revealed at least 10 incineration-based control device vendors currently in operation that have experience installing controls at PWCP facilities and that appear to be capable of handling multiple installation requests simultaneously. Six other companies have experience with the industry, but it is unclear if they have the ability to handle the same number of simultaneous orders as the 10 top-quality vendors. About 12 additional companies have experience manufacturing and installing incineration-based controls, but they do not have experience with the PCWP industry. Eleven different vendors were responsible for installing the 89 incineration-based control devices listed in the MACT survey results. Four of these eleven vendors have gone out of business in the last few years, but all of them have been purchased or otherwise acquired by another company. Three of the vendors were acquired by two of the 10 top-quality vendors mentioned above. The fourth vendor was recently purchased by an environmental technology company with experience in pollution control for the pulp and paper industry and is now considered one of the six smaller-capacity vendors. A fifth company which installed four of the RTOs reported in the PCWP survey, is still operating, but the company appears to be focusing on mist eliminators and scrubbers.

The available information does not support the commenter's claim that two-thirds of the vendors responsible for installations considered in the MACT floor determination have gone bankrupt in the past four years. Four of 11 vendors of incineration-based control devices reported in the MACT survey responses have gone out of business. These four vendors represented 69 percent of the installations that were reported in the MACT survey and considered in determining the MACT floor, which may have been the basis for the commenter's claim. However, since all of the vendors that closed are now back in business, the number of bankrupt vendors is no longer relevant. Although four APCD vendors may no longer operate as independent companies, their products and designs are still available, and they have become part of larger corporations, which will increase their stability. As a result, there appear to be enough vendors to handle all of the orders for incineration-based control devices.[21] Facilities concerned about having their first choice supplier should submit their equipment contracts early in the three-year compliance time frame. In any event, individual sources will be able, consistent with the language of section 112(i)(3)(B), to present their own claims of need for additional time to install controls to permitting authorities.

We further disagree that control technologies that do not use natural gas require a one-year extension. Facilities can use any control technology that meets the standards based on their site-specific needs. Control technologies (including those that use natural gas and those that do not) are available for installation within the three-year compliance time frame, and therefore, it is not necessary to extend the compliance date.

We wish to encourage pollution prevention, as evident from our inclusion of PBCOs in the PCWP rule. We acknowledge that there are significant challenges in implementing pollution prevention measures, and that currently there are no widespread HAP pollution prevention measures used in the PCWP industry. It is not known if an additional four years of research would identify pollution prevention measures. We do not wish to allow facilities up to four years after the compliance date to ponder potential pollution prevention measures, only to then decide after four years to install an add-on APCD. Moreover, section 112(i)(3) provides no authority for such a lengthy compliance extension solely due to the wish to explore currently unidentified and un-demonstrated pollution prevention measures. Even if it were allowed under the CAA, we disagree that a four-year extension of the compliance date is appropriate in this rulemaking, since as reflected in our MACT floor determinations, it does not appear that there are any pollution prevention measures that could be universally applied across the industry.

While we believe that the need for a blanket compliance extension is not necessary for most facilities, we note that section 112(i)(3)(B) allows facilities to petition permitting authorities for a case-by-case extension of the compliance date of up to one year if such an extension is necessary for installation of controls. Thus, facilities facing exceptional difficulty obtaining the technology necessary to comply with the final rule have an avenue for obtaining a compliance extension based on their site-specific circumstances, which could include the adoption of demonstrated pollution prevention measures that achieve MACT levels of performance but that cannot be implemented by the 3-year compliance date.

## 2.6 COMPLIANCE OPTIONS

### 2.6.1 Multiple compliance options

2.6.1.1 Comment: Commenter IV-D-45 pointed out that although EPA has presented several compliance options, there are so many restrictions on each one that many facilities may only have one choice for compliance. The commenter asserted that a facility without add-on controls cannot choose the emissions averaging compliance option, and that a facility with add-on controls cannot choose the PBCO.

Commenter IV-D-03 questioned whether or not it would be possible under current regulations to apply different compliance options to process units with multiple emission points. The commenter specifically referred to multistage tube dryers, which have multiple emission points but are defined as one process unit under the proposed rule.

Response: We disagree with the commenter's assertion that there are too many restrictions on the compliance options and maintain that the final PCWP rule provides maximum compliance flexibility for PCWP sources subject to this NESHAP. The proposal preamble states in 63.2240 that *"You cannot use multiple compliance options for a single process unit. (For example, you cannot use a production-based compliance option for one vent of a veneer dryer and an add-on control system compliance option for another vent on the same veneer dryer. You must use either the production-based compliance option or an add-on control system compliance option for the entire dryer.)"* However, this restriction does not apply to the PCWP facility as a whole, such that PCWP facilities have the flexibility of complying with different options for different process units. For example, a PCWP facility may choose to comply with a PBCO for one of their presses, comply with an add-on control systems option for one dryer, and include another dryer in an emissions averaging plan with a blender (e.g., control blender emissions and apply no controls to the dryer emissions, or undercontrol emissions from both units.). Also, the final rule has modified language in §63.2240 to clarify that the restriction regarding application of multiple compliance options does not apply to individual process units complying solely with the add-on control system compliance options (see response to comment No. 2.6.2.1)]

Regarding other restrictions noted by the commenter, the emissions averaging provisions require that credit-generating sources be equipped with add-on controls because determining the actual emission reduction from pollution prevention techniques can be very difficult and contentious, and other compliance options are available to accommodate pollution prevention techniques (i.e., PBCOs). We also note that debit-generating sources may be uncontrolled or under controlled process units in an emissions averaging plan. Thus, emissions averaging plans will include a mix of controlled, uncontrolled, and undercontrolled process units. Regarding the restrictions on the use of PBCOs, we developed these options specifically to address the need for compliance alternatives for the future development of pollution prevention techniques. The use of the PBCOs is not allowed for process units equipped with add-on controls. We also note that sources equipped with add-on control systems have six compliance options available to them in addition to the option of being part of an emissions averaging plan. (See also responses to comments 2.6.3.2 and 2.6.4.5.)

Regarding application of multiple compliance options to multistage tube dryers, we note that, unlike the proposed rule, the final rule distinguishes between primary and secondary tube dryers (see response to comment 2.1.2.2). Therefore, a PCWP facility may select different compliance options for the primary and secondary tube dryers.

### 2.6.2 Add-on control systems compliance options

2.6.2.1 Comment: Commenter IV-D-19 supported multiple compliance options for add-on control systems because of the flexibility. However, another commenter (IV-D-04) argued that the use of multiple compliance options for add-on control systems will make it difficult to determine if a facility is actually in compliance. The commenter pointed out that, according to the preamble, if a facility tested for two options but passed only one, they would still be in compliance. However, if a facility chose to only test for one option and then failed that test, it is unclear if EPA would consider that facility to be in violation or if another test could be run for a different option. The commenter stated that in that situation, they would contend that there had been a violation of the standard, and any retesting to determine compliance with a different option would not reverse the initial violation. Therefore, the commenter requested that EPA clarify that the option to use the "most beneficial" results of two or more test methods applies only when these tests are conducted during a single performance test. According to the commenter, any facility that chose to use only one test method during the compliance test would have to accept the results of that test.

Commenters IV-D-27 and IV-D-21 argued that a facility should be able to switch between the six add-on control options as needed to maintain compliance. To illustrate the necessity of the ability to switch from one add-on control option to another, the commenters provided an example whereby the operator of a veneer dryer might want to demonstrate compliance with the 90 percent THC reduction option (option 1) under certain operating conditions and with the 20 ppmv THC option (option 2) under other operating conditions. Commenter IV-D-21 also noted that production starts, stops, and minor malfunctions are common at PCWP facilities, and most of them do not affect the performance of the air pollution control device. However, frequent SSM events resulting in a low concentration to the inlet of the control device could affect a facility's ability to comply with the percent reduction option. In this case, the commenter stated that the freedom to switch compliance options would be valuable. For these reasons, the commenters requested that EPA explicitly state in the PCWP rule that "a facility only need comply with any one of the six options at any one time, and that it can change between them as needed to fit process operating conditions."

Response: The proposed rule states that, "You cannot use multiple compliance options for a single process unit." We included this provision to prevent PCWP sources from partitioning emissions from a single process unit and then applying different control options to each portion of the emissions stream. The MACT floor determinations and compliance options were all based on the full flow of emissions from process units, and therefore, compliance options should be applied to the same mass of emissions to ensure that the required MACT floor emissions reductions are achieved. When including this restriction, we did not necessarily intend to limit PCWP facilities to only one of the six options for add-on control systems. We did assume that each source would likely select only one, and that at any point in time for purposes of assessing compliance, the given compliance option will have been pre-selected and reflected as applicable in the sources permit. In fact, in discussions with industry representatives prior to proposal, they expressed concern that the rule be written to make it clear that a source would only have to comply with one option and not all six.

Based on available data, we expect that most facilities will be able to demonstrate compliance with more than one of the compliance options for add-on control systems. When developing the six compliance options for add-on control systems, it was our belief that PCWP facilities would conduct emissions testing (e.g., inlet and outlet testing for THC, methanol, and formaldehyde over a range of operating temperatures) and then, based on the results of testing, select the option that provides them with the most operating flexibility as well as an acceptable "compliance margin" (i.e., select the option that they believe will be easiest for them to meet on a continuous basis under varying conditions). The operating parameter limit to be reflected in the sources permit (e.g., temperature) would be based on the measurements made during the compliant test runs. For example, if test results show that a facility can achieve 90 percent reduction for formaldehyde, 92 percent reduction for methanol, and 94 percent reduction for THC, then the facility may decide to reduce THC emissions by 90 percent, since this option appears to provide the greatest compliance margin. The corresponding operating parameter level measured during the testing (e.g., minimum average RTO temperature during a three-run test) would then be set as the operating limit in the permit for that source. In this example, if the RTO operating temperature drops below the operating limit, any subsequent retesting done by the facility would presumably be done based on the chosen compliance option (e.g., reduce THC emissions by 90 percent). Determining compliance in this case is relatively straightforward. However, we are aware that State agencies may simply refer to a NESHAP as part of a permit and not stipulate which compliance option the facility must meet. In these cases, we agree with commenter IV-D-04 that compliance can be complicated when the referenced NESHAP contains multiple options, and that such a broad reference would not be adequate to identify the particular option (and parameter operating limits) applicable to the source. We also agree with the commenter that, if a facility selects multiple options under the compliance options for add-on control systems, then they should be required to conduct all necessary testing associated with compliance with the selected options. In addition, the facility should obtain permit terms reflecting these options as "alternate operating scenarios" that clearly identify at what points and under what conditions the different options apply, such that compliance can be determined during a single time frame. For example, if the source wishes to include options 1, 3, and 5 in their permit, then they must perform inlet and outlet testing for THC, methanol, and formaldehyde anytime the State agency has reason to require a repeat performance test (if all three options are simultaneously applicable), or test for the single applicable option that corresponds to the given time and condition (if all the options apply as "alternate operating scenarios" under different conditions). With this approach, we would avoid situations where a facility retests to determine compliance with a compliance option, fails to demonstrate compliance with that option, and then conducts additional testing to determine compliance with other options that are not pre-established as applicable at a later date.

Because different States may wish to implement the final rule differently, the final rule does not specify that States must allow compliance with all 6 options "at any given time," and therefore, the specifics of compliance demonstrations and permit conditions for facilities that can meet multiple options for add-on control systems will be left to the State agencies. However, as mentioned in the response to the previous comment (No. 2.6.1.1), the final rule clarifies our intentions regarding the use of multiple control options with respect to add-on control systems versus the combining of control options for a single process unit. The language in §63.2440 of the final rule has been modified as follows (deletions in strikeout, additions in italics):

> "...You cannot ~~use multiple compliance options~~ *combine compliance options in paragraphs (a), (b) or (c)* for a single process unit. [For example, you cannot use a production-based compliance option *in paragraph (a)* for one vent of a veneer dryer and an add-on control system compliance option *in paragraph (b)* for another vent on the same dryer.]"

We believe that this wording change clarifies our intention to prevent sources from applying different control options to different portions of the emissions from a single process unit, while leaving open the potential for PCWP facilities to be able to include multiple compliance options for add-on control systems in a State permit. Although add-on controls are used in emissions averaging plans to achieve full or partial control of emissions from a given process unit, the emissions from a single process unit cannot be parceled such that a portion of the emissions meets one of the add-on control system compliance options and another portion is used as part of an emissions averaging plan. The final rule continues to state that sources must meet at least one of the six options for add-on control systems. Therefore, the final rule does not prevent sources from establishing multiple compliance options for add-on control systems in their permits.

2.6.2.2 Comment: Commenters IV-D-21 and IV-D-27 stated that, if switching between the six add-on control system compliance options is not allowed, then EPA must allow a long compliance averaging time. The commenters noted that the proposed rule does not specify any compliance averaging period for the add-on control systems compliance options. The commenters contended that, even if a facility follows all of the guidelines to ensure continuous compliance, there will probably be short periods of time in which the inlet to the control device has a low HAP concentration and the facility does not meet the requirement of the compliance option, although they may meet the requirements of the "Indicators of Performance" section of the rule. The commenters stated that, if EPA chooses not to incorporate a long compliance averaging period, then the add-on control system compliance options should only apply for initial certification testing, and thereafter, the operating requirements should apply. To demonstrate the necessity for the one-week averaging period, commenter IV-D-27 noted that a rotary dryer that normally meets the 90 percent THC removal condition may have compliance problems when dryer production is reduced because of problems elsewhere on the production line. The commenter explained that the generation rate of HAP emissions from rotary dryers is a strong function of the dryer inlet temperature. The inlet temperature is a function of the production rate. The concentration of HAP in the dryer exhausts are doubly affected by reduced production rates because the air flow normally remains constant while the lbs/unit production decreases with the lower inlet temperature. The commenter stated that, during periods of low production, the facility may be unable to meet any of the options for add-on control devices, and thus could be found in violation of the standards.

Commenter IV-D-27 stated that an averaging period needs to be specified to allow a manager to certify continuous compliance through a range of operating conditions. The commenter contended that the averaging period should be no shorter than one week to accommodate extended periods of operation where emission concentrations from the process are low. The commenter stated that the data used to establish the floor only included process units operating at maximum capacity and did not reflect the full operating range of the processes being tested. The commenter also pointed out that "at a very minimum, a 24-hour averaging period is needed to recover from a three-hour period with very low inlet emissions to the control device.

If there is more than one period of low inlet concentrations, then a longer averaging period is needed."

Response: We disagree with the commenters' request to extend the averaging period for compliance testing and operating parameter monitoring. The "averaging period" for the initial performance test is three hours because the rule requires a minimum of three one-hour test runs, and the average of these three runs is used to determine compliance. Like the proposed rule, the final rule requires an initial performance test, and during that initial compliance test, the average value of the operating parameter (e.g., temperature) is set as the operating limit. Because the performance test is based on the average of three one-hour test runs, the operating limit value is also based on a three-hour average. As noted in the response to the previous comment, sources may conduct multiple performance tests in order to establish an operating limit that provides them with the most operating flexibility. Following the initial compliance test(s), the facility is required to comply with the operating parameter limit. No additional performance testing is required. However, if the facility expects to be operating under different conditions, such that maintaining the APCD at or above the minimum temperature would not ensure compliance with the chosen compliance option, then the facility can conduct additional testing under the different operating conditions to demonstrate compliance with a different compliance option and a different operating parameter limit that can be met under the alternate operating conditions. In such cases, the facility would need to be able to document when the source is operating under each set of conditions and maintain separate records for each operating scenario. We also note that option 2 under the compliance options for add-on controls systems (i.e., limit APCD outlet emissions of THC to 20 ppmvd) can be used to address situations where the inlet emissions are very low because there are no minimum inlet THC concentration requirements for this control option. Because the performance tests are based on a three-hour average and facilities are allowed to establish different operating parameter limits under different operating scenarios, the final rule retains the three-hour averaging period for operating parameter limits. (See also responses to related comments on compliance averaging periods in Section 2.7.)

2.6.2.3 Comment: Commenters IV-D-03, IV-D-19, IV-D-21, and IV-D-27 noted the apparent redundancy between options 3 and 4 and options 5 and 6 in Table 1B to Subpart DDDD of the proposed rule (Add-on Control System Compliance Options). Commenters IV-D-21 and IV-D-27 stated that the preamble to the proposed rule implies that EPA did not intend for these options to be redundant, especially for streams with low HAP concentrations. The proposed preamble stated, "[i]n general, applying an incineration-based MACT control system to a process unit that emits high concentrations of HAP and THC will result in a greater percentage of emissions reductions than if that same incineration-based MACT control system was applied to a process unit that emits lower concentrations of HAP and THC." The commenters noted that only options 3 and 5 actually state that they require 90 percent reduction of methanol and formaldehyde, but because options 4 and 6 require an inlet concentration of greater than 10 ppm and an outlet concentration of less than 1 ppm of the controlled HAP, all four of them technically require 90 percent destruction. Therefore, the commenters argued that the rule is contradictory in that it recognizes that streams with low concentrations are difficult to treat but still requires a high level of control for those streams.

To address the redundancy, the commenters suggested that options 4 and 6 be modified to allow lower control efficiencies for methanol and formaldehyde. Commenter IV-D-27 provided a scatter plot of pollutant removal efficiency data versus inlet concentration for methanol and formaldehyde emissions treated with RTOs/RCOs to show that some RTOs/RCOs achieved less than a 90 percent reduction of methanol and formaldehyde when the inlet concentration of these pollutants was below 10 ppm. The commenter also provided RTO/RCO inlet and outlet concentration data for methanol and formaldehyde. The inlet data ranged from approximately 1 ppm to 50 ppm, and the outlet data ranged from less than 1 ppm to approximately 6 ppm. Commenter IV-D-27 stated that, based on these data, most RTOs are capable of achieving an outlet formaldehyde concentration less than 2 ppm when the inlet concentration is less than 10 ppm and less than 1 ppm methanol when the inlet concentration of methanol is less than 10 ppm. The commenter also stated that RCOs are only capable of meeting less than 3 ppm formaldehyde in the outlet, regardless of the inlet concentration. The commenter acknowledged EPA's concerns about circumvention of the rule by sources that would install controls that had little or no effect on HAP emissions if the rule did not contain minimum concentration requirements at the control device inlet for options 4 and 6. The commenters recommended that the minimum concentration requirements be retained, but at a lower value greater than or equal to the outlet limit. Specifically, the commenters recommended the following modification to the wording in Table 1B to Subpart DDDD, Add-on Control Systems Compliance Options:

> (4) Limit methanol emissions to less than or equal to 1 ppmvd, rounded to the nearest single significant digit, if uncontrolled methanol emissions entering the control device are greater than 1 ppm.
>
> ***
>
> (6) Limit formaldehyde emissions to less than or equal to 2 ppmvd, rounded to the nearest single significant digit, if uncontrolled methanol emissions entering the control device are greater than 2 ppm.

The commenter further noted that if a facility has emissions above the applicability limit for either methanol or formaldehyde but below for the other, it should be required to treat the HAP that is above the limit. If the emissions levels are both below the limit, then the facility can probably meet the requirements for the applicable PBCO.

Response: In other rules, we have historically addressed control device performance issues at varying concentrations by offering two control options—one in the form of a percent reduction and the other in the form of a maximum outlet concentration level—with the idea that well-controlled sources could meet one or the other, but not always both. Due to the variability in PCWP emissions and relatively dilute streams, three "percent reduction" options and three "outlet concentration" options were provided in the proposed rule. The predominant pollutant emitted from PCWP sources is THC; however, options for the two predominant HAP, methanol and formaldehyde, were added for those sources that emitted these HAP in quantities sufficient to serve as a total HAP surrogate for determining control device performance. We elected not to require testing for total HAP because the two MACT technologies in use (incineration and biofiltration) are effective in reducing emissions of all six of the pollutants that comprise "total HAP" as defined in the rule, such that a single (predominant) HAP emitted from a given source would be a good surrogate for determining the control device performance.

We disagree with the commenter's assertion that options 4 and 6 are redundant to options 3 and 5 and that the inlet concentration restrictions in options 4 and 6 should be lowered. First, we established the 10 ppmvd minimum inlet concentration for options 4 and 6 to avoid having a source base compliance on a pollutant that was not present in sufficient quantities and to avoid the use of control devices that have little or no ability to consistently reduce HAP emissions. Many NESHAP require sources to base compliance on the primary pollutant to minimize measurement-related issues such as concentrations near method detection limits and rounding of emissions data into compliant ranges. We believe that compliance with a NESHAP should <u>not</u> be based on a pollutant that is only present in quantities close to the detection limit. We also note that the control efficiencies are determined based on *mass* of pollutant at the control device inlet and outlet, not the concentration, and thus, a control device with an inlet pollutant concentration of 10 ppmvd coupled with an outlet concentration of 1 ppmvd does not necessarily correspond to a 90 percent reduction in emissions. Second, if inlet and outlet requirements are set at the same values (e.g., 1 ppm) as suggested by the commenters, no emissions reduction would be required, and ineffective or poorly operating emission control devices could be used to comply with the standards. We note that data supplied by the PCWP industry show that the flow rate at the outlet of the control device can be more than 35 percent higher than the inlet flow rate, which creates a dilution effect on the outlet pollutant concentration.[11] Thus, the combination of lowered minimum inlet concentration requirements, dilution effects, and beneficial rounding to the "nearest significant digit" would render control options 4 and 6 equivalent to "no control." Third, we note that there are six compliance options for sources equipped with add-on controls (in addition to emissions averaging), and a review of the available data show that every RTO, RCO and biofilter could meet at least one of these six options, with some RTOs meeting five of the six options.[20,22] The available data also show that some RTOs with inlet methanol or formaldehyde emissions less than 10 ppmvd can achieve 90 percent reduction in emissions.[20,22] We further note that sources are only required to meet one of the six options for add-on controls, and thus, a facility that is unable to use options 4 and/or 6 due to low inlet concentrations still has at least four compliance options available to them. For these reasons, we retained the six proposed compliance options for add-on control systems in the final rule.

### 2.6.3 <u>Production-based compliance options (PBCO)</u>

2.6.3.1 <u>Comment</u>: Commenters IV-D-19, IV-D-27, and IV-D-56 stated that facilities should be allowed to neglect nondetect HAP measurements for PBCO calculations. Commenters IV-D-19 and IV-D-27 stated that, if a facility is forced to use values of one-half the detection limit for nondetect HAP, that facility may be unable to use PBCO. These two commenters also noted that the detection levels measured in the field by the NCASI IM/CAN/WP-99.01 generally range between 0.35 ppm and 1 ppm, and the results of the Fourier transform infrared (FTIR) methods average about 1 ppm. Because these detection levels are higher than the levels achieved in the lab, the one-half detection levels that plants must use in their calculations are higher than the theoretical values used to set the limits. The commenter provided a sample calculation to demonstrate the effect that the detection level has on the compliance calculation. Commenter IV-D-56 noted that only 10 percent of the one-half nondetect level was used to establish the PBCO limits, but facilities must add the full amount of the one-half level in emissions calculations. Commenters IV-D-19 and IV-D-27 suggested that if EPA does not agree to allow facilities to neglect nondetect HAP data altogether, then EPA should at least allow facilities to multiply the detection level by 0.05 to achieve a value that is 10 percent of the one-half detection limit level.

Response: The PBCO was established to allow for the future development of pollution prevention alternatives and to avoid the installation of add-on control systems on inherently low-emitting sources that achieve MACT level performance through pollution prevention. After reviewing the total HAP data used to establish the PBCO limits, we decided to allow sources to treat nondetect measurements for an individual HAP as zero for the sole purpose of determining compliance with the PBCO, if the following conditions are met:

(1) the detection limit for that pollutant is set at a value that is less than or equal to 1 ppmvd; and

(2) emissions of that pollutant are nondetect for all three test runs.[23]

We included the first condition to prevent test contractors from setting the detection limits too high, and thus generating false zeroes. We selected 1 ppmvd as the maximum detection limit value because it matches the detection limits achievable with the test methods included in the PCWP rule.[24] We included the second condition to ensure that the source is truly low-emitting, as evidenced by three nondetect test runs. If emissions of the HAP are detected during any one test run, then any nondetect runs must be treated as being equal to one-half the detection limit. The option to treat nondetect measurements as zero does not apply to the compliance options for add-on control systems, because treating the outlet emissions from a control device as zero would artificially increase the calculated control efficiency for that pollutant to 100 percent.

To ensure that the PBCO limits were developed in a manner consistent with how they would be applied, the PBCO limits were recalculated using zero for nondetect measurements when all test runs were nondetect. As a result, the PBCO limit for reconstituted wood product board coolers changed from 0.015 to 0.014 lb/MSF (3/4"). No other PBCO limits changed as a result of using zero for nondetects when calculating the PBCO limits.

2.6.3.2 Comment: Commenter IV-D-23 supported the inclusion of the PBCO in the rule as pollution prevention compliance options, noting that pollution prevention is "always preferred over pollution control." Commenters IV-D-19 and IV-D-27 also approved of the inclusion of a PBCO, but suggested that facilities be allowed to use add-on control methods to achieve PBCO limits to make the PBCO a better P2 method. Commenters IV-D-28 and IV-D-43 concurred. Commenters IV-D-19 and IV-D-27 provided rationale to support their recommendation.

First, both commenters stated that allowing add-on controls is consistent with the development of the PBCO for the PCWP rule. According to the commenters, the high costs, secondary emissions and energy requirements associated with the use of add-on controls, combined with the low toxicity and concentration of the regulated HAP prompted EPA to include an option based on P2 as an alternative to mandatory use of add-on controls. Commenter IV-D-27 quoted the following text from the document *Development of Production-Based Emission Limits for Plywood and Composite Wood Products Process Units* (Docket # II-B-32, hereafter referred to as the PBCO memo), "[t]he emission limits should not be set so low that already well-controlled process units could not meet the limits; and conversely, the limits should not be set so high that uncontrolled process units could easily meet the limits." The commenter interpreted that text to mean that EPA intended that these PBCO limits would be applicable to process units with add-on controls in place and that uncontrolled units would have to apply "significant measures" to meet the limits. The commenter asserted that the referenced document did not place any restrictions on the methodology by which PBCO limits would be met.

Second, the commenter contended that including add-on controls in the PBCO is consistent with other MACT rules and P2 approaches. According to the commenter, numerous recent NESHAP, including Printing and Publishing Industry; Leather Finishing Operations; Amino and Phenolic Resins Production; Wood Building Products Surface Coating Operations (proposed); Printing, Coating, and Dying of Fabrics (proposed); Large Appliances Surface Coating Operations (proposed); Paper and Other Web Coating; and Miscellaneous Metal Parts and Products Surface Coating Operations, allow emissions limits to be reached using add-on controls, P2 techniques, or a combination of both. Similarly, the Wool Fiberglass Manufacturing NESHAP does not specify how a facility must meet the production-based emission limits. The commenter stated that there is "no legal or policy basis to impose restrictions on the use of

PBCO in the PCWP MACT that were not deemed necessary in any of these other MACT standards."

Third, the commenter contended that allowing add-on control methods supports those facilities trying to achieve compliance through P2 methods. The commenter noted that the PBCO memo states that, if add-on controls were used to achieve PBCO limits, then the industry would have no incentive for developing P2 techniques. However, the commenter disagreed and suggested that EPA view add-on controls from a "continuous compliance" perspective. According to the commenter, the selective use of a MACT-level add-on control is a legitimate P2 technique to compensate for a minor emission reduction shortfall of a process P2 strategy or to provide a compliance safety margin for a similar P2 strategy whose ability to deliver continuously certifiable compliance might be threatened by such things as seasonal variability of raw materials. The commenter contended that such an approach would provide the necessary incentive for sources to invest in innovative P2 techniques by providing protection against noncompliance action during the technology development process.

Fourth, the commenter stated that using add-on controls to comply with PBCO will benefit facilities that have process units that emit low levels of HAP. According to the commenter, several companies have already implemented P2 strategies that have been established as BACT in a PSD permit. Because these P2 strategies may fall short of the PBCO limits, companies implementing these strategies would be unable to achieve compliance with the proposed rule without abandoning the P2 strategy and installing full control.

Fifth, incorporating add-on controls in the PBCO provides incentive to find low energy pollution control equipment. The commenter gave an example whereby part of the emission unit exhaust could be used as combustion air for an onsite boiler. The commenter noted that in most cases, the boiler could only handle a portion of the exhaust from multiple dryer stacks. The commenter stated that by combining this type of partial control approach with low temperature drying, a facility may be able to meet the applicable dryer PBCO limit. In this case, allowing for partial control would exclude the need for RTO technology and would provide a net benefit to the environment with a reduction of collateral oxidizer emissions. The commenter gave another example in which a facility with a conveyor dryer could send the exhaust from the first dryer section to a burner and then send the heat back to the dryer; the emissions from the remaining dryer sections would be uncontrolled if the total emissions were below the PBCO limit. In a third example provided by the commenter, a facility would remove enough HAP to comply with the PBCO limit using a scrubber, which would require less energy than incineration. The commenter noted EPA's concern that facilities could operate partial control options at levels lower than a MACT control level and agreed that "any add on control device used to make up a shortcoming with a PBCO limit would be operated at a level consistent with good air pollution control practices."

Response: Like the proposed rule, the final rule does not allow sources to comply with the PBCO through the use of add-on control systems. Our intention for including the PBCO was to provide an *alternative* to add-on controls (e.g., allow for and encourage the exploration of pollution prevention, which currently has not been demonstrated as achieved by PCWP sources) and not to create another compliance option for sources equipped with add-on control systems that could inadvertently allow add-on control equipped systems to no perform to expected control efficiencies. Sources equipped with add-on control systems already have six different compliance options from which to choose, in addition to the emissions averaging compliance option. We note that the six options for add-on control systems are based on emission reductions achievable with MACT control devices and thus are a measure of the performance of MACT control devices. This might not be true if a source combined PBCO and add-on controls, as explained below.

Table 2-3 compares the PBCO limits included in the proposed rule with the emission levels achieved using control devices. As shown in Table 2-3, we did not have total HAP data for all process unit groups equipped with controls. The lack of total HAP data for process units equipped with controls was one of the primary reasons we chose to develop the six add-on control systems options in the proposed format (i.e., can measure THC, methanol, or formaldehyde instead of measuring total HAP). However, we recognized that the format of the add-on control system compliance options would preclude P2 techniques, and thus, we needed additional compliance options that could be met without the installation of add-on controls in order to accommodate development of P2 techniques. One approach we considered was to review the available total HAP data for facilities equipped with controls and then choose a representative data point for each process unit group; however, we had to discard this approach because controlled total HAP data are not available for half of the process unit groups. We developed a number of other approaches to establishing PBCO limits, and then compared the results of these approaches, where possible, with actual emissions in the outlet of control devices.[9,23] The approach that yielded results closest to actual emissions in the control device outlets was an approach based on a 90 percent reduction from the *average* emissions within each process unit group. Thus, this approach was the one that resulted in limits that would most closely represent an alternative to the six compliance options for add-on control systems. However, our intention was not to develop an alternative limit to the six limits already established for add-on control devices. Our intention was to develop an alternative for P2 techniques. We decided to select an approach that allows sources that develop P2 techniques (or are otherwise inherently low-emitting sources) to comply and that reduces HAP emissions without generating the $NO_x$ emissions associated with incineration-based controls. As a result, we selected a 90 percent reduction from the *highest* data point within each process unit group, because the results appeared to be at levels that would not preclude the development of environmentally beneficial P2 options as MACT.

**Table 2-3. Comparison of PBCO with Emissions from Outlet of Control Devices**

| Process unit group | Proposed PBCO limit[a] | Units | Total HAP (6 HAP) measurements from outlet of controlled units | Ratio of PBCO to Total HAP in outlet of controls |
|---|---|---|---|---|
| Fiber board mat dryers | 0.022 | lb/MSF $^1/_2$" | No data | -- |
| Green rotary dryers | 0.058 | lb/ODT[b] | 0.0086 | 6.7 |
| Hardboard ovens | 0.022 | lb/MSF $^1/_8$" | 0.0049 | 4.5 |
| Press predryers | 0.037 | lb/MSF $^1/_2$" | No data | -- |
| Pressurized refiners | 0.039 | lb/ODT | No data | -- |
| Tube dryers | 0.26 | lb/ODT | No data | -- |
| Reconstituted wood product board coolers | 0.015 | lb/MSF $^3/_4$" | No data | -- |
| Reconstituted wood products presses | 0.3 | lb/MSF $^3/_4$" | 0.23; 0.16; 0.079; 0.061; 0.056; 0.022 | 1.3 to 151 |
| Softwood veneer dryers | 0.022 | lb/MSF $^3/_8$" | 0.015; 0.011; 0.11[c] | 0.2[c] to 2 |
| Strand dryers | 0.18 | lb/ODT | 0.081; 0.055; 0.44[d] | 2.2 to 3.3 |

[a] PBCO limits are based on a 90 percent reduction applied to the highest available 6-HAP test.

[b] ODT = oven-dried ton, MSF = thousand square feet at thickness specified
[c] Data point is for an RCO that achieved < 50 percent control of HAP during testing, although THC control efficiency was 90 percent.
[d] Data for this unit were discarded during MACT floor determinations because unit was operating below its permitted control efficiency.

The text quoted by commenter IV-D-27 from the PBCO memo was misinterpreted by the commenter; candidate PBCO limits were only compared to HAP emissions at the outlet of control devices as a way of gauging their appropriateness as applicability cutoffs.[9] As shown in Table 2-3, the resultant PBCO limits are higher than the HAP emission levels measured in the outlet of the MACT control devices, and in some cases, significantly higher. Thus, the PBCO limits are not an appropriate alternative for sources equipped with add-on controls. If PBCO were allowed as another option for measuring the performance of add-on control devices, operators could run the APCD so that the APCD would not achieve MACT level emissions reductions, but would meet the PBCO. We note that we did not develop the methanol and formaldehyde add-on control options (options 4 and 6 in Table 1B of the proposed rule) based on typical or maximum levels of methanol and formaldehyde found in the outlet of the control devices, but instead looked at the performance of the control devices in reducing these HAP, set the levels based on the method detection limits for these compounds, and included a minimum inlet concentration requirement for the use of the outlet concentration options to ensure that MACT-level HAP emissions reductions are achieved. Allowing the use of APCD to comply with PBCO could allow circumvention of such optimization, which could render the MACT control itself to be less effective than MACT. We also note that, in comments elsewhere in this document (see comment No. 2.3.2.2), the commenters contended that the CAA intended for EPA to focus on emission *reductions* as opposed to emission levels.

Regarding the other MACT standards referenced by the commenters, we agree that these other rules may allow facilities more flexibility in meeting a production-based option (e.g., “lb/ton” emission limit); however, as stated previously we cannot allow add-on controls to be used to meet the PBCO in the PCWP rule because doing so would render these limits not equivalent to the other compliance options (see also response to comment No. 2.6.4.6 and Table 2-3 for a comparison of emissions reductions achieved using different compliance options.) Also, we note that, although the MACT rules cited by the commenters do not place restrictions on the use of the “lb/ton” limits, these other rules do not contain the multitude of compliance options found in the PCWP rule and they do not allow multiple compliance options to be used on the same process unit at the same time, which is consistent with the PCWP rule. For example, the Paper and Other Web Coating NESHAP states that: *"You may use different compliance options for different web coating/printing operations or at different times on the same web coating/printing operation. However, you may not use different compliance options at the same time on the same web coating/printing operation."* As explained previously in the response to comment No. 2.6.1.1, a PCWP facility may use any number of options, as long as these options are not combined for an individual process unit (i.e., can meet PBCO for one dryer, control emissions from a blender to avoid controlling emissions on the remaining two dryers as part of an emissions average, and use an add-on control device for the press.)

Regarding the examples cited by the commenter as candidates for a PBCO if add-on controls were allowed, we note that the final rule includes a revised MACT floor for existing conveyor dryers, such that existing conveyor dryers that send the emissions from the first section back to the burner should be able to meet the rule requirements without additional controls. We also note that "partial control" (e.g., routing part of the emission stream from a process unit to an onsite boiler for incineration) is already allowed as part of an emissions averaging plan as long as the actual emission reductions achieved are greater than or equal to the required emission reductions. (See also response to comment No. 2.6.4.6.) We further note that, when partial control is used as part of an emissions averaging plan, the overall reductions are equivalent to what would be achieved if a source elected to comply using the add-on control system compliance options; however, the same would not be true if partial control were used to comply with a PBCO limit. Regarding the use of scrubbers to comply with a PBCO, as stated in our response to comment No. 2.5.2.2, the industry's own data do not support wet scrubbers as a reliable control technology for HAP, and sources equipped with wet control devices will be required to test prior to the wet control device if they elect to comply with a PBCO.

2.6.3.3 Comment: Commenters IV-D-19, IV-D-27, and IV-D-56 agreed that choosing a 90 percent reduction from the highest emission test in each source category is the proper method for developing PBCO limits, but argued that statistical methods should be used to establish a realistic estimate of the highest emission test. Commenters IV-D-28 and IV-D-43 concurred. Commenter IV-D-27 noted that in section III.F.1 of the preamble, EPA states that "the available total HAP test data sets are too small to justify use of such statistical methods, and the resulting compliance options, in many cases, seemed unreasonably high compared to the actual emissions from process units with MACT control systems. Therefore, statistical methods were not used." Commenters IV-D-27 and IV-D-56 disagreed with EPA's conclusion that statistical methods should not be used and stated that, due to the relatively small data set available for establishing PBCO limits, it is unlikely that the PBCO limits are based on the highest emitting source. The commenters noted that, although the database used to establish the PBCO limits is one of the most comprehensive efforts of this type ever attempted, it is necessarily limited by scope, cost, and design. The commenters contended that choosing the maximum observed value from this database as the basis for determining the population maximum results in an underestimate of the actual highest value and inappropriately low limits for the PBCO. Commenter IV-D-27 added that any source with emissions above the highest level found in the database would have to reduce emissions much more than 90 percent to comply with PBCO limits, which is "illogical" and "unfair."

Commenter IV-D-27 acknowledged that, for some process groups, there is insufficient information to justify applying statistics, but argued that, for reconstituted wood product presses, softwood veneer dryers, and tube dryers, there is enough information. The commenter suggested that EPA use regression analyses to determine a minimum data requirement for applying statistical methods. According to the commenter, the first step would be to calculate a more accurate estimate of the true population maximum for each source type using a 95 percent statistical confidence level that 99 percent of the population is enclosed in the estimate. The commenter stated that when this number is multiplied by 0.1, the result will more realistically represent 90 percent control of the true population maximum. (The commenter referred to an issue paper the commenter had previously submitted to EPA for more details on the methodology [Docket Item # II-D-521].) In the second step recommended by the commenter, EPA would determine the percentage change in the PBCO from the original limits to the limits determined by statistics and plot the sample size against that percentage change. Using a power curve regression on this plot, the commenter concluded that a minimum sample size should be eight. According to the commenter, the adjusted PBCO for reconstituted wood product presses would be 0.39 lb/MSF $^{3}/_{4}$; for softwood veneer dryers, it would be 0.36 lb/MSF $^{3}/_{8}$; and for tube dryers it would be 0.45 lb/ oven-dried ton (ODT). The commenter asserted that the revised PBCO limits are within the realm of values considered by EPA when developing the PBCO; the commenter noted that the memo *Development of Production-Based Emission Limits for Plywood and Composite Wood Products Process Units* (Docket # II-B-32) makes high-end estimates of 0.37 lb/MSF $^3/_4$ for reconstituted wood products presses and 0.33 lb/MSF $^3/_8$ for softwood veneer dryers.

For the process unit groups that do not have sufficient data points, the commenter recommended that EPA incorporate the basic findings of the statistical analysis and apply a 30 percent increase to the PBCO limits across the board. The commenter stated that the 30 percent factor is similar to that recommended for the reconstituted wood products presses, the process unit group with the largest data set. Application of the 30 percent increase to the other data sets is based on a assumption that the distribution of emissions data from the largest available data set is similar to the distribution that would be observed in other categories if a sufficient number of samples were available. The commenter contended that, at a minimum, a statistical analysis should be applied to the three process groups with at least 8 samples. The commenter stated that revising the PBCO limits would encourage more facilities to pursue pollution prevention options, enhancing technological progress in that area, and it would lower the cost of MACT implementation while reducing collateral emissions. The commenter asserted that more facilities would be able to ensure compliance 100 percent of the time and would be encouraged to use the PBCO if the limits were less stringent.

Response: We disagree with the commenters' recommended changes to the PBCO. When we developed the PBCO, we looked at a number of options for establishing the PBCO limits, including several recommendations from the industry, some of which included statistical analyses and some of which did not. We documented the results that would be obtained using each of these potential approaches and compared these results to the total HAP emissions measured at the outlet of control devices.[9] As discussed in the response to the previous comment, we selected an approach that was close to the emission levels in the outlet of the control because we believed that it would be appropriate to allow this alternative if environmentally beneficial P2 techniques were used to comply. The approach that met this criterion was a 90 percent reduction from the highest total HAP data point. The commenter's assertion that the data set may not include the highest-emitting source may be true. However, we note that elsewhere in their comments (see comment No. 2.6.2.2) the same commenter (IV-D-27) stated that "the data used to establish the floor only included operations at maximum capacity and did not reflect the full operating range of the process," which would imply that testing under more typical conditions would have yielded lower emissions from the process units tested. Regardless, as explained in the response to the previous comment, using the highest emitting source to set the PBCO limits was simply a starting point; the "test" we used to determine if the PBCO limits were appropriate was to compare the resulting PBCO limits to the outlet emissions from control devices. Therefore, the fact that there could be higher-emitting sources is immaterial for the purpose of setting the PBCO limits. The same is true regarding the use of statistics; that is, the outcome of the statistical analyses were inconsistent with the outlet emissions from control devices, and therefore, we did not incorporate statistics into the development of the PBCO. We also maintain that, regardless of the outcome, the use of statistics is inappropriate given the limitations of the data set. Regarding the comment that high-emitting sources would have to reduce emissions by more than 90 percent, we note that (1) the PBCO limits were not developed for high-emitting sources or for sources that use add-on control devices, but instead were developed to provide a compliance option for inherently low-emitting sources; and (2) if a high-emitting source uses a control device, then that source only has to reduce emissions by 90 percent, not more than 90 percent.

Finally, we note that the emissions from PCWP process units are not insignificant, even when these units operate at the PBCO thresholds. For example, a single wood products press that operates at the applicable PBCO limit (0.30 lb/MSF $^{3}/_{4}$") still emits 15 tons of HAP per year, and a single strand dryer operating at the applicable PBCO limit (0.18 lb/ODT) emits 6 tons of HAP per year. Also, raising the PBCO limits to levels recommended by the commenters would be inconsistent with the MACT floor. For example, the commenters recommend that the PBCO limit for softwood veneer dryers be increased from the proposed 0.022 lb/MSF $^{3}/_{8}$" to 0.36 lb/MSF $^{3}/_{8}$"; however, all of the softwood plywood dryers equipped with MACT controls that were tested by industry have *uncontrolled* emissions less than 0.36 lb/MSF $^{3}/_{8}$". Thus, if we were to raise the limits as suggested, sources already equipped with controls would not be required to keep those controls in place to comply with the PCWP rule, such that, not only would the required MACT emission reductions not be met, but there could also be a net *increase* in HAP emissions.

### 2.6.4 Emissions averaging

2.6.4.1 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 expressed support for inclusion of an emissions averaging program in the proposed rule. Commenters IV-D-21 and IV-D-28 specifically supported the following four elements in the emissions averaging plan: (1) allowing sources to control other waste streams in lieu of those specifically subject to MACT; (2) not requiring a discount factor for sources using emissions averaging; (3) not limiting the number or type of emissions points that can be included in an emissions averaging plan; and (4) not requiring a hazard or risk assessment before emissions averaging can be used at a facility.

Commenter IV-D-27 stated that, at some PCWP facilities, there may be process units that have the potential to emit quantities of HAP equal to or greater than the most commonly controlled units—dryers and presses—but with a lower volume of exhaust gas to be treated compared to dryers and presses. The commenter noted that the emissions from these other units do not require control under the point-by-point compliance options; however, under emissions averaging, these sources could be controlled to generate credits, and thus, emissions averaging will allow affected sources to achieve the same environmental gains as achieved by point-by-point compliance, but at reduced cost. The commenter also noted that the emissions averaging program in the HON includes a discount factor, whereas, the proposed PCWP emissions averaging program does not. The commenter stated that the rationale for including a discount factor in the HON does not apply to PCWP sources. According to the commenter, EPA determined in the HON that it was appropriate for the industry to share any cost savings realized from emissions averaging because the costs of controlling different emission points could vary significantly; however, in the PWCP industry, EPA found that the types of process units and the emissions from them are more similar than dissimilar across sources. The commenter further noted that, not only are the emissions from all PWCP process units are similar, but they also require similar controls. For these reasons, the commenter stated that a discount factor is not needed in the PCWP emissions averaging program to maintain an equivalent compliance cost between compliance options. The commenter also agreed with the proposal that the number of sources that can be included in the proposed PCWP emissions averaging program should not be limited. The commenter noted that, under the HON, the number of emission points was limited because of enforcement concerns due to the complexity and large number of emission points in each HON facility. The commenter further noted that, for PCWP facilities, the type and number of emissions points is substantially smaller, minimizing enforcement concerns. Finally the commenter expressed concurrence with the exclusion of a hazard/risk benefit analysis from the proposed PCWP emissions averaging program. The commenter stated that, unlike the HON facilities (which must conduct a hazard/risk benefit analysis due to the many pollutants [with varying toxicities] emitted from many emission points), PCWP facilities have few pollutants of concern and have similar HAP emissions from the emission points that would be used to generate debits and credits.

Commenter IV-D-33 objected to the inclusion of an emissions averaging option in the rule because the proposed option is based on mass of HAP rather than health effects. The commenter asserted that removing a certain mass of HAP regardless of identity is not equivalent to the other compliance options, and when the dose-response and exposure data are examined, it is obvious that trading one HAP for another to meet a required mass removal (RMR) is not an acceptable solution. The commenter noted that there are currently no methods for weighting the toxicity of HAP, and that the effects of simultaneous exposure to several HAP also are unknown. The commenter contended that, because EPA's own risk assessment data presented in the preamble shows that 80 percent of the PCWP facilities in the United States pose unacceptable risk to the populations near these facilities (i.e., cancer risks greater than greater than one in one million), EPA should require emission reductions at these facilities instead of proposing a "flawed trading scheme" that will potentially increase toxic emissions at certain process units.

Response: We acknowledge the comments in support of the emissions averaging plan (EAP) and have retained the proposed provisions in the final rule with some minor changes. The final rule changes proposed §63.2240(c)(2)(iii) regarding the exclusion of process units controlled to comply with other rules from PCWP emissions averages as follows:

> (iii) You may not include in your emissions average process units controlled to comply with a State, Tribal, or Federal rule other than this subpart, ~~except when the control system installation and process unit inclusion in the emissions average both pre-date the effective date of the State, Tribal, or Federal rule.~~

We removed the last phase as shown above to prevent PCWP facilities from taking credit for future emissions reductions that may be required as part of another rule. The emissions averaging provisions must ensure the same degree of reduction that would be achieved through point-by-point compliance with the PCWP rule and any other rules to which a PCWP is subject. For example, if two process units are part of a PCWP emissions average and the emissions from the first process unit must be further reduced at a later date as part of another rulemaking, the source cannot then recalculate the emissions average to get credit for the increased emission reduction from the first process unit and then reduce the required emission reduction from the second process unit. If the PCWP facility were allowed to take credit for the reduction required as part of the non-PCWP rule, then the overall emission reduction would be less than it would have been in the absence of emissions averaging. In this example, the remaining process unit would have to become part of a new emissions average (that does not include any process units controlled to comply with other rules) or meet one of the other compliance options (e.g., 90 percent reduction in emissions.)

We disagree with commenter IV-D-33 that the inclusion of the EAP will potentially increase toxic emissions at certain PCWP process units. As stated in the preamble to the proposed rule (68 FR 1289-1290, January 9, 2003), we based the emissions averaging provisions (in part) on the emissions averaging provisions in the HON. However, there are differences in the two rules due to the differences between PCWP facilities and HON facilities. The HON requires a hazard and risk study for emission points included in an emissions average largely because of the many pollutants and many emission points at the source. The PCWP facilities have fewer pollutants of concern and are likely to have similar HAP emissions from the emission points (process units) that would be used to generate debits and credits. The PCWP facilities emit primarily six HAP (along with very small amounts of other HAP), whereas HON facilities may emit over 140 different HAP in substantial quantities. The PCWP facilities choosing to comply through emissions averaging must account for the emissions of the six primary HAP (defined as "total HAP" in the final rule), which represent 96 percent of the HAP emitted from PCWP process units. Because the MACT control technologies are effective in reducing the emissions of all six of these HAP, and the EAP requires the use of add-on control technologies for credit-generating sources in the EAP, we believe that the EAP will achieve a hazard/risk benefit comparable to what would be achieved through point-by-point compliance. The same emission reduction would be achieved using emissions averaging as would have been achieved through point-by-point compliance, and therefore, there would not be an increase in emissions or exposures to these emissions at populations near PCWP facilities. We also note that, although the final rule does not require a hazard/risk study, States will still have the discretion to require a PCWP facility that requested approval of an EAP to conduct a hazard/risk study (or to preclude the facility from using emissions averaging altogether).

2.6.4.2 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA modify the emissions averaging provisions to allow sources to receive credit for achieving emissions reductions greater than 90 percent. The commenters contended that restricting sources to a maximum control efficiency credit of 90 percent will eliminate an important incentive for sources to take extra steps to maximize the efficiency of add-on control devices. The commenters stated that allowing credit for efficiencies above 90 percent would encourage those operators who are able to achieve these levels to run controls in the most efficient manner, as opposed to running at 90 percent, regardless of capability. The commenters noted that other control options included in the proposed rule allow credit for achieving greater than 90 percent control. The commenters pointed to the add-on control options for methanol and formaldehyde (i.e., if ≥10 ppmv in the control device inlet, then meet ≤1 ppmv in the outlet) as options that require greater than 90 percent control. The commenters also stated that the press provisions for 90 percent capture and control acknowledge that facilities will have to achieve greater than 90 percent reduction from control devices in order to meet the 90 percent reduction limit when capture is less than 90 percent. At a minimum, the commenters requested that the final rule allow credit for control efficiencies greater than 90 percent for those process units with no MACT control requirements. The commenters contended that because these emission units are not required to meet any specified percent reduction, there is no logical reason why they should be limited to receiving credit only for a specified level of removal (90 percent).

Response: We disagree with the commenters' request to allow credit for achieving greater than 90 percent control of HAP as part of an EAP. We note that the 90 percent MACT floor level (upon which the emissions averaging provisions are based) reflects the inherent variability in uncontrolled emissions from PCWP process units and the decline in performance of control devices applied to these process units. The data set used to establish the MACT floor is comprised of point-in-time test reports, some of which show a greater than 90 percent control efficiency; however we selected 90 percent as the MACT floor level of control to reflect inherent performance variability. Therefore, it would be inappropriate to allow PCWP facilities to receive credit for similar point-in-time performance tests showing greater than 90 percent control, considering that the same types of control technologies would be used. We expect that some new installations of add-on controls will show greater than 90 percent control efficiency during initial performance tests because these units likely will be designed for greater than 90 percent control efficiency to account for inherent variations in performance over time and to ensure continuous compliance in later years. We also have included routine control device maintenance exemptions to help PCWP facilities to ensure that the add-on controls are properly maintained so that the 90 percent compliance can be achieved on a continuous basis.

Regarding the two examples given by the commenters, as explained in our previous response to comment No. 2.6.2.3, the add-on control options for methanol and formaldehyde do not require greater than 90 percent control. We also note that the MACT floor level of 90 percent is based solely on the performance of the add-on control devices for dryers and other process units where emissions capture is not at issue. When setting the MACT floor for presses at proposal, we determined that those presses designed to meet EPA Method 204 design criteria should be able to claim 100 percent capture, such that the combined (overall) capture and control efficiency also would be 90 percent (i.e., 0.90 x 1.00 = 0.90). Although we have changed the requirements related to the wood products enclosures in the final rule (see section 2.3), the MACT floor level of 90 percent has not changed (i.e., wood products enclosures are still credited with 100 percent capture, and MACT control devices are still capable of reducing emissions by 90 percent). Thus, the overall control requirement for the affected process units remains at 90 percent. Regarding the commenters' assertion that the press provisions for 90 percent capture and control acknowledge that facilities will have to achieve greater than 90 percent reduction from control devices in order to meet the 90 percent reduction limit when capture is less than 90 percent, we note that it will be impossible to achieve 90 percent capture and control if capture is less than 90 percent. Under the EAP, a press may receive credit for achieving greater than 90 percent control via the add-on control device; however, the combined capture and control credit for the press cannot exceed 90 percent. Regarding the commenters' request to allow credit for greater than 90 percent control for nonregulated sources, we maintain that this would be inappropriate because the same issues of emissions variability and control device performance reflecting our calculations of what MACT levels are consistently achievable apply to those emission sources, and they likely would share control devices with regulated sources.

2.6.4.3 Comment: Commenter IV-D-11 stated that because emissions averaging credits would be based on actual emissions from process units operating "below representative operating conditions," the credits generated would be small and not worth the extra effort to track emissions averaging data to determine compliance. The commenter stated that reductions beyond the required MACT emission level (90 percent at proposal) would be the best way to achieve an averaging compliance option. The commenter stated that the reductions should be based on emissions in pounds of total HAP, operating at "representative operating conditions," on a semiannual basis.

Response: We disagree with the commenter that the credits generated through emissions averaging would be "small and not worth the extra effort to track." First, the emissions averaging provisions in the PCWP rule do not require testing of process units while they are operating below representative conditions; the rule requires testing while process units are operating at representative conditions, as the commenter suggests. Second, credit-generating units must be equipped with add-on control systems, and the greater the emission reductions achieved with these control systems, the greater the resulting credited emissions reductions; therefore, it would be very unlikely that a PCWP facility would go to the expense of installing a control device that would only achieve minimal HAP emission reductions. Third, the emissions averaging provisions are offered as an alternative to the add-on control system compliance options, and as such, must achieve an emission reduction equivalent to what would be achieved through these other options. The emission averaging provisions were never intended to result in emission reductions greater than those achieved through implementation of the MACT floor.

2.6.4.4 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA modify the emissions averaging provisions to allow sources to receive credit for production curtailment. The commenters contended that taking production restrictions and eliminating emission points to comply with a standard is not unprecedented, pointing to synthetic minors that become area sources, the "Oregon PAL program," and State permit limits that include production limits. The commenters stated that, once an initial baseline has been established, any steps taken to reduce emissions by 90 percent should meet the legal requirements of MACT and the proposed requirements of the rule.

Response: As stated in the preamble to the proposed rule (68 FR 1285, January 9, 2003), we do not have facility-wide uncontrolled emissions data and facility-wide controlled emissions data for each PCWP facility to determine the baseline emissions and percent reduction in HAP achieved by each facility. Therefore, the MACT floor is not based on facility-wide emissions and emissions reductions achieved during a particular year. Instead, the MACT floor is based on (1) the presence or absence of certain MACT controls (in place as of April 2000) on certain types of process units, and (2) test data showing that these controls reduce emissions by greater than or equal to 90 percent. We applied the MACT floor methodology at the process unit level because we had the most accurate data at the process-unit level, making this approach the most technically and legally sound. The PCWP industry is very dynamic, with frequent shutdowns of equipment for maintenance and occasional longer (e.g., month-long) shutdowns if demand drops. The reported operating hours of various PCWP equipment during 1997 (base year for the MACT survey) varied widely.[10] The PCWP rule requires emissions from specified process units at impacted PCWP facilities to be reduced by 90 percent, regardless of what the levels of emissions are for those facilities in a particular year. Therefore, implementation of the final PCWP rule at individual PCWP facilities will result in greater emission reductions in years of greater production and lesser emission reductions during years of lower production. As mentioned in the response to the previous comment, the emissions averaging provisions must achieve emission reductions that are greater than or equal to those that would be achieved using the add-on control systems compliance options which specify which process units must be controlled. If we allowed "credit" for production curtailments, the overall emission reduction achieved through the emissions averaging provisions would not be equivalent to what would be achieved through the use of the add-on control systems compliance options, and therefore, the EAP would not be a MACT-equivalent alternative. For example, if we allowed production curtailments to count towards an emissions average, then a facility that shuts down one of two parallel production lines (each of which includes dryers and a press, plus HAP-emitting equipment that does not have associated control requirements) may not be required to control the emissions from any of the dryers or press on the remaining production line. However, if the same facility opted to comply with the add-on control systems compliance options, then they would be required to control the press and dryer emissions from the remaining production line by 90 percent regardless of whether or not the other production line was shut down. In order to maintain equivalency between the emissions averaging provisions and the add-on control systems compliance options and to preserve the required HAP emission reductions, the final PCWP rule does not allow production curtailment to be counted as part of an EAP.

2.6.4.5 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA modify the emissions averaging provisions to allow sources to receive credit for pollution prevention projects. According to the commenters, not allowing pollution prevention encourages the use of add-on controls, such as incineration, rather than environmentally beneficial options that may not involve add-on control technology. The commenters cited three ways in which pollution prevention could be used to generate credits in an emissions averaging plan. First, pollution prevention could be used to reduce emissions at a process unit that is required to be controlled by an amount greater than the MACT level (i.e., greater than 90 percent emission reduction); however, the commenter expects that this would be very difficult to do. Second, pollution prevention could be used to reduce emissions from a process unit that is not required to be controlled, by 90 percent or more. Finally, pollution prevention could be used at a regulated emission unit that utilizes an add-on control technology but does not achieve the MACT limit (e.g., a biofilter achieving 80 percent removal). In the latter case, pollution prevention would be used to achieve the additional incremental emissions reductions needed to reach the MACT limit. The commenters asserted that quantifying emissions from pollution prevention projects would not be difficult under the PCWP emissions averaging program. According to the commenters, the facility would calculate the "total allowable emissions" and then apply a 90 percent reduction to determine the equivalent MACT floor level of control, and then compare the total emission level to the controlled emission level. With this approach, an initial test will be used to establish initial compliance and then testing would occur annually to demonstrate continuing compliance.

Response: We disagree with the commenters' suggestion to modify the emissions averaging provisions to allow sources to receive credit for P2 projects because (1) compliance options (i.e., PBCO) already exist for any P2 projects that prove to be feasible and (2) inclusion of currently undemonstrated P2 projects within EAPs would unnecessarily complicate these plans and hamper enforcement. We also disagree with the commenters' assertion that quantifying the emissions reductions from P2 projects would not be difficult. Quantifying the emissions reductions associated with P2 projects has historically been a contentious issue, especially when a baseline emission level must be established from which to calculate the emissions reduction. We believe that the same issues apply for PCWP facilities, especially given the fact that P2 techniques have not been widely used or documented in the PCWP industry, and therefore were not the basis for determining the MACT floor. In contrast, emission reductions achieved through the use of add-on control systems are easily documented. The PBCO was established to address the future development and implementation of P2 techniques; however, the resultant PBCO limits do not require that emission reductions be determined. Instead, sources simply demonstrate that they are below the PBCO limit and will continue to operate in a manner that ensures they will remain below the PBCO limit. We believe that the lack of a discount factor in the emissions averaging provisions in the final PCWP rule further justifies our decision not to allow credit for P2 techniques as part of an EAP. Under the HON, sources that elect to emissions average must reduce emissions throughout the HON facility by 10 percent more than is required by point-by-point compliance to share with the environment any cost savings realized from emissions averaging and to account for uncertainties in determining emission reductions under the EAP. Unlike the HON, the PCWP rule does not require a 10 percent discount factor in the emissions credit calculations. We believe that the inclusion of the PBCO provides sufficient opportunities and incentives for PCWP facilities to develop and implement P2 techniques. We also note that because the PBCO is based on 90 percent reduction from highest-emitting source, there should be plenty of opportunity for the industry to comply using P2, should such techniques actually be developed. Finally, as noted in previous responses, the final rule already allows PCWP facilities to use both P2 and emissions averaging at the same facility; sources are only limited in that they can't apply both options to a single process unit.

2.6.4.6 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA modify the emissions averaging provisions to allow sources to include the PBCO as part of an EAP. Specifically, the commenters requested that sources be allowed to apply the emissions credit generated from controlling a process unit for which control is not required to another process unit seeking to comply with a PBCO limit. Commenter IV-D-27 gave an example where a facility would control emissions from a board cooler and then apply the resultant emission reduction to a press that had emissions above the applicable PBCO limit; by applying the emissions credit to the press, the press emissions would be reduced below the PBCO limit such that no control would be required on the press. The commenters stated that EPA should allow combining of these two compliance options (emissions averaging and PBCO) because doing so would make the rule more cost-effective, and the result would be equally beneficial to the environment. The commenters stated that combining of compliance options has been allowed in other rules, specifically in the Paper and Other Web Coating NESHAP. The commenters also stated that combining the two compliance options would allow more facilities to use these options and would result in equal emissions reductions. When implementing this approach, the commenters also requested that emissions be calculated in terms of tons per year rather than pounds per year to be more consistent with terminology used in most permits, and for other reporting requirements, such as emission inventories, already in place at wood product facilities.

Response: The commenter is incorrect in stating that combining these two options (emissions averaging and PBCO) will result in equivalent emissions reductions. As stated in our response to previous comments regarding the PBCO, we developed the PBCO limits to provide an option for sources that develop P2 techniques. The PBCO limits represent applicability cutoffs such that sources with emissions below the applicable PBCO limits are not required to further reduce those emissions below MACT levels. By combining PBCO limits with the EAPs as proposed by the commenter, we would be allowing higher-emitting sources (i.e., those that cannot meet a PBCO and which should be controlled) to escape controls by artificially lowering their emissions using the credits from the EAP. This is counter to the intent of the PBCO and would result in lower emission reductions than would be achieved without combining these two compliance options; therefore, this does not represent an option that is equivalent to the MACT floor and is not allowed in the final rule. To demonstrate how the combining of these compliance options results in lower emission reductions, we have taken the example provided by the commenter and presented the emission reductions that would occur using each compliance method separately and together. As shown in Table 2-4, the 90 percent control option and the emissions averaging provisions (which incorporate the 90 percent control requirements) result in equivalent emission reductions (i.e., 8.1 tons of HAP reduced per 6-month reporting period). Compliance with the PBCO would require the facility to develop a P2 technique that would eliminate at least 1.5 tons of uncontrolled HAP from the press per 6-month period. Although this "emission reduction" is lower than what would be achieved through the use of add-on controls, we would allow this because of the benefits of pollution prevention (i.e., absence of secondary environmental impacts generated through the use of add-on control systems on low-emitting emission units). As shown in option 4 of Table 2-3, the use of the PBCO limits in EAPs artificially lowers emissions from process units that are not inherently low-emitting sources to levels that would qualify as low-emitting (below PBCO limits). This conflicts with the purpose of including the PBCO in the rule and, as stated above, conflicts with the MACT floor; therefore, the final rule does not allow the inclusion of PBCO within an EAP. As for reporting emissions in EAPs in units of tons per year, we disagree that this change would be beneficial and have retained the requirement to report these emissions in units of pounds per year to avoid situations where compliance is achieved through rounding.

**Table 2-4. Effect of Combining Compliance Options on Emission Reductions Achieved**

| Total HAP Emissions Data:<br>Press emissions = 36,000 lb/yr; (0.36 lb/MSF)<br>Cooler emissions = 10,000 lb/yr; (0.10 lb/MSF)<br>Production rate = 100 MMSF/yr; 50 MMSF/6-month period | PCWP Rule Requirements:<br>Press: (1) Reduce emissions by 90%, or (2) include in an emissions average, or (3) comply with PBCO limit of 0.3 lb/MSF. Rule does not allow combining of PBCO with other compliance options (4).<br><br>Cooler: None | |
|---|---|---|
| OPTION | STRATEGY | EMISSION REDUCTION, lbs per 6-month period |
| (1) Comply with 90% reduction | Press: Use add-on control system to reduce emissions by 90%<br><br>Cooler: No action | 16,200 |
| (2) Comply using emissions averaging | Press: Use add-on control system to reduce emissions by at least 65% (11,700 lbs per 6-month period) (undercontrolled source in EAP)<br><br>Cooler: Use add-on control system to reduce emissions by 90% (4,500 lbs per 6-month period) | 16,200 |
| (3) Comply with PBCO | Press: use pollution prevention techniques to reduce uncontrolled press emissions from 0.36 lb/MSF to ≤0.30 lb/MSF (equal to a 17+% "reduction")<br><br>Cooler: No action | 3,000 |

| Total HAP Emissions Data:<br>Press emissions = 36,000 lb/yr; (0.36 lb/MSF)<br>Cooler emissions = 10,000 lb/yr; (0.10 lb/MSF)<br>Production rate = 100 MMSF/yr; 50 MMSF/6-month period | PCWP Rule Requirements:<br>Press: (1) Reduce emissions by 90%, or (2) include in an emissions average, or (3) comply with PBCO limit of 0.3 lb/MSF. Rule does not allow combining of PBCO with other compliance options (4).<br><br>Cooler: None | |
|---|---|---|
| (4) Comply with EAP that incorporates PBCO (option suggested by commenter) | (a) Use add-on controls to reduce cooler emissions by 90% (4,500 lbs per 6-month period), resulting in a credit of 0.09 lb/MSF<br>(b) Using cooler credit, artificially reduce uncontrolled press emissions from 0.36 lb/MSF to 0.27 lb/MSF<br>(c) No controls are applied to press because discounted emission rate (0.27 lb/MSF) is less than the PBCO limit of 0.30 lb/MSF | 4,500 |

2.6.4.7 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA consider an "enhanced emissions averaging compliance option" to address elements in the proposed emissions averaging program that the commenter believes are missing or require modification as discussed above in the preceding comments. The enhanced EAP would allow PCWP facilities to focus on achieving a 90 percent emission reduction of methanol, formaldehyde, or THC instead of the proposed 90 percent reduction of total HAP emissions. The baseline level of methanol, formaldehyde, or THC emissions would be calculated using data from the regulated process units (e.g., dryers and presses) over the past 10 years (or some other representative period), but the emissions reductions could be the result of controlling any emissions source. Under this plan, emission reductions could be achieved with add-on controls, P2 projects, and operational changes, such as reformulation of the product, routing process unit exhaust to existing onsite combustion sources, lowering dryer operating temperatures, partial capture and control of process unit emissions, increasing use of hardwood species, production curtailment, production caps, and scheduled process unit downtime. Commenters IV-D-19 and IV-D-27 provided examples to show how the emission reductions would be determined under each scenario. The commenters acknowledged that any credit generation would have to be well documented and verified, and that monitoring parameters would be used to determine continuous compliance. Like the proposed EAP, the enhanced EAP would only apply to existing facilities, and new sources would be required to meet the 90 percent reduction level. Under the plan, any changes at a facility that resulted in an increase of methanol, formaldehyde, or THC emissions would not require the baseline level of emissions to be recalculated as long as the increase was not larger than 10 percent of the original level.

Response: We disagree with the commenters' suggested "enhanced emissions averaging compliance option" and have retained the proposed emissions averaging provisions in the final rule with only minor revisions. Our objections to some of the features of the suggested enhanced emissions averaging compliance option, such as allowing credit for production curtailments and P2 techniques, have been documented in previous responses (see responses to comment Nos. 2.6.4.1 through 2.6.4.6). Regarding the suggestion to allow compliance to be determined based on methanol, formaldehyde, or THC emissions, we maintain that the EAP needs to be based on total HAP (i.e., total emissions of the six primary HAP emitted from PCWP process units). We note that the predominant HAP emitted from a given process unit varies, with some process units emitting methanol as the predominant HAP and others emitting formaldehyde or acetaldehyde as the predominant HAP. However, the predominant HAP will always be one of the six we have identified in the definition of total HAP in the PCWP rule. If we based the EAP on only one pollutant, process units that emit the target HAP in small quantities will not be correctly accounted for in the EAP, resulting in potentially less stringent control and greater potential risk than would result with other control options. We did not include a hazard/risk study as part of the proposed EAP because we were requiring that the emission reductions be based on total HAP, and PCWP process units generally emit the same six primary HAP, although in different quantities and ratios. Basing the EAP on a single pollutant would undermine our basis for not requiring a risk analysis. We also note that, while THC emissions may be an acceptable surrogate for monitoring the performance of an add-on control device (same control device mechanisms that reduce THC emissions reduce HAP emissions), THC emissions are not an accurate surrogate for establishing baseline HAP emissions, and thus, the EAP should not be based solely on THC emissions. Although all PCWP process units emit THC, THC emissions from softwoods are substantially higher than from hardwoods due to non-HAP compounds (e.g., pinenes) present in softwoods. Therefore, allowing sources to focus on THC reductions by increasing hardwood usage might reduce THC emissions but would have a minimal impact on HAP emissions.

Regarding the proposed idea to increase the use of hardwood species, we note that elsewhere in their comments (see comment No. 2.7.20.3), the same commenter stressed the difficulties associated with maintaining a consistent wood material flow in terms of species, moisture content, etc., which would suggest that an operating condition based on maintaining a set level of wood species would be unworkable. For veneer dryers, where species identification (hardwood versus softwood), and thus enforcement, is fairly straightforward from the standpoint of both visual inspection and end product, we have already established separate MACT floors for softwood and hardwood veneer dryers. However, when the end product is particleboard or MDF, and the raw material is in the form of wood chips, planer shavings, or sawdust, determining how much of that material is softwood versus hardwood would be very difficult and unenforceable. Because of the commenters' concerns that an operating condition based on wood species is technically unworkable and the associated enforcement issues, we believe this option is not viable.

Regarding process changes such as reformulation, lowering dryer temperature, and routing process unit exhaust to existing combustion devices, the final rule already includes compliance options that would accommodate all of these strategies. For example, product reformulation and lowering dryer temperature are potential P2 options, and the PBCO limits would apply if the P2 efforts sufficiently lower emissions. The PCWP rule distinguishes between green (high temperature, high moisture) rotary dryers and dry (low temperature, low moisture) rotary dryers and requires no further emissions reductions from dry rotary dryers. To then take credit for the difference between the "potential" emissions of the dryer if it were operated at higher temperatures as a "green dryer" relative to operation at lower temperatures that qualify the dryer as a dry dryer (exempt from regulation) and then apply that credit elsewhere would be double-counting. By operating the dryer as a dry dryer, the source is exempt from controls; no additional credits should be assigned to that source. Also, as with many of the proposed process changes/P2 alternatives, determining a baseline from which to calculate an emission reduction would extremely difficult and contentious, needlessly complicating the EAP and hampering enforcement. Regarding the use of existing combustion units as control devices, we note that the final rule already allows sources to route emissions to onsite combustion units for incineration. The final rule also allows sources to control a portion of a process unit's emission stream as part of an emissions average. However, we disagree that incineration of emissions in onsite process units is a pollution prevention measure. Therefore, compliance with the PBCO using process incineration is not allowed in the final rule. The add-on control system and emissions averaging compliance options are available for process units controlled by routing exhaust to an onsite combustion unit.

2.6.4.8 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA extend the compliance date for submittal of the EAP. The commenters stated that developing an EAP will be an involved and lengthy process, which will include emission testing to establish credits/debits, development of emission reduction projects (e.g., process changes, operating restrictions) and identification and installation of controls. The commenters contended that the EAP development process would be more involved than the other compliance options requiring only controls, and yet, the EAP option has the shortest effective compliance period (the EAP is required to be submitted one year prior to the compliance date for review). Therefore, the commenters requested that the date of submittal of the EAP be changed to 90 days prior to compliance with an extension, if needed, of up to one year for inclusion of the plan into a federally enforceable mechanism.

Response: The emissions averaging provisions in the final rule are essentially the same as those provided in the proposed rule, with some minor clarifications. We believe that these provisions are straightforward and uncomplicated, and that developing EAPs would not be "an involved and lengthy process." Therefore, the final rule retains the requirement to submit the EAP for review one year prior to the compliance date. We note that, in most cases, EAPs developed for a PCWP facility will likely include only a small number of process units within the facility. We also note that, had we incorporated some of the suggested changes requested by the commenters (e.g., incorporating P2 options and PBCO into EAPs), the emissions averaging provisions would have been much more complicated and more difficult to enforce. Finally, we believe that requiring the EAP to be submitted one year prior to the compliance date gives sources time to adjust their compliance strategies should the EAP prove unworkable (e.g., calculations show that debits exceed credits) or otherwise fail to be approved.

2.6.4.9 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 stated that the provision in §63.2240(c)(2)(vi)(B) (which prevents emissions during monitoring malfunction and periods of control device maintenance covered in a routine control device maintenance exemption [RCDME] from being used to generate credits and requires maximum debits) of the proposed rule is overly restrictive and is not representative of the actual emissions from process units. The commenters noted that the referenced provision states that no credits may be assigned to credit-generating process units and maximum debits must be assigned to debit-generating process units during periods of monitoring malfunctions, associated repairs, and required quality assurance or control activities. The commenters contended that other rules (e.g., 40 CFR Part 75–Continuous Emissions Monitoring) address missing data in a more structured manner and do not impose worst case debit and credit estimates. Therefore, the commenters recommended that the final rule include a "more realistic approach" for times of monitoring period unavailability.

Response: We have retained the provisions in §63.2240(c)(2)(vi)(B) (which prevents emissions during monitoring malfunction and RCDME from being used to generate credits and requires maximum debits) in the final rule to ensure that emissions averaging credits equal or exceed the required debits. As stated previously, the emissions averaging provisions in the final rule only require that the actual emission reductions be equal to (or greater than) the required emission reductions. Unlike the HON, we chose not to apply a 10 percent discount factor to the actual emission reductions for the PCWP rule, and thus some sources may operate such that the actual HAP reductions are very close to the required HAP reductions. In such cases, we believe it is especially important to ensure that the add-on control systems used to generate the necessary credits are properly operating. Because the final PCWP rule does not require continuous monitoring of HAP emissions or periodic stack testing, parameter monitoring will be used to ensure that these add-on control devices continuously operate in a compliant manner. As explained in section 2.7, we have reduced the number of parameters to be monitored for add-on control devices. For example, PCWP sources that operate RTOs are only required to monitor temperature, which is both a reliable indicator of performance and a parameter that is easily measured and controlled. Therefore, we expect that monitoring malfunctions will be both infrequent and easily corrected.

Regarding the commenter's reference to the provisions for handling "missing data" in 40 CFR Part 75 (Continuous Emissions Monitoring for $NO_x$, $SO_x$, opacity, etc., for the Acid Rain Program), we note that, in some cases, these provisions would allow sources equipped with CEMS to substitute average data for measurements made before and after the period of missing data, but in other cases, they would have to assign maximum emission rates to these periods. In the case of a PCWP facility, the maximum emission rate would be equivalent to the highest uncontrolled emission rate, which, for a credit-generating source, would be the same as not allowing any credits during those periods. For a debit-generating source, the maximum rate would also be equal to the highest uncontrolled emission rate, which is also consistent with what the EAP requires. Regarding the use of average values before and after an outage, we do not believe that it is appropriate to allow sources to substitute average data for periods where data are missing and then count those periods towards credit generation. As noted above, unlike CEMS, temperature monitors are relatively simple pieces of equipment that are generally redundant within a control device such as an RTO, and thus, periods of missing data should be minimal.

We also believe that it is necessary to exclude from EAP calculations those emissions that occur when the add-on control device used to generate credits is undergoing maintenance as part of an RCDME. During periods of RCDME, the affected process units are not subject to the compliance options and operating requirements, and thus, a credit-generating emission source could operate during these periods without actually achieving any emissions reductions. By maintaining these restrictions in the final rule, we hope to maintain the integrity of the emissions averaging provisions and to provide an incentive for PCWP sources to maintain their monitoring equipment and to minimize the hours they will claim under an RCDME.

2.6.4.10 Comment: Commenters IV-D-12, IV-D-19, IV-D-21, IV-D-27, IV-D-28, IV-D-43, and IV-D-56 requested that EPA allow control device downtime to be incorporated into the emissions averaging program. The commenters contended that there are process units in the PWCP industry that require greater periods of control device downtime than are provided for in the proposed downtime provisions (see also section 2.8 for additional comments and responses regarding routine control device exemptions.) The commenters requested that EPA address this issue by specifically stating that EAPs can be used as an additional mechanism for generating "control device downtime credits." Commenter IV-D-27 provided an example to demonstrate how this process would work. In the example case, a mill chooses to reduce emissions from a blender by 90 percent. Because blender emissions are not required to be controlled, the mill would earn credit for the resultant emissions reduction. The mill would then apply the emissions credit to a rotary dryer system which is equipped with a control device that requires periods of control device downtime in excess of that allowed by the rule (i.e., 3 percent of the dryer operating hours). Thus, the credit generated by controlling the blender would offset emissions from the dryer system when it is operating in "abort mode" during periods of control device downtime. In the commenter's example, the credits created by controlling the blender equated to 9.6 percent of the annual emissions from the dryer, and therefore, 9.6 percent would also be the percentage of the dryer operating hours that could be offset by the blender credits.

Response: We disagree with the commenters' request to allow sources to apply emission reduction credits generated for one process unit to another process unit in order to increase the maximum allowable RCDME hours for the second process unit. The emissions averaging provisions were not created to provide an opportunity for sources to increase the RCDME allowances. Furthermore, as discussed in response to comment No. 2.8.1.3, we disagree that additional downtime is needed beyond the levels already allowed. In addition, PCWP sources are not allowed to receive emissions averaging credit for downtime allowances that are less than the maximum allowed percentages. Combining RCDME allowances within an emissions average would compromise the integrity of the emissions averaging provisions, which are based on the MACT floor of 90 percent control. As explained previously, the data set used to determine the MACT floor included several control devices that achieved greater than 90 percent reduction during performance tests; however, the 90 percent control requirement was selected instead of a more stringent percent reduction to account for variability in emissions and control system performance over time. We believe that the variability in control device performance can be related to the need for control device maintenance (e.g., an RTO with one-year-old media may perform less effectively than an RTO with new media). Thus, we believe that the MACT floor already accounts for efficiency losses due to varying degrees of maintenance and that combining RCDME allowances within an emissions average would result in a less stringent compliance option. Our intention in including the RCMDE provisions was not to provide an automatic allowance to release uncontrolled emissions up to 3 percent of the time, but instead, to improve the maintenance and uptime of add-on control systems at PCWP. We believe that a side benefit to better control device maintenance will be more efficient control devices which will balance out any increases in emissions that may occur during periods of RCDME. Combining the RCDME with emissions averaging would upset this balance in addition to complicating the emissions averaging provisions.

2.6.4.11 Comment: Commenter IV-D-27 requested clarification regarding how the required and actual mass removal are to be calculated in the emission averaging program. Specifically, the commenter asked that EPA make several clarifications to the definitions of several emissions averaging terms, as follows:

- Definition of UCEPi: "mass of total HAP from an uncontrolled or under-controlled process unit (i) that generates debits, pounds per hour"

  *Clarification*: UCEPi is the **uncontrolled** mass of total HAP from process unit (i) (listed in Tables 1A or 1B) that generates debits.

- Definition of OCEPi: "mass of total HAP from process unit (i) that generates credits, pounds per hour"

  *Clarification*: OCEPi is the **uncontrolled** mass of total HAP from process unit (i) that generates credits (which can include those process units listed in Tables 1A or 1B), pounds per hour.

- Definition of AMR: "actual mass removal of total HAP from all process units generating credits (i.e., all process units that are controlled as part of the Emissions Averaging Plan), pounds per semiannual period"

  *Clarification*: "actual mass removal of total HAP from all process units generating credits (i.e., all process units that are controlled as part of the Emissions Averaging Plan **which can include under-controlled process units including those listed in Tables 1A or 1B**), pounds per semiannual period"

The commenter also requested verification that the following "hypothetical scenario" at "Mill A" is a valid example of how emissions averaging can be applied:

> A rotary green dryer is the only available debit generating source at Mill A. Initial performance testing determines that this dryer has an emission rate of 5.0 pounds of uncontrolled total HAP/hr. At Mill A, the average operating schedule for this dryer is 4,000 hours over a 6-month period.
>
> From Equation 1: RMR = 0.90 x (5.0 lb/hr x 4,000hr/6 mo) = 18,000lb/6 mo
>
> Mill A decides to control 20 percent of the green dryer emissions and finds a cost effective means to achieve 80 percent control efficiency for the emissions from the blender. Initial performance testing indicates that the blender emits 8 lb/hr of uncontrolled total HAP. The blender operates 3,800 hours over a 6 month period.
>
> From Equation 2: AMR = (0.20 x 5.0 lb/hr x 4,000hr/6 mo) + (0.80 x 8.0 lb/hr x 3,800hr/6 mo) = 28,320 lb/6 mo

Under this scenario, the emissions averaging compliance option would allow Mill A to undercontrol the emissions from both the rotary green dryer and the blender to match the RMR value.

Response: We agree with the changes suggested by the commenter. The suggested changes further clarify that a process unit can sometimes be both a debit-generating source and a credit-generating source when that source is undercontrolled (e.g., emissions reduced by less than 90 percent). In the example provided by the commenter, the green dryer is both a debit-generating unit and a credit-generating unit, and thus the uncontrolled emissions from the green dryer are accounted for in the calculations of both the actual mass removal (AMR) and the RMR. We agree that the example provided by the commenter is an appropriate use of the emissions averaging compliance option.

**2.6.5 Concentration-based applicability criteria**

2.6.5.1 Comment: Commenter IV-D-27 requested that, if EPA decides not to adopt the risk-based approaches recommended by the commenter (see also section 2.11 of this document), then the final rule should include a 50 ppm applicability criteria for the total HAP emitted by the regulated sources. The commenter stated that this approach is fully justified under the CAA and applicable case law and "holds great promise in focusing the rule on eliminating meaningful risks without giving rise to offsetting environmental disbenefits." The commenter stated that the 50 ppm applicability criteria could be incorporated into the final rule by adding a definition of process vent that would specifically exclude emission streams with total HAP concentrations below 50 ppm, as follows:

> "Process Vent means emission streams that are undiluted and uncontrolled containing less than 50 ppmv total HAP, as determined through process knowledge that no HAP are present in the emission stream or using an engineering assessment as discussed in Sec. 63.___, test data using Methods 18 of 40 CFR part 60, appendix A, or any other test method that has been validated according to the procedures in Method 301 of appendix A of this part, are not considered process vents.
>
> Total HAP means the sum of the concentrations of one or more of the following six compounds: acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde."

The exhaust stream would be excluded from MACT applicability so long as its HAP content remained below the 50 ppm concentration level. The commenter acknowledged that steps would have to be taken to prevent purposeful dilution of exhaust streams if EPA adopted the concentration-based applicability criteria; the commenter suggested that requiring permit limits on exhaust stream flow rate may be a possible solution.

The commenter asserted that EPA has implemented similar concentration-based applicability criteria on several occasions through the definition and applicability provisions of NESHAP. The commenter pointed to the HON, which requires "Group 2" process vents to be controlled, while defining a separate category, "Group 2" process vents, that do not require control (59 FR 19402, 19406 [April 22, 1994]).

The commenter noted that the HON contains a 50 ppm cutoff in the process vent definition as follows:

> A Group 2 process vent is defined as a process vent with a flow rate greater than or equal to 0.005 scmm, an organic HAP concentration greater than or equal to 50 ppmv, and a TRE index value less than or equal to 1.0.

The commenter also noted that, including the HON, there are at least twelve NESHAP promulgated since 1994 that contain applicability provisions that focus the control requirements on emissions streams above certain HAP concentrations. The commenter provided a summary of the applicability criteria for these 12 NESHAP; this information is shown in Table 2-5. The commenter claimed that, given the information provided in Table 2-5, EPA's authority to set concentration-based applicability criteria “appears to be established beyond question.” The commenter asserted that the authority to set concentration-based applicability criteria is inherent in EPA's authority to exclude de minimis emission sources from regulatory requirements. The commenter further stated that the D.C. Circuit case law has established that, unless the governing statute is "extraordinarily rigid," EPA has presumptive de minimis authority in implementing its regulatory mandate. According to the commenter, the statutory design and legislative purpose expressed in CAA §112 demonstrate that the statute is not extraordinarily rigid so that EPA is fully justified in applying its de minimis authority. The commenter also claimed that, even though EPA referred to concentration-based applicability criteria as “de minimis cutoffs” in a number of NESHAP, EPA did not consider an explicit explanation of the Agency's de minimis legal authority to be necessary in these rules, and there were no apparent legal challenges.

## Table 2-5 (continued)

## Table 2-5.  NESHAP with Concentration-Based Applicability Cutoffs

| NESHAP<br>(40 C.F.R. Part 63) | SOURCE OF EMISSIONS | CONCENTRATION CUTOFF | ADDITIONAL CRITERIA |
|---|---|---|---|
| Synthetic Organic Chemical Manufacturing (Subpart F, §63.101) | Process Vent | 0.005 weight-percent TOC<br><br>(≈ 50 ppm) | None |
| Synthetic Organic Chemical Manufacturing:  Process Vents, Storage Vessels, Transfer Operations and Wastewater (Subpart G, §63.111) | Process Vent | 50 ppmv TOC | Waiver of control requirements also applies (regardless of concentration of vent stream) if flow rate is less than 0.005 $m^3$ per minute or “total resource effectiveness index” is greater than 1.0. |
| Organic HAP from Equipment Leaks (Subpart H, §63.161) | Equipment containing or coming into contact with HAP | 5 percent TOC by weight<br><br>(≈ 50,000 ppm) | None |
| Group I Polymers and Resins (Subpart U, §63.482) | Process Vent | 50 ppmv TOC | Waiver of control requirements also applies (regardless of concentration of vent stream) if flow rate is less than 0.005 $m^3$ per minute or “total resource effectiveness index” is greater than 1.0. |
| Petroleum Refineries (Subpart CC, §63.641) | Process Vent | 20 ppmv measured as choice of organic HAP or TOCs | Also mass-based exclusions (Total THC emissions of no more than 33 kg per day for existing [6.8 kg for new] sources prior to reaching any control device and prior to discharge) |
| Aerospace (Subpart GG, §63.742) | Primers, Topcoats, Chemical Milling Maskants, Strippers, and Cleaning Solvents | HAP and THC content of 0.1 percent for carcinogens and 1.0 percent for noncarcinogens | None |
| Equipment Leaks — Control Level 1 (Subpart TT, §63.1001) | Equipment containing or coming into contact with HAP | 5 percent TOC by weight | None |
| Pharmaceuticals (Subpart GGG, §63.1251) | Halogenated vent stream | 20 ppmv | None |
| | Process Vent | 50 ppmv | Undiluted and uncontrolled |
| Flexible Polyurethane Foam Production (Subpart III, §63.1292) | HAP-based process chemicals in certain applications | Prohibited above 5 percent weight control | None |

**Table 2-5 (continued)**

| NESHAP (40 C.F.R. Part 63) | SOURCE OF EMISSIONS | CONCENTRATION CUTOFF | ADDITIONAL CRITERIA |
|---|---|---|---|
| Pesticide Production (Subpart MMM, §63.1361) | Process Vent | 20 ppmv | Also mass-based waiver of control requirements (organic HAP emissions from all process vents less than 0.15 Mg/yr and the uncontrolled HCl and chlorine emissions from the sum of all process vents less than 6.8 Mg/yr.) |
| Manufacture of Amino/ Phenolic Resins (Subpart OOO, §63.1402) | Process Vent | 50 ppmv organic HAP | Undiluted and uncontrolled |
| Polyether Polyols Production (Subpart PPP, §63.1423) | Process Vent (continuous unit) | 0.005 weight percent TOC (≈ 50 ppm) | Waiver of control requirements also applies (regardless of concentration of vent stream) if flow rate is less than 0.005 $m^3$ per minute or "total resource effectiveness index" is greater than 1.0. |

The commenter also noted that in a number of NESHAP, EPA has explained the rationale behind concentration-based applicability criteria in terms of control efficiency, and included the concept of a "total resource effectiveness [TRE] index" as a supplemental basis for exemption from control requirements. The commenter pointed to the definition of TRE as follows:

> Total resource effectiveness index value or TRE index value means a measure of the supplemental total resource requirement per unit reduction of organic HAP associated with a continuous front-end process vent stream, based on vent stream flow rate, emission rate of organic HAP, net heating value, and corrosion properties (whether or not the continuous front-end process vent stream contains halogenated compounds) (reference: 65 Fed. Reg. 38030, 38048 [June 19, 2000] [National Emission Standards for Hazardous Air Pollutants: Group I Polymers and Resins]).

According to the commenter, the TRE index is a measure of the efficiency of controlling a particular HAP stream in terms of energy and other resource requirements compared to the amount of HAP reduced. The commenter contended that focusing the applicability of control requirements on the basis of control efficiency is particularly appropriate with respect to low-concentration HAP streams from the wood products industry because the energy use of a thermal oxidizer is particularly high as compared to the amount of HAP reduced when applied to a low-rather than a high-concentration emissions stream.

Other commenters (IV-D-11 and IV-D-26) objected to the concept of a concentration-based applicability cutoff, stating that such a cutoff is not what Congress intended in the CAAA. Commenter IV-D-26 argued that a concentration-based applicability cutoff would be unlawful because it would replace the MACT emission limitation with one that places no limit on the mass emission rate. Commenter IV-D-26 stated that the concentration of HAP in a source's exhaust steam has no bearing on whether that source is meeting the emissions limitation. The commenter referred to language in the preamble to the final Brick and Structural Clay Products (BSCP) NESHAP which states that exhaust gas concentrations have no effect on mass emissions rates, and that mass emission rates are unchanged regardless of how much dilution air is added (68 FR 26690 at 26713, May 16, 2003). The commenter also claimed that EPA has already rejected, in prior actions, the idea that de minimis exceptions are available in the way proposed by the PCWP industry.

Response: We disagree with the request from commenter IV-D-27 for a concentration-based applicability cutoff for several reasons. First, as shown in Table 2-6, the process vent characteristics (e.g., combination of concentration and flow rate) for PCWP facilities are dissimilar to process vents regulated by the NESHAP cited by the commenters as precedents for the concentration-based applicability exemption, and thus it would not be appropriate to "borrow" concentration cutoffs from these other rules. Second, and more importantly, when establishing applicability cutoffs for NESHAP, we must evaluate these cutoffs in concert with the MACT floor analysis. To support the inclusion of a 50 ppmv cutoff or an alternative cutoff, we would have to clearly demonstrate that the cut-off levels do not exempt emission volumes that are otherwise caught by the MACT floor. The 50 ppmv concentration-based applicability cutoff proposed by the commenters does not meet this criterion because it would exempt many process units that otherwise would be subject to MACT floor controls. As shown in Table 2-7, a number of PCWP process units equipped with MACT controls that have been tested by the industry have uncontrolled emission streams with concentrations less than 50 ppmv. Third, a 50 ppmv cutoff would exempt the majority of process units in the PCWP industry from regulation, despite the fact that many of these process units are by themselves "major sources," and therefore by definition are not de minimis. When the 50 ppmv cutoffs were applied in other

NESHAP, the affected emission streams had much lower flow rates (e.g., 100 scfm), and the assumption was that such sources had only minimal emissions that were below levels that would be regulated by the applicable MACT floor. For example, the estimated average HAP emissions from a process vent exempted from the Pharmaceuticals NESHAP is 88 pounds per year. This would not be the case with wood products plants because of the higher flow rates. Table 2-8 shows the effect of higher flow rates on the mass emissions of HAP at the same concentration (50 ppmv). As shown in Table 2-8, at a flow rate of 20,000 dscfm, the methanol emissions associated with a 50 ppmv emission stream would be about 21 tons per year, which exceeds the threshold for a major source. Many PCWP process units have flow rates greater than 20,000 dscfm, and therefore, the mass of HAP associated with a 50 ppmv stream can be even greater. For these reasons, the final PCWP rule does not include a concentration-based applicability cut-off. Additional details of our analysis of the concentration-based applicability exemptions is provided in a separate memorandum.[25]

**Table 2-6. Comparison of Emission Sources[25]**

| Emission stream characteristic | Chemical process plant sources (e.g., HON, MON, pharmaceuticals) | PCWP process sources |
|---|---|---|
| No. of emission points per plant | 25 to >100 | 3 to 7 (e.g., 2 dryers and 1 press) |
| Typical flowrates, scfm | 100 scfm | dryers: 30,000 scfm<br>presses: 60,000 scfm |
| Typical HAP concentrations, ppmv | >>1,000 ppmv | <150 ppmv |

**Table 2-7. Summary of NCASI Data[25]**

| Process unit | No. of units tested by NCASI | No. of units tested w/ MACT controls | Range in concentration of emissions (ppmv total for 6-HAP) *(average)*[a] | No. of units with uncontrolled concentration **<50 ppmv** | | No. of units with uncontrolled concentration **<20 ppmv** | |
|---|---|---|---|---|---|---|---|
| | | | | All units tested | Units with MACT controls | All units tested | Units with MACT controls |
| Primary tube dryer | 4 | 0 | 9 to 134 ppmv *(54 ppmv)* | 2 (50%) | NA[b] | 1 (25%) | NA[b] |
| Presses | 9 | 7 | 5 to 153 ppmv *(49 ppmv)* | 5 (55%) | 5 (71%) | 3 (33%) | 3 (43%) |
| OSB dryer | 3 | 3 | 22 to 114 ppmv *(48 ppmv)* | 2 (67%) | 2 (67%) | 0 (0%) | 0 (0%) |
| PB dryer (green) | 4 | 1 | 6 to 51 ppmv *(30 ppmv)* | 3 (75%) | 1 (100%) | 1 (25%) | 1 (100%) |
| Veneer dryer | 9 | 3 | 4 to 46 ppmv *(20 ppmv)* | 9 (100%) | 3 (100%) | 6 (67%) | 1 (33%) |
| TOTAL | 29 | 14 | 4 to 153 ppmv | 21 (72%) | 11 (79%) | 11 (38%) | 5 (36%) |

[a] Six HAP are acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde.
[b] NA = Not applicable because no units equipped with MACT controls were tested by NCASI.

**Table 2-8. Flow Rate Versus Mass Emissions for 50 Ppmv Methanol Emission Stream**

| Flowrate, dscfm | Mass emissions, ton/yr |
|---|---|
| 20,000 | 21 |
| 50,000 | 50 |
| 100,000 | 103 |

Assumptions: (1) 50 ppmv of methanol in emission stream; (2) standard conditions; and (3) source operates 8,424 hours per year.

We disagree with the commenters who claimed that the requested concentration-based applicability exemption can be justified by de minimis principles. Our de minimis authority exists to help avoid excessive regulation of tiny amounts of pollutants, where regulation would yield a result contrary to a primary legislative goal. It is unavailable "where the regulatory function does provide benefits, in the sense of furthering the regulatory objectives, but the agency concludes that the acknowledged benefits are exceeded by the costs." EDF v. EPA, 82 F.3d 451, 466 (D.C. Cir. 1996); Public Citizen v. Young, 831 F.2d 1108, 1112-13 (D.C. Cir. 1987); Alabama Power v. EPA, 636 F.2d 323, 360-61 & n.89 (D.C. Cir. 1979). Accordingly, a de minimis exemption to section 112(d)(3) is unavailable in this PCWP MACT standard, because it would frustrate a primary legislative goal by carving out tons of PCWP sources' HAP emissions from regulation.

Our rejection of the de minimis concept in the MACT context has already been affirmed by the U.S. Court of Appeals for the District of Columbia Circuit, in National Lime Ass'n v. EPA, 233 F.3d 625, 640 (D.C. Cir. 2000) ("NLA"), in which the court rejected the industry petitioner's claim that in light of both the high costs and low quantities of HAP at issue in that case, we should read a de minimis exception into the requirement that we regulate all HAP emitted by major sources. In that case, the Court found that "EPA reasonably rejected this argument on the ground that the statute 'does not provide for exceptions from emissions standards based on de minimis principles where a MACT floor exists.'" NLA at 640. We recently re-affirmed our position on the unavailability of de minimis exemptions from the MACT floor in its final NESHAP regulating organic liquids distribution. See 63 Fed. Reg. 5048 and 5049 (February 3, 2004).

Contrary to the commenter's request, we see no reason to revisit this fundamental issue, and reject the assertion that both EPA and the court decided this issue incorrectly in NLA. Section 112 of the CAA is replete with careful definitions of volume- or effect-based limitation on regulation, indicating that Congress has already defined what amounts of HAP emissions are too small to warrant MACT standards. The requirement to adopt MACT emission limitations, for example, applies without exception to "each category or subcategory of major sources . . . of [HAP]." CAA section 112(d)(1). For sources below the major source threshold, however, we have discretion to require "generally available control technologies or management practices." CAA section 112(d)(5). Congress has thus itself defined volumetrically which sources' emissions are small enough not to warrant mandatory MACT standards.

Congress likewise defined several MACT exceptions applicable where emissions have de minimis health effects. Section 112(d)(4) of the CAA allows us to establish standards less stringent than MACT for HAP with an established health threshold, so long as we set a standard below the health threshold with "an ample margin of safety." Section 112(b)(3)(C) of the CAA directs us to de-list HAP – precluding section 112(d) MACT standards – if we determine that "there is adequate data on the health and environmental effects of the substance to determine that emissions, ambient concentrations, bioaccumulation or deposition of the substance may not reasonably be anticipated to cause any adverse effects to the [sic] human health or adverse environmental effects." Section 112(c)(9)(B)(i) of the CAA lets us delete source categories from the category list – the consequence again being no MACT control – if we determine that, for emissions of carcinogenic HAP, "no source in the category . . . emits such [HAP] in quantities which may cause a lifetime risk of cancer greater than one in one million to the individual in the population who is most exposed to emissions of such pollutant from the source." For noncarcinogens, we may delete source categories if we determine that "emissions from no source in the category or subcategory . . . exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source." CAA section 112(c)(9)(B)(ii). Moreover, in defining which source modifications trigger additional regulatory standards, CAA section 112(g)(1)(A) mentions a "greater than de minimis increase in actual emission of a [HAP]." This shows that Congress knew how to use the de minimis concept when it considered such was appropriate in section 112, and the fact that it did not use it in section 112(d)(3) supports our – and the D.C. Circuit's – conclusion that it is unavailable to support an exception to a MACT floor.

We do not find persuasive the proposition by commenter IV-D-27 that the overall purpose of section 112 is protecting human health and the environment, and that, therefore, as long as this general purpose is met, we may fashion de minimis exceptions from MACT. First, this position appears to assume that the issue is to be drawn on a clean slate, while the D.C. Circuit has affirmed our view that section 112(d)(3) provides no discretion to use a de minimis rationale to avoid MACT. Second, the commenter appears to give prominence to an over-arching statutory goal over the specific language of the statutory provisions themselves, in assessing whether those provisions are "extraordinarily rigid" regarding our otherwise-inherent de minimis authority; the logical extension of such an approach would be to find that no single provision in the CAA could restrict our de minimis authority, in light of the CAA's over-arching purpose "to promote the public health and welfare." CAA section 101(b)(1). Third, the commenter does not present any persuasive statutory arguments to overcome those that we presented to the court – and which the court affirmed – in NLA. Fourth, we are unable to discern the basis for the commenter's suggestion that we have in fact been relying on de minimis authority in the MACT program for several years in establishing applicability thresholds, and are not aware of any instance in which we have explicitly created such an exception from an identified MACT floor. Finally, to the extent the commenters believe such a de minimis exemption is justified by the wish to reduce the costs of the PCWP MACT rule, we are not free to grant a de minimis exemption to account for costs: Congress already took cost into account in section 112(d), relying on prior business judgments by the best performing sources to substitute for the judgment of the rest of the PCWP industry, therefore denying us the leeway to consider costs as a factor to modify the MACT floor. Only in considering more stringent "beyond floor" standards may we consider costs in the MACT context. Therefore, we do not believe it is appropriate or necessary to revisit the Agency's and the D.C. Circuit's prior conclusions regarding the availability of the de minimis principle in the final PCWP NESHAP. We also note that even if reliance upon a de minimis theory were not precluded under section 112(d), in light of the relatively high flow rates of PCWP process units, some of which would be major sources on their own while complying with a 50 ppmv cutoff, it would be impossible to find that subjecting these units to the MACT floor would yield a gain of "trivial or no value."

## 2.7 TESTING AND MONITORING REQUIREMENTS

### 2.7.1. Emission measurement test methods

2.7.1.1 Comment: Commenters IV-D-20 and IV-D-27 supported the inclusion of NCASI test methods in the proposed PCWP rule, but recommended that EPA replace NCASI Method IM/CAN/WP-99.01 with the revised version of the same method. Commenter IV-D-20 provided a revised version of NCASI IM/CAN/WP-99.01 (which was later renumbered as NCASI IM/CAN/WP-99.02), noting that the trained NCASI sample team was able to get good consistent results with the original version of the method both in the laboratory and the field, but that sampling contractors had difficulty obtaining valid results. Commenter IV-D-20 maintained that the revised version is easier to understand, is more complete in detail, provides a better standard for the impinger/canister method, and reflects the comments of the contractors that have experience with the original method; the quality assurance requirements were also strengthened to ensure good results.

Another commenter (IV-D-04) stated that their experience with the NCASI Method CI/WP-98.01 (proposed for measurement of methanol and formaldehyde) showed that sampling stack emissions with a high moisture content would require a large impinger, isokinetic version of this method to ensure accuracy. Therefore, this commenter requested that EPA add guidance in the final rule to allow the use of the isokinetic version of the NCASI method when needed.

Commenter IV-D-27 also noted that NCASI Method DI/MEOH-94.02 has been revised and is now NCASI Method DI/MEOH-94.03. The more recent version of this method should be included in the PCWP rule.

Response: The final PCWP rule references the most recent version of NCASI Method IM/CAN/WP-99.02, as requested by the commenter. Regarding the revised version of NCASI Method DI/MEOH-94.02, this method does not apply to this rulemaking, and therefore, we did not update references to this method in the General Provisions (40 CFR Part 63.14) as part of this rulemaking. Regarding one commenter's request to allow the use of a "large impinger, isokinetic version" of NCASI Method CI/WP-98.01 for stack emissions with high moisture content, we note that such a version does not exist. We also note that the majority of the HAP data used in the development of the PCWP rule was collected using NCASI Method CI/WP-98.01 as is. Someone would have to develop and validate an alternative large impinger, isokinetic version of NCASI Method CI/WP-98.01 before such a method could be included in the PCWP rule. Therefore, the final rule does not include an alternative version of NCASI Method CI/WP-98.01.

2.7.1.2 Comment: Commenter IV-D-27 supported the variety of choices given for measurements and methods in Table 4 to proposed subpart DDDD. The commenter stated that having multiple testing options will allow facilities and sampling contractors to choose the method that best fits their needs and application. The commenter contended that EPA should also give PCWP facilities the option to use future methods once they have been reviewed by EPA and have passed Method 301 validation at a PCWP plant. The commenter noted that NCASI is currently developing a method for measuring the six HAP ("total HAP") listed in the PCWP rule. Although this new method probably will be field validated via EPA Method 301 procedures, it will not be eligible for alternate method approval by EPA, since a primary method that has been validated at PCWP sources does not exist. The commenter stated that a change to Table 4 to subpart DDDD could rectify that situation.

Response: As discussed in the preamble to the final PCWP rule, if and when a new method for measuring HAP from PCWP sources is developed and validated via EPA Method 301, we will issue an amendment to the final rule to include the use of that method as an alternative to the methods included in the final rule for measuring total HAP (i.e., NCASI Method IM/CAN/WP/99.02 and EPA Method 320--Measurement of Vapor Phase Organic and Inorganic Emission by Extractive FTIR). In the meantime, if the new method is validated using Method 301, then the Method 301 results can be used to request approval to use the new method on a site-specific basis.

2.7.1.3 Comment: Commenter IV-D-27 supported the use of Method 25A for measuring THC as carbon and Method 18 for measuring methane for the purpose of subtracting methane from THC concentration. Commenter IV-D-03 requested that other compounds such as acetone be added to the exempt compound list so that they can be quantified and subtracted from Method 25A results.

Response: We allowed sources to subtract methane from the THC values measured using EPA Method 25A for two reasons. The first reason is that a number of PCWP facilities equipped with MACT-level controls installed these controls to reduce VOC emissions, and these facilities are allowed to subtract methane emissions from the THC measurement when reporting VOC emissions because methane is not a VOC according to EPA's definition of VOC. The second reason is that we accounted for the effects of methane emissions when setting the outlet THC emission level at 20 ppm and the percent reduction of THC at 90 percent as part of the development of the compliance options for add-on control systems. We do not have data on emissions of other compounds excluded from the definition of VOC (such as acetone) that may be emitted from PCWP process units, and thus, we do not know how subtraction of these compounds would affect our prior determinations. Also, it is important to note that the PCWP rule is not a VOC rule and THC is only used as a surrogate in the final PCWP rule as a means of assessing HAP emissions control device performance. If sources need to calculate total VOC emissions to demonstrate compliance with VOC emission limits, then they can subtract these other compounds for that purpose; however, for the purpose of complying with PCWP MACT, sources must follow the procedures in the PCWP final rule for determining the THC emission reduction or outlet THC concentration, depending upon which option they choose.

2.7.1.4 Comment: Commenter IV-D-19 supported the use of one-half detection limits for nondetect HAP to an extent, but not in every case. The commenter noted that, if a test shows a HAP to be below the detection limit but the number of "hits" is statistically significant, then using the one-half detection limit is valid, provided the sample is a true representation of the system. However, in some cases, the one-half detection limit is used when only one point in one set of data provides evidence that a HAP exists for that process unit. The commenter contended that EPA should consider alternatives for these types of situations. The commenter also stated that, "any presumption of one-half detection limits based on emission factor data should be a rebuttable presumption which could be remedied by site-specific acquisition of a statistically significant number of determinations." Commenter IV-D-21 requested that nondetect data not be "arbitrarily" treated as one-half detection limit, and stated that "EPA should provide for consistent handling of non-detect data throughout the rule."

Response: The final rule requires PCWP facilities to treat all nondetect HAP measurements as being equal to one-half the detection limit, with one exception, as explained previously in Section 2.6.3.1 of this document. When a PCWP facility measures uncontrolled HAP emissions to demonstrate compliance with the PBCO, the facility may treat the emissions of an individual HAP as being zero if all three test runs yielded a nondetect measurement and the detection limit was set at less than or equal to 1 ppm.

**2.7.2 Capture efficiency test methods**

2.7.2.1 Comment: Commenter IV-D-03 argued that the use of methods other than Method 204 and the tracer gas method should be allowed for determining capture efficiency. The commenter noted that the press emissions from their facility are captured by a canopy hood system designed to meet the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines and then directed to a venturi scrubber. The commenter requested that the final rule allow their facility to demonstrate a 95 percent or greater capture efficiency by presenting the design information to the regulatory authority for review and approval.

Response: The commenter did not provide any data to confirm that a hood designed by the ACGIH design criteria actually achieves at least 95 percent capture efficiency. However, we would like to note that a facility is allowed to petition the Administrator for permission to use any alternative methods. The commenter should be aware that the Administrator will require evidence that meeting the ACGIH design criteria allows the hood to achieve an acceptable capture efficiency. The facility will have to confirm the hood capture efficiency with a test like the tracer gas method in Appendix A of the final PCWP rule. Alternatively, appendix A to subpart KK to part 63, Data Quality Objective and Lower Confidence Limit Approaches for Alternative Capture Efficiency Protocols and Test Methods, establishes the criteria for using alternative methods to demonstrate capture efficiency. Unless the facility confirms the hood capture efficiency, the facility is not likely to receive permission to use the ACGIH guidelines as an alternative method to determining capture efficiency.

2.7.2.2 Comment: Commenter IV-D-27 requested that the sampling period for press vent enclosure certification via method 204D be reduced from three hours to no more than one hour. The commenter stated that this press test method was developed for surface coating and printing operations, which have much longer production cycles than the hot presses used in wood panels manufacturing. The commenter noted that a batch cycle for a batch wood panel press lasts only minutes rather than hours, and continuous presses will probably replace batch presses over time. Therefore, the commenter recommended that the duration of each test run should be based on the cycle time of the individual press operation.

Response: We decided not to change the sampling period requirements in EPA Method 204D. We do not have data to ensure that Method 204D sampling periods lasting only minutes would yield optimal results, especially given the commenter's assertions elsewhere that press emissions within enclosures may not flow freely to the exhaust point in the top of the enclosure (See related comments in Section 2.3.2.8 and 2.7.2.4). We note that section 1.3 of Method 204D states that the capture efficiency test must include three sampling runs, and that "each run shall cover at least one complete production cycle, but shall be least 3 hours long." The method also states that, "Alternative sampling times may be used with the approval of the Administrator." Therefore, PCWP facilities using Method 204D still have the option of requesting alternative sampling times on a site-specific basis.

In addition, we are not compelled to change the sampling time in EPA Method 204D because PCWP facilities are not required to use Method 204D. Facilities may use the alternative tracer gas method in appendix A of the final PCWP rule, which requires only 20-minute test runs. Also, appendix A to subpart KK to part 63 (Data Quality Objective and Lower Confidence

Limit Approaches for Alternative Capture Efficiency Protocols and Test Methods) establishes the criteria for using alternative methods to demonstrate capture efficiency, and this appendix states a minimum sampling time of 20 minutes per run.

2.7.2.3 Comment: Commenter IV-D-27 supported EPA's recognition of the need for flexibility in determining capture efficiency for PCWP press enclosures and inclusion of the tracer gas method as an alternative to Method 204 in the PCWP rule. The commenter noted that the tracer gas method is a "work in progress" and included with their comments a copy of field validation tests conducted at a Georgia-Pacific Corporation OSB facility. Commenter IV-D-19 also submitted test results for the tracer gas method as part of their comments on the proposed rule. Commenter IV-D-27 stated that two more tests are scheduled for the second quarter of 2003, one to verify the Georgia-Pacific results and the other to determine the capture efficiency of a PTE at a second OSB facility. Commenter IV-D-27 stated that the results of these tests should help EPA improve the use and application of the proposed tracer gas test.

Response: We have reviewed the results of the first field validation test of the tracer gas method, and we note that the commenters did not provide any specific recommendations for modifying the tracer gas method as it was proposed. Therefore, other than a few minor wording changes, we did not make any substantive changes to the tracer gas method in the final rule. If the results of subsequent field tests demonstrate a need to (further) modify the tracer gas method, we will issue an amendment to the final rule to incorporate the necessary changes. Furthermore, appendix A to subpart KK to part 63, Data Quality Objective and Lower Confidence Limit Approaches for Alternative Capture Efficiency Protocols and Test Methods, establishes the criteria for using alternative methods to demonstrate capture efficiency, and this appendix would allow the industry to submit a modified tracer protocol for approval, as long as it met the acceptance criteria for an alternative procedure.

2.7.2.4 Comment: Commenters IV-D-19, IV-D-21, and IV-D-27 recommended that the final rule include work practice requirements in lieu of requiring EPA Method 204 certification for press enclosures, based on their assertion that press enclosures certified to meet EPA Method 204 do not constitute the MACT floor for presses (see previous discussion in Section 2.3–Existing Source MACT Floor). The commenters noted that the proposed PCWP rule does not require an initial performance test for work practice requirements, so verification of the capture efficiency for PTEs should be a one-time determination based on satisfying the press enclosure work practice requirements. The commenters stated that, for any enclosure that is not a PTE, a facility should have to determine the capture efficiency using the tracer gas method, Methods 204A through 204F, or alternate methods approved by the Administrator. The commenters recommended the following additions to Table 6 to subpart DDDD (Initial compliance demonstrations for work practice requirements):

| For each . . . | For the following work practice requirements . . . | You have demonstrated initial compliance if . . . |
|---|---|---|
| (5) Hot Presses | Minimize fugitive emissions from the capture device through appropriate operation and maintenance procedures applied to PTE system. | You meet the work practice requirements AND you submit with the Notification of Compliance Status a copy of your plan for minimizing fugitive emissions from the capture device (as required in § 63.2267) |

Also, commenter IV-D-27 suggested the following additions to Table 3 to subpart DDDD to include the new work practice requirements for presses:

| For the following process units at existing or new affected sources . . . | You must . . . |
|---|---|
| (5) Hot Presses | Install and operate a capture device according to the following:<br>**For PTEs:**<br>Permanent Total Enclosure (PTE) means a permanently installed containment that was designed to meet the following physical design criteria:<br>1. Any NDO shall be at least four equivalent opening diameters from each THC-emitting point unless otherwise specified by the Administrator. The MACT floor configuration of the PTE includes capturing emissions from the press unloader. For purposes of determining compliance with criteria 1, the distance from the THC-emitting point will be considered to the press.<br>2. The total area of all NDOs shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.<br>3. The average facial velocity (FV) of air through all NDOs shall be at least 3,600 m/hr (200 ft/min). The direction of airflow through all NDOs shall be into the enclosure.<br>4. All access doors and windows whose areas are not included in 2 and are not included in the calculation of FV in 3 shall be closed during routine operation of the process.<br>5. Fugitive emissions shall be minimized through appropriate operation and maintenance procedures applied to the PTE system.<br>If a PTE meets the above criteria, it will meet the emissions capture requirements of the floor technology. The destruction efficiency for the captured emissions would be 90 percent.<br>**For Non-PTEs:**<br>Existing and future enclosures that are not PTE, should be required to demonstrate 90 percent capture and control efficiency using the tracer gas method or some other method subject to the approval of the Administrator, and the appropriate test method for the compliance pollutant. Any shortfall in capture could be remedied via an emission averaging approach or through acceptance of a higher offsetting destruction efficiency requirement. |

Commenter IV-D-21 recommended a similar addition, but with some slight changes to item 1 as follows:

> 1. Any natural draft opening (NDO) shall be at least four equivalent opening diameters from each VOC-emitting point, except for where mat enters the enclosure and the board from the unloader exits the enclosure, unless otherwise specified by the Administrator.

Finally, commenter IV-D-27 recommended the following changes to Table 4 to subpart DDDD to reflect changes to performance test requirements:

| For . . . | You must . . . | Using . . . |
|---|---|---|
| (9) Each reconstituted wood products press at a new or existing affected source or reconstituted wood product board cooler at a new affected source subject to a compliance option in Table 1B or used in calculation of an emissions average under § 63.2240(c). | For Non-PTEs - Determine the percent capture efficiency of the enclosure directing emissions to an add-on control device.<br><br>For PTEs - Determine the reduction in emissions or percent destruction efficiency of the control device. | Methods 204 and 204A through 204F (as appropriate) of 40 C.F.R. part 51, appendix M. As an alternative to Methods 204 and 204A through 204F, you may use the tracer gas method contained in appendix A to this subpart.<br><br>Refer to (1) through (8) of this Table for the appropriate test method. |

Response: As discussed in response to comment 2.3.2.8, the final PCWP rule sets forth design criteria for wood products enclosures. These criteria are slightly different from the EPA Method 204 design criteria for PTEs. The final PCWP rule contains a definition of "wood products enclosure" which states the design criteria, and a definition of "partial wood products enclosure" which includes any enclosure other than a "wood products enclosure." Capture devices meeting the definition of "wood products enclosure" are assumed, for all practical purposes, to achieve 100 percent capture of emissions. Because the capture efficiency of "partial wood products enclosures" is unknown, the final rule requires facilities to test the capture efficiency of partial wood products enclosures using EPA Methods 204 and 204A-F (as appropriate), or the alternative tracer gas procedure included in appendix A to subpart DDDD. The final rule requires facilities using partial wood products enclosures to demonstrate a combined 90 percent capture and control efficiency for those facilities showing compliance with the percent reduction requirements for APCDs. If the partial wood products enclosure does not achieve high capture efficiency, then facilities must offset the needed capture efficiency by achieving a higher destruction efficiency or by using emissions averaging (with the press being an undercontrolled process unit).

The final rule requires a one-time verification of the capture efficiency for wood products enclosures and partial wood products enclosures. To assume 100 percent capture efficiency using a wood products enclosure, facilities must submit with the Notification of Compliance Status documentation that the wood products enclosure meets the design criteria defined in the rule. For partial wood products enclosures, facilities must submit with the Notification of Compliance Status the results of capture efficiency verification using EPA Methods 204 and 204A-F (as appropriate), or the alternative tracer gas procedure included in appendix A to subpart DDDD.

Wording changes were made in various places in the proposed rule to incorporate the revised requirements for wood products enclosures and partial wood products enclosures. These wording changes are different from the wording suggested by the commenters but accomplish the same purpose (i.e., the design criteria are included in the definitions but not included as work practices).

**2.7.3 General monitoring**

2.7.3.1 Comment: Commenter IV-D-27 noted that the third column of Line 1 in Table 7 to subpart DDDD currently states that compliance is demonstrated by "maintaining the average operating parameter at or above the maximum, at or below the minimum." However, based on the definitions of maximum and minimum, this phrase should be "at or below the maximum, at or above the minimum."

Response: We agree with the suggested change and have modified Table 7 to subpart DDDD in the final rule as suggested.

**2.7.4 Block averaging period for operating requirements**

2.7.4.1 Comment: Commenters IV-D-19, IV-D-21, and IV-D-27 requested that the proposed 3-hour block averaging period specified by the proposed operating requirements be extended for most of the monitoring parameters. The commenters specifically recommended that the 3-hour block averaging period be extended to a 12-hour block, except as noted elsewhere. The commenters noted that the 3-hour averaging time was selected by EPA because the initial performance test requires three 1-hour test runs, but contended that this time period is impractical for continuous monitoring of control device performance. The commenters stated that a 3-hour block average monitoring requirement would increase monitoring and recordkeeping requirements without guaranteeing compliance and would increase the number of insignificant deviations reported. The commenters argued that 3 hours would not be enough time in all cases for operators and equipment to respond and adjust to changes along the process line, such as a change in the wood species. As an example, the commenters pointed to variation in measurements and instrumentation as another justification for extending the block average. According to the commenters, there can be a large variation between instruments measuring a specific parameter at different locations on a process unit or control device. As an example, the commenters pointed to the variation between thermocouples used to measure the temperature of the RTO combustion chamber and control the burners. The commenters stated that the temperature reading will vary from thermocouple to thermocouple, and the variation could be as high as 50 °F. The commenter noted that, depending on the operating conditions, this variation could be much lower, and a longer block-averaging time would enable plant operators to get a better sense of whether or not a device is actually within the operating limits. The commenters also noted that some of these problems could be alleviated by allowing the source to establish an operating window during compliance testing instead of being required to operate at typical conditions during the compliance test (see related comment in Section 2.7.5). The commenters specifically recommended recording data readings for RTOs and RCOs every 15 minutes and then including all the data in a 12-hour block average.

The commenters further justified the 12-hour block average as being consistent with industry practice. According to the commenters, several of the consent decrees negotiated between EPA and industry that were included in the MACT floor determination contain 12-hour block average parameter monitoring requirements. The commenters contended that the 12-hour time period in these consent decrees reflects the agreement between EPA and industry that this longer time period is adequate for monitoring control device performance.

<u>Response</u>: We have decided to reduce the number of control device operating parameters that must be measured to ensure compliance with the final rule (see responses to comments in Sections 2.7.10 through 2.7.14). In the final PCWP rule, temperature is the only parameter that is required to be continuously monitored to meet the operating requirements for the listed add-on control devices. Because we have reduced the stringency of the operating requirements for add-on controls and because temperature is both a controllable parameter and a reliable indicator of

control device performance, we have decided to retain a block averaging period of 3 hours. Regarding the comments related to variation among thermocouple readings, we agree that individual thermocouple readings within an RTO may vary by as much as 50°F. In a typical RTO, there are multiple combustion chambers, each with one or more thermocouples. The final rule clarifies the temperature monitoring requirements for RTOs to make it clear that the operating limit applies to the combined average temperature of the thermocouples in each combustion chamber rather than to the temperature measurement for one individual thermocouple. If there are multiple thermocouples within each combustion chamber, we expect that facilities would average the measurements from each thermocouple to provide a representative temperature for the combustion chamber. Regarding consent decrees between EPA and wood products companies, we note that, although some of the companies are allowed to use a 12-hour block average, these companies also are required to monitor multiple operating parameters (e.g., temperature, air flow, pressure drop).

### 2.7.5 Testing at boundary conditions

2.7.5.1 Comment: Commenters IV-D-21 and IV-D-27 argued that because the initial compliance tests determine the outer limits of compliance, those tests should be performed at the boundaries of expected performance for the process and control units. The commenters noted that the PCWP rule currently requires testing at "representative" conditions, but only using "representative" conditions would not accurately simulate true operating conditions, and thus, the operating parameter limits would be too narrow. Therefore, the commenters contended that the rule should specify that initial compliance tests should be conducted at the extremes of the expected operating range for the parameter and control device function. The commenters stated that removing the requirement to test under representative conditions would eliminate the need for facilities to explain why the initial compliance testing conditions are "representative," and instead, facilities should be required to explain why the boundary conditions chosen for testing are valid. In addition, commenter IV-D-21 noted that this approach should also address potential conflicts with traditional State requirements to test at maximum or design conditions.

Response: Our definition of "representative operating conditions" refers to the full range of conditions at which the process unit will be operating in the future. We expect that facilities will test a variety of conditions, including upper and/or lower bounds, to broaden their operating limit ranges. There are advantages to requiring performance testing at representative operating conditions for the PCWP rule. Facilities do not routinely operate at maximum conditions; two commenters pointed out (see comment No. 2.7.14.1) that maximum operating conditions occur less that 5 percent of the time. Compliance with the PCWP rule can be achieved using a variety of APCD (e.g., RTO, RCO, biofilter) or through use of emissions averaging or PBCOs. One reason we chose to require representative conditions rather than maximum conditions was to ensure consistency in determining emissions averaging credits and debits. In addition, operating parameters required to be monitored to show compliance do not always correlate with maximum conditions. For example, commenters noted in comment 2.7.11.1 that when the RCO inlet THC concentration is high (as would be the case for testing under maximum operating conditions), the RCO would operate at temperatures higher than the set point during the performance test and the RCO minimum temperature limit would be set too high for production rates less than full capacity. Requiring testing at representative operating conditions resolves this problem. Furthermore, as discussed in response to comment No. 2.7.15.1, for process units without control devices, the final PCWP rule requires facilities to select the process unit controlling operating parameter(s) based on representative operating conditions; to establish the operating limit for each controlling parameter as the minimum, maximum, range, or average (as appropriate depending on the parameter) recorded during the performance test(s); and maintain these parameters within the <u>ranges</u> established during the performance test(s). Facilities operating biofilters must maintain their biofilter bed temperature within the <u>range</u> established during the initial performance test and, if available, previous performance tests. If the final PCWP rule required testing at maximum operating conditions, then there would be no way for facilities to identify their operating parameter ranges. For these reasons, we maintain that the requirement to test at representative operating conditions is appropriate for the PCWP rule.

### 2.7.6 <u>Compliance exemption during performance testing</u>

2.7.6.1 <u>Comment</u>: Commenters IV-D-21 and IV-D-27 requested that EPA make an addition to sections 63.2262(k)(4) (Establishing thermal oxidizer operating requirements) and 63.2262(l)(4) (Establishing catalytic oxidizer operating requirements) so that facilities can avoid being in violation of compliance when they are testing new operating ranges. Commenter IV-D-27 provided the following sentence to be added to the end of the paragraph at (4): "If, in attempting to expand the operating range the required removals are not attained, it does not constitute a violation during the period of the testing." Commenter IV-D-21 provided similar language: "If, in attempting to expand the operating range the required removals are not attained, said failure to achieve the required removals shall not constitute a violation during the period of the testing."

Response: The final rule does not include the sentence requested by the commenter. We believe that decisions regarding whether or not a violation has taken place during the period of testing should be made if and when such a situation arises on a case-by-case basis. We note that, in the final PCWP rule, temperature is the only parameter that is required to be continuously monitored to meet the operating requirements for thermal oxidizers and catalytic oxidizers. When conducting tests to expand the temperature range (e.g., lower the minimum temperature for an RTO), we expect that most PCWP sources will exercise some caution (e.g., reduce the temperature in a stepwise fashion rather than making a significant drop) and will choose a temperature level that gives them an acceptable "margin of safety" to avoid the situation cited by the commenter.

### 2.7.7 Post-deviation performance testing

2.7.7.1 Comment: Commenters IV-D-21 and IV-D-27 argued that a deviation from the parameter limits set when a Continuous Parameter Monitoring System (CPMS) is used may not indicate violation of compliance. The commenters noted that a deviation indicates that a plant is outside the lines of assured compliance, but the normal operation of a process unit may change slightly after maintenance. For example, when the ceramic media in an RTO is replaced, there can be a noticeable increase in the air flow through the RTO, which could deviate from the established parametric range. The commenters argued that the rule should include an exemption from noncompliant status if follow-up performance testing shows that the compliance options were being met during an "operating requirement" deviation. The commenters further stated that the Pulp and Paper NESHAP (40 CFR §63.453(p)) includes a similar exemption, so the ideas and wording from that rule could be incorporated into the PCWP NESHAP. Specifically, the commenters requested that the following paragraph be added to section 63.2240 (What are the compliance options and operating requirements and how must I meet them?):

> (d) An operating requirement deviation is not a violation of the compliance option if the results of a performance test using the procedures in this paragraph demonstrate compliance with the compliance option requirements in Table 2.
> (i) Conduct a performance test as specified in .... using the conditions of the operating requirement deviation. No maintenance or changes shall be made to the control system

> after the beginning of the operating requirement deviation that would influence the results of the test.
> (ii) If the results of the performance test specified in . . . (i) of this section demonstrate compliance with the compliance option requirements in Table 2, then there is no violation of the limit.
> (iii) If the results of the performance test specified in . . . (i) of this section do not demonstrate compliance with the compliance option requirements in Table 2, then there was a violation of the limit.

Commenter IV-D-27 also recommended that sources be given up to 120 days after the deviation to demonstrate compliance; however, the commenter noted that the time frame should not alleviate the source from compliance issues if compliance could not be demonstrated at the extended parameter level.

Response: We did not include the requested language in the final PCWP rule because we believe that (1) the rationale for including this provision in the Pulp and Paper MACT I rule (40 CFR part 63, subpart S) is not applicable to the PCWP rule, and (2) this provision is unnecessary given the changes that we are making to the monitoring provisions in the final rule. We note that the referenced language in the Pulp and Paper MACT I rule regarding "post-deviation performance testing" only applies to open biological treatment units (i.e., units used to biodegrade pulp mill condensates) and not to other types of control systems such as thermal oxidizers, gas scrubbers, and steam strippers. Subpart S requires pulp and paper mills that operate biological treatment units to conduct quarterly performance tests and to either monitor five different operating parameters or establish site-specific operating parameters for the biological treatment unit. In the preamble to the final Pulp and Paper MACT I rule (63 FR 18524, April 15, 1998), we acknowledged that the type of biological treatment systems used at pulp and paper mills "can vary widely in their operation and performance, depending on their design, maintenance, and even their geographical location." Given this variability, the number of parameters that must be monitored, and the possibility that an excursion of one operating parameter might not, under certain circumstances, equate to an exceedance of the emission standard, subpart S also allows sources to conduct post-deviation performance tests of the biological treatment unit to determine if the emission standards were actually exceeded during an operating parameter excursion. The performance test must be performed "as soon as practical" after the beginning of the monitoring excursion. As discussed in subsequent sections of this document, we have reduced the number of operating parameters PCWP sources must monitor for RTO, RCO, and biofilters to temperature only, and we believe that temperature is both a controllable parameter and a reliable indicator of control device performance. Therefore, we do not believe that a provision for post-deviation performance testing is needed in the final PCWP rule. We also note that the PCWP rule allows sources to conduct multiple performance tests to establish the operating temperature limit; therefore, sources should be able to establish a minimum (or maximum) temperature level that reflects the range of operating conditions expected.

**2.7.8 Location for inlet sampling**

2.7.8.1 Comment: Commenters IV-D-21 and IV-D-27 pointed out that the rule is not clear enough about the location for inlet sampling, especially for coupled control devices. The commenters recommended that the rule be reworded to clearly state that inlet sampling should take place at the functional inlet of a control device sequence or at the primary HAP control device inlet. For example, the commenters noted that the final rule needs to clarify that sampling should take place at the inlet of a WESP that precedes an RTO instead of between the two devices. The commenters noted that many WESP-RTO control systems are too closely coupled to allow for a sampling location in between that meets the requirements of Method 1 or 1A, 40 CFR 60, appendix A.

Response: We agree with the commenters, and have revised the final PCWP rule to indicate that for HAP-altering controls in sequence, such as a wet control device followed by a thermal oxidizer, sampling sites must be located at the functional inlet of the control sequence (e.g., prior to the wet control device) and at the outlet of the control sequence (e.g., thermal oxidizer outlet) and prior to any releases to the atmosphere. As discussed in response to comment No. 2.5.2.1, we also clarified that facilities demonstrating compliance with the PBCO for a process unit with a wet control device must locate sampling sites prior to the wet control device.

**2.7.9 Data collection and handling**

2.7.9.1 Comment: Commenter IV-D-03 stated that the proposed valid data requirements for CEMS (i.e., monitoring 100 percent of the hours the process is operating except for monitor malfunctions, associated repairs, and QA/QC activities) are much more "subjective" than other rules. The commenter noted that, instead of simply requiring valid data for greater than 95 percent of the hours each quarter (as required in other rules), the proposed approach focuses more on recordkeeping and explaining the data that are not valid. According to the commenter, the proposed approach would require inspectors to make judgment calls regarding whether a monitoring malfunction was unavoidable or caused by poor maintenance. To simplify the final rule, the commenter recommended that EPA require a certain percentage of data to be valid (e.g., ≥95 percent of the hours each quarter).

Response: We believe that the proposed requirement to conduct monitoring at all times when the process is operating is appropriate. This requirement is consistent with other rules that we have promulgated recently. We also believe it is appropriate that inspectors would have the flexibility to determine when monitoring malfunctions are unavoidable or caused by poor maintenance. Therefore, we did not modify the final rule to include the 95 percent data availability requirement suggested by the commenter.

2.7.9.2 Comment: Commenters IV-D-21 and IV-D-27 recommended that section 63.2268(a)(1) be revised to require the CPMS to simply be "capable" of completing a minimum of one cycle of operation for each successive 15 minute period. The commenters also stated that the proposed requirement in section 63.2268(a)(1) for 15-minute data collection cycles is confusing and possibly inconsistent with the requirement for equally spaced cycles. Section 63.2268(a)(1) requires that the CPMS complete at least one cycle in each successive 15-minute interval and that a valid hourly calculation must include at least three equally spaced data points. The commenters pointed out that there are a number of situations for which these guidelines would not specifically determine the calculation requirements. For example, the guidelines listed above could be interpreted to mean that the hourly average must include three or more data points spaced evenly among themselves but not spaced equally over the hour, so an average of 6 data points taken at 5 minute intervals would satisfy the rule. After those six points were recorded, data collection might stop because of an SSM event, loss of control of the monitoring equipment, or calibration of a monitoring device. The commenters noted that the guidelines can also be taken together to mean that at least three successive 15-minute intervals are necessary. In that case, if the process starts up at 30 minutes past the hour, the final 30 minutes of that hour cannot be considered valid. However, section 63.8(g)(2) of the General Provisions indicates that two data points, each representing a 15-minute period, should be averaged in that case. The commenters pointed out that these examples prove that the proposed language "at least three equally spaced data values for that hour" is ambiguous and should be revised. The commenters recommended that EPA require facilities to average at least three data points taken at constant intervals, provided that the interval is less than or equal to 15 minutes. The commenters contended that the best approach would be to ignore the concept of an hourly average and simply calculate the block average as the average of all evenly spaced measurements in the block period with a maximum measurement interval of 15 minutes. The commenters further noted that the rule does not specify how to calculate the 3-hour block average when one or more of the individual hours does not contain at least three valid data values. The commenters recommended that the final rule address this issue by stating that "a block average must contain at least two valid hourly averages."

Response: As requested by the commenters, we have revised the wording of §63.2269(a)(1) (formerly §63.2268(a)(1) in the proposed rule) to state that "The CPMS must be *capable* of completing a minimum of one cycle of operation *(sampling, analyzing, and recording)...*" We added the parenthetical "sampling, analyzing, and recording" for additional clarity of the meaning of a CPMS cycle of operation.

We agree that the proposed rule language regarding acceptable data and data averaging is somewhat ambiguous and we have revised the language accordingly. Following the commenters' recommendation, we have removed the concept of an hourly average from the rule to allow block averages to be calculated as the average of all evenly spaced measurements in the 3-hour or 24-hour block period with a maximum measurement interval of 15 minutes. However, removal of the valid hourly average consisting of "at least three equally spaced data values for that hour" also eliminated any minimum data availability requirement. Therefore, we added a minimum data availability requirement specifying that to calculate data averages for each 3-hour or 24-hour averaging period, you must have at least 75 percent of the required recorded readings for that period using only recorded readings that are based on valid data. As discussed in response to comment No. 2.7.9.4, we have clarified what constitutes valid data and we moved the rule language specifying how to calculate data averages to final §63.2270(d) and (e). The minimum data availability requirement appears in final §63.2270(f).

2.7.9.3 Comment: Commenter IV-D-27 noted that section 63.2270(c) refers to a minimum data availability requirement, but that requirement is not included in subpart DDDD or the General Provisions. The commenter recommended that the reference to a minimum data availability requirement be removed.

Response: A minimum data availability requirement was included for the dry rotary dryer and veneer redryer work practices in proposed §63.2268(a)(4). (Note that proposed §63.2268 was renumbered §63.2269 for the final rule.) In addition, we have extended this same minimum data availability requirement for all CPMS data averages. This requirement appears in §63.2270(f) of the final rule. The requirement states that "To calculate data averages for each 3-hour or 24-hour averaging period, you must have at least 75 percent of the required recorded readings for that period using only recorded readings that are based on valid data..." Because the final PCWP rule contains a minimum data availability requirement, we disagree that the reference to a minimum data availability requirement in §63.2270(c) should be removed.

2.7.9.4 Comment: Commenters IV-D-21 and IV-D-27 made several suggestions to clarify sections 63.2268 (What are my monitoring installation, operating, and maintenance requirements?) and 63.2270 (How do I monitor and collect data to demonstrate continuous compliance?). The commenters found it difficult to understand exactly how to follow the requirements because the two sections use different words to discuss the same subjects. The commenters suggested that the two sections be rearranged slightly so that section 63.2268 includes only information about the monitoring devices and section 63.2270 discusses only the frequency and methods of data collection, handling, and reporting. To accomplish this, the commenters recommended that sections 63.2268(a)(3) and 63.2268(a)(4) be moved to section 63.2270. Also, the commenter pointed out that section 63.2270(c) needs to be consistent with section 63.2268 regarding data that should be excluded from data averages and calculations.

The two commenters also stated that proposed sections 63.2268(a)(1), 63.2268(a)(3), and 63.2268(a)(4) need to be reworded to more clearly define which data should be included or excluded from the block averages. The commenters noted that proposed section 63.2270(b) states that all data taken when the process unit is operating must be used in the hourly and block averages, which presumably excludes periods when the process unit is not operating. The commenters suggested that the final rule would be clearer and less confusing if EPA explicitly stated that any monitoring data taken during periods when emission control equipment are not accepting emissions from the production processes should be excluded from hourly or block averages. The commenters also noted that section 63.2268(a)(3) states that any periods in which SSM occurred or routine maintenance was performed should not be included in the block average calculation, but section 63.2270 does not include the same exception. The commenters stated that, because SSM events occur when the process is not in operation, there is no need to collect data from these periods, and thus, section 63.2270 should be changed to be consistent with 63.2268(a)(3). The commenters also noted that sections 63.2268(a)(1) and 63.2268(a)(3) seem to imply that data collected during production downtime and SSM events would be included in the hourly averages but not in the block averages. The commenters also stated that the rule was unclear regarding whether or not data from any one-hour averaging period containing a 15-minute period of SSM or a routine maintenance outage should be included in the block average. In addition, the commenters stated that the rule also was unclear regarding whether or not a block average would be calculated if the period contained a 15-minute period of SSM or maintenance downtime. To clear up the confusion, the commenters suggested that EPA should modify sections 63.2268(1) and (3) to exclude periods that include SSM events from the hourly averages that are used to compute the block averages. The commenters requested that the wording in section 63.2268(a)(4) also be revised to include this clarification.

Response: We agree with the commenters that there was some ambiguity in the structure of proposed §63.2268 and §63.2270 that could cause confusion. To remedy this, we rearranged the two sections as the commenters suggested. We moved proposed §§63.2268(a)(3) and (4) to final §63.2270 (now §63.2270(d) and (e)). Rather than repeating which data should be excluded from data averages in §63.2270(d) and (e), these new sections now refer to §63.2270(b) and (c) when discussing data that should not be included in data averages. We also added data recorded during periods of SSM to the list of data that should be excluded from data averages in §63.2270. We believe these changes to the structure and wording of the rule should fully address the commenters' concerns.

2.7.9.5 Comment: Commenters IV-D-21 and IV-D-27 noted that the proposed PCWP rule does not provide any alternatives to the definition of a one-hour period found in the General Provisions (40 CFR 63.2). The commenters requested that facilities be given the option of beginning a one-hour period at a time that is convenient depending on shift changes, employee duties at the end of a shift, and settings on the systems that record data.

Response: A one-hour period is defined in the General Provisions as follows:

> One-hour period, unless otherwise defined in an applicable subpart, means any 60-minute period commencing on the hour.

The final PCWP NESHAP exercises the flexibility of this definition and provides a different definition of one-hour period for PCWP facilities as follows:

One-hour period means a 60-minute period.

We removed the phrase "commencing on the hour" from the definition because when the hour commences is not as important as whether or not the timeframe for the block average is clearly defined and consistently applied.

2.7.9.6 Comment: Commenter IV-D-27 stated that section 63.2268(a)(3) should include language that follows section 63.8(g)(4) of the General Provisions on rounding of data. The commenter stated that hourly and block average data should be rounded to the number of significant digits of the relevant standard. According to the commenter, for parameters such as temperature, the number of significant digits would be the same as the measurement device tolerance or minor division on the appropriate chart recorder specified in section 63.2268.

Response: Table 10 to subpart DDDD (Applicability of General Provisions to subpart DDDD) indicates that §63.8(g), including §63.8(g)(4), applies to the PCWP NESHAP. (Note that proposed §63.2268 was renumbered §63.2269 for the final rule.)

**2.7.10 Selection of operating parameter limits–general**

2.7.10.1 Comment: Commenters IV-D-21 and IV-D-27 objected to EPA's approach to selecting operating parameter limits because the approach does not distinguish between "naturally variable" parameters and controllable parameters, and because many of the selected parameters do not directly correlate to control device performance. The commenters argued that there is a difference between controllable parameters (e.g., RTO temperature, scrubber liquid flow rate, and other parameters that are directly manipulated by the operator or facility) and "naturally variable" parameters (e.g., biofilter inlet temperature, moisture content of dryer exhaust, and uncontrolled THC emissions concentration), and the rule does not provide sufficient guidance for the variable parameters. The commenters stated that the normal operating range for controllable parameters can easily be set when the tests for initial compliance are run; however, "naturally variable" parameters are influenced by the process performance, weather, raw materials, and similar factors, and thus, they are difficult for an operator to manipulate. The commenters noted that the operating range for "naturally variable" parameters cannot be set as easily because the conditions during the initial compliance demonstration may or may not be average or normal. The commenters contended that, instead of using the initial compliance tests to establish limits for naturally variable parameters, the limits should be based on emission control design principles. The commenters stated that examples of control equipment design-based operating parameters would be RTO residence time, outlet THC concentration, and biofilter bed temperature.

The commenters also stated that EPA has made overly broad assumptions about relationships between operating parameters and emission control equipment performance and requested that those relationships be re-examined. The commenters stated that the parameters for monitoring compliance should be specific to the process or control unit and based on design and scientific principles. The commenters noted, however, that the proposed rule contains requirements for operating parameters that may not exactly relate to the performance of that unit, such as measuring the static pressure of a thermal oxidizer. The commenters' specific objections and recommendations regarding the selection of parameters to be monitored for specific processes and control devices are discussed in sections 2.7.11 through 2.7.15.

Response: We agree with commenters that there are naturally variable parameters and controllable parameters. We have reduced the parameters to be continuously monitored and controlled for all control devices to temperature only. Responses to comments regarding specific parameters are discussed in the sections below.

**2.7.11 Selection of RTO and RCO monitoring parameters**

2.7.11.1 Comment: Commenters IV-D-21 and IV-D-27 recommended changes to the proposed requirements to monitor the operating temperature of thermal and catalytic oxidizers in §§ 63.2262 (k)(1) and (l)(1). The commenters stated that the method of determining a minimum combustion temperature is inappropriate. Because of the variation in combustion temperatures during normal conditions and the statistics involved in averaging, a facility will have to perform the initial test at lower than normal temperature conditions to ensure that the minimum combustion temperature will be maintained a majority of the time. The commenter argued that based on a Monte Carlo simulation, if the minimum temperature is set as the proposed rule requires, there is about a 30 percent chance that a facility will violate the limit once in a six month period and about a 10 percent chance that a facility will violate the limit more than ten times in six months, regardless of standard deviation. In addition, the commenter stated that a study by NCASI showed that increases and decreases in RTO operating temperature within the normal operating ranges had no effect on the destruction of HAP. Therefore, the commenters recommended that the final rule allow facilities to conduct the initial compliance test for RTOs at the design specifications of the control device, and then allow facilities to operate the thermal oxidizers up to 50°F lower than the average obtained by the test.

The commenters also noted that, for RCOs, when the THC concentration in the inlet is high, the RCO will not need any additional heat and can operate at temperatures higher than the set point. Therefore, if the initial compliance tests are conducted under these conditions, the operating temperature limit will be too high for production rates at less than full capacity. The commenters recommended that, rather than base the minimum catalyst temperature on "artificial conditions" designed to keep the THC concentration low enough during the compliance test to drop the RCO temperature to a minimum set point, operators should be allowed to set the operating limit at a level that is 100°F above the minimum operating temperature of the catalyst.

The commenters stated that these changes to the final rule for thermal and catalytic oxidizers would eliminate the practice of operating control devices below expected normal operating temperatures during the compliance test in order to provide a compliance margin. The commenters also noted that another option would be to perform tests at the boundaries rather than "representative" operating conditions, as discussed previously (see Section 2.7.5).

Response: We disagree with the commenters' request to include a 50°F margin around the minimum operating temperature established during the compliance test. In general, selection of the representative operating conditions for both the process and the control device for conducting the performance test is an important, and sometimes complex, task. Establishing the add-on control device operating limit at the level demonstrated during the performance test is appropriate. The PCWP rule allows a facility to select operating limits based on site-specific operating conditions and the facility is able to consider the need for temperature fluctuations in this selection. The PCWP rule requires that the operating limit be based on the average of the three minimum temperatures measured during a 3-hour performance test (rather than on the average temperature over the 3-hour period, for example) to accommodate normal variation during operation and ensure that the minimum temperature established represents the lowest of the temperatures measured during the compliant test. The facility does have the option of operating the oxidizer at a lower setpoint during the performance test in order to provide a margin of safety during normal operation. These provisions allow sufficient flexibility, and an additional tolerance for a 50˚F (28˚C) temperature variation is not necessary. Therefore, the final rule does not allow facilities to operate thermal oxidizers 50°F lower than the average temperature during testing.

Regarding the study conducted by NCASI, we note that the temperature range of RTOs tested as part of that study ranged from a low of 1430°F to a high of 1675°F (no RCOs were tested). We agree that the study results show that, *within that temperature range*, there was no noticeable correlation between HAP destruction efficiency and temperature; however, the study did show that acceptable HAP destructions were achieved within that range for the five RTOs that were tested. The temperature range used during the study correlates with actual RTO operating temperatures reported by PCWP facilities (i.e., 1425°F to 1625°F), and therefore, acceptable destruction efficiencies would be expected to occur within the stated temperature range.[10] No testing was conducted at temperatures lower than the "minimum normal operating level," for the individual units and therefore, we cannot be assured that RTOs operating at 50°F below 1430°F (i.e., 1380°F) will achieve the desired destruction efficiency. In addition, the final rule allows PCWP facilities to conduct multiple performance tests to set the minimum operating temperature for RCOs and RTOs, and therefore, PCWP sources would have the option to conduct their own studies (under a variety of representative operating conditions) in order to establish the minimum operating temperature at a level that they could maintain and that would provide them with an acceptable "compliance margin."

With regard to RCOs, we agree with the commenters that when the THC concentration in the inlet is high, the RCO will not need any additional heat and it can operate at temperatures higher than the set point. Therefore, if the initial compliance tests are conducted under these conditions, the operating temperature limit will be too high for production rates at less than full capacity. However, the final rule requires emissions testing under representative operating conditions and not maximum operating conditions. In addition, we do not agree with the commenter's solution to set the operating limit at 100°F above the minimum operating [design] temperature of the catalyst. As with RTOs, we believe it is incumbent upon the facility to demonstrate performance and establish the operating limits during the compliance demonstration test. Therefore, the rule has not been changed, and it requires the facility to establish the minimum catalytic oxidizer operating temperature during the compliance test. As noted below, we have provided more flexibility to the facility regarding temperature monitoring for an RCO.

We recognize that in a typical RTO and RCO, the combustion chamber contains multiple burners, and that each of these burners may have multiple thermocouples for measuring the temperature associated with that burner. The final rule requires establishing and monitoring a minimum firebox temperature for RTOs. In an RTO, the minimum firebox temperature is actually represented by multiple temperature measurements for multiple burners within the combustion chamber. Thus, the final rule clarifies that facilities operating RTOs may monitor the temperature in multiple locations within the combustion chamber and calculate the average of the temperature measurements to use in establishing the minimum firebox temperature operating limit.

Finally, the final rule includes an option (in lieu of monitoring oxidizer temperature) for monitoring and maintaining the oxidizer outlet THC concentration at or below the operating limit established during the performance test. Use of the THC monitoring option eliminates the concerns regarding establishing and monitoring oxidizer operating temperatures (i.e., it provides facilities complete flexibility in operation of the control device, as long as the THC outlet concentration remains below the operating limit).

2.7.11.2 Comment: Commenters IV-D-21, IV-D-23, and IV-D-27 stated that, for RCOs, instead of placing the thermocouple in a location to measure the gas stream before it reaches the catalyst bed, the thermocouple should be placed in a location to measure the temperature of the gas in the combustion chamber between the catalyst beds. Commenters IV-D-21 and IV-D-27 noted that, because the gas flow reverses direction in RCOs, the temperature monitor will not consistently measure the gas at the same point in the process, such that sometimes the gas temperature will be recorded after the catalyst beds instead of before. Also, the proposed PCWP rule does not provide a location for the temperature monitor if there are more than two catalyst beds. Commenter IV-D-23 also noted that plugging near the temperature probe in the bed can cause inaccurate readings. Commenters IV-D-21 and IV-D-27 stated that placing the monitor inside the combustion chamber eliminates the need for multiple monitors and avoids problems such as overheating and burnout of the catalyst media caused by the temperature delay between the burner and the RCO inlet.

Response: Most RCOs have two or more catalyst sections with a "combustion chamber" located in between and supplemental gas heating. The purpose of the supplemental gas heating is to provide the necessary heat input during startup, as well as to ensure that the minimum temperature necessary to initiate the combustion reaction on the catalyst is maintained during operation (i.e., that a minimum catalyst inlet temperature is maintained). The operation of these units and the associated temperature measurement and monitoring is complex. The commenters properly indicated that because the gas flow reverses direction in RCOs, the temperature monitor will not consistently measure the gas at the same point in the process, such that sometimes the gas temperature will be recorded after the catalyst beds instead of before (i.e., at the inlet). We did not intend to require the separate measurement of each "inlet" temperature by switching the data recording back and forth to coincide with the flow direction into the bed. The intention is to monitor the "minimum" temperature of the gas entering the catalyst to ensure that the minimum temperature is maintained at the operating level during which compliance was demonstrated. This can be accomplished by measuring the temperature in the regenerative canisters at one or more locations. Measuring the inlet temperatures of each catalyst bed and then determining the average temperature for all catalyst beds is one approach; even though some of the beds are cooling and others are heating, the average across all of the catalyst beds should not vary significantly. Another acceptable alternative is monitoring the "combustion chamber" temperature as suggested by the commenters. The monitoring location(s) selected by the facility may depend on the operating conditions (i.e., THC loading to the unit) during the performance test and on how the unit is expected to be operated in the future. The objective is to establish monitoring and operating limits that are representative of the conditions during the compliance demonstration test(s) and representative of the temperature to which the catalyst is exposed. We recognize the need for flexibility in selecting the temperature(s) to be monitored as operating limits for RCOs. Therefore, the final rule provides flexibility by allowing facilities with RCOs to choose between basing their minimum RCO temperature limit on the average of the inlet temperatures for all catalyst beds or the average temperature within the combustion chamber. If there are multiple thermocouples at the inlet to each catalyst bed, then we would expect facilities to average the measurements from each thermocouple to provide a representative catalyst bed inlet temperature for each individual catalyst bed. The same would apply for facilities establishing a minimum catalytic oxidizer temperature based on multiple burner temperatures within the combustion chamber.

2.7.11.3 Comment: Commenters IV-D-03, IV-D-21, and IV-D-27 stated that PCWP facilities should not be required to measure and comply with limits on the static pressure at the inlet to a thermal oxidizer. According to the preamble (68 FR 1292), monitoring the static pressure at the inlet to a thermal oxidizer is supposed to indicate the exhaust flow rate entering the thermal oxidizer and the capture efficiency. However, the PCWP rule also states that facilities must maintain either the static pressure or the maximum process unit exhaust flow rate, making EPA's real wishes unclear. The inlet static pressure to a thermal oxidizer is not a reliable indicator of the flow through the oxidizer, the destruction efficiency, or the capture efficiency. The commenters also noted that the preamble to the PCWP rule says that monitoring the static pressure can indicate to the operator when there is a problem such as plugging. However, static pressure is usually the last indicator of these types of control device problems. The commenters agreed that measuring those parameters helps to assess the overall condition of the oxidizer, but EPA should not set limits on them. Instead, all of the measured parameters should be examined together to determine if there is a problem with the control device, and operators should follow the work practices to help ensure compliance. The operators should also keep track of a combination of parameters to tell them when maintenance should be performed to avoid those problems. Monitoring the static pressure actually helps to control the speed of the fan or the oxidizer dampers so that all the air flows are balanced. Static pressure is adjusted to avoid vacuum conditions in the ductwork of multiple-dryer systems treated by one control device when one dryer is shut down, to improve emission collection efficiency and prevent fugitive emissions, and to adjust the pressure drop across a bag filter as it fills with particulates, among others. However, if operators are required to keep the static pressure within an operating range, it will limit their ability to maintain capture efficiency. Also, the normal static pressure at the oxidizer inlet may change over time as particulate matter accumulates in the heat exchanger. If EPA requires facilities to maintain the static pressure at a set level, the oxidizer would need to be cleaned more often, meaning that facilities would need more downtime. The commenter requested that the EPA recognize static pressure as one of a number of parameters that can ensure that the flow rate is sufficient instead of requiring facilities to measure it. The EPA should keep in mind that maintaining a certain static pressure does not necessarily ensure that a dryer is in compliance, and likewise, a deviation from the static pressure endpoint does not necessarily indicate that the dryer is out of compliance because there was likely no change in the capture or destruction rate. If static pressure monitoring becomes mandatory, then large operational, maintenance, and reporting burdens will be placed on facility personnel. Facilities should be able to demonstrate that an appropriate air flow is being maintained by a combination of parameters that include monitoring static pressure, flow, and fan performance and documenting that the system was designed well. Also, if retained as an operating parameter, the minimum limit on the static pressure should be removed, and the averaging period should be increased to 24 hours to avoid deviations caused by statistics.

Response: For the reasons stated by the commenters, we agree that the requirement to monitor and establish operating limits for static pressure (as an alternative to air flow) should be dropped from the monitoring requirements for thermal and catalytic oxidizers. We deleted this requirement from the final rule.

2.7.11.4 Comment: Commenters IV-D-03, IV-D-21, and IV-D-27 stated that the monitoring and control requirements on air flow through control devices are unnecessary. The commenters noted that the preamble to the PCWP rule states that monitoring air flow would provide an indicator of capture efficiency; however the commenters contended that air flow, like static pressure, is an unreliable method of monitoring capture efficiency. Theoretically, the best performance is achieved when the temperature is above a minimum and flow is below a maximum. However, applying a compliance limit to the maximum of the flow rate through a thermal oxidizer limits the possible capture efficiency. Establishing a minimum flow rate for the oxidizer could make sense, since any air not flowing through the oxidizer would go untreated. However, if such a limit is set, EPA should keep in mind that numerous factors affect the air flow through the control device, including the rate of water removal in dryers, leakage of tramp air into the process, the number of processes operating for control units that receive emissions from multiple production units, the controls placed on veneer dryers to avoid pulling too much cold air into the dryer, the retention time for rotary dryers, and the overall production speed due to process adjustments. If the air flow to the control device is not constant, then monitoring the air flow through the control device will not be an accurate measure of capture efficiency. Also, if EPA wants to require facilities to monitor air flow to demonstrate that press enclosures meet Method 204 standards, that condition should be part of the enclosure requirements, not those of the control device. Any limit to the air flow that would cause a minimum production rate should not be considered. Most systems are fixed-flow, so the design of the system will define the flow. For oxidizers, EPA should not place a minimum on the air flow, and monitoring the air flow should be just one option for demonstrating capture efficiency.

Response: For the reasons stated by the commenters, we agree that the requirement to monitor and establish operating limits for air flow (as an alternative to static pressure) should be dropped from the monitoring requirements for thermal and catalytic oxidizers. We deleted this requirement from the final rule.

2.7.11.5 Comment: Commenters IV-D-21 and IV-D-27 stated that one operating limit should be sufficient for each control device, but acknowledged EPA's historical preference for two operating limits per control device. The commenters noted that if EPA decided to delete the operating limits for static pressure and air flow, thus leaving only one operating limit (temperature) for thermal and catalytic oxidizers, EPA could add a requirement to demonstrate appropriate oxidizer residence time during the initial performance test. According to the commenters, the demonstration test could involve demonstrating the required destruction efficiency while operating the oxidizer within 10 percent of maximum fan capacity. As long as the oxidizer cannot exceed the maximum design flow rate, then no further flow rate monitoring should be required. However, if there is a possibility that the actual residence time of oxidizer could be shorter than designed (e.g., for those oxidizers with fan capacities that exceed the design oxidizer residence time), the facility should monitor either the flow rate or another parameter during operation to demonstrate that the residence time remains within the designed time. Commenter IV-D-27 gave an example whereby a facility installs a larger RTO or RCO than necessary to allow for future expansion, such that the fan would not be running at full capacity. In such cases, the commenter stated that the facility could petition EPA to conduct the compliance tests at the anticipated operating conditions and limit either the fan speed or the air flow rate. In that case, air flow monitoring would be appropriate, but it should not be mandatory for everyone.

Response: As stated in the previous response, we have deleted air flow (and static pressure) monitoring from the operating requirements for thermal and catalytic oxidizers in the final PCWP rule. The final rule requires continuous monitoring of temperature for thermal oxidizers. We believe that temperature is both a controllable parameter and a reliable indicator of control efficiency for thermal oxidizers, and that it is appropriate to require monitoring of a single parameter (temperature) for this device. For catalytic oxidizers, the final rule requires continuous monitoring of temperature and an annual test of catalyst activity level (see response to comment No. 2.7.11.6 below). We believe that these two requirements together will provide sufficient monitoring of the catalytic oxidizers. Therefore, the final rule does not include the initial residence time test suggested by the commenters.

2.7.11.6 Comment: Commenter IV-D-07 suggested that a catalyst sampling and testing method be incorporated into the rule. The current requirement to monitor inlet pressure may not be sufficient to detect catalyst problems such as poisoning, blinding, or degradation.

Response: We agree with the commenter that a catalyst activity level check is needed because catalyst beds can become poisoned and rendered ineffective. An activity level check can consist of passing an organic compound of known concentration through a sample of the catalyst, measuring the percentage reduction of the compound across the catalyst sample, and comparing that percentage reduction to the percentage reduction for a fresh sample of the same type of catalyst. One company that performs this service charges less than $800; and in this case, the catalyst sample is removed from the bed by the facility and then shipped to the testing company where its ability to oxidize organic compounds is determined with a flame ionization detector.[26]

In response to this comment, we added to the final rule a requirement for facilities with catalytic oxidizers to perform an annual catalyst activity check on a representative sample of the catalyst and to take any necessary corrective action to ensure that the catalyst is performing within its design range. Corrective actions may include washing or baking out the catalytic media, conducting an emissions test to ensure the catalytic media is resulting in the desired emissions reductions, or replacing all or part of the media. Catalysts are designed to have an activity range over which they will reduce emissions to the desired levels, and therefore, the final rule specifies that corrective action is needed only when the catalyst activity is outside of this range. It is not our intention for facilities to replace catalyst if the catalytic media is not performing at the maximum level it achieved when the catalyst was new. The final rule specifies that the catalyst activity check must be done on "a representative sample of the catalyst" to ensure that facilities that may have recently conducted a partial media replacement do not sample only the fresh catalytic media from the catalytic oxidizer for the catalyst activity check.

### 2.7.12 Process incineration monitoring requirements

2.7.12.1 Comment: Commenter IV-D-27 noted that combustion units with heat input capacity greater than or equal to 44 megawatts (MW) that accept process exhausts into the flame zone would be exempt from the initial performance testing and operating requirements for thermal oxidizers as stated in the proposed rule. The commenter requested that EPA modify the language in the final PCWP rule to conform with similar language in the HON and the Pulp and Paper Cluster rule as follows (modified text in italics): "Combustion units with heat input capacity greater than or equal to 44 megawatts that accept process exhausts into the flame zone *or with the combustion air* are exempt from the initial performance testing and operating requirements for thermal oxidizers." The commenter gave an example whereby the process exhaust from a veneer dryer might be added as combustion air for a process boiler (e.g., as under-fire air, over-fire air, or both) instead of being added directly to the flame zone of the boiler. The commenter noted that in the HON and Cluster rules, EPA recognized that boilers greater than 44 MW typically had greater than $^{3}/_{4}$-second residence time, ran hotter than 1500°F, and usually had destruction efficiencies greater than 98 percent. (See 65 FR 3909, January 25, 2000 and 65 FR 80762, December 22, 2000 at § 63.443(d)(4)(ii)). The commenter stated that the design and construction of PCWP boilers follow the same principles that would allow for these operating conditions.

Response: As noted by the commenter, the HON (subpart G) and the final Pulp and Paper MACT I rule (subpart S) included the requested provision for boilers (and for recovery furnaces at pulp and paper mills) with heat input capacity greater than 44 MW, because performance data showed that these large boilers achieve at least 98 percent combustion of HAP when the emission streams are introduced with the primary fuel, into the flame zone, or with the combustion air. Lime kilns at pulp and paper mills were excluded from this provision because we did not have any data to show that lime kilns can achieve the required destruction efficiency when the HAP emission stream is introduced with the combustion air. Therefore, lime kilns at pulp and paper mills that accept HAP emission streams must introduce the stream into the flame zone or with the primary fuel. We do not have the data to show that the design and construction of large (>44 MW) combustion units at PCWP plants would be similar to boilers found at pulp and paper mills. Furthermore, combustion units at PCWP plants with heat input capacity of greater than 44 MW are less prevalent than smaller (i.e., less than 44 MW) PCWP combustion units, and many of these smaller combustion units are not boilers. As discussed in the response to comment No. 2.7.12.2, we are eliminating the testing and monitoring requirements for these smaller combustion units, provided that the HAP emission stream is introduced into the flame zone. For these reasons, the final PCWP rule does not extend the exemption from testing and monitoring to those boilers greater than 44 MW that introduce the HAP emission stream with the combustion air, as requested by the commenter.

2.7.12.2 Comment: Commenters IV-D-21 and IV-D-27 noted that combustion units with a heat capacity input of greater than or equal to 44 MW (150 million BTU/hr) are exempt from initial performance testing and operating requirements, and the commenter requested that combustion units with a heat capacity input of less than 44 MW that use process exhausts in the flame zone be exempt as well. The exemption would be based on the demonstration that the combustion unit's temperature and residence time are sufficient to destroy the necessary HAP. For example, some plants install a combustion unit between the press and the dryer so that the emissions from the press can provide heat for the dryer. These units can also burn the emissions from small process units, such as blenders, without requiring supplemental fuel. For most of these setups, it would be difficult to conduct a compliance test because many of the combustion units do not have a real vent to serve as a sampling location, and the dryer emissions do not have the same composition as the gas traveling from the combustion output to the dryer input. Since most wood products dryers have a heat capacity of 20 to 50 million Btu/hr, they would not meet the exemption discussed above. If P2 measures are being applied to the dryer, it may not have a control device, meaning that the entire setup may not be in compliance with the proposed PCWP rule. However, there are three possible scenarios for the actual emissions from this setup and similar configurations, and all three point to the conclusion that the combustion unit does not need to undergo initial compliance tests or control requirements. In the first scenario, a process dryer is fed by emissions from any source and the exhaust is fed to a control device. The control device would ensure at least 90 percent destruction efficiency, and testing the burner would be unnecessary. In the second scenario, the burner of a process dryer is fed by emissions from a non-credit-generating source such as a press, and the dryer meets the requirements of the PBCO. The dryer emissions would include the HAP created by the dryer and the undestroyed HAP from the burner. Presumably, to meet the PBCO, destruction of press vent emissions would need to meet or exceed the 90 percent destruction efficiency requirement. EPA should allow the facility to meet the PBCO limit plus 10 percent of the press emissions, since that would be equivalent to 90 percent control. The third scenario is similar to the second, except the dryer is fed by a credit-generating source such as a blender. Since the burner exhaust cannot be measured directly, EPA should provide a method for counting the credits generated by destroying the HAP from that source. The facility could measure the dryer outlet and subtract 10 percent of credit generation rate to determine compliance with the PBCO. This approach would give 100 percent credit for destruction of the credit-generation emission, whereas the proposed rule does not allow for credits based on more than 90 percent destruction. Alternatively, the rule could just require that the PBCO be met with no credit given for emissions from the credit- generating source that were not destroyed in the process burner. This approach would assume 100 percent destruction of the credit-generating emission and then only 90 percent would be applied to the PBCO. In any case, regardless of the heat capacity input, none of the combustion units would need to be tested, and the commenters requested that the following phrases be added to the PCWP rule:

> 40 C.F.R. § 63.2260(a) [add] . . . *Process heaters used to oxidize emissions from presses or other sources that exhaust into dryers are exempt from the initial performance testing requirements for thermal oxidizers.*
> 63.2262(d) Location of sampling sites.
> (1) For testing control devices located prior to final discharge to the atmosphere, sampling sites must be located at the inlet of the control sequence and at the outlet of the control device prior to any releases to the atmosphere.
> (2) For testing control devices located between process units, such as process burners, sampling sites must be located at the inlet of the control sequence.
> (3) Sampling sites for process based emission limits in Table 1A are to be located prior to any releases to the atmosphere.

Finally, the commenter provided an alternative to the exemption requested above for combustion units with a heat capacity of less than 44 MW. If these units must be tested, the test method should be able to distinguish between the HAP generated by the combustion unit and the HAP generated by other parts of the process. During the 90 percent reduction performance test, the combustion emissions should be tested first separate from the process unit emissions and then with those emissions. If the difference between the two emission measurements is not statistically significant, then the combustion unit is in compliance. The description of a similar test is located at 40 CFR 60, appendix C.

Response: As noted by the commenter, the HON (subpart G) and the final Pulp and Paper MACT I rule (subpart S) exempt from testing and monitoring requirements combustion devices with heat input capacity greater than or equal to 44 MW. The HON also exempts from testing and monitoring combustion devices with capacity less than 44 MW if the exhaust gas to be controlled enters with the primary fuel. If the exhaust gas to be controlled does not enter with the primary fuel, then testing and continuous monitoring of firebox temperature is required by the HON.  Similarly, the final Pulp and Paper MACT I rule (subpart S) exempts from testing and monitoring requirements combustion devices (including recovery furnaces, lime kilns, boilers or process heaters) with capacity less than 44 MW if the exhaust stream to be controlled enters into the flame zone or with the primary fuel.  Based on the precedent established in the HON and Pulp and Paper MACT I rules, the final PCWP rule extends the exemption from testing and monitoring requirements to combustion units with heat input capacity less than 44 MW, provided that the exhaust gas to be treated enters into the combustion unit flame zone.  If the exhaust gas enters into the combustion unit flame zone, the required 90 percent control efficiency may be assumed.  If the exhaust gas does not enter into the flame zone, then the testing and monitoring requirements for thermal oxidizers will apply.  Given that few combustion units would require testing, the final rule does not specify how to differentiate between the HAP generated by the combustion unit and the HAP generated by other parts of the process.  Facilities may petition the Administrator to determine if such differentiation will be allowed, and how to measure to emissions.

Regarding the first scenario presented by the commenters (where a process dryer is fed by emissions from any source and the exhaust is fed to a control device), we agree that the control device would ensure at least 90 percent destruction efficiency, and testing the burner would be unnecessary.

The second operating scenario presented by the commenters involves a dryer burner used to control press emissions, while the dryer meets the PBCO.  We believe that the commenter’s suggestion of allowing the facility to meet the dryer PBCO plus 10 percent of the press emissions is overly complicated.  The final PCWP rule already contains three sets of compliance options (six add-on control system compliance options, PBCO limits for each process unit, and emissions averaging).  We believe that adding additional provisions for combining compliance options for the numerous potential process unit and control system exhaust configurations would complicate the rule to the point that enforceability of the rule would be hampered.  Therefore, a source with a dryer used to control press emissions that chooses to comply with the PBCO must meet the dryer PBCO as stated in the final rule and would not be allowed to account for any uncombusted press emissions.  The press emissions routed to the dryer burner would be assumed to be reduced by 90 percent, provided that the press emissions are introduced into the dryer burner’s flame zone.

The third operating scenario presented by the commenters involves routing exhaust from an emissions averaging credit-generating unit (e.g., blender) to a dryer burner while the dryer complies with the PBCO. In this scenario, the uncontrolled blender emissions would be measured prior to entering the dryer burner. For purposes of calculating emissions averaging credits, the blender emissions directed to the dryer burner would be assumed to be reduced by 90 percent, provided that the blender emissions are introduced into the dryer burner's flame zone. We disagree that the dryer PBCO should be changed to accommodate the blender emissions for two reasons. First, as noted for scenario 2 above, altering the PBCO to account for process emissions added to the dryer burner would introduce unnecessary complexity to the rule. Second, the final rule does not allow combining of emissions averaging and the PBCO as discussed previously in sections 2.6.3 and 2.6.4 of this document.

The wording we incorporated into the final rule is less specific than the wording suggested by the commenter; however, it still accomplishes the goal of exempting from the testing and monitoring requirements combustion units that accept process exhausts into the flame zone. We have also included definitions of "flame zone" and "combustion unit" in the final rule.

**2.7.13 Selection of biofilter monitoring parameters**

2.7.13.1 Comment: Commenters IV-D-21 and IV-D-27 agreed that temperature is a parameter that should be monitored for biofilters, but argued that the location of the temperature monitor should be changed from the biofilter inlet to the biofilter bed. The bed temperature has the greatest impact on biological activity. The biofilter inlet temperature is not a good indicator of the bed temperature and can change very rapidly depending on the operating rate of the press, the humidity, and the ambient temperature. Although biofilters can operate in a wide range of temperatures, it is important to make sure that the biofilter remains in that range to support biological activity and maintain performance level. For that reason, the temperature should be monitored at an alternate location, such as the biofilter bed, the biofilter outlet, or the support media for the biological material. To compensate for low inlet temperatures due to low humidity, some biofilters have supplemental heat added to the humidifier. However, EPA cannot require that facilities measure humidifier inlet temperature, because some systems do not have a humidifier. The commenter requested that EPA change the temperature monitoring location to the biofilter exhaust or the biological media/bed.

Response: We agree with the commenter that the biofilter bed temperature has the greatest impact on biological activity and that the location for monitoring the biofilter temperature should be changed. We did not propose monitoring of biofilter bed temperature because we thought that monitoring of biofilter inlet temperature would be simpler because only one thermocouple would be required. The temperature inside the biofilter bed can change in different areas of the bed, and therefore, depending on the biofilter, multiple thermocouples may be necessary to get an accurate picture of the temperature conditions inside the biofilter bed. Prior to proposal we rejected the idea of monitoring the biofilter exhaust temperature because temperature measured at this location can be affected by ambient temperature (especially for biofilters with short stacks) more than the temperature inside the biofilter bed. Thus, we now conclude that there is no better, more representative way to monitor the temperature to which the biofilter microbial population is exposed than to directly monitor the temperature of the biofilter bed. According to our MACT survey data, most facilities with biofilters are already monitoring biofilter bed temperature. Therefore, the final rule requires continuous monitoring of the temperature inside the biofilter bed.

We acknowledge that biofilter bed temperature can vary with seasonal conditions, and that the biofilter can reduce HAP within a relatively wide temperature range (e.g., 70 to 100˚F). Biofilters are currently located in different areas of the United States, including the upper Midwest and the South. Biofilter bed temperature is a controllable parameter; the exhaust stream entering the biofilter can be cooled through humidification or heated using steam as necessary to maintain the biofilter bed within its optimal temperature range. However, we believe that the optimal temperature range for individual biofilters is based on site-specific conditions (e.g., type of media and microbes, climate at the facility, whether the biofilter is located above or below ground). Therefore, we believe it is appropriate that the temperature range for each individual biofilter be verified through emissions testing. Facilities experiencing large seasonal variations in their biofilter bed temperatures may choose to expand their temperature operating range by conducting performance tests during winter and summer months.

The proposed rule would have allowed facilities to specify their own monitoring methods, monitoring frequencies, and averaging times for the proposed biofilter operating parameters (i.e., inlet temperature, effluent pH, and pressure drop). However, as discussed elsewhere in section 2.7.13, for the final rule we have reduced the biofilter parameters to be monitored to temperature only. Monitoring of temperature is not as subjective as monitoring biofilter effluent pH and pressure drop, and therefore, as an outgrowth of our decision not to require monitoring of biofilter effluent pH and pressure drop, the final rule specifies the monitoring method, frequency, and averaging time for biofilter bed temperature monitoring. The final rule requires that each thermocouple be placed in a representative location, and clarifies that multiple thermocouples may be used in different locations within the biofilter bed. The temperature data (e.g., average temperature across all the thermocouples located in the biofilter bed if multiple thermocouples are used) must be monitored continuously and reduced to a 24-hour block average. A 24-hour block average was selected for biofilter temperature monitoring because we recognize that there may be some diurnal variation in temperature. Facilities wishing to reflect a diurnal temperature variation when establishing their biofilter temperature may wish to perform some test runs during peak daily temperatures and other test runs early in the morning when temperatures are at their lowest.

2.7.13.2 Comment: Commenters IV-D-21 and IV-D-27 stated that the operating requirements for pressure drop across the biofilter bed should be removed from the PCWP rule. Pressure drop is a good parameter to monitor voluntarily because it indicates the permeability and age of the biofilter bed, which helps determine maintenance and replacement needs. However, it is not an indicator of destruction efficiency. Because of normal wear and tear, the pressure drop gradually increases over the two to five year life span of the biofilter, so it would not be possible to maintain a constant operating pressure. Monitoring pressure drop should only demonstrate that a biofilter is operating within the design specifications. The commenter noted that the OAQPS *Background Information Document (BID) for the Proposed Plywood and Composite Wood Products NESHAP* only mentions pressure drop as an indication of age and life of the filter bed, but it does not provide proof that pressure drop indicates destruction efficiency. The three documents referenced by the BID, *Summary of the Responses to the 1998 EPA Information Collection Request (MACT Survey) - General Summary* (Docket II-B-30), *Proposed Monitoring Protocol for Biofiltration Systems From the Forest Products Industry* (II-D-495), and *Minutes of the August 5, 1998 Meeting with Envirogen, Inc*. (II-E-15), do not support the idea that pressure drop indicates control efficiency, but they do support the idea that pressure drop indicates age and life of the biofilter bed. The third source listed does discuss a situation in which a biofilter became clogged and efficiency decreased, but the manufacturer found that inlet temperature change was to blame, not the pressure drop in the biofilter bed. The current PCWP rule does not allow for the normal increase in pressure drop, but simply monitoring the pressure drop would indicate when maintenance is needed. If biofilter pressure drop remains a mandatory control parameter, facilities will be forced to change the biofilter media before the end of its useful life. During the times that the biofilter is being replaced, a large amount of HAP escapes to the atmosphere, so changing the bed more often could result in a net increase in HAP. An absolute limit on pressure drop is impractical, since action is only necessary when the pressure drop increases rapidly from current conditions. Facilities could be allowed to retest existing biofilters when they reach the end of their useful lives to determine the new operating range. Since the results from compliance tests performed before a modification cannot be used to set operating limits on the modified unit, a new operating range could only be determined in this manner if changing a biofilter bed or media type is not considered a modification of the biofilter.

Response: We agree with the commenters that increases in pressure drop will occur over time and will not necessarily equate to a reduction in control efficiency, making an absolute limit on pressure drop ineffective in demonstrating continuous compliance. Therefore, we have removed the requirement to monitor pressure drop from the operating requirements for biofilters in the final PCWP rule.

2.7.13.3 Comment: Commenters IV-D-21 and IV-D-27 stated that the operating requirements for pH of the biofilter bed effluent should be removed from the PCWP rule. The commenters noted that pH is a good parameter to monitor voluntarily because it indicates the environmental conditions inside the biofilter bed and can indicate the presence of organic acids and THC decomposition products, but it is not a reliable indicator of destruction efficiency. If other environmental factors are favorable, a pH between 6.0 and 7.5 is sufficient to allow the existing microorganisms to oxidize the organic material and sustain biological activity. The pH within a biofilter system tends to regulate itself well, and small fluctuations of pH are expected and have little effect on the biofilter performance. However, the narrow range of pH values that would be established as an operating range by the initial compliance tests should not be used alone to determine biofilter performance or the need for major adjustments. Those major adjustments are only needed if the pH falls below 6.0. Another issue with monitoring biofilter pH is the ability to continuously monitor that parameter. Some biofilter units operate with periodic irrigation of the bed, meaning that the effluent is not constant and continuous monitoring is not possible. Attempting to irrigate these types of beds continuously would block mass transfer and severely reduce the performance of the biofilter. Because the effluent is not continuous, there is no good location for measuring the pH of a biofilter, and monitoring a stagnant sample of water certainly would not achieve the goal. The commenters pointed to an NCASI survey that confirmed that pH monitoring would be impractical for the facilities surveyed. Further, since none of the facilities surveyed could find a link between pH alone and biofilter production, none of those facilities currently have pH monitors on their biofilters. If a facility chooses to measure this parameter, readings should only be taken once a week, and calibration should not be performed more often then that. The pH changes fairly slowly, so recording the pH frequently is unnecessary. Commenter IV-D-03 suggested that checking the pH meter calibration quarterly rather than every eight hours would be a lot more realistic and would relieve a large burden of monitoring time, labor, recordkeeping, and other factors.

Response: Although pH is an indicator of the health of the microbial population inside the biofilter, we agree with the commenters that including continuous pH monitoring as an operating requirement for biofilters may not be appropriate. We acknowledge that there is not a good location for continuously measuring pH in some biofilters and that pH is not necessarily a reliable indicator of destruction efficiency. Therefore, we have removed the requirement to monitor pH from the operating requirements for biofilters in the final PCWP rule. We have also deleted the pH meter calibration procedures that commenter IV-D-03 refers to from the rule.

2.7.13.4 Comment: Commenters IV-D-21 and IV-D-27 requested that EPA give facilities some flexibility in choosing the biofilter operating parameters that will be subject to operating ranges and controls. Many facilities that currently operate biofilters measure the temperature and pressure, along with other physical characteristics, but the readings are only observed, and not subject to limits. To demonstrate HAP removal, most of these facilities use periodic stack testing or CEMS for THC. Since biofilters have not been in use long enough for a thorough study of monitoring requirements, EPA should leave room in the PCWP rule to allow facilities to monitor and control the parameters that they feel best demonstrate compliance. The commenter agreed that outlet temperature could be an acceptable parameter for control.

Response: We have eliminated the proposed requirements for monitoring biofilter pressure drop and pH, and we have revised the biofilter temperature monitoring requirement. The only parameter required to be monitored and controlled for the final PCWP rule is biofilter bed temperature. Facilities may choose to observe other parameters, but will not be required to record or control them for the PCWP rule. We believe that many factors can affect biofilter performance, either alone (e.g., a media change) or in concert with one another (e.g., a loss of water flow resulting in a sharp change in temperature and pH), and the factors that have the greatest effect on biofilter performance are likely to be site specific. However, based on the comments we have received, we conclude that extensive biofilter parameter monitoring is not the best method for ensuring continuous compliance. Therefore, to promote enforceability of the PCWP rule, we have added a requirement to perform repeat testing of biofilters. The final rule requires facilities to conduct a repeat test every two years and every time they replace at least 50 percent (by volume) of the biofilter media. Each repeat test must be conducted within two years of the previous test (e.g., two years after the initial compliance test, or two years after the test following a media change). Facilities using a THC CEMS that choose to comply with the THC compliance options (i.e., 90 percent reduction in THC or outlet THC concentration less than or equal to 20 ppmvd) may use the data from their CEMS in lieu of conducting repeat performance testing.

2.7.13.5 Comment: Commenters IV-D-21 and IV-D-27 stated that replacing the biofilter media should not be considered a modification of the biofilter. The frequency of replacement can be as often as two years, and it is unnecessary for facilities to establish new operating ranges every time the media is replaced. Instead, the operating range used for the previous bed should be appropriate for the replacement bed. The EPA may choose to require one test to confirm that the new bed is still operating within the same range after the bed is acclimated. The wording of section 63.2262(m)(2) (How do I conduct performance tests and establish operating requirements? - Establishing biofilter operating requirements) indicates that EPA does not consider the replacement of a biofilter bed to be in the same category as new biofilters. The commenters requested that the following sentence be added to section 63.2262(m)(1): "Replacement of biofilter media with the same type of material is not considered a modification for purposes of this paragraph."

Response: We agree that facilities replacing the biofilter media with any amount of the same type of media should not be required to reestablish their biofilter bed temperature. Section 63.2262(m)(1) of the proposed rule stated that "If you use data from previous performance tests, you must certify that the biofilter and associated process unit(s) have not been modified subsequent to the date of the performance tests" (emphasis added). We agree that it is appropriate to use data from previous performance tests to establish the biofilter bed temperature range when the biofilter has not been "modified" in a way that will affect its long-term performance. We believe that substantial replacement of the biofilter media (i.e., replacement of 50% or more of the biofilter bed) with the same type of media may affect short-term performance of the biofilter while the replacement media becomes acclimated. Therefore, to ensure that the media is acclimated, the final PCWP rule requires a repeat performance test within 180 days following replacement of 50 percent or more (by volume) of biofilter media with the same type of media. We have added the sentence suggested by the commenters to §63.2262(m)(1) to indicate that a new biofilter bed temperature range need not be established following replacement of the biofilter bed media with the same type of material. During repeat testing following replacement with the same type of media, facilities can verify that their biofilter remains within the temperature range established previously or establish a new compliant temperature range.

As discussed in response to comment No. 2.7.13.6 below, for purposes of §63.2262(m)(1)-(3) we do consider replacing the biofilter media with another type of media as a "modification" of the biofilter that necessitates establishment of a new biofilter bed temperature range. The final PCWP rule requires facilities to conduct a repeat performance test following every replacement of the biofilter media with any volume of a different media (e.g., if the media is changed from bark to synthetic material). Facilities using a different type of media must re-establish their temperature range.

2.7.13.6 <u>Comment</u>: Commenters IV-D-21 and IV-D-27 stated that EPA should allow new biofilters a longer period than 180 days to establish operating parameter levels. The commenters suggested a one-year period, since that would be long enough to observe the full seasonal variation in parameters and find the true operating maxima and minima. For example, it is not very likely that 180 days would be long enough to observe the complete temperature range within which biofilters can effectively remove water-soluble HAP. Section 63.2262 (m)(2) (How do I conduct performance tests and establish operating requirements? - Establishing biofilter operating requirements) should be completely replaced by the following section:

> (2) If historical operating records are not readily available <u>for new</u> biofilters, biofilters that have been physically modified, or biofilters with media replaced with a new or

> different type of media, you will be allowed up to 1 year following the compliance date to gather and complete the requirements of paragraph (m)(1) of this section.

A long establishment period would also allow the biofilter to become completely acclimated and provide a better understanding of its regular operation. Since biofilters have a slow response time, compliance testing under different conditions does not give reliable results. Instead the best ways to determine operating ranges for a new biofilter are to accept data from previous biofilters or observe the performance of the unit for a year. If a facility has to establish a pressure drop operating range, the period of time to establish that range would be much longer than a year. An appropriate operating range would need to be based on the pressure drop at the end of the life span of the biofilter. The commenter stated that waiting that long to establish compliance parameters is impractical, and the situation provides another argument for omitting pressure drop requirements from the PCWP rule.

Response: We disagree that more than 180 days is necessary to establish operating parameter limits for biofilters. As mentioned previously, we have eliminated the proposed requirement to establish operating limits for pH and pressure drop. The final PCWP rule contains two options for biofilter operating parameter limits: biofilter bed temperature range, and outlet THC concentration. While allowing one year to establish the biofilter bed temperature operating range is reasonable due to seasonal temperature variations, 1 year is not necessary for establishing an outlet THC concentration limit. Furthermore, the final PCWP rule already allows facilities to expand their operating ranges (see §63.2262(m)(3)) through additional emissions testing.

The compliance date for existing facilities is 3 years after promulgation of the final PCWP rule, and existing facilities are allowed 180 days following the compliance date to conduct performance testing and establish the operating parameter limits. If there is concern that 180 days is not long enough for a new biofilter installation to operate under the full range of biofilter bed temperatures, then existing facilities begin operation of their biofilter well before the compliance date (e.g., 180 days prior to the compliance date if 1 year is needed). Facilities also have the option of testing their biofilter prior to the compliance date to establish one extreme of their biofilter bed temperature range. The compliance date for new PCWP facilities is the effective date of the rule (if startup is before the effective date) or upon initial startup (if the initial startup is after the effective date of the rule), and biofilters installed at new PCWP facilities would have up to 180 days following the compliance date to establish the operating parameter limits. To address situations where a new biofilter is installed at an existing facility more than 180 days after the compliance date (e.g., to replace an existing RTO), we have included section §63.2262(m)(2) in the final PCWP rule, which allows existing sources that install new biofilters up to180 days following the initial startup date of the biofilter to establish the operating parameter limits. Thus, new biofilter installations (i.e., those with initial startup dates after the compliance date) are given time for establishment of operating parameter limits regardless of where they are installed at new or existing sources.

**2.7.14 Continuous THC monitoring**

2.7.14.1 Comment: Commenters IV-D-21 and IV-D-27 supported the option to continuously monitor THC at control device outlets to demonstrate compliance, but stated that either the procedure for determining the operating limits or the length of the averaging periods needs to be altered. The THC concentration at a control device outlet is not a parameter that can be easily adjusted by operators. The concentration is mainly influenced by the THC content in the wood, which is dependent on the location and age of the timber, the season, and the length of time between cutting the timber and drying the wood. These are not factors that can be directly changed by operators over short periods of time just to maintain a certain THC concentration. A different method is needed to determine whether or not a facility is in compliance. The proposed PCWP rule requires that the operating limits be set as the average of the three highest 15-minute block reporting periods during the 3-hour compliance demonstration emission test. However, the commenter stated that based simply on the variability of the process, three hours is not a long enough block to avoid deviations from compliance. The commenter provided a table of analyzed THC data from a biofilter outlet. The table showed multiple deviations occurring over the two-month period after compliance when a 3-hour block set the operating limits and few to zero deviations when a 24-hour or 7-day block set the operating limits. In order to avoid numerous deviations under the proposed PCWP rule, a mill would have to try to set the operating limits when emissions are at a maximum, but that situation occurs less than 5 percent of the time that the device is operating. The commenter recommended adopting the 7-day block average because it provides a better overall picture of the control device performance. Since HAP destruction efficiency of biofilters does not vary much with time, the longer block would not be environmentally dangerous. Alternatively, EPA could establish a 24-hour block operating limit as the highest 1-hour average THC reading in the week preceding and following the compliance demonstration test.

Response: While THC emissions at the outlet of a biofilter may vary, the THC emissions at the outlet of an thermal or catalytic oxidizer should not vary greatly. Although, as stated by the commenters, the HAP destruction efficiency of biofilters is not subject to large short-term variations, the same is not true for thermal and catalytic oxidizers (e.g., a sudden significant decrease in temperature could result in a sudden decrease in HAP reduction). Therefore, we believe it is appropriate to maintain the 3-hour block averaging requirement for THC monitoring for thermal and catalytic oxidizers. However, we have expanded the THC averaging requirement for biofilters to a 24-hour block average to provide more flexibility. The THC operating limit for biofilters would be established as the maximum of three 15-minute recorded readings during emissions testing. We also note the continuous monitoring of THC is not required for all APCD, but is an alternative to continuous monitoring of temperature. Furthermore, facilities can conduct multiple performance tests at different operating conditions to increase their maximum THC concentration operating limit.

**2.7.15 Selection of monitoring parameters for uncontrolled process units**

2.7.15.1 Comment: Commenters IV-D-21 and IV-D-27 recommended changing the title of section 63.2262 (n) (How do I conduct performance tests and establish operating requirements? - Establishing uncontrolled process unit operating requirements) to “Establishing operating requirements for production based compliance option process units.” The current title implies that no controls of any kind are being applied to these process units, when in fact facilities may be voluntarily controlling these units or using P2 techniques to reduce emissions. Also, the wording within the section itself assumes that controlling the temperature is the only method of reducing emissions. The commenter’s suggested changes to the section are shown below:

> (n) Establishing operating requirements for production based compliance option process units: ~~Establishing uncontrolled process unit operating requirements.~~ If you operate a process unit that meets a compliance option in Table 1A of this subpart without the use of a control device, you must establish your process unit operating parameters according to paragraphs (n)(1) through (2) of this section.
> (1) During the initial performance test, you must *identify and document* ~~continuously monitor~~ the process unit *controlling parameter(s) critical to maintaining compliance with the limits listed in Table 1A of this subpart. For example, if the controlling parameter is* inlet temperature or operating temperature, ~~(whichever applies, as specified for different~~

~~process units in Table 2 of this subpart)~~ *during the initial performance test, you must continuously monitor the process unit* during each of the required 1-hour test runs. The maximum inlet temperature or maximum operating temperature ~~must~~ *would* then be established as the average of the three maximum 15-minute temperatures monitored during the three test runs. *Limits for other controlling will be established using the same method.* Multiple 3-run performance tests may be conducted to establish a range of parameter values under different operating conditions.
(2) You may establish a different *operating parameter range* ~~maximum temperature~~ for your process unit by submitting the notification specified in § 63.2280(g) and conducting a repeat performance test as specified in paragraph (n)(1) of this section that demonstrates compliance with the compliance options in Table 1A of this subpart.

If these changes are made, then the following adjustments would have to be made to Table 2 to Subpart DDDD:

| | | |
|---|---|---|
| (5) Process unit that meets a compliance option in Table 1A of this subpart | Maintain the *controlling operating parameter* ~~3-hour block average inlet temperature below the maximum inlet temperature~~ established during the performance test ~~if~~ *for* the process unit ~~is a green rotary dryer, tube dryer, or strand dryer; OR maintain the 3-hour block average process unit operating temperature below the maximum operating temperature established during the performance test if the process unit is a hardboard oven, press predryer, or reconstituted wood product press; OR maintain the 3-hour block average operating temperature in each of the hot zones below the maximum hot zone temperatures established during the performance test if the process unit is a fiberboard mat dryer or softwood veneer dryer.~~ | ~~Maintain the 3-hour block average THC concentration [a] in the process unit exhaust below the maximum concentration established during the performance test~~ |

Response: There are two situations in the PCWP rule where process units may not have an add-on control device: (1) when process units meet the PBCO, or (2) when process units used to generate emissions averaging debits do not have an add-on APCD that partially controls emissions. To clarify this for the final rule and to address the commenters concern regarding applicability of §63.2262(n), we changed the title of the section to "Establishing operating requirements for process units meeting compliance options without a control device."

We agree with the commenters that temperature alone is not necessarily the sole controlling parameter for some process units. The final rule requires testing at representative operating conditions, defined in the rule as "operation of a process unit during performance testing under the conditions that the process unit will typically be operating in the future, including use of a representative range of materials (e.g., wood material of a typical species mix and moisture content or typical resin formulation) and representative operating temperature range." The rule requires facilities to describe their representative operating conditions in each performance test report for the process and control systems and explain why these conditions are representative (see §63.2262(b)(2)). The process-unit-specific conditions identified in each test report as being "representative" would be the most appropriate conditions to record for process units without controls. We recognize that it is not practical to continuously monitor every process-unit-specific factor that could affect uncontrolled emissions (e.g., there is not way to monitor and determine a 3-hour block average of wood species mix for a particleboard plant). However, some parameters are suitable for continuous monitoring (e.g., process operating temperature, furnish moisture content) and are already monitored as part of normal operation, but not for compliance purposes. We believe that daily records of most parameters would be sufficient to ensure ongoing compliance (e.g., daily average process operating temperature, furnish moisture, resin type, wood species mix) if the parameters do not deviate from the ranges for these parameters during the initial compliance test. Therefore, in the final PCWP rule, we have replaced the proposed 3-hour block average temperature monitoring requirements for process units without control devices with a requirement to maintain on a daily basis the process unit controlling operating parameter(s) within the ranges established during the performance test. This allows facilities the flexibility to decide which parameters they will monitor and control, while providing enforcement records with which to assess and compare the day-to-day operation of the process unit to the controlling operating parameters. Facilities are also allowed to decide for each parameter the appropriate monitoring methods, monitoring frequencies, and averaging times (not to exceed 24 hours) for continuously monitored parameters such as temperature and wood furnish moisture.

We also note that the commenters suggested removing the option of monitoring THC concentration instead of process unit operating parameters. While we believe it is unlikely that facilities with uncontrolled process units would elect to monitor THC, we have retained this as an option in the final rule because this alternative is offered for all of the other operating requirements.

### 2.7.16 Performance specifications for temperature monitors

2.7.16.1 Comment: Commenters IV-D-03, IV-D-21, and IV-D-27 made a few suggestions for revising the sections discussing temperature measurement. First, the phrase "minimum tolerance of 0.75 percent" found in sections 63.2268(b)(2), 63.2268(c)(3), and 63.2268(e)(2) should be revised to read "accurate within 0.75 percent of sensor range." These commenters stated that, because tolerances usually refer to physical dimensions, this revision more accurately reflects the intent of the PCWP rule. Commenter IV-D-03 recommended that the temperature sensor tolerance be adjusted to 1 percent of the temperature range. Second, commenters IV-D-21 and IV-D-27 stated that the phrase "of at least 20°F" found in section 63.2268(b)(3) should be replaced with "minor divisions of not more than 20°F." The current wording means that minor divisions could be 30°F or 50°F, but since EPA probably means that 20°F is the largest minor division that a facility can use, the suggested revision is more accurate.

Commenter IV-D-27 also stated that the thermocouple calibration and inspection requirements are too strict. The PCWP rule should be revised to consider any reading within 50°F of the process temperature sensor's reading adequate. Commenter IV-D-27 further stated that quarterly inspections on thermocouples should not be required. The commenter noted that the only way to completely perform these inspections is to withdraw the thermocouple from its location in the combustion chamber. This often causes damage to the sensor, requiring it to be replaced. If a thermocouple provides readings that correspond with other thermocouple readings, then the thermocouple should be considered valid.

Response: We acknowledge that the term "tolerance" is often used to mean accuracy in the sense of physical dimensions. Therefore, we have changed the requirement in §63.2269(b)(2) (formerly proposed §63.2268(b)(2)) to read "minimum accuracy of 0.75 percent of the temperature value." As discussed below, we eliminated proposed sections §§63.2268(c) and 63.2268(e) from the final rule because we deleted the requirements for monitoring of pressure or flow. As requested by the commenters, we also revised proposed §63.2268(b)(3) to state that "If a chart recorder is used, it must have a sensitivity with minor divisions of not more than 20˚F."

We disagree that the proposed thermocouple calibration and inspection requirements are too strict and we have not changed these requirements for the final rule. We further disagree that the requirement for the temperature sensor to agree with the reading of a redundant sensor within

30˚F during a calibration check is too stringent. The sensor is required to be "accurate" within 0.75 percent of the measured temperature. Measurements from redundant temperature sensors with 0.75 percent accuracy should differ by not more than 1.5 percent (and rarely by this much). If, for example, the temperature being monitored is 1600˚F, 1.5 percent is less than 25˚F which is well within the 30˚F allowance.

**2.7.17 Performance specifications for pressure monitors**

2.7.17.1 Comment: Commenters IV-D-03, IV-D-21, and IV-D-27 suggested a few changes for revising the section on pressure monitoring (63.2268(c)). Commenters IV-D-21 and IV-D-27 stated that the instrument tolerance should be 1.0 inch of water for a gauge or a minimum of 2 percent of the pressure range for a transducer. These values are realistic for the commonly used instrumentation in the industry. Second, daily checks for plugging of pressure taps are unnecessary. If pressure monitoring is included in the PCWP rule, facilities should be required to include pressure tap plugging in a maintenance program and encouraged to develop effective methods of plugging detection, such as a computer-based alarm system. Commenter IV-D-03 stated it would be excessive and potentially unsafe to check pressure taps for plugging daily, and suggested a check of the pressure reading to ensure that it is normal and not stagnant. Commenter IV-D-03 stated that pressure instrumentation should not be limited to manometers only; alternatives should include instruments such as an NIST-traceable calibrator. This commenter recommended that both the pressure calibrator and the transducer output should be checked on a quarterly basis. Commenter IV-D-27 stated that facilities should not be required to use a manometer to check the calibration of the pressure gauge, and instead, EPA should require a validation check between the two gauges with acceptance criteria of 0.75 inches of water.

Response: We have removed all pressure monitoring requirements from the PCWP rule. (Note that proposed §63.2268 was renumbered §63.2269 for the final rule.)

**2.7.18 Performance specifications for flow monitors**

2.7.18.1 Comment: Commenters IV-D-21 and IV-D-27 disagreed with a few of the requirements for flow monitoring (section 63.2268(e) - What are my monitoring installation, operating, and maintenance requirements? - Flow monitoring). First, the 2 percent minimum tolerance for the flow rate measurements is too low, and it is not supported by the MACT floor. According to manufacturers' specifications, the flow rate sensors used on dryer and press exhausts only have an accuracy of ± 5 percent to ± 7 percent. The repeatability is only ± 0.5

percent. Adjusting the accuracy and repeatability of a sensor is not possible since the systems are designed and set by the manufacturer. Field adjustments for specific flow conditions such as temperature can be made, so there is a need to conduct flow relative accuracy test audits (RATA) at a certain frequency to verify that the monitor is operating properly. The EPA should allow facilities to achieve ± 10 percent accuracy to ensure that compliance will be met. This value is used in EPA Method 2 for manual measurements of pitot tubes. Commenter IV-D-27 further stated that checking the flow sensor calibration twice a year for both pitot tubes and thermal convection mass flowmeters is not necessary. The commenter noted that industry experience indicates that comparing the flow to a reference method test on the same periodicity of the compliance tests required by the facility's permit is adequate to ensure compliance. Also, facilities can compare the measured flow and the calculated flow rates once a year to validate the sensor. Commenter IV-D-27 also stated that inspection of flow sensors should be changed from four times a year to once a year. Industry experience has shown that annual inspection is enough to ensure proper operation.

Response: We have removed all gas flow monitoring requirements from the PCWP rule. (Note that proposed §63.2268 was renumbered §63.2269 for the final rule.)

**2.7.19 Performance specifications for moisture monitors**

2.7.19.1 Comment: Commenter IV-D-27 supported EPA's conclusion that dry rotary dryers, hardwood veneer dryers, and veneer redryers have inherently low HAP emissions and thus should be exempt from control requirements as long as certain work practices are met. The commenter specifically supported the work practices for hardwood veneer dryers, softwood veneer dryers, and veneer redryers listed in Table 3 to subpart DDDD, as well as the exemption from work practice requirements for facilities required by some other regulatory action to install a control device on a dry rotary dryer. In response to EPA's request for comment in the proposal preamble on issues related to the work practice requirements, the commenter recommended that EPA allow plants more flexibility in choosing moisture monitors.

Although most particleboard plants currently use near infrared (NIR) technology, technologies change over time, so EPA should specify an accuracy limit rather than a specific technology. Monitor choice should be limited to units with a ± 1 percent accuracy capability in the 25 to 35 percent moisture content range. This range is currently met by NIR technology and is consistent with section 63.2268(f)(1) (What are my monitoring installation, operation, and maintenance requirements? - Wood moisture monitoring). The commenter noted that the accuracy of equipment specification is typically based on equipment capabilities and measurements taken under well-controlled conditions. Plants strive to maintain the best conditions possible, since product quality depends on moisture content, but conditions outside the operators' control are certain to be a factor at times. The commenter argued that the work practices should not be written in a way that would unnecessarily restrict dryer operation or require facilities to maintain their monitors to the level of accuracy indicated by monitor specification sheets. For moisture monitors at the outlet of softwood veneer dryers and the inlet of veneer redryers, monitor choices should be limited to units with a ± 3 percent accuracy capability in the 15 to 25 percent moisture content range. Reliance on a vendor's certification should be considered adequate for demonstration of compliance with the precision requirement.

Commenters IV-D-21 and IV-D-27 objected to the sampling procedure used to check the calibration of continuous wood moisture content monitors, stating that the procedure in proposed §63.2268(f)(3) is impractical. The moisture content of the wood at any one point in the process varies so much that a truly representative sample of wood would have to be fairly large. For example, a representative sample of veneer would require multiple sheets. The sheets pulled for the sample would not pass by the moisture meter because, for safety reasons, they would have to be pulled from the process before they reached the redryer. The commenters pointed out that each moisture monitor manufacturer includes calibration procedures in the operation and maintenance recommendations for their meters. These calibration procedures (commonly modified to meet site-specific requirements) will correct any drift that occurs. The commenters recommended that facilities include the moisture meter manufacturer's calibration procedures in the plant's operation and maintenance plan and follow those procedures once during each semiannual compliance reporting period. Adjustments to the procedures may be made for any plant-specific needs. Commenter IV-D-27 attached examples of moisture monitor manufacturer's calibration procedures.

Commenter IV-D-27 requested that the ASTM D1037 test method be added to the list of test procedures referenced in the rule. This test method should be the default method for moisture analysis and calibration of machines used to analyze grab samples, as well as continuous moisture monitors (recognizing that moisture monitor manufactures may have alternative methods for calibrating their equipment). The reference should be added to section

63.2268(f) (What are my monitoring installation, operation, and maintenance requirements? - Wood moisture monitoring). The PCWP rule should use the ASTM D1037 method for setting grab sample requirements, which recommends drying the wood sample "until approximately constant weight is attained." The drying time is not specified because wood, sample size, and lab variability factors make the constant weight timing difficult to predict. The regulation should go no further than specifying that either this test method be used or a moisture analyzer calibrated by this test method be used. More specific guidance and examples can be included in implementation documents rather than in the national rule. The commenter attached a copy of ASTM D1037.

Response: Proposed §63.2268 was renumbered §63.2269 for the final rule. We proposed requirements for the continuous moisture sensor and grab sampling in §63.2268(f). We noted in the preamble to the proposed rule that we planned to add to §63.2268(f) performance specifications for the continuous moisture sensor to include such parameters as the amount of drift allowed. We requested comment on drift and any other performance specifications that should be added to ensure moisture content is being measured accurately, to ensure flexibility in the type of continuous moisture sensor that can be used by a facility, and to ensure compliance and enforceability. We also stated in the proposal preamble that we planned to add specifications to the grab sample requirements, such as including the period of time a sample must maintain a constant weight. We requested comment on what this period of time should be and any other specifications that should be added to ensure accurate and precise results.

We acknowledge the commenters' support of the work practice requirements for dry rotary dryers, hardwood veneer dryers, softwood veneer dryers, and veneer redryers. In response to the commenters' suggestions, we have modified the work practice requirements for moisture monitoring in the final rule; these changes are discussed in subsequent paragraphs. In addition to the changes regarding moisture monitoring, the final rule also exempts from the work practice requirements those PCWP facilities that elect to designate their dry rotary dryer as a green rotary dryer, and thus elect to meet the standards for green rotary dryers which are more stringent than the work practice standards for dry rotary dryers. The same exemption is provided for PCWP facilities that elect to designate their hardwood veneer dryer or veneer redryer as a softwood veneer dryer, and thus elect to meet a more stringent standard.

Based on the feedback provided by the commenter, we have revised proposed §63.2268(f)(1) to specify that moisture monitors used at the inlet of dry rotary dryers must have a minimum accuracy of 1 percent (dry basis) in the 25 to 35 percent (dry basis) moisture content range, and that moisture monitors used at the inlet of veneer redryers must have minimum accuracy of 3 percent (dry basis) in the 15 to 25 percent (dry basis) moisture content range. Alternatively, facilities may use a moisture monitor with a minimum accuracy of 5 percent (dry basis) moisture or better for dry rotary dryers used to dry furnish with less than 25 percent (dry basis) moisture or for veneer redryers used to redry veneer with less than 20 percent (dry basis) moisture.

We have also revised proposed §63.2268(f)(3) to eliminate the proposed grab sample procedure for calibration of continuous moisture monitors and to specify that continuous moisture monitors must be calibrated based on the procedures specified by the moisture monitor manufacturer at least once per semiannual compliance period (or more frequently if recommended by the moisture monitor manufacturer). Because we dropped the grab sample requirements, we clarified that all moisture measurements must be on a dry basis to prevent facilities from using a wet basis (e.g., 30 percent moisture on a dry basis is equivalent to 23 percent moisture on a wet basis). We added an equation to the rule to convert from wet basis moisture content to dry basis moisture content (as needed). We did not incorporate the ASTM D1037 test method into the rule because no method for determining grab sample moisture content is needed.

**2.7.20 Work practice requirements for dryers**

2.7.20.1 Comment: Commenters IV-D-21 and IV-D-27 noted that Table 8 to subpart DDDD (Continuous Compliance with the Work Practice Requirements) does not include averaging periods for work practice requirements, and stated that EPA needs to add those where applicable.

Response: We revised Table 8 to subpart DDDD to restate the averaging periods for the dry rotary dryer and veneer redryer work practices.

2.7.20.2 Comment: Commenters IV-D-21 and IV-D-27 noted that although the equation to determine the percent reduction through a control device includes a term for capture efficiency, the method for determining that efficiency for dryers is not specified in the PCWP rule. The capture efficiency for rotary dryers should be assumed to be 100 percent, and it should be assumed to be 100 percent for veneer dryers as long as the facility follows the work practices listed in Table 3 to subpart DDDD. The floor for capture efficiency for dryers was not determined, but the emission data provided to EPA assumed that the efficiency was 100 percent. The EPA cannot establish that the floor must be 100 percent capture efficiency if it does not have the data to support that requirement. Commenter IV-D-43 suggested that hardboard ovens be treated like softwood veneer dryers in terms of determining capture efficiency. If work practices are followed, then the capture efficiency should be assumed to be 100 percent. Hardboard ovens were not specifically covered in the rule, and clarification of the situation is necessary.

Response: We agree that the capture efficiency for dryers and hardboard ovens is typically 100 percent because those dryers operate under negative pressure and exhaust from these dryers is directed through a stack. For some types of dryers, the negative pressure air flow acts to pneumatically convey the wood material through the dryer as well as to prevent emissions leakage and minimize buildup of combustible gases. For hardboard ovens, a loss of negative pressure would lead to product quality problems. We also agree that the capture efficiency for veneer dryers can be assumed to be 100 percent as long as the facility follows the work practices listed in Table 3 to subpart DDDD. Process units that may have less than 100 percent capture are presses or board coolers with partial wood products enclosures. In equations where capture efficiency (CE) is a variable, the rule defines CE as "capture efficiency, percent (determined for reconstituted wood product presses and board coolers as required in Table 4 of this subpart)." Thus, the capture efficiency term does not apply for dryers or other process equipment with assumed 100 percent capture.

2.7.20.3 Comment: Commenters IV-D-21 and IV-D-27 recommended changing the averaging period for inlet moisture and temperature monitoring for dry rotary dryers. The current averaging period is listed as 24 hours in Table 3 to subpart DDDD and section 63.2268(a)(4) (What are my monitoring installation, operation, and maintenance requirements? - General continuous parameter monitoring requirements), but it should be extended to a period chosen by the individual facilities of up to 30 days. Also, plants should be given the option to operate green rotary dryers as dry rotary dryers. This option provides the flexibility to implement low cost options, but environmental managers need certainty that they can meet the necessary work practice requirements. Extending the averaging period would provide the operator with time to adjust the moisture of the raw material purchased or coming from upstream operations. There is precedence in other NESHAP to use extended averaging periods for compliance tests, such as the Leather Finishing NESHAP (Subpart TTTT), particularly where seasonal factors are likely, as is the circumstance here. Several other factors support a long averaging period as well. Operators and producers have limited control over short-term availability of the raw materials chosen for the plant, and the weather and seasons can have a dramatic effects on the moisture content of the raw material over a one-day period. Many dryers that could potentially operate as dry rotary dryers are close to the work practice limit, and a longer compliance time would provide more certainty about the results. If a plant has a large amount of data, then the standard deviation will be small and the plant will be secure with the resulting decisions. The hourly HAP emissions do not change if the moisture content of the material going into the dryer changes because the work practice rules for dry dryers limit the dryer inlet temperature to 600°F. Finally, the inlet moisture restriction is meant to be a method of distinguishing between types of processes, not as an operating restriction that assures compliance with a HAP emission limit. Since there is no short-term emission limit for demonstrating compliance, the short-term compliance monitoring parameter is inappropriate. Basically, a variability in raw materials does not translate to emission variability, and therefore does not require compliance monitoring appropriate to assure compliance with a short-term emission limit.

The commenters noted that the preamble to the PCWP rule states that green rotary dryers and dry rotary dryers are essentially the same in terms of equipment design, but the rule does not allow plants to permit a unit that is nominally a green rotary dryer with controls as a dry rotary dryer without control requirements under an alternative operating scenario. This option should be specifically addressed in the final rule. Section 63.2263 (Initial compliance demonstration for a dry rotary dryer) should be changed to read as follows:

> If you operate a dry rotary dryer, you must demonstrate that your dryer processes furnish with an inlet moisture content of less than or equal to 30 percent (by weight, dry basis) and operates with a dryer inlet temperature of less than or equal to 600°F. You must designate and clearly identify each *unit to be operated as* dry rotary dryer. *You must choose an averaging period for the measurement of the moisture content and temperature parameters of no longer than 30 days.* You must record the inlet furnish moisture content (dry basis) and inlet dryer operating temperature according to § 63.2268(a), (b), and (f) for a minimum of *3 averaging periods* ~~30 calendar days~~. You must submit the highest recorded ~~24-hour~~ average inlet furnish moisture content and the

> highest recorded ~~24-hour~~ average dryer inlet temperature with your Notification of Compliance Status. In addition, submit with the Notification of Compliance Status a signed statement by a responsible official that certifies with truth, accuracy, and completeness that the dry rotary dryer will dry furnish with a *30 day block average* inlet moisture content less than or equal to 30 percent (by weight, dry basis) and will operate with a *30 day block average* inlet temperature of less than or equal to 600°F in the future.

The EPA should note that the capital expense of the control requirement is only one part of the expense equation, and the potential to eliminate the operating costs for control equipment would exist by allowing this option. Since the moisture in the raw materials does change based on the weather and the season, the option would give more regulatory flexibility to plants with regular swings in raw material moisture above and below 30 percent. Since the drier material would probably be available in the summer, the option to switch dryer operation would allow facilities to shut off $NO_x$-generating oxidizers during ozone seasons to reduce collateral damage to the environment. On the other hand, the moisture content demanded by market could decrease, and this option would give plants the flexibility to permit units both ways based on anticipated changes.

Response: We believe that enforceability of the rule as it applies to rotary particle dryers would be severely hampered if we were to incorporate the commenters' suggestions into the rule. We note that commenter IV-D-27 specifically requested a 24-hour averaging time for dry rotary dryer moisture monitoring (based on either laboratory analysis of grab samples or continuous in-line moisture meters) in their white paper submitted to EPA in May 2001.[27] We granted the commenter's request for a 24-hour averaging time prior to proposal of the PCWP rule. We maintain that a 24-hour averaging time is enforceable but allows flexibility by preventing short-term slugs of high-moisture wood from causing an exceedance of the 30 percent moisture requirement. We extended this 24-hour averaging period to the 600˚F temperature work practice for dry rotary dryers.

We do not believe it is appropriate to allow dryers to operate green rotary dryers at some times and dry rotary dryers at other times, especially with a 30-day averaging period for the moisture and temperature work practices. A 30-day averaging period could allow facilities to operate their dry rotary dryer as a green rotary dryer for up to half of the days in the averaging period, making the rule virtually unenforceable with respect to rotary particle dryers and causing the rule not to achieve the emission reduction it is required to achieve from green rotary dryers.

The same would be true of any averaging period more than 24 hours. The final rule does not allow facilities to operate a dryer as green rotary dryer some of the time and as dry rotary dryers at other times. For the rule to be enforceable, there must be a clear distinction between dry rotary dryers and green rotary dryers (given that dry and green rotary dryers are the same equipment operated differently). Facilities must carefully determine which dryers they will distinguish as dry rotary dryers considering seasonal variability in wood moisture, economics, and other site-specific factors. Plants needing the flexibility to accommodate highly variable furnish moisture may find it more economical to designate all of their dryers as green rotary dryers. Although the final rule does not allow dual designation of a dryer as both a dry rotary dryer and a green rotary dryer, facilities from may change the designation of a dryer as a dry rotary dryer or a green rotary dryer in the future. Such a change in designation could be made through the appropriate permitting conduits.

2.7.20.4 Comment: Commenter IV-D-27 requested clarification on the compliance methods for a facility that decides to switch from drying softwood to drying hardwood. The current proposal of the PCWP rule establishes a MACT floor of "no control" for existing hardwood veneer dryers, provided they have been drying hardwood for a year. If the facility switches from softwood to hardwood at least a year before the promulgation date for the rule, then it would logically follow the compliance guidelines for hardwood veneer dryers. However, if the facility makes the switch after the compliance date for the PCWP rule, the implication is that the facility would have to continue to operate the incineration controls for a year after they are no longer necessary. To clarify and remedy the situation, the commenter suggested that EPA allow the switch from softwood to hardwood with the title V permit restriction that the material dried in the dryer must be less than 30 percent softwood. A facility would then follow the work practice requirements associated with the amounts of hardwood and softwood dried for the year after the permit went into effect.

Response: The final rule does not contain language to allow for switching back and forth from softwood to hardwood veneer drying for two reasons. First, we do not believe there will be widespread switching from softwood to hardwood veneer drying because facilities must use the wood supply available to them, and because product characteristics can change if hardwoods are used instead of softwoods. Second, allowing dryers to operate as softwood veneer dryers some of the time and as hardwood veneer dryers at other times would make the rule unenforceable with respect to veneer dryers. The final rule requires facilities to clearly designate their veneer dryers as either softwood veneer dryers or hardwood veneer dryers prior to the compliance date. However, the final rule does not prevent switching designation of a dryer from a softwood veneer dryer to a hardwood veneer dryer after the compliance date. Such a change in designation could be made through the appropriate permitting conduits. The language in the rule requires facilities to submit with their Notification of Compliance Status "the annual volume percentage of softwood species dried in the dryer based on your dryer production for the 12 months prior to the compliance date specified for your source in §63.2233" (emphasis added). This requirement applies before the compliance date. There is no explicit requirement for facilities switching designation of their veneer dryer to a hardwood veneer dryer after the compliance date to document their wood species for 12 months before their dryer is considered a hardwood veneer dryer.

## 2.8 COMPLIANCE DURING PERIODS OF NON-ROUTINE OPERATION

### 2.8.1 Control device downtime allowance

2.8.1.1 Comment: Commenters IV-D-19, IV-D-21, IV-D-23, and IV-D-27 supported inclusion of a routine control device maintenance exemption (RCDME) in the PCWP rule. Commenter IV-D-19 stated that experience with RTO and RCO technology since 1995 proves routine maintenance is the only way to maximize the life of the devices, especially since ten years of research have not solved the media problems that this technology experiences.

Commenter IV-D-27 stated that control devices used to reduce HAP emissions in the PCWP industry require significant periodic maintenance because the emissions contain PM, alkaline salts, and acidic compounds that rapidly degrade components of the control equipment. These conditions are not present in other industries that use similar equipment, and performing the necessary maintenance and repairs requires significant emission control downtime. To support this claim, the commenter provided an NCASI Technical Bulletin discussing actual data from RCO and RTO usage at various plants and the required maintenance and repairs. If the downtime allowance is not adequate, the industry will lose millions of dollars associated with the inability to continue production within compliance during APCD downtime.

Commenter IV-D-23 also noted that the proposed control devices were designed for facilities with cleaner air streams, such as chemical plants, and the PCWP plants that use these control technologies will need time for more frequent cleaning and maintenance.

Response: We acknowledge the need for an RCDME for the PCWP industry and have included such an exemption in the final rule. As explained in the proposal preamble, the most widely used add-on control systems at PCWP facilities are RTOs, RCOs, and biofilters. As with any control device in any industry, these control devices require routine maintenance. Routine maintenance includes activities such as cleaning or replacement of corroded parts, media replacement, bakeouts (RTOs and RCOs), washouts (RTOs and RCOs), and cleaning of ducts. Some PCWP drying processes release particulates and salts that can plug and weaken RTO and RCO media beds. Frequent bakeouts and washouts are necessary to combat the particulate and salt buildup. Partial or total media replacement is done when bakeouts and washouts are no longer effective. We have allowed an RCDME for the PCWP industry to ensure that facilities will perform the maintenance necessary to ensure that their APCDs are operated properly.

2.8.1.2 Comment: Commenters IV-D-19, IV-D-21, IV-D-23, and IV-D-27 supported the RCDME but objected to the discretionary nature of the exemption. Commenters IV-D-19 and IV-D-21 objected to the treatment of downtime as an unusual occurrence rather than an inherent characteristic of the wood products MACT floor control technology. The frequency of the necessary maintenance indicates that the MACT floor includes downtime for this routine maintenance. Commenter IV-D-19 stated that the proposed discretionary downtime allowance increases the burden on state Administrators because the permitting authorities are required to review and approve downtime requests.

Commenter IV-D-27 argued that the downtime allowance should not be discretionary and that each affected facility should not be required to request a routine control device maintenance exemption from the Administrator. The commenter pointed out that in similar situations (e.g., 63 FR 18529 (April 15, 1998) for the Pulp and Paper MACT rule), EPA has included control device downtime allowances without requiring approval from the Administrator. The wording of section 63.2251(a) (What are the requirements for the routine control device maintenance exemption?) implies that downtime is an unusual occurrence rather than an inherent characteristic of the control technology. Some routine maintenance activities, such as duct cleaning, valve cleaning, adjustment, repair, and replacement of external parts, can be scheduled to coincide with planned process shutdowns, but events such as offline bakeouts, washouts, valve cleaning, and media replacement must be performed when they are needed or the control devices will not operate properly. When emission control devices need repair, the repair cannot wait until an annual extended process outage, especially because equipment failures that result from these repairs not being completed right away are considered preventable. Also, repairs that require cooling and reheating of the oxidizers, such as media replacement, burner repairs, and replacement of internal corroded parts or insulation, will take longer than scheduled process outages. The EPA recognized that frequent maintenance is necessary, but it should have made the downtime exemption automatic rather than discretionary. Because of the nature of the proposed downtime exemption, the request for exemption will be a standard feature of any permit application for facilities using add-on controls, creating additional work for the permitting agency evaluating the requests. It is possible that the granting of permission for the exemptions will be uneven depending on the State and a company's ability to prepare and submit a request that fully explains the need for the exemption. Because there is a lack of back-up control devices and routine maintenance must be performed frequently, EPA should include downtime for routine maintenance in the MACT floor. The commenter argued that if EPA retains its approach of making this exemption discretionary, then the 90 percent control requirement that EPA has identified as the MACT floor is simply incorrect, because no facility achieves a steady 90 percent removal rate over a several year period. The EPA instead would need to recalculate the MACT floor to reflect the actual downtime experienced by control devices in this industry, and prorate the percent removal requirement (and concentration-based requirements) to incorporate the 0 percent removal achieved during routine maintenance. The EPA also would need to modify its compliance methodologies to assess compliance on an annual basis – rather than the 3-hour average that currently is in the rule – to account for the sporadic nature of equipment downtime. Obviously, a simpler approach is to include a control device downtime provision in the rule, without making it discretionary.

The commenter claimed that in *Sierra Club v. EPA,* 167 F.3d 658, 665 (D.C. Cir. 1999), the D.C. Circuit decided that the MACT floor should represent the performance of the best performing sources “under the most adverse circumstances which can reasonably be expected to recur.” Downtime is an “adverse circumstance,” so the MACT floor for wood products facilities should include a nondiscretionary provision for control equipment downtime. The commenter recommended that EPA state explicitly in the final rule that downtime is part of the MACT floor determination as supported by the record and that sources will not be required to provide justification to be allowed a routine control device maintenance exemption. Commenters IV-D-21 and IV-D-27 suggested the following language for §§ 63.2251(a) and (c):

> 63.2251(a). Periods of deviation from compliance options in § 63.2240(b) reported under § 63.2271 shall not be a violation of § 63.2240(b) provided that the time of deviation (excluding periods of start-up, shutdown, or malfunction) in an annual period does not exceed the values in § 63.2251(b).
>
> 63.2251(c). The routine control device maintenance exemption specified in § 63.2251(a) shall be incorporated in the affected source's title V permit.

Commenter IV-D-07 suggested that instead of an RCDME, each facility should be required to write and submit an operation, maintenance, and monitoring (OM&M) plan. Anything covered in the plan would not need to be included in the deviation report, but anything outside of the plan would need to be listed in the deviation report. The commenter argued that the proposed downtime allowance amounts to a lowering of the bar nationally in the performance expectation for the industry, whereas site-by-site plans with the close participation of the enforcement staff of the permitting authority would allow a better, site-specific performance expectation to be developed based on the skills and abilities of each facility.

Response: We believe the need for an RCDME is site-specific, and therefore, we maintain that the RCDME should be left to the discretion of the permitting/enforcement regulatory agency. As one commenter has pointed out, close participation of the permitting and enforcement regulatory agencies is needed to develop site-specific performance expectations. Therefore, the final rule requires facilities to submit a request for an RCDME for approval by the applicable regulatory authority.

We disagree that the 90 percent control requirement that EPA has identified as the MACT floor is incorrect. Our data indicate that several control devices achieve greater than 90 percent reduction. The 90 percent control requirement was proposed instead of a more stringent percent reduction to account for variability in control system performance over time and thus already accounts for reasonably foreseen adverse circumstances. Such variability in performance can be related to need for control device maintenance (e.g., an RTO with 1-year-old media may perform less effectively than an RTO with new media).

We have not required an OM&M plan because OM&M plans typically include all monitoring and reporting requirements, not just the requirements associated with routine control device maintenance. Inclusion of an OM&M plan in the final rule would have required rewriting large portions of the proposed rule. Given that we did not receive many requests to include an all-inclusive OM&M plan, we felt it would cause confusion to rewrite the proposed rule to include an OM&M plan prior to promulgation.

2.8.1.3 Comment: Commenters IV-D-21, IV-D-23, and IV-D-27 argued that the downtime allowance periods are too short to allow for proper maintenance. Commenter IV-D-23 stated that activities that are performed regularly could be performed in that time, but less frequent maintenance, such as catalyst replacement, will take longer than the allowed downtime.

Commenters IV-D-21 and IV-D-27 argued that downtime allowance for rotary dryers needs to be changed to better represent floor technology. The 3 percent annual downtime allowance was based on the assumption that maintenance for the equipment is performed annually. However, there are events that only occur every 2 to 3 years and require an extensive amount of downtime, such as replacing the heat exchange media in the control device and replacing corroded structural parts. According to an NCASI database, the median life of RTO heat exchange media controlling emissions from rotary dryers is 1.5 years, and 80 percent of units replaced their media within 2 years. The survey that EPA used to set the downtime allowance only included data from 1999, and many facilities may have conducted non-annual maintenance and repairs in the years preceding or following that year. The 1999 survey was also limited in that the majority of the RTOs included in the survey were less than 5 years old, and as the equipment ages over a lifetime of 5 to 15 years, performance will degrade below the levels seen in the 1999 survey. Facilities are likely to have underreported their actual downtime in the original survey, so increasing the downtime would be more representative of actual experience. The commenters argued that EPA should have used the $79^{th}$ percentile of the annual unscheduled downtime data rather than the $50^{th}$ percentile to set the downtime allowance. The $50^{th}$ percentile does not adequately reflect the downtime needs for non-annual activities, but the $79^{th}$ percentile includes the downtime needed for that type of maintenance and repair while screening out the maintenance activities associated with catastrophic failures. Scheduled process downtime periods are too short for a maintenance activity that requires allowing a control device to cool, conducting internal repairs, and reheating the unit. The commenters suggested that EPA reexamine the downtime data and use the 79th percentile of the unscheduled downtime in the 1999 NCASI study to select a downtime allowance that represents the time needed for non-annual events. Commenter IV-D-27 stated that this approach is justified because the D.C. Circuit stated in *Sierra Club v. EPA* that the MACT floor should be an estimate of the best-controlled sources under the worst conditions. For rotary dryers, the 79th percentile would result in a downtime allowance of 7.6 percent of annual operating hours. Commenter IV-D-21 noted that, alternatively, EPA could allow facilities to accumulate unused downtime so that they would have time every 2 to 3 years for large maintenance activities.

Commenter IV-D-27 stated that a 0.5 percent downtime allowance for softwood veneer dryers, reconstituted wood product presses, reconstituted wood product board coolers, hardboard ovens, press predryers, and fiberboard mat dryers is not nearly enough. Assuming a plant is in operation a full 8,760 hours per year, 0.5 percent is only 43.5 hours. Annual inspection and maintenance for small control units may be accomplished within the allowed period, but larger units will not be able to complete all maintenance activities within this downtime allowance period. The commenter estimated that the annual maintenance on control devices that serve veneer dryers and press vents would take 41 hours for a small (2-chamber) unit, while the maintenance for a large (6-chamber) unit would take 60 hours. Some of the steps involved in that estimate include removing the control device from the process, cooling, performing various maintenance activities, reheating the unit, and reconnecting the unit to the process. Again referring to *Sierra Club v. EPA*, the commenter stated that the proposed downtime for veneer dryers and presses is not a reasonable estimate of the best-controlled units at the worst conditions. Also, some of the maintenance can be performed during process downtime, but when one control device controls the emissions for multiple dryers or presses, scheduling becomes more difficult. The commenter suggested that EPA increase the downtime allowance for maintaining operation of RTO units treating emissions from veneer dryers and press vents to 60 hours or 1 percent of operating uptime, whichever is greater. This value represents the practical minimum amount of time that is needed to perform required annual maintenance on a typical combustion APCD.

Commenter IV-D-27 stated that biofilters used to control press emissions should have a greater downtime allowance than the 0.5 percent allowed for other control units for presses. The replacement of the bed media is the most significant maintenance activity for a biofilter.

Because the volume of a biofilter bed is often many times larger than the heat exchange media used in an oxidizer, and the media is equally difficult to handle, an increase in the downtime exemption is justified. An industry survey indicates that it takes about 10 minutes/cubic yard to replace biofilter media, so replacing a 2,000 cubic yard bed would take approximately two weeks. Fortunately, while bed replacements are certainly major maintenance events, they only occur every two to four years, not on an annual basis. To accommodate the needs of a biofilter, the commenter suggested that the routine control device maintenance exemption for a biofilter be 3 percent of operating time. In addition, EPA should provide some flexibility in this section that would better accommodate such a major maintenance activity by allowing a facility to accumulate unused maintenance time or develop a rolling three-year average. That flexibility would encourage facilities to better manage their downtime and maintenance schedules, resulting in improved equipment uptime and performance.

Response: In 2001, the PCWP industry submitted to EPA results of a survey of plants operating RTO, RCO, and biofilters to determine the amount of process unit downtime plants incur as a result of control device downtime.[28] These data were used by industry and EPA in developing the proposed downtime allowance.[29] In the industry's downtime analysis, six routine maintenance downtime categories were considered: media plugging, media degradation, corrosion, washouts, offline bakeouts, and other cleaning. Based on the 1999 data reported by survey respondents for 30 RTO and RCO controls, the industry recommended that a downtime allowance of 3.6 percent of process unit uptime per year is reasonable for all PCWP process units. In analyzing the downtime data, the industry attempted to eliminate the effect of outliers by viewing the $79^{th}$ percentile value as representative of the largest amount of downtime needed by the best controlled sources. The industry also considered downtime allowances for different process units: rotary dryers with and without WESP (7.6 percent), veneer dryers (0.2 percent), presses (0.9 percent), and tube dryers (3.4 percent).

The EPA conducted a separate analysis of the industry's downtime survey data using the same six downtime categories because these categories reflect routine maintenance activities. We agreed that APCD downtime as a percentage of process unit uptime was the most appropriate format for a downtime allowance. Like the industry, we also used the 1999 downtime data for the 30 RTO and RCO controls. These downtime data represented all types of maintenance activities in the six routine maintenance downtime categories (media plugging, media degradation, corrosion, washouts, offline bakeouts, and other cleaning), and therefore all types of maintenance activities (including major events) were represented with the 1999 downtime data. The downtime survey requested only 1999 process uptime, which made it impossible to determine downtime as a percentage of process uptime for years other than 1999. Instead of the 79$^{th}$ percentile downtime value, we used central tendencies including the mean, median, and the mean without the bottom and top 20 percent of the data (i.e., average of the middle 60 percent of the data). The 79$^{th}$ percentile excludes the highest of the reported downtime values, but still represents the higher end of the range of downtime needs. We believe that the 79$^{th}$ percentile downtime value would overpredict the downtime needed for two reasons. First, the 1999 downtime for the six routine maintenance categories was reported for only 30 (roughly half) of the RTO and RCO control devices included in the downtime survey. Thus, it appears that up to half of the RTO and RCO included in the survey had zero downtime in 1999 while the process units controlled were operating. It is difficult to know why survey respondents did not report 1999 downtime (e.g., because the control device had zero downtime, or the control device was not operating because of long process shutdown). In some cases, the production uptime was not reported and could not be used in determining a downtime percentage. Given these uncertainties, the 0-percent downtime values were not evaluated. Second, the downtime allowance must apply to RTOs and RCOs installed in the future, which should require less downtime than their predecessors because of design improvements.

Based on our analysis (and also apparent from the industry analysis), we determined that there are differences in the percentages of downtime needed for various types of equipment. The RTO and RCO used on veneer dryers and presses require much less downtime for routine maintenance than the RTO and RCO used on rotary dryers and tube dryers, because particulate plugging and salt deposition problems are more common for some rotary and tube dryers than for presses and veneer dryers. Most of the central tendency values we calculated were close together for each type of process unit. Therefore, all three of the central tendencies were considered in arriving at downtime allowances. Reasonable downtime allowances appeared to be 3 percent for rotary/tube dryers (0.03 x 8,760 = 263 hr/yr) and 0.5 percent for presses/veneer dryers (0.005 x 8,760 = 44 hr/yr). Biofilters were not included in the analysis of 1999 downtime. Biofilters are typically used to control press emissions. The annual hours of downtime required for the biofilters in the downtime data base generally match well with the 0.5 percent downtime allowance for presses/veneer dryers.

There are process units with control requirements in the PCWP NESHAP other than rotary dryers, tube dryers, presses, and veneer dryers. The 3 percent downtime allowance was selected for APCDs controlling green rotary dryers, tube dryers, strand dryers, pressurized refiners, and combinations of any of these equipment with other process units. The 0.5 percent downtime allowance was selected for APCDs controlling equipment that is less susceptible to particulate and salt deposition, including veneer dryers, presses, board coolers, hardboard ovens, press predryers, and fiberboard mat dryers. Application of the downtime allowance is per process unit (i.e., the downtime allowance is calculated separately for each process unit controlled using the operating hours for each process unit).

In a letter dated June 28, 2001, commenter IV-D-27 specifically requested that an annual basis be used for determining routine control device downtime because

> "Oftentimes, activities associated with routine maintenance of the RTOs and RCOs (off-line bakeouts, washouts, valve cleaning, and other activities to keep control device pressure drops in acceptable operating range) occur only once per year. This is particularly true for those units with relatively light particulate loadings such as veneer dryers and presses."[30]

We note that, based on our MACT survey results and Attachment O to comment IV-D-27, several routine maintenance activities (e.g., bakeouts, washouts) occur much more frequently than once per year. Nevertheless, we proposed to calculate the percentage of APCD downtime on an annual basis and we maintain that using an annual basis for calculation of the downtime allowance is appropriate. We question whether activities that occur less frequently than once per year are really "routine" maintenance activities. To answer this question, we reviewed the downtime survey data for the 30 APCDs used in setting the downtime allowance. We found that 12 of these 30 APCDs had downtime associated with media plugging or media degradation that resulted in either partial or full replacement of the media. Therefore, we disagree with the commenters that the media replacement was not included in the derivation of the downtime allowance. In addition, we note that the commenters are incorrect in stating that the 3 percent downtime allowance was based on an assumption that maintenance is performed annually because the data used in determining the 3 percent downtime allowance included multiple events per year. Furthermore, because the same data sets were used in both the industry's 79$^{th}$

percentile and our central tendencies analysis, we disagree with the commenters that basing the downtime allowance on the 79th percentile instead of central tendencies would better account for non-annual activities.

Based on our analysis of the downtime data, we maintain that the percentage downtime we proposed (3 percent for some units and 0.5 percent for others) calculated on an annual basis is appropriate for the final PCWP rule. The downtime allowance allowed under the RCDME is intended to allow facilities limited time to perform routine maintenance on their APCDs without shutting down the process units being controlled by the APCD. We included the downtime allowance in the rule because we recognize that frequent maintenance must be performed to combat particulate and salt buildup in RTOs and RCOs for PCWP drying processes. The downtime allowance is not intended to cover every APCD maintenance activity, only those maintenance activities that are routine (e.g., bakeouts, washouts, partial or full media replacements) and do not coincide with process unit shutdowns. Most APCD maintenance should occur during process unit shutdowns; the RCDME is a downtime allowance in addition to the APCD maintenance downtime that occurs during process unit shutdowns. We note that most PCWP plants do not operate 8,760 hours per year without shutdowns. For example, the MACT survey responses indicate that softwood plywood plants operate for an average 7,540 hours per year, which would allow 1,220 hours for control device maintenance without the RCDME.[10] Furthermore, the RCDME is allowed in addition to APCD downtime associated with SSM events covered by the SSM plan (e.g. electrical problems, mechanical problems, utility supply problems, pre-filter upsets).

2.8.1.4 Comment: Three commenters (IV-D-21, IV-D-23, and IV-D-27) objected to the requirement that the maintenance be scheduled at the beginning of the semiannual period. Commenter IV-D-21 stated that routine maintenance can easily be scheduled in advance, but equipment breakdowns are never scheduled, and it is unreasonable for a facility to wait until the beginning of the next semiannual period to fix the equipment. Also, facilities should have the flexibility to change the control device maintenance schedule more than twice a year so that it corresponds with process maintenance.

Commenter IV-D-23 stated that facilities should be able to schedule their own maintenance periods so that they correspond with process downtime, as long as the maintenance is performed on a regular basis. With this change, facilities would not have to worry that process units are not being appropriately controlled, and they would be able to schedule large-scale maintenance, such as bakeouts, on holidays when the entire plant is shut down.

Commenter IV-D-27 stated that the requirement in section 63.2251(e) to schedule maintenance activities at the beginning of each semiannual period is neither consistent with industry practice nor practical. It is reasonable to schedule maintenance during process downtime, but even process downtime is not scheduled on a semiannual basis. Downtime for maintenance is scheduled as the need arises, and downtime schedules change with need and production requirements. Most facilities will have a general idea of when they intend to conduct routine maintenance activities and will schedule those activities whenever possible to coincide with process downtime as it approaches. It is unclear under the proposed PCWP rule as to what would happen if maintenance was necessary before the scheduled date. If facilities are forced to follow the schedule to perform the maintenance, then they would likely be out of compliance in the meantime. In addition, facilities often perform maintenance of APCDs in advance of a scheduled time to take advantage of unexplained process outages. To eliminate confusion and better represent industry practice, EPA should remove the requirement for sources to schedule their control device maintenance schedules at the beginning of each semiannual compliance period.

Response: We have revised §63.2251(e) to delete the requirement to record your control device maintenance schedule for the semiannual period. We agree that this requirement would be impractical because process unit shutdowns are not scheduled semiannually. Also, the SSM provisions do not require scheduling of maintenance, and therefore, requiring scheduling of routine maintenance covered under the RCDME would be more restrictive than the requirements for SSM. To the extent possible, APCD maintenance should be scheduled at the same time as process unit shutdowns. Thus the revised §63.2251(e) retains the requirement that startup and shutdown of emission control systems must be scheduled during times when process equipment is also shut down.

2.8.1.5 Comment: Commenter IV-D-27 stated that in addition to regular periodic maintenance, the control devices that form the basis for the MACT floor are inappropriate for wood products sources and have proven to be subject to “catastrophic failure.” Extended emission control equipment downtime, at times up to several months, is needed to replace major system components when a control device experiences a failure such as rapid disintegration of the heat exchange bed, rapid irreversible plugging of the heat exchange bed, corrosion and collapse of major internal structural components, or an explosion. Instead of forcing a facility to shut down during this time, the commenter requested that EPA minimize the substantial economic impact by stating in the preamble that state enforcement officials have the discretion to recognize the industry's current inability to control the occurrence of such events through a variance or a consent decree or similar enforcement provision.

Response: Catastrophic failures are infrequent and unique situations that are best handled be the applicable enforcement authority. With any catastrophic failure, the enforcement authority must participate in evaluating the cause of the failure and the decision making relative to whether the plant should be allowed to continue operation under consent agreement. If, for example, the catastrophic failure is the result of an accident or was unavoidable, then the enforcement authority may decide to handle the situation differently than if the failure was the result of poor APCD maintenance. Facilities generally have not been forced to shut down in those rare instances when catastrophic failures have occurred and enforcement authorities have used their discretion in these situations. We strongly disagree that it is appropriate for us to conclude that all catastrophic failures are unavoidable, and we further disagree that enforcement officials need to be reminded of their discretion for handling such events.

2.8.1.6 Comment: Commenter IV-D-27 stated that the statement in section 63.2251(d) (What are the requirements for the routine control device maintenance exemption?) that facilities must "minimize emissions to the greatest extent possible" during maintenance periods is somewhat misleading. Facilities should make reasonable efforts to minimize emissions during control device downtime, but the wording of the proposed rule could be interpreted to mean that sources should limit production or shut down entirely during maintenance periods. That interpretation would negate any benefit to having an equipment downtime exemption and it would not be consistent with the MACT floor. The second sentence of section 63.2251(d) should be either removed or modified to require that facilities "establish a maintenance downtime program that addresses reasonable efforts to minimize emissions" during routine control device maintenance periods.

Response: We agree with the commenter that the wording of §63.2251(d) could cause misinterpretation of EPA's intentions. We note that in the proposal, §63.2251(a) also required a facility requesting an RCDME to describe its plan for minimizing emissions to the greatest extent possible. To address the commenter's concern, we have modified the second sentence of §63.2251(d) as suggested, and we have revised §63.2251(a) as follows:

> Your request must... describe how you plan to ~~minimize emissions to the greatest extent possible~~ *make reasonable efforts to minimize emissions* during the maintenance...

2.8.1.7 Comment: Commenter IV-D-27 argued that the difference between the routine maintenance downtime allowance and SSM events should be clearly defined in the rule. Section III.I of the preamble states

> There will also be instances when a control device is offline for correction of malfunctions such as electrical problems, mechanical problems, utility supply problems, pre-filter upsets, production malfunctions (e.g., dryer fires), and weather-related problems. Because these malfunctions are sudden, infrequent, and not reasonably preventable, they would be covered under the SSM provisions of today's proposed rule. (1295)

The commenter requested that this language, including the examples of malfunctions, be repeated in the body of the rule. Specifically, EPA should incorporate the SSM provisions from the MACT General Provisions into the rule, along with the examples listed above of SSM events specific to the wood products source category.

Response: The SSM provisions from the General Provisions are already incorporated into the PCWP rule. Section 63.2250(c) and Table 10 to subpart DDDD both state that §63.6(e)(3) of the General Provisions for writing SSM plans does apply to subpart DDDD. We do not believe that it is necessary or appropriate to classify all of the events in the categories identified by the commenter as malfunctions because some occurrences of these events may be reasonably preventable. However, we do agree with the commenter that further clarification is needed to help facilities distinguish between SSM events and routine control device maintenance. To achieve that goal, we have provided examples of events that would be covered by the RCDME in §63.2251(a) of the final rule.

**2.8.2 Veneer dryer burner relights**

2.8.2.1 Comment: Commenters IV-D-21 and IV-D-27 requested an exemption for situations where emissions from veneer dryers must bypass control devices to avoid damage to personnel or equipment. These situations include relighting the burner, opening the dryers to clear jams, and stopping the dryers to avoid fire or explosion. The commenters argued that provisions for these regular emission bypass events need to be written into the MACT performance standards to avoid unsafe conditions and to allow the facility to operate in compliance with the MACT regulations. Commenter IV-D-21 stated that the bypass of control devices in these situations existed when EPA was developing the rule, and they were therefore incorporated into the MACT floor.

The commenters explained that anytime a veneer dryer is shut down for any reason, scheduled or unscheduled, the emissions from that dryer must be vented directly to the atmosphere, or purged, for three minutes to avoid a buildup of explosive gases before the burner can be relit. The emissions cannot pass through an RTO, an RCO, or another dryer because these devices could ignite the explosive gas mixture. In addition, cold air must be purged to avoid condensation of flammable condensed organic material. Finally, if water or other firefighting chemicals enter the system, the air must be purged before relight to avoid combustion of these chemicals. Relighting the burner is necessary after these frequent shutdowns and when starting a dryer from cold shutdown. Burner relights occur on average from 6 to 12 times per 8-hour shift. Commenter IV-D-27 assumed that purging the dryers while production is stopped in unscheduled events would be allowed, but noted that including an exemption in the rule for all relighting situations is important to keep the plant safe.

Commenters IV-D-21 and IV-D-27 stated that as the proposed rule stands now, bypassing control devices when a veneer dryer burner is relit is not completely covered. The General Provisions state that a facility must either comply with the emissions standard or follow the SSM plan, but the proposed PCWP rule is more restrictive. The exemption provided in the rule only covers scheduled startups, such as weekly startups after routine maintenance, not relights after temporary shutdowns. Also, the SSM plan does not include an exemption from the emission requirements. The language of the proposed rule about minimizing emissions to the greatest extent possible during unscheduled shutdowns could be interpreted to mean that purging is not acceptable, even if it is necessary to avoid fire. The commenters argued that the language of the PCWP rule could be changed to reflect the General Provisions wording, and purging could be included in the SSM plan to maintain safety. The commenters also pointed out that minimizing the emissions to the level of PBCO limits does not qualify as 'minimizing emissions to the levels required by the relevant standards' because the proposed language prohibits using multiple compliance options for a single process unit. Commenter IV-D-27 added that emissions during burner startup may or may not be lower than emissions when the dryers are operating at the maximum capacity. The emissions are expected to be lower the longer the burners are off because the dryer will cool when not heated.

As a result of this situation, commenters IV-D-21 and IV-D-27 suggested revisions to the proposed rule. First, SSM events should not be labeled as “deviations” since the General Provisions do not define them that way. See comment No. 2.8.4.1 under Deviations for more details. Startups of the gas-fired burners in direct-fired veneer dryers should not be classified as deviations either. If these events need to be reported, then EPA should define a different category for reporting them. Second, the word “scheduled” should be removed from section 63.2250(d) (What are the requirements for periods of startup, shutdown, and malfunction?). See comment No. 2.8.3.5 under SSM Plan for more information. Alternatively, if making that change is determined to be too broad, EPA could specifically develop an exemption for periods when direct-fired burners are shut off and/or are being relit by adding wording to the regulation that reads

> The compliance options, operating requirements, and work practice requirements in § 63.2240 do not apply during times when process gases from direct-fired processes are vented to atmosphere for safety purposes during periods when process burners are shut off or during start or re-start of process heaters.

This revision specifically does not include the phrase “you must minimize emissions to the greatest extent possible” because such a phrase could be interpreted to require that dryers be cooled before restart to reduce emissions during purging. All of the direct-fired veneer dryers in EPA's database that had thermal and catalytic emission control equipment practiced bypass of emissions during burner shutdown and restart, so these practices are part of the floor. Finally, the PCWP rule should specifically address direct-fired veneer dryer starts, restarts, and partial restarts. The frequent nature of dryer relights should be considered separately from the infrequent occurrence of SSM events, and language should be added to section 63.2250(e) to specifically address and regulate this process. Suggested wording is:

> (e) Shut-off of direct-fired burners resulting from partial and full production stoppages of direct-fired veneer dryers or over-temperature events shall be deemed shutdowns and not malfunctions. Lighting, or re-lighting any one or all gas burners in direct-fired veneer dryers shall be deemed start-ups and not malfunctions.

Commenter IV-D-27 stated that these changes are needed to prevent endless negotiation with states and nongovernmental organizations (NGOs) about this issue. If the frequent line stoppages at veneer dryers were to be interpreted as malfunctions, additional rules would apply regarding the frequency of such events. A malfunction would have to fit the malfunction definition given by the General Provisions, and the line stoppages discussed in this section do not meet the "infrequent" term in the definition. Also, bypassing a control device could be challenged by administrator or public advocacy groups through citizen suit provisions, and according to section 63.6(e)(3)(vii) of the General Provisions, EPA has the power to require modification of the SSM plan. To completely avoid this situation, the commenter argued that the rule must contain explicit language that allows control equipment bypass during these specific events, defines them as startups and shutdowns, and does not define them as deviations.

Response: We agree with the commenters that safety issues should be considered when attempting to minimize emissions. Recent amendments to §63.6(e)(1)(i) of the General Provisions have added safety considerations to the explanation of the general duty to minimize emissions. The version of the General Provisions that was available to the commenters when their comments were written (the amendments to the General Provisions promulgated on April 5, 2002 (67 FR 16605)), state that

> "At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by the relevant standards, i.e., *meet the emission standard or comply with the startup, shutdown, and malfunction plan.*" [emphasis added]

The newest version, promulgated May 30, 2003 (68 FR 32586), states

> "At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. *The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices*, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved." [emphasis added]

The statement "meet the emission standard or comply with the startup, shutdown, and malfunction plan" is no longer a part of the general duty to minimize emissions in the General Provisions. In order to be consistent with the General Provisions, we have deleted the requirement that emissions must be minimized to the greatest extent possible in §63.2250(d). A reference to §63.6(e)(1)(i) of the General Provisions was already included in the proposed PCWP rule in §63.2250(b). Since purging of veneer dryers for burner relights is a safety issue, this change should help to alleviate the commenters' concern. Due to the frequent nature of veneer dryer burner relights, we agree that these events cannot be termed "malfunctions." Therefore, we have included language similar to the wording suggested for paragraph 63.2250(d) by the commenter to further clarify this issue. See the response to Comment No. 2.8.4.1 for our position on deviations and the response to Comment No. 2.8.3.5 for our position on removing "scheduled" from §63.2250(d).

**2.8.3 SSM plan**

2.8.3.1 Comment: Commenter IV-D-26 argued that the CAA requires EPA to set emission control standards on a continuous basis, and allowing SSM conditions to be exempt from these controls is an unlawful loophole. Compliance with the SSM plan does not make the condition lawful, since the SSM plans are generated by the facilities themselves. In addition, Commenter IV-D-26 stated that EPA's compliance provision is unlawful because it conflicts with §304, which expressly allows citizens to enforce emission limitations. Under EPA's regulations, a source would be deemed in compliance, in spite of a deviation from the emission standards, if it demonstrates to the Administrator's satisfaction it was operating in compliance with its SSM plan during periods of SSM. The proposed regulations do not indicate how this provision would operate in enforcement suits brought by citizens rather than the Administrator.

Response: We disagree with the commenter that compliance with emission limits must be maintained during periods of SSM. The NESHAP General Provisions provide some relief from emission standards during SSM conditions, but sources do not necessarily receive a blanket exemption from those emission limitations during all SSM conditions. Specifically, §63.6(f)(1) of the NESHAP General Provisions states that

> "The non-opacity emission standards set forth in this part shall apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the

> affected source to comply with the nonopacity emission standards set forth in this part, then that emission point must still be required to comply with the nonopacity emission standards and other applicable requirements."

Sections 63.6(e) and 63.7(e)(1) provide similar wording, and all three of the referenced sections are listed in Table 10 to subpart DDDD as being applicable to subpart DDDD. During periods of SSM, the facility must operate according to an SSM plan that satisfies the requirements of §63.6(e)(3). We also acknowledge the commenter's concern about a facility complying with an SSM plan that was developed by that facility. To address this very concern, we promulgated amendments to the NESHAP General Provisions (68 FR 32586, May 30, 2003). Under the promulgated amendments, §63.6(e)(3)(v) requires owners or operators of affected sources subject to a part 63 standard to submit a copy of the SSM plan to the Administrator upon receiving a written request from the Administrator. Any time a member of the public submits a "specific and reasonable request" to view the SSM plan of an affected source, the Administrator has an obligation to submit that request to the affected source. In addition, §63.6(e)(1)(i) allows the Administrator to make a determination of the adequacy of the SSM plan, and §63.6(e)(3)(vii) requires an affected source to make changes to the SSM plan if it is determined to be unacceptable. The language in section 63.6(e)(1)(i) also makes it clear that during a period of SSM, the general duty to minimize emissions requires the owner or operator to reduce emissions to the greatest extent consistent with safety and good air pollution control practices. However, during an SSM event, the general duty to minimize emissions does not require the owner or operator to achieve levels required by the MACT standard during non-SSM periods. As stated in the preamble to the final rule (General Provisions), we believe we have discretion to make reasonable distinctions concerning those particular activities to which the emission limitations of a MACT standard apply, and note that exceedances of generally applicable emissions limitations will be limited to those instances where they cannot be reasonably avoided. (See 38 FR 32589-3593, May 30, 2003.) We believe these amendments address the commenter's concerns. In addition, the criteria for writing and using SSM plans are covered in the NESHAP General Provisions.

We believe that our statutory standard-setting obligations do not preclude the establishment of appropriate regulatory mechanisms to deal generally with issues such as SSM. Therefore, enforcement actions during periods of SSM depend not on whether the facility is meeting the otherwise applicable emission standards, but whether the facility is operating in accordance with an adequate SSM plan. To the extent that anyone can pursue enforcement actions for violations during periods of SSM, such violations will consist of failure to comply with the applicable SSM plan (as required by §63.6(e)(3)(ii)) or substantive inadequacies in the SSM plan itself that amount to violations of the §63.6(e)(3) plan requirements. In circumstances where such violations occur, citizens may pursue enforcement action under §304 of the CAA, just as they may pursue enforcement actions when a facility violates an emission standard or any other NESHAP requirement during normal plant operation. However, for violations during SSM, such a suit would focus on whether the facility was operating according to its SSM plan and/or whether the SSM plan itself was adequate according to the requirements of §63.6(e)(3). Thus, there is no inconsistency between EPA's SSM requirements and the statute's provisions regarding citizen's rights to enforce EPA's regulations.

2.8.3.2 Comment: Commenter IV-D-21 pointed out that some of the sections of the proposal that deal with SSM do not specify whether the SSM applies to the control device, the process, or both. For example, section 63.2250(a) seems to indicate control device SSM, while section 63.2250(d) seems to indicate process SSM. Adding the phrase "control device" before both occurrences of the word "startup" in section 63.2250(a) would help to clarify that point. If SSM applicability was narrowed to the control device only, then the burden would be less on both the reporting and reviewing parties. Also, section 63.2281(c)(4) of the proposal seems to require that every single SSM event be documented in the records, even the numerous minor occasions that would not affect the abilities of the control devices. If the reports were full of these minor situations, the major SSM events would tend to receive less notice. EPA should incorporate the comments of The Coalition for Clean Air Implementation on the "National Emission Standards for Hazardous Air Pollutants for Source Categories: General Provisions" regarding SSM events that do not affect the control systems into this rule.

Response: We agree with the commenter that the explanation of periods when the compliance options, operating requirements, and work practice requirements do and do not apply is confusing. Our intention is for the SSM periods mentioned in §63.2250(a) to apply to both process units and control devices. The circumstances listed in §63.2250(d) are periods in addition to those listed in §63.2250(a) during which the compliance options, operating requirements, and work practice requirements do not apply. Since SSM plans address all startups and shutdowns, we wanted to specify that the amount of time taken for scheduled startups and shutdowns should be minimized. That statement does not mean that unscheduled startups and shutdowns are automatically subject to the compliance options, operating requirements, and work practice requirements; unscheduled startups and shutdowns should be covered to the greatest extent possible in the SSM plan. To clarify the SSM guidelines, we have combined §63.2250(d) with §63.2250(a) and revised the resulting §63.2250(a).

To address the commenter's concern that §63.2281(c)(4) would require all SSM events to be documented, we point out that §63.2281(c)(4) states the following:

> "If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your SSMP, the compliance report must include the information specified in §63.10(d)(5)(i)."

At the time that the commenter wrote this comment, §63.10(d)(5)(i) of the General Provisions did require that "the number, duration, and a brief description of each startup, shutdown, or malfunction" be included in the report (67 FR 16605, April 5, 2002). Since then, the General Provisions have been revised, and that reporting burden has been reduced. According to the preamble of the amendments to the General Provisions promulgated on May 30, 2003

> "In some industries, startup and shutdown events are numerous and routine. So long as the provisions of the SSM plan are followed, there does not appear to be any real utility in requiring that each individual startup and shutdown be reported or described... [I]n those instances where a startup or shutdown includes actions which do not conform to the SSM plan and the standard is exceeded, the facility is otherwise required to promptly report these deviations from the plan... [R]eporting of malfunctions would help permitting authorities determine whether sources are attempting to circumvent the standard by improperly defining events as malfunctions. To prevent this type of potential abuse, we do not think that all malfunctions need to be reported. Rather, we think this problem can be addressed by requiring that the affected source report only those malfunctions which occurred during the reporting period and which caused or may have caused an emission limitation in the relevant standard to be exceeded. Thus, we have decided to retain the requirement that the owner or operator report malfunctions in the periodic report, but to limit its scope to those malfunctions which caused or may have caused an emission limitation in the relevant standard to be exceeded." (68 FR 32592) [emphasis added]

As a result, §63.10(d)(5)(i) of the General Provisions now lists the following requirements for the periodic startup, shutdown, and malfunction reports:

> "If actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see

> §63.6(e)(3)), the owner or operator shall state such information in a startup, shutdown, and malfunction report. Such a report shall identify any instance where any action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is *not consistent with the affected source's startup, shutdown, and malfunction plan*, but the source does not exceed any applicable emission limitation in the relevant emission standard. Such a report shall also include the *number, duration, and a brief description for each type of malfunction* which occurred during the reporting period and which *caused or may have caused any applicable emission limitation to be exceeded*." (68 FR 32601)

The revised reporting requirements should help to minimize the commenter's concern.

2.8.3.3 Comment: Commenter IV-D-27 supported the exemptions from compliance options, operating requirements, and work practice requirements during periods of SSM and made a suggestion to clarify the requirements. The EPA should use emission standards rather than operating limits for determining if an interruption in production is a malfunction or not. Wood products facilities experience many sudden stops, starts, or other minor malfunctions during the course of a work day that do not affect the operation of the control device. Reporting each one of these interruptions detracts from the purpose and clarity of reporting. The EPA explains its interpretation of the malfunction definition at 67 FR 72881:

> We recognize that some sources are concerned that the requirement to periodically report malfunctions may be interpreted to require reporting of minor problems that have no impact on emissions. However, we do not construe the provision in this manner. Under our regulations, '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.' See 40 C.F.R. 63.2. Only those events that meet this definition would be subject to the reporting requirement. During an event that meets this definition, the facility is not required to comply with otherwise applicable emission limits, and the SSM plan must specify alternative procedures which satisfy the general duty to minimize emissions. Minor or routine events that have no appreciable impact on the ability of a source to meet the standard need not be classified by the source as a malfunction, addressed in the SSM plan, or included in periodic reports. Thus, if a source experiences a minor problem that does not affect its ability to meet the applicable emission standard, the problem need not be addressed by the SSM plan and would not be a reportable 'malfunction' under our regulations.

The commenter agreed with this interpretation and suggested that in order to evaluate the effect of the equipment on emissions, the definition of malfunction should be revised as follows (addition in italics):

> 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 *affecting the ability of the affected source to meet a relevant standard or of monitoring equipment to operate in a normal or usual manner.*

This revision does not mean a source needs to have absolute knowledge that it exceeded emission levels to include a failure in a malfunction report. A source is permitted to report all such events if it chooses. The revision simply clarifies that if a source knows that its ability to comply was not affected, the event need not be reported as a malfunction.

Response: The definition of "malfunction" is included in the NESHAP General Provisions (40 CFR 63, subpart A), not the PCWP NESHAP. The NESHAP General Provisions, including the definition of "malfunction," were recently revised and updated. Amendments to the NESHAP General Provisions concerning SSM procedures were proposed in 67 FR 72875 (December 9, 2002) and promulgated in 68 FR 32585 (May 30, 2003). The EPA noted in the preamble to the final amendments to the NESHAP General Provisions that

> "A number of commenters requested that we make this policy clear in the regulatory language, rather than only in the preamble. These commenters suggested that the definition of malfunction could be revised to accomplish this. We think this is a good idea, and we have revised the definition accordingly. We think that this change will make it clear that events that do not cause, or have the potential to cause, emission limitations in an applicable standard to be exceeded need not be included either in the SSM plan or in periodic malfunction reports. (68 FR 32592-3, May 30, 2003)

As a result, the first sentence of the most recent definition of "malfunction" reads as follows:

> "*Malfunction* means 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." (68 FR 32600, May 30, 2003)

Although the amendments to the NESHAP General Provisions regarding SSM plans are currently involved in litigation, the definition of "malfunction" promulgated on May 30, 2003, applies to the PCWP NESHAP unless EPA promulgates another revision. Therefore, we disagree that it is necessary or appropriate to make any further changes to the definition as suggested by the commenter or to include a separate definition of "malfunction" in the PCWP NESHAP.

2.8.3.4 Comment: Commenter IV-D-27 noted that the reference to the General Provisions in section 63.2250(b) is redundant. In addition, the General Provisions are under revision, so deleting the entire section would eliminate any potential conflicts with the revised general provisions.

Response: Section 63.2250(b) refers to §63.6(e)(1) of the General Provisions, which addresses the general duty to minimize emissions during SSM events. This section of the General Provisions was updated by an amendment promulgated on May 30, 2003 (68 FR 32585), and this revised version of §63.6(e)(1) of the General Provisions does apply to the PCWP NESHAP. We note that we cannot adequately address the commenter's concern about redundancy because the commenter did not clarify which section or reference is redundant with the reference to the General Provisions in §63.2250(b).

2.8.3.5 Comment: Commenter IV-D-27 requested that the word "scheduled" be removed from section 63.2250(d) (What are the requirements for periods of startup, shutdown, and malfunction?). Currently, the proposed PCWP rule only exempts scheduled startup and shutdown events, and some unscheduled startups and shutdowns are considered malfunctions, which are also exempt. However, many unscheduled process startups and shutdowns cannot be considered malfunctions because of their frequency. During these periods, facilities may find themselves in violation of compliance caused by little to no flow of HAP to the control device inlet, not by an inadequate control device. Deleting "scheduled" from the rule would help facilities avoid that situation.

Commenter IV-D-21 stated that section 63.2250(d) should be changed to clarify that the SSM events apply to process SSM and not the control devices. Also, it is unnecessary to specify that only scheduled startup and shutdown periods are exempt, since some unscheduled startups and shutdowns could be considered malfunctions, which are exempt as well. The events that cannot be classified as malfunctions are generally the minor shutdowns and startups that do not affect the control device. Unless unscheduled startups and shutdowns are included in the exemption, many facilities are likely to be out of compliance with the rule for short periods of time every day.

Response: As explained in the response to Comment No. 2.8.3.2, both §63.2250(a) and §63.2250(d) apply to process units and control devices. The circumstances listed in §63.2250(d) are periods in addition to those listed in §63.2250(a) during which the compliance options, operating requirements, and work practice requirements do not apply. Since SSM plans address all startups and shutdowns, we wanted to specify that the amount of time taken for scheduled startups and shutdowns should be minimized. That statement does not mean that unscheduled startups and shutdowns are automatically subject to the compliance options, operating requirements, and work practice requirements; unscheduled startups and shutdowns should be covered to the greatest extent possible in the SSM plan. To minimize confusion, §§63.2250(a) and 63.2250(d) have been combined and revised.

2.8.3.6 Comment: Commenters IV-D-21 and IV-D-27 noted that sections 63.2250(e) and 63.2251(e) are exactly the same, and one of them should be removed to avoid unnecessary duplication.

Response: After reviewing the rule, we agree with the commenter that §63.2250(e) is unnecessary duplication of §63.2251(e), and we have removed §63.2250(e) from the rule. See the response to Comment No. 2.8.1.4 for our position on recording the control device maintenance schedule at the beginning of each semiannual compliance period to receive the routine control device maintenance exemption.

2.8.3.7 Comment: Commenter IV-D-27 stated that section 63.2250(f) should be removed from the rule, mainly because EPA does not clarify what this section has to do with SSM. The requirement to operate and maintain RCO catalysts according to manufacturers' specifications limits a facility's ability to react and respond to changing conditions. If a mill is to be held ultimately responsible for compliance to the standard, it should be given all reasonable opportunities to meet the requirements, including flexibility in operating and maintaining an RCO. Some facilities may have situations in which they use catalysts from different manufacturers or the catalyst or RCO vendor has gone out of business. These factors could make it difficult to comply with this requirement. Because of the high costs of the equipment and compliance violations, properly maintaining the equipment is in the facility's best interest. For all of these reasons, section 63.2250(f) should be removed from the PCWP rule.

Response: We have eliminated the requirement for facilities to maintain the catalyst according to manufacturers' specifications and the proposed §63.2250(f) from the rule. As discussed in response to Comment No. 2.7.11.6, we have replaced this requirement with a requirement to perform an annual check of catalyst activity.

**2.8.4 Deviations**

2.8.4.1 Comment: Commenter IV-D-27 suggested that section 63.2271(b) be revised to clearly state that SSM events are not considered deviations. EPA should clarify that SSM events are to be reported as deviations only when there is a deviation from the compliance options, operating requirements, and work practice standards. Also, the reference to 63.6(e) should be deleted because it conflicts with this provision. The commenter argued that not all deviations result in violation of compliance, and recording all of these situations makes it harder to find the situations that were truly violations. The recommended revisions to 63.2271(b) are as follows (added text in italics):

> [T]his includes periods of startup, shutdown, or malfunction and periods of control device maintenance specified in paragraphs (b)(1) and (3) of this section *except for when emission control equipment is being started up or shut down, when the production process generating the emissions to be controlled is not operating, or when the production process generating the emissions is started or shut down when the emission control equipment is meeting its operating requirements…*

Commenter IV-D-27 requested that the final rule not identify SSM events as deviations. The commenter stated that in the proposed definition of deviation, all startups and shutdowns of emission control equipment would be considered deviations because it would not be possible to either start up or shut down a control device without being outside one of the operating requirements. As an example, the commenter pointed out that starting up an RTO or RCO usually requires that the temperature be raised to the proper operating range, and during this warm-up period, the temperature will not meet the minimum operating temperature requirement, nor will the pressure at the inlet be within the proper range. The commenter also noted that under normal conditions, the emission control devices are not receiving emissions when they are starting up or shutting down. Because the emissions do not start flowing to the control device until it is ready, startups and shut downs should not be defined as deviations. To address this issue, the commenter recommends that item (3) of the proposed definition of deviation be deleted as follows (additions are in italics and deletions are in strikeout format):

> <u>Deviation</u> means 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~~ *at least one* compliance option, operating requirement, or work practice requirement *while the process is operating; or*
> (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 compliance option, operating requirement, or work practice requirement in this subpart during startup, shutdown, or malfunction, regardless or whether or not such failure is permitted by this subpart.~~

Also, a special exemption should be allowed for biofilter initial startup. EPA should require that emissions be introduced to biofilters during initial start-up.

The commenter also recommended that a definition of "instance" be added to the final rule to clarify the meaning of this term as it is used in the definition of deviation, as follows:

> Instance means any compliance block average, operating requirement block average, or work practice block average.

Response: The term "deviation" applies to events during which an affected source fails to meet a compliance option or comply with another requirement of the final rule. Deviations are not synonymous with violations; depending on the circumstances, a deviation may or may not be a violation of an applicable requirement. We agree with the commenter that an affected source need not be in compliance with compliance options, operating requirements, or work practice requirements during periods of SSM. Although we consider noncompliance with the compliance options during SSM to be deviations from the compliance options, we do not automatically consider these deviations to be violations of those compliance options. Section 63.7(e)(1) of the General Provisions to Part 63 specifies that, "Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test, nor shall emissions in excess of the level of the relevant standard during periods of startup, shutdown, and malfunction be considered a violation of the relevant standard unless otherwise specified in the relevant standard or a determination of noncompliance is made under 40 CFR 63.6(e)." As indicated in Table 10 of the final rule, this language of the General Provisions to part 63 does apply to subpart DDDD. The definition of "deviation" included in the final rule is consistent with how "deviation" is defined in other NESHAP, and has not been changed since proposal. Likewise, we do not agree with the commenter that EPA should clarify the term "instance," since adding this definition as the commenter recommended would narrow the scope of "deviation" to non-SSM periods only.

## 2.9 RECORDKEEPING AND REPORTING REQUIREMENTS

2.9.1 Comment: Commenter IV-D-27 noted that although it is helpful for EPA to explicitly state all the parameters that facilities are required to record and report, EPA's interpretation of the requirements of the general MACT provisions combined with the already considerable reporting and recordkeeping provisions required by the proposed PCWP NESHAP results in an enormous administrative burden. The commenter encouraged EPA to do whatever possible to reduce that burden, especially for smaller facilities that will be forced to make an incredible effort to make sure that all necessary data is collected, stored, and submitted accurately and on time. Since EPA has stated that reporting lapses are "knowing and willful violations," it should do everything it can to make sure that the burden on smaller facilities is not unreasonable. The EPA should give the Administrator flexibility in reviewing alternative reporting methods in the preamble to the final PCWP rule and recognize the need to tailor reporting and recordkeeping requirements to meet specific facility operating and control scenarios in appropriate sections of the final rule.

Response: We selected the proposed reporting and recordkeeping requirements based on requirements in the NESHAP General Provisions (40 CFR part 63, subpart A). Except for some options specific to the PCWP source category (e.g., emissions averaging options, work practices, RCDME option), the reporting and recordkeeping requirements are the same as the requirements in the General Provisions. Therefore, we believe we have established the minimum reporting and recordkeeping requirements necessary to ensure enforceability of the rule. As indicated in §63.2291(c)(4), the Administrator can approve alternative reporting and recordkeeping approaches as specified in §§63.10(f) and 63.90.

2.9.2 Comment: Commenter IV-D-27 requested that section 63.2271(b) (How do I demonstrate continuous compliance with the compliance options, operating requirements, and work practice requirements?) should be revised to clearly state that the semiannual compliance report does not need to include extensive detail of each routine maintenance activity. It should be sufficient to list process uptime versus exempted maintenance downtime as a comparison to the relevant exemption percentage. Also, §63.2281(c)(5) (What reports must I submit and when?) should be updated to include the same revision as section 63.2271(b).

Response: Section 68.2271(b) indicates that each period of routine control device maintenance must be reported according to §63.2281. Section 63.2281(c)(5) requires reporting of routine control device maintenance. Facilities must report a description of control device maintenance performed while the control device was offline and one or more of the process units controlled by the control device was operating. The description must include the date and time when the control device was shut down and restarted; identification of the process units that were operating and the number of hours that each process unit operated while the control device was offline; and a statement of whether or not the control device maintenance was included in the facility's approved RCDME. For control device maintenance covered under the RCDME, facilities must report information on the amount of time that the control device was offline while each process unit routed to the control device was operating, and this information must be used in calculating the annual percentage of process unit uptime during which the control device is down for routine control device maintenance. We disagree that changes to the reporting and recordkeeping requirements associated with the RDCME are necessary, because all of the information reported would be needed by permitting authorities to evaluate whether the maintenance performed fits under an approved request for an RCDME and to check calculations of the annual percentage of process unit uptime during which the control device is down for routine control device maintenance. We further note that use of an RCDME is optional, and facilities wishing to avoid reporting and recordkeeping associated with the RCDME can opt not to request the exemption.

2.9.3 Comment: Commenter IV-D-27 noted that there is currently litigation on the MACT General Provisions regarding the requirement to report details for SSM events that follow an SSMP. Section 63.2281(c)(4), as well as any other applicable section, should be revised to include the outcome of that litigation.

Response: The General Provisions were most recently updated in on May 30, 2003 (68 FR 32586). One of the sections that was revised was §63.10(d)(5)(i), which addresses the recordkeeping and reporting requirements for SSM events. As noted in our response to comment No. 2.3.8.2, facilities are required to describe only malfunctions that may have caused the facility to exceed the relevant emission standards, not all SSM events. However, as the commenter pointed out, this section is involved in litigation, and the outcome of that litigation may require EPA to further revise the General Provisions. Because the PCWP NESHAP incorporates this section and other sections of the General Provisions by reference, the PCWP NESHAP will be considered to be revised if those sections of the General Provisions are revised as a result of the outcome of litigation.

2.9.4 Comment: Commenter IV-D-27 requested that §63.2281(e)(1) through (11) be revised to include summary reporting as an option because the current requirements are excessive in view of the MACT General Provisions at §63.10(e)(3), which provide for the reporting of only summary information when continuous monitoring system (CMS) downtime for the reporting period is less than 5 percent of the total operating time for the reporting period.

Response: Section 63.10(e)(3) deals with excess emissions reports and does not apply for the PCWP NESHAP. We have superceded §63.10(e)(3) with §63.2281(e), which requires reporting of deviations from compliance options or operating requirements when a CMS is used. The reporting requirements included in §63.2281(e)(1) through (11) are similar to the summary report requirements listed in §63.10(e)(3). Section 63.2281(e) requests only summary information for deviations in all semiannual compliance reports, not just those reports where there is less than 5 percent CMS downtime during the reporting period.

2.9.5 Comment: Commenter IV-D-27 recommended a change to section 63.2283(a) (In what form and how long must I keep my records?). Currently, the section states that "records must be in a form suitable and readily available for expeditious review." However, the MACT General Provisions are not helpful in determining a "suitable" form, and due to the large amount of records that will be generated by the PCWP rule, many facilities may utilize technology to help with the recording and storage of these records. If these records happen to be computerized on the same systems that control the process operation, control devices, or other systems, then the records may not be readily available. The commenter suggested the following revision to this section: "Your records must be in a form which is constructively responsive to the relevant requirement of this rule and available for review within a reasonable length of time as determined by the scope and extent of the relevant records."

Response: Section 63.2283(a) references §63.10(b)(1) of the General Provisions, which also states that records must be kept "in a form suitable and readily available for expeditious inspection and review." Section 63.10(b)(1) further states that the oldest three years of data files may be kept "on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche." We disagree that the commenter's suggested revision to §63.2283(a) provides more clarity than the General Provisions, and therefore, we have not incorporated the commenter's suggestion into §63.2283(a). We further note that the General Provisions have been recently updated to clarify requirements as needed.

## 2.10 COST AND ECONOMIC ASSUMPTIONS AND IMPACTS

### 2.10.1 Cost and economic impacts

2.10.1.1 Comment: Commenter IV-D-27 stated that EPA estimated an annual cost of $142 million with annual emission reductions of 11,000 tons of HAP, yielding an average cost effectiveness of $13,000 per ton of HAP removed. The commenter compared these estimates with the industry's estimates of an annual cost of $165 million with annual emission reductions of approximately 9,000 tons of HAP, yielding an average cost effectiveness of $18,000 per ton of HAP removed. The commenter noted that, although their methodology and EPA's methodology for costing are substantially different, the total annual cost estimates are reasonably close and are assumed to be reasonable estimates. The commenter presents their cost analysis (see section XII.A of comment IV-D-27). The commenter noted that proposed options such as emissions averaging and PBCO limits and the commenter's suggested risk-based and concentration cutoff options could lower costs for facilities. Also, biofilters or RCOs will likely be used by some facilities and these technologies may also lower industry cost.

Response: We acknowledge this comment agreeing that our cost estimates are reasonable estimates.

2.10.1.2 Comment: Commenters IV-D-02, IV-D-15, IV-D-17, IV-D-36, IV-D-38, IV-D-44, and IV-D-40 argued that this rule is extremely expensive, forcing plants to choose between installing expensive controls and closing their doors. It is especially hard on plants in rural areas that do not pose much of a risk to human health or the environment. If plants are forced to close, then plant employees as well as those who depend on the plant for their living, such as contractors, consultants, and suppliers, would lose their jobs. Local property values would decline severely, local businesses would close, and the areas would lose their chance to attract new residents and businesses.

Commenters IV-D-15, IV-D-16, IV-D-53, IV-D-50, IV-D-39, and IV-D-42 reiterated the costs estimated by EPA for installing and maintaining the necessary HAP controls and then compared that amount to the money that is already spent on the plant each year. Commenters IV-D-16, IV-D-50, and IV-D-41 pointed out that the amount of money associated with HAP controls is almost triple the annual capital spending during the profitable late 1990s. Several commenters (IV-D-08, IV-D-09, IV-D-53, IV-D-39, IV-D-41, IV-D-50, and IV-D-42) stated that companies are considering shutting down plants because of the large capital and operating expenses associated with installing and maintaining HAP controls. Local economies would be severely impacted due to plant closures. Hundreds of people would lose their jobs, including the plant employees and employees at companies that rely on the plywood plant for business.

Commenters IV-D-09, IV-D-15, IV-D-53, and IV-D-42 stated that the PCWP industry has not been profitable lately; 20 percent of the plants that existed in 1999 have closed permanently and five more are temporarily idle. Commenters IV-D-08, IV-D-09, IV-D-15, IV-D-16, IV-D-53, IV-D-39, IV-D-50, IV-D-41, and IV-D-42 stated that the estimate that only one plant would be forced to close because of this rule was made during a profitable time in the industry, and many more than that would close in these less profitable times if the rule were finalized without changes. The PCWP industry has not been profitable lately, and the future is uncertain for many facilities. Several commenters also stated that it is safe to assume that Congress did not intend for this rule to result in the addition of exceptionally costly controls that would yield minimal, if any, health and environmental benefits, which is precisely what EPA's analysis indicates will be the most likely result if the proposed rule is implemented. Commenters IV-D-09, IV-D-16, and IV-D-41 asked why EPA did not attempt to scuttle this burdensome and counterproductive rule when the analysis showed that compliance would be costly and would not have significant health or environmental effects.

Commenters IV-D-08, IV-D-09, IV-D-15, IV-D-16, IV-D-39, IV-D-41, IV-D-42, IV-D-53, and IV-D-50 argued that foreign plants are becoming major competition in the United States. These plants are not required to control their emissions, so if U.S. plants were forced to add unnecessary controls, they would no longer be competitive in the global market, and the domestic industry would suffer.

For perspective, commenter IV-D-09 stated that their plant is one of the more efficient, and it is still losing money due to current market conditions.

Commenter IV-D-14 stated that one of its plywood mills was closed in 2000 and that the proposed rule would probably force its two remaining mills to close as well. All three mills are small to medium-sized and located in small towns, and the closure of the first mill was harmful to the town's economy.

Commenter IV-D-16 stated that their area is still dealing with the aftermath of the Mt. Saint Helens eruption in 1980.

Commenter IV-D-19 argued that EPA has not accurately assessed the effects of this rule on the industry, especially plants that are the major employer in rural areas. Some plants that would need controls have already closed in anticipation of the rule. The commenter presented a monetary cost estimate for the company of $100 million in capital costs and $10.6 million annually for natural gas and additional electricity.

Commenters IV-D-34 and IV-D-35 stated that more facilities will shut down than expected if this rule is finalized. If a facility is not making a profit before MACT standards are applied, there is no way that the facility will be able to make a profit once MACT standards are enforced. The EPA predicted that only one plant would shut down, but many more facilities than that will be unable to afford the HAP controls and will be forced to close, disrupting the economies of the surrounding areas.

Commenter IV-D-47 noted that they were already forced to claim Chapter 11 bankruptcy for several reasons, including environmental restraints, undercapitalization, and poor market conditions. If their one remaining plywood facility is affected by the PCWP rule, the company will no longer exist and the results will be devastating to the local economy. Many other plywood mills will be forced to close as well.

Response: Section 112(b) of the CAA contains a list of HAP that are pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to humans or the environment. Section 112(c) of the CAA requires us to list categories and subcategories of major and area sources of HAP and to establish NESHAP for the listed source categories and subcategories. Major sources of HAP are those stationary sources or groups of stationary sources that are located within a contiguous area under common control that emit or have the potential to emit, considering controls, 9.07 Mg/yr (10 tpy) or more of any one HAP or 22.68 Mg/yr (25 tpy) or more of any combination of HAP. Area sources are those stationary sources or groups of stationary sources that are not major sources.

Plywood and particleboard manufacturing was listed as a category of major sources on the initial source category list published in the Federal Register on July 16, 1992 (57 FR 31576). The name of the source category was changed to plywood and composite wood products (PCWP) on November 18, 1999 (64 FR 63025) to more accurately reflect the types of manufacturing facilities covered by the source category. The PCWP source category, which includes major sources of HAP emissions, emits HAP including (but not limited to) acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde. These six HAP are associated with a variety of adverse health effects, including chronic health disorders (e.g., damage to nasal membranes, reproductive disorders, and problems with pregnancies) and acute health disorders (e.g., irritation of eyes, throat, and mucous membranes; dizziness; headache; and nausea). Three of the six HAP listed above have been classified as probable or possible human carcinogens.

Because PCWP manufacturing is a source category containing major sources of HAP, we are required by the CAA to establish NESHAP for PCWP manufacturing. Standards for the PCWP manufacturing source category were proposed in the Federal Register on January 9, 2003 (68 FR 1276). These PCWP standards implement section 112(d) of the CAA by requiring all major sources subject to the rule to meet HAP emission standards reflecting the application of MACT. The MACT floor is the minimum control level allowed for NESHAP and is defined under section 112(d)(3) of the CAA. In essence, the MACT floor ensures that the standard is set at a level that ensures that all major sources achieve a level of control at least as stringent as that already achieved by the better-controlled and lower-emitting sources in each source category or subcategory. For new sources, the MACT floor cannot be less stringent than the emission control that is achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing 5 sources for categories or subcategories with fewer than 30 sources). In developing MACT, section 112(d)(2) of the CAA requires us to also consider any control options that are more stringent than the floor ("beyond-the-floor" options). We may establish beyond-the-floor options based on the consideration of cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

Section 112(d)(3) of the CAA does not give EPA the discretion to consider costs, domestic or foreign market conditions, non-HAP air impacts, or energy use at the MACT floor control level. However, §112(d)(2) of the CAA requires EPA to consider cost, non-air quality health impacts, environmental impacts, and energy requirements when reviewing beyond-the-floor control options. We acknowledge the commenters' concerns regarding the cost of the PCWP standards. However, there are many existing, well-controlled PCWP process units that formed the basis for our MACT floor determinations. We determined that beyond-the-floor control measures would not be appropriate for most PCWP process units either because the control equipment that formed the basis of the MACT floor is the best control equipment available or because of cost. Thus, we have minimized the costs of this rule to the greatest extent allowed under the CAA.

We note that most of the above commenters manufacture softwood plywood. We acknowledge that softwood plywood is a sector of the PCWP industry that has been facing economic pressures associated with increased competition from another PCWP product (OSB). The softwood plywood market is declining for reasons other than this NESHAP. The CAA does not allow us to consider costs or the status of a product market when establishing emissions standards at the MACT floor control level. Because many existing softwood veneer dryers already have incineration-based controls, softwood plywood plants are affected by the MACT floor requirement for softwood veneer dryer heated zones to meet an emission level achievable with incineration-based controls. Unlike for reconstituted wood products, the PCWP rule does not require control of softwood plywood presses.

2.10.1.3 Comment: Commenter IV-D-05 requested that EPA re-analyze the economic impact data to reflect current times rather than the late 1990s. Many of the data used in the original analysis came from plants that are now shut down. The ones that are left are dealing with high energy costs, competition from foreign markets that follow different rules, raw materials increases, high transportation costs, energy crises, and shrinking markets. Another review of the data could help to determine how many plants would close because of the high costs of the rule, since it is certainly more than one. Also, the reduction in emissions from attrition could provide a basis for postponing the MACT rule until the economy improves.

Commenter IV-D-12 also recommended that the EPA re-evaluate its analysis of the costs to the industry using current data. The economic impact analysis (EIA) was based on data from 1997, a good year for the industry. If the economic impacts were revisited now, the results of foreign imports and a down market would show more clearly why companies are reluctant to invest the capital that would be needed to comply with this rule. In addition, EPA should include the costs of other MACT rules that have recently been promulgated and those that will be soon.

Response: We acknowledge that there have been some plant closures and new plant starts in the PCWP industry since we conducted our economic impact analyses for the proposed PCWP rule. Change to the population of facilities is ongoing in most industries, and it would be impossible for our engineering and economic analyses to account for these ongoing changes. The engineering data used as the basis for the PCWP rule were gathered through an extensive survey of the PCWP industry conducted in 1998, and were adjusted to account for plant closures, new plant starts, and ownership changes through April 2000. The cost analysis and economic impact analysis are based on mid- to late-1990's data because this reflects the engineering data used for the MACT floor development process, and much of this engineering data is input to the cost and economic impact analyses. The analyses for this rule, or any alternatives associated with this rule, should be consistent with the engineering data in order to allow for consistency in the basis for all analyses associated with this rule. Any updating of the economic data used in this analysis without similar updating of the engineering data would lead to an "apples-to-oranges" presentation of results, and one that would be inappropriate. Hence, the Agency will not update its economic data to place them on a more recent basis.

It should be noted that at proposal, we noted in our documentation that softwood plywood and hardboard were declining sectors. Softwood plywood is being replaced in the market by OSB. Hardboard has competition from vinyl siding, brick, and fiber-cement siding (not a PCWP). Also, particleboard has competition from MDF. Therefore, it is not surprising that there has been a decrease in the number of softwood plywood (-12 plants), hardboard (-3 plants), and conventional particleboard plants (-3 plants and +1 plant). Hardwood plywood, MDF, OSB, agriboard (particleboard made from agricultural fiber), and engineered wood products are stable or growing sectors. These changes are not a result of this rule; rather, these changes are a result of ongoing trends in the industry and are an issue for baseline characterization.

2.10.1.4 Comment: Commenter IV-D-48 argued that EPA's EIA for add-on controls is too low. When the costs of total press enclosures and particulate removal units are added, the up-front costs are increased dramatically. This estimate combined with the current economic picture may have a greater impact on small businesses than expected under the Small Business Regulatory Enforcement Fairness Act (SBREFA).

Response: We disagree that our costs estimated for add-on controls are too low and do not account for press enclosures or PM controls. Our cost estimates were based on the worst-case assumption that emissions from all affected PCWP process units would be controlled with RTOs. We did not account for cost-reduction measures such as emissions averaging, use of existing onsite combustion units for incineration of process exhaust, or compliance with the PBCO. Capital costs of PTEs were included in the costing analyses. Annualized costs associated with PTEs should be minimal and were not included in the cost analyses. We also included WESP costs in the cost analyses for those process units that require a WESP upstream of an RTO. Based on our MACT survey data, it appeared that exhaust streams from rotary particle dryers, tube dryers, veneer dryers, and presses generally do not have the high fine particulate or salt loadings that necessitate use of a WESP, and that prefiltering of exhaust from particle and tube dryers can be accomplished using lower-cost PM control devices. Prefiltering of exhaust from veneer dryers and presses is usually not necessary. Oriented strandboard plants typically install WESPs upstream of rotary dryer RTOs to protect the RTO media from plugging. Thus, the capital and annualized costs associated with WESP were modeled for rotary strand dryers, but not for other types of dryers or presses.

#### 2.10.2 Cost-benefits analyses

2.10.2.1 Comment: Commenter IV-D-23 stated that in terms of the health benefit, this rule is very cost-inefficient. On average, each facility will pay $2.1 million in capital costs and $0.6 million each year in operating costs to avoid one case of cancer every 14 years.

Response: We are unable to provide a comprehensive quantification and monetization of the HAP-related benefits of the PCWP rule due to data gaps, limitations in model capabilities (such as geographic coverage), and uncertainties in the underlying scientific and economic studies used to configure the benefit and cost models. It should be noted that the PCWP rule reflects the minimum stringency allowed under the CAA because the control requirements are based on the MACT floor control level. We acknowledge that the PCWP rule may have high costs to some affected facilities, and therefore, we have included a number of compliance options in the rule (i.e., both percent reduction and outlet concentration options in terms of three pollutants for add-on APCDs, as well as emissions averaging and PBCO limits) to maximize flexibility.

2.10.2.2 Comment: Commenter IV-D-23 noted that the costs of this rule make it likely that some plants will shut down rather than install the necessary controls, and there are at least 100 people per plant who will lose their jobs. The commenter asserted that the health impact to those 100+ people from lost income and lost health insurance will be far greater than the 0.07 cancers averted each year.

Commenter IV-D-45 argued that the cancer incidence calculation did not include two key factors. First, EPA left out the expected increase in cancer cases from the additional waste generated by the HAP controls (e.g., nitrogen oxides ($NO_x$)), mercury in solid waste). Second, the effect of lost consumer surplus on consumer health was not included. There is an economic theory that $15 million can be associated with one statistical death. In other words, $15 million per person pays for better medical care, better education about health-related risks, healthier food, safer cars and neighborhoods, more exercise, and so on. Since the social cost to consumers is estimated to be $135 million, this rule could be said to "cause" nine deaths per year by limiting access to good health.

Response: The commenter's assertion that the costs of this rule will make it likely that some plants will shut down rather than install necessary controls is not supported by any analysis and hence it is not possible for us to determine if this is an accurate estimate. The economic impact analysis finds a small overall loss in employment and the loss of output at a single process line. Estimates of these impacts are based on an incidence of costs to consumers as well as consideration of direct costs to producers, and hence consider the behavior of such economic agents in response to these costs. Based on the low price and output changes from this analysis, we believe the commenter's assertion is not a reasonable expectation of what the impacts of this rule will be.

Regarding the commenter's assertion that EPA left out the expected increase in cancer cases from additional $NO_x$ emissions and mercury we note that $NO_x$ is not considered a carcinogen; hence, this is not a disbenefit. The economic theory of $15 million in regulatory costs is associated with one statistical death is not one that we accept.

2.10.2.3 Comment: Commenter IV-D-45 discussed various aspects of the economic impacts. In terms of $NO_x$ pollutants, the commenter criticized EPA for not estimating the monetary value of the effects associated with the reduction of HAP versus the monetary value of the effects associated with the increase in $NO_x$. Apparently, EPA believes that the health and environmental benefits of reducing HAP would outweigh the health and environmental costs of increasing $NO_x$, but no decisive statements were found in the proposal. By looking at other emission standards proposals, the commenter estimates that the total cost to reduce the additional $NO_x$ would be $90 million/year based on the average cost per ton of $NO_x$ reduction for highway motorcycles ($90 million = $13,000/year to reduce $NO_x$ from motorcycles x 6,980 ton/year PCWP $NO_x$ increase). Commenter IV-D-45 argued that EPA's estimate of the cost per ton of HAP removed is not complete. If the cost to reduce $NO_x$ emissions from the incinerators and annual compliance costs are included, the cost per ton of HAP increases from $13,000 per ton to $21,500 per ton.

The commenter noted that EPA attempted to determine the "social cost" of the rule, but the analysis is incomplete. Aside from the non-HAP emissions issue noted above, EPA neglected to consider the monetary value of the positive and negative environmental effects on third parties, mainly citizens. Consumers will shoulder almost all of the cost of this rule. "Unaffected facilities" will benefit from the supply reduction from the "affected facilities" in the short run, but they will have to pay for monitoring, recording, and upgrades if they are necessary. However, EPA focuses very little on the long-term effects.

The calculations used to determine the social cost (partial equilibrium analysis) are valid for the first few years after implementation, but the longer they are used, the less accurate the results. There are many economic questions about the future of the PCWP NESHAP that are not answered satisfactorily in the EIA. In addition, EPA assumes that the large companies that own many of the facilities will spend the capital necessary to install controls simply because they have access to it. The commenter argued that it is more likely that the companies may choose to shut down or sell certain facilities rather than spend the money if they do not feel that there would be any return on the investment.

Long-term effects on plywood consumers and producers are also omitted. For example, if long-term investment decreases, then the supply deceases and the price increases, harming both producers and consumers. The number of "unaffected facilities" will decrease over time as repairs become necessary, and substitute materials will eventually be available to consumers. However, very little information regarding a useful long-term scenario is available in the EIA.

On a monetary basis alone, in order for this rule to fairly compensate citizens, the dollar benefits would have to total $225 million annually—$135 million for the losses as plywood consumers and $90 million for the increases in $NO_x$ emissions.

Response: Since the PCWP rule is a HAP standard, not a standard for reducing $NO_x$ emissions, the cost of reducing any $NO_x$ emissions generated as a result of operating RTOs was not estimated. The Agency disagrees with the commenter's calculation of $13,000 average cost for reducing a ton of $NO_x$ as applicable to major sources affected by this rule. The controls applicable to motorcycles, which are the basis for the estimate of $13,000 per ton of $NO_x$ control used by the commenter, are quite different from the controls applicable to sources at PCWP plants. RTOs are not a control that can be applied to motorcycles; and measures used to reduce motorcycle $NO_x$ emissions cannot be applied to PCWP process units. Based on this, the commenter's estimate of $NO_x$ control costs as a basis for estimating other costs imposed by this rule beyond the direct compliance costs is not valid. We also note that not all of the control strategies that can be used to comply with the PCWP rule result in increased $NO_x$ emissions (e.g., biofilters, compliance with the PBCO limits).

We may agree with the commenter's statement that our estimate of consumer surplus (to obtain the social cost) is incomplete, but this may mean little. Our economic impact analyses completed for rules applying to specific industries, especially HAP standards, often show minor effects on those that are not directly affected by the rules' compliance provisions, such as the producers and their consumers. The methodology employed by EPA/OAQPS in estimating consumer (and producer) surplus changes has been used in many HAP and other standards for over 10 years, and is described in detail in the OAQPS Economic Resource Manual (http://www.epa.gov/ttn/ecas/econdata/Rmanual2/index.html). It is our position that the estimate of consumer surplus in the economic impact analysis provides an excellent approximation of the social cost associated with this rule.

We agree that the accuracy of the economic impact analysis does decline with time. It should be noted, however, that the economic analyses done for this rule and HAP standards are "short-run" (i.e., capital is fixed) because the period for promulgation and full implementation is 3 years. This differs greatly from the implementation time given for various mobile source standards, including the motorcycle standard referred to by the commenter. Given this period of time for implementation, a short-run economic impact analysis is appropriate. As the implementation times become longer, estimating economic impacts in the long run becomes more appropriate. As to the question on return on investment from installing pollution control equipment, the economic impact analysis reflects inputs such as the costs and related control equipment affected facilities are expected to install to meet the HAP standard. While it is possible firms may choose not to incur the cost of control or sell affected facilities, it is expected that the number of firms that choose to do this will be minimal based on the results of the economic impact analysis.

While the commenter's statements about the size of the benefits needed to compensate citizens may have some validity (outside of the $90 million needed to compensate for $NO_x$ emission increases, an amount we disagree with), it should be noted that the gap between the costs and benefits from this rule does not reflect the large number of unmonetized benefits associated with emission reductions from this rule. A list of the unmonetized benefits categories is found in the Regulatory Impact Analysis for the rule, and any comparison of benefits and costs should not ignore these types of benefits.

### 2.10.3 Air impacts

2.10.3.1 Comment: Commenter IV-D-27 noted that both the 1996 National Toxics Inventory (NTI) and the RIA for the PCWP rule indicate that RTOs will only reduce HAP levels by 0.23 percent nationwide. Individually, the six HAP specifically regulated by the PCWP rule (acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde) will only be reduced by 0.86, 0.58, 0.59, 3.9, 5.8, and 1.2 percent, respectively. Acetaldehyde, acrolein, and formaldehyde pose the greatest risk to human health, but they will each be reduced by less than 1 percent. Since many factors will affect the implementation of the PCWP rule, EPA should consider environmental and economic costs of the proposal.

Response: Section 112(c) of the CAA required us to list categories and subcategories of major and area sources of HAP and to establish NESHAP for the listed source categories and subcategories. Plywood and composite wood products manufacturing is one of 174 source categories that we originally listed on July 16, 1992 (57 FR 31576) as industries requiring development of emission standards. (Note that the source category list has been updated several times since it was originally published, as documented on February 12, 2002 (67 FR 6521)). The CAA explicitly requires us to establish NESHAP considering each listed source category independently. The CAA does not direct us to consider all HAP from all industries when establishing NESHAP. In fact, the CAA was amended in 1990 to specify that standards must be set for each source category instead of for each HAP across all source categories. Thus, the commenters' statements regarding the percent of HAP reduced nationwide as a result of the PCWP NESHAP are not relevant to the required factors EPA considers when setting NESHAP under §112(d). In addition, we question how the commenter derived their estimates of the percent HAP reduction nationwide. The 11,000 tpy HAP emission reduction stated in the RIA represents an 8 percent reduction in HAP emissions when compared to the sum of acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde emissions in the 1996 NTI for point sources.

2.10.3.2 Comment: Commenters IV-D-02, IV-D-17, IV-D-36, IV-D-38, IV-D-40, and IV-D-44 questioned the idea of adding pollution controls that would increase $NO_x$ emissions, contributing to acid rain and smog; burn large quantities of natural gas; and require more coal-generated electricity, which would in turn create unwanted air pollution. Commenter IV-D-08 stated that the consumption of electricity and natural gas needed to run the thermal oxidizers may increase health risks and would be environmentally counterproductive.

Commenters IV-D-08, IV-D-09, IV-D-15, IV-D-39, IV-D-41, IV-D-42, IV-D-53, and IV-D-57 argued that thermal oxidizers, EPA's control device of choice, emit large amounts of $NO_x$, which may increase health risks. Many of the plants are located in rural areas where ground-level ozone is not a threat. However, the forested lands are significant sources of VOCs, which would combine with the large amounts of $NO_x$ emitted by the thermal oxidizers to form ozone.

Commenter IV-D-23 noted several disadvantages of the proposed control technologies, including the consumption of large amounts of natural gas and electricity, emissions of $NO_x$, CO, and carbon dioxide ($CO_2$), and the fact that they are no more effective at removing particulate emissions than technologies that are currently in place. The commenter argued that these control technologies will cause more problems than they will solve, because most panel plants that use western softwood and those that have particulate controls have low HAP emissions. The commenter also stated that $NO_x$ emissions associated with the proposed control technologies will combine with the VOCs from the plants and surrounding forest, creating a ground-level ozone problem where one was not previously present.

Commenter IV-D-19 provided an exhibit entitled "Effects of Rural Area VOC and $NO_x$ emissions on Tropospheric Ozone Concentration." The document outlines the problem that $NO_x$ emissions from incineration-based controls cause in terms of ozone and provides data for nine cases from a Reactive Plume Model. The authors conclude that the problem is too complex to accurately model with today's technology and EPA is making too many assumptions in using these models to determine appropriate control technologies. The conflicts between wanting to reduce $NO_x$ emissions and using incineration-based controls to reduce HAP must be resolved before ground-level ozone can be addressed.

Commenter IV-D-27 pointed out that although the PCWP rule will reduce HAP emissions by 9,000 tpy and THC emissions by 28,000 tpy, it will increase emissions of $SO_2$ by 35,200 tpy, $NO_x$ by 9,300 tpy, and $CO_2$ by 3,241,000 tpy. These estimates are based on the commenter's life cycle inventory (included as Attachment A to comment IV-D-27), with an adjustment to exclude currently controlled units and an assumption that RTOs will be placed on all industry dryers and presses proposed for control.

Commenter IV-D-34 argued there is little justification for consuming the large amount of natural gas that would be required to run the incinerators required by this rule. The environmental effects of destroying the HAP are minimal according to EPA, and the amount of $NO_x$ and $CO_2$ produced by the incinerators will be significant, contributing to ground-level ozone. The commenter requested that EPA look at the green house gas situation as part of the big picture and not a "necessary evil."

Commenter IV-D-45 stated that using HAP removal as the only indicator of emission control performance completely ignores the effects of $NO_x$, $SO_2$, and other non-HAP emissions. In determining the "best" 12 percent of the control technologies, increases and decreases in all pollutants should be taken into account. On a similar note, the commenter stated that the "law of increasing costs" says that removing the last few units of HAP in a waste stream will create a disproportionate amount of non-HAP emissions—higher temperatures will be needed to incinerate the last bits of HAP, creating more combustion byproducts—so EPA should not be so concerned with those last units.

Commenter IV-D-45 noted that EPA plans to implement emission standards for highway motorcycles to reduce $NO_x$ beginning in 2010. However, the estimated $NO_x$ emissions from the PCWP pollution controls will exceed the reduction from motorcycles by seven times in 2010, and they will cancel each other out starting in 2020. These actions contradict each other in terms of EPA's stance on the effects of $NO_x$ emissions. In addition, $NO_x$ increases could cause ozone increases in areas that are already having trouble complying with ozone standards.

Response: (See also response to comment No. 2.5.1.1.) Table 2-9 presents our estimates of the onsite criteria pollutant and secondary air impacts associated with the PCWP rule. Our estimates of the nationwide effects of the PCWP rule on criteria pollutant emissions that occur onsite at PCWP plants included the $NO_x$ increase, change in CO, and $PM_{10}$ decrease associated with installation of RTO's on process units without MACT controls. The offsite secondary air impacts presented in Table 2-9 are the criteria pollutant impacts associated with the offsite electricity generation needed to power the RTO's assumed to be installed on process units without MACT controls. Our air impact estimates indicate that the PCWP rule will result in an overall increase in nationwide $NO_x$ and $SO_2$ emissions and a decrease in nationwide CO and $PM_{10}$ emissions from the PCWP processes controlled and electricity generated to power the control devices.[31]

**Table 2-9. Summary of Non-HAP Air Impacts**

| Pollutant | Criteria pollutant air impacts (onsite), ton/yr | Secondary air impacts (associated with offsite electricity generation), ton/yr | Total air impacts, ton/yr |
|---|---|---|---|
| $NO_x$ | 2,400 | 500 - 2,200 | 2,900 - 6,600 |
| CO | (10,800) | 70 - 300 | (10,700) - (10,500) |
| $PM_{10}$ | (12,700) | 30 - 110 | (12,700) - (12,600) |
| $SO_2$ | NA | 2 - 4,500 | 2 - 4,500 |

Negative numbers, which represent emission reductions, are in parentheses. Numbers not in parentheses represent emissions increases. Range in secondary air impacts reflects values calculated assuming utility plants burn either natural gas (low end of range for $NO_x$, $PM_{10}$, and $SO_2$; high end of range for CO) or coal.

Our non-HAP air impact estimates were based on the worst-case assumption that all facilities with process units requiring MACT controls would use an RTO to meet the MACT standards. We did not account for controls with lesser secondary air impacts (e.g., biofilters, RCO, incineration in an onsite combustion unit), nor did we account for the lesser air impacts associated with use of the emissions averaging and PBCO compliance options in the PCWP rule. All APCDs require electricity to operate. However, biofilters do not require fuel combustion and do not generate $NO_x$. Burning of any fuel, including natural gas, results in $NO_x$ emissions. Regenerative catalytic oxidizers operate at lower temperatures than do RTOs, and therefore require less natural gas and generate less $NO_x$. Incineration of process exhausts in an onsite combustion unit requires even less fuel and generates less $NO_x$. We also note that we estimated the secondary air emissions (e.g., $NO_x$, CO, $PM_{10}$, $SO_2$) associated with offsite electricity production based on the worst-case assumption that electricity is generated by coal-fired utility plants.[2] Many utilities use cleaner-burning fuels such as natural gas. Therefore, to better reflect the range of fuels used for U.S. electricity generation, we calculated a second set of estimates for utilities burning natural gas. Thus, the secondary air impacts shown in Table 2-9 are presented as a range.

The $NO_x$ increase across RTOs that we estimated prior to proposal was an overestimate. At proposal, we based our estimate of RTO $NO_x$ emissions on the high-end of the $NO_x$ increases across RTOs reported in APCD vendor literature (i.e., a 10 ppm $NO_x$ increase). New, more fully documented emissions test data recently submitted by the PCWP industry shows that the $NO_x$ increase across RTOs is $\leq$5 ppm, one half of the $NO_x$ increase predicted at proposal.[22] Therefore, our final estimate of the $NO_x$ increase across RTOs is reduced from about 4,800 tpy (estimated at proposal) to 2,400 tpy. We estimate that this increase in $NO_x$ emissions associated with RTO use represents no more than a 10 percent increase in baseline $NO_x$ emissions from PCWP major sources.[31]

By combusting process exhaust, RTOs can either generate or destroy emissions of CO depending on the amount of CO entering the RTO from the process unit controlled (i.e., inlet CO varies for direct-fired versus indirect-fired process units). The nationwide change (net reduction) in onsite CO emissions associated with the PCWP rule was calculated as the total of the CO increases and reductions for all process units needing controls.[2] The onsite decrease in CO emissions at PCWP facilities far outweighs the increase in CO resulting from offsite electricity production. Similarly, the decrease in $PM_{10}$ emissions at PCWP facilities more than offsets the increase in $PM_{10}$ emissions associated with electricity production.

Onsite emissions of $SO_2$ are not prevalent and are not expected to change greatly as a result of the PCWP standards because RTOs do not destroy or alter $SO_2$ emitted from PCWP process units, and RTOs are not suspected of generating appreciable amounts of $SO_2$ (because there is little, if any, sulfur in the process exhaust or in the natural gas burned by the RTO).[2] The overall nationwide increase in $SO_2$ emissions is associated with electricity generation.

Our estimates of the air impacts differ substantially from those provided by commenter IV-D-27. In addition to the criteria pollutant and secondary air impact estimates presented in Table 2-9 above, we estimated that the proposed standards would reduce total HAP emissions from the PCWP source category by about 11,000 tpy from a baseline of 19,000 tpy. We estimated that the proposed standards would reduce VOC emissions (approximated as THC) by about 27,000 tpy from a baseline level of 50,000 tpy. Our estimates differ from the estimates provided by commenter IV-D-27 because the commenter used a life cycle approach to arrive at their estimates. The life cycle approach used by the commenter included air impacts associated with offsite processes such as extraction, transport, and processing of fuels and ceramic media manufacturing. As discussed later in section 2.10.6, we do not have the information necessary to confirm or refute the commenter's life cycle calculations. The EPA generally does not consider offsite impacts other than emissions associated with electricity generation when developing NESHAP impact estimates. Furthermore, our air impacts analysis focused on criteria air pollutants, and therefore, $CO_2$ was not included in our analyses.

As stated previously (see response to comment No. 2.10.1.2), the CAA does not give us the discretion to consider non-HAP air impacts or energy use at the MACT floor control level. However, §112(d)(2) of the CAA requires us to consider cost, non-air quality health impacts, environmental impacts, and energy requirements when reviewing beyond-the-floor control options. We acknowledge the commenters' concerns regarding the non-HAP air impacts and energy use associated with incineration-based controls (e.g., RTOs), although we believe the commenters' assertions regarding non-HAP air impacts are overstated. We share the commenters' concerns regarding the combination of $NO_x$ emissions with VOC emissions to form ozone. We determined that beyond-the-floor control measures would not be appropriate for most PCWP process units. Although our impact calculations are based on the worst-case assumption that facilities would install RTOs, we are not mandating the use of RTOs. Other MACT floor control technologies with lesser secondary air impacts and energy needs than RTOs have the ability to meet the PCWP rule, including biofilters, RCOs, and incineration in an onsite combustion unit. For the final PCWP rule, we have attempted to make control options such as biofiltration and incineration of process exhaust in an onsite combustion unit more attractive options by reducing the monitoring requirements for these control technologies (see sections 2.7.12 and 2.7.13 for details). Furthermore, the PCWP rule contains emissions averaging and PBCO compliance options. Through emissions averaging, facilities can choose to treat lower volume, higher concentration emission streams to minimize costs, conserve energy, and reduce secondary air impacts. Facilities with low-HAP-emitting process units (such as those at plants processing western softwood mentioned by commented IV-D-23) may be able to meet the PBCO without using an add-on APCD; therefore, there are no add-on APCD secondary impacts or energy requirements associated with the PBCO compliance option.

We note that the PCWP rule applies to major sources of HAP emissions (i.e., facilities with annual emissions equaling or exceeding 10 tons of any one HAP or 25 tons of a combination of HAP), and therefore, HAP emissions from PCWP facilities affected by the rule are significant. We recognize the point by commenter IV-D-45 regarding the cost associated with incinerating the last bits of HAP. We elected to establish the MACT floor at 90 percent emission reduction for both new and existing sources to allow for inherent variability in the performance of APCDs over time. Industry data recently submitted show that incremental increases in thermal oxidizer temperature above the normal operating range had little effect on HAP reduction.[22] We are not requiring exceptionally high thermal oxidizer operating temperatures, and unlike some other NESHAP, we are not requiring 98 or 99 percent removal efficiencies, because the data available to us do not support requiring such efficiencies.

**2.10.4 Water impacts**

2.10.4.1 Comment: Commenters IV-D-02, IV-D-17, IV-D-27, IV-D-36, IV-D-38, IV-D-44, and IV-D-40 voiced concerns that additional wastewater will be created from cleaning the oxidizer beds of thermal oxidizers. Commenter IV-D-27 provided several examples of how existing PCWP facilities are handling wastewater and charged that EPA vastly underestimated the implications of the wastewater issue. The commenter noted that EPA estimated that additional wastewater generated from WESP blowdown and RTO washouts as a result of the proposed NESHAP would be about 11 million gallons per year. The commenter stated that EPA's assumptions that RTOs would only have to be washed down once or twice a year and that the blowdown from a WESP is only 1 gallon per minute (gpm) are inaccurate, and they appear to reflect vendor optimism rather than real-world experience. The commenter attached (see

Attachment K to IV-D-27) data from 10 OSB mills with RTOs and/or WESPs, which show that the average blowdown from those WESPs is almost 12,000 gallons per day (over 8 gpm). The attachment contains a table showing that operation of these RTOs (preceded by an efficient particulate control device) generate on average almost 30,000 gallons per year of wastewater. NCASI Technical Bulletin 850 (Attachment O to IV-D-27) shows that much more frequent washouts than EPA assumed are the rule, with 15 or more washouts a year in some cases.

Commenter IV-D-27 stated that their examples suggest that an affected facility that does not have the option of evaporating blowdown in a heated log conditioning pond or disposing of it in a spray irrigation system could be forced to send millions of gallons a year of additional wastewater offsite. The increased costs (transportation costs plus disposal fee) for handling these large volumes of new wastewater could easily run into the hundreds of thousands of dollars per year for a single facility.

The commenter stated that EPA should not ignore the substantial air quality and energy implications of one of its suggested alternatives for managing this wastewater, incineration in onsite boilers (or evaporating wastewater in process dryers). Evaporating tens of millions of gallons of wastewater per year would require large amounts of additional fuel combustion, generating additional air pollution and using up limited energy resources.

Response: We understand that RTOs are routinely cleaned to remove particulate buildup through periodic bakeouts or washing out of the RTO beds. Wastewater is generated as a result of washing out RTOs. Wastewater is also generated by WESPs which often precede RTOs to protect the RTOs from plugging with particulate. At proposal, we estimated the wastewater impacts associated with RTO washouts and WESP use for those facilities that would likely install these control technologies.[2] We based our wastewater estimates largely on information provided by PCWP facilities in their MACT survey responses. We also used some vendor information in developing the wastewater impact estimates. Responses to the MACT survey regarding frequency of RTO washouts indicated that RTO washouts are performed monthly to annually. The MACT survey responses also included facilities' estimates of the amount of wastewater generated per year (gal/yr) as a result of RTO washouts, and these values ranged from 5,000 to 60,000 gal/yr (for all washouts that occurred during the year). Our estimates of the wastewater impacts associated with washing out RTOs were based on the average annual volume of wastewater generated (as reported in the MACT survey), not on the frequency of washouts. Thus, we did not assume that RTOs would only have to be washed down once or twice a year as the commenter asserts. We agree with the commenter that new information seems to show more frequent washouts than our MACT survey data indicate; in fact, the MACT survey responses for some of the same facilities discussed in Attachment K indicated fewer washouts and less wastewater generation than is summarized in Attachment K. The commenter did not provide any explanation for this difference. Table 2-10 presents the annual wastewater generation rates used in estimating the proposed wastewater impacts associated with washing out RTOs. Note that the value we used for OSB dryers is higher than the 30,000 gal/yr presented in Attachment K of IV-D-27.

**Table 2-10. Annual Wastewater Generation Rates for RTO Washouts[2]**

| Process unit | Annual RTO washwater generated, gal/yr |
|---|---|
| Rotary dryers (particle or strand) | 39,000 |
| Particleboard and OSB presses | 15,000 |
| Multiple hardboard process units | 21,000 |
| Average from all MACT survey responses that included information for RTO washwater volume | 32,000 |

To approximate the annual amount of wastewater generated during washing out of RTOs, we assumed that washouts would be performed on all RTOs (a seemingly conservative estimate given that survey data indicated that some facilities perform bakeouts instead of washouts).

Although we did use a vendor estimate of 1 gpm in estimating the volume of WESP blowdown per year, we note that this value is not outside of the range of blowdown rates reported in the MACT survey responses (which had a median of 4 gpm and many values in the 1 to 2 gpm range) for individual WESPs. We reviewed closely the data in Attachment K to comment IV-D-27 in determining whether to revise our estimated WESP blowdown rate. We noted that the data presented in Attachment K for the WESPs at the ten OSB mills are for multiple WESPs (as opposed to individual WESPs), and therefore, had a higher blowdown rate averaging 8 gpm. When considered on an individual WESP basis, the blowdown rates for the WESPs ranged from 1 to 8 gpm, and averaged 3 gpm. Thus, based on the data in Attachment K, we have revised our WESP wastewater estimates using a 4 gpm blowdown rate based on the median of the blowdown rates reported in the MACT survey responses.

The wastewater disposal options mentioned in the proposal preamble (e.g., municipal treatment facility, evaporation, reuse in process, spray irrigation) were based on responses to the MACT survey. We agree that each facility will have different options for disposing of wastewater, and that all of the options mentioned in the preamble may not be available or practical for every facility. We acknowledge that incineration in onsite boilers or evaporation in dryers are not preferred wastewater disposal techniques. The Agency agrees with the commenter that considerably more data and information will be necessary to adequately characterize for those facilities covered by both the air and water rules the quantity and quality of wastewater that would be generated as result of compliance with the MACT standards. The volume and pollutant content of wastewater generated at these facilities are related to the production processes, the air pollution control equipment, the extent of opportunities for internal recycling of wastewater, and the availability of other process uses for wastewater. For these reasons, we are amending the applicability of the effluent limitations guidelines at part 429, subparts C, D, and M, such that individual facilities seeking a discharge permit will have the opportunity, on a case-by-case basis, to characterize and obtain discharge allowances for their wastewaters from APCDs installed to comply with the PCWP NESHAP. The permit writer would be expected to determine based upon best professional judgment (BPJ) the appropriate effluent limitations for these APCD wastewaters (see 40 CFR §125.3). The permit writer can take into account facility-specific information on wastewater volumes and pollutants, available wastewater control and treatment technologies, costs and effluent reduction benefits, receiving water quality, and any applicable state water quality standards. At a later date, as a part of our planning process under section 304(m) of the Clean Water Act, we will consider amending the existing effluent limitations guidelines for the Timber Processing Industry to establish categorical effluent limitations for these APCD wastewaters.

Disposal practices and costs vary from facility to facility, and each facility must choose the wastewater disposal method that is most effective for their needs. Many facilities with MACT controls have found methods for disposing of wastewater. Facilities must also make careful decisions regarding whether to install a wet control device (e.g., WESP) or dry control device (e.g., multiclone) upstream of an RTO, and regarding whether to perform bakeouts or washouts of RTOs to remove particulate buildup. The final PCWP rule contains multiple compliance options, whereby facilities may also have options other than installation of an RTO on process units that would cause the RTO to be washed out frequently (e.g., PBCOs, emissions averaging).

As discussed in response to comment 2.3.2.2, we requested information on potential HAP emissions from wastewater operations at PCWP plants in our MACT general survey, but the results we received did not indicate the existence of a MACT floor level reflecting emissions reduction. Therefore, there are no requirements for reduction of HAP from wastewater operations in the final PCWP rule. To the extent possible, facilities should handle and treat wastewater to minimize air emissions (e.g., by holding the wastewater in enclosed systems). We have also added a requirement to the rule that facilities using wet control devices as the sole means of reducing HAP emissions must develop and submit a plan to address how organic HAP captured in the wastewater from the wet control device is contained or destroyed to prevent re-release to the atmosphere. Any air emissions from wastewater operations at PCWP facilities should be included in each facility's potential to emit calculations. We will revisit our MACT determination of no emissions reduction for PCWP wastewater operations when we review residual risk for the PCWP source category 8 years after promulgation of the final PCWP rule.

2.10.4.2 Comment: Commenter IV-D-45 noted that the proposed incineration-based controls will increase wastewater by 11 million gallons per year and solid waste by about 5,000 tons per year, including 84 pounds of mercury. The commenter recommended that EPA look at more than just the elimination of HAP to decide on the best pollution controls.

Response: Section 112 of the CAA requires us to base the MACT floor on the maximum degree of reduction of HAP emissions that is achievable, without consideration of wastewater generation or solid waste impacts. We have the discretion to consider cost, non-air-quality health impacts, environmental (wastewater and solid waste) impacts, and energy requirements when reviewing beyond-the-floor control options. We elected not to require any control options beyond the MACT floor in the final PCWP rule.

We estimated at proposal that wastewater impacts of 11 million gal/yr and solid waste impacts of 5,000 tons/yr would result from the PCWP rule. The estimate of 84 pounds of mercury to which the commenter refers is included in the life cycle analysis submitted as

Attachment A to comment IV-D-27. This estimate of mercury emissions is largely influenced by offsite power plant emissions, which are being regulated separately from this PCWP rulemaking.

**2.10.5 Energy impacts**

2.10.5.1 Comment: Commenter IV-D-15 stated that the consumption of electricity and natural gas needed to run the thermal oxidizers conflicts with national energy policy.

Commenter IV-D-47 noted that natural gas becomes more rare in the northwest in the winter months. Even now, some of the plants that rely on natural gas for fuel temporarily shut down for the winter months because they cannot afford to pay for the gas. There is not likely to be enough natural gas to power pollution control devices as well as entire plants.

Commenter IV-D-27 stated that as a result of the rule, total energy consumption is expected to increase by approximately 50 trillion Btu per year. According to 1997 data published by the U.S. Department of Energy, that is the amount of energy used by 500,000 homes annually. In addition, natural gas consumption is expected to increase by an additional 22 billion cubic feet per year and total electrical consumption is expected to increase by approximately 1,470 million kilowatt hours (kWh) of purchased power. Commenter IV-D-27 stated that facilities would have to enter into contracts for noncurtailable gas to ensure continuous availability of natural gas supply for RTOs. Such contracts typically charge a significant premium for firm gas of \$0.75–\$1.75 per MMBtu over curtailable gas at today’s market prices. The commenter noted that use of natural gas at an RTO requires infrastructure to support the gas transmission, which often is not available in the rural areas where wood products facilities are primarily located. Facilities that do not have nearby natural gas pipelines either would be required to construct miles of pipeline or, in the alternative, construct large, onsite propane storage tanks to hold the fuel to run the RTO. One existing facility, for example, is located 100 miles from the natural gas terminal over rocky, mountainous terrain, and the main high pressure line from that facility is already near capacity. When the facility inquired about obtaining additional natural gas in light of EPA’s proposed rule, the natural gas company refused even to consider the possibility of serving the facility for fear that the increased gas demands necessitated by the proposal would overwhelm the line’s existing capacity and delay smaller projects that had already been approved. The commenter stated that natural gas supplies are obviously limited, and industrial uses are given lower priority than residential uses during times of supply shortfalls. The commenter noted that mandating the industry-wide use of gas-powered

RTOs would oppose the U.S. energy policy of maintaining sufficient supplies of natural gas for the stability and reliability of the national energy supply. It would also create undue competition with more important uses of natural gas, such as the heating of homes and as a component of basic chemical manufacturing, which likely would cause the price of natural gas to increase across the board.

Response: Our worst-case estimates of the overall energy demand (i.e., electricity and natural gas) expected as a result of promulgation of the PCWP rule are much lower than the estimates presented by commenter IV-D-27. We estimated that the overall energy demand would increase by about 4.1 trillion Btu/yr nationwide (compared to 50 trillion BTU estimated by the commenter). We estimated that electricity requirements could increase by about 718 million kWh/yr (roughly one half of the commenter's estimate of 1,470 kWh/yr). We estimated that natural gas requirements could increase by about 1.6 billion $ft^3$/yr (less than one tenth of the commenter's estimate of 22 billion $ft^3$/yr). Using 1998 Department of Energy statistics we estimate that the increased energy consumption associated with the PCWP rule will be less than a 2 percent increase in the baseline energy use by the PCWP industry.[31] Our energy estimates represent a worst-case because we based our estimates on the assumption that all plants with uncontrolled process units subject to the rule would install an RTO to meet the rule. However, other control measures that consume less energy such as RCOs, biofilters, and incineration of process exhausts in an onsite combustion unit will meet the add-on APCD compliance options in final PCWP rule. In addition to the add-on APCD compliance options, the final PCWP rule also contains emissions averaging and PBEL compliance options; implementation of those compliance options will reduce the volume of emissions to be treated nationwide, which will reduce energy consumption. Therefore, we believe our estimated energy impacts are overstated. Each plant must choose the emission reduction technique that will work best for their site-specific conditions, considering factors such as availability and price of natural gas. We are not mandating industry-wide use of gas-powered RTOs.

We disagree that the PCWP rule is in conflict with national energy policy. As documented in the preamble to the proposed rule, we performed an energy analysis in response to Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355, May 22, 2001). Executive Order 13211 provides that agencies shall prepare and submit to the Administrator of the Office of Information and

Regulatory Affairs, Office of Management and Budget, a Statement of Energy Effects for certain actions identified as "significant energy actions." We determined that the PCWP rule is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The PCWP industry does not produce crude oil, fuel, or coal, and therefore, there is no direct effect on such energy production related to implementation of the PCWP rule. The increase in energy consumption associated with the PCWP rule is equivalent to 0.012 percent of 1998 U.S. electricity production and 0.000001 percent of 1998 U.S. natural gas production. Therefore, we concluded that the PCWP rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

**2.10.6 Life cycle analysis**

2.10.6.1 Comment: Commenter IV-D-34 pointed out that there are many social issues to be considered, including economic impacts, and that EPA should realize that by finalizing this rule, it is stating that it believes this is one of the best uses for the nonrenewable resource of natural gas. The commenter argued that these factors are part of the life cycle analysis (LCA) prepared by commenter IV-D-27, which indicates that the rule is not the best choice.

Commenter IV-D-27 argued that based on a life cycle inventory (LCI) assessment, controlling the industry's HAP emissions with incinerators would result in significant negative environmental and energy impacts. The LCI was conducted in 1999 and 2000 by Franklin Associates, with assistance from NCASI, to assess the overall environmental impacts associated with various emission control technologies currently in use at 11 wood products plants. The LCI examined three biofilters, eight RTOs, three RCOs, and one onsite boiler, comparing the environmental impacts of these technologies with each other and with a no-control baseline scenario. A systems approach was used to quantify the impacts associated with materials and energy use for each control technology, including energy consumption, atmospheric emissions, waterborne wastes, and solid wastes. The analysis evaluated the entire life cycle of a system, from raw material acquisition to final disposition, to assess all significant on- and offsite environmental burdens. A systems approach provides a more comprehensive picture of the environmental profile, and it allows the burdens to be put in perspective with the benefits of using the emission control technology to manage onsite THC/HAP emissions at the wood product plants.

Overall, the LCI found that onsite reductions of HAP, particulate, and THC emissions came at the expense of higher energy consumption and associated increases in life cycle emissions of various HAP and other pollutants. Baseline no-control scenario HAP consisted of source emissions of methanol, formaldehyde, and acetaldehyde, while the predominant HAP by weight for the control scenario were hydrochloric acid, hydrofluoric acid, combustion-related emissions of formaldehyde and other aldehydes, methanol, formaldehyde, and acetaldehyde. The RTOs examined resulted in an 84.3 percent reduction in life cycle emissions of total HAP and a 61.7 percent reduction in life cycle THC emissions compared to a no-control baseline. However, in two cases, life cycle THC emissions after control were either equal to or greater than baseline emissions. For all other parameters examined except particulate matter, the life cycle burdens for the control scenarios were greater than for the no-control baseline. Life cycle energy requirements for RTOs ranged from 0.69 to 3.15 million Btu/yr/scfm compared to a baseline no-control option requiring no additional energy. Using Department of Energy data from 1994 for comparison, the use of RTOs would increase the wood panel industry's purchased power consumption by 30 percent, its onsite consumption of natural gas by over 150 percent, and its overall direct energy consumption by 22 percent.

The LCI examined emissions of several different pollutants. Emissions of greenhouse gases (GHGs) for RTOs ranged from 92 to 410 pounds GHG (carbon dioxide ($CO_2$)) equivalents)/yr/scfm, an increase of 55 percent over 1994 baseline data. That increase will make it difficult for the industry to meet its commitment to try to reduce greenhouse gas intensity by 12 percent by 2012, relative to 2000. The range of sulfur oxides ($SO_{X)}$ emissions for RTOs was 0.93 to 4.72 pounds/yr/scfm, while emissions of $SO_X$ from the baseline no-control option were zero. Life cycle emissions of $NO_x$ for RTOs ranged from 1.14 to 3.52 pounds/yr/scfm, compared to uncontrolled source emissions of $NO_x$ for the same facilities ranging from 0.014 to 2.52 pounds/yr/scfm. The use of RTOs reduced particulate emissions from the range of 1.49 to 1.98 pounds/yr/scfm to the range of 0.45 to 0.68 pounds/yr/scfm, or 66 percent. Atmospheric mercury emissions increased from an assumed value of zero to the range of 1.3 to 5.6 pounds mercury/yr/million scfm. The life cycle biological oxygen demand (BOD) releases for RTOs ranged from 0.00097 to 0.0061 pounds/yr/ scfm, while the baseline no-control case involved no additional BOD. Finally, life cycle solid waste generation attributable to RTOs ranged from 11 to 47 pounds/yr/scfm, and the results can be compared to a baseline no-control option involving the generation of no additional solid waste.

In comparing the three primary control technologies for most of the parameters examined in this study, biofilters usually had the lowest median life cycle emissions, followed by RCOs and then RTOs, although the differences between RCOs and RTOs were not statistically significant. Although the use of this technology to achieve the standards of the PCWP rule will result in reductions of onsite HAP and THC emissions, these reductions will be obtained at the price of higher energy consumption and increased emissions of $NO_x$, $SO_x$, GHGs, solid waste, and BOD, as well as a variety of fossil-fuel-combustion-related HAP, including hydrochloric acid, hydrofluoric acid, and mercury.

Response: The CAA does not allow us to consider costs and life cycle impacts when determining the minimum stringency (MACT floor) for NESHAP. We are required by the CAA to consider costs, environmental impacts, and energy impacts when we examine beyond-the-floor control options. The final PCWP rule is based on the MACT floor control levels for all process units and not on control levels more stringent than the MACT floor.

The LCA submitted by the industry does not evaluate the PCWP rule specifically, but includes impacts associated with activities outside of the PCWP source category. Even if we could consider life cycle impacts, we cannot confirm or refute the life cycle analysis submitted by the commenter because it included environmental impacts associated with offsite processes such as extraction, transport, and processing of fuels (which often occur outside of the United States); electricity generation; natural gas production; transportation fuel production; ceramic media manufacturing; landfilling of spent media; bark and polystyrene media manufacture; and sodium hydroxide manufacture. The consultant that prepared the LCA for commenter IV-D-27 has spent years developing a database of life cycle factors for use in estimating energy use and wastes generated during various stages of the life cycle. We do not have access to this database nor documentation describing how the life cycle factors were developed. The LCA did not contain a flow diagram to show exactly what energy resources and wastes are attributed to each step of the life cycle. Therefore, we are unable confirm that life cycle impacts are not overstated for the offsite processes for which we have no data. We note that the impacts of purchased power and natural gas consumption had a heavy influence on the life cycle profiles generated in the study. For example, the life cycle impacts are based on electricity generated from coal-fired utilities (a worst case assumption with respect to air emissions, since only 55 percent of the nation's electricity is generated by coal-fired utilities).[32] It is not clear what sulfur content was assumed for the coal or what the assumptions were regarding the APCDs at the power plants. Whether a power plant has an ESP or wet scrubber affects $SO_2$ emissions. Furthermore, illustrating how life cycle impacts can change with our regulatory programs, upcoming regulations should tighten emissions of $SO_x$, $NO_x$, PM, and mercury from power plants. As a second example, we are not aware what portion of the life cycle impacts were associated with "bark production" for biofilter media, and we question whether the onsite by-product bark production that occurs at OSB and plywood plants was considered (i.e., because debarking whole logs already occurs at these plants and should not be attributed to the PCWP NESHAP).

We were better able to review the life cycle analysis with respect to the life cycle data used for PCWP production. We note that the nationwide life cycle impacts were developed assuming RTOs for all existing process units in the industry, including those process units already equipped with the necessary controls and existing process units that are not required to be controlled. Thus, the life cycle impacts associated with onsite PCWP processes appear to be overstated.

To the extent that we can consider the LCA submitted by the commenter (given our limitations under the CAA at the MACT floor control level and our inability to confirm or refute the conclusions of the LCA), we acknowledge that the LCA shows that certain control techniques are more environmentally and energy friendly than others. Specifically, the LCA shows that incineration of process exhaust in an onsite combustion unit and biofiltration result in less negative life cycle impacts than do RCOs or RTOs. We have attempted to make control options such as biofiltration and incineration of process exhausts in an onsite combustion unit more attractive options by reducing the monitoring requirements for these control technologies (see sections 2.7.12 and 2.7.13 for details). Also, we have included emissions averaging provisions in the rule that are less restrictive than those included in other rules and that allow sources to control lesser volumes of emissions to decrease the size and energy requirements of APCDs applied to those sources.

2.10.6.2 Comment: Commenter IV-D-27 stated that the results of their LCI strongly support the implementation of risk-based approaches and other mechanisms to allow facilities to pursue innovative approaches to compliance. The EPA should consider the potential harms of the imposition of incinerator controls both because it is sound public policy and because EPA is legally bound to do so. A requirement for EPA to consider the emissions tradeoffs inherent in the selection of a HAP control strategy is contained in both the CAA's legislative history and applicable case law. The Senate Report states that

> In cases where a single control technology (combustion temperature, for instance) may be calibrated or configured in a variety of ways depending on the principal pollutant of concern, the Administrator shall select that configuration or calibration which provides the greatest protection to human health (unless the incremental health protection is negligible and there are very significant environmental values that would be afforded protection by some other configuration). *In cases where control strategies for two or more different pollutants are in actual conflict, the Administrator shall apply the same principle – maximum protection of human health shall be the objective test.* S. Rep. No. 228, 101st Cong., 1st Sess. 168 (1990) (emphasis added).

The LCI indicates that controls such as RTOs would impose greater risk to health and the environment than the HAP emissions they would reduce. The Senate Report instructs EPA to resolve this conflict in favor of health protection; therefore, EPA should not require RTOs for low-risk sources. The judicially imposed requirement for EPA to balance the harms imposed by regulation with the harms the Agency seeks to regulate is well established. Appellate courts have invalidated regulations in which the Agency failed to do so. In *Corrosion Proof Fittings v. EPA,* 947 F.2d 1201 (5th Cir. 1991), the Court vacated a final rule under the Toxic Substances Control Act, 15 U.S.C. §§ 2601-2692, banning manufacture, importation, processing and distribution of asbestos in virtually all products because EPA had failed to account for the demonstrated offsetting harms that would have resulted from the Agency's regulatory approach. The Court noted that

> Once an interested party brings forth credible evidence suggesting the toxicity of the probable or only alternatives to a substance, the EPA must consider the comparative toxicity of each. Its failure to do so in this case thus deprived its regulation of a reasonable basis[.] 947 F.2d at 1201-2.

The EPA should likewise give weight to the offsetting emissions from incinerator controls demonstrated by the LCI. Similarly, the D.C. Circuit remanded EPA's revised ozone National Ambient Air Quality Standard (NAAQS) in part because the Agency declined to consider the offsetting health disbenefits of tightening the standard. *American Trucking Assoc. v.* EPA, 175 F.3d 1027, 1051 (D.C. Cir. 1999), *reversed on other grounds Whitman v. American Trucking*

*Assoc.,* 531 U.S. 457 (2001). Petitioners challenging the revised NAAQS presented evidence on the health benefits of tropospheric ozone as a shield from the harmful effects of the sun's ultraviolet rays. In estimating the effects of ozone concentrations, EPA explicitly disregarded these alleged benefits. In remanding the standard, the Court noted that

> [I]t seems bizarre that a statute intended to improve human health would, as EPA claimed at argument, lock the agency into looking at only one half of a substance's health effects in determining the maximum level for that substance . . . . Legally, then, EPA must consider positive identifiable effects of a pollutant's presence in the ambient air in formulating air quality criteria under § 108 and NAAQS under § 109.175 F.3d at 1052.

The same statute should not lock EPA into looking at only one half of a control strategy's health effects. Where HAP emissions from a facility present an insignificant degree of risk, the environmental disbenefits of incinerators clearly should be taken into account in the selection of a control requirement.

Response: Inclusion of risk-based approaches in the final PCWP rule is discussed in the preamble to the final rule (see section 2.11). The cases cited by the commenter are inapposite to EPA's identification of the MACT floor under section 112 (d)(3) of the CAA. In determining the minimum stringency level of HAP emissions under section 112(d)(3), EPA must select floor levels which apply without regard to either cost or the other factors and methods listed in section 112(d)(2). *CKRC v. EPA*, 255 F.3d 855, 857 (D.C. Cir. 2001); *NLA v. EPA*, 233 F.3d 625, 629 (D.C. Cir. 2000). The commenter's interpretation would turn the section 112(d)(3) determination into a risk-based exercise, a result Congress sought to avoid. Prior to the 1990 Amendments, the CAA required EPA to regulate HAP based on risk. 2 *Legislative History* at 3174-75, 3346 (House Report). Because this approach proved difficult to implement, Congress amended section 112 to require EPA to promulgate standards based on technological capabilities instead of risk-based factors. See 1 *Legislative History* at 860. Risk assessments cannot be used to modify the stringency of technology-based MACT floors. *Id.* at 790, 866. Congress rejected including a provision in section 112 that would have allowed for variances from MACT through risk assessments. *Id.* at 866. Indeed, the technology-based provisions of section 112(d) are modeled on those of the Clean Water Act, 5 *Legislative History* at 8473-74 (Senate Report), and the courts have rejected arguments that the stringency of technology-based standards under the Clean Water Act should turn on environmental quality factors. *Weyerhaeuser v. Castle*, 590

F.2d 1011, 1041-44 (D.C. Cir. 1978); *Ass'n of Pacific Fisheries v. EPA*, 615 F.2d 794, 805-06 (9th Cir. 1980); *Appalachian Power Co. v. EPA*, 671 F.2d 801, 808-09 (4th Cir. 1982).

## 2.11 RISK-BASED APPROACHES

The preamble to the proposed PCWP rule requested comment on whether there might be further ways to structure the PCWP final rule to focus on the facilities which pose significant risks and avoid the imposition of high costs resulting from compliance with the MACT floor standards on facilities that pose little risk to public health and the environment. Specifically, in addition to the emission concentration-based applicability exemption discussed earlier (see Section 2.6.5 of this document), we requested comment on the technical and legal viability of two risk-based approaches: (1) an applicability cutoff for "threshold" pollutants under the authority of section 112(d)(4); and (2) subcategorization and delisting of "low-risk" sources under the authority of sections 112(c)(1) and (9). See 68 FR at 1296-1302 (January 9, 2003). We indicated that we would evaluate all comments before determining whether either approach would be included in the final PCWP rule. Numerous commenters submitted detailed comments during the public comment period on these risk-based approaches. These comments and our responses are summarized in the preamble to the final PCWP rule.

## 2.12 MISCELLANEOUS

2.12.1 Comment: Numerous commenters (IV-D-03, IV-D-09, IV-D-12, IV-D-13, IV-D-14, IV-D-19, IV-D-21, IV-D-23, IV-D-28, IV-D-34, IV-D-37, IV-D-43, and IV-D-56) stated that they support the comments submitted by AF&PA (IV-D-27) on their behalf. Commenter IV-D-56 provided the AF&PA executive summary of comments on the risk-based approach in their comment letter.

Response: We acknowledge the commenters' support of the comments submitted by the AF&PA. Our responses to the specific comments submitted by the AF&PA are provided elsewhere in this document.

2.12.2 Comment: Commenters IV-D-03, IV-D-28, and IV-D-48 stated that they support the comments submitted by the Composite Panel Association (CPA) (IV-D-12) on their behalf.

Response: We acknowledge the commenters' support of the comments submitted by the CPA. Our responses to the specific comments submitted by the CPA are provided elsewhere in this document.

2.12.3 Comment: Commenter IV-D-10 stated that they support the comments submitted by Koppers Industries (IV-D-22) on their behalf.

Response: We acknowledge the commenter's support of the comments submitted by Koppers Industries. Our responses to the specific comments submitted by Koppers Industries are provided in section 2.1.3 of this document.

2.12.4 Comment: Commenter IV-D-33 endorsed the comments submitted by STAPPA/ALAPCO (IV-D-18).

Response: We acknowledge the commenters' support of the comments submitted by the STAPPA/ALAPCO. Our responses to the specific comments submitted by the STAPPA/ALAPCO are provided is section 2.11 of this document.

Comment: Commenter IV-D-33 included multiple attachments, including the following:

Attachment 1--Congressional Record, E2383, November 11, 1999

Attachment 2--EPA Science Policy Council, Policy on Evaluating Health Risks to Children

Attachment 3--EPA Science Policy Council, Memorandum on EPA Risk Characterization Program, March 21, 1995

Attachment 4--EPA Science Policy Council, Elements to Consider When Drafting EPA Risk Characterizations, March 1995

Attachment 5--EPA Science Policy Council, Policy for Risk Characterization, February 1995

Attachment 6--EPA Science Policy Council, Policy for Risk Characterization, March 1995

Attachment 7--EPA Science Policy Council, Memorandum on New EPA Policy on Evaluating Health Risks to Children, October 20, 1995

Attachment 8–Fact Sheet, Report to Congress on Residual Risk

Attachment 9–Statement of John D. Graham, Ph.D., Director, Center for Risk Analysis, Harvard School of Public Health, October 14, 1999

Attachment 10–Statement of Lee P. Hughes, Vice President, Corporate Environmental Control, Bayer Corporation, on behalf of the American Chemistry Council, before the Senate Environment and Public Works Committee on Clean Air Act Residual Risk, October 3, 2000.

Response: We acknowledge submittal of the attachments referenced by commenter IV-D-33.

**References**


1. National Emissions Standards for Hazardous Air Pollutants (NESHAP) for the Miscellaneous Organic Chemical Manufacturing Industry: Summary of Response to Comments, Docket OAR-2003-0121, Docket ID 0036.

2. U.S. EPA. Background Information Document for Plywood and Composite Wood Products NESHAP. Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, EPA-453/R-01-004, September, 2000.

3. Memorandum from B. Nicholson and K. Hanks, MRI, to M. Kissell, EPA/ESD. June 7, 2002. Determination of MACT floors and MACT for the Plywood and Composite Wood Products Industry.

4. K. Parrish and B. Shrager, RTI, to M. Kissell, EPA/WCPG. Minutes of the June 4, 2003, Meeting Between the U.S. Environmental Protection Agency (EPA) and the American Forest & Paper Association (AF&PA), the Composite Panel Association (CPA), the National Council of the Paper Industry for Air and Stream Improvement (NCASI), and Industry Representatives.

5. National Emissions Standards for Hazardous Air Pollutants for Wood Building Products (Surface Coating) — Background Information for Final Standards: Summary of Public Comments and Responses, EPA-453/R-03-003, January, 2003.

6. Memorandum from K. Hanks and D. Bullock, MRI, to M. Kissell, EPA/ESD. June 9, 2000. Baseline Emission Estimates for the Plywood and Composite Wood Products Industry.

7. Volatile Organic Compound Emissions From Wood Products Manufacturing Facilities, Part I - Plywood, Technical Bulletin No. 768, National Council of the Paper Industry for Air and Stream Improvement, Inc., Research Triangle Park, NC, 1999.

8. B. Shrager, RTI, to M. Kissell, EPA/ESD. August 4, 2003. Meeting Minutes for the July 28, 2003 Meeting Between the U.S. Environmental Protection Agency (EPA) and Louisiana-Pacific (L-P).

9. Memorandum from K. Hanks, MRI, to M. Kissell, EPA. June 26, 2002. Development of Production-Based Emission Limits for Plywood and Composite Wood Products Process Units.

10. Memorandum from D. Bullock, K. Hanks, and B. Nicholson, MRI, to M. Kissell, EPA/ESD. April 28, 1999. Summary of Responses to the 1998 EPA Information Collection Request (MACT Survey)— General Survey.

11. Volatile Organic Compound Emissions From Wood Products Manufacturing Facilities, Part V—Oriented Strandboard, Technical Bulletin No. 772, National Council of the Paper Industry for Air and Stream Improvement, Inc., Research Triangle Park, NC, 1999.

12. Telecon. K. Hanks, RTI, with M. Leu, Plum Creek Manufacturing. June 12, 2003. Discussion of air pollution control device used on the continuous press at the PlumCreek Columbia Falls, MT plant.

13. Memorandum from K. Hanks, B. Nicholson, and K. Parrish, RTI, to M. Kissell, EPA/ESD. December 15, 2003. Determination of MACT floors and MACT for the Final Plywood and Composite Wood Products Industry NESHAP.

14. P. Vasquez, Georgia-Pacific Corporation, to K. Hanks, MRI. April 5, 2001. Capture Efficiency - Conceptual Alternative Methods.

15. K. Hanks, B. Threatt, and B. Nicholson, MRI, to M. Kissell, EPA/ESD. January 20, 2000. Summary of Responses to the 1998 EPA Information Collection Request (MACT Survey)—Engineered Wood Products.

16. Memorandum from K. Hanks and K. Parrish, RTI, to M. Kissell, EPA/ESD. November 26, 2003. Selection of HAPs for Compliance Options in the Final Plywood and Composite Wood Products Rule.

17. Memorandum from K. Hanks, RTI, to M. Kissell, EPA/ESD. November 7, 2003. Estimates of Ancillary Plywood and Composite Wood Products Process Emissions for Use in Risk Modeling.

18. Memorandum from K. Hanks, MRI, to Project Files. April 18, 2000. Changes in the population of existing plywood and composite wood products plants and equipment following the information collection request.

19. Memorandum from K. Hanks and K. Parrish, RTI, to Project Files. December 16, 2003. Changes in the population of existing plywood and composite wood products plants and equipment between April 2000 and November 2003.

20. Memorandum from R. Nicholson, MRI, to M. Kissell, EPA/ESD. May 26, 2000. Control Device Efficiency Data for Add-on Control Devices at PCWP Plants.

21. Memorandum from K. Parrish, RTI, to Project Files. December 17, 2003. Air Pollution Control Device Vendor Information.

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