

will not be afforded the protection of medical surveillance because eligibility for inclusion requires exposures of 60 days above the AL or 30 days above the PEL, requirements that are more restrictive than the comparable requirements in OSHA standards for acrylonitrile, (any exposure above the AL); benzene, (30 days above AL or 10 above PELs); and cadmium, (30 days above AL). OSHA also seeks comment on whether the medical requirements in the respirator standard for general industry, 29 CFR 1910.134(b)(10), may be inadequate to protect workers with occupational exposure to BD. In addition, should each employee whose exposure to BD requires the use of a respirator be included in the medical surveillance program, regardless of duration of exposure? Finally, by requiring employees whose former exposures were above the action level for 60 days or the PEL for 30 days to have had 10 years of exposure before being included in medical surveillance, would the standard improperly exclude employees whose exposures occurred over a lesser period of time, say 5 years, but whose risk may be comparable?

6. *Communication of BD Exposure to Employees.* OSHA is concerned that eliminating the reference to potential reproductive hazard from warning signs and labels would not provide sufficient information to employees. Toxicological studies cited in the proposal indicate BD is a potential reproductive hazard. For example, ovarian atrophy and testicular atrophy were observed in mice exposed to BD. OSHA is considering requiring the warning signs and labels to contain the phrase "Cancer and Potential Reproductive Hazard."

### C. Additional Issues

OSHA is also seeking comment on the following issues that were neither addressed by labor and industry in their agreement, nor fully aired at the rulemaking hearing:

1. OSHA proposed to define "Emergency" as:

\* \* \* any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an unexpected significant release of BD.

OSHA is considering limiting the emergency releases to those that are uncontrolled, so that the last phrase of the definition would read: "\* \* \* that may or does result in an uncontrolled significant release of BD." Does this addition clarify what situations OSHA considers to be emergencies? Does the term "significant release" give adequate guidance to employers as to how much

BD must be released in order to constitute an emergency?

2. OSHA is considering the adequacy of a less burdensome medical surveillance program for BD-exposed workers. The program would consist of an initial medical examination, repeated every third year, and an annual CBC along with a yearly questionnaire focusing on the hematopoietic and reproductive systems. OSHA requests comment on whether this approach is sufficiently protective. OSHA is also seeking comment on whether medical removal protection provisions similar to those contained in the Benzene Standard (29 CFR 1910.1028) are appropriate for BD. Removal would be predicated upon a medical determination that the employee should not continue to be exposed to BD.

3. Where employers rely on objective data to exempt them from monitoring responsibilities, OSHA is considering requiring these employers to keep the data for as long as such data continue to be relied upon. Is this the appropriate length of time to keep such data?

### D. Additional Submissions to the BD Docket

OSHA is submitting the following reports to the BD Docket:

(1) *Abstracts from International Symposium: Evaluation of Butadiene and Isoprene Health Risks*, June 27-29, 1995, Blaine, Washington; (2) Delzell, E., N. Sathiakumar, M. Macaluso, M. Hovinga, R. Larson, F. Barbone, C. Beall, P. Cole, *A Follow-up Study of Synthetic Rubber Workers*, October 2, 1995; (3) Santos-Burgua, C., G. Matanoski, S. Zeger, L. Schwartz, "Lymphohematopoietic Cancer in Styrene-Butadiene Polymerization Workers," *American Journal of Epidemiology*, Volume 136, 1992, pp. 843-844; and (4) M. Sorsa, K. Peltonen, H. Vainio, and K. Hemminki (eds.), *Butadiene and Styrene Assessment of Health Hazards*, International Agency for Research on Cancer Scientific Publication No. 127, Lyon, France, 1993.

### II. Public Participation

#### Comments

Written comments regarding the issues raised by this notice must be postmarked by April 8, 1996. Four copies of these comments must be submitted to the Docket Office, Docket No. HS-041), U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210. Written comments limited to 10 pages or less in length may also be transmitted by facsimile to (202) 219-5046, provided

the original and 3 copies are sent to the Docket Office thereafter. All materials submitted will be available for inspection and copying at the above address. Materials previously submitted to the Docket for this rulemaking need not be re-submitted.

### III. Authority

This document was prepared under the direction of Joseph A. Dear, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, D.C. 20210. It is issued pursuant to section 6(b) of the Occupational Safety and Health Act (29 U.S.C. 655), and 29 CFR part 1911.

Signed at Washington, D.C., this 5th day of March, 1996.

Joseph A. Dear,

*Assistant Secretary of Labor.*

[FR Doc. 96-5519 Filed 3-7-96; 8:45 am]

BILLING CODE 4510-26-M

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 63

[AP-FRL-5437-6]

RIN 2060-AE04

### National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Announcement of availability of supplemental information, proposed rule, and opening of the public comment period for these actions.

**SUMMARY:** This action presents an assessment of supplemental information on 1993 proposed National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Pulp and Paper Production Source Category and announces proposed additional sources in that source category not covered by the 1993 proposed standards. These additional sources include mechanical mills, secondary fiber mills, nonwood fiber mills, and paper machines. This action also announces availability of data for public review that is in addition to data previously announced in a February 22, 1995 Notice of Data Availability (60 FR 9813). In addition, this action announces the availability and requests comments on new emission factors developed using that data.

This action sets forth the most significant changes EPA is considering, but is not inclusive of all changes likely

to be made on the 1993 proposed NESHAP. EPA is still considering other comments submitted on the 1993 proposed NESHAP and will combine them along with comments and data received on this action to form the basis for the promulgation of a final NESHAP later this year. Proposed NESHAP for the chemical recovery area combustion sources at mills are not contained in this action, but will follow in a separate action later this year.

**DATES:** Comments are requested only on information presented in this action. Comments must be received on or before April 8, 1996, unless a public hearing is requested by March 18, 1996. If a hearing is requested, written comments must be received by April 22, 1996.

**ADDRESSES:** Comments related to the chemical wood pulping mills (kraft, sulfite, soda, and semi-chemical) should be submitted (in duplicate, if possible) to: Air Docket Section (6102), Attn: Docket No. A-92-40, U.S. EPA, 401 M Street, SW, Washington, DC 20460, and Ms. Penny Lassiter, address shown in

**FOR FURTHER INFORMATION CONTACT** Section. Comments related to mechanical mills, secondary fiber mills, nonwood mills, and paper machines should be submitted (in duplicate, if possible) to Air Docket Section (6102), Attn: Docket No. A-95-31 (MACT III), U.S. EPA, 401 M Street, SW, Washington, DC 20460 and Ms. Elaine Manning, address shown in **FOR FURTHER INFORMATION CONTACT** Section.

**FOR FURTHER INFORMATION CONTACT:** For additional information or regulations applicable to chemical wood pulping mills, contact Ms. Penny Lassiter or Mr. Stephen Shedd, Office of Air Quality, Planning, and Standards (MD-13), U.S. EPA, Research Triangle Park, North Carolina 27711: telephone Ms. Lassiter at (919) 541-5396 or Mr. Shedd at (919) 541-5397. For further information on the regulatory development for mechanical mills, secondary fiber mills, nonwood mills, and paper machines, contact Ms. Elaine Manning at the address in Research Triangle Park listed above, telephone (919) 541-5499, facsimile for the address in Research Triangle Park listed above is (919) 541-3470.

**SUPPLEMENTARY INFORMATION:** Public Hearing. Anyone requesting a public hearing must contact EPA no later than March 18, 1996. If a hearing is held, it will take place on March 25, 1996, beginning at 9 a.m. at the EPA Administration Bldg., Main Auditorium, 79 T.W. Alexander Drive, (near intersection of NC54), Research Triangle Park, NC. Persons interested in

attending the hearing or wishing to present oral testimony should notify Ms. Jolynn Collins, U.S. EPA, Research Triangle Park, North Carolina 27711, telephone (919) 541-5671.

**Docket.** Air Docket No. A-92-40, contains supporting information used in developing the proposed standards and this action for the chemical wood pulping mills. All docket cites in this action are from Air Docket No. A-92-40, unless specified differently. Air Docket No. A-95-31 contains information that supports the proposed standards for the rule development for the mechanical mills, secondary fiber mills, nonwood mills and paper machines. These air dockets are located at the U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460 in room M-1500, Waterside Mall (ground floor). All comments received during the public comment period on the 1993 proposed NESHAP are contained in the Pulp and Paper Water Docket located in the basement of Waterside Mall, room L102. These dockets may be inspected from 8:30 a.m. to 12 p.m. and 1:00 p.m. to 3:00 p.m., Monday through Friday. A reasonable fee may be charged for copying.

**Documents.** An electronic version of this action as well as "Review Draft: Chemical Pulping Emission Factor Development Document," "Presumptive MACT for Non-Chemical and Other Pulp and Paper (MACT III) Mills," and previous Federal Register notices pertinent to the pulp and paper NESHAP are available for download from EPA's Technology Transfer Network (TTN), which is a network of electronic bulletin boards developed and operated by EPA's Office of Air Quality Planning and Standards. The TTN provides information and technology exchange in various areas of air pollution control. The service is free, except for the cost of a phone call. Dial (919) 541-5742 for data transfer of up to 14,400 bits per second. The TTN is also available on the Internet (access: [TELENET ttnbbs.rtpnc.epa.gov](http://TELENET.ttnbbs.rtpnc.epa.gov)). For more information on the operation of the TTN, contact the systems operator at (919) 541-5384.

The information in this action is organized as follows:

- I. Background
  - A. History
  - B. Summary of Action
  - C. New Data
  - D. Public Participation
- II. Source Category and Pollutants for Control
- III. Emission Factors
- IV. Definition of Source
- V. Subcategorization
- VI. Level of Standards
  - A. Kraft

- B. Sulfite
- C. Semi-Chemical
- D. Soda
- E. Bleaching

#### VII. Compliance Extension for Kraft Mills

#### VIII. Emission Averaging

#### IX. Relationship with Other Rules

- A. New Source Review/Prevention of Significant Deterioration Applicability
- B. Boiler/Industrial Furnace/Resource Conservation and Recovery Act Applicability
- C. Kraft New Source Performance Standards
- X. Standard for Nonchemical Pulp Mills
  - A. Presumptive MACT Process
  - B. Summary of the Presumptive MACT for MACT II Sources
  - C. Area/Major Source Discussion
  - D. Proposed MACT III
  - E. Request for Information

#### I. Background

##### A. History

The Clean Air Act (the Act) requires EPA to develop NESHAP for the pulp and paper source category by November 1997. Under section 112 (d) of the Act, the goal of NESHAP is to require the implementation of maximum achievable control technology (MACT) to reduce emissions and, therefore, reduce the public health hazard of pollutants emitted from stationary sources.

On December 17, 1993 (58 FR 66078), EPA published proposed NESHAP and effluent guidelines for the pulp and paper industry. These integrated regulations are referred to as the cluster rule. The purpose of this action is to announce the availability of additional data and to reopen the public comment period only for items identified in this action. EPA's Office of Water (OW) plans to issue a Federal Register notice similar to this action for the effluent guidelines portion of the cluster rule. Publication of OW's action is anticipated to be in approximately four weeks.

The 1993 proposed air standards would regulate all HAP's emitted from new and existing pulp and paper mills that chemically pulp wood fiber using kraft, sulfite, soda, or semi-chemical methods (MACT I). These proposed MACT I standards address air emission points in the pulping and bleaching processes and in the associated process wastewater collection and treatment systems. Information was not available at that time to evaluate controls on other emission points within the source category. The standards for the pulp and paper source category, therefore, are being developed in phases. Standards for combustion sources (MACT II) are under development and will be proposed later this year. Proposed standards for the remaining sources

(MACT III) are addressed in Section X of this notice. The MACT III standards apply to the following operations located at all mills: mechanical pulping (e.g., groundwood, thermomechanical, pressurized); pulping of secondary fibers (deinked and nondeinked) by nonchemical means; nonwood pulping; and paper machine additives. Coating and converting operations will be addressed later under a separate source category.

Available data shows that pulp and paper facilities emit significant quantities of HAP's that would be controlled by the proposed standards. Some of these pollutants are considered to be carcinogenic, and all can cause toxic health effects following exposure, including nausea, headaches, respiratory distress, and possible reproductive effects. Most of the organic HAP's emitted from this industry also are classified as volatile organic compounds (VOC) which participate in photochemical reactions in the atmosphere to produce ozone, a contributor to photochemical smog. The proposed emission controls for HAP's will reduce VOC emissions as well. The proposed HAP control technologies will similarly reduce emissions of total reduced sulfur (TRS) compounds that are of concern because they produce some odor and they include some HAP.

The public comment period on the proposed NESHAP ended on April 18, 1994; however, EPA recognized in the preamble to the proposed rule that various industry groups were collecting air emissions data that would not be available until after the comment period and further stated that EPA would still consider those data before the promulgation of the NESHAP. Some of the data were received and were noticed in a February 22, 1995 Notice of Data Availability (60 FR 9813).

This action announces the availability of new data and solicits comments on the use of the data for emission factor development and on changes to the proposed rule. These data and analyses are included in Air Docket A-92-40. This action does not reopen the public comment period for all issues related to the proposed rule. Comments should address only those technical and regulatory changes specifically mentioned in this action.

On September 29, 1995, a Presumptive MACT report was issued for the MACT III source category. A brief description of the Presumptive MACT process and the outcome of the process is provided in Section X. Comments are also solicited on the MACT III tentative conclusions. EPA currently plans to take final action on

the MACT III NESHAP for the sources discussed in this action at the same time as the MACT I final action. EPA also plans to propose NESHAP for recovery area combustion sources (MACT II) at the same time.

#### *B. Summary of Action*

As noted earlier, EPA has proposed NESHAP for mills that chemically pulp wood fiber. EPA is considering revisions to this proposed NESHAP based on comments from the public as well as test data that has been given to EPA since proposal. The changes to the proposed rule under consideration include: revisions to emission factors; broadening of the source definition; development of subcategories for pulping; revisions to MACT requirements and how they are applied; and revisions to MACT compliance schedule for certain kraft mill emission points. This action also identifies how EPA currently plans to address concerns raised by commentors regarding interaction between the NESHAP, currently under development and other rules, such as Resource Conservation and Recovery Act/Boiler Industrial Furnace (RCRA/BIF) and Prevention of Significant Deterioration/New Source Review (PSD/NSR). EPA is also soliciting comments on the industry's alternative compliance concept that includes some degree of emissions averaging. A brief overview of these changes is described below. The data and information to support these changes under consideration can be found in the Air Docket No. A-92-40. Additionally, EPA is announcing a proposed decision for standards for other mills and paper machines.

The emission factors were evaluated using additional emission test data submitted by the industry. Also, the approach to emission factor development has changed since proposal as more information has become available. The new approach involves developing emission factors for functional mill systems, as opposed to the individual emission points used at proposal. This emission factor evaluation is contained in a development document and is being announced in this notice for public review and comment.

At proposal, EPA chose a single source definition to include pulping processes, bleaching processes, and pulping and bleaching wastewater streams at a pulp and paper mill. EPA currently intends to expand this definition to include paper machines and the causticizing area due to the interrelated nature of these processes with the pulping and bleaching areas.

At this time, EPA plans to subcategorize the pulping and associated wastewater components to develop different MACT requirements. This subcategorization is necessary to reflect important differences between the different pulping process emissions, emission controls, and control cost. The pulping (and associated wastewater) subcategories being considered are kraft, sulfite, soda, and semi-chemical.

At proposal, all vents and pulping wastewater streams in pulping and bleaching areas were subject as a group to the MACT requirements with the exception of certain small vents and wastewater streams defined by numerical cutoffs. For existing source MACT applicable to the pulping component at kraft mills, EPA is considering specifically defining the following systems as requiring enclosure and venting to a control device: the low volume-high concentration (LVHC) vent system (i.e., the digester, turpentine recovery, and evaporator systems); weak black liquor storage tanks; the pre-washer knotting and screening system; the brownstock washing system; and the oxygen delignification system. Enclosure and vent control requirements would not change from proposal. Only these enumerated systems would be subject to the rule.

EPA currently intends to define new source MACT for the pulping area at kraft mills to be the same as existing source MACT with the addition of control of post-washer deckers and screens. EPA currently intends to define new and existing source MACT for kraft mill wastewater to be collection and treatment of certain named pulping condensate streams instead of all pulping wastewater above 500 parts per million by weight (ppmw). EPA is considering changing the proposed treatment requirements for steam strippers at kraft mills to allow compliance with one of the following: (1) Removal of 92 percent of the HAP or methanol content, (2) removal of 9.2 pounds of methanol per air-dried ton of pulp (lb/ADTP), or (3) treat to a steam stripper outlet HAP concentration below 330 ppmw measured as methanol. For unbleached kraft mills, the following treatment requirements would be applicable: (1) Removal of 92 percent of the HAP or methanol content; (2) removal of 5.9 lb/ADTP of methanol; or (3) treatment to a steam stripper outlet HAP concentration below 210 ppmw measured as methanol. As at proposal, methanol is being used here as a surrogate for tracking total HAP reduced. Mills still have the option of achieving these removals with an

alternative control device, recycling to a controlled system, or hardpiping these condensate streams directly to the biological wastewater treatment plant instead of steam stripping.

EPA is considering extending the compliance time for controlling brownstock washers and oxygen delignification units for kraft pulping mills by an additional 5 years. The additional period would be provided to allow industry sufficient time to plan, coordinate, and implement the best combination of control technologies that facilitate pollution prevention and emphasize the multimedia nature of pollution control.

EPA is considering the following standards for the newly-created sulfite, semi-chemical, and soda mill subcategories. Based on an analysis of current controls, EPA is considering requiring certain sulfite mill vents in the pulping component at existing sources (i.e., digester, evaporator, and red stock washers) to be vented to recovery systems to reduce HAP emissions. Affected vents at new sources include the same vents as at existing sources, with the addition of knotter and screening systems, and weak and strong liquor and acid condensate storage tank vents. Air emissions from these selected vents and connected recovery systems would be limited to certain mass emission rates or percent reductions across the complete connected system. This systems approach would allow many mills to use the various configurations of current recovery systems to meet either of these limits. Compliance would be demonstrated by an initial performance test to confirm compliance with one of the mass limits, followed by monitoring of control and process equipment operating parameters to demonstrate long-term compliance. EPA has determined from an evaluation of the current mill emission data that the following emission values represent the best performing existing and new mills: (1) Mass emission rates of 0.65 and 1.10 lb methanol/ODTP, or (2) a mass HAP or methanol emission reduction of 92 and 87 percent, for calcium-based and ammonium and magnesium-based mills, respectively. The new and existing MACT for pulping wastewater streams at sulfite mills would be no additional control.

EPA currently plans to define existing source MACT for semi-chemical mills and soda mills to be enclosure and venting of LVHC vents to a control device. Enclosure and control device requirements would be the same as at proposal. New source MACT for semi-chemical and soda mills would be the same as existing source MACT plus the

control of the washer system vents. The new and existing MACT for pulping wastewater streams at semi-chemical and soda mills is no additional control.

For bleaching processes at all mills, EPA is still considering requiring all vents from the bleaching stages which utilize chlorine and/or chlorine dioxide to control emissions of chlorinated HAP's by 99 percent from the tower, seal tank, and washer vents as in the proposed NESHAP. A new limit of 10 parts per million by volume (ppmv) of chlorinated HAP from the outlet of the scrubber is also now being considered as an alternative to the 99 percent removal limit. A mill would still be allowed to measure the chlorinated HAP's as chlorine. Additionally paper-grade bleaching processes would be required to control chloroform air emissions by complying with the Best Available Technology (BAT) economically achievable currently under development by EPA's OW. EPA is still re-considering the level of control for chloroform from bleach plants at dissolving-grade mills. MACT for new sources would be the same as MACT for existing sources. The proposed requirements for controlling methanol and other organic HAP emissions for bleaching stages will likely no longer be considered. As at proposal, MACT for bleaching wastewater would be no additional control.

EPA has responded to requests for guidance on the interaction and applicability of the proposed air regulation with RCRA/BIF and NSR/PSD. With regard to the possible interaction of the regulation with RCRA/BIF that could result from the combustion of concentrated condensates derived from steam stripper overhead vents, EPA has initially determined that regulation of combustion of these condensates under RCRA is unnecessary because the MACT controls would be protective. With regard to the possible interaction of the regulation with NSR/PSD that could come as a result of secondary emissions from combustion control devices used to comply with this NESHAP, EPA is considering recommending to State permitting agencies that mills complying with the cluster rule be granted the "pollution control project" (PCP) exclusion and be allowed to conduct minor NSR only.

These are the most significant changes to the 1993 proposal that EPA may implement in the final NESHAP, but they do not include all changes likely to be made. More detailed information on changes discussed in this action and supporting documentation can be found in later sections.

In this action, EPA is also announcing a proposed decision for standards for mechanical mills, secondary fiber mills, nonwood mills, and additives and solvents applied to paper machines (MACT III). The proposal is based on Presumptive MACT that was issued in September 1995.

#### C. New Data

In the February 22, 1995 Notice of Data Availability (60 FR 9813), EPA announced data that had been received through February 16, 1995. These data included three separate multi-volume test reports, several test report and testing program summaries, and a draft condensate study. This action announces the availability of new data and solicits comments on the use of the data for emission factor development and on changes to the proposed rule.

Data added to Air Docket A-92-40 since the 1993 proposal are located in Section IV of this docket. Major groups of data of particular note (but not inclusive of all data in Section IV under consideration by EPA) are as follows: (1) Items IV-A-4, IV-D1-30, IV-D1-32, IV-D1-36, IV-J-17, and IV-J-28, supplemental information and corrections to the data noticed at 60 FR 9813; (2) IV-D1-84 and IV-J-31, compilation of emissions data noticed at 60 FR 9813; (3) items IV-D1-27, IV-D1-46, IV-D1-66, IV-D1-75, and IV-D1-79, wastewater system components, emissions, methanol biodegradability in wastewater treatment systems, and soluble biological oxygen demand (BOD) as a parameter to track methanol biodegradability; (4) IV-D1-72, IV-D1-76, IV-D1-77, IV-D1-80, IV-D1-81, IV-D1-86, IV-D1-89, IV-D1-90, IV-D1-92, IV-E-64, and IV-E-68, control of air emissions at semi-chemical pulp mills; (5) IV-D1-87, IV-D1-88, IV-D-93, IV-D1-94, IV-E-31b, IV-E-60, IV-E-66, and IV-E-67, control of air emissions at sulfite pulp mills; (6) IV-D1-43, IV-D1-58, IV-D1-62, IV-E-15, IV-E-25, IV-E-28, IV-E-38, IV-E-45, and IV-J-9, control design and costs; (7) IV-J-29 and IV-J-32, characterization of pulping condensates; (8) IV-D1-59 and IV-D1-95, industry's Clean Water Alternative (see Section VIII of this notice); (9) IV-D1-83, knotter emissions data; and (10) IV-D1-51, IV-D1-56, and IV-E-63, characterization and control of concentrated steam stripper condensates.

EPA also requests comments on EPA studies and memoranda completed since the 1993 proposal and contained in the docket (docket categories IV-A EPA Studies or Contractor Reports and IV-B EPA Factual Memoranda). These EPA studies and memoranda include

the emission factor development document and provide support material for the Level of the Standards Section VI in this notice.

#### *D. Public Participation*

A public comment period was open from December 17, 1993 to April 18, 1994 and a public hearing was held on February 10, 1994 to receive comments on the 1993 proposal. Comments and data received at the hearing and during the comment period are included in the docket (see **SUPPLEMENTARY INFORMATION** Section). EPA has also held numerous meetings on the 1993 proposed integrated rules and the Presumptive MACT with many of the stakeholders from the pulp and paper industry, including a trade association (American Forest and Paper Association - AF&PA), numerous individual companies, consultants and vendors, environmental groups, labor unions, and other interested parties. Materials have been added to the docket to document these meetings and to make available for public review new information received at those meetings.

#### *II. Source Category and Pollutants for Control*

EPA proposed in 1993 to regulate total HAP emissions from mills that chemically pulp wood fiber using kraft, sulfite, soda, and semi-chemical methods. At that time, EPA did not propose to regulate the HAP emissions from other types of mills. EPA is now inclined to include into this standard additional types of mills in the pulp and paper industry as well as the paper machines at all the mills (MACT III). These new mills include mechanical mills, secondary fiber mills, and nonwood mills. EPA's current position on these mills and on paper machines is described in Section X.

The 1993 proposed NESHAP regulates total HAP emissions from pulping, bleaching, and process wastewater at facilities covered by the proposal, as opposed to individual HAP's. The proposed standards allow the use of methanol (or methanol and chlorine from bleaching emissions) as surrogate compounds because EPA initially concluded that use of surrogates is technically viable and is a less costly way to track HAP emission reductions.

For pulping processes and wastewater, EPA's position on pollutants to be covered has not changed since proposal, and EPA is still inclined to regulate total HAP emissions, allowing the use of methanol as a surrogate measurement parameter. At proposal, EPA determined that the bleach plant emissions were comprised

of various chlorinated and nonchlorinated HAP's. Therefore, a total HAP standard was proposed. Data at proposal indicated that methanol and chlorine could be used as surrogates for the nonchlorinated and chlorinated portions of total HAP, respectively. As a result of comments and data received since proposal, EPA now knows that only chlorinated HAP's, primarily chlorine, chloroform, and hydrochloric acid, are being controlled by the MACT control technologies for bleach plant emissions. Therefore, EPA currently plans to regulate only the emissions of chlorinated HAP's from bleaching processes. A more detailed discussion on this topic is presented in Section VI.

#### *III. Emission Factors*

Based on comments and data received, EPA has re-evaluated the emission factor development approach used to characterize emission sources and developed new emission factors. EPA developed emission factors at proposal based on all available data. These data included a field test program of air and liquid samples from four kraft mills and one sulfite mill (EPA 5-mill study) and some limited additional industry data that was used to supplement EPA 5-mill study (see the Pulp, Paper, and Paperboard Industry Background Information for Promulgated Standards, Volume 2). Industry representatives commented that these data were insufficient to accurately characterize emissions and have since supplied EPA with additional test data from kraft, sulfite, semi-chemical, and soda mills. EPA analyzed and incorporated these data into the existing database.

At proposal, EPA developed emission factors for each type of individual emission point typically found at the mills. Based on the additional test data, EPA is considering changing that approach. The new approach involves developing emission factors based on mill systems rather than on individual emission points. The mill systems are defined in Section VI, Level of Standards.

EPA now considers this mill system approach the best approach for several reasons. First, this approach provides a more objective comparison of the mills. Mills often utilize different configurations of equipment within a system, making point by point comparisons misleading. Averaging such pieces of equipment together can provide an inaccurate estimate of the total system. For example, comparing one mill's oxygen delignification system as a whole to another mill's system was more meaningful than establishing

separate emission factors for each piece in the system (e.g., blow tanks, washer units, interstage storage chests, and filtrate tanks); not all mills have the same types of equipment in their oxygen delignification system, and some mills label their oxygen delignification equipment differently.

Next, one mill may have a single screen and another mill may have multiple screens, but both mills have one screening system with emissions that can be compared. The mill system approach makes these kinds of comparisons between mills possible.

Finally, the mill system approach lessens the problems associated with the nomenclature assigned to each of the components. Variability exists between the names that different mills assign to similar pieces of equipment in the same locations. By combining individual emission points into complete systems, the problem was lessened.

The results and the grouping procedures and approach followed for each mill system at the various mill types are detailed in the "Review Draft: Chemical Pulping Emission Factor Development Document." The report is available in the docket and may be downloaded from the TTN (see **SUPPLEMENTARY INFORMATION** Section). This report also discusses the specific issues and all assumptions that were made in the emission factor development, including the specific data points tested by industry that were included in each mill system. EPA is specifically asking for comments on the results and the approach used in developing the emission factors before issuing the final report.

#### *IV. Definition of Source*

In the December 17, 1993 proposal, three definitions of "source" were proposed and considered by EPA. The one chosen by EPA at the time of proposal was a single source to include the pulping processes, the bleaching processes, and the pulping and bleaching process wastewater streams at a pulp and paper mill. EPA is still inclined to use the single source definition. EPA considers the broad source definition to be the best interpretation for the pulp and paper industry. This broad source definition would alleviate concerns that a small change to an existing mill that creates a small increase in emissions would trigger new source requirements in the NESHAP. The single source definition is also the most appropriate interpretation for the industry due to the interrelated nature of equipment in pulp and paper mills. For example, wastewater recycling from process to process is an

integral part of a mill in order to reduce fresh water intake. Emissions from a piece of process equipment are a function of pollutants released during the processing of the pulp as well as pollutants volatilized from water recycled to the process equipment.

EPA is inclined to include paper machines and causticizing equipment in the source definition above. The term *paper machine* being used here does not include paper machine additives and solvents, and their associated air emissions being addressed in the proposed MACT III standards set forth in Section X of this notice. Paper machine emissions discussed here for inclusion in the above source definition are from the HAP's remaining on the pulp from the pulping and bleaching process and released when processed through the paper machine. EPA would include paper machines and causticizing equipment since the emissions from these sources are, like the emission points discussed above, interrelated with other process emissions. For example, water is often reused or recycled from pulping processes to the causticizing processes, and HAP's in the pulp and water slurry from the pulping and bleaching processes are carried over into the paper machine where they are emitted. While the causticizing area and the paper machines were not defined as part of the source at proposal, they were still being controlled through the wastewater MACT requirements. Treatment of condensate streams to remove HAP's prior to recycling them would result in reduced emissions from the equipment to which they are recycled and from subsequent pieces of equipment due to reductions in HAP carried over with the pulp and process waters. EPA recognizes the wastewater contribution to emissions from these processes and as such currently intends to include these processes in the source definition. A mill could then take credit for emission reductions from these processes if it chose to implement the Clean Water Alternative. The Clean Water Alternative is discussed further in Section VIII (Emissions Averaging).

EPA considered regulating emissions from woodpiles, but did not find evidence to suggest that woodpiles are sources of HAP emissions. Therefore, they are excluded from the definition of source.

#### V. Subcategorization

In the proposed rule, EPA solicited comment on the need for subcategories. Many commentors responded to this solicitation with information on why certain mills should be treated

differently than kraft mills. Separate subcategories for kraft, sulfite, soda, and semi-chemical pulping processes were suggested. Issues raised by commentors in support of subcategories included the difference in process emissions and emission control technologies for sulfite, soda, and semi-chemical mills. Others indicated that the lack of air and wastewater emissions data on these types of mills prevented a balanced assessment of the need for subcategories.

Based on comments received, review of the industry data submitted after proposal, and meetings with industry groups, EPA solicits comment on establishing four separate subcategories for the pulping processes at mills based on the type of pulping process (kraft, sulfite, semi-chemical, and soda) used.

As a result of the differences in digestion methods, the mills produce different emissions that have resulted in different degrees of control at baseline and different applicable control technologies. At proposal, EPA understood that the four types of mills differ in the way they digest wood to make pulp, but did not have the data to determine the extent to which these differences influence potential emission control strategies. Information received after proposal indicated the significant extent of these differences.

Kraft mills generate significant quantities of TRS compounds. Emissions of TRS compounds are regulated under the New Source Performance Standards for Kraft Mills (kraft NSPS). The vent streams subject to control also contain HAP's. Therefore, a number of kraft mills already have a control system in place for the LVHC vent streams. Also, most kraft mills contain the means of combusting other HAP containing streams, such as high volume-low concentration (HVLC) vent streams.

While the HAP-containing vents at kraft mills are laden with TRS compounds, the HAP containing vents at sulfite mills contain sulfur dioxide (SO<sub>2</sub>). Sulfite mills collect the emissions from these vents to recover the SO<sub>2</sub>, which is necessary to the production of the cooking liquor. The collection and burning of these vent streams, as is typically done at kraft mills, would not be practical. Therefore, a MACT standard with a different technology basis is needed for these mills, and a separate subcategory warranted.

Emissions data indicate that soda and semi-chemical mills have HAP emissions in the same range as for kraft mills, although semi-chemical mill emissions tend to be at the lower end of the kraft range. However, these mills do

not generate significant quantities of TRS compounds. Therefore, these mills lack the LVHC equipment already installed at kraft mills, as well as lacking the benefit of controlled odor from these vent streams. The digestion process in semi-chemical pulping differs from soda pulping resulting in different emission points and characteristics. However, EPA intends to set MACT for the semi-chemical and soda mills as control of the LVHC vent streams. The MACT requirements are discussed in Section VI (Level of Standards).

Where two or more subcategories are located at the same mill site and share a piece of equipment, that piece of equipment would be considered a part of the subcategory with the more stringent MACT requirements for that piece of equipment. For example, the foul condensates from an evaporation set processing both kraft weak black liquor and spent liquor from a semi-chemical process would have to comply with the kraft subcategory requirements for foul condensate. This more stringent requirement is appropriate because there is no viable way to isolate the emissions for each pulping source to determine compliance separately.

#### VI. Level of Standards

Changes from the 1993 proposal now being considered by EPA on the level of the standard (emission limits and points to be controlled) are presented in this section. At proposal, sulfite, semi-chemical, and soda mills were not differentiated from kraft pulping mills and therefore were subject to the same control requirements as kraft mills. As discussed earlier, EPA is considering subcategorizing kraft, sulfite, semi-chemical, and soda pulping and associated wastewater components for the purpose of setting MACT standards. While EPA does not currently contemplate subcategorizing among bleaching processes, EPA may distinguish between papergrade and dissolving grade bleaching processes for purposes of setting chloroform MACT requirements for bleach plants. The rationale for this distinction is set forth later in this section.

EPA is also considering naming specific vents and streams subject to the standard instead of determining affected emission points and wastewater streams based on broad groups of equipment with exclusions for small streams currently not being controlled, as was done at proposal. This change in approach will more accurately specify the units that should be controlled.

Requirements for enclosures, closed-vent systems, and control devices for

those closed vent systems in the pulping process, as set forth in the proposed NESHAP, would be the same for the pieces of equipment being named in this action for kraft, semi-chemical, and soda mills. Public comments received on these 1993 proposed NESHAP requirements are under review. EPA will consider these comments prior to promulgation of this rule and will assess whether changes are warranted; however, such potential changes are not discussed in this notice. Those same requirements for enclosures and closed-vent systems, as set forth in the proposed NESHAP, would also apply to the pieces of equipment being named in this action for sulfite mills; however, EPA is considering changing the control device requirements for those closed vent systems at sulfite mills. Requirements for control of emissions from kraft pulping wastewater prior to treatment, as set forth in the 1993 proposal, would still apply to the kraft pulping condensate streams being named in this action; however, EPA is considering changing the treatment limits for these pulping condensates. No control requirements are now being considered for non-kraft wastewater streams. Requirements for enclosures, closed-vent systems, and control devices for those closed vent systems in the bleaching process, as set forth in the 1993 proposed NESHAP, would be the same for the stages using chlorinated bleaching agents; however, EPA is considering adding some requirements for the control of chloroform emissions and is considering adding additional ways to meet the treatment requirements on the closed vent systems from the chlorinated bleaching stages. Additionally, EPA is considering dropping the requirement for control of non-chlorinated HAP's (methanol, etc.) in the bleaching area.

#### A. Kraft

This section describes the changes to the level of the standard for kraft mills from the 1993 proposal. These changes include naming the streams to be controlled; changing and adding additional performance levels for steam strippers; and re-evaluating controls for pre-washer knotter and screen systems, and weak black liquor storage tanks.

The proposed standards required owners or operators of new or existing sources to enclose and vent all pulping component emission points into a closed vent system routed to a control device. Deckers and screens at existing mills and small vents or enclosed process equipment below certain specified volumetric flow rates, mass flow rates, and mass loadings were not

subject to control. Similarly, pulping wastewater streams with concentrations below 500 ppmw of HAP's or flow rates below 1.0 liter per minute (lpm) did not require control.

At proposal, EPA had limited data to characterize some of the smaller emission points and condensate streams within the pulping component. However, based upon experience and engineering assumptions, these small vents and condensate streams were assumed to be uncontrolled at the floor and not reasonable to control beyond the floor. Therefore, EPA proposed these low volumetric flow rates and condensate HAP concentrations to differentiate between points currently being controlled and those that are not controlled. EPA solicited comments on whether this was a viable approach for identifying emission points and condensate streams that should be controlled under the MACT standard.

Based on comments and data received, EPA re-evaluated the method for establishing control applicability for pulping process equipment and associated wastewater streams. Using this new information, EPA is now tentatively intending to establish control applicability for kraft pulping process equipment systems and associated wastewater streams by specifically defining the equipment systems and associated wastewater streams subject to the MACT standard (i.e., only the equipment systems and wastewater streams specifically enumerated would be subject to the standard). EPA believes this change will result in the same level of control at the MACT floor for both wastewater and process equipment contemplated in the proposal, yet will reduce or eliminate the cost of testing that would have been required by the 1993 proposal to determine applicability. The requirements for enclosures, closed vent systems, and control devices set forth in the 1993 proposal would still apply.

The named pulping process systems that EPA is considering for control are: the LVHC vent system, pre-washer knotter and screening system, the brownstock washing system, weak black liquor storage tanks, and the oxygen delignification system. The following new definitions are now under consideration:

1. The LVHC vent system includes batch the digester blow heat recovery vents, batch digester relief steam condenser vents, continuous digester relief steam vents, turpentine condenser(s) vents, continuous digest blow tank vent, evaporator vacuum system vents, liquor concentrator vacuum system vents, pre-evaporator

vacuum system vents, steam stripper feed tank vents, and steam stripper off gas vents.

2. The brownstock washing system includes rotary vacuum drum washers, pressure washers, diffusion washers, horizontal belt washers, all filtrate tanks, and intermediate stock chests. The washing system does not include deckers, screens, stock chests or pulp storage tanks following the last stage of brownstock washing.

3. The oxygen delignification system includes the blow tank, the post oxygen washers, filtrate tanks, and any interstage pulp storage tanks.

4. The pre-washing screening system includes knotters, knotter drain tanks, screens, and reject tanks prior to brownstock washing.

At proposal, EPA concluded that a sufficient number of weak black liquor storage tanks are controlled in the industry to constitute a floor-level of control. However, several commentors stated that weak black liquor storage tanks could not feasibly be controlled by simply venting the tanks to a header system and combustion device (the basis for the 1993 proposal). The commentors stated that a more complex system involving sweeping air across the tank would be necessary due to the potential for an older tank to collapse if a vacuum were pulled on the tank. A sweep air system would generate a larger volumetric flow rate from these tanks and thus increase the size of the header and the combustion capacity required of the control device. An alternative would be to replace the older tanks with newer tanks which could withstand the vacuum.

Based on the data available regarding current control technology levels in the industry and the range of emission potential for these tanks, EPA believes the 1993 proposed MACT requirements for these tanks should be retained. However, industry has raised concerns that the information submitted in the NCASI voluntary survey prior to proposal is providing a misleading picture of current industry control practices. The industry has also indicated that the emissions data from the NCASI test program for these tanks is suspect. The industry is collecting additional information on current operation, age, emissions, and control practices for these tanks to supplement information already provided to EPA.

EPA is considering whether distinguishing between types of weak black liquor storage tanks is appropriate. Specifically, EPA is considering the appropriateness of a distinction in age since newer tanks may be structurally able to withstand a vacuum. EPA is



interested in any data on the age of the controlled tanks and the types of controls in use. EPA is also interested in comments on whether age is an appropriate parameter to consider for determining control applicability.

Questions remain as to what level of control represents the MACT floor for these different types of tanks. EPA will continue to discuss these issues with industry and consider all available information to resolve the MACT floor questions prior to promulgation.

Several commentors also stated that pre-washer knotter and screening systems should not be controlled. Based on the data available regarding current control technology levels in the industry and the range of emission potential for these systems, EPA believes the control of pre-washer knotter and screening systems represents a floor-level of control. However, industry has raised concerns about the information submitted in the NCASI voluntary survey prior to proposal because the survey respondents were not clear as to their meaning when they reported knotter systems as controlled, not controlled, or not vented. The survey responses also did not indicate if the screening systems were located before or after washing. Therefore, as with black liquor tanks, questions remain concerning what level of control represents the MACT floor for these equipment systems. Industry is collecting additional information concerning the current operation, emissions, equipment, and control levels in these systems to supplement the information already provided. EPA is interested in any additional data or information concerning the type of and control of emission points in the knotter and screening systems, both pre and post-washer. EPA will re-evaluate the MACT floor level of control for these sources prior to promulgation.

At proposal, EPA characterized pulping wastewater and condensate streams to be controlled as those with HAP concentrations above 500 ppmw. However, commentors said that the 500 ppmw level was an inappropriate determinant for wastewater streams controlled at the MACT floor and provided data to name each stream to be treated. Based on review of these stream definitions and data submitted by the industry to characterize these streams, EPA is inclined to agree that the 500 ppmw is inappropriate level and that naming the streams better identifies the streams to be controlled at the MACT floor. EPA now considers the subject wastewater streams to be foul condensates and is inclined to adopt the

following definitions of foul condensates and ancillary equipment:

1. Foul condensates—any liquid streams originating from the following process areas or equipment: batch digester relief and blow gas system condensates; batch digester blow heat recovery system condensates; continuous digester system flash steam condensates; continuous digester chip steaming vessel condensates; turpentine decanter underflow; non-condensable gas (NCG) system condensates; NCG system low point drains; and condensates from the weak liquor feed stage(s) in the evaporator system. Where vapors or gases from the digester, turpentine recovery, NCG, and/or evaporator systems are segregated into low-HAP and high-HAP concentration fractions through multistage, differential, or selective condensation, only the high-HAP fraction stream is considered foul condensate. If condensate segregation is not performed on the process areas or equipment identified above, the entire volume of condensate generated, produced, or associated with the process area or equipment shall be considered foul condensate.

2. Evaporator system—any and all equipment associated with increasing the solids content of spent cooking liquor including, but not limited to, pre-evaporators, evaporators (direct and indirect contact), and concentrators.

3. Condensate segregation—the practice of generating, producing, or isolating a high-HAP concentration-low flow rate condensate stream from process vent vapors or gases in order to maximize the HAP mass and minimize the condensate volume sent to subsequent treatment.

4. Segregated condensate stream (high-HAP fraction)—any condensate stream that contains at least 65 percent by weight of the total HAP mass (measured as methanol) that is present in the vapor stream prior to condensation or isolation.

EPA is requesting comment on this named stream approach and on whether the definitions shown above and on the pulping process equipment systems discussed earlier, accurately represent the sources of emissions to be controlled at the MACT floor and clearly define them for purposes of compliance determinations.

EPA also re-evaluated control requirements for steam stripping—the technology on which MACT for these wastewater streams is based. The proposed standards required that the pulping wastewater streams subject to control must meet one of the following: Recycle to a controlled piece of process

equipment, reduce the HAP concentration to below 500 ppmw, reduce total HAP or methanol by 90 percent, use the proposed design steam stripper, or hardpipe the stream to biological treatment. New performance data on all the currently operated steam strippers were submitted after proposal (Pulp and Paper Water Docket item 20,027 attachment 3). The new data indicates that the best performing steam strippers representing the floor level of control achieve a combination of high percent methanol removal, high methanol mass removal, and low outlet methanol concentration. Because methanol is a good indicator of total HAP removal for pulping processes and associated wastewater, any one of these parameters demonstrates that total HAP are being removed from the condensate streams and therefore are not emitted to the atmosphere. Based on that data, EPA now considers that mass removal and outlet concentration are valid parameters to set control limits in addition to percent removal as at proposal. The rule would allow mills to: (1) Choose any wastewater treatment device as long as the device achieves one of the three parameters and as long as the wastewater is conveyed to the treatment device in an enclosed conveyance system; or (2) recycle the wastewater streams to a piece of equipment meeting the control requirements presented below.

EPA has evaluated the data in the NCASI condensate study (docket item IV-J-32) and agrees with industry that bleached kraft mills generate more HAP in pulping wastewaters than unbleached kraft mills primarily because bleached kraft mills tend to digest the pulp longer. While unbleached kraft mills can achieve the same percent methanol removed as bleached kraft mills, unbleached kraft mills cannot attain the same mass removed or outlet concentration as bleached mills. Therefore, EPA currently intends to distinguish between bleached and unbleached mills for the purpose of setting MACT level of control for pulping wastewater.

The new industry data on steam stripping technologies indicates that the MACT floor level of control for pulping wastewater at both bleached and unbleached kraft mills is treating the foul condensate wastewater streams to remove 92 percent of the HAP content (measured as methanol). The data indicates that steam strippers achieving the 92 percent control also achieve an equivalent outlet concentration of less than 330 and 210 ppmw measured as methanol, or remove 9.2 and 5.9 pounds of methanol/ADTP across the treatment



device, respectively for bleached and unbleached wastewater streams. Mills would be allowed to use one of three equivalent limits to show compliance.

EPA still intends to keep the provisions for recycling to enclosed equipment and hardpiping foul condensates to a mill's biological wastewater treatment plant. EPA is considering soluble BOD as a compliance parameter alternative for biological treatment compliance (docket items IV-D1-27, IV-D1-75, IV-D1-79, and IV-E-44). EPA is interested in any comments concerning this compliance approach. EPA is also re-considering the need for a design steam stripper.

New source MACT requirements have not changed since proposal. MACT for new sources is based on the best level of control achieved from similar sources. In other words, this technology was selected because it is used by the best controlled similar source, as required by section 112 (d) (3). The best controlled similar sources have the same level of control as existing sources. In addition, the best controlled source also controls deckers and post washer screen systems by not venting or enclosing and routing vents to a control device.

#### *B. Sulfite*

The level of control for the sulfite industry in the December 17, 1993 proposal was the same as for all mill types (see previous discussion on kraft mills). This section explains the level of the standard under consideration for the projected sulfite subcategory. In summary, EPA has reviewed what sources are being controlled, the performance of the control technologies, and options for implementation and setting emission standards for the sulfite industry.

EPA has reviewed public comments and industry data to evaluate the emission sources controlled at the best performing mills for HAP reductions. Pulping area sources controlled at the best performing existing mills are the digesters, evaporators, and red stock washer system vents (later referred to as the "selected vents"). These sources are the same vents as proposed except that knotters or deckers which follow washers in the sulfite mills are now excluded from control for existing sources because they are not part of the MACT floor. Additionally, control of pulping wastewater with steam strippers has been dropped from consideration since sulfite mills do not employ stream strippers.

Many public comments stated that the control technology basis of the standard for sulfite mills should not be

combustion as proposed, since very few mills combust emissions from the selected vents. The data clearly indicate which emission sources are being collected and vented to reduce or capture and recover SO<sub>2</sub> emissions, which in turn reduces HAP emissions by some degree. Sulfite mills use a combination of the acid plant and separate scrubbing systems (e.g., nuisance scrubbers) to control and capture SO<sub>2</sub> emissions. EPA and industry have been meeting, collecting, and analyzing data to determine the degree of HAP emission reduction achieved in these control devices or systems designed to collect SO<sub>2</sub> emissions. Recently, NCASI provided a summary of the available industry emissions data and American Forest and Paper Association (AF&PA) made recommendations to EPA on the MACT standards for sulfite mills (docket items IV-D1-87, IV-D1-88, and IV-D1-94). In summary, AF&PA recommended that certain named air emission sources be vented to existing SO<sub>2</sub> recovery systems and that ammonium- and magnesium-based sulfite mills could not recycle condensates with annual average methanol concentrations exceeding 500 ppmw to pulping and chemical recovery equipment unless the equipment was being vented to an SO<sub>2</sub> recovery device or unless the total emissions from the all pulping and chemical recovery equipment do not exceed 2.5 pounds methanol per ton of oven-dried pulp (lb/ODTP).

EPA has used the concept of naming both the sources to be controlled and the control device on all the other pulping subcategories. However, for those other subcategories, the named controls are well understood and emission reduction performance was well documented. Named control devices for the other subcategories were specified to meet either a known percent reduction standard, equipment design standard (e.g., 98 percent control or operate at 1600 degrees Fahrenheit and 0.75 second residence time for incinerators), or the named control device is known to operate in a manner to destroy the emissions to a certain level (i.e., venting to lime kilns or recovery boilers reduces emissions by at least 98 percent due to very high operating temperatures). However, for SO<sub>2</sub> recovery devices or systems at sulfite mills there are many combinations of systems used with various desired SO<sub>2</sub> capture efficiencies. Some of these systems have been shown to be better than others in reducing HAP emissions. Therefore, simply naming existing SO<sub>2</sub> control systems as the HAP

control device does not set a known HAP level of performance for sulfite mills. EPA must evaluate and set the HAP emission limits achieved by the best performing existing sources (in this case, the best performing five mills since there are less than 30 sources (section 112(d)(3))).

For this evaluation, EPA considered various types of performance measurement standards for the sulfite industry. Options include equipment and work practice standards, percent reduction standards, and/or emission limit (concentration or mass) standards for each or a combination of streams. As discussed earlier an equipment and work practice standard is not appropriate. Also, EPA considers that using a standard that combines emission streams instead of setting individual stream limits provides the best fit, least expensive, and most flexible standard since existing mills already use various combinations of SO<sub>2</sub> control technologies for different and varying types of emission streams. Thus, a mill could use any combination of controls plus add-on controls or process changes that best fit the existing facility to get the same emission reduction. EPA evaluated percent reduction and emission limit standards and found that limits could be set, based on the best available information. The discussion on how those limits were determined is found later in this section.

Based on EPA's review of the quantity and quality of data and the variability in the industry, EPA does not intend to set these limits as continuous emission limits. Rather, EPA intends that several initial performance tests be performed using the average of three one-hour tests when the mill is operating under normal operating conditions to determine if the control system meets the emission standard. During the performance test, process and control equipment parameters will be required to be monitored and matched with the emission limits to determine the operating and monitoring conditions to be monitored for long-term compliance with the standard. EPA has used this approach on other standards to provide flexibility in process operation while assuring compliance.

Under this program, the owner or operator of the source will recommend and demonstrate to the permitting authority the appropriate equipment parameters to be monitored, and the allowable range for those parameters to demonstrate compliance with the emission standard. This recommendation would include the data collected during the performance test supplemented by engineering

assessments and equipment manufacturer's recommendations. The source would not be out of compliance with the standard when the source operates outside those operating conditions if the source reports (prior to any EPA compliance or enforcement action) and documents that the episode is during a start-up, shut down, or malfunction as defined in section 63.2 of the General Provisions. And, the source must demonstrate that conditions have changed and a retest of the initial performance test shows compliance with the emission standard.

EPA is considering establishing two emission limit strategies to demonstrate compliance: mass balance and percent reduction of the selected vents. Since only methanol data was available for determining either standard, methanol would be used in this case as a surrogate for total or individual HAP emission standards. From the recent NCASI summary of sulfite data, it is clear that calcium-based sulfite mills have lower emissions because they do not have the extensive recovery system that ammonium and magnesium-based mills require. Therefore, emission standards for calcium-based mills will be considered separately from ammonium and magnesium-based mills.

Section 112 of the Act requires EPA to establish limits based on at least the average of the five best controlled mills when there are less than 30 mills. The data set available to EPA to set a mass limit and percent reduction limit is limited; however the available data indicates that the average of the three existing calcium-based mills emit a total of 0.02 lb methanol/ODTP from vents where the selected sulfite vent emissions are collected and processed. The data set indicates that the average emissions from the top five ammonium-based and magnesium-based mills are a total of 0.45 lb methanol/ODTP from the vents where the selected sulfite vents are collected and processed. Additionally, the total of the selected vent emissions does not account for the total air emissions from these systems since scrubbers are used in the SO<sub>2</sub> recovery systems. The scrubbers transfer some of the HAP from the vents to wastewater that is subsequently seweraged. Air emissions from the seweraged recovery system wastewater occur in the mill's open wastewater collection and processing equipment due to volatilization. These air emissions from wastewater can be calculated using EPA's WATER8 Emission Model available on the TTN (under Chief BBS, Emission Estimation Software, file: water8.zip).

EPA reviewed all the sulfite wastewater data available and the amount volatilized from an average wastewater system (calculated to be 6 percent lost for methanol using WATER8) and estimates that an average sulfite mill emits 0.63 lb methanol/ODTP. Estimates from industry provided earlier in the year also indicated similar results. Industry has agreed to provide details on sulfite mill wastewater collection and treatment systems to better estimate the emissions from those systems since wastewater emissions may be a significant portion of the total HAP mass emission rate. The total average mass emissions from the selected sulfite mill vent control systems at the best performing mills (including vents and wastewater air emissions) are estimated to be 0.65 and 1.10 lb methanol/ODTP for calcium-based and ammonium and magnesium-based mills, respectively. Using the appropriate value, a mill could then achieve the emissions reduction under this total mass emission standard across the selected vents, and the connected recovery system vent and wastewater emissions.

As noted earlier, industry recommended a much higher vent mass emission limit of 2.5 lb methanol/ODTP in the industry's sulfite mill recommendation on limits for recycling wastewater. Industry representatives stated that the 2.5 lb methanol/ODTP estimate was derived from the same data set and they derived a similar estimate as the 0.45 lb methanol/ODTP value discussed above. However, the industry representatives increased the value (from 0.45 to 2.5) to take into account variability of testing procedures, mill operating conditions, and the types of products produced. Industry is currently documenting their variability calculations and rationale and providing it to EPA and the rulemaking docket. EPA currently believes that the approach discussed earlier for implementing these emission limits will adequately account for variability. However, EPA will consider the industry rationale and data.

EPA does not have data to support or deny the industry's 500 ppmw recommendation. Industry is recommending condensate streams exceeding 500 ppmw of methanol should not be allowed to be used/recycled in the pulping or chemical recovery area to process equipment vented directly to the atmosphere unless it meets 2.5 lb methanol/ODTP. EPA requests data and comments on this approach.

The second emission limit approach under consideration for sulfite mills is

setting a mass reduction of HAP emissions from the applicable emission points. Industry tested two SO<sub>2</sub> nuisance scrubbers and found that while one reduced vent emissions of methanol by 95 percent and emissions of total HAP by 94 percent, the other SO<sub>2</sub> scrubber increased HAP emissions. Since nuisance scrubbers are only one part of the recovery system for most mills, the scrubber efficiency alone does not represent what the total system is controlling. A second approach was developed that used the mass emission limit derived above and data on the amount of methanol generated. An industry engineering estimate indicates that between 15 and 20 lb methanol/ODTP generated in the sulfite process. Of the amount generated, as much as 8 lbs methanol/ODTP may be emitted from the selected vents as shown in the recent NCASI summary of sulfite data. Comparing this amount to the mass emission rates (0.65 and 1.1 lbs methanol/ODTP) discussed above at the best performing mills, 92 and 87 percent of the methanol is removed across the total selected sulfite mill vent control system for calcium-based and ammonium and magnesium-based mills, respectively. In conclusion, mills would have to meet either the mass emission or the mass percent reduction standard across their control system to be in compliance.

Industry has indicated concern over the numerical mass limits and percent reductions discussed in this notice because they are based on a limited data set and because HAP reductions resulting from control devices installed originally for SO<sub>2</sub> control is not well understood. EPA will review and consider additional data being collected by this industry and other public commentators to set a HAP level of performance for sulfite mills prior to promulgation and will adjust these numerical values as necessary. EPA solicits comments on the two emission limit strategies for sulfite mills discussed above and solicits comments on the appropriate numerical values for these strategies.

New source MACT is based on the best level of control achieved at baseline. The data shows the best controlled sulfite mills control the same emission sources as the requirements for existing sources and also control weak or spent liquor tanks, strong liquor storage tanks, and acid condensate storage tanks. The best sulfite mills also have non-venting knotter and screening systems. Therefore, new source MACT is the same as existing source MACT, as well as, the control of the aforementioned storage tanks and the

installation of non-venting knotter and screening systems. EPA currently plans to require new sources to meet the same mass emission limit or percent reduction as discussed for existing sources.

### C. Semi-chemical

The proposed standards did not differentiate between pulping types; therefore, the owners or operators of new or existing semi-chemical mill sources were required to comply with the same standards as kraft pulping. EPA is considering changing the MACT requirements for semi-chemical mills to be the control of LVHC vents only (as defined in section VI.A). Data show that the MACT floor level of control at semi-chemical mills is collecting LVHC vent emissions and reducing emissions to the same level as previously proposed in 1993 and discussed earlier in this notice for kraft mills.

EPA considered whether it would be appropriate to go beyond the MACT floor at semi-chemical mills to control some of the additional larger emitting process systems, such as pulp washer systems, that would be controlled at kraft mills. However, data indicates that emissions from semi-chemical mills are generally much less than at kraft mills. Therefore, considering the smaller emission reduction and the costs to control units beyond the floor, EPA is inclined to set MACT for semi-chemical mills at the floor (controlling LVHC vent emissions).

In evaluating the information and through discussions with representatives from semi-chemical mills, EPA is aware that the best controlled mills collecting and controlling LVHC vents tend to be collocated with kraft mills. EPA considered whether a distinction between collocated and stand-alone semi-chemical mills should be made for the purpose of setting MACT requirements. EPA determined that there is no difference in the nature of the vents being collected, and the level of control is technically feasible and can be achieved at a reasonable cost; therefore, there is no need to distinguish between these types of mills. EPA estimates that the control of the LVHC vents at a typical semi-chemical mill will reduce emissions by 160 Mg of HAP per year and 1,700 Mg of VOC per year; the cost-effectiveness for a typical stand-alone semi-chemical mill will range from \$1,000 to \$3,000/Mg of HAP. Industry cost estimates fall within that range (docket item IV-D1-62, IV-D1-86, IV-D1-89, IV-D1-90, and IV-D1-92). Semi-chemical mill representatives also believe the control of LVHC vents

is a reasonable level of control for stand-alone mills as well (docket item IV-D1-72 and IV-E-68). Therefore, EPA now considers the control of the LVHC vents at both types of mills to be MACT and a distinction is not warranted.

The MACT level of control for HAP emissions from semi-chemical mill wastewater is no control. EPA is not aware of any semi-chemical mills treating process wastewaters with steam strippers as is found in the kraft industry. Since semi-chemical mills generate less HAP than the kraft process, and therefore, lower HAP-containing streams, EPA does not consider going beyond the floor to control semi-chemical wastewater streams to be appropriate.

New source MACT is based on the best level of control at similar sources. Data indicate the best controlled semi-chemical mills combust the same LVHC emissions plus the pulp washing system emissions. EPA anticipates the trend in industry will be to install washer systems with lower flow rates. This in turn allows for less expensive control systems. The costs are also reduced at new sources since the controls can be considered and planned into new equipment installation as opposed to retrofitted.

Therefore, new source MACT would be the same as existing source MACT plus the control of the pulp washing systems. EPA has not had a recent opportunity to discuss this contemplated new source control level with the affected mills and public and solicits comments and data on the appropriate levels of control for new sources at these mills.

### D. Soda

As discussed previously in section V, subcategorization, EPA currently plans to establish separate MACT standards for soda mills. Based on information and data obtained since proposal, EPA now considers the control of LVHC vents (as defined in section VI. A) at these mills to be MACT.

Data available to EPA indicate that soda mills do not currently control any of the equipment that is subject to the MACT requirements for kraft mills. However, EPA has determined that the emissions from soda mills are similar to kraft mills and the control costs are similar to stand-alone semi-chemical mills. Therefore, EPA considers going beyond the floor to control LVHC vent emissions at soda mills to be an appropriate level of control for MACT for these mills, taking into consideration the costs of achieving the controls as well as the other factors enumerated in section 112(d)(2). EPA estimates that

control of the soda mill LVHC system vents, at a typical mill, will reduce emissions by 130 Mg of HAP per year and 1,500 Mg of VOC per year.

Data show that no soda mills currently practice steam stripping to control HAP's in wastewater. EPA initially does not believe the costs of control of these streams to be warranted, within the meaning of section 112(d)(2). Therefore, the MACT for the control of HAP in wastewater would be no control.

The new source requirements are based on the best level of control at similar sources. Data show that no soda mills are currently practicing any level of HAP control. However, the control of washing systems is demonstrated at similar sources (i.e., semi-chemical and kraft washing systems). Therefore, as discussed in section VI.C for semi-chemical mills, EPA now considers the control of washing systems for new sources to be part of MACT. Therefore, new source MACT for soda mills would be the same as new source MACT for semi-chemical mills (LVHC and washing system controls). EPA has not had a recent opportunity to discuss these contemplated new and existing source control levels with the affected mills and public, and solicits comments and data on the appropriate levels of control at these mills.

### E. Bleaching

EPA is considering changing the proposed MACT requirements for bleach plants. EPA is also considering making a distinction between requirements for papergrade versus dissolving grade mills. Changes to the proposed MACT standard would include only requiring controls for chlorinated HAP's. The control requirements to achieve chloroform reductions would be based on a combination of compliance with the future BAT requirements imposed under the Clean Water Act (only for papergrade bleach mills) and the enclosure of all bleaching equipment and routing the vents to a scrubber for all bleach stages where chlorinated bleaching agents are introduced to control the other chlorinated HAP's (at all bleach mills). As at proposal, a mill would be allowed to use chlorine as a surrogate for compliance with these other chlorinated HAP's around the scrubber. Control of non-chlorinated HAP's (with methanol as a surrogate), as required at proposal, would be dropped because data indicate that the best controlled mills do not, in fact, achieve control of these pollutants. The rationale for these changes under consideration is set forth below.

The proposed standards require owners or operators of new or existing sources to enclose and vent all bleaching component emission points into a closed vent system routed to a control device. The proposed MACT was based on caustic scrubbing as the control device. Vents or enclosed process equipment with volumetric flow rates or total HAP concentration below certain specified limits were not subject to control. EPA requested comment on whether MACT should also include process changes and if a separate MACT standard for chloroform is appropriate. Based on data received, EPA now considers the chlorinated HAP limit to be based on the emissions reduction achieved using a combination of scrubbing and process modifications. Therefore, EPA is considering setting a MACT standard for both chloroform and other chlorinated HAP's (chlorine as a surrogate).

Industry provided data for existing bleach plant emission estimates and scrubber efficiencies. The data clearly indicates that mills practice significant control of chlorine and chlorine dioxide through the use of caustic scrubbing (docket item II-I-24). However, existing bleach plant scrubbers are operated with high recirculation rates which result in no removal for methanol and other organic HAP compounds (docket item IV-D1-34). The data also shows reduced chloroform and other chlorinated HAP emissions with process changes (docket item II-I-10); however, the data indicate that there are no significant increases in non-chlorinated HAP emissions. Therefore, EPA currently plans to drop the total HAP percent reduction limit for methanol and other nonchlorinated organic HAP's.

As discussed earlier, EPA is evaluating two types of bleaching processes; the distinction is necessary for the purpose of setting standards for chloroform. These two types of processes are papergrade bleaching and dissolving grade bleaching, to be defined the effluent guidelines portion of the cluster rule. The average emission limitation of the best controlled papergrade bleaching processes result from control of chloroform and the other chlorinated HAP emissions through a combination of caustic scrubbing, high levels of chlorine dioxide substitution, and eliminating the use of hypochlorite. The average emission limitation of the best controlled dissolving grade bleaching processes also control emissions of the other chlorinated HAP through caustic scrubbing but tend to use hypochlorite and lower levels of chlorine dioxide substitution. Therefore at this time, EPA has been unable to

identify the appropriate process modifications for which to base the chloroform emission control level.

EPA's Office of Water (OW) is currently planning to revise its technology basis for limits based on results of ongoing studies by dissolving mills of alternative process technologies different from those which served as the proposed effluent guidelines. Significant objectives of these studies include the extent to which hypochlorite use can be reduced and chlorine dioxide substitution increased in order to reduce generation and release of chlorinated organic pollutants, such as chloroform, while maintaining dissolving pulp properties acceptable to end users of these pulps. When data for these studies become available, EPA will revise its proposed effluent limitations and BAT technology option as appropriate, and evaluate data to set chloroform MACT standards for dissolving grade mills. EPA is interested in any data concerning chloroform emissions from dissolving grade bleaching processes and requests comment on an appropriate chloroform MACT for new or existing dissolving-grade bleach plants.

As proposed, emissions of the other chlorinated HAP (or chlorine as a surrogate) are to be reduced by 99 percent. EPA is considering also allowing mills to meet an outlet concentration below 10 parts per million by volume (ppmv) of HAP from the scrubber exhaust as an alternative to the 99 percent reduction standard. Commentors asked for an alternative level to the 99 percent reduction standard because high substitution rates reduce the bleach vent emissions to the extent that 99 percent reduction across the scrubber is not attainable. Based on the review of data, the 10 ppmv standard is considered equivalent to the outlet of scrubbers achieving 99 percent removal (docket item II-I-24). EPA also is considering whether a mass limit on the scrubber exhaust would be an appropriate equivalent alternative, and solicits comment and data on the need and appropriate level for a mass limit.

For papergrade bleaching processes, compliance with OW's BAT option for papergrade bleaching (anticipated to be based on at least 100 percent chlorine dioxide substitution and no hypochlorite use) is at least as stringent as the MACT floor (high chlorine dioxide substitution). Therefore, EPA plans to specify papergrade BAT as compliance for chloroform at paper grade bleach plants. EPA requests comments on whether an alternative equivalent numerical limit for

chloroform is needed for papergrade bleaching processes.

EPA's intent for bleaching wastewater is unchanged from proposal (i.e., no control). New source MACT for bleach plants would be the same as existing source MACT for both papergrade and dissolving grade bleach plants. The installation and operation of the totally chlorine free (TCF) bleaching process meets all the bleaching process MACT standards for papergrade bleaching and would constitute compliance.

## VII. Compliance Extension for Kraft Mills

EPA is committed to the goals of the cluster rule, and believes that the cluster rule will ultimately result in lower overall compliance costs, while still providing environmental and human health protection. However, EPA recognizes the unique compliance and timing issues that the cluster rule may create. EPA has identified one situation that may warrant additional compliance time to fully realize the goals of this rule. EPA is inclined to agree with industry representatives who have stated that additional time is warranted for brownstock washers and oxygen delignification units at kraft mills. EPA believes the additional time would ensure that the maximum degree of overall multi-media pollution reduction is achieved, without requiring unnecessary compliance costs.

Many kraft mills are currently considering the addition of oxygen delignification (OD) to their pulping process lines by the year 2000. The addition of OD has been shown to have significant environmental benefit. An OD unit reduces the need for chlorinated chemical application in the bleaching process, which results in reduced loadings of chlorinated pollutants to the air and into the bleach plant effluent. Less water is required in the bleaching process which, in turn, brings a mill closer to the "closed mill" design, with zero water discharge. EPA is strongly committed to pollution prevention efforts such as these. There is also a cost savings for the industry by using OD in the form of reduced chemical usage and less net energy usage.

To gain the maximum benefit from adding OD units, the brownstock washers typically need to be redesigned to improve pulp washing. The trend in the industry is toward newer washing technologies that are more efficient, require smaller space in the mill, are less polluting and easier to control. EPA encourages the use of these pollution prevention technologies, but recognizes the evaluation and implementation of

these technologies would add time and expense to the compliance activities for these sources.

EPA is particularly concerned that if mills had to control vents on brownstock washers within the 3-year compliance period, time constraints would dictate that they retrofit their current washers with a vent gas collection system. Once such a collection system is installed, mills would likely postpone installation of OD or choose not to install it at all; as discussed earlier, installation of OD generally requires brownstock washer upgrades. The upgraded washers plus the new OD system would require a differently designed gas collection system. Once mills commit capital to retrofit their current equipment, they would be very unlikely to entertain technologies such as OD that would require tearing out and rebuilding or replacing the gas collection system within a few years. (In such a case, there is a serious question whether imposition of a standard that results in foregoing substantial cross-media environmental benefits could be MACT. *Portland Cement Association v. Ruckelshaus*, 486 F.2d 375, 385–86 at n.42 (DC Cir. 1973); *Essex Chemical Corp. v. Ruckelshaus*, 486 F.2d 427, 439 (DC Cir. 1973), EPA must consider non-air environmental impacts in determining what constitutes a “best” technology.)

EPA considers the installation of improved washers and OD to be an important step toward totally chlorine free bleaching. Total chlorine free bleaching, while still evolving, provides significant benefits such as elimination of chlorinated pollutants to the environment and allows bleach plant effluents to be recycled to the mill. These benefits result in a large reduction in mill water intake and moves a mill further toward the closed mill concept.

This additional design and mill modification can be a lengthy process. EPA wants to allow sufficient time for each mill to fully consider all pollution control options. EPA also recognizes that the pulp and paper industry will be implementing both water and air rules essentially at the same time; many of the changes a mill will need to implement to comply with the water requirements must be considered before control of air emissions from the washer and OD systems can be enacted. Given the engineering requirements, capital expenditures, permitting requirements, and the time necessary to implement the water standards, EPA questions whether it is even possible to install controls for air emissions from OD and washers currently in place within 3 years.

Much of the discussion in this section is centered around OD. It must be pointed out that while OD may not be included in the control basis for BAT at kraft mills, EPA is considering taking a number of steps, this compliance extension being one, to encourage mills to adopt the technology. EPA's Office of Water, in a separate Federal Register notice to follow shortly, will address the process technologies that are likely to be considered as the underlying basis for BAT effluent limitations. EPA also will present a plan for incentives being considered for mills that have installed or will install technologies that achieve more stringent removal of pollutants from wastewater than is likely to be required based on BAT.

EPA is thus considering providing an additional 5 years beyond the 3-year compliance time for the remaining units for a total compliance time of 8 years from the date of promulgation. EPA believes this would allow sufficient time for a complete evaluation of all pollution control options. Some limited information on the status of their compliance activities for these sources would likely be required in their annual compliance report.

EPA is, of course, aware that section 112 (i) (3) (A) states that compliance with a MACT standard shall be no later than 3 years from the standard's effective date. EPA notes, however, that there are special circumstances present in this instance. First, as described above, a three year compliance period raises the likelihood of mills which might otherwise choose to install OD foregoing water quality and pollution prevention benefits if they are forced to retain their existing brownstock washing system in order to justify the capital cost of vent controls on that system. Second, as a legal matter, EPA could develop a rule with the same contemplated compliance date (i.e. of 2004) by simply rescheduling this part of the pulp and paper air rule into the so-called 10-year bin under section 112 (e) (1) (E), and rescheduling a 10-year rule. (Section 112 (c) (1) contemplates revisions in EPA's initial schedule, and EPA has been held to have continuing discretion to reschedule under a similar scheduling scheme in the Resource Conservation and Recovery Act. *Chemical Waste Management v. EPA*, 869 F. 2d 1526 at n. 2 (D.C. Cir. 1989).) Because of the benefits of the cluster rulemaking process, which allows EPA to develop and affected companies and members of the public to gauge the multi-media effect of contemplated rules at one time, EPA prefers to promulgate the standards at the same (or close to the same) time. EPA does not

believe the cluster process needs to be abandoned to provide a compliance date it could achieve by other means.

Much of the rationale for the compliance extension is to encourage kraft mills to install superior water pollution-control technology, yet the extended compliance time line contemplated in this notice would be available to all kraft mills, whether or not they choose to adopt that superior technology. EPA solicits comments on whether such a compliance extension should only be available to mills that commit to install technologies that achieve more stringent removal of pollutants from wastewater than is likely to be required based on BAT.

#### VIII. Emissions Averaging

The proposed regulations did not contain provisions for emissions averaging; however EPA requested comments on the subject. EPA is interested in emissions averaging because it is equally protective, adds flexibility, and can also reduce the costs of compliance and testing. At proposal, EPA did not include an emissions averaging approach because of data limitations and concerns over how to implement an averaging approach due to concerns about process variability. Several commentors indicated support for emissions averaging on the basis of providing compliance flexibility for the industry, but stated that an individual approach to emissions averaging, such as contemplated at proposal, would be too burdensome and inappropriate for this industry. Conversely, some commentors indicated that emissions averaging would be difficult to enforce.

After proposal, the industry submitted a concept for compliance with the proposed NESHAP regulations that is an alternative type of emissions averaging that is unique and potentially more appropriate for this industry. While the proposed NESHAP regulations focus primarily on combustion of specific process vents, the industry provided preliminary information detailing an alternative compliance plan designed to reduce the amount of HAP's present in pulping condensate streams that are recycled to other process areas in the mill (docket item IV–D1–95). Recent industry data has indicated that a significant portion of emissions from process areas such as brownstock washing and causticizing area could be attributed to volatilization of compounds present in the recycled condensates. Reducing the pollutant concentration in the recycled condensates would, in turn, lower the amount of pollutants volatilized from process areas that receive recycled

condensates and reduce emissions from bleach plants and paper machines associated with HAP carry over from pulp washing processes.

The industry's compliance alternative, referred to as the "Clean Water Alternative," consists of routing pulping area condensates to a biological reactor to remove the HAP's. The effluent from the reactor could then be used in other process areas in the mill (e.g., brownstock washing, causticizing area, etc.). The emission reduction achieved by the alternative would be associated with using condensates with lowered HAP concentrations throughout the mill.

The industry believes that significantly reducing the HAP concentration in recycle process waters using the biological reactor would achieve greater HAP emissions reduction across the whole source than the proposed NESHAP. EPA is currently evaluating whether the industry's clean water alternative would achieve or exceed the HAP emissions reduction achievable using the control techniques on which the proposed regulations are based. In addition, EPA will be evaluating secondary impacts associated with using the clean water alternative.

Conceptually, the industry's proposal would reduce emissions from process units that receive recycled condensates. Biodegradation of HAP compounds has been widely documented; however, this approach to emissions reduction has not been demonstrated in the pulp and paper industry.

While the industry's clean water alternative is innovative, additional information must be provided in order to make this proposal a viable compliance option. Industry supplied additional data to improve the emission factors (docket item IV-D1-59), but the data was not sufficient to address EPA's concerns about process variability. The types of information EPA is interested in obtaining to address these concerns are: (1) Detailed information, such as: emission calculations; assumptions used; references; typical process/condensate flow diagrams (if needed); data supporting relationship between stream concentration and air emissions; any other data/information necessary to support an independent evaluation of the industry's claims of performance; (2) strategies for demonstrating compliance with the NESHAP regulations, such as the specific reactor performance parameters to be monitored (e.g., inlet and outlet HAP concentration, hot water tank outlet HAP concentration, temperature of recycled water; identification of process equipment receiving treated condensates); and (3)

methods for enforcing compliance with the NESHAP regulations using the industry's alternative, such as sufficient recordkeeping and reporting requirements associated with reactor operation.

#### IX. Relationship to Other Rules

##### *A. New Source Review/Prevention of Significant Deterioration Applicability*

To comply with the MACT portion of the pulp and paper cluster rule under development, mills will route vent gases from specified pulping emission points to a combustion control device for destruction. Mills may use steam strippers to reduce emissions from pulping wastewater. The incineration of sulfur-laden gases from pulping vents and/or steam stripper overheads has the potential to generate sulfur dioxide (SO<sub>2</sub>). To a lesser degree, the use of supplemental fuels to support vent gas combustion and the generation of additional steam for steam strippers may increase emissions of SO<sub>2</sub>, nitrogen oxides, particulate matter (PM and PM<sub>10</sub>), and carbon monoxide.<sup>1</sup> For these reasons, commentors have indicated that compliance with the proposed cluster rule could trigger major NSR or PSD review.

Industry and some States have commented extensively on the potential problems resulting from the interaction of the cluster rule under development and NSR. They have indicated that in developing the rule, EPA did not take into account the impacts that would be incurred in triggering NSR. Commentors indicated that PSD or NSR review processes would: (1) Cost the pulp and paper industry significantly more for permitting and implementation of NSR and PSD requirements than predicted by EPA; (2) impose a large permitting review burden on State air quality offices; and (3) present difficulties for mills to meet the proposed NESHAP compliance schedule of three years due to the time required to obtain a pre-construction permit. Commentors indicated that compliance with the proposed rule would make permitting extremely complex, pointing out that in some cases, sources would be required by one set of regulations to install emissions controls and constrained from beginning construction on those controls in the absence of a permit by another set of regulations. The commentors also suggested that EPA provide an exemption from major

<sup>1</sup> Commentors raised similar concerns with respect to the technologies that would be installed to meet the proposed effluent limitations in the cluster rule. These issues will be addressed in the forthcoming water notice.

source NSR and PSD review, preferably using the pollution control project exclusion.<sup>2</sup>

Based on evaluation of pollutant reductions, environmental, and energy impacts, EPA considers projects implemented to comply with the MACT portion of the cluster rule to be environmentally beneficial. EPA therefore considers these projects to be pollution control projects under current policy guidance issued in an EPA memorandum dated July 1, 1994. As discussed in the guidance, the exclusion does not affect any minor NSR permitting requirements in a State implementation plan, which also facilitates the safeguards outlined in the policy guidance. Further, EPA expects that projects undertaken to meet the MACT portion of the cluster rule will also qualify as PCP's under forthcoming NSR reform regulations.

EPA solicits public comment on its determination that control device projects installed to comply with the MACT portion of the cluster rule are environmentally beneficial and eligible for exemption from major NSR as PCP's under current policy guidance. EPA also solicits public comments on providing a specific exclusion in the major NSR rules for these types of controls installed to comply with the MACT portion of the cluster rule.

##### *B. Boiler/Industrial Furnace/Resource Conservation and Recovery Act Applicability*

The proposed pulp and paper NESHAP requires the use of steam stripping to remove HAP's, primarily methanol, from wastewater. After removal, the NESHAP would require the HAP-laden vent gases from the steam stripper to be sent to a combustion device for destruction. Several commentors indicated that sending the steam stripper overheads to a combustion device was not the most efficient and cost effective way to destroy vent gases due to the high

<sup>2</sup> A similar issue was resolved in the 1992 WEPCO rulemaking, where EPA amended its PSD and nonattainment NSR regulations as they pertain to electric utilities, by adding certain pollution control projects to the list of activities excluded from the definition of physical or operational changes, subject to certain safeguards. Pollution control projects were defined as "any activity or project undertaken [at an existing electric utility steam generating unit] for purposes of reducing emissions from such a unit."

In a July 1, 1994 guidance memorandum issued by EPA (available on the TTN Bulletin Board), EPA extended a limited pollution control project exclusion for source categories other than electric utilities. The guidance indicated that unless information regarding a specific case indicates otherwise, add-on controls and fuel switches to less polluting fuels can be presumed, by their nature, to be environmentally beneficial.

moisture content and variable heat value of these vent gases. The commentors recommended sending the stripper vent gases to a rectification column followed by condensation to obtain a concentrated condensate (primarily methanol). The concentrated condensate could then be burned in an on-site combustion device as fuel.

This approach to condense and burn the concentrated condensate takes advantage of the condensate's energy value and should assure substantial destruction of HAP's due to the MACT standard. However, as explained below, under current rules, condensing the steam stripper vent gases could result in RCRA regulation of the condensate, including regulation of the combustion unit.

As proposed, the combustion of steam stripper vent gas does not trigger the BIF regulations because the methanol-laden vent gas is not a RCRA hazardous waste—it is not listed as a hazardous waste, nor does it exhibit a hazardous waste characteristic. However, if the methanol from the steam stripper overheads is condensed before burning, the flash point of the liquid drops to below 140 degrees Fahrenheit, and the liquid may therefore be identified as hazardous waste because it exhibits the ignitability characteristic (set out in 40 CFR § 261.21). To avoid the imposition of RCRA BIF regulations, commentors recommended incorporating a "clean fuels" exemption into the pulp and paper NESHAP so that the condensate can be burned for energy recovery without the combustion unit also being subject to the RCRA rules.

The "clean fuels" exemption is a recommendation from EPA's Solid Waste Task Force (SWTF) to allow recovery of energy from "clean" waste-derived fuels such as ethanol, methanol, and hexane. The recommendation is contained in "Re-engineering RCRA for Recycling" (EPA 530-R-94-016, November 1994). The "clean fuels" exemption was developed by the SWTF to promote burning for energy recovery hazardous waste fuels that are considered hazardous only because they exhibit the ignitability characteristic (i.e., have a flash point below 140 degrees Fahrenheit).

The industry submitted information detailing the composition of condensates derived from steam stripper overhead gases (docket items IV-D1-51 and IV-D1-56). However, the determination if the condensates meet the requirements for the clean fuels exemption has not yet been conducted by EPA's Office of Solid Waste. Indeed, the soon-to-be proposed standard for hazardous waste combustion units

proposes exclusions based on a comparable fuel test (rather than a risk-based test of how "clean" the fuel is) involving a comparison with fossil fuels.

EPA does not believe as an initial matter that RCRA regulation of combustion of the condensate is needed. Although the clean fuel and comparable fuel approaches are too nascent for immediate national application, it still appears that this condensate could be combusted pursuant to the MACT standard without presenting risks warranting immediate RCRA control. The condensate does not appear to contain metal or chlorinated organic HAP's; a volatile HAP (methyl ethyl ketone at 1638 milligrams per liter (mg/l) and a volatile compound (acetone at 2364 mg/l) were the maximum concentrations detected, and they would be substantially destroyed under the MACT standard. In addition, EPA believes that allowing the burning of this condensate does not produce any additional HAP's due to the high temperatures and residence times found in pulp and paper combustion devices that would be used to comply with the proposed MACT standard. Moreover, burning condensate will not increase the potential environmental risk over the burning of the steam stripper vent gases prior to condensation. Additionally, the use of the condensate as a fuel could reduce or eliminate the need for supplemental firing of fossil fuels in such combustion devices, thereby decreasing the emission of criteria pollutants (NO<sub>x</sub>, PM, SO<sub>2</sub>, CO). Consequently, EPA believes that regulation under RCRA is not necessary since the practice would not increase environmental risk, reduces secondary impacts, and would provide a cost savings. Further considerations of risk can appropriately be handled as part of the section 112(f) residual risk determination. For these reasons, EPA is proposing to exempt specific sources at kraft mills that burn condensates derived from steam stripper overheads from the BIF requirements of RCRA.

This decision is consistent with RCRA section 1006, which requires EPA to "integrate all provisions of [RCRA] for purposes of administration and enforcement and \* \* \* avoid duplication, to the extent practicable, with the appropriate provisions of the Clean Air Act \* \* \*." EPA believes that the imposition of RCRA regulations in this instance could result in the types of unnecessary duplication that section 1006 is intended to prevent. EPA now considers that steam stripping with rectification followed by combustion of the concentrated condensate is MACT

considering energy, economics, and air environmental impacts. Additional regulation under RCRA is redundant and not likely to result in any additional emission or risk reduction. Any further concerns on this issue would more properly be addressed through the section 112(f) residual risk process which requires EPA to assess the risk to public health remaining after implementation of the NESHAP under section 112(d). See generally 60 FR 32587, 32593 (June 23, 1995), and 59 FR 29570, 29776 (June 9, 1994) where EPA similarly found that RCRA regulation of secondary lead smelter emissions was unnecessary, at least until completion of the residual risk process.

EPA believes the potential cost savings produced by allowing the burning of condensed steam stripper vent gases would be significant. Industry estimates that annual cost savings would be approximately \$850,000 per mill, or \$100 million for the entire kraft industry. Cost savings would come primarily through the reduction in fossil fuel purchases.

### *C. Kraft New Source Performance Standards*

EPA is considering whether the New Source Performance Standards (NSPS) for kraft mills and the proposed pulp and paper NESHAP standards may have some overlapping or redundant requirements. Possible areas of overlap in the two regulations are affected sources or emission points, monitoring, recordkeeping, and reporting requirements. EPA solicits comments on the potential overlap of the kraft NSPS and the proposed NESHAP standards.

The kraft NSPS established emission limits for PM and total reduced sulfur TRS compounds for the following new or modified emission sources located at kraft mills: recovery furnaces, digesters, multiple effect evaporators, lime kilns, brownstock washers, black liquor oxidation systems, condensate stripper systems, and smelt dissolving tanks. The pulp and paper NESHAP will establish national limits for total HAP emissions from the following sources at all types of new or existing chemical pulping mills: digester, evaporator, turpentine recovery, brown stock washer, and condensate stripper systems. Total reduced sulfur and HAP compounds are found in the process vents affected by both the NSPS and NESHAP regulations.

The kraft NSPS requires monitoring of the following parameters: opacity from the recovery furnace, TRS emissions from affected points, incinerator temperature, and process variables for any scrubber used for controlling



emissions from a lime kiln or smelt dissolving tank. The NESHAP requires monitoring of the following parameters or pieces of equipment: closed vent system, combustion device temperature, scrubber, steam stripper, biological treatment, and the wastewater collection system. While the NSPS requires monitoring of TRS emissions for the most part, the NESHAP focuses on monitoring the performance of specific pieces of equipment.

Recordkeeping duties specified in the NSPS include logging of daily opacity and TRS emissions data. For the specified collection or control devices used to comply with the NESHAP, the monitoring parameters identified in the rule must be recorded in a manner consistent with the General Provisions. EPA solicits data and comments on whether these different approaches create unnecessarily redundant or overburdensome monitoring or recording requirements.

The NSPS requires semi-annual reporting detailing the periods of excess emissions. Quarterly reports regarding excess emissions and continuous monitoring system performance are currently required by the proposed NESHAP. The NESHAP reporting frequencies are currently under review and will be revised to be no more stringent than the requirements specified in the General Provisions. Additionally, the NESHAP requires exceedance reports for startups, shutdowns, or malfunctions that are inconsistent with the source's specified operating procedures. One option under consideration by EPA is to allow the facility to comply with the NESHAP in lieu of complying with the NSPS for certain pieces of process equipment. EPA solicits data and comments on the extent to which these reporting requirements could or should be combined or reduced.

X. Standards for Mechanical Mills, Secondary Fiber Mills, Nonwood Mills and Paper Machines

#### A. Presumptive MACT Process

As previously mentioned in the Background Section, a Presumptive MACT was issued for the MACT III (i.e. mechanical wood pulping mills, secondary fiber deinking and nondeinking mills, nonwood pulping mills, and paper machines) source category in September of 1995. Presumptive MACT is an estimate of MACT based on an assessment of readily available information and through consultation with experts in State and local agencies, EPA, environmental groups, and the regulated

industry. A primary purpose for Presumptive MACT is to assist State and local agencies, industry, and the public in Section 112(g) case-by-case MACT determinations and with the Section 112(j) hammer provision standards. The process is useful to enhance planning in the standards development process. Through the Presumptive MACT process issues can be identified and resolved early in the standards development process; the "stakeholders" can be identified; and the best method to develop MACT can be determined (e.g., traditional regulatory development, Adopt-A-MACT, Share-A-MACT, or proposing the Presumptive MACT as MACT).

#### B. Summary of the Presumptive MACT for MACT III Sources

For the MACT III source category, EPA contacted representatives of major industry, State, and environmental groups and held discussions with a team of State and industry representatives. The team evaluated the information that was available and established the Presumptive MACT. The pulp and paper Presumptive MACT is available on the Office of Air Quality Planning and Standards Technology Transfer Network (TTN) under the Clean Air Act Amendments, Title III Policy and Guidance Bulletin Board. The Presumptive MACT document is also available in the docket (see *SUPPLEMENTARY INFORMATION* section).

Limited information on the source category was identified during the Presumptive MACT process. The available information identified four potential sources for HAP emissions: pulping, wastewater from the pulping process, bleaching, and paper making. Of these, chlorine bleaching would be a likely source of HAP emissions, assuming operations in use are similar to those used by bleach plants at chemical wood pulping mills. Paper machines were also considered an emission source because of the use of paper additives and solvents. Nonwood pulping processes and the associated wastewater are potential sources of HAP emissions based on similarities between these and chemical wood pulping operations; however, the magnitude of the emissions could not be determined for these or the other potential sources from the available information. Information indicated secondary fiber deinking and nondeinking mills are not a significant source of HAP emissions (Docket A-95-31 item II-B-1).

Information on current control practices suggests the mills have no add-on controls in place for HAP

emissions except on chlorine bleaching. There are, however, a number of control options that can be considered. Besides the add-on controls at bleach plants (scrubbers that remove chlorine and hydrogen chloride) chlorine-free bleaching may be in use at some mills. Methanol emissions from paper machines resulting from recycled water from the pulping process are to be addressed by the chemical wood pulping standards (see section IV Definition of Source); however, emissions from paper machines that result from the use of paper additives and solvents were addressed by the Presumptive MACT. The Presumptive MACT suggested these emissions may be reduced through substituting additives and solvent for nonHAP or lower-HAP alternatives. MACT III for pulping operations, low volume-high concentration gas streams may be routed to a combustion device (as would be required in the MACT I discussed earlier in this notice). Lastly, high concentration wastewater streams may be treated through biological treatment or by steam stripping of the HAP and controlling emissions from the steam stripper.

One of the conclusions of the Presumptive MACT was to proceed with MACT standard development through the traditional rulemaking process. EPA has since reconsidered this position, given the findings during the Presumptive MACT process and EPA's current budget limitations. EPA has now decided to propose the Presumptive MACT as MACT.

#### C. Area/Major Source Discussion

No information was identified during the Presumptive MACT process to suggest area sources associated with the MACT III source category warrant listing as a category of area sources, pursuant to Section 112(c)(3) of the Act. Consequently, only major sources were evaluated for this category. EPA also has no evidence that any facilities that are solely nonwood mills are major emission sources in and of themselves. Major sources are sources within a contiguous area that emit or have a potential to emit, 10 tpy or more of any HAP or 25 tpy or more of any combination of HAP. Industry has published information in an NCASI Technical Bulletin, Number 677 (Docket A-95-31 item II-D-13), on two emission points at a thermomechanical pulping mill. The two emission points were the refiner condenser vent and the chip steaming condenser vent. Total HAP emissions estimated from the two points tested at this mill were approximately 8 tons per year. It is not

known if remaining emission points not tested at this mill emit enough additional HAP to be a major source, or if a larger thermomechanical mill would be a major source. NCASI also published a Technical Bulletin, Number 649 (Docket A-95-31 item II-D-12) on emissions from operations that bleach and brighten secondary fibers. This bulletin was based on sampling conducted in 1991 and 1992. Due to an increase in the demand for secondary fiber, these mills have increased in size since the 1991/1992 sampling program. Therefore, large stand alone secondary fiber mills may exist that have HAP emissions large enough to be major sources. Where these MACT III mills are collocated at kraft, sulfite, semi-chemical, and soda mills that are major sources, they will be subject to MACT standards; however, the only emission sources that would be affected by the MACT III proposed standard are the MACT III bleach plants and possibly the paper machines (for emissions resulting from solvent or additive use). EPA knows of no additional bleach plants that would be subject to MACT standards because of their collocation at a MACT I mill that is a major source. Paper machines will only be affected if EPA decides to establish additive and/or solvent substitution as MACT.

#### *D. Proposed MACT III*

The information gathered during the Presumptive MACT process indicates that there are no air pollution control devices in place on MACT III sources except for chlorine bleaching processes. Based on this finding, the floor for these sources is no control. Further, available information indicates any add-on controls would not be cost effective for these sources. Therefore, EPA has decided not to require controls beyond the floor. The MACT proposed here for the MACT III sources is no add-on controls for pulping and the associated wastewater, paper machines, and nonchlorine bleaching.

Bleach plants at MACT III sources collocated with MACT I sources are presently regulated under the MACT I standard (see Section VI.E, Level of Standards). Based on information provided by industry, EPA believes traditional bleach plants using chlorinated bleaching agents, such as those found at Kraft mills, that are located at stand-alone MACT III mills are presently controlled with scrubbers that remove chlorine and hydrogen chloride for process or worker safety reasons. EPA is not aware of any better control that could be used. Therefore, control of air emissions from these bleach plants is already in place and the

proposed MACT for bleach plants at stand-alone MACT III facilities is no additional control.

EPA is proposing no MACT standard for chemical additives and solvents at paper machines at this time. EPA continues to investigate the use of HAP chemicals in papermaking, the magnitude of HAP emissions, and the viability of chemical substitution that would reduce HAP emissions. An example of chemical substitution is substitution of HAP-containing additives and solvents with lower HAP or non-HAP organic compounds. If information becomes available regarding the floor or cost-effective HAP controls beyond the floor, EPA will propose a MACT standard for additive and solvent usage on paper machines in the future.

#### *E. Request for Information*

Additional information is being collected by industry groups, which began a testing program in September 1995. This program is designed to evaluate emissions from mechanical pulping processes, secondary fibers pulping processes, and paper machines. Industry plans to have the report on this sampling program available in January of 1997. EPA has also requested any available information on HAP emissions from nonwood mills from States with these mills; however, limited data are expected to be available. EPA is requesting any information on uncontrolled bleaching using chlorinated bleaching agents at stand-alone MACT III sources. To supplement the information collected during the Presumptive MACT and the more recent industry and EPA efforts, EPA is requesting data and comments on its proposal for the MACT III source category.

#### List of Subjects in 40 CFR Part 63

Air pollution control, Hazardous air pollutants, Pulp and paper mills.

Dated: March 1, 1996.

Richard S. Wilson,  
*Assistant Administrator for Air and Radiation.*

[FR Doc. 96-5397 Filed 3-7-96; 8:45 am]

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#### **40 CFR Part 180**

[PP 4E4418/P643; FRL-5353-2]

RIN 2070-AB18

#### **Lactofen; Pesticide Tolerance**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed Rule.

**SUMMARY:** EPA proposes to establish a tolerance for the combined residues of the herbicide lactofen in or on the raw agricultural commodity snap beans at 0.05 part per million (ppm). The proposed regulation to establish a maximum permissible level for residues of the herbicide was requested in a petition submitted by the Interregional Research Project No. 4 (IR-4).

**DATES:** Comments, identified by the document control number [PP 4E4418/P643], must be received on or before April 8, 1996.

**ADDRESSES:** By mail, submit written comments to: Public Response and Program Resources Branch, Field Operations Division (7506C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. In person, bring comments to: Rm. 1132, CM #2, 1921 Jefferson Davis Highway, Arlington, VA 22202. Information submitted as a comment concerning this document may be claimed confidential by marking any part or all of that information as "Confidential Business Information". CBI should not be submitted through e-mail. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. A copy of the comment that does not contain CBI must be submitted for inclusion in the public record. Information not marked confidential may be disclosed publicly by EPA without prior notice. All written comments will be available for public inspection in Rm. 1132 at the address given above, from 8 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays.

Comments and data may also be submitted electronically by sending electronic mail (e-mail) to: opp-docket@epamail.epa.gov. Electronic comments must be submitted as an ASCII file avoiding the use of special characters and any form of encryption. Comments and data will also be accepted on disks in WordPerfect 5.1 file format or ASCII file format. All comments and data in electronic form must be identified by the docket number [PP 4E4418/P643]. No CBI should be submitted through e-mail. Electronic comments on this proposed rule may be filed online at many Federal Depository Libraries. Additional information on electronic submissions can be found in SUPPLEMENTARY INFORMATION of this document.

**FOR FURTHER INFORMATION CONTACT:** By mail: Hoyt L. Jamerson, Registration Division (7505W), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington,