ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 429

[FRL 1311-4]

Timber Products Processing Point Source Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed Regulation.

SUMMARY: EPA proposes regulations to limit effluent discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from facilities engaged in the processing of timber products.

The regulations proposed in this notice include Best Practicable Control Technology Currently Available, Best Conventional Pollutant Control Technology, and New Source Performance Standards regulations for the wet process hardboard and insulation board subcategories and revised Pretreatment Standards for New Sources and Pretreatment Standards for Existing Sources for the wood preserving subcategories. This notice withdraws Best Available Technology Economically Achievable regulations for the Wood Preserving-steam subcategory and for the hydraulic barking portion of the Barking subcategory.

The Supplementary Information section of this preamble describes the legal authority and background, the technical and economic data bases, and other aspects of the proposed regulations. That section also summarizes the public comments on the draft technical report and the draft economic analysis report circulated in October and December 1978, respectively. The Abbreviations, acronyms and other terms used in the Supplementary Information section are defined in Appendix A to this notice.

These proposed regulations are supported by four major documents available from EPA. Analytical methods are discussed in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants,* revised April, 1977, EPA's technical conclusions are detailed in the *Development Document for Proposed Effluent Limitations Guidelines, New Source Performance Standards and Pretreatment Standards for the Timber Products Processing Point Source Category.* The Agency's economic analysis is presented in *Economic Impact Analysis of Alternative Pollution Control Technologies, Wood Preserving Subcategories of The Timber Products Industry,* and *Economic Impact Analysis of Alternative Pollution Control Technologies, Wet Process Hardboard and Insulation Board Subcategories of the Timber Industry.*

DATES: Comments on this proposal must be submitted on or before December 31, 1979.

ADDRESS: Send comments to: Mr. Richard E. Williams, Effluent Guidelines Division, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460.

ATTENTION: EGD Docket Clerk, TIMBER, (WH-552). The supporting information and all comments on this proposal will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2922 (EPA Library). The EPA information regulation (40 CFR Part 2) provides that a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Technical information and copies of technical documents may be obtained from Mr. Richard E. Williams, at the address listed above after November 14, 1979, or call (202) 426-2554. The economic analysis may be obtained from Mr. Dale Ruhter, Office of Analysis and Evaluation (WH-586), Environmental Protection Agency, 401 M St. S.W., Washington, D.C. 20460, (202) 426-2617.

SUPPLEMENTARY INFORMATION:

Organization of This Notice

I. Legal Authority

The regulations described in this notice are proposed under authority of Sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1251 et seq., as amended by the Clean Water Act of 1977, Pub. L. 95-217) (the "Act"). These regulations are also proposed in response to the Settlement Agreement in *Natural Resources Defense Council, Inc. v. Train,* 8 ERC 2120 (D.D.C. 1976), modified March 9, 1979.

II. Background

A. The Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (Section 101(a)). By July 1, 1977, existing industrial dischargers were required to achieve "effluent limitations requiring the application of the best practicable control technology currently available" ("BPT") (Section 301(b)(1)(A); and by July 1, 1983, these dischargers were required to achieve "effluent limitations requiring the application of

the best available technology economically achievable (BAT) which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants" (Section 301(b)(2)(A)). New industrial direct dischargers were required to comply with Section 306, new source performance standards ("NSPS"), based on best available demonstrated technology (BADT); and new and existing dischargers to publicly owned treatment works ("POTW") were subject to pretreatment standards under Sections 307 (b) and (c) of the Act. While the requirements for direct dischargers were to be incorporated into National Pollutant Discharge Elimination System (NPDES) permits issued under Section 402 of the Act, pretreatment standards were to be enforceable directly against dischargers to POTW (indirect dischargers).

Although Section 402(a)(1) of the 1972 Act authorized the setting of requirements for direct dischargers on a case-by-case basis, Congress intended that, for the most part, control requirements would be based on regulations promulgated by the Administrator of EPA. Section 304(b) of the Act required the Administrator to promulgate regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of BPT and BAT. Moreover, Sections 304(c) and 306 of the Act required promulgation of regulations for NSPS, and Sections 304(f), 307(b), and 307(c) required promulgation of regulations for pretreatment standards. In addition to these regulations for designated industry categories, Section 307(a) of the Act required the Administrator to promulgate effluent standards applicable to all dischargers of toxic pollutants. Finally, Section 501(a) of the Act authorized the Administrator to prescribe any additional regulations "necessary to carry out his functions" under the Act.

The EPA was unable to promulgate many of these guidelines and standards by the dates contained in the Act. In 1976, EPA was sued by several environmental groups and in settlement of this lawsuit, EPA and the plaintiffs executed a "Settlement Agreement," which was approved by the Court. This Agreement required EPA to develop a program and adhere to a schedule for promulgation for 21 major industries of BAT effluent limitations guidelines, pretreatment standards and new source performance standards for 65 "priority" pollutants and classes of pollutants. See *Natural Resources Defense Council, Inc. v. Train*, 8 ERC 2120 (D.D.C. 1976), modified March 9, 1979; 12 ERC 1833.

On December 27, 1977, the President signed into law the Clean Water Act of 1977. Although this law makes several important changes in the Federal water pollution control program, its most significant feature is its incorporation of many of the basic elements of the Settlement Agreement program for toxic pollutant control. Sections 301(b)(2)(A) and 301(b)(2)(C) of the Act now require the achievement by July 1, 1984, of effluent limitations requiring application of BAT for toxic pollutants, including the 65 "priority" pollutants and classes of pollutants which Congress declared "toxic" under Section 307(a) of the Act. Likewise, EPA's programs for new source performance standards and pretreatment standards are now aimed principally at toxic pollutant controls. Moreover, to strengthen the toxics control program, Section 304(e) of the Act authorizes the Administrator to prescribe "best management practices" ("BMPs") to prevent the release of toxic and hazardous pollutants from plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage associated with, or ancillary to, the manufacturing or treatment process.

In keeping with its emphasis on toxic pollutants, the Clean Water Act of 1977 also revises the control program for non-toxic pollutants. Instead of BAT for "conventional" pollutants indentified under Section 304(a)(4), (including biochemical oxygen demand, suspended solids, fecal coliform and pH), the new Section 301(b)(2)(E) requires achievement by July 1, 1984 of "effluent limitations requiring the application of the best conventional pollutant control technology" ("BCT"). The factors considered in assessing BCT for an industry include the costs and benefits of attaining a reduction in effluents, compared to the costs and effluent reduction benefits from the discharge of a publicly owned treatment works (Section 304(b)(4)(B)). For non-toxic, non-conventional pollutants, Sections 301(b)(2)(A) and 301(b)(2)(F) require achievement of BAT effluent limitations within three years after their establishment, or July 1, 1984, whichever is later, but not later than July 1, 1987.

The purpose of these proposed regulations is to provide effluent limitations and guidelines for BPT, BAT and BCT and to establish NSPS and pretreatment standards for existing sources (PSES), and pretreatment standards for new sources (PSNS), under sections 301, 304, 306, 307, and 501 of the Clean Water Act.

B. Prior EPA Regulations

EPA promulgated BPT, BAT, NSPS, and PSNS for the Timber Products Processing Point Source Category in two phases: on April 18, 1974 (39 FR 13942; 40 CFR Part 429, Subparts A–H), and on January 16, 1975 (40 FR 2804; Subparts I–M). BPT, BAT, and NSPS regulations for Subpart E—Wet Process-Hardboard were withdrawn by the Agency on September 28, 1977. EPA promulgated pretreatment standards for existing sources (PSES) within the Timber Products Processing Point Source Category on December 9, 1976 (41 FR 53930; Subparts A–M).

C. Overview of the Industry

The Timber Products Processing Industry (timber industry) consists of a diverse group of manufacturing plants whose primary raw material is wood. Included in this industry group are thousands of industrial operations, with products ranging from finished lumber and other wood building products to hardboard and preserved lumber. The size of these operations ranges from small family-owned concerns to facilities with over a thousand employees.

The timber industry includes nearly 11,000 sawmills, 3,000 millwork and finishing operations, 500 veneer and plywood plants, 415 wood preserving plants, 75 particleboard plants, 16 dry-process hardboard plants, 11 wet-process hardboard plants, 11 insulation board plants, and 5 plants producing both wet process hardboard and insulation board. The geographical distribution of this industry follows the natural range of timberland in the Pacific Northwest, Southeast, North Central, and Northeastern United States.

The industry is defined in Major Group 24 of the Bureau of the Census, Standard Industrial Classification (SIC) Manual; insulation board plants are listed in SIC Major Group 26 (Building Paper and Building Board Mills).

Previously published effluent limitations guidelines divided the industry into 15 subcategories: Barking; Veneer; Plywood; Dry Process-Hardboard; Wet Process-Hardboard; Wood Preserving (now titled Wood Preserving—Water Borne or Non-Pressure); Wood Preserving-Steam; Wood Preserving-Boulton; Wet Storage; Log Washing; Sawmills; Finishing; Particleboard; Insulation Board-Mechanical Refining; and Insulation Board-Thermo-mechanical Refining.

The Agency is not prescribing changes to existing regulations for eight of the above subcategories: (See Section of this

Preamble entitled "Pollutants and Subcategories Not Regulated").

The Agency is prescribing changes to existing regulations for the remaining subcategories: Wood Preserving-Water Borne or Non-Pressure; Wood Preserving-Steam; Wood Preserving-Boulton; Wet-Process Hardboard, dividing it into two subcategories; Insulation Board, combining the two subcategories into one; and Barking.

This preamble summarizes the profile and subcategorization, technical base, and methodology used by the Agency to develop effluent guidelines limitations and standards for these six subcategories.

III. Scope of This Rulemaking and Summary of Methodology

These proposed regulations open a new chapter in water pollution control requirements for the timber industry. EPA's 1973–1976 round of rulemakings emphasized the achievement of best practicable technology (BPT) by July 1, 1977. In general, this technology level represented the average of the best existing performances of well known technologies for control of familiar (i.e., "classical") pollutants.

In contrast, this round of rulemaking is directed to the achievement by July 1, 1984 of a level of control of pollutant discharge which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants. This technology level represents, at a minimum, the very best economically achievable performance in any industrial category or subcategory. Moreover, as a result of the Clean Water Act of 1977, the emphasis of EPA's program has shifted from "classical" pollutants to the control of a lengthy list of toxic substances.

In the 1977 legislation, Congress recognized that it was dealing with areas of scientific uncertainty when it declared the 65 "priority" pollutants and classes of pollutants "toxic" under Section 307(a) of the Act. The "priority" pollutants have been relatively unknown outside of the scientific community, and those engaged in wastewater sampling and control have had little experience dealing with these pollutants. Additionally, these pollutants often appear and have toxic effects at concentrations which severely tax current analytical techniques. Even though Congress was aware of the state-of-the-art difficulties and expense of "toxics" detection and control, it directed EPA to act quickly and decisively to detect, measure, and regulate these substances. Thus, with the passage of the 1977 legislation, the Nation's water pollution control program was thrust toward the frontiers of science.

EPA's implementation of the Act required a complex development program, described in this section and succeeding sections of this notice. Initially, because in many cases no public or private agency had done so, EPA and its laboratories and consultants had to develop analytical methods for toxic pollutant detection and measurement. These are discussed under Sampling and Analytical Program. EPA then gathered technical and financial data about the industry, summarized under Data Gathering Efforts. The resulting information was the basis for these proposed regulations.

First, EPA studied the timber industry to determine whether differences in raw materials, final products, manufacturing processes, equipment, age and size of plants, water usage, wastewater constituents, or other factors required the development of separate effluent limitations and standards for different segments of the industry. This study included the identification of raw waste and treated effluent characteristics, including: (1) the sources and volume of water used, the processes employed, and the sources of pollutants and wastewaters in the plant, and (2) the constituents of wastewaters, including toxic pollutants. (See Industry Subcategorization for further discussion). EPA then identified the wastewater constituents to be considered for effluent limitations guidelines and standards of performance and statistically analyzed raw waste constituents as discussed in detail in Section V of the Development Document.

Next, EPA identified several distinct control and treatment technologies including both in-plant and end-of-process technologies which are either in use or capable of being used in the timber industry. The Agency compiled and analyzed both historical and newly generated data on the effluent quality resulting from the application of these technologies. The long term performance, operational limitations, and reliability of each of the treatment and control technologies were also identified. In addition, EPA considered the non-water quality environmental impacts of these technologies, including impacts on air quality, solid waste generation, water scarcity, and energy requirements.

The Agency used two separate methodologies to estimate the costs of compliance to the industry for each control and treatment technology. NSPS and PSNS costs were derived from unit cost curves applied to model plant characteristics (production, flow and pollutant loads) developed for each subcategory. BPT, BCT, and PSES costs were derived from unit cost curves applied on a plant-by-plant basis. This estimate, prepared for every plant in the technical data base, takes into consideration plant specific wastewater characteristics and flows, as well as technology currently in place. For both methodologies, the costs themselves were derived from unit cost curves developed by standard engineering analysis for each unit process within a control and treatment technology (pump station, settling basin, etc.). These unit process costs were added to yield total costs at each treatment level. After confirming the reasonableness of both methodologies by comparing EPA cost estimates to treatment system costs supplied by the industry, the Agency evaluated the economic impacts of these costs. (Costs and economic impacts are discussed in detail under the various technology options, and in the section of this notice entitled Costs, Effluent Reduction Benefits, and Economic Impacts).

Upon consideration of these factors, as more fully described below, EPA identified various control and treatment technologies as BPT, BCT, BAT, PSES, PSNS, and NSPS. The proposed regulations, however, do not require the installation of any particular technology. Rather, they require achievement of effluent limitations representative of the proper operation of these technologies or equivalent technologies.

Effluent limitations for BPT and BCT for the insulation board and hardboard segments of the timber industry are expressed as mass limitations (lbs/1,000 lbs production) and were calculated by multiplying the long term average treated effluent quality documented for the BPT and BCT technologies by their respective long term variability factors (both maximum day and maximum 30 days). The variability factors were calculated non-parametrically, as described in Section XIV of the Development Document. BCT limitations were also subjected to the BCT cost reasonableness test described in Best Conventional Pollutant Control Technology.

Effluent limitations for PSES for the wood preserving segment are expressed as allowable concentrations in milligrams per liter (mg/l). For POTW which may wish to impose mass limitations, the proposed regulations provide equivalent mass limitations.

IV. Data Gathering Efforts

The data gathering program is described in detail in Section III of the Development Document.

The Agency reviewed all available data from previous studies of the industry, information obtained from regional EPA and state regulatory offices, and data submitted by individual plants and industry trade associations. A complete bibliography of all the technical literature reviewed during the course of this project is presented in Section XVI of the Development Document.

Analysis of the above sources indicated the need for additional information, particularly concerning the use and discharge of toxic pollutants. Current information also was needed on process raw waste loads, in-process waste control techniques, and the identification and determination of the effectiveness of wastewater treatment and disposal systems.

Under the authority of Section 308 of the Act, EPA prepared and sent a technical data collection portfolio (DCP) to 288 wood preserving plants, and 27 wet process hardboard and/or insulation board producing plants. The Agency received 216 responses (75 percent) from the wood preserving segment, and 27 responses (100 percent) from the hardboard/insulation board segment. The DCP was the major source of information used to develop the profile of each industry segment. Historical data provided with the DCP responses (particularly the insulation board/hardboard responses) served as the source of long-term, historical information for the traditional parameters such as BOD5, COD, solids, pH, phenols (as measured by the 4AAP method described in Standard Methods), and metals.

Data for EPA's economic analysis also were obtained under the authority of Section 308. The Agency sent information requests to 601 addressees identified as potentially being included in SIC 2491, Wood Preserving; of these, 337 respondents were identified as wood preserving operations. In the hardboard/insulation board segment, operators of all twenty seven plants producing wet process hardboard and/or insulation board received and responded to the 308 economic survey.

Review of the responses indicated that the technical and economic information available was adequate to profile the industry, identify practices, wastewater treatment and disposal methods, and evaluate the financial status of the segments.

A major source of information was direct interviews and sampling visits to production facilities. Survey teams composed of project engineers and scientists visited the plants. Information on the identity and performance of wastewater treatment systems was obtained through interviews with plant water pollution control or engineering personnel, examination of treatment plant design and historical operating data, and the sampling and analysis of treatment plant influents and effluents. The teams visited nine wood preserving plants, six insulation board plants, and eight hardboard plants from November 1976 through May 1978, with several plants receiving more than one visit.

Additional current information and data came from State and Regional regulatory offices and academic institutions.

V Sampling and Analytical Program

As Congress recognized in enacting the Clean Water Act of 1977, the state-of-the-art ability to detect and monitor toxic pollutants was limited. Most of the toxic pollutants were relatively unknown until only a few years ago, and only on rare occasions has EPA regulated or has industry monitored or even developed methods to monitor for these pollutants. As a result, analytical methods for many toxic pollutants, under Section 304(h) of the Act, have not yet been promulgated. Moreover, state-of-the-art techniques involve the use of highly expensive, sophisticated equipment, with costs ranging as high as $200,000 per unit of equipment.

When faced with these problems, EPA scientists, including staff of the Environmental Research Laboratory in Athens, Georgia and staff of the Environmental Monitoring and Support Laboratory in Cincinnati, Ohio, conducted a literature search and initiated a laboratory program to develop analytical protocols. The analytical techniques used in this rulemaking were developed concurrently with the development of general sampling and analytical protocols and were incorporated into the protocols ultimately adopted for the study of other industrial categories. See *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants*, revised April 1977.

Because Section 304(h) methods were available for most toxic metals, pesticides, cyanide and total phenol, the analytical effort focused on developing methods for sampling and analyses of organic toxic pollutants. The three basic analytical approaches considered by EPA were infra-red spectroscopy, gas chromatography (GC) with multiple detectors, and gas chromatography/mass spectrometry (GC/MS). In selecting among these alternatives, EPA considered their sensitivity, laboratory availability, costs, applicability to diverse waste streams from numerous industries, and capability for implementation within the statutory and court-ordered time constraints of EPA's program. The Agency concluded that infra-red spectroscopy was not sufficiently sensitive or specific for application in water. GC with multiple detectors was rejected because it would require multiple runs, incompatible with program time constraints. Moreover, because this method would use several detectors each applicable to a narrow range of substances, GC with multiple detectors possibly would fail to detect certain toxic polutants. EPA chose GC/MS because it was the only available technique that could identify a wide variety of pollutants in many different waste streams, in the presence of interfering compounds, and within the time constraints of the program. In EPA's judgment, GC/MS and the other analytical methods for toxics used in this rulemaking represent the best state-of-the-art methods for toxic pollutant analyses available when this study was begun.

As the state-of-the-art began to mature, EPA began to refine the sampling and analytical protocols, and intends to continue this refinement to keep pace with technology advancements. Resource constraints, however, prevent EPA from reworking completed sampling and analyses to keep up with the evolution of analytical methods. As a result, the analytical techniques used in some rulemakings may differ slightly from those used in other rulemaking efforts. In each case, however, the analytical methods used represent the best state-of-the-art available for a given industry study. One of the goals of EPA's analytical program is the promulgation of additional Section 304(h) analytical methods for toxic pollutants, scheduled to be done within calendar year 1979.

Before proceeding to analyze timber industry wastewaters, EPA concluded that it had to define specific toxic pollutants for analyses. The list of 65 pollutants and classes of pollutants potentially includes thousands of specific pollutants; and the expenditure of resources in government and private laboratories would be overwhelming if analyses were attempted for all of these pollutants. Therefore, in order to make the task more manageable, EPA selected 124 specific toxic pollutants for study in this rulemaking.

The list of pollutants was later expanded by the Agency to 129 pollutants. The expanded list included five additional polychlorinated biphenyls (PCB's) and di-n-octyl phthalate; and deleted endrin ketone, because no analytical standard was available. The expanded list was not released until after the timber screen sampling was completed. The Agency, therefore, continued to work with the original list of 124 priority pollutants throughout the remainder of the timber verification sampling program.

EPA determined the presence and magnitude of the 124 pollutants in the timber industry in a two phase sampling and analytical program.

In the first phase (Screening), seventeen plants, at least one in each subcategory, were visited and sampled. The plants were selected primarily to be representative of the timber industry operations and the wastewater control and treatment technologies currently practiced. One 24 hour composite of raw process wastewater and one 24 hour composite of treated wastewater; they also took grab samples for certain analyses requiring special handling and preservation procedures. The second phase of the study (Verification) included nineteen plants; seven wood preserving plants, seven hardboard plants, and five insulation board plants. Nine of the nineteen plants were sampled twice.

The primary objective of the field sampling program was to produce composite samples of wastewater which could establish the concentrations of toxic pollutants. Samples were collected during three consecutive days of plant operation. Raw wastewater was sampled either before treatment or after minimal preliminary treatment (e.g., primary oil separation, screening). Treated effluent samples were taken either following the final treatment prior to discharge to a POTW (indirect dischargers), prior to discharge to receiving waters (direct final effluent dischargers), or prior to final effluent disposal such as spray irrigation or evaporation. EPA also sampled intake water to determine the presence of toxic pollutants prior to contamination by the production process.

At both raw waste and treated effluent sample points, automatic samplers took sample aliquots at time intervals of 30 minutes or less. Aliquot size was adjusted so that a complete time composited sample (at least 3.5 gal) was obtained during a 24 hour period. Flow recorders were used to obtain the wastewater flow rates for each 24 hour collection period, if available. If they were not in place flows were measured manually several times during the sampling period. Samples for conventional and toxic pollutants were obtained from each 24 hour composite. Grab samples were taken in specially prepared vials for volatile (purgeable) organics and cyanide. Prior to the plant visits, sample containers were carefully washed and prepared by specific methods, depending upon the type of sample to be taken. EPA took a number of other precautions to minimize potential contamination from sampler components. Samples were kept on ice prior to express shipment in insulated containers.

The analyses for toxic pollutants were performed according to groups of chemicals and associated analytical schemes. Organic toxic pollutants included volatile (purgeable), base-neutral and acid (extractable) pollutants, and pesticides. Inorganic toxic pollutants included heavy metals and cyanide.

The primary method used in screening and verification of the volatiles, base-neutral, and acid organics was gas chromatography with confirmation and quantification on all samples by mass spectrometry (GC/MS). Total phenols were analyzed by the 4-AAP method (*Standard Methods*). GC was employed for analysis of pesticides with limited MS confirmation. The Agency analyzed the toxic heavy metals by atomic adsorption spectrometry (AAS), with flame or graphite furnace atomization following appropriate digestion of the sample. Samples were analyzed for cyanides by a colorimetric method, with sulfide previously removed by distillation. Analyses for conventional pollutants (BOD5, TSS, oil and grease, and pH), and proposed conventional pollutant (COD) were accomplished using "Methods for Chemical Analysis of Water and Wastes" (EPA 625/66 74-003) and amendments.

The high costs, slow pace and limited laboratory capability for toxic pollutant analyses posed difficulties unique to EPA's experience. The cost of each wastewater analysis for organic toxic pollutants ranges between $650 and $1,700, excluding sample collection costs (based upon quotations recently obtained from a number of analytical laboratories). Even with unlimited resources, however, time and laboratory capability would have posed additional constraints. Although efficiency has been improving, when this study was initiated a well-trained technician using the most sophisticated equipment could perform only one complete organic analysis in an eight hour work day. Moreover, when this rulemaking study was begun there were only about 15 commercial laboratories in the United States with capability to perform these analyses. Today there are about 50 commercial laboratories known to EPA which have the capability to perform these analyses, and the number is increasing as the demand for such capability also increases.

In planning data generation for this rulemaking, EPA considered requiring dischargers to perform regular (weekly or monthly) monitoring and analyses for toxic pollutants under Section 308 of the Act. The Agency refrained from using this authority because it was reluctant to place additional financial burdens on this industry. Additionally, EPA believed that the slow pace and limited laboratory capability for toxic pollutant analyses would have hampered a mandatory sampling and analytical effort. Although EPA believes that the available data support these regulations, the Agency would have preferred a larger data base for some of the toxic pollutants and will continue to seek additional data. EPA will periodically review these regulations, as required by the Act, and make any revisions supported by new data. In developing these regulations, moreover, EPA has taken a number of steps to deal with the limits of science and available data. (See Regulated Pollutants and Monitoring Requirements.)

Wood Preserving Segment

VI. Industry Profile and Subcategorization

There are approximately 415 wood preserving plants operated by about 300 companies in the United States. The plants are concentrated in two areas, the Southeast from east Texas to Maryland and along the Northern Pacific coast. These areas correspond to the natural ranges of the southern pine and Douglas fir—western red cedar, respectively.

All wood products, regardless of their original strength, durability or natural resistance, will deteriorate in conditions which are conducive to attack by fungi, insects, bacteria, or marine borers. The application of selected chemicals as wood preservatives can protect timber from this deterioration, thus maintaining the original strength of wood over a long period of time.

Approximately 250 million cubic feet of preserved wood products are used each year. The most commonly treated woods are southern pine, Douglas fir, and oak, although railroads use large quantities of other hardwoods where they are available. Railroad ties constitute the largest use of treated

wood, accounting for 95 million cubic feet in 1976. Lumber and timbers accounted for 67 million cubic feet, and treated poles ranked third, with 53 million cubic feet. These three classes accounted for 84 percent of the volume of wood products which were treated in 1976.

The most commonly used preservatives are creosote, pentachlorophenol (PCP), and various formulations of water-soluble inorganic chemicals, the most common of which are the salts of copper, chromium, and arsenic. Fire retardants are formulations of inorganic salts; the principal ones are borates, phosphates, and ammonium compounds. Eighty percent of the plants use at least two of the three types of preservatives. Many plants treat with one or two preservatives and a fire retardant.

The wood preserving process consists of two basic steps: (1) conditioning the wood to reduce its natural moisture content and to increase its permeability; and (2) impregnation of the wood with the preservatives.

The conditioning, or drying, of wood raw material ensures that the preserving chemicals are absorbed in sufficient amounts. Conditioning occurs through a variety of methods. Air drying works by long term storage in the open air; dry kiln conditioning applies dry heat to the wood in an enclosed structure. Steam conditioning subjects the wood to a steam pressure in a pressurized treating cylinder, followed by a vacuum cycle which removes moisture from the wood. Boulton conditioning process involves heating the wood in the treating cylinder immersed in oily preservative under a partial vacuum.

EPA concluded that the conditioning process used by a wood preserving plant was the most significant determinant in generating the wastewater flows. Air and kiln drying plants generate the least amount of wastewater, followed by Boulton and steam plants. Some plants use a closed steaming process which recycles the moisture removed from the wood. This conditioning process greatly reduces wastewater flow. Plants which apply inorganic salts rely on air—or kiln—drying conditioning methods. Steam and Boulton conditioning are the predominant methods of conditioning wood prior to the application of oily preservatives, although many smaller plants use mostly air—or kiln—dried wood.

Wastewaters from plants which treat solely with inorganic salts contain high concentrations of copper, chromium, arsenic, and other heavy metals. These wastewaters are low in volume and are recycled for use as make-up water in new preservative batches. This is the basis for the existing BPT, BAT, NSPS, and PSES no discharge limitations for inorganic salt plants (Water Borne or Non-Pressure subcategory).

Wastewaters from Boulton and steam conditioning plants which use creosote and/or pentachlorophenol have high phenolic, COD, and oil and grease concentrations along with a turbid appearance that results from emulsified oils. They are always acidic, with pH values ranging from 4 to 6. The high COD contents of such wastes are caused by entrained oils and wood extractives, principally simple sugars, that are removed from wood during the conditioning phase of the process. These wastewaters also may contain traces of heavy metals at plants which use the same retort for both water-borne salts and oil-type preservatives; or which apply dual treatments to the same stock; i.e., treat with two preservatives, one organic and one inorganic.

The principal toxic pollutants in wastewaters from plants that treat with organic preservatives are volatile organic solvents such as benzene and toluene, and the polynuclear aromatic components (PNAs) of creosote, including anthracene, pyrene, phenanthrene, etc., that are contained in the entrained oils. Because PNAs are highly soluble in oil and quite insoluble in water, the conventional pollutant parameter, Oil and Grease serves as an excellent indicator compound for PNAs. Both phenol and phenol derivatives were identified in these wastewaters; pentachlorophenol (PCP) is predominant when it is used as a preservative. The conventional pollutants found in the wastewaters include TSS, oil and grease, and pH. COD is the only nonconventional pollutant that has been found.

About 125 plants use both organic and inorganic preservatives to treat wood, although the organic preservative wood treating system usually is separate from the inorganic system. Analytical data generated during this study and earlier analyses of wood preserving wastewaters concluded that, even when the organic and inorganic process water/wastewater systems are kept separate, there is often still some inorganic material ("fugitive metals") in the organic treatment system. This cross contamination occurs from such activities as the use of the same carts to move wood in and out of both organic and inorganic treating cylinders, and drippage from the inorganic operation into the organic side. Analytical data show that concentrations of fugitive metals are always less than 5 milligrams per liter, and generally well below 1 mg/l.

Of the 224 plants comprising the technical data base, 85 treat solely with inorganic preservatives, 35 use Boulton conditioning as the predominant conditioning method, and 104 are steam conditioning plants. All plants treating wood with inorganic preservatives and all plants treating wood with nonpressure processes are subject to existing BPT, BAT, NSPS, and PSES limitations which require no discharge of process wastewater pollutants. Boulton plants also are subject to existing BPT, BAT, and NSPS no-discharge limitations; however, 11 Boulton plants introduce wastewater to POTW, in compliance with existing PSES. EPA identified only one direct discharging steam conditioning plant, although existing BPT, BAT, and NSPS allow discharge of treated effluent. This plant discharges only during periods of high rainfall. Thirty-one steam conditioning plants introduce wastewater to POTW, as allowed by existing PSES.

In developing the proposed regulations for the wood preserving segment, it was necessary to determine whether different effluent limitations and standards continue to be appropriate for different groups of plants (subcategories) within the industry segment. The major factors considered in reviewing the subcategories were: plant characteristics such as age, size, and geographical location, raw materials, wastewater characteristics, manufacturing processes, and methods of wastewater treatment and disposal.

The Agency proposes to retain the existing subcategories, making minor changes in their definition and applicability sections in order to clarify the regulation.

EPA is retaining the previously promulgated Boulton and steam subcategories because the wastewater disposal options available to Boulton conditioning plants differ from those available to steam conditioning plants. The Boulton process, during the conditioning phase of the treating cycle, involves a long vacuum cycle, up to 48 hours, resulting in a source of heat from condensed vapors. This waste heat can be applied to the evaporation of process wastewater. The steaming process vacuum cycle is much shorter, about 2–6 hours. Because waste heat is not continuously available to steam subcategory plants, alternative methods of wastewater disposal are utilized. Evaporative technologies are most common, using spray or solar

evaporation instead of the cooling tower techniques usually employed by Boulton plants.

The Agency is retaining the Wood Preserving—Water Borne or Non-Pressure subcategory because of the unique wastewater characteristics generated by this subcategory and the ability of plants in this subcategory to achieve no discharge of process wastewater through recycle of process water. This proposal merely changes the Wood Preserving—Water Borne or Non-Pressure subcategory, title and applicability section. The changes simplify the regulation and minimize the possibility of misinterpretation; they do not change the applicability of the regulation previously promulgated. Additionally, PSNS standards for this subcategory, which currently allow introduction of process wastewater into POTW subject to the general pretreatment regulation (40 CFR 403), are being changed by this proposed rulemaking to prohibit introduction of wastewater into a POTW. This change will insure that pollutants contained in these wastewaters will not be introduced to POTW.

EPA is changing the Wood Preserving—steam subcategory applicability section. The previously promulgated definition included plants that use fluorchromium-arsenic-phenol (FCAP), a water borne salt-type preservative, as a wood treating solution. Upon completion of the technical study, the Agency determined that FCAP should be included in the Wood Preserving-Water Borne or Non-Pressure subcategory, which includes all other water-borne salt preservatives. Furthermore, the technical data base did not identify any direct or indirect discharging plants treating with FCAP. A more complete discussion of the rationale for this proposed modification of applicability with respect to FCAP appears in Section IV of the Development Document.

The new definitions for the proposed wood preserving subcategories are:

Wood Preserving-Water Borne or Non-Pressure—Includes all non pressure wood preserving operations, and all pressure wood preserving operations employing water borne salts.

Wood Preserving-Steam—Includes those wood preserving operations that use direct steam contact on wood as the predominant conditioning method; processes that use vapor drying as the predominant conditioning method; processes that use the same retort to treat with both salt- and oil-type preservatives; and processes which use both steam conditioning and salt- and oil-type preservatives on the same stock.

Wood Preserving-Boulton—Includes those wood preserving operations that use the Boulton process as the predominant method of conditioning stock.

VII. Available Wastewater Control and Treatment Technology

A. Status of in-Place Technology

The control and treatment technology applicable to the Wood Preserving—Water Borne or Non-Pressure subcategory is collection and reuse of cylinder drippings and other sources of wastewater. This technology, demonstrated by ninety percent of the industry, is the basis for all existing no discharge regulations and will not be addressed further in this preamble. The remainder of the discussion applies to the Wood Preserving-Boulton and Wood Preserving-Steam subcategories, both of which use organic preservatives.

Current control and treatment practices in the organic preservative wood preserving industry range from gravity oil-water separation, which is the minimum treatment used by nearly all plants, to biological treatment used by many indirect and nondischarging plants, to soil irrigation or evaporative systems used by many plants which are nondischargers of process wastewater.

B. Control Technologies Considered

The in-plant and end-of-pipe process water control and wastewater treatment practices and procedures that are applicable to the wood preserving industry are presented below.

In-Plant

(*1*) Segregation of noncontact wastewaters.

(*2*) The use of surface-type condensers in place of barometric condensers.

(*3*) Recycle of barometric cooling water.

(*4*) Drying of raw material outside the treating cylinder.

(*5*) Use of closed steaming and modified closed steaming conditioning instead of open steaming.

The technical study supporting these proposed regulations did not quantify the reduction in process wastewater volumes resulting from the application of these in-plant controls. The Development Document and Record does include industry-provided information that each of these practices can reduce process wastewater volume. The closed or modified steaming versus open steaming conditioning alternative is not appropriate for all steaming plants because the cleanliness of wood conditioned by the closed steaming method may limit the uses of that wood. Regulations proposed herein are not contingent upon the application of the above in-plant controls. Controls (1) through (4) are common industry practice.

End of pipe	Approximate percent of plants practicing	
	Nondischarging plants	Indirect discharging plants
(1) Gravity oil-water separation	85	100
(2) Chemical flocculation	10	35
(3) Slow and filtration or sedimentation	10	35
(4) Biological treament: Oxidation ponds, aerated lagoons, activated sludge	20	15
(5) Evaporation: Solar evaporation, spray assisted solar evaporation, cooling tower evaporation, pan evaporation	90	<10
(6) Spray/soil irrigation	10	0
(7) Activated carbon adsorption		
(8) Precipitation of heavy metals		

The percentages given are estimates; a specific plant usually practices more than one of the listed treatment and control technologies.

The treatment application and performance capabilities of the end-of-pipe technologies 1 through 6 have been demonstrated in the wood preserving segment of the timber industry. The Development Document presents information and details on the performance capabilities of these technologies. Technologies 7 and 8 have not been demonstrated in the wood preserving industry but have been demonstrated for application in related industrial wastes. Activated carbon absorption technology has been demonstrated recently in the petroleum refining and the organic chemicals industries. Hydroxide precipitation of heavy metals is currently practiced in the electroplating industry. EPA investigated activated carbon adsorption and metals precipitation as candidate technologies (See Section VII of the Development Document); however, because of the lack of demonstration, the cost of installation and operation, and the availability of other more efficient and less expensive technologies, the Agency rejected these technologies from consideration in the development of these regulations.

The Agency developed the costs of applying these end-of-pipe technologies

through compilation of cost data supplied by individual plants in the industry, and through engineering cost estimation for these technologies applied both to a range of plants in each of the two subcategories; and to each impacted plant on an individual basis. The Agency used these cost estimates to analyze the economic impact of these regulations. Detailed capital and operating cost information is presented in Section VIII of the Development Document.

VIII. Best Available Technology (BAT) Effluent Limitations Best Conventional Technology (BCT) Effluent Limitations

The Clean Water Act of 1977 established BAT as the principal national means of controlling the discharge of toxic pollutants directly to navigable waters. The Agency considered the applicability of developing BAT and BCT limitations for the wood preserving industry.

Existing BAT limitations for the Wood Preserving-Water Borne or Nonpressure and the Wood Preserving-Boulton subcategories require no discharge of process wastewater pollutants. Existing BAT limitations for the Wood preserving—steam subcategory allow the discharge of process wastewater pollutants, establishing limits on Chemical Oxygen Demand (COD), total suspended solids (TSS), Oil and Grease (O&G), phenols, as measured by *Standard Methods*, and pH.

This study identified only one wood preserving plant in the steam subcategory that could be described as a direct discharger. This plant is an intermittent discharger, discharging only when precipitation occurs with such frequency and magnitude that the plant's wastewater treatment system (a combination of aeration, holding and evaporation) cannot contain the precipitation and the plant's runoff. These discharges occur infrequently, the last one occurring in May 1979. As of July 1, 1979, the plant has discharged a total of ten days in 1979; four days in January, four days in March, and two days in May. Discharge is controlled by the plant personnel, occurs only during the day shift, and is usually between 10,000 and 14,000 gallons per day.

The Agency considered the appropriateness of proposing BAT and BCT effluent limitations for a single discharging plant.

After reviewing the available information, EPA concluded that BAT and BCT regulations are not needed to control the discharge of pollutants from this plant and that the existing BAT limitations should be withdrawn.

National effluent limitations are unnecessary for a single plant. The appropriate technology levels and limitations for this plant will be determined by the permit issuer using best engineering judgement and, on consideration of the statutory factors. The Development Document can be used as guidance by the permit writer to develop NPDES permit requirements.

IX. New Source Performance Standards (NSPS) Pretreatment Standards for New Sources (PSNS)

The basis for new source performance standards (NSPS) under Section 306 of the Act is the best available demonstrated technology. New plants have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. Congress directed EPA to consider the best demonstrated process changes, in-plant controls, and end-of-pipe treatment technologies which reduce pollution to the maximum extent feasible.

Section 307(c) of the Act requires EPA to promulgate pretreatment standards for new sources (PSNS) at the same time that it promulgates NSPS. New indirect dischargers, like new direct dischargers, have the opportunity to incorporate the best available demonstrated technologies including process changes, in-plant controls, and end-of-pipe treatment technologies, and to use plant site selection to ensure adequate treatment system installation.

EPA reviewed the technical and economic information and data collected during the BAT review study. About ninety percent of the known wood preserving plants already are achieving no discharge of process wastewater pollutants. Only one plant in the Wood Preserving—steam subcategory was identified as a direct discharger; forty-two plants were identified as indirect dischargers.

New sources have opportunities, not readily available to existing ones, to install equipment and treatment technology which prevents discharge of contaminated wastewater. New sources also have the opportunity, if spray evaporation or spray irrigation is selected as the wastewater disposal technique, to include land requirements in the decision making process for site selection. The Agency's economic impact analysis of the wood preserving industry concluded that the cost of designing and installing the proper systems needed to achieve the no discharge status would not hinder the addition of new capacity.

Based on these facts, the Agency concluded that no discharge of process wastewater pollutants is the appropriate new source performance standard (NSPS) and the appropriate new source pretreatment standard (PSNS).

X. Pretreatment Standards for Existing Sources (PSES)

Section 307(b) of the Act requires EPA to promulgate pretreatment standards for existing sources (PSES), which must be achieved within three years of promulgation. PSES are designed to prevent the discharge of pollutants which pass through, interfere with, or are otherwise incompatible with the operation of POTW. The Clean Water Act of 1977 adds a new dimension by requiring pretreatment for toxic pollutants that interfere with, pass through or limit POTW sludge management alternatives, including the beneficial use of sludges on agricultural lands. The legislative history of the 1977 Act indicates that pretreatment standards are to be technology-based, analagous to the best available technology for removal of toxic pollutants. The general pretreatment regulations (40 CFR Part 403), which served as the framework for these proposed pretreatment regulations for the timber industry, can be found at 43 FR 27736 (June 26, 1978).

There are 42 wood preserving plants discharging to POTW, 31 in the steam subcategory and 11 in the Boulton subcategory. These plants discharge a total of about 350,000 gallons per day.

Pollutants present in effluents from indirect discharging plants in both the steam and Boulton subcategories primarily contain incompatible organic pollutants. (See the section of this preamble on Profile and Industry Subcategorization for a discussion of the pollutants found in wood preserving wastewaters.) The economic impact analysis determined that the indirect discharging segment of the wood preserving industry is sensitive to the costs of pollution control. The Agency considered options that would control pollutant discharge and minimize the economic impact. Presented below are the pretreatment options considered and a discussion of their advantages and disadvantages. The technology options discussed are applicable to both subcategories. Options 2, 3, 4, 5 and 6, which considered a size cut-off in order to reduce the number of expected closures, used different production cutoffs for each option.

Indirect discharging existing sources in the steam and in the Boulton subcategories are subject to pretreatment standards (41 FR 53930, December 9, 1976) that establish concentration based limits of 100

milligrams per liter (mg/l) of Oil and Grease; 5 mg/l copper; 4 mg/l chromium; and 4 mg/l arsenic. The regulations are based on the application of primary (gravity) and secondary (flocculation and filtration) oil water separation before discharge to the receiving POTW. Toxic pollutants found in the segment of the industry treating only with creosote are primarily PNAs. Verification data from plants which practice current pretreatment technology and which remove oil and grease concentrations to 100 mg/l or less also reduce total PNA concentrations to less than 1 mg/l. Since PNAs are highly soluble in the oil phase and quite insoluble in water, oil and grease in an excellent indicator parameter for PNAs. For toxic pollutants (PNAs) for which historical data are limited and inexpensive analytical methods are not available, EPA is proposing numerical limitations on an "indicator" pollutant, oil and grease. The data available to EPA generally show that when this "indicator" pollutant is controlled, the concentrations of PNAs are significantly lower than when oil and grease is present in high concentrations. While the relationships between oil and grease and PNAs are not quantifiable, control of an "indicator" will reasonably assure control of toxics. For this reason, all of the PSES discharging options evaluated by the Agency for organic wood preserving plants retain the current 100 mg/l oil and grease standard. For those plants which treat wood with pentachlorophenol (PCP), PCP is reduced to about 12 to 15 mg/l with this technology. Metals levels decrease only incidentally by application of this technology.

Note.—The 1976 pretreatment standards did not establish limits on polynuclear aromatics (PNAs) or PCP.

Discussion of Options

(A) Option 1—Continuation of the existing pretreatment requirements, based on primary and secondary oil water separation. Estimates of pollutant discharge were based on flow information from all indirect discharging plants, and on the pollutant concentration levels already achieved through current pretreatment technology. EPA estimated the pollutant discharge under this option to be: 16.6 pounds per day of PCP; 2.9 pounds per day of polynuclear aromatics (PNAs); and 3.4 pounds per day of total copper, chromium, and arsenic.

(B) Option 2—Continuation of existing pretreatment standards with the additional requirement of biological treatment for plants that treat with PCP. This additional requirement would apply to 6 of the 11 Boulton plants and 21 of the 31 steam plants. Biological treatment before discharge to a POTW is considered a reasonable option because long term biological treatment, as practiced by existing wood preserving plants, reduces PCP in the water phase to about 1 mg/l. This option would reduce PCP discharge by 92 percent (to 1.3 pounds per day). Although the levels of PNAs and metals are reduce incidentally with the application of biological treatment, the amount of reduction is not significant. The estimated capital investment and annualized costs total $2,699,400 and $923,400, respectively. Up to five plants, employing up to 171 workers, might close if this option were selected.

By excluding from the regulation plants in the Boulton subcategory that produce less than 700,000 cubic feet per year of treated wood, and plants in the steam subcategory that produce less than 900,000 cubic feet per year, capital investment and annualized operating costs decrease to $2,004,900 and $664,400, respectively. This production cutoff leaves 18 plants subject ot the limitation. No closures are expected, and the 18 plants would discharge about 4.7 pounds per day of PCP, a 72 percent reduction.

(C) Option 3—Continuation of existing pretreatment with the additional requirement of precipitation and removal of metals. This limitation would apply to the six Boulton plants and eight steam plants which treat some wood products with both inorganic and organic preservatives. Although all plants separate inorganic preservative operations from organic operations, cross contamination does occur. This option would reduce metals concentration to about 1 mg/l, reducing the metals discharged to POTW by 76 percent (total discharge of 0.82 pounds per day). PCP and PNA discharge levels would be reduced incidentally, but not significantly. The estimated capital investment and annualized costs total $1,862,100 and $565,100, respectively. From three to seven plants, employing from 92 to 187 people, might close if this option were selected.

By excluding from the regulation plants in the Boulton subcategory that produce less than 700,000 cubic feet per year of treated wood, and plants in the steam subcategory that produce less than 1,200,000 cubic feet per year, capital investment and annualized operating costs decrease to $1,015,500 and $320,900, respectively. This production cutoff leaves seven plants subject to the limitation. No closures are expected, and total industry discharge of metals would be about 1.5 pounds per day, a 56 percent reduction.

(D) Option 4—Continuation of existing pretreatment, with an additional prohibition against discharge of PCP or metals. Seven Boulton plants and twenty-five steam plants would be required to eliminate discharge of contaminated process wastewater by pan or cooling tower evaporation, spray evaporation, spray irrigation, or reuse and recycle. The estimated capital investment and annualized costs for the no discharge option are $4,980,300 and $1,267,300, respectively. Seven to fourteen plants employing 214 to 535 workers might close. PNA discharge would be 0.57 pounds per day.

By excluding from the regulation plants in the Boulton subcategory that produce less than 1,100,000 cubit feet per year of treated wood, and plants in the steam subcategory that produce less than 1,200,000 cubit feet per year, capital investment and annualized operating costs decrease to $2,455,400 and $614,100, respectively. This production cutoff leaves 16 plants subject to the limitation. Up to two plants with approximately 200 employees might close under this option. Total industry discharge would be about 3.4 pounds per day of PCP (a 79 percent reduction), 1.5 pounds per day of toxic metals (a 56 percent reduction), and 1.3 pounds per day of PNAs (a 55 percent reduction).

(E) Option 5—Continuation of existing pretreatment, with the additional requirement of no discharge of PCP. Six Boulton plants and twenty-one steam plants would be required to eliminate the PCP discharge by pan or cooling tower evaporation, spray evaporation, spray irrigation, or reuse and recycle. The estimated capital investment and annualized costs for the zero discharge option are $4,087,000 and $1,037,000. Three to 10 plants employing 83 to 404 workers might close. Assuming that the 27 plants currently treating with PCP elect to eliminate the discharge of all process wastewaters, the total discharge of metals and PNAs would be 1.41 and 1.61 pounds per day, respectively (a 56 and 44 percent reduction).

By excluding from the regulation plants in the Boulton subcategory that produce less than 1,100,000 cubic feet per year of treated wood, and plants in the steam subcategory that produce less than 1,200,000 cubic feet per year, capital investment and annualized operating costs decrease to $2,762,000 and $798,000, respectively. This production cutoff leaves 15 plants subject to the regulation. Up to 2 plants with 200 employees might close under this option. Total industry discharge of

metals and PNAs would be about 2.11 and 1.99 pounds per day, respectively (38 and 28 percent reductions). PCP discharged will be 3.4 pounds per day under this option (a 79 percent reduction).

(F) Option 6—Prohibiting discharge of all process wastewater pollutants to POTW for all indirect dischargers. The estimated capital investment and annualized costs are $7,376,000 and $1,866,900, respectively. Nine to seventeen plants employing 268 to 604 workers might close.

By excluding from the regulation plants in the Boulton subcategory that produce less than 1,100,000 cubic feet per year of treated wood, and plants in the steam subcategory that produce less than 1,200,000 cubic feet per year, capital investment and operating costs are reduced to $4,185,000 and $1,055,400, respectively. This production cutoff leaves 19 plants subject to the limitation. One to three closures are expected, with 27 to 226 jobs being affected. Total industry discharge would be: PCP, 4.2 pounds per day (a 75 percent reduction); PNAs, 0.7 pound per day (a 76 percent reduction); metals, 1.5 pounds per day (a 56 percent reduction).

(G) Pretreatment Standards for Existing Sources Selection and Decision Criteria

The Agency has selected Option 5, with not size cutoff—prohibiting discharge of pentachlorophenol to POTW. This option is proposed for plants in both the steam subcategory and the Boulton subcategory.

Option 1 was rejected because pentachlorophenol is a large, heavy molecule not easily degraded by the short term biological activity usually found in municipal treatment works (POTW). PCP tends to adsorb on solids in biological treatment systems, i.e., it concentrates in the sludge phase. Plants treating wood with inorganic preservatives already are subject to pretreatment standards that require no discharge of process wastewater pollutants. As discussed in the *Industry Profile and Subcategorization* section, metals appear in the wastewaters from wood preserving plants that treat with organic preservatives as a result of cross contamination. These "fugitive" metals are generally well below 1 mg/l in concentration and methods available to reduce their concentrations further will be addressed in future BMP proposals.

EPA rejected Option 2 because it is land intensive and most plants do not have sufficient land available to install a biological treatment system.

EPA rejected Option 3 because the discharge of metals from waterborne salt treating operations is prohibited by existing regulations and the application of best management practices (BMP) will prevent cross contamination.

EPA rejected Option 4 because the metals present are resulting from cross contamination at plants that treat wood with both organic and inorganic preservatives. Plants treating with inorganic preservatives are already subject to a non discharge standard. Cross contamination will be addressed in currently underway best management pracitices (BMP) study.

EPA rejected Option 6 because the economic impact was too severe, leaving 21 to 40 percent of the indirect discharing plants as candidates for closure.

Options 5 eliminates the discharge of pentachlorophenol. As stated above, ninety percent of all wood preserving plants already achieve no discharge of all process wastewater pollutants. The process controls and the end-of-pipe wastewater treatment and disposal technologies are demonstrated and widely practiced. Although the Agency considered a size cutoff in each of the options except Option 1, the excluded plants discharged enough pollutants to possibly contaminate POTW sludge, even after wastewater treatment. Therefore, none of the size cut-off options considered were selected. The *Solicitation of Comments* section request comments on this decision. Although the other except options 4 and 6 reduce the economic impact of the regulaton, they also result in the discharge of significant amounts of PCP which may pass through or interfere with the operation of a POTW, or preclude beneficial use of POTW sludge.

The Agency realizes that plants affected by this proposed regulation may elect to eliminate the treating of wood with PCP, and produce more creosote or inorganic salt treated wood. EPA requests, in the *Solicitation of Comments* section of this preamble, additional information regarding whether or not this would occur, and if not, why.

The Agency intends to amend 40 CFR Part 403, General Pretreatment Regulations. The Part 403 amendment will require that parameters limited by the pretreatment standards must be monitored at indirect discharging plants.

XI. Insulation Board and Wet-Process Hardboard Industry Profile and Subcategorization

Wet-process hardboard and insulation board are sheet materials made from wood reduced to lignocellulosic fibers by mechanical or thermomechanical means, i.e., by grinding wood chips under atmospheric pressure or under steam induced pressure. Hardboard is compressed fiberboard, with a density greater than 31 pounds per cubic foot; insulation board is a non-compressed fiberboard, with a density between 9.5 and 31 pounds per cubic foot.

Insulation board products such as ceiling tile, sheathing, and insulating board are used primarily in the construction industry. Some hardboard products such as paneling and exterior siding also are used in construction; hardboard products also occur in the automotive, furniture, and small appliance industries.

There are 27 plants in the wet process hardboard-insulation board segment. Eleven plants produce only insulation board. Of these, only two are direct dischargers, one producing mechanically refined insulation board, and one producing thermomechanically refined insulation board. Five plants are indirect dischargers, all producing mechanically refined insulation board. Four plants producing only mechanically refined insulation board are nondischargers of process wastewaters. These nondischarging plants achieve no discharge by recycle of treated wastewater, or a combination of recycle and spray irrigation. Eleven plants produce only wet process hardboard; of these, seven produce only S1S (smooth-one-sided) hardboard, three produce both S1S and S2S, and one produces only S2S (smooth-two-sided). Nine of these eleven plants are direct dischargers, including the S2S only plant; one is an indirect discharger and one is a non-discharger, using recycle of treated wastewater and spray irrigation. Five plants produce both thermomechanically refined insulation board and S2S hardboard. Three of these plants are direct dischargers, one plant is an indirect discharger, and one plant is a non-discharger, using spray irrigation of process wastewater. Ten plants are located in the south, seven in the Midwest, six in the Pacific Northwest, three in the Mid-Atlantic region, and one in the Northeast.

Eighteen companies own the 27 plants. Most are large, diversified corporations with major interests in other forest products, including pulp and paper and other building products. Several of the plants are owned by privately held corporations for whom insulation board and/or hardboard products represent the major portion of their business.

Water is essential to wet process hardboard and insulation board manufacturing, serving as the fiber transporting medium during the production process. After the wood chips are refined to fiber and fiber

bundles, water carries the wood to a forming machine, drains through the wire mesh, and either returns to the process water system or is discharged as wastewater. Pollutants present in process wastewater are mainly water soluble wood constitutents high in BOD5 and TSS, the result of the leaching of wood constituents into the process water.

Additives also contribute to the waste load. These may include wax emulsion, paraffin, starch, polyelectrolytes, aluminum sulfate, vegetable oils, ferric sulfate, and thermoplastic and thermosetting resins. Wastewater flows from discharging plants range from 0.05 to 4 MGD. Data obtained from the sampling and analysis program conducted during the BAT review study show that the only toxic pollutants present in raw or treated wastewaters from this segment are very low concentrations of heavy metals including copper and zinc, and organics—benzene, toluene, and phenol. There is no treatment technology (with the exception of a no discharge technology) currently available to further reduce the low concentrations of these pollutants, and none of these pollutants are present at levels high enough to interfere with the operation of a POTW.

Rationale for the previously published subcategorization rested primarily on the method of conditioning wood chips prior to refining, and the conditions and amount of refining. Both of these operations influence the process water requirements and waste loads generated.

In developing these proposed regulations, the Agency reviewed the appropriateness of the previous subcategorization. The major factors considered in developing the subcategories were: product produced, processes employed, process water volume and quality requirements, wastewater characteristics and treatability, treatment costs, plant size, and plant age.

The Agency determined that raw wastewater characteristics (and hence treatability and treatment costs) were closely related to the product produced and processes employed.

Mechanical refining insulation board plants exhibited generally lower raw waste loads than thermomechanical refining plants. The Agency, therefore, considered retaining the two existing insulation board subcategories. Only one mechanical refining insulation board plant, however, is a direct discharger, and this plant has a raw waste load equivalent to the average thermomechanical refining plant. Since the remaining four direct discharing insulation board plants are all thermomechanical refining plants, and since the single mechanical refining direct discharger has a raw waste load equivalent to these thermomechanical plants, the Agency decided for practical reasons to designate a single subcategory for all insulation board plants, regardless of refining method. Effluent guidelines limitations for BPT and BCT, New Source Performance Standards and Pretreatment Standards proposed herein for the Insulation Board Subcategory apply to all insulation board plants.

The Agency found that plants which produce S2S hardboard exhibit significantly greater raw wasteloads than do S1S hardboard plants. For this reason, the proposed regulations divide the wet-process hardboard segment into two subcategories, S1S Hardboard and S2S Hardboard.

The new definitions for the insulation board and wet process hardboard subcategories are:

Insulation Board—This subcategory includes facilities that produce insulation board using wood as the raw material.

Wet Process Hardboard—This category applies to plants which produce hardboard products, using the wet matting process for forming the board mat.

XII. Available Wastewater Control and Treatment Technology

A. Status of In-Place Technology

Current wastewater treatment practices in the insulation board and hardboard segment of the timber products industry range from the minimum preliminary treatment of screening and pH adjustment, practiced by many indirect dischargers, to the biological treatment systems used by all direct dischargers.

Of the seven indirect dischargers, four plants provide no treatment beyond pH adjustment and screening, one plant provides primary sedimentation only, and two plants provide both primary sedimentation and biological treatment in an aerated lagoon.

All 14 direct dischargers provide some form of biological treatment including activated sludge systems and aerated lagoons; one plant spray irrigates primary treated effluent and collects the underflow of the spray field for discharge; another plant spray irrigates a portion of its biologically treated effluent and discharges the remainder.

Six plants have achieved no discharge through complete recycle of process wastewater or disposal of excess water by soil irrigation.

B. Control Technologies Considered

The control and treatment technologies considered for the insulation board and hardboard segment of the timber industry include:

(1) In-plant controls: reuse of process water.

(2) Primary treatment: coarse screening, primary sedimentation, chemically assisted coagulation, and sedimentation.

(3) Biological treatment: aerated lagoons, activated sludge.

(4) Recycle of biologically treated wastewater.

(5) Disposal of wastewater by spray irrigation.

The applicablility and performance of all these technologies have been deomonstrated in the insulation board and hardboard segment of the timber industry. Sections VII and XIV of the Development Document summarize analysis of up to two years of perfomance data provided by the industry on existing treatment plants.

The Agency considered the feasibility of establishing a no discharge limitation for either or both the insulation board segment and the hardboard segment. Both the internal controls and operating considerations, and the external or end-of-pipe wastewater treatment and no discharge methods were considered.

The ability of an insulation board or hardboard plant to close its process water system depends largely on the type of products produced and the raw materials used. Hardboard products such as interior paneling and insulation board products such as ceiling tile must receive uniform surface treatments. Products for external use must be dimensionally stable and absorb limited amounts of water. Recycle of process water increases the dissolved solids retained in the board, which may result in lower quality board, unsuitable for certain uses. For these reasons, full internal recycle of process water is not considered achievable by all plants in the insulation board/hardboard segment.

Final wastewater disposal by spray irrigation is the only demonstrated no discharge technology for these segments. Because of the volumes of wastewater involved, land requirements are high. Land requirements can be included more easily in the site selection and design of a new facility than they can be added to existing facilities. The economic impact analysis did not consider the impact of a no discharge limitation on existing plants because this disposal technology, although

practiced at least in part by six or more plants, could not be a candidate technology for all plants in the segment.

EPA has developed the costs of applying these technologies through compilation of cost data supplied by individual plants in the insulation board and hardboard segments, as well as through engineering cost estimation for these technologies applied both to a range of new and existing plants in each of the subcategories, and to each affected plant on an individual basis. These cost estimates were used by the Agency in the economic impact analysis. Detailed capital and operating costs are presented in Section VIII of the Development Document.

XIII. Best Practicable Control Technology

Best practicable control technology (BPT) is generally based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the industry or subcategory. This average is not based on a broad range of plants in an industry subcategory but on performance levels achieved by the best plant or plants.

BPT considers the total cost of the application of technology in relation to the effluent reduction benefits to be achieved from the technologies. The cost/benefit inquiry for BPT is a limited balancing, which does not require the Agency to quantify benefits in monetary terms. See, e.g., *American Iron and Steel Institute* v. *EPA*, 526 F. 2d 1027 (3rd Cir. 1975). In balancing costs in relation to effluent reduction benefits, EPA considers the volume and nature of existing discharges, the volume and nature of discharges expected after application of BPT, the general environmental effects of the pollutants and the costs and economic impacts of the required pollution control level. The Act does not require or permit consideration of water quality problems attributable to particular point sources or industries, or water quality improvements in particular water bodies. See, *Weyerhaeuser Company* v. *Costle*, 11 ERC 2149 (D.C. Cir. 1978).

BPT regulations for the wet process hardboard segment were promulgated April 18, 1974 (39 FR 13942). The Agency withdrew these regulations on September 28, 1977 Additional information provided by the industry had convinced the Agency that the promulated regulations were not correct and that the segment should be reevaluated.

BPT regulations for the insulation board segment were proposed in August 1974 but were never promulgated. Because most insulation board producing plants would be included in the review of hardboard producing plants, the Agency decided to conduct a reevaluation of the entire insulation board segment concurrently with the hardboard review. The Clean Water Act requires BCT limitations for industry subcategories that discharge conventional pollutants. Process wastewaters from both the wet process hardboard and the insulation board segments did not contain significant amounts of toxic pollutants.

The Agency concluded that the application of the BCT limitations to both the hardboard and insulation board segment was appropriate.

In order to develop BCT limitations for these segments, a base level BPT determination is desirable because the "cost reasonableness test", required as part of the BCT determinations, rests on the incremental cost of removal of BOD5 and TSS from BPT to BCT.

As stated above, the Act establishes the requirements for development of BPT limitations, which are basically the average of the best existing performance. As part of the current study, the Agency evaluated the performance of all direct discharging plants in each segment subcategory to determine which plants were representative of BPT technology.

Within the Insulation Board Subcategory there are five direct dischargers. Three of these plants produce S2S hardboard as well as insulation board, and wastewaters from both products are comingled at each of these plants. Not only are the comingled waste streams an unreasonable basis for insulation board BPT limitations, the wastewater treatment systems themselves at these plants are not representative of BPT technology. Two of the plants discharge low pollutant loads using land intensive technologies—one plant spray irrigates a 200 acre field, the other has over 100 acres of aerated lagoons and holding ponds. The third plant currently practices primary sedimentation only. Although a pure oxygen activated sludge treatment system is due to become operational in 1980 at this plant, no performance data are available for this system.

The remaining two direct dischargers produce insulation board only, one by mechanical refining and the other by thermomechanical refining. Although both of these plants perform very well with a combination of biological treatment and recycle of treated effluent as process water, the performance of the thermomechanical plant was chosen as the basis for insulation board BPT limitations because all potentially impacted plants use thermomechanical refining. Based on its demonstrated performance, the single direct discharging mechanical refining plant will be able to comply with a BPT limitation determined in this manner.

There are seven direct discharging S1S hardboard plants. Three of these plants provide a relatively high degree of treatment; however, their systems were not appropriate for DPT technology because they are either land intensive (one plant uses a combination of biological treatment and spray irrigation), or require a higher degree of internal process control than is considered applicable to the subcategory as a whole. Among the remaining four S1S direct dischargers, one plant maintains a high level of treatment using a biological system. This plant was achieving a higher (BCT) level of treatment and therefore was not chosen as a basis for the BPT regulations. Two other plants, although equipped with biological treatment systems, do not achieve the level of BOD removal expected for a BPT candidate biological system. These plants were therefore not chosen as a basis for the BPT regulation. The fourth plant, whose performance is the basis for the proposed BPT regulations, demonstrates consistently good removal of the conventional pollutants using a technology which is applicable to all other S1S hardboard plants.

There are five direct discharging S2S Hardboard subcategory plants. Two plants, which produce both S2S hardboard and insulation board, achieve extremely high treatment levels using land intensive technology which cannot be applied to existing S2S plants as a BPT technology. One of these plants uses spray irrigation and the other has over 100 acres of aerated lagoons and holding ponds. A third plant, which also produces both S2S hardboard and insulation board, currently provides primary sedimentation only. Although a pure oxygen activated sludge system is scheduled to become operational at this plant in 1980, no performance data are available for this system. Another plant uses a biological treatment system which clearly does not perform to BPT standards. The remaining plant in the subcategory, with an excellent biological treatment system, exceeds BPT standards and is representative of BCT technology. In terms of removal of the conventional pollutants, this plant performs similarly to the S1S subcategory BCT candidate.

In the absence of a BPT candidate plant in the S2S Hardboard subcategory, the Agency has decided to establish a

BPT limitation using biological treatment technology parallel to the S1S Hardboard BPT candidate plant, applying the percent removal of BOD5 and TSS achieved by the S1S Hardboard BPT plant to the higher raw waste load of the S2S producing plant. EPA considers this approach to be a reasonable approximation of the performance which could be expected from a S2S hardboard plant applying BPT level biological treatment.

XIV. Best Available Technology Economically Achievable

Review and evaluation of the information available to the Agency, including recent analytical data relating to toxic pollutants, led the Agency to conclude that the few detected priority pollutants occurred in such low concentrations that technology was not currently available to further reduce these levels. The Development Document summarizes the specific pollutants found and their concentrations and mass amounts. The only technique available to existing plants to reduce these discharge levels would be no discharge of process wastewater pollutants. The practicality of this option is extremely limited, both technically and economically. Most existing plants do not have sufficient land available for land disposal of treated wastewaters. Recycling of treated wastewater by existing plants would probably require redesign of process waste flow systems; such redesign would also require the replacement of some existing equipment, and the installation of considerable amounts of new equipment. The wastewater pollutants generated by the direct discharging plants in this segment, primarily BOD5 and TSS, are treatable by biological means. Based on the fact that toxic pollutants are not present at levels treatable by available technology, the Agency has concluded that a BAT regulation for the hardboard and insulation board segment is unnecessary and is not proposing one.

XV Best Conventional Technology (BCT)

The 1977 amendments added Section 301(b)(2)(E) to the Act, establishing "best conventional pollutant control technology" (BCT) for discharges of conventional pollutants from existing industrial point sources. Conventional pollutants are those defined in Section 304(a)(4)—BOD, TSS, fecal coliform, and pH—and any additional pollutants defined by the Administrator as "conventional."

BCT is not an additional limitation, but replaces BAT for the control of conventional pollutants. BCT requires that limitations for conventional pollutants be assessed in light of a new "cost-reasonableness" test. The BCT test compares the additional cost incurred by an industrial point source in removing a pound of conventional pollutants beyond BPT limitations, to the cost incurred by an average size POTW in removing a pound of BOD5 and TSS. If the industrial cost is lower, it passes the cost reasonableness test. Details concerning the methodology of the cost test used to determine BCT are contained in Section X of the Development Document.

The Agency reviewed the technical data base in detail prior to performing the BCT analysis of the insulation board/hardborad segment of the industry. Where possible, EPA identified for each subcategory one treatment and control option beyond BPT limitations, documenting technology performance with up to two years of historical effluent data provided by the industry. The estimated costs for each affected plant to upgrade its facilities to BCT performance levels were calculated on a plant by plant basis. The proposed BCT is based on the most stringent level of biological treatment technology applicable to a subcategory which passes the cost reasonableness test.

As discussed in the *Profile and Subcategorization* Section, the insulation board subcategory has only two direct discharging plants which produce only insulation board. Each of these systems combines biological treatment and treated effluent reuse. Both of these systems are exemplary and neither system needs to further upgrade its facilities for increased pollutant removal. For this reason, the Agency is proposing BCT limitations which equal proposed BPT limitations for the Insulation Board subcategory.

For the S1S and S2S hardboard subcategories, EPA identified one treatment and control option capable of providing pollutant removal beyond that required by BPT limitations. This option is to upgrade the existing BPT biological treatment and control technology by providing additional detention time and aeration capacity. The characteristics of the upgraded biological system are based on documented performance of existing systems treating S1S hardboard wastewater and S2S wastewaters.

BCT limitations for the S1S and S2S portions of the wet process hardboard subcategory are based on the best performing biological treatment/discharging plant in each of the portions. The Agency did not select a no discharge of process wastewater option for BCT because this level of control would fail the "cost reasonableness" test.

The costs of upgrading treatments to BCT levels for S1S and S2S hardboard plants were determined separately plant by plant, based on existing raw and treated waste load data provided by each plant.

The BCT candidate technologies chosen by the Agency for both S1S and S2S subcategories passed the cost reasonableness test.

The Agency calculated the cost reasonableness in two separate ways. First, the cost reasonableness of the proposed BCT technology was tested for the two S2S plants that will be required to upgrade, using proposed BPT for S2S as a cost base.

Secondly, the cost reasonableness of the proposed BCT technology was tested for the two S2S hardboard plants using current treatment system performance (in the case of one plant, design performance of its treatment system under construction was used) as a cost base. The proposed BCT technology passed the test of reasonableness for both plants, regardless of cost base.

XVI. New Source Performance Standards (NSPS)

The basis for new source performance standards (NSPS) under Section 306 of the Act is the best available demonstrated technology. New plants have the opportunity to design the best and most efficient hardboard and insulation board manufacturing processes and wastewater treatment systems, and, therefore, Congress directed EPA to consider the best demonstrated process changes, in-plant controls, and end-of-pipe treatment technologies which reduce pollution to the maximum extent feasible.

As discussed in the *Available Wastewater Control and Treatment Technology* section of this preamble, 6 of the 27 existing hardboard and/or insulation board producing plants (22 percent) currently do not discharge process wastewater to navigable waters directly or indirectly. Three of the six plants achieve this no discharge by spray irrigation. Two plants achieve no discharge through complete recycle of treated wastewater, combining low-moisture raw materials with the production of finished products that tolerate higher levels of dissolved solids in the process water system. The remaining plant achieves no discharge by treating wastewater in an activated sludge system, reusing the treated water, aerobic digestion of the waste sludge, and disposal of the remaining sludge by spray irrigation.

As current wastewater treatment and disposal practices illustrate, no discharge usually requires land application of waste sludge or water. Land requirements can be included in the planning and design stages for new sources. The no discharge technology is demonstrated by existing plants producing hardboard only, insulation board only, and one plant producing both hardboard and insulation board.

Capacity expansion for hardboard most likely will occur through incremental expansion of existing hardboard mills and from conversion of insulation board capacity. This results primarily from the high cost of new capacity compared with current market prices. While pollution control costs would exacerbate this relationship, they remain of secondary importance.

Therefore, no discharge of process wastewater pollutants is proposed for NSPS.

XVII. Pretreatment Standards Existing Sources (PSES) Pretreatment Standards New Sources (PSNS)

Section 307(b) of the Act requires EPA to promulgate pretreatment standards for existing sources (PSES) which must be achieved within three years of promulgation. Section 307(c) of the Act requires the Agency to publish regulations establishing pretreatment standards for new sources (PSNS) for introduction of pollutants into publicly owned treatment works at the same time that NSPS are published.

As presented in the *Best Available Technology* section, the concentration of the few toxic pollutants found in wastewaters from the hardboard and insulation board plants sampled and analyzed during this study was so low that any further reduction by available treatment and control technologies was not technically feasible. The conventional pollutants present in effluents from hardboard and insulation board producing facilities are treatable by biological treatment as practiced by publicly owned treatment works. Seven plants in the hardboard and insulation board segment currently discharge to POTW. The Agency is not aware of any incidents where discharge from one of these plants has caused an upset, or has been otherwise incompatible with the operation of a POTW.

The Agency is proposing pretreatment standards for new and existing sources in the hardboard and the insulation board subcategories that do not establish numerical limitations on the discharge of specific pollutants. Indirect discharging plants are subject to the general pretreatment regulation (40 CFR Part 403).

XVIII. Barking, Veneer, and Log Washing Effluent Limitations

Regulations promulgated in 1974 and 1975 for hydraulic barking, veneer manufacture, and log washing operations established BPT limitations with an allowable discharge. The BPT regulations controled BOD5, TSS, and pH. BAT limitations for these operations, promulgated at the same time, prohibited discharge of process wastewater pollutants.

The Act states that promulgated effluent guidelines and standards "* * * shall be reviewed at least every five years and, if appropriate, revised * * *."

As part of the BAT Review study, the Agency reviewed the information supporting the previously promulgated regulations and reviewed current industry practices regarding process water management in these operations.

A. Hydraulic Barking

(A) *Discussion:* The BAT limitation of no discharge of process wastewater pollutants for all barking operations (including hydraulic barking) was based primarily on information from a hydraulic barking plant located in northern California. This plant installed a hydraulic barker in 1969. The barking system was designed to operate with no discharge of process wastewater, treating and recycling 80+ percent of the process water, and disposing of the excess water by spray field irrigation. The Agency concluded that after a few years experience operating the wastewater treatment and recycle system, a completely closed (no discharge) status could be achieved by all plants. This expected performance was the basis for the previously promulgated no discharge limitation.

As part of the current study, the Agency contacted all known operators of hydraulic barking operations, state pollution control agencies, Regional EPA offices and equipment manufacturers. The purpose of this survey was to identify hydraulic barking installations, determine their process wastewater treatment and discharge status, and determine the progress made by the industry in meeting the BAT implementation date.

Fourteen plants having hydraulic barking installations were identified. Most plants practice some degree of recycle of barking water, usually after clarification. The plant identified in 1974 as recycling about 80+ percent is still at that level, apparently unable to increase the amount of recycle. The plant estimated that it discharges about 200,000 gallons per day of excess water to the spray irrigation system.

The timber industry was surveyed to determine the most recent installation of a hydraulic barking facility and also the possibilities of new installations.

EPA identified one company which currently supplies hydraulic barking equipment. The company does not include price information for hydraulic barkers in its price lists, although it will supply such information on request. The most recent installation of a hydraulic barking system in the United States occurred in 1969. Energy and environmental considerations in this country appear to make hydraulic barking less attractive to potential customers than mechanical barking. The capital cost of installing a hydraulic barking system is estimated to be about one and one-half times the cost of installing a mechanical barking system with the same throughput capacity. Previous mechanical barkers were inefficient in removing redwood bark; the bark, which is very stringy, would jam mechanical barkers. However, technological improvements have eliminated this problem. Mechanical barkers now can handle logs up to 72 inches in diameter and can effectively remove redwood bark.

Screen sampling and analysis of a hydraulic barking installation in 1976 determined the presence of toxic pollutants in effluents. The organic pollutants found were chlorinated phenols, nitrophenol, dinitro-o-cresol, benzene, chloroform, and di-chloroethane. In 1979, another hydraulic barking system wastewater was analyzed. Only phenol occurred above the 10 g/l analytical limits of detection (it was found at a concentration of 20 g/l). Over the last three years the BAT Review analytical protocol has been refined and modified significantly. Based on these refinements, analytical personnel and the Agency have concluded that the 1979 data more accurately characterize the wastewaters generated by hydraulic barking operations than the 1976 data.

The Agency's review of the hydraulic barking timber industry and its pollutant data and growth potential clearly indicated that new hydraulic barking operations are not likely. In addition, because toxic pollutants are not present at treatable levels in hydraulic barking wastewaters, a BAT based regulation is not appropriate. The Agency did not study the hydraulic barking segment in detail during the current study, other than screening and profiling the existing plants in regard to their number and current wastewater treatment practices. Because of this fact, EPA does not have

technical or potential economic impact information to be used in developing revised effluent guidelines at this time.

(B) *Decision Criteria:* After review and evaluation of the above information, the Agency considered the propriety of the existing BAT and NSPS regulations and the applicability of a BCT regulation for this segment.

The Agency has decided to withdraw the existing BAT limitation of no discharge for hydraulic barking. The Agency has further decided not to establish BCT limitations for this subcategory. The rationale for withdrawal of BAT limitations is that the performance upon which BAT is based, 100 percent recycle following coagulation and settling of wastewater, has not been achieved in spite of extensive effort by several plants in the industry. BCT limitations are inappropriate at this time, because sufficient information is not available to establish limitations based on the required "cost-reasonableness" test, and because most plants already are achieving greater than 80 percent recycle of wastewater following coagulation and settling or biological treatment. Further treatment is not considered technically or economically feasible.

B. Veneer Manufacture

(A) *Discussion:* BPT regulations for this subcategory promulgated in 1974 required no discharge of process wastewater pollutants for all veneer manufacturing plants, except those using direct steam conditioning of veneer logs. The Agency allowed this exception in order to give plants using direct steam conditioning time to modify their operations before the no discharge BAT limitation came in force.

Review of current veneer manufacturing practices has established that no known veneer manufacturing plants are discharging directly.

During the screening phase of the current BAT Review study, sampling and analysis determined that toxic pollutants, particularly heavy metals, are present in wastewaters generated by veneer manufacturing facilities.

(B) *Decision Criteria:* Based on the current status of process water control, and the presence of toxic pollutants in veneer wastewaters, the Agency has determined that the existing BAT limitation of no discharge of process wastewater pollutants should remain in force.

C. Log Washing

(A) *Discussion:* BPT for this subcategory allows the discharge of process wastewater pollutants. Existing BAT for this subcategory prohibits discharge of process wastewater pollutants.

Review of current practices in the timber industry revealed that log washing now is practiced by fewer facilities than previously reported. Plants washing logs for further processing are recycling log wash water after settling and coarse screening. The screening phase of the BAT Review study determined that toxic pollutants are present in log wash water, particularly heavy metals and phenol.

(B) *Decision Criteria:* Based on the current status of process water control, and the presence of toxic pollutants in log wash waters, the Agency has determined that the existing BAT limitation of no discharge of process wastewater pollutants should remain in force.

XIX. Regulated Pollutants

The basis for the selection of controlled pollutants, as well as the general nature and environmental effects of these pollutants, is set out in Section VI of the Development Document. Some of these pollutants are designated toxic under Section 307(a) of the Act, and no evidence has been found to warrant removal of any pollutant from the toxics list.

Appendix C lists toxic pollutants which were found in treated effluents at more than two plants and in significant concentrations.

Following is a summary of the pollutants controlled by each of the subparts of the regulations proposed here.

Wood Preserving—Steam Subcategory

Wood Preserving—Boulton Subcategory

A. BAT—The Agency is withdrawing the existing Wood Preserving—steam regulation. The one plant currently discharging has an NPDES permit. COD, Total Phenols, Oil and Grease, and pH are the parameters limited by the permit.

B. NSPS—By proposing zero discharge of process wastewater pollutants, the discharge of all pollutants is eliminated.

C. PSNS—Prohibiting the discharge of process wastewater pollutants to a POTW eliminates the discharge of all pollutants.

D. PSES—Prohibiting the discharge of pentachlorophenol (PCP) eliminates the possible pass through and sludge contamination by this toxic pollutant. Evidence indicates that PCP is biodegradable, but the compound requires long term holding in the presence of acclimated biota to achieve a significant reduction. Neither long term holding, nor acclimated biota are usually characteristic of POTW. In addition, PCP, being a heavy molecule, tends to settle to the bottom of a biological treatment system, concentrating the PCP in the sludge phase.

Existing indirect discharging wood preserving plants treating wood with creosote are required to meet a maximum Oil and Grease concentration of 100 milligrams per liter, the same limitation promulgated in 1976. Data available to the Agency show that control of oil and grease to this prescribed limit also maintains polynuclear aromatic compounds at a level less than one milligram per liter. Since PNAs are highly soluble in the oil phase and quite insoluble in water, the oil and grease concentration is an excellent indicator of PNA control.

Hardboard/Insulation Board

As discussed elsewhere in this preamble, toxic pollutants occur at extremely low levels (not easily treatable) in wastewaters from these facilities. Conventional pollutants, such as BOD5, total suspended solids (TSS), and pH are present and treatable. This regulation proposes BCT mass limitations, that is, pounds discharged per 1000 pounds of production, on BOD5 and TSS, and establishes a pH range of 6 to 9. PSNS and PSES for wet process hardboard plants and for insulation board plants are the same as those promulgated earlier, i.e., no limitation is placed on BOD5, TSS, or pH.

XX. Pollutants and Subcategories Not Regulated

The Settlement Agreement authorized the exclusion from regulation, in certain instances, of toxic pollutants and industry subcategories. These provisions have been re-written in a Revised Settlement Agreement which was approved by the District Court for the District of Columbia on March 9, 1979.

Paragraph 8(a)(iii) of the Modified Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants not detectable by Section 304(h) analytical methods or other state-of-the-art methods. The toxic pollutants not detected and therefore excluded from regulation appear in Appendix B to this notice.

Paragraph 8(a)(iii) of the Modified Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants detected in the effluent from a small number of sources and uniquely related to those sources. Appendix D lists the toxic pollutants which were detected in the

effluents of only one or two plants, which are uniquely related to these sources, and which, therefore, are excluded from regulation.

Paragraph 8(a)(iii) of the Modified Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants which are detected only in trace amounts and which are not likely to cause toxic effects. Appendix E lists the toxic pollutants found in trace amounts (at or below the limit of analytical detection and qualification) which are not likely to cause toxic effects, and which therefore are excluded from regulation.

The Settlement Agreement required the Agency to regulate the Timber Products Processing industry, listed under the Office of Management and Budget's Standard Industrial Classification, Major Group 24. In addition, SIE 2661—Building Paper and Building Board Mills (Insulation Board only) was included in the timber industry list of point sources for which regulations were to be developed.

Initially, the Agency developed a profile of the total timber industry. After this initial profile information was assembled and reviewed and screen samples from all subcategories were collected and analyzed, the Agency concluded that certain portions of the industry did not justify detailed technical and economic analysis studies to support revised effluent limitations and standards.

The primary bases for excluding these portions of the industry from revised regulations are as follows:

1. The processing operations involved were basically dry (no process water involved and no process wastewater generated).

2. The operations are currently subject to a BAT regulation prohibiting discharge of process wastewater.

3. Plants in a given subcategory do not discharge to a publicly owned treatment works.

4. The present waste management practices reflect the highest level of control economically achievable.

Raw wastewater and treated wastewater from at least one plant or facility in each subcategory was collected and analyzed for 124 toxic pollutants during the screening phase of the program. After confirming the presence or absence of toxic substances, EPA reviewed the available technology and considered the reliability of candidate technologies. This review and evaluation was necessary because all the subcategories, with the exception of Wood Preserving-Water Borne and Non-Pressure subcategory were allowed by the existing regulations to discharge to publicly owned treatment works without pretreatment.

Review of available information established that the following subcategories should be excluded from the development of revised effluent limitations guidelines and standards under the terms of Paragraph 8:

Barking; Sawmills and Planing Mills; Dry Process Hardboard; Veneer; Plywood; Log Washing; and Wood Preserving-Water Borne or Non-Pressure. These subcategories already are subject to no discharge limitations for existing and new sources, and contain less that 40 indirect dischargers.

Wet Storage—Wet storage facilities can be divided into two major segments: log ponds and wet log storage decks. Existing limitations require screening to prevent discharge of debris and pH control. Current practice in the industry is to contain and/or recycle most of the effluent from these facilities during dry weather periods, resulting in no discharge. During periods of wet weather, the volume of discharge depends on the amount and intensity of precipitation. Since discharges from these facilities occur primarily during rainfall, concentrations of BOD5 and TSS—the major conventional pollutants present—are usually dilute. Further treatment requires large containment basins designed to contain the heavy rainfalls which occur in many parts of the country. Considering the variabilities of precipitation, drainage areas, and dilution factors involved, the Agency concluded that it is not technically or economically feasible to require a level of control beyond that provided for by existing regulations.

Finishing and Particleboard—These subcategories are subject to a no discharge regulation for existing and new sources. Fewer than twenty plants, with a total flow of less than 2,000 gallons per day in the particleboard subcategory, and about 1,000 operations with a total flow of less than 2,500 gallons per day in the finishing subcategory, discharge indirectly.

Appendix B of the Modified Settlement Agreement lists in the Timber Products Processing point source category, SIC 2411-Logging Camps and Logging Contractors (Camps only). This timber products operation was not previously studied or regulated. Because this operation was listed in the Revised Settlement Agreement as requiring regulations, the Agency surveyed the major timber producing areas of the U.S. and determined that: (1) permit issuing offices, State and EPA Regional, are not aware of the generation of process wastewater in these operations; (2) logging camps have been issued permits to control the discharge of sanitary wastes; and (3) probably not more than ten or twelve remote logging camps exist. Therefore, this portion of the timber products industry does not justify the development of effluent limitations guidelines and standards on the discharge of process wastewater pollutants.

XXI. Economic Impact: Costs, Effluent Reduction Benefits, and Economic Impact

Executive Order 12044 requires EPA and other agencies to perform Regulatory Analyses of certain regulations. 43 FR 12661 (March 23, 1978). EPA's proposed regulations for implementing Executive Order 12044 require a Regulatory Analysis for major significant regulations involving annualized compliance costs of $100 million or meeting other specified criteria. 43 FR 29891 (July 11, 1978). Where these criteria are met, the proposed regulations require EPA to prepare a formal Regulatory Analysis, including an economic impact analysis and an evaluation of regulatory alternatives. The proposed regulations for the Timber Products industry do not meet the proposed criteria for a formal Regulatory Analysis. Nonetheless, this proposed rulemaking satisfies the formal Regulatory Analysis requirements.

EPA's economic impact assessments are contained in *Economic Impact Analysis of Alternative Pollution Control Technologies, Wood Preserving Subcategories of the Timber Products Industry*, August 1979, EPA 440/2-79-018 and, *Economic Impact Analysis of Alternative Pollution Control Technologies, Wet Process Hardboard and Insulation Board Subcategories of the Timber Products Industry*, August 1979, EPA 440/2-79-017.

These reports detail the investment and operating costs for the alternative control options, including the option proposed in this notice. Data underlying the analyses came from the Development Document and the economic survey program described under DATA GATHERING EFFORTS. The reports assess compliance costs in terms of plant closures, production changes, price changes, employment changes, local community impacts and balance of trade effects.

The analytical methodology employs basic economic and financial modeling techniques to determine whether facilities can continue operation following the imposition of pollution control requirements and to evaluate reductions in profitability. The Agency evaluated the impacts on the various plants based upon compliance costs

generated for each plant and their responses to an economic survey. This approach was possible because of the relatively small number of plants which would incur additional costs under the various control options.

The decision criteria for estimating plant closures were based upon the plant's cash flows, and profitability in the absence of price increases. If a plant could finance the pollution control investment from cash flow and remain profitable in the absence of prices increases then the plant was judged likely to remain open. In other words, the analysis assumes that bank financing will not be available because of the generally low profits in the industry. A plant was designated as having a high probability of closure if the required investment was over 200 percent of annual cash flow and/or it would incur losses after complying with the regulation. Plants judged to have a moderate probability of closure were those for which investment would be 100 percent to 200 percent of annual cash flow but which would still show an after-tax profit.

The analyses did not estiamte baseline closures (closures which may occur among the impacted plants even if EPA promulgated no additional requirements); therefore, the closure estimates are probably overstated to some extent. This is confirmed by the fact that among the wood preserving plants listing themselves as dischargers in the economic survey which was sent in the Fall of 1977 two closed before the proposal of this regulation.

Wood Preserving—PSES

Of the approximately 415 wood preserving plants in the industry, only 27 (less than 7 percent) will be affected by the proposed pretreatment regulations. These plants will require a capital investment of approximately $4.1 million, with annualized costs of compliance including depreciation, interest, operating, and maintenance costs of about $1.0 million. For over half of the plants the investment will be less than one year's cash flow.

Price increases appear to be either unobtainable or limited by the percentage cost increase incurred by the larger plants (approximately 1 to 3 percent). Larger price increases should not occur because the vast majority of the industry will not incur additional costs as a result of the proposed standard; competition between impacted and non-impacted plants also will limit price increases.

Approximately three to nine plants may choose to close rather than invest in pollution control equipment. These plants employ approximately 118 to 439 production workers, representing approximately 1.5 to 5.7 percent of the 7700 production employees in the industry in 1976. However, the Agency does not expect industry production to be significantly affected since sufficient excess capacity exists to prevent shortages of preserved wood products.

Plant closures as a result of the proposed regulation are not expected to have a large community impact. The closures will be scattered around the country and generally will occur in urban or suburban areas where alternative employment opportunities should exist. Since domestic price and production impacts will be small, balance of trade effects should be insignificant.

Achievement of these standards will prevent the introduction to publicly owned treatment works of approximately 16.6 pounds per day of PCP, 1.3 pounds per day of PNAs, and 2.0 pounds per day of heavy metals. EPA believes the effluent reduction benefits outweigh the associated costs.

Wood Preserving—NSPS and PSNS

The proposed new source standards may require capital investments of $161,000 to $428,000 per plant, which represent from 3 percent to 8 percent of the estimated capital investment for new plants. The annualized cost of the regulation may range from $85,000 to $156,000 per plant. The revenue required to recover compliance costs is approximately 1 percent to 2 percent of estimated sales for a new plant.

Based upon maximum operating capacity, there is considerable excess capacity among existing plants. However, becasue of transportation costs and growth in some regions (e.g. the South) it is likely that new capacity will be built before existing capacity is fully utilized. Because many plants are already at zero discharge and because the capital costs and revenue increases necessary to recover the control costs are relatively small, new source compliance costs are not expected to hinder the construction of new plants.

Achievement of the proposed NSPA and PSNS standards by new source wood preserving plants will prevent further discharges of toxic pollutants such as PCP, PNAs, and heavy metals to receiving waters and POTW. EPA believes that this benefit outweighs the associated cost.

Hardboard and Insulation Board—BPT

Of the 27 plants which produce hardboard or insulation board, only three hardbord plants are expected to be affected by the proposed BPT regulations. The affected plants represent less than 20 percent of industry capacity. Capital investment could total $8,871,000 with annualized costs of approximately $3,486,000. The capital investment ranges up to 300 percent of estimated plant annual cash flows. However, the Agnecy anticipates that financing for this investment will be available from banks or the parent corporations because of the favorable outlook for hardboard. There is a possibility that one plant with approximately 300 employees may close rather than make this investment. Additional information on this potential impact is requested in the Solicitation of Comments section of this preamble.

Demand for hardboard is expected to grow at approximately a 3 percent average annual rate between now and 1983 with the demand for hardboard being about 25 percent higher in 1983 than at present. Existing industry capacity cannot support this increase in demand, and price increases are expected. While some additional demand may be satisfied by imports, the industry is expected to add capacity by either incremental expansion of existing facilities or by conversion of excess insulation board capacity to hardboard production.

Studies indicate that even the least expensive method of increasing capacity would require prices of approximately $106 per thousand square feet (in 1977 dollar terms) or a 16 percent price increase to become economical. This price increase resulting from rising demand exceeds the amount necessary for existing producers to recover their BPT pollution control cost. Therefore, while the regulations may reduce profits for the three affected plants, the regulations should not have a serious price impact since price increases will be set by the demand for new capacity. If, however, price increases were not achieved, one plant would no longer be profitable.

Achievement of the proposed BPT limitations by the insulation board/hardboard segment will reduce conventional pollutant discharges (BOD5 plus TSS) by approximately 20 million pounds per year. EPA believes that the effluent reduction benefits outweigh the associated costs.

Hardboard and Insulation Board—BCT

For the proposed BCT regulation up to seven hardboard plants could have capital investments above BPT totalling $11,474,000 with associated annualized costs above BPT of $2,690,000. The capital requirements range from less than 10 percent to approximately 330 percent of annual cash flow, and again

plants are expected to obtain external financing from either banks or their parent corporation.

As with BPT, the price impacts of BCT are expected to be insignificant compared with the price increases necessary to make capacity additions economically feasible.

Assuming price increases of $5 per thousand square feet to recover pollution control, these proposed regulations would involve a less than 5 percent price increase over the long run expansion price of $106 per thousand square feet. Given the inelastic demand for hardboard and the expected growth in demand, this regulation is not expected to affect significantly industry production. If, however, one plant whose pollution control investment is over 300 percent of 1976 cash flow chooses to close then approximately 300 jobs could be lost with resultant community impacts. Profitability of existing plants will decrease somewhat, but even if prices did not increase, pre-tax profitability on sales for the affected plants would generally average close to the median for the industry (14 percent).

The price increase occasioned by pollution control costs may make imported hardboard relatively more price competitive. However, it is anticipated that U.S. producers will continue to import the board as a method of meeting peak demands and not for baseline industry demand.

Achievement of the proposed BCT limitations by the insulation board/hardboard segment will reduce conventional pollutant discharges (BOD 5 plus TSS) by approximately 10 million pounds per year. EPA believes that the effluent reduction benefits outweigh the associated costs.

Hardboard and Insulation Board—NSPS

The Agency expects the demand for insulation board to decline; no new plants are anticipated. Additions to existing hardboard plants or conversion of insulation board plants to hardboard production appears to be less expensive than construction of greenfield hardboard mills (new site, new construction). Therefore, no new greenfield hardboard mills are expected before 1985. EPA does not expect that new source requirements will preclude the construction of new plants.

An average size insulation board or hardboard plant with a BCT type biological treatment system will discharge between 0.5 and 2 million pounds of combined BOD 5 and TSS per year. Achievement of the proposed NSPS no discharge standard will prevent these pollutants from being discharged to navigable waterways. EPA believes that the pollutant reduction benefits outweight the associated costs.

XXII. Non-Water Quality Aspects of Pollution Control

The elimination or reduction of one form of pollution may aggravate other environmental problems. Therefore, Sections 304(b) and 306 of the Act require EPA to consider the nonwater quality environmental impacts and energy requirements of certain regulation. In compliance with these provisions, EPA has considered the effect of these regulations on air pollution, solid waste generation, and energy consumption. This proposal was circulated to and reviewed by EPA personnel responsible for nonwater quality environmental programs. While it is difficult to balance pollution problems against each other and aganist energy utilization, EPA is proposing regulations which it believes best serve often competing national goals.

The following are the nonwater quality environmental impacts (including energy requirements) associated with the proposed regulations:

Air Pollution—Wood Preserving Segment. The majority of the wood preserving industry currently achieves no discharge by technologies that include evaporation of a portion of the process wastewater. Although the Office of Research and Development of EPA has recently (August 1979) collected preliminary information indicating a transfer of pentachlorophenol to the air when evaporative technology is practiced. The Agency has not confirmed air pollution problems related to the use of these evaporative technologies. However, the *Solicitation of comments* section of this preamble requests information on possible intermedia transfer, particularly pentachlorophenol and polynuclear aromatics.

Air Pollution—Hardboard/Insulation Board Segment. Wastewater treatment technologies currently in use in this segment by direct dischargers are biological, usually extended aeration or activated sludge. Air pollution problems are not expected from the application of these technologies. Proposed NSPS prohibit discharge of process wastewater pollutants, based on spray irrigation of excess process wastewater. Eleven plants currently practice this technology, which will probably be used in rural locations where land costs are lower. EPA does not expect the constuction of new sources in the insulation board segment of the industry. Expansion in the wet process hardboard segment most likely will occur by enlarging of existing facilities rather than greenfield construction. Existing and new sources discharging to POTW are not required by these regulations to install and operate additional treatment and control technology. Imposition of these regulations on hardboard and insulation board plants are not expected to create any additional air pollution problems.

Solid Waste—Wood Preserving. Information collected from the data collection portfolios received from 216 wood preserving plants indicate that plants practicing BPT technology (biological treatment) prior to disposal of wastewater are generating an average of 0.38 cubic feet of sludge per 1000 cubic feet of wood treated. Plants meeting the previously promulgated pretreatment limitations are generating 0.49 cubic feet of sludge per 1000 cubic feet of wood treated. Plants already meeting the proposed NSPS and PSNS limitations of no discharge with evaporative technologies are generating 0.43 cubic feet of sludge per 1000 cubic feet of wood treated. Thus, no significant increase in sludge generation is expected from promulgation of these regulations.

Regulations proposed by EPA under Section 3001 of the Resource Conservation and Recovery Act (RCRA) list wood preserving industry solid wastes as "hazardous" [43 FR 49402 (August 22, 1979)]. These wastes, primarily the sludges from wastewater treatment, will be subject to rigorous handling, transportation, storage, and disposal requirements, under sections 3002–3004 of RCRA. EPA's proposed generator standards would require generators of wood preserving industry solid wastes to meet stringent containerization, labeling, and reporting requirements, and, if they dispose of wastes off-site, to prepare a manifest that will track the movement of the wastes from the generator's premises to a permitted off-site treatment, storage, or disposal facility. [See 43 FR 58946, 58979 (December 18, 1978)]. The proposed transporter regulations would require transporters of wood preserving industry wastes to comply with the manifest and assure that the wastes are delivered to a permitted facility. [See 43 FR 18506 (April 28, 1978)]. Finally, the proposed treater, storer, and disposer standards would establish technical design and performance standards for wood preserving waste storage facilities, and for landfills, basins, surface impoundments, incinerators, and other facilities where such wastes would be treated or disposed, as well as

security, contingency plan, employee training, record keeping, reporting, inspection, monitoring, and financial liability requirements for all such facilities. [See 43 FR 58946, 58982 (December 18, 1978)].

The technical study supporting these regulations did not include analyses of sludge generated by the wood preserving industry. Wood preserving process waters do contain toxic pollutants, and high molecular weight organic compounds tend to settle to the bottom of holding basins. Prohibiting the discharge of pentachlorophenol to a POTW eliminates the possibility of contamination of sludges generated by publicly owned treatment works.

Solid Waste—Hardboard/Insulation Board. Sludge generation resulting from current biological treatment ranges between 0.5 and 1.0 cubic feet per ton of production. The BPT and BCT regulations proposed herein will increase the total amount of sludge generated industry wide by less than five and ten percent, respectively. Composition of the sludge generated under BPT and BCT limitations will remain the same. The general pretreatment regulations (40 CFR Part 403) to which these facilities are subject will not result in the production of any sludge. Proposed NSPS include a combination of wastewater reuse and recycle, biological treatment of wastewater, and spray irrigation. Reuse and recycle of process water results in the uptake of solids in the product (removing them from the wastewater). No appreciable change in the quantity and characteristics of sludge is expected. Biological treatment before spray irrigation results in sludge generation equal to or less than the current levels, depending on the amount of biological treatment applied. Spray irrigation as a wastewater disposal option does not result in sludge generation.

Energy Requirements—Wood Preserving Segment. Forty-two wood preserving plants are indirect dischargers. The proposed regulations will require 27 plants, 21 in the Steam subcategory, and 6 in the Boulton subcategory, to discontinue the discharge of pentachlorophenol to POTW. If these plants continue to use this preservative, the most practical method of disposing of the process wastewater is through evaporation.

The total energy requirements for the twenty-one steam subcategory plants which must achieve no discharge are 184 megawatt hours per year. At $0.05 per kilowatt hour the energy cost is $9,200 per year. Six plants in the Boulton subcategory will require a total of 974 megawatts per year ($48,700 per year at $0.05 per kilowatt hour). The energy requirements for Boulton plants is considerably higher because the evaporation technology (pan or cooling tower) upon which the proposed limitation is based is more energy intensive than the spray evaporation technique proposed for steam plants. Both subcategories must evaporate 9 to 55 inches of precipitation falling in the immediate area of the treating cylinder. The steam plants spray water into the air and achieve evaporation using natural forces, sunlight and air movement. Boulton plants use a combination of applied heat and air movement to dispose of wastewater.

Energy Requirements—Hardboard/Insulation Board Segment. BPT—In the S1S hardboard subcategory two of the seven plants will have an additional energy requirement of 1,200 megawatts per year to achieve the BPT level of control. One of the five plants producing S2S hardboard and thermomechanical insulation board will have an additional energy requirement of 6,700 megawatts per year to achieve to BPT level of control.

One of the three plants producing S1S and S2S hardboard will have an additional energy requirement of 27,360 megawatts to achieve the BPT level of control. The direct discharging segment of the insulation board industry will not have any additional energy requirements to achieve the BPT level of control.

BCT—In the S1S subcategory four plants will have an additional energy requirement of 3,140 megawatts per year to achieve the BCT level of control. One plant producing S2S hardboard and thermomechanical insulation board will have an additional energy requirement of 800 megawatts per year to achieve the BCT level of control. One plant producing S1S and S2S hardboard will have an additional energy requirement of 40 megawatts to achieve the BCT level of control.

XXIII. Best Management Practices

Section 304(e) of the Clean Water Act gives the Administrator authority to prescribe "best management practices" (BMP's), as described under Authority and Background. EPA intends to develop BMP's which are: (1) applicable to all industrial sites; (2) applicable to a designated industrial category; and (3) offer guidance to permit authorities in establishing BMP's required by unique circumstances for a given plant.

This rulemaking does not address BMP's applicable to the wood preserving, hardboard or insulation board segments, or other segments of the timber products industry. The technical study supporting the regulations presented here was completed before the passage of the Water Quality Act Amendments of 1977, the law that gives the Agency responsibility for developing BMPs. Rather than delay the publication of the regulations included in this rulemaking, the BMP publication will be postponed. The Agency plans to develop BMP support information in the near future. Areas of interest include: minimizing contamination of precipitation, controlling runoff from raw material storage areas, control of spillage or leaks, and sludge disposal.

XXIV. Upset and Bypass Provisions

An issue of recurrent concern has been whether industry guidelines should include provisions authorizing noncompliance with effluent limitations during periods of "upset" or "bypass." An upset, sometimes called an "excursion," is unintentional noncomplience occurring for reasons beyond the reasonable control of the permittee. It has been argued that an upset provision in EPA's effluent limitations guidelines is necessary because such upsets will inevitably occur because of limitations in even properly operated control equipment. Because technology-based limitations are to require only what technology can achieve, it is claimed that liability for such situations is improper. When confronted with this issue, courts have divided on the question whether an explicit upset or excursion exemption is necessary, or whether upset or excursion incidents may be handled through EPA's exercise of enforcement discretion. Compare *Marathon Oil Co.* v. *EPA*, 564 F. 2d 1253 (9th Cir. 1977) with *Weyerhaeuser* v. *Costle, supra* and *Corn Refiners Association, et al.* v. *Costle*, No. 78–1069 (8th Cir., April 2, 1979). See also *American Petroleum Institute* v. *EPA*, 540 F 2d 1023 (10th Cir. 1976); *CPC International, Inc.* v. *Train*, 540 F. 2d 1320 (8th Cir. 1976); *FMC Corp.* v. *Train*, 539 F. 2d 973 (4th Cir. 1976).

While an upset is an unintentional episode during which effluent limits are exceeded, a bypass is an act of intentional noncompliance during which waste treatment facilities are circumvented in emergency situations. Bypass provisions have, in the past, been included in NPDES permits.

EPA has determined that both upset and bypass provisions should be included in NPDES permits and has recently promulgated NPDES regulations which include upset and bypass permit provisions (See 44 FR 32854 (June 7, 1979)). The upset provision establishes

an upset as an affirmative defense to prosecution for violation of technology-based effluent limitations. The bypass provision authorizes bypassing to prevent loss of life, personal injury or severe property damage. Consequently, although permittees in the timber industry will be entitled to upset and bypass provisions in NPDES permits, these proposed regulations do not address these issues.

XXV. Variances and Modifications

Upon the promulgation of final regulations, the effluent limitations for the appropriate subcategory must be applied in all federal and state NPDES permits thereafter issued to timber industry direct dischargers. In addition, on promulgation, the pretreatment limitations are directly applicable to indirect dischargers.

For the BPT and BCT effluent limitations, the only exception to the binding limitations is EPA's "fundamentally different factors" variance. See *E. I. du Pont de Nemours & Co.* v. *Train*, 430 U.S. 112 (1977); *Weyerhaeuser Co.* v. *Costle, supra.* This variance recognizes factors concerning a particular discharger which are fundamentally different from the factors considered in this rulemaking. Although this variance clause was set forth in EPA's 1973–1976 industry regulations, it now will be included in the NPDES regulations and will not be included in the timber or other industry regulations. See the final NPDES regulations at 40 CFR 125.30, 44 FR 32854 (June 7, 1979) for the text and explanation of the "fundamentally different factors" variance.

Pretreatment standards for existing sources are subject to the "fundamentally different factors" variance and credits for pollutants removed by POTW. (See 40 CFR §§ 403.7, 403.13; 43 FR 27736 (June 26, 1978)). Pretreatment standards for new sources are subject only to the credits provision in 40 CFR § 403.7. New source performance standards are not subject to EPA's "fundamentally different factors" variance or any statutory or regulatory modifications. See *du Pont* v. *Train, supra.*

XXVI. Relationship to NPDES Permits

The BCT and NSPS limitations in these regulations will be applied to individual timber products processing plants through NPDES permits issued by EPA or approved state agencies, under Section 402 of the Act. The preceding section of this preamble discussed the binding effect of these regulations on NPDES permits, except to the extent that variances and modifications are expressly authorized. This section describes several other aspects of the interaction of these regulations and NPDES permits.

First, one matter which has been subject to different judicial views is the scope of NPDES permit proceedings in the absence of effluent limitations guidelines and standards. Under currently applicable EPA regulations, states and EPA Regions issuing NPDES permits prior to promulgation of these regulations must include a "reopener clause," providing for permits to be modified to incorporate "toxics" regulations when they are promulgated. (See 43 FR 22159 (May 23, 1978)). To avoid cumbersome modification procedures, EPA has adopted a policy of issuing short-term permits, with a view toward issuing long-term permits only after promulgation of these and other BAT regulations. The Agency has published rules designed to encourage states to do the same. (See 43 FR 58066 (Dec. 11, 1978)). However, in the event that EPA finds it necessary to issue long term permits prior to promulgation of BAT regulations, EPA and states will follow essentially the same procedures utilized in many cases of initial permit issuance. The appropriate technology levels and limitations will be assessed by the permit issuer on a case-by-case basis, on consideration of the statutory factors. (See *U.S. Steel Corp.* v. *Train*, 556 F. 2d 822, 844, 854 (7th Cir. 1977)). In these situations, EPA documents and draft documents (including these proposed regulations and supporting documents) are relevant evidence, but not binding, in NPDES permit proceedings. (See 44 FR 32854 (June 7, 1979)).

Another noteworthy topic is the effect of these regulations on the powers of NPDES permit issuing authorities. The promulgation of these regulations does not restrict the power of any permit-issuing authority to act in any manner not inconsistent with law or these or any other EPA regulations, guidelines or policy. For example, the fact that these regulations do not control a particular pollutant does not preclude the permit issuer from limiting such pollutant on a case-by-case basis when necessary to carry out the purposes of the Act. In addition, to the extent that state water quality standards or other provisions of state or Federal law require limitation of pollutants not covered by these regulations (or require more stringent limitations on covered pollutants), such limitations must be applied by the permit-issuing authority.

One additional topic that warrants discussion is the operation of EPA's NPDES enforcement program, many aspects of which have been considered in developing these regulations. The Agency wishes to emphasize that, although the Clean Water Act is a strict liability statute, the initiation of enforcement proceedings by EPA is discretionary. EPA has exercised and intends to exercise that discretion in a manner which recognizes and promotes good faith compliance efforts and conserves enforcement resources for those who fail to make good faith efforts to comply with the Act.

XXVII. Small Business Administration Financial Assistance

Two SBA programs may be important sources of funding for the Timber Products Processing Industry Point Source Category. They are the SBA's Economic Injury Loan Program and the Pollution Control Financing Guarantees.

Section 8 of the FWPCA authorizes the SBA through its Economic Injury Loan Program to make loans to assist small business concerns in effecting additions to or alterations in equipment, facilities, or methods of operation in order to meet water pollution control requirements under the Federal Water Pollution Control Act if the concern is likely to suffer a substantial economic injury without such assistance. This program is open to small business firms as defined by the Small Business Administration. Loans can be made either directly by SBA or through a bank using an SBA guarantee. The interest on direct loans depends on the cost of money to the federal government and is currently set at 7⅜ percent. Loan repayment periods may extend up to thirty years depending on the ability of the firm to repay the loan and the useful life of the equipment. SBA loans made through banks are at somewhat higher interest rates.

Firms in the Timber Products Processing Industry Point Source Category may be eligible for direct or indirect SBA loans. For further details on this Federal loan program write or telephone any of the following individuals at EPA Headquarters or in the ten EPA Regional offices:

Coordinator—Mr. Sheldon Sacks, Environmental Protection Agency, Financial Assistance Coordinator, Office of Analysis and Evaluation (WH–586), 401 M Street, S.W., Washington, D.C. 20460, Telephone: (202) 755–3624.

Region I—Mr. Ted Landry or Gerald DeGaetno, Environmental Protection Agency, J. F. Kennedy Federal Office Building, Room 2203, Boston, Massachusetts 02203, Telephone: (617) 223–5061.

Region II—Mr. Kenneth Eng, Chief, Air and Environmental Applications Section,

Environmental Protection Agency, 26 Federal Plaza, New York, New York 10007, Telephone: (212) 264–4711.

Region III—Mr. Chuck Sapp, Environmental Protection Agency, Curtis Building, 3EN40, 6th and Walnut Streets, Philadelphia, Pennsylvania 19106, Telephone: (215) 597–9433.

Region IV—Mr. John Hurlebaus, Environmental Protection Agency, 345 Courtland Street, N.E., Atlanta, Georgia 30308, Telephone: (404) 881–4793.

Region V—Mr. Chester Marcyn, Contingency Plan Coordinator, Surveillance and Analysis Branch, Enforcement Division, Environmental Protection Agency, 536 South Clark Street, Chicago, Illinois 60605, AC (213) 353–2316.

Region VI—Ms. Jan Horn, Attorney, Water Enforcement Division, Water Program Branch, Environmental Protection Agency, 1st International Building, 1201 Elm Street, Dallas, Texas 75270, Telephone: (214) 767–2760.

Region VII—Mr. Donald Sandifer, Sanitary Engineer, Water Division, Engineering Branch, Environmental Protection Agency, 324 East 11th Street, Kansas City, Missouri 64108, Telephone: (816) 374–2725.

Region VIII—Mr. Gerald Burke, Sanitary Engineer, Office of Grants, Water Division, Environmental Protection Agency, 1860 Lincoln Street, Denver, Colorado 80203, Telephone: (303) 837–3961.

Region IX—Mr. Stan Leibowitz or Ray Seid, Permits Branch, Enforcement Division, Environmental Protection Agency, 215 Fremont Street, San Francisco, California 94111, Telephone: (415) 556–3450.

Region X—Mr. Dan Bodien, Special Technical Advisor, Enforcement Division, Environmental Protection Agency, 1200 6th Avenue, Seattle, Washington 98101, Telephone: (206) 442–1270.

Headquarters—Mr. Donnel Nantkes, Legal Counsel, Grants Contracts and General Administration Division, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Telephone: (202) 426–8830.

Interested persons may also contact the Assistant Regional Administrators for Finance and Investment in the Small Business Administration Regional offices for more details on federal loan assistance programs. For further information, write or telephone any of the following individuals:

Region I—Mr. Russell Berry, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 60 Batterymarch, 10th Floor, Boston, Massachusetts 02203, Telephone: (617) 223–3891.

Region II—Mr. John Axiotakis, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 26 Federal Plaza, New York, New York 10007, Telephone: (212) 264–1452.

Region III—Mr. David Malone, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 231 St. Asapas Road, West Lobby, Suite 646, Bala Cynwyd, Pennsylvania 19004, Telephone: (215) 596–5908.

Region IV—Mr. Merritt Scoggins, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 1401 Peachtree Street, N.E., Atlanta, Georgia 30309, Telephone: (404) 881–2009.

Region V—Mr. Larry Cherry, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 219 South Dearborn Street, Chicago, Illinois 60604, Telephone: (312) 353–4533.

Region VI—Mr. Donald Beaver, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 1720 Regal Row, Suite 230, Dallas, Texas 75202, Telephone: (214) 749–1265.

Region VII—Mr. Richard Whitley, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 911 Walnut Street, 23rd Floor, Kansas City, Missouri 64106, Telephone: (816) 374–3927

Region VIII—Mr. James Chuculate, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 1405 Curtis Street, Executive Tower Building—22nd Floor, Denver, Colorado 80202, Telephone: (303) 327–3988.

Region IX—Mr. Charles Hertzberg, Assistant Regional Administrator for Finance and Investment, Small Business Administration, 450 Golden Gate Avenue, San Francisco, California 94102, Telephone: (415) 556–7782.

Region X—Mr. Jack Welles, Regional Administrator for Finance and Investment, Small Business Administration, 710 2d Avenue, Dexter Horton Bldg.—5th floor, Seattle, Washington 98104, Telephone: (206) 399–5679.

In addition to the Economic Injury Loan Program, the Small Business Investment Act, as amended by Public Law 94–305, authorizes SBA to guarantee the payments on qualified contracts entered into by eligible small businesses to acquire needed pollution facilities when the financing is provided through taxable and tax-exempt revenue or pollution control bonds. This program is open to all eligible small businesses. Bond financing with SBA's guarantee of the payments makes available long term (20–25 years), low interest (usually 5 to 7 percent) financing to small businesses on the same basis as that available to larger national or international companies. For further details on this program write to the SBA, Pollution Control Financing Division, Office of Special Guarantees, 1815 North Lynn St., Magazine Bldg., Rosslyn, VA 22209 (703) 235–2900.

XXVIII. Summary of Public Participation

On October 21, 1978, the Agency circulated for public comment a draft technical report to a number of interested parties. The report was available to members of the American Wood Preservers Institute-Environmental Advisory Group, the American Hardboard Association-Environmental Advisory Group, all insulation board producing companies, the Natural Resources Defense Council, the U.S. Department of Commerce, EPA Regional Offices, EPA Regional libraries and all States that have authority to issue National Pollution Discharge Elimination System (NPDES) permits. This document included the technical information that served as the basis for the regulations proposed at this time, but did not make recommendations or present conclusions. Reviewers of the technical report were asked to forward to the Agency their written comments by November 23, 1978; they also were invited to a meeting December 7, 1978 where they could discuss their comments with the technical, economic impact, legal, water quality, and toxic criteria staffs of the Agency. In addition, on December 1, 1978, the Agency circulated for public comment draft economic reports to the same parties who received the technical draft. The reports assessed the potential economic impact of the various control options under consideration by the Agency at that time. Participants were asked to submit their comments by January 3, 1979. A brief summary of the comments received is presented here.

1. *Comment:* One participant stated that although 216 wood preserving plants responded to the technical Data Collection Portfolio (DCP), the effort was severely flawed because the definition of the term "process wastewater" contained in the DCP differed from the definition in the existing regulation. The same participant also suggested that the Agency develop a definition of process wastewater which accurately reflects the waters which contribute to the overall volume of water requiring treatment. This would include precipitation falling in the immediate area of the retort (treating cylinder), boiler blowdown, etc.

Response: EPA purposely expanded the definition of "process wastewater" from the definition in the existing regulation. Respondents were requested to identify, characterize, and provide historical data on each of these sources of water. The Agency then used this data base to reevaluate the suitability of the existing definition of "process wastewater" for these proposed regulations. Rather than impairing the accuracy of the data, the expanded definition contained in the DCP, and the numerous telephone follow-ups confirming the interpretation of the responses, actually enhances understanding of each contributing source of wastewater in the wood preserving industry.

The plant-by-plant cost estimates for compliance with alternative treatment technologies were based on actual water flows reported by each plant. This included sources such as boiler blowdown, steam condensate, and rainwater falling in the immediate vicinity of the retorts which might be mixed with the process generated wastewater; the reported flows specifically excluded run-off from raw material or finished product storage areas and general yard runoff. The proposed regulations here are based on the same process wastewater definition previously promulgated.

The new regulations will not apply to boiler blowdown, noncontact cooling water, and run-off from raw material or finished product storage areas; precipitation on the immediate area of the retort is included in the definition of process wastewater. Runoff from raw material and finished product storage areas might be addressed later in a review of Best Management Practices (BMP) of the industry.

2. *Comment:* One participant expressed concern that wood preserving industry members who cooperated with the Agency's contractor during the sampling program were not advised of the data results in order that they could compare these with other available data.

Response: Analytical results from the screening sampling program conducted in November 1976 through January 1977 were mailed to participating plants for their review on June 23, 1977 Analytical results from the 1977 verification sampling program were published in the draft contractor's technical report in July 1977, copies of which were provided to each member of the American Wood Preservers Institute (AWPI) Environmental Advisory Group. Although the Agency coded the pollutant data in the draft report to insure confidentiality, plants and companies that requested their codes received them. Analytical results from the 1978 verification sampling program were mailed to participating plants for their review on June 30, 1978.

3. *Comment:* One participant stated that the limited sampling of wood preserving plants was not sufficient to produce statistically representative results.

Response: The data base used to formulate these proposed regulations included 16 plants that were sampled for conventional pollutants, heavy metals, and PCP during the 1975 Pretreatment study; six plants that were sampled for conventional pollutants, pentachlorophenol (PCP), heavy metals, and base neutral extractives (specific phenolics other than PCP and volatile organic data) during the 1977 verification program; and five plants that were sampled for conventional pollutants, PCP, heavy metals, specific phenolics, base neutral extractives and volatile organic compounds during the 1978 verification program. The 1975 study collected a minimum of two grab samples per sampling point, and the remaining studies collected three 24-hour composites per sampling point. The resulting data indicated that toxic pollutants are present in sufficient quantities in the process wastewater of the wood preserving segment to warrant consideration of effluent limitations.

4. *Comment:* Two comments suggested that evaporation techniques work well in areas of low relative humidity and low rainfall but are not necessarily well suited to all geographical areas of the country.

Response: Although the Agency recognizes that evaporation techniques are easier to apply in areas of low relative humidity and low rainfall, these techniques are employed successfully by plants in areas of high humidity and high rainfall along the coasts of the Gulf of Mexico and the Pacific Northwest. The Development Document contains information on the feasibility of evaporative techniques in differing climactic extremes. EPA prepared cost estimates of evaporation systems using "worst case," i.e., high humidity, high rainfall, climatic conditions for the geographical area in which the plants are located.

5. *Comment:* In reference to forced evaporation technology for Boulton plants, one participant stated that external heat is frequently required to evaporate excess rainwater and process wastewater, and that this technology carries significant operating costs in addition to the energy cost, including costs for coil cleaning and disposal of solids.

Response: The Agency recognizes that an external heat source will be required to ensure that all wastewaters, intermittent included, are evaporated in a cooling tower/forced evaporation system using heat recovered from condensed vapors during the vacuum cycle of the Boulton conditioning process. Proper management and segregation of wastewater sources within the plant can minimize the amount of process wastewater requiring evaporation. Cost estimates reported in the Development Document for the model plants and for adoption of the system by existing plants, include operating expenses for external energy, maintenance, and disposal of residues.

6. *Comment:* One comment addressed the validity of data presented in the contractors draft report that associated a greater volume of process wastewater with plants that treat a significant amount of dry stock than with plants that use closed steaming preconditioning.

Response: The data presented in the document were provided by the plants in their response to the DCP; additionally each of the plants was contacted during a follow-up telephone survey to ensure proper interpretation of the data. Many of the plants listed as treating predominantly dry stock also treat a considerable amount of green stock by open or modified (semi-closed) steam conditioning.

7 *Comment:* The Agency received two comments which stated that activated carbon technology is inappropriate for the wood preserving industry because it is not sufficiently proven and is too costly.

Response: The Agency recognizes the lack of full-scale operating data on activated carbon technology applications in the wood preserving industry. The installation and operation of activated carbon technology is expensive. Activated carbon was evaluated as a candidate treatment technology based on successful applications in related industries, and the relative affinity of phenols, including PCP, for adsorption on activated carbon.

8. *Comment:* Two comments requested EPA to address the applicability of spray irrigation techniques in particular situations.

Response: The Agency recognizes spray irrigation technology as a viable alternative to evaporation for achieving no discharge of process wastewater under favorable hydrological conditions. One Boulton plant and ten steaming plants currently eliminate discharge of process wastewater through application of spray irrigation technology, usually following oil-water separation and biological treatment. Section VII of the Development Document has been expanded to include a more detailed discussion of this technology. Spray irrigation is generally more expensive and more land intensive than evaporation technology, and requires suitable soil conditions.

9. *Comment:* One participant noted that flocculation/filtration, the technological basis for existing pretreatment standards for the wood preserving segment, results in phenols levels (as measured by Standard Methods) nearly as low as the phenols levels resulting from biological treatment, and the removal of polynuclear aromatics (PNAs) equals,

and in some cases exceeds, the removals of PNAs achieved by biological treatment. The participant concluded that further regulation of the indifect discharging segment was not necessary.

Response: The Development Document shows that pentchorophenol (PCP), a compound not measured by the *Standard Methods* procedures, is reduced 97 percent by industry biological treatment systems (long-term). Flocculation/filtration technology reduces PCP about 83 percent. PCP levels after industrial (long-term) biological treatment are as low as 1 mg/1, while levels after flocculation/filtration average 12 to 15 mg/1. Because biological treatment reduces PCP levels more effectively, it was considered as a pretreatment technology.

10. *Comment:* One participant stated that air pollution considerations might preclude the use of evaporation technology within a local air management district.

Response: In August 1979, the Office of Research and Development obtained preliminary analytical data from a labortory scale evaporation system using wood preserving wastewater that indicated that pentachlorophenol was being transferred to the air. The Agency is planning sampling and analysis at a number of wood preserving plants currently practicing evaporation technology to dispose of wastewater. The information resulting from this study will be considered in the promulgation phase of this relemaking. Information is solicited on this question later in this preamble.

11. *Comment:* One participant stated that the cost estimates for primary oil/water separation reported in the draft technical document are understated, while another felt that dollar values of materials recovered thourgh oil separation facilities should not be deducted from annual costs of pollution control.

Response: As described in the Development Document, the value of the oil recovered in the total primary oil recovery system (which includes rough separation tanks and API-type separators) is sufficient to reduce the overall capital costs and annual operating cost allocated to pollution control to one-half of the cost of the primary oil recovery system. Because the cost of BPT and the existing pretreatment standards (promulgated in 1976) include primary oil removal costs, the plant-by-plant cost estimates did not include any costs for primary oil separation equipment.

12. *Comment:* One participant stated that the contractor's draft report failed to acknowledge the additional time required for the closed steaming process (as compared to other steam conditioning methods) and made no mention of the quality control problems presented by this process.

Response: The Agency has recognized these coments on time and quality control problems associated with the closed steaming process, has considered them in the development of these proposed regulations, and has incorporated them into the Development Document. The practice of closed or semi-closed steaming is not required by the proposed regulations, but is presented as an optional procedure, to be considered where appropriate.

13. *Comment:* Several participants indicated that their costs of sludge disposal were greater than those estimated in the contractor's draft report. These higher costs are attributed to shipping this sludge long distances to approved landfills.

Response: The sludge disposal costs presented in the contractor's draft report were based on information received in the DCP The Agency recognizes that some plants may experience sludge disposal costs greater than normal.

14. *Comment:* One participant note that the provisions of the Coastal Zone Management Act might prevent the construction of aerated or facultative lagoons at a particular plant site. The participant noted that the cost of land needed to construct additional treatment facilities adjacent to two existing wood preserving plants located in urban areas in the Pacific Northwest is over $200,000 per acre, much greater than the value of the land used in estimating costs containing in the technical document.

Response: The Agency recognizes that all the treatment and control options may not be appropriate for all wood preserving facilities. In the event that a specific facility is not able to meet a promulgated effluent limitation or standard because of a unique situation, such as being subject to the Costal Zone Management Act, or prohibitive land costs, the variance provisions discussed above are available. Land costs were assumed at $10,000 per acre for the installation of wastewater treatment systems. Although $10,000 per acre land may not be available to all plants, the Agency believes that this is a reasonable estimate.

15. *Comment:* One comment stated that the control technologies as redefined in the 1977 Amendments to the Federal water Pollution Control Act, Section 304(b)(2)(B)(4) have not been properly described. The participant pointed out that BAT applies to toxic pollutants, otherwise BCT is applicable. Further, in the BCT there is the test of reasonableness to be applied and BAT is that which is economically achievable.

Response: The contractor's draft report contained technical information only for Agency use in developing effluent guidelines and standards. The contractor's draft report did not address statutory requirements of the Act. Earlier sections of this preamble address the statutory requirements of the Act.

16. *Comment:* A comment was made that in Section I of the contractor's draft report, *"Conclusion,"* the obvious conclusion should be that BCT is the control technology to be applied to the wet process hardboard segment.

Response: The Agency directed the contractor not to include conclusions or recommendations in the draft report. EPA's review of the report has determined that BCT is the appropriate effluent limitation basis for the wet process hardboard and the insulation board segments of the industry.

17 *Comment:* One participant felt that the variation in raw materials from plant to plant in the hardboard/insulation board segment was sufficient to justify classification on the basis of raw material.

Response: The Agency acknowledges that variation in raw materials from plant to plant affects the raw waste load generated. Subcategorization, as presented in the Development Document, considers the variation in raw material among plants and its affect on effluent BOD5 and TSS variability. The Agency has found that the differences in raw waste loads support two subcategories in the hardboard segment, but do not support a plant by plant subcategorization.

18. *Comment:* One participant stated that previously excluded sources of wastewater in the insulation board/hardboard industry have now been included.

Response: As discussed in the response to Comment 1, the DCP purposely expanded the definition of process wastewater for information collection purposes. The definition of process wastewater in the proposed regulation is the same as that in the previously existing regulations for this industry.

19. *Comment:* One participant felt that Figure V–1 in the technical document, Variation of BOD with Pre-heating Pressure, should not be considered applicable for the United States, and should be deleted because it was based on a 7 day BOD, rather than a 5 day BOD.

Response: The figure in question is based on data collected in a scientific

study relating BOD loading to pre-heating temperature. The figure is used for illustrative purposes in the Development Document and is not used to quantify raw wastewater BOD loadings.

20. *Comment:* One comment questioned the accuracy of a footnote to Table V–22 of the contractor's draft report which indicated that 41.4 lbs/ton of BOD of the reported 41.6 lbs/ton of BOD in the raw waste load from plant 97 entered the process through the recycle of treated effluent. This would mean that only 0.2 lbs/ton of BOD is instantaneously generated.

Response: The footnote was in error and has been corrected for the Development Document. Of the 41.6 lbs/ton of BOD reported in the raw waste load for this plant, 0.2 lbs/ton entered the process through recycle of treated effluent and 41.4 lbs/ton is the instantaneously generated raw waste load.

21. *Comment:* The Agency received one comment on the toxic pollutant content of wastewaters from the hardboard/insulation board segment. The commenter requested that a statement be included in the Development Document to the effect that "these numbers as reported will not be properly used in establishing a level of discharge conditions of a permit." Apparently, this request was based upon the participant's question of protocol, procedures of analysis, and sample base.

Response: The proposed regulations do not establish numerical limitations on toxic pollutants for this segment. The limitations are based on performance of wastewater treatment and control technologies currently practiced in the industry. The "Relationship to NPDES Permits" section of this preamble addresses the question of application and enforcement of these regulations on timber industry plants.

22. *Comment:* One participant questioned the use of biological treatment prior to disposal of hardboard or insulation board wastewater by spray irrigation.

Response: The Agency agrees that biological treatment prior to spray irrigation of hardboard and insulation board effluents may not always be required, because allowable BOD*5* loadings for spray irrigation depend on site-specific soil conditions. For the purposes of presenting NSPS cost information, however, the Agency assumed that biological treatment would be required in order that NSPS costs not be underestimated. The proposed regulations do not require the application of any specific technology or technology train.

23. *Comment:* One comment claimed that the term "new source" was not clearly defined and that the cost estimates in the contractor's draft report applied only to greenfield plants and not to expansions of existing plants.

Response: The costs presented for new sources do apply to "greenfield" plants. Neither the contractor's draft report nor the Development Document include costs of water pollution control associated with the expansion of existing plants. Regulations for NPDES (40 CFR 122.47) 43 FR 32915 (June 7, 1979) state that: "The modification of an existing source by . . the addition of such (process) equipment on the site of the existing source which results in a change in the nature or quantity of pollutants discharged is not a new source under this section." Such plant expansions are covered by permit modification provisions of 40 CFR 122.31.

24. *Comment:* One participant questioned the differences in biological treatment and related costs between Candidate Treatment Technology B and Candidate Treatment Technology C as presented in the contractor's draft report.

Response: The biological treatment systems in Candidate Treatment Technology B for the insulation board/hardboard subcategories were designed for a BOD*5* removal of approximately 99 percent. The biological treatment systems in Technology C for the insulation board subcategories were designed for a BOD*5* removal of approximately 89 percent. For the hardboard subcategories, the biological treatment systems in Technology C were designed for a BOD*5* removal of approximately 93 percent. The differences in costs for the biological treatment systems of Candidate Treatment Technologies B and C are a function of the differences in BOD*5* removals. Systems designed for higher BOD*5* removals will cost more because of increased aeration costs and longer detention times.

25. *Comment:* One participant questioned estimation of sludge production in cubic yards per ton, and felt that the presentation of estimated metals content of the sludge resulting from wastewater treatment was inappropriate.

Response: The sludge generation information in the contractor's draft report came from the information provided in the DCP The Development Document presents *estimated* metals quantities, assuming that the metals content of the sludge equals the raw wastewater metals, minus the treated effluent metals, with the mass of sludge being generated as a known factor. The Agency acknowledges that sludge generation data provided in the DCP varied; plants practice varying degrees of sludge recycling, and different methods of sludge handling and disposal. The Agency is conducting further studies to quantify the metals content (and organic toxics) of sludges resulting from wastewater treatment.

26. *Comment:* A comment was made that the use of chemical coagulants is not uniformly applicable to the insulation board/hardboard subcategories; several instances have been noted where the required additive rates are at levels which are cost prohibitive.

Response: At least two plants in the hardboard/insulation board segment are using chemically assisted coagulation. Although these plants find this practice beneficial to operation and pollution control, other plants have attempted to use coagulants without apparent success. The Agency agrees that chemically assisted coagulation has not been adequately demonstrated to be considered applicable to all plants.

27. *Comment:* One participant asserted that the application of proposed NSPS to a greenfield plant would make it economically impossible for the hardboard industry to construct such facilities.

Response: The process water control and treatment technologies considered applicable to new sources in the hardboard/insulation board industry are currently practiced by plants in the segment. The technologies are presented not as requirements, but as options. For a potential new source, one of these options might be more appropriate than another. The information presented addresses the technical feasibility, applicability of these options, and the installation and operating costs.

The economic impact analysis does not anticipate the construction of greenfield wet process hardboard plants between now and 1985. This is because it is less expensive for the industry to increase capacity through incremental expansion of existing plants, or through conversion of insulation board capacity (where excess capacity is expected) to hardboard production. In addition, pollution control costs are not substantially different for greenfield plants than for other methods of industry expansion. Therefore, EPA does not expect the proposed NSPS to affect significantly the construction of greenfield plants.

28. *Comment:* One participant stated that the average annual gross

production reported for one plant in the technical document was in error. The production reported in the document was actually the shipped panel production and not gross production as stated.

Response: The Agency had made previous attempts to clarify the production data reported by this plant. The corrected gross production figure is included in both the Development Document and in the analysis of raw and treated waste loads generated and discharged.

29. *Comment:* A participant questioned whether the plants' raw waste load data presented throughout the contractor's draft report reflected only the 1977 data.

Response: All raw waste load data in the Development Document reflect historical plant data from the latest period for which data was available, usually calendar year 1977 and in some cases 1976. If the waste loads are developed from a different data base, it is noted in the Development Document.

30. *Comment:* A participant questioned if the same analytical technique for total phenols was used for the 1977 and 1978 verification sampling programs, and what technique was used.

Response: The 4-aminoantipyrine (4-AAP) *Standard Method* was used during both the 1977 and 1978 verification sampling programs.

31. *Comment:* One comment concerned the presence of 10 μg/l of toluene in a plant's intake water, the source being a natural stream which flows through forest land receiving no industrial wastewater discharges.

Response: Toluene was found, at 10 mg/l in the plant intake water. This may have been a false positive indication, due to the fact that the concentration observed was at the limit of analytical confidence.

32. *Comment:* One comment questioned the mercury concentration of 0.018 mg/l in the plant's raw wastewater when the plant was sampled by the Agency's contractor in March 1978. The raw wastewater was sampled by the plant in November 1978; analytical results showed 0.0013 mg/l mercury on that date.

Response: The verification sampling and analysis was conducted in March 1978, five months prior to the plant's analysis. Although the Agency was not able to determine the source of the mercury, it is possible that the watershed from which the stream receives runoff or the soil from which the trees were harvested during the period of verification sampling contained high levels of mercury.

33. *Comment:* A comment was made that the annual operating and energy costs of compliance presented in Table VIII-87 (hardboard segment costs of compliance for individual plants—direct dischargers) seemed low when compared with the current treatment costs for these plants.

Response: The costs of compliance presented in the draft report and in the Development Document reflect incremental costs above and beyond the plant's current level of treatment and do not reflect total costs presently incurred by the plant.

34. *Comment:* Several participants expressed concern that the allowable treated effluent wasteloads for the candidate treatment technologies, which are based on actual annual average data for several plants, will not be attainable on a monthly basis because of seasonal variation in biological treatment system efficiency. Another participant felt that the application of a variability factor, based on 99 percent confidence with 50 percent probability, would not result in an attainable limitation on a daily basis.

Response: A variability factor applied to average treated effluent levels measures seasonal effects on biological treatment efficiency. The application of a variability factor, derived from an analysis of two years of treated effluent data from each plant's inplace biological treatment systems, and combined with bypass and upset provisions, will result in a fair and equitable effluent guidelines limitation. The variability factor itself is influenced by treatment system performance during periods of cold weather.

35. *Comment:* One participant felt that the presentation of total phenols as measured by *Standard Methods* could be confused with the data for phenol itself. Furthermore, the comment was made that analysis of total phenols is inappropriately applied to raw wastewaters from the insulation board/hardboard industry because they indicate the presence of a great many wood-derived compounds with a phenolic core structure which are not toxic pollutants and have not been identified as harmful to aquatic life or other water uses.

Response: Phenols, as measured by the *Standard Methods* procedure has been identified by the Administrator as a toxic pollutant. The *Standard Methods* phenol data presented in the Developement Document is identified as such to eliminate confusion between *Standard Methods* phenols and the specific compound phenol (C_6H_5OH). The *Standard Methods* procedure measures a class of compounds including phenol, ortho- and meta-substituted phenols and, under the proper conditions of pH, certain para-substituted phenolics. It is acknowledged that wood derived compounds with a phenolic core structure are measured by this method.

36. *Comment:* A comment was made that in presenting toxic pollutant concentration data which are at or near the detection limit for the analytical techniques employed, the data should be accompanied by an indication of the precision that can be associated with a given result. Another comment recommended that sample handling, sample preservation techniques, and the presence of substances in the wastewater other than those of interest be evaluated for their effects on the precision, accuracy, and limits of detection of the Gas Chromatography/Mass Spectrophotometry analysis of organic compounds.

Response: The Agency agrees that analytical data should be accompanied by a discussion of analytical precision. Precision and accuracy studies were not conducted during this current review of the timber industry. The Agency has precision and accuracy studies under way and is soliciting information regarding this issue later in this preamble. Nonetheless, the regulations proposed here are based on wastewater control and treatment technologies as they are currently demonstrated in the industry.

37. *Comment:* A comment noted that all rainwater falling in the immediate vicinity of the treating area should be included in the estimates of rainfall runoff which becomes mixed with process wastewater.

Response: The Agency recognizes that rainwater falling in the immediate vicinity of the retorts may become mixed with other process generated wastewater and includes it in the definition of "process wastewater" set forth in this proposed regulation. Sampling data on plants presented in the Development Document include the contribution of this wastewater source, as did all cost estimates for both model plants and the plant-by-plant cost estimates for compliance. In estimating the runoff quantities in question, it was assumed that all rainwater falling in the immediate vicinity of the treating area, as defined in the Development Document, would become mixed with process wastewater.

38. *Comment:* Two comments stated that realistic consideration was not given to the influence of rainwater runoff and geological conditions in different areas of the country on wastewater quantity and quality.

Response: The proposed regulation excludes rainwater runoff from all areas other than runoff from the immediate vicinity of the treating cylinders which actually becomes mixed with process wastewater. The plant-by-plant cost estimates presented in the Development Document used location specific rainfall data obtained from NOAA publications. Unchanneled or uncollected runoff from raw material or finished product storage areas and other areas of the plant is a nonpoint pollution source which may be addressed at a later date in a review of Best Management Practices (BMP) of the industry.

39. *Comment:* One comment stated that toxic pollutant base neutral extractives data obtained during verification sampling at one wood preserving plant are either in error, or reflect unusal or upset conditions because they do not agree with data obtained at two other plants and do not compare with data obtained at the same plant one year earlier. The participant requests that the data in question be deleted.

Response: The base neutral extractives data for PNAs reported for the plant in question are an average of three data points each representing a single 24-hour composite. Further review of these data indicates that the PNA concentrations for one of these three data points is indeed a statistical outlier which can be deleted from the data base as unrepresentative. The values reported for parameters such as oil and grease, COD, phenols, and other toxic pollutants in the same sample show no significant evidence of upset or unusual conditions, nor were unusual conditions or upset reported by the plant or sample team during sampling. The outlier will be deleted from the data base, and the concentrations of PNAs reported for this plant will be based on the average of the remaining two 24-hour composites obtained at the plant.

40. *Comment:* One participant requested that the requirements of the regulations recently proposed pursuant to the Resource Conservation and Recovery Act (RCRA) be addressed in this rulemaking.

Response: It is difficult to determine the effects of RCRA on the wood preserving industry at this time. RCRA rules were proposed in December 1978 (43 FR 58946) and on August 22, 1979 (44 FR 49402). The proposed rule identifies a set of characteristics of hazardous waste. The wood preserving industry provided information to the Agency which indicated that wastewater sludge generated per 1000 cubic feet of production decreases by about 10 percent if a plant practicing current pretreatment technology elects to achieve no discharge status by evaporation. Sludge generated by a plant producing 5000 cubic feet per day of treated wood and achieving no discharge by evaporation is about 2.2 cubic feet per day.

41. *Comment:* One comment indicated that the contractor's draft report ignores the air pollution and related costs of the wood preserving treatment train of flocculation/filtration, followed by cooling tower evaporation. He noted that the application of flocculation followed by rapid sand filtration as a treatment option for new Boulton plants results in substantial heat loss from the effluent, and that the cost of heat replacement necessary to eliminate discharge through the cooling tower evaporation method makes the treatment system uneconomical.

Response: Cooling tower evaporation of Boulton process wastewater is and can be practiced following primary (gravity) oil separation. The treatment train presented in the contractor's draft report includes secondary oil separation before cooling tower evaporation. The contractor's draft report includes flocculation/filtration to further reduce the oil and grease concentration in the feed to the evaporation system. Evaporation efficiency is improved, and scaling, solids buildup, and overall equipment maintenance is reduced by decreasing the pollutant level in the feed water. The operating costs for this treatment train presented in Section VIII of the report assumed that the wastewater would be at ambient temperature when fed to the evaporation system. The energy costs presented in Section VIII are based on the requirements of raising the wastewater to evaporation temperature from ambient temperature.

42. *Comment:* One comment suggested that the economic impact analysis for wet process hardboard overlooked the competition from foreign producers, many of whom are in developing countries and so are not subject to tariffs. The comment further noted that future growth in demand may be satisfied by foreign production rather than domestic capacity expansion.

Response: Brazil, Argentina, Romania, and Korea face no U.S. tariffs. Most other importers pay ad valorem duties ranging from 7.5% to 30%. Imports are, however, very sensitive to economic conditions in the United States, and when the market for hardboard declined, imports also fall as a percentage of U.S. consumption. Imports generally satisfy the lower quality range in the hardboard market and it is believed that during periods of rapidly growing demand, domestic producers purchase foreign hardboard and concentrate on producing better quality products which improve profit margins. The United States is expected to remain a net importer of hardboard, but imports are not expected to preclude additional growth in U.S. capacity.

43. *Comment* One participant noted that the wood preserving industry is characterized by many plants which may be unable to finance pollution control costs. The participant recommended that consideration be given to extending federal and state guaranteed long term low interest loans to impacted plants.

Response: The Agency recognizes that the wood preserving industry is composed of many small plants which may have difficulty financing pollution control expenditures. Under Section 8 of the Clean Water Act, the Small Business Administration (SBA) is empowered to make loans to assist small business concerns to meet water pollution abatement requirements.

44. *Comment:* One comment suggested that the economic impact report's estimates of capital costs for new wood preserving plants were underestimated.

Response: The estimated cost in the draft report were based upon information provided by industry. However, the contractor re-examined these costs, and obtained further information from wood preserving companies and contacted equipment suppliers. Based upon these communications, the individual capital cost components were re-evaluated and were changed, as needed, in light of the additional information obtained.

45. *Comment:* One comment disputed the economic report's assertion that multi-plant companies may be able to raise prices and recover a portion of pollution control costs.

Response: While EPA recognizes that multi-plant companies do not always have this degree of market power at a specific location to raise prices, the Agency believes that multi-plant companies will frequently be able to raise prices to recover a portion of the control costs. Even so, the analysis of plant closures employed the conservative assumption that each plant is a stand alone operation that is unable to recover the cost of compliance through price increases.

46. *Comment:* One comment questioned the treating cycle times used in the characterization of operating costs for new wood preserving plants.

Response: Cycle times for wood preserving will depend upon wood species, moisture content, type of process employed and the degree of

preservation required. The data used in arriving at these assumptions were rechecked, and the Agency believes that the assumptions are reasonable.

XXIX. Solicitation of Comments

EPA invites and encourages the public to participate in this rulemaking by submitting written comments in response to this proposal. The Agency asks that if comments are submitted stating that this proposal record is incomplete, the participant specifically state the area of inadequacy and any suggestions for revision or modification by detailed information. The comment period allowed on this proposed rulemaking is sixty (60) days. This will allow adequate time for participants to conduct a thorough review of the proposed rulemaking and the supporting documents, and to prepare complete responses.

The Agency is particularly interested in receiving additional comments, data, and information in the following specific areas:

(1) The sampling and analytical methods used to determine the presence and magnitude of toxic pollutants are being reviewed by the Agency. Comments are solicited on the data produce by these methods, and the methods themselves.

(2) During the last three years, individual plants and companies have been collecting samples of untreated and treated wastewaters and analyzing them for the presence of toxic pollutants. Since the Agency has made the analytical data collected by the Agency and its contractors available to the public, we now ask that information and data assembled by individual plants, companies, as well as technical trade associations, public interest groups, state and regional pollution control offices, and others, be shared with the Agency. Further, any individuals or groups interested in generating additional data on toxic and potentially toxic pollutants in the timber products industry should contact Richard E. Williams for assistance and information.

(3) Although this rulemaking does not address Best Management Practices (BPM's) for the timber products industry, BMP's will be developed for future promulgation. The Agency is actively soliciting information, suggestions, and comments on BMP candidate practices.

(4) Characterization of the amounts and pollutant characteristics of sludges and other solid wastes generated by wood preserving, hardboard and insulation board process wastewater treatment systems, the handling and disposal techniques used, and the costs associated with sludge handling and disposal were considered in the development of these proposed rules. Any additional information related to these areas should be submitted to the Agency. The information will be considered in the final rulemaking and provided to the EPA Office of Solid Waste, the office with primary Agency responsibility for implementation of the Resource Conservation and Recovery Act (RCRA).

(5) Evaporation technology is one of the bases for new source performance standards and new source pretreatment standards for the wood preserving segment of the industry. No information is available to confirm or deny that workers in close proximity to wood preserving wastewater evaporation systems may be exposed to significant levels of toxic pollutants in the ambient air. Information is requested regarding worker contamination, illness, ailment, etc. related to exposure to wood preserving wastewater evaporation systems.

(6) In the even that reviewers of these proposed regulations and their supporting documents disagree with the cost information presented, the Agency asks participants to document that disagreement. In order to evaluate fully the comment, the Agency needs specific information on design and operating characteristics, and actual installed costs (not estimates) for each unit operation or piece of equipment. The information should include whether or not the equipment was purchased or built in-house, date of installation, whether or not it was installed by contractors or plant personnel, the costs associated with operation and maintenance, energy requirements (in kilowatt hours or equivalents), chemical usage, if any, the labor requirements of this waste treatment system (person-years or equivalent), and any other significant information.

(7) Section 304(b)(4) requires the Agency to establish Best Conventional Pollutuant Control Technology (BCT) for existing industrial point sources that discharge conventional pollutants (biochemical oxygen demand, total suspended solids, fecal coliform, pH, and oil and grease). Comments on the methodology used in the BCT analysis (discussed above), for the timber products industry are solicited and encouraged.

(8) The technical study serving as the support for the proposed regulations attempted to address the full range of treatment and control technologies, and practices and procedures, either in use, or capable of being applied to process wastewaters from the timber products industry. Reviewers of this proposal who are aware of any appropriate technologies not considered in this rulemaking are asked to provide information concerning these technologies to the Agency.

(9) In order to establish effluent limitations for the wet process hardboard and insulation board segments of the industry, the Agency conducted an analysis of variability to determine the daily and 30 day variabilities in the discharge from treatment systems in relation to the long term average discharge. EPA is soliciting comments on the use of the nonparametric analysis (as explained in detail in Section XIV of the Development Document) for determining variability factors.

(10) The Agency requests that reviewers of this proposal point out errors in data, tabulation, possible misinterpretation of industry submitted data, or any possible errors in the logic of these proposed rules. Comments of this nature should be documented with copies of the originally submitted information, together with either a discussion explaining the participant's interpretation of the data, or a discussion of the participant's logical approach to the rulemaking.

(11) The Agency requests that POTW, which receive wastewater from timber products industry plants, submit any pertinent data which would document the occurrence of interference with collection system and treatment plant operations, permit violations, sludge disposal difficulties, or other incidents attributable to the pollutants contained in these wastewaters.

(12) Information is requested regarding the transfer of toxic pollutants (in particular pentachlorphenol and polynuclear aromatics) from the water medium to the air medium resulting from the application of evaporation technology (pan evaporation, cooling tower evaporation, and spray evaporation) to wood preserving wastewaters. The Agency has not confirmed that intermedia transfer does occur; however, for some pollutants, the possibility exists. Information provided will be evaluated between proposal and promulgation of these regulations.

(13) The Agency's economic analysis suggests the possibility of closure within the timber industry. For hardboard plants which feel that the proposed standards would have a significant economic effect, the Agency requests information updating their response to the economic survey and forecasts they may have of production costs, prices, capacity utilization, markets, and any other variables relevant to a closure

decision. The bases of their forecasts should also be given. In addition, the Agency also requests information concerning costs of process modification (e.g. from wet process to dry process hardboard manufacture) and whether this would be a more cost effective method for severely affected facilities to comply with the regulation. The Agency also requests comments on the economic impact methodology and closure decision indicators employed in the wood preserving and insulationboard/hardboard segment economic analyses. If alternative assumptions are recommended, the bases for these assumption should be clearly stated. EPA plans to review all criticisms of the analyses and additional economic impact information it receives and will incorporate it into its final decision making process prior to promulgation of these guidelines. At that time, the Agency will consider setting standards on the basis of other identified control alternatives, which have less severe economic effects.

(14) The Agency considered requiring biological pretreatment with and without a size cut-off for the twenty-seven indirect discharging wood preserving plants treating with pentachlorophenol. Comments are solicited on the selected option, without including the size cut-off, and the other options considered, especially the environmental tradeoffs. Also, the Agency solicits comment on the predicted economic impacts of the options considered.

(15) Comments are solicited on the practicability of wood preserving plants that are currently treating wood with PCP, substituting creosote and/or morganic salt treated wood for marketing in place of PCP treated wood. That is, will indirect discharging plants treating with PCP be able to reduce the estimated economic effect of these proposed regulations by substituting products?

Dated: October 16, 1979.

Douglas M. Costle,

Administrator.

XXX. Appendices

Appendix A—Abbreviations, Acronyms, and Other Terms Used in This Notice

Act—The Clean Water Act

Agency—The U.S. Environmental Protection Agency

BADT—Best Available Demonstrated Technology

BAT—The best available technology economically achievable, under Section 301(b)(2)(A) of the Act

BCT—The best conventional pollutant control technology, under Section 301(b)(2)(E) of the Act

BMP—Best management practices, under Section 304(e) of the Act

BPT—The best practicable control technology currently available, under Section 301(b)(1) of the Act

Clean Water Act—The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.), as amended by the Clean Water Act of 1977 (Pub. L. 95-217)

Direct discharger—A facility which discharges or may discharge pollutants into waters of the United States

FR—Federal Register

Indirect discharger—A facility which discharges or may discharge pollutants into a publicly owned treatment works

NPDES—National Pollutant Discharge Elimination System, under Section 402 of the Act

NSPS—New source performance standards, under Section 306 of the Act

POTW—Publicly owned treatment works

PSES—Pretreatment standards for existing sources of indirect discharges, under Section 307(b) of the Act

PSNS—Pretreatment standards for new sources of direct discharges, under Section 307 (b) and (c) of the Act

RCRA—Resource Conservation and Recovery Act of 1976, Amendments to Solid Waste Disposal Act (Pub. L. 94-580)

Appendix B—Toxic Pollutants Not Detected in Treated Effluents

Insulation Board and Hardboard

chloromethane
dichlorodifluoromethane
bromomethane
vinyl chloride
chloroethane
methylene chloride
trichlorofluoromethane
1,1-dichloroethylene
1,1-dichloroethane
1,2-trans-dichloroethylene
chloroform
1,2-dichloroethane
1,1,1-trichloroethane
carbon tetrachloride
dichlorobromomethane
bis(chloromethyl) ether
1,2-dichloropropane
2-chloroethyl vinyl ether
bromoform
tetrachloroethylene
1,1,2,2-tetrachloroethane
chlorobenzene
acrolein
acrylonitrile
trichloroethylene
chlorodibromomethane
1,2-dichloropropylene
bis(2-chloroethyl) ether
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
hexachloroethane
bis(2-chloroisopropyl) ether
hexachlorobutadiene
1,2,4-trichlorobenzene
naphthalene
hexachlorocyclopentadiene
nitrobenzene
bis(2-chloroethoxy)methane
2-chloronaphthalene
acenaphthylene
acenaphthene
isophorone
fluorene
2,4-dinitrotoluene
2,6-dinitrotoluene
1,2-diphenylhydrazine
N-nitrosodiphenylamine
hexachlorobenzene
4-bromophenyl phenyl ether
phenanthrene
anthracene
dimethyl phthalate
diethyl phthalate
fluoranthene
pyrene
di-n-butyl phthalate
benzidine
butyl benzyl phthalate
chrysene
bis(2-ethylhexyl)phthalate
benzo(a)anthracene
3,4-benzofluoranthene
benzo(k)fluoranthene
benzo(a)pyrene
indeno(1,2,3-ed)pyrene
dibenzo(a,h)anthracene
benzo(g h i)perylene
N-nitrosodimethylamine
N-nitrosodi-n-propylamine
4-chlorophenyl phenyl ether
3,3'-dichlorobenzidine
2,3,7,8-tetrachlorodibenzo-p-dioxin
2-chlorophenol
2,4-dichlorophenol
2-nitrophenol
parachlorometa cresol
2,4,6-trichlorophenol
2,4-dimethylphenol
2,4-dinitrophenol
4,6-dinitro-o-cresol
4-nitrophenol
pentachlorophenol
aldrin
dieldrin
chlordane (technical mixture and metabolites)
4,4'-DDT
4,4'-DDE (p,p'-DDX)
4,4'-DDD (p,p'-TDE)
a-endosulfan-Alpha
b-endosulfan-Beta
endosulfan sulfate
endrin aldehyde
heptachlor
heptachlor epoxide
a-BHC-Alpha
b-BHC-Beta
r-BHC (lindane)-Gamma
g-BHC-Delta
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
toxaphene

Wood Preserving

chloromethane
dichlorodifluoromethane
bromomethane
vinyl chloride
chloroethane
methylene chloride
trichlorofluoromethane
1,1-dichloroethylene
1,1-dichloroethane
1,2,-trans-dichloroethylene

1,2-dichloroethane
1,1,1-trichloroethane
carbon tetrachloride
dichlorobromomethane
bis-chloromethyl ether
1,2-dichloropropane
1,1,2-trichloroethane
2-chloroethyl vinyl ether
bromoform
tetrachloroethylene
1,1,2,2-tetrachloroethane
chlorobenzene
acrolein
acrylonitrile
trichloroethylene
chlorodibromomethane
1,2-dichloropropylene
bis(2-chloroethyl)ether
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
hexachloroethane
bis(2-chloroisopropyl)ether
hexachlorobutadiene
1,2,4-trichlorobenzene
hexachlorocyclopentadiene
nitrobenzene
bis(2-chloroethoxy)methane
2-chloronaphthalene
isophorone
2,4-dinitrotoluene
2,6-dinitrotoluene
1,2-diphenylhydrazine
N-nitrosodiphenylamine
hexachlorobenzene
4-bromophenyl phenyl ether
dimethyl phthalate
diethyl phthalate
di-n-butyl phthalate
benzidine
butyl benzyl phthalate
dibenzo(a,h) anthracene
N-nitrosodimethylamine
N-nitrosodi-n-propylamine
4-chlorophenyl phenyl ether
3,3'-dichlorobenzidine
2,3,7,8-tetrachlorodibenzo-p-dioxin
2,4-dichlorophenol
2-nitrophenol
parachlorometa cresol
2,4-dinitrophenol
4,6-dinitro-o-cresol
4-nitrophenol
aldrin
dieldrin
chlordane (technical mixture and metabolites)
4,4'-DDT
4,4'-DDE (p,p'-DDX)
4,4'-DDD (p,p'-TDE)
a-endosulfan-Alpha
b-endosulfan-Beta
endosulfan sulfate
endrin aldehyde
heptachlor
heptachlor epoxide
a-BHC-Alpha
b-BHC-Beta
r-BH(lindane)-Gamma
g-BHC-Delta
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
toxaphene

Appendix C— Toxic Pollutants Detected in Treated Effluents

Wood Preserving

fluoranthene
3,4-benzofluoranthene
benzo(k)fluoranthene
pyrene
benzo(a)pyrene
indeno(1,2,3-cd)pyrene
benzo(ghi)perylene
naphthalene
acenaphthylene
fluorene
chrysene
bis(2-ethylhexyl)phthalate
phenol
pentachlorophenol
arsenic
copper
chromium
nickel
zinc

Insulation Board and Hardboard

copper
nickel
zinc

Appendix D—Toxic Pollutants Detected in Treated Effluents at Two Plants or Less

Wood Preserving

chloroform
ethylbenzene
2-chlorophenol
2,4,6-trichlorophenol
2,4-dimethylphenol
beryllium

Insulation Board and Hardboard

benzene
toluene
phenol
beryllium

Appendix E—Toxic Pollutants Detected in Treated Effluents at or Below the Nominal Limit of Detection (10 ug/l)

Insulation Board and Hardboard

lead
arsenic
beryllium
antimony
cadmium
chromium
selenium
silver
thallium
mercury

Wood Preserving

benzene
chloroform
ethylbenzene
2-chlorophenol
2,4,6-trichlorophenol
lead
antimony
selenium
cadmium
silver
thallium
mercury
beryllium

It is proposed to revise 40 CFR Part 429—Timber Products Processing Point Source Category to read as follows:

PART 429—TIMBER PRODUCTS PROCESSING POINT SOURCE CATEGORY

General Provisions

Subpart O—Wood Furniture and Fixture Production Without Water Wash Spray Booth(s) or Without Laundry Facilities Subcategory

Sec.

Subpart P—Wood Furniture and Fixture Production With Water Wash Spray Booth(s) or With Laundry Facilities Subcategory

Authority.—Sections 301, 304 (b), (c), (e), and (g), 306 (b) and (c), and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, as amended by the Clean Water Act of 1977) (the "Act"); 33 United States 1311, 1314 (b), (c), (e), and (g), 1316 (b) and (c), 1317 (b) and (c), and 1361; 86 Stat. 816, Pub. L. 92-500; 91 Stat. 1567, Pub. L. 95-217.

General Provisions

§ 429.10 Applicability.

This part applies to any timber products processing operation, and any plant producing insulation board with wood as the major raw material, which discharges or may discharge pollutants to the waters of the United States, or which introduces or may introduce pollutants into a publicly owned treatment works.

§ 429.11 General definitions.

In addition to the definitions set forth in 40 CFR Part 401, the following definitions apply to this part:

(a) Hydraulic barking means a wood processing operation that removes bark from wood by the use of water under a pressure of 6.8 atm (100 psi) or greater.

(b) The term cubic feet or cubic meters of production in Subpart A means the cubic feet or cubic meters of logs from which bark is removed.

(c) The term "process wastewater" in this part specifically excludes non-contact cooling water, material storage yard runoff (either raw material or processed wood storage) and boiler blowdown.

(d) Gross production of fiberboard products in this part means the air dry weight of hardboard or insulation board following formation of the mat prior to trimming and finishing operations.

(e) The term hardboard means a panel manufactured from interfelted ligno-cellulosic fibers consolidated under heat and pressure to a density of 0.5 g/cu cm (31 lb/cu ft) or greater.

(f) The term insulation board means a panel manufactured from interfelted ligno-cellulosic fibers consolidated to a density of less than 0.5 g/cu cm (less than 31 lb/cu ft).

(g) Smooth-one-side (S1S) hardboard means hardboard which is produced by the wet-matting, wet-pressing process.

(h) Smooth-two-sides (S2S) hardboard means hardboard which is produced by the wet-matting, dry-pressing process.

(i) The term "debris" means a woody material such as bark, twigs, branches, heartwood or sapwood that will not pass through a 2.54 cm (1.0 in) diameter round opening that might be present in the discharge from a wet storage facility.

§ 429.12 [Reserved]

Subpart A—Barking Subcategory

§ 429.20 Applicability; description of the barking subcategory.

This subpart applies to discharges to waters of the United States and introduction of pollutants into publicly owned treatment works resulting from the barking of logs being processed by plants in SIC major group 24, and plants producing insulation board, in SIC group 2661.

§ 429.21 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided 40 CFR §§ 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations apply to all mechanical barking installations: There shall be no discharge of process wastewater pollutants into navigable waters.

(b) The following limitations constitute the maximum permissible discharge for hydraulic barking installations:

Subpart A—BPT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per cubic meter of production)	
BOD5	1.5	0.5
TSS	6.9	2.3
pH	Within the range 6.0 to 9.0 at all times	
	English units (pounds per cubic foot of production)	
BOD5	0.10	0.03
TSS	0.50	0.15
pH	Within the range 6.0 to 9.0 at all times	

§ 429.22 [Reserved]

§ 429.23 [Reserved]

§ 429.24 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

(a) The following limitations apply to all mechanical barking installations: There shall be no discharge of process wastewater pollutants into navigable waters.

(b) The following limitations constitute the maximum permissible discharge for hydraulic barking installations:

Subpart A—NSPS Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per cubic meter of production)	
BOD5	1.5	0.5
TSS	6.9	2.3
pH	Within the range 6.0 to 9.0 at all times	
	English units (pounds per cubic foot of production)	
BOD5	0.10	0.03
TSS	0.50	0.15
pH	Within the range 6.0 to 9.0 at all times.	

§ 429.25 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this

supart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.26 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart B—Veneer Subcategory

§ 429.30 Applicability; description of the veneer subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from any plant which manufactures veneer and does not store or hold raw materials in wet storage conditions.

§ 429.31 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.32 [Reserved]

§ 429.33 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.34 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): there shall be no discharges of process wastewater pollutants into navigable waters.

§ 429.35 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, an existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.36 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart C—Plywood Subcategory

§ 429.40 Applicability; description of the plywood subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from any plywood producing plant that does not store or hold raw materials in wet storage conditions.

§ 429.41 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.42 [Reserved]

§ 429.43 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.44 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.45 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.46 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart D—Hardboard-Dry Process Subcategory

§ 429.50 Applicability; description of the hardboard-dry process subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from any plant that produces hardboard using the dry matting process for forming the board mat.

§ 429.51 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.52 [Reserved]

§ 429.53 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.54 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.55 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.56 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart E—Wet Process Hardboard Subcategory

§ 429.60 Applicability; description of the wet process hardboard subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly

owned treatment works from any plant which produces hardboard products using the wet matting process for forming the board mat.

§ 429.61 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR §§ 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations apply to plants which produce smooth-one-side (S1S) hardboard:

Subpart E (S1S)—BPT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	kg/kkg (lb/1,000 lb) of gross production	
BOD5	20.7	6.0
TSS	37.4	14.0
pH	Within the range 6.0 to 9.0 at all times	

(b) The following limitations apply to plants which produce smooth-two-sides (S2S) hardboard:

Subpart E (S2S)—BPT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	kg/kkg (lb/1,000 lb) of gross production	
BOD5	36.5	12.1
TSS	132.7	28.6
pH	Within the range 6.0 to 9.0 at all times	

§ 429.62 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR §§ 125.30 –.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best conventional pollutant control technology (BCT):

(a) The following limitations apply to plants which produce smooth-one-side (S1S) hardboard:

Subpart E (S1S)—BCT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	kg/kkg (lb/1000 lb) of gross production	
BOD5	4.3	1.15
TSS	14.0	4.30
pH	Within the range 6.0 to 9.0 at all times.	

(b) The following limitations apply to plants which produce smooth-two-sides (S2S) hardboard:

Subpart E (S2S)—BCT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	kg/kkg (lb/1000 lb) of gross production	
BOD5	15.0	5.0
TSS	39.6	7.9
pH	Within the range 6.0 to 9.0 at all times	

§ 429.63 [Reserved]

§ 429.64 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS); There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.65 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.66 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart F—Wood Preserving—Water Borne or Nonpressure Subcategory

§ 429.70 Applicability; description of the wood preserving water borne or non-pressure subcategory.

This subpart applies to discharges and introductions of pollutants into publicly owned treatment works from all non-pressure processes, and all pressure processes employing water borne inorganic salts.

§ 429.71 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.72 [Reserved]

§ 429.73 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.74 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.75 Pretreatment standards for existing sources (PSES).

Any existing source, subject to this subpart, which introduces pollutants into a publicly owned treatment works must achieve the following pretreatment standards for existing sources (PSES): There shall be no introduction of process wastewater pollutants into publicly owned treatment works.

§ 429.76 Pretreatment standards for new sources (PSNS).

Any new source, subject to this subpart, which introduces pollutants into a publicly owned treatment works must achieve the following pretreatment standards for new sources (PSNS): There shall be no introduction of process wastewater pollutants into publicly owned treatment works.

Subpart G—Wood Preserving Steam Subcategory

§ 429.80 Applicability; description of the wood preserving—steam subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from wood preserving processes that use direct steam impingement on wood as the predominant conditioning method; processes that use the vapor drying process as the predominant conditioning method; processes which use the same retort to treat with both salt and oil and oil type preservatives; and processes which steam condition and which apply both salt type preservatives to the same stock.

§ 429.81 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR § 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best practicable control technology currently available (BPT):

The following limitations apply to plants in this subpart:

Subpart G—BPT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	English units (lb/1000 cubic feet of product)	
COD	68.5	34.5
Phenols	.14	.04
Oil and grease	1.5	.75
pH	Within the range of 6.0 to 9.0 at all times	
	Metric units (kg/1000 cu m of product)	
COD	1,100	550
Phenols	2.18	.65
Oil and grease	24.0	12.0
pH	Within the range of 6.0 to 9.0 at all times	

§ 429.82 [Reserved]

§ 429.83 [Reserved]

§ 429.84 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.85 Pretreatment standards for existing sources (PSES).

Any source subject to this subpart which introduces pollutants into publicly owned treatment works must comply with 40 CFR 403 and meet the following pretreatment standards for existing sources (PSES):

Subpart G—PSES Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day (mg/l)
Pentachlorophenol	0
Oil and grease	100

In cases where POTWs find it necessary to impose mass limitations, the following equivalent mass limitations are provided as guidance.

Subpart G—PSES Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day
	Grams per cu m of production
Pentachlorophenol	0
Oil and grease	20.5

§ 429.86 Pretreatment standards for new sources (PSNS).

Any new source, subject to this subpart, which introduces pollutants into a publicly owned treatment works must achieve the following pretreatment standards for new sources (PSNS): There shall be no introduction of process wastewater pollutants into publicly owned treatment works.

Subpart H—Wood Preserving—Boulton subcategory

§ 429.90 Applicability; description of the wood preserving—Boulton subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from those wood preserving processes which use the Boulton process as the predominant method of conditioning stock.

§ 429.91 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no disharge of process wastewater pollutants into navigable waters.

§ 429.92 [Reserved]

§ 429.93 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.94 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.95 Pretreatment standards for existing sources (PSES).

Any source subject to this subpart which introduces pollutants into publicly owned treatment works must comply with 40 CFR 403, and meet the following pretreatment standards for existing sources (PSES):

Subpart H—PSES Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day (mg/l)
Pentachlorophenol	0
Oil and grease	100

In cases where POTWs find it necessary to impose mass limitations, the following equivalent mass limitations are provided as guidance.

Subpart H—PSES Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day
	Grams per cu m of production
Pentachlorophenol	0.
Oil and grease	20.5

§ 429.96 Pretreatment standards for new sources (PSNS).

Any new source, subject to this subpart, which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): There shall be no introduction of process wastewater pollutants into publicly owned treatment works.

Subpart I—Wet Storage Subcategory

§ 429.100 Applicability; description of the wet storage subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works resulting from the holding of unprocessed wood, i.e., logs or roundwood with bark or after removal of bark in self-contained bodies of water (mill ponds or log ponds) or land storage where water is sprayed or deposited intentionally on the logs (wet decking).

§ 429.101 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR §§ 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best

practicable control technology currently available (BPT): There shall be no debris discharged and the pH shall be within the range of 6.0 to 9.0.

§ 429.102 [Reserved]

§ 429.103 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR §§ 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best available technology economically achievable (BAT): There shall be no debris discharged and the pH shall be within the range of 6.0 to 9.0.

§ 429.104 New source performance standards.

Except as provided in 40 CFR §§ 125.30–.32, any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no debris discharged and the pH shall be within the range of 6.0 to 9.0.

§ 429.105 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.106 Pretreatment standards for sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart J—Log Washing Subcategory

§ 429.110 Applicability; description of the log washing subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works resulting from the process of passing logs through an operation where water under pressure is applied to the log for the purpose of removing foreign material from the surface of the log before further processing.

§ 429.111 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR §§ 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations apply to all log washing operations: There shall be no discharge of process wastewater pollutants to navigable waters containing a total suspended solids concentration greater than 50 mg/l and the pH shall be within the range of 6.0 to 9.0.

§ 429.112 [Reserved]

§ 429.113 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.114 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.115 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.116 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart K—Sawmills and Planning Mills Subcategory

§ 429.120 Applicability; description of the sawmills and planing mills subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from the timber products processing procedures that include all or part of the following operations: bark removal (other than hydraulic barking as defined in Section 429.11 of this part) sawing, resawing, edging, trimming, planing and machining.

§ 429.121 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.122 [Reserved]

§ 429.123 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.124 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.125 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.126 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart L—Finishing Subcategory

§ 429.130 Applicability; description of the finishing subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from drying, planing, dipping, staining, end coating, moisture proofing, fabrication, and by-product utilization not otherwise covered by specific guidelines and standards.

§ 429.131 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best

practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.132 [Reserved]

§ 429.133 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.134 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.135 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.136 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart M—Particleboard Manufacturing Subcategory

§ 429.140 Applicability; description of the particleboard manufacturing subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from any plant which manufactures particleboard.

§ 429.141 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.142 [Reserved]

§ 429.143 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.144 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.145 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.146 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 8403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart N—Insulation Board Subcategory

§ 429.150 Applicability; description of the insulation board subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from plants which produce insulation board using wood as the raw material. Specifically excluded from this subpart is the manufacture of insulation board from the primary raw material bagasse.

§ 429.151 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations, attainable by the application of the best practicable control technology currently available (BPT):

Subpart N—BPT Effluent Limitations

Pollutant or Pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	kg/kkg (lb/1,000 lb of gross production)	
BOD5	8.25	2.94
TSS	6.27	2.09
pH	Within the range 6.0 to 9.0 at all times	

§ 429.152 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR § 125.30–.32, any point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT):

Subapart N—BCT Effluent Limitations

Pollutant or Pollutant property	Maximum for and 1 day	Average of daily values for 30 consecutive days
	kg/kkg (lb/1,000 lb of gross production)	
BOD5	8.25	2.94
TSS	6.27	2.09
pH	Within the range 6.0 to 9.0 at all times	

§ 429.153 [Reserved]

§ 429.154 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.155 Pretreatment standards for existing sources (PSES).

Any source, subject to this subpart, which introduces pollutants into publicly owned treatment works must comply with 40 CFR 403.

§ 429.156 Pretreatment standards for new sources (PSNS).

Any source, subject to this subpart, which introduces pollutants into publicly owned treatment works must comply with 40 CFR 403.

Subpart O—Wood Furniture and Fixture Production Without Water Wash Spray Booth(s) or Without Laundry Facilities Subcategory

§ 429.160 Applicability; description of the wood furniture and fixture production without water wash spray booth(s) or without laundry facilities subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from the manufacture of wood furniture and fixtures at establishments that (a) do not utilize water wash spray booths to collect and contain the overspray from spray applications of finishing materials and (b) do not maintain on-site laundry facilities for fabric utilized in various finishing operations.

§ 429.161 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.162 [Reserved]

§ 429.163 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.164 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): There shall be no discharge of process wastewater pollutants into navigable waters.

§ 429.165 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.166 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart P—Wood Furniture and Fixture Production With Water Wash Spray Booth(s) or With Laundry Facilities Subcategory

§ 429.170 Applicability; description of the wood furniture and fixture production with water wash spray booth(s) or with laundry facilities subcategory.

This subpart applies to discharges to waters of the United States and introductions of pollutants into publicly owned treatment works from the manufacture of wood furniture and fixtures that either (a) utilize water wash spray booth(s) to collect and contain the overspray from spray applications of finishing materials, or (b) utilize on-site laundry facilities for fabric utilized in various finishing operations, or (c) do both.

§ 429.171 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Any existing source subject to this subpart must achieve the following best practicable control technology limitations (BPT): Settleable solids shall be less than or equal to 0.2 ml/l and pH shall be between 6.0 and 9.0 at all times.

§ 429.172 [Reserved]

§ 429.173 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Any existing source subject to this subpart must achieve the following best available technology economically achievable limitations (BAT): There shall be no discharge of process wastewater pollutants.

§ 429.174 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): Settleable solids shall be less than or equal to 0.2 ml/l and pH shall be between 6.0 and 9.0 at all times.

§ 429.175 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR § 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

§ 429.176 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR § 403.13, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

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