

DECISION NO. FA85-3035

HEAVY AND HIGHWAY TRUCK DRIVERS INCLUDING
SITE PREPARATION, PAVING AND UTILITIES
ON BUILDING CONSTRUCTION CLASSIFICATIONS

Class 1 - Helpers, stake body truck (single axle, dumper)

Class 2 - Dump trucks, tandem & batch trucks, semi-trailers, agitator mixer trucks, and discrete type vehicles, asphalt distributors, farm tractor when used for transportation, stake body truck (tandem)

Class 3 - Euclid type, off-highway equipment or belly dump trucks and double hitched equipment, staddle (cross) carrier, low-bed trailers

FOOTNOTES:

- a. Paid Holiday: Labor Day.
- b. Paid Holidays: July 4th, Labor Day, and Thanksgiving Day.
- c. Paid Holidays: New Year's Day; Decoration Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Good Friday.
- d. Paid Holidays: Washington's Birthday; Good Friday; Memorial Day; Labor Day; Presidential Election Day; Veteran's Day; Thanksgiving Day and Christmas.
- e. Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day and Christmas Day, providing the employee works the day before and after the holiday.
- f. Employee will earn one (1) vacation day every two (2) months up to a maximum of five (5) vacation days per calendar year. During each two (2) consecutive months period, employee must have worked twenty-six (26) days in that two month period. After 130 workdays the employee will be entitled to all days of vacation.
- g. Paid Holidays: Memorial Day; Independence Day; Labor Day and Veterans Day and five (5) personal holidays provided such employee work the scheduled work days before and after said holiday; and employee gives employer one (1) week's notice requesting a personal holiday. The eligibility for personal holiday every two (2) months up to a maximum of five (5) consecutive month period, employee must have worked twenty-six (26) days in that two month period. After 130 workdays the employee will be entitled to all personal holidays.

(23)

[FR Doc. 85-16418 Filed 7-11-85; 8:45 am]

BILLING CODE 4510-30-C

Environmental Protection Agency

**Friday
July 12, 1985**

Part III

Environmental Protection Agency

40 CFR Part 419

**Petroleum Refining Point Source
Category; Effluent Limitations Guidelines;
Final Rule**

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 419

[OW-FRL-2815-5]

Petroleum Refining Point Source Category; Effluent Limitations Guidelines

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is amending the regulation which limits effluent discharges to waters of the United States from facilities engaged in the refining and processing of petroleum. EPA proposed these modifications on August 28, 1984, (49 FR 34152) in accordance with a settlement agreement which resolved a lawsuit brought against EPA by the Natural Resources Defense Council, Inc. The lawsuit challenged the final petroleum refining regulation promulgated on October 18, 1982 (47 FR 46434).

Today's final rule incorporates the proposed amendments which are: (1) Modifications to the "best available technology economically achievable" (BAT) effluent limitations for process wastewater for the pollutants phenolic compounds, total chromium, and hexavalent chromium; (2) "best conventional pollutant control technology" (BCT) effluent limitations for process wastewater; and (3) "best practicable control technology currently available" (BPT), BCT, and BAT effluent limitations for contaminated storm water runoff. Amendments are also made in this final rule, which will correct errors identified in the October 28, 1984 rule, the August 28, 1984 Proposed Rule, as well as errors contained in 40 CFR Part 419, revised as of July 1, 1984.

DATES: In accordance with 40 CFR 100.01, the regulations developed in this rulemaking shall be considered issued for purposes of judicial review at 1:00 p.m. Eastern time on July 29, 1985. These regulations shall become effective August 28, 1985.

Under Section 509(b)(1) of the Clean Water Act, judicial review of these regulations is available only by filing a petition for review in the United States Court of Appeals within ninety days after these regulations are considered issued for purpose of judicial review. Under section 509(b)(2) of the Clean Water Act, these requirements of the regulations may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

Those portions of the existing petroleum refining effluent limitations guidelines and standards that are not substantively amended by this notice are not subject to judicial review nor is their effectiveness altered by this notice.

ADDRESSES: The record for this rulemaking will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2922 (EPA Library), 401 M Street, SW., Washington, D.C. The EPA information regulation provides that a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. Dennis Ruddy, Industrial Technology Division, at (202) 382-7131.

SUPPLEMENTARY INFORMATION:

- I. Legal Authority
- II. Background
 - A. Prior Regulation
 - B. Challenges to the Prior Regulation
 - C. Settlement Agreement
- III. Changes from Proposal
- IV. Amendments to the Petroleum Refining Point Source Category Regulation
 - A. Best Available Technology Effluent Limitations Guidelines
 - B. Best Conventional Pollutant Technology Effluent Limitations Guidelines
 - C. Effluent Limitations Guidelines for Contaminated Storm Water Runoff
- V. Environmental Impact of the Amendments
- VI. Responses to Major Comments
- VII. Executive Order 12291
- VIII. Regulatory Flexibility Analysis
- IX. OMB Review
- X. List of Subjects: 40 CFR Part 419

I. Legal Authority

The amendments to the regulation described in this notice are promulgated under the authority of sections 301, 304, 307, 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. 92-517). These changes are also promulgated in response to the Settlement Agreement in *Natural Resources Defense Council, Inc. v. Environmental Protection Agency*, No. 83-1122 (D.C. Cir.).

II. Background

A. Prior Regulation

On October 18, 1982, EPA published final effluent limitations guidelines and standards for the petroleum refining point source category. That regulation provided final effluent limitations for "best available technology economically achievable" (BAT) and established final pretreatment standards for existing sources (PSES) and for new sources (PSNS). The Agency retained its previously promulgated "new source performance standards" (NSPS) and

also did not modify its effluent limitations guidelines for "best practicable control technology currently available" (BPT). The Agency reserved coverage of "best conventional pollutant control technology" (BCT) effluent limitations guidelines. The preamble of the 1982 final regulations describes the history of the rulemaking. (47 FR 46343)

B. Challenges to the Prior Regulation

On January 27, 1983, the Natural Resources Defense Council, Inc. ("NRDC") filed a petition to review the final petroleum refining regulation. *Natural Resources Defense Council, Inc. v. Environmental Protection Agency*, No. 83-1122 (D.C. Cir.). The American Petroleum Institute ("API") and seven individual oil companies intervened in the litigation.

C. Settlement Agreement

On April 17, 1984, EPA, NRDC, API and all other interveners to the litigation entered into a comprehensive Settlement Agreement. In the Settlement Agreement, EPA agreed to publish a notice of proposed rulemaking and to solicit comments regarding certain modifications to the 1982 final petroleum refining BAT effluent limitations guidelines. In addition, EPA agreed to propose BCT effluent limitations guidelines for four conventional pollutants and BPT, BAT and BCT effluent limitations guidelines for contaminated storm water runoff. Petitioner NRDC agreed that if EPA took final action pursuant to and consistent with the Settlement Agreement that it will dismiss its lawsuit challenging the 1982 final petroleum refining regulation.

As part of the Settlement Agreement, the parties agreed to seek a judicial stay of the regulatory provisions to be modified. On July 24, 1984, the Court entered a stay of the effluent limitations for phenolic compounds, total chromium and hexavalent chromium for the following portions of the regulation pending the rulemaking: 40 CFR 419.13(a), 419.23(a), 419.33(a), 419.43(a), and 419.53(a). On August 28, 1984, EPA published the proposed amendments to the 1982 effluent limitations guidelines in accordance with the Settlement Agreement (49 FR 34152). Public comments were received and considered in issuing this final rule.

III. Changes From Proposal

Today's final rule amends the effluent limitations guidelines for the petroleum refining point source category; it is the same as the August 28, 1984 proposed amendments. However, certain cost determinations used to develop the BCT

effluent limitations guidelines have been revised since the proposal but do not affect the Agency's original conclusion that BCT should be set equal to BPT for this industry.

EPA published a proposed BCT methodology (47 FR 49176) which set forth a procedure for evaluating the cost reasonableness of BCT effluent limitations guidelines. The proposed BCT limitations for the petroleum refining industry were based upon that published methodology, which includes the "POTW test" and the "industry cost test." The Agency selected and evaluated two levels of technology for the control of conventional pollutants from petroleum refineries (i.e., recycle/reuse and recycle/reuse plus granular media filtration following BPT). Incremental (beyond BPT) conventional pollutant removals and costs associated with the candidate BCT technologies were calculated for model plants representative of each of the five petroleum refining subcategories. The resulting "cost per pound removed" ratios failed the BCT cost test. The Agency therefore proposed that BCT be set equal to BPT for all five petroleum refining subcategories.

Subsequently, EPA published a notice of data availability concerning the BCT methodology on September 20, 1984 (49 FR 37046). The Agency has revised its BCT cost evaluation for petroleum refining to incorporate the updated information referenced in the notice of data availability. The revised cost ratios for the recycle/reuse technology options with 20 to 40 percent reductions in discharge flow range from \$50.48 to \$1.36 (1977 dollars). The revised cost ratios for the recycle/reuse plus filtrations options range from \$27.05 to \$1.11 (1977 dollars). The benchmark in 1977 dollars for the POTW cost test based on the Agency's repropoed BCT methodology is approximately \$.76 per pound of pollutant removed. The Agency is presently revising the BCT methodology and expects the benchmark to change. Based on preliminary analysis, the Agency expects that the candidate technologies will fail under future BCT cost tests. Thus, the Agency has decided to establish BCT effluent limitations guidelines equal to BPT effluent limitations guidelines for the Petroleum Refining Industry in this rulemaking.

Several typographical and transcription errors appeared in 419.43(c)(2), 419.14(a), 419.34(b)(1) and in Appendix A, in the proposed rule published on August 28, 1984, 49 FR 34152. Those errors have been corrected in the amendments set forth below.

In addition, today's notice amends the BPT effluent limitations guidelines for

sulfide in Subparts A and C and for hexavalent chromium in Subpart A, which appeared in the Federal Register notice of October 18, 1982 (47 FR 46434) and were reprinted in 40 CFR Part 419 dated July 1, 1984 to correct typographical errors. Because these limitations appeared in both metric and English units, the typographical errors have been obvious. Also, amendments are made to correct typographical errors in a paragraph reference that appeared in Subparts D and E for NSPS, and in a refinery capacity range in a size factor table that appeared in Subpart E for BPT. These amendments appear in the amended regulation that follows this preamble.

IV. Amendments to the Petroleum Refining Point Source Category Regulation

The following are the changes to the petroleum industry regulation that EPA proposed on August 28, 1984:

A. Best Available Technology Effluent Limitations Guidelines

On October 18, 1982 EPA published final effluent limitations guidelines for best available technology economically achievable (BAT) and final pretreatment standards for existing sources (PSES) and for new sources (PSNS) for the petroleum refining industry. 47 FR 46434. The Natural Resources Defense Council ("NRDC") filed a petition to review the October 18, 1982 regulation in the United States Court of Appeals for the District of Columbia Circuit. The American Petroleum Institute (API) and seven companies which own and operate petroleum refineries intervened in that proceeding. A number of issues were raised in settlement discussions among the parties in the lawsuit pertaining to the BAT effluent limitations guidelines. After extensive discussions, the petitioner, interveners and EPA entered a Settlement Agreement, which provides for specified revisions to the BAT effluent limitations guidelines. Those revisions are set forth in today's amended regulation.

In October 1982 EPA promulgated BAT effluent limitations for the following pollutants: (1) Nonconventional pollutants: chemical oxygen demand (COD), phenolic compounds (4AAP), ammonia (as N) and sulfide; and (2) toxic pollutants: total chromium and hexavalent chromium. The model technology for these regulations was flow equalization, initial oil and solids removal, advanced oil and solids removal, biological treatment and filtration or other final "polishing steps."

The Agency is now amending the BAT effluent limitations guidelines for total

chromium, hexavalent chromium and phenolic compounds (4AAP). EPA is adding flow reduction to the model treatment technology for the BAT effluent limitations guidelines and is basing the effluent limitations for each of these three pollutants on a more recent data base, rather than the one it relied upon in the October 18, 1982 BAT promulgation. That rulemaking utilized the same data based used by the Agency when it established best practicable control technology currently available (BPT) effluent limitations guidelines for the petroleum refining point source category. The BPT level of control for this industry was promulgated on May 9, 1974 (39 FR 16560) and subsequently amended on May 20, 1975 (40 FR 21939). The BAT effluent limitations guidelines for other pollutants remain unchanged.

The BAT effluent limitations guidelines for total chromium being promulgated today are based upon the revised 1979 flow model developed by the Agency to predict refinery flows, rather than the BPT 1974 flow model used in the October 1982 BAT promulgation. The effluent limitations for total chromium being promulgated today were derived by applying this updated flow model to concentrations for total chromium observed from plant sampling in 1976-1977.

BAT effluent limitations guidelines for hexavalent chromium and phenolic compounds being promulgated today were derived using the 1982 Development Document concentrations and the revised 1979 flow model to more accurately represent effluent reductions for these pollutants which the industry was generally achieving in 1979 or could technologically achieve by the final BAT compliance date. BAT for hexavalent chromium being promulgated today is based upon option 7 (discharge flow reduction of 37.5 percent from the revised 1979 model flow). BAT for phenolic compounds (4AAP) being promulgated today is based upon option 8 (a reduction of 20 percent from the revised 1979 model flow).

Under today's rulemaking, the BAT effluent limitations guidelines for each of these three pollutants are substantially more stringent than the BAT effluent limitations guidelines promulgated in 1982. The total allowable discharge of total chromium to the nation's navigable waters is reduced by approximately 286,000 pounds per year, a 66 percent annual reduction beyond discharge levels allowable under the existing BAT effluent limitations guidelines; the total allowable discharge of hexavalent chromium is reduced by

approximately 19,300 pounds per year, a 56 percent annual reduction beyond discharge levels allowable under existing BAT; the total allowable discharge of phenolic compounds (4AAP), is reduced by approximately 75,000 pounds per year, a 43 percent annual reduction beyond discharge levels allowable under existing BAT. These reductions are based on data in the Agency's refined BAT flow model. The refined flow model is included in the record for this rulemaking in a report entitled "Petroleum Refining Industry, Refinements to 1979 Proposed Flow Model."

EPA believes that approximately one half of the refineries which directly discharge pollutants to navigable waters already are complying with the effluent limitations being promulgated today. Further, EPA believes that the effluent limitations are economically achievable for the industry.

In the preamble to the October 18, 1982 promulgated regulations for this industry, EPA estimated that capital costs of \$112 million and \$37 million (1979 dollars) in annualized costs would be required in order for petroleum refiners to comply with option 7, one of the BAT control treatment options considered by the Agency (47 FR 46438). Likewise, EPA estimated that capital costs of \$77 million and annualized costs of \$25 million (1979 dollars) would be required in order for petroleum refiners to comply with option 8, another of the BAT control treatment options considered by the Agency (47 FR 46438).

The revised limitations being promulgated today for phenolic compounds, hexavalent chromium and total chromium are not based on either option 7 or option 8 alone. The effluent limitations for phenolic compounds are based upon option 8. The effluent limitations for hexavalent chromium are based upon option 8. The effluent limitations for hexavalent chromium are based upon option 7. The effluent limitations for total chromium, while somewhat more stringent than the BAT effluent limitations for total chromium, are less stringent than those based upon option 8.

The Agency has reevaluated the costs of compliance for today's changes to the BAT effluent limitations and estimates that the total industry costs of compliance would not exceed those previously calculated for option 8. EPA estimates that no more than 61 petroleum refineries will have to incur aggregate capital costs no greater than \$77 million and annualized costs no greater than \$25 million (1979 dollars). These costs translate to an average increase of no greater than one half cent

per gallon of refinery product. No refinery closures are anticipated by the Agency. Refinery capacity and consumption would remain unaffected. Given these factors, the Agency believes that its earlier heavy reliance on costs as the basis for rejecting more stringent effluent controls in this industry was inappropriate, and that the effluent limitations guidelines for total chromium, hexavalent chromium and phenolic compounds (4AAP) being promulgated today, rather than the effluent limitations guidelines promulgated in 1982, are appropriate for this industry as the BAT level of control. The revised Bat numerical limitations and contained in the final regulation.

B. Best Conventional Pollutant Control Technology Effluent Limitations Guidelines

As part of the Settlement Agreement EPA agreed to propose best conventional pollutant control technology ("BCT") effluent limitations guidelines for the petroleum refining industry. The 1977 Amendments to the Clean Water Act ("CWA") added section 301(b)(2)(E) of the Act establishing BCT for discharge of conventional pollutants from existing industrial point sources. Conventional pollutants are those defined in section 304(a)(4) [biochemical oxygen demanding pollutants (BODs), total suspended solids (TSS), fecal coliform and pH], and any additional pollutants defined by the Administrator as "conventional". The Administrator designated oil and grease as a conventional pollutant on July 30, 1979, 44 FR 44501.

BCT is not an additional limitation but replaces BAT for the control of conventional pollutants. In addition to other specified in Section 304(b)(4)(B) the Act requires the BCT limitations be assessed in light of a two-part "cost reasonableness" test. *American Paper Institute v. EPA*, 660 F.2d 954 (4th Cir. 1981). The first test compares the cost for private industry to reduce its conventional pollutants with the costs to publicly owned treatment works for similar levels of reduction in their discharge of these pollutants. The second test examines the cost-effectiveness of additional industrial treatment beyond best practicable control technology currently available (BPT). EPA must find that limitations are "reasonable" under both tests before establishing them as BCT. In no case may BCT be less stringent than BPT.

EPA published a proposed BCT methodology on October 29, 1982. (47 FR 49176). This proposed BCT methodology explains the details of the two part cost-

reasonableness test, i.e., the "POTW test" and the "industry cost test." In addition, the Agency published a "notice of data availability" concerning the proposed BCT methodology on September 20, 1984 (49 FR 37046).

Today's promulgated BCT effluent limitations guidelines for the petroleum refining industry are based on the proposed BCT methodology. Today's final regulations establish BCT equal to BPT for the petroleum refining industry.

EPA considered two levels of technology for incremental control beyond BPT of total suspended solids (TSS) and oil and grease. These technology levels are recycle/reuse and recycle/reuse followed by granular media filtration. These technologies are already in use at certain sites in the petroleum refining industry. These technologies were selected as candidate BCT technologies because the Agency believes they represent the first levels of control beyond BPT which could effect reduction in conventional pollutant loadings in this industry. Filtration alone was not selected as a candidate BCT technology because it is one of the existing BPT treatment technologies. However, the Agency decided to consider the combination of recycle/reuse plus filtration as a candidate BCT technology. This is because the decreased hydraulic loading resulting from recycle/reuse results in the need for smaller and less costly filtration equipment than that included in the BPT treatment model. The BCT cost test was then performed on the combination of recycle/reuse and filtration as a double-check on the effects of the less costly filtration step.

In order to determine whether these candidate technologies are "cost-reasonable", EPA developed one model plant representative of a typical plant in each of the five BPT subcategories. The five BPT subcategories are:

- A—Topping
- B—Cracking
- C—Petrochemical
- D—Lube
- E—Integrated

Then EPA calculated the incremental (beyond BPT) conventional pollutant removals and the incremental costs associated with these technologies for each model plant. Based on this information, cost-per-pound ratios were calculated for each of the five BPT subcategories.

EPA evaluated reductions in total suspended solids (TSS), biochemical oxygen demand (BOD₅), and oil and grease for each of these technology levels. However, oil and grease was not considered for the BCT calculations for

recycle/reuse for this industry.

Additionally, BOD₅ was not considered for the BCT calculations for filtration for this industry. This is in accordance with the proposed BCT methodology in order to avoid "double counting" of the amount of pollutants removed by a candidate BCT technology.

The recycle/reuse technology option identified for BCT was evaluated in the range of from 20 to 40 percent reduction in discharge flow. The cost per pound ranges from \$41.00 to \$0.77 (1977 dollars) [\$50.48 to \$1.36 (1977 dollars) based upon the September 20, 1984 notice of data availability] in the first part of the proposed BCT cost reasonableness test (the "POTW test"). Accordingly, the Agency found that the addition of recycle/reuse technology fails the first part of the proposed BCT cost reasonableness test in all five subcategories (\$0.30 per pound in 1977 dollars) [approximately \$0.76 per pound in 1977 dollars based upon the September 20, 1984 notice of data availability].

The Agency also found that the addition of recycle/reuse plus filtration fails the first part of the proposed BCT cost reasonableness test in all five subcategories. The recycle/reuse portion of this option was evaluated in the range of from 20 to 40 percent reduction in discharge flow. The cost per pound (1977 dollars) ranges from \$21.00 to \$0.58, compared to the benchmark of \$0.30 per pound (1977 dollars) [\$27.05 to \$1.11, compared to the benchmark of approximately \$0.76 per pound (1977 dollars) based upon the September 20, 1984 notice of data availability].

Therefore, the Agency is promulgating BCT equal to BPT for the five subcategories in this industry.

A more complete discussion of the selection of the candidate BCT technologies, the details of the first part of the proposed BCT cost reasonableness test ("POTW test"), and the basis for decision are contained in the administrative record of this rulemaking.

C. Effluent Limitations Guidelines for Contaminated Storm Water Runoff

In the October 18, 1982 rulemaking the Agency withdrew storm water effluent limitations guidelines for BPT, BAT and NSPS, because they were remanded by the U.S. Court of Appeals in *American Petroleum Institute v. EPA*, 540 F.2d 1023 (10th Cir. 1976).

Since that remand there has been some confusion on the part of permit writers and others as to whether storm water runoff ("runoff") effluent limitations should be contained in permits. There are two kinds of such

runoff, i.e., contaminated and uncontaminated.

The purpose of this rulemaking is to establish BPT, BCT and BAT effluent limitations guidelines for contaminated storm water runoff. Today's promulgated contaminated runoff effluent limitations are to be included in petroleum refinery permits in addition to process wastewater effluent limitations. NSPS for contaminated runoff is being reserved for future rulemaking.

In today's final regulations EPA is defining contaminated runoff, for purposes of these regulations only, to be runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property. Any other storm water runoff at a refinery is considered uncontaminated. Today's final regulations also amend the definition of the term "runoff" currently found in 40 CFR 419.11(b) to clarify that it means the flow of storm water resulting from precipitation coming into contact with petroleum refinery property. Contaminated runoff constitutes an additional source of pollution which must be managed during periods of precipitation along with process wastewater from refinery operations. Today's final regulations do not establish numerical effluent limitations for uncontaminated runoff. Effluent limitations, including but not limited to allocations for uncontaminated runoff may be established by the permit writer based on his/her best professional judgment.

The Agency believes that the best practicable control technology currently available, the best conventional pollutant control technology and the best available technology economically achievable for treatment of contaminated runoff are the same as the technologies identified for treatment of process wastewater. The Agency has not identified any feasible technologies capable of achieving pollutant reductions for contaminated runoff from refineries to any greater degree than those which are achievable by the process wastewater treatment facility.

The Agency believes that the conventional pollutant oil and grease and the nonconventional pollutant parameter total organic carbon (TOC) are appropriate measures to determine whether pollutant loadings in contaminated runoff would be measurably reduced by the model treatment technologies used to develop these final regulations. Under today's final regulations for BPT, wastewater consisting solely of contaminated runoff may be discharged directly without

treatment if it does not exceed 15 mg/l oil and grease and 110 mg/l TOC, based upon an analysis of any single grab or composite sample. Under today's final regulations for BCT, wastewater consisting solely of contaminated runoff may be discharged directly without treatment, if it does not exceed 15 mg/l oil and grease and under the final regulations for BAT, wastewater consisting solely of contaminated runoff may be discharged directly without treatment if it does not exceed 110 mg/l TOC. If contaminated runoff (whether or not it exceeds 15 mg/l oil and grease or 110 mg/l TOC) is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease or 110 mg/l TOC is not commingled or treated with any other type of wastewater, then such runoff would be subject to the alternative BPT/BCT/BAT effluent limitations guidelines for contaminated runoff being promulgated today, as appropriate. These oil and grease and TOC numerical effluent limitations are based on the concentrations expected from the properly designed and operated model treatment facilities.

The effluent limitations guidelines in today's BPT regulation for contaminated runoff are based on the same concentrations and variability factors used to develop the Agency's existing BPT process wastewater effluent limitations guidelines.

Today's BAT regulation for contaminated runoff is based upon the same concentrations and variability factors used to develop the Agency's existing BAT process wastewater effluent limitations guidelines, except those for total chromium, which are based upon the same concentrations and variability factors used for today's promulgated BAT effluent limitations guidelines for process wastewater.

Today's promulgated BAT effluent guidelines for phenolic compounds (4AAP) for contaminated runoff are based on the same concentrations used for the existing BAT effluent limitations guidelines for process wastewater and the same variability factors used for the Agency's existing BAT effluent limitations guidelines. EPA has determined that this approach is appropriate because of the specifics of each data base available to the Agency. If EPA used the variability factors from today's promulgated BAT effluent limitations guidelines, less stringent BAT contaminated runoff numerical effluent limitations for phenolic compounds (4AAP) would be derived than under today's promulgated BPT

contaminated runoff numerical effluent limitations for phenolic compounds (4AAP). The more stringent effluent limitations clearly are achievable and as a matter of law BAT cannot be less stringent than BPT.

Today's BCT regulation for contaminated runoff is based on the same concentrations and variability factors used for today's promulgated BCT process wastewater effluent limitations guidelines.

The Agency believes that the costs attributable to today's regulations will be minimal, while providing for reductions in refinery pollutant discharges. This is because the Agency believes the industry as a whole already is (a) treating contaminated runoff with process wastewater or (b) is discharging contaminated runoff below today's promulgated threshold for treatment. Today's final regulations do not cover contaminated runoff which is commingled with nonprocess wastewater streams. EPA believes that such instances are infrequent, and accordingly, they are left to the permit writer's discretion.

Unlike the effluent limitations guidelines for process wastewater for this industry which are mass-based, today's promulgated effluent limitations guidelines for contaminated runoff are concentration-based. This is because storm water volumes are not related to any measurement of refinery production. However, under today's regulations permit effluent limitations for contaminated runoff are to be established on a mass basis. The mass-based effluent limitations for each regulated pollutant for contaminated runoff in a petroleum refining permit are the product of (1) the respective effluent guideline concentration for that pollutant; and (2) the measured or calculated contaminated runoff volume.

Under today's regulations permit writers are given flexibility in determining refinery storm water volumes on a case-by-case basis. The following factors are among those appropriate for permit writers to consider in determining what contaminated runoff volume to use in calculating mass-based effluent limitations for refinery permits: (a) Measured difference between dry weather and wet weather discharge flow from the treatment facility where contaminated runoff is the only runoff present in the treatment facility; and (b) volume of contaminated runoff water calculated from the product of (1) measurement of land area where precipitation would become contaminated, and (2) an historical

measure of precipitation for the particular refinery location.

Once the mass based effluent limitation is derived, it may be incorporated into a refinery permit in one of three ways. The proper choice depends on site-specific factors, such as local rainfall patterns and the design of runoff holding facilities.

The first method is a continuous allocation. This presents the problem of providing an allocation when no runoff is present and is appropriate only where precipitation patterns are relatively constant through the year or when holding facilities are used to bleed runoff into the treatment facility over most or all of the year. The second method is a variable allocation based on measurement or calculation of actual contaminated runoff volume. While this is the most ideal method, it may present compliance measurement and enforcement complexities. The third method is dual wet weather/dry weather limitations triggered by either time of year, precipitation events, or actual contaminated runoff volume. The method of determining contaminated runoff volume used to calculate the effluent limitations will vary depending on the method used and the design of any runoff holding facilities. Therefore, it is left to the permit writer to select an appropriate method under today's rulemaking.

These regulations do not address uncontaminated runoff which is discharged through the process wastewater treatment facility. This is because the Agency believes that introducing uncontaminated runoff to the process wastewater treatment system may result in the discharge of an increased mass of pollutants to the environment compared to the mass of pollutants discharged if no uncontaminated runoff were present in the process wastewater treatment system. Therefore, the Agency does not want to encourage this practice on a national basis.

In the case of BPT, the effluent limitations guidelines promulgated today are for the following pollutants (1) conventional pollutants: total suspended solids (TSS), oil and grease, five-day biochemical oxygen demand (BOD₅) and pH; (2) nonconventional pollutants: phenolic compounds (4AAP), chemical oxygen demand (COD) and total organic carbon (TOC); and (3) toxic pollutants: total chromium and hexavalent chromium. In the case of BAT, the effluent limitations guidelines being promulgated today are for (1) nonconventional pollutants: Phenolic compounds (4AAP), chemical oxygen

demand (COD) and total organic carbon (TOC); and (2) toxic pollutants: total chromium and hexavalent chromium. In the case of BCT, the effluent limitations guidelines being promulgated today are for the conventional pollutants TSS, oil and grease, BOD₅ and pH. In the case of COD, there may be instances where extremely high chloride levels (greater than 1,000 mg/l) will interfere with the COD analytical method. In this event, the Agency believes that TOC is an acceptable substitute parameter for COD. A TOC limitation shall be based upon effluent data from the particular refinery which correlated TOC to BOD₅. Where adequate correlation data are not available, the permitting authority may establish a TOC limitation on a ratio of 2.2 to 1 to the applicable BPT/BCT effluent limitations for BOD₅. This ratio is based upon effluent data analyzed by the Agency.

No effluent limitations guidelines for contaminated runoff are being promulgated for the nonconventional pollutants ammonia (as N) and sulfide regulated under existing BPT and BAT levels of control.

V. Environmental Impact of the Amendments

EPA's estimates of the reduction in industry-wide direct discharges of phenolic compounds, hexavalent chromium, and total chromium for process wastewater from those allowed under the 1982 final petroleum industry regulation to those allowed by today's amendments are presented below.

REDUCTIONS IN ALLOWABLE DISCHARGE
(Pounds per year)

Pollutant	Reduction
Total chromium	286,000
Hexavalent chromium	19,300
Phenolic compounds	75,000

VI. Responses to Major Comments

The Agency encourages public participation in the rulemaking process and solicited comments on the proposed amendments. Public comments were received and considered in issuing this final rule. A summary of all the comments received and the Agency's responses to those comments are included in a report titled, "Responses to Public Comments on the Proposed Amendments to the Effluent Limitations Guidelines for the Petroleum Refining Point Source Category", which is included in the public record for this regulation.

Most of the commenters expressed full support for the promulgation of the

amended regulations as proposed. Although none of the commenters disagreed with the Agency's action, some believed it necessary to comment on the background and development of the proposal and to seek clarification on the Agency's intended procedures for applying the effluent limitations guidelines. The major comments are addressed below.

A. Best Available Technology Effluent Limitations Guidelines (BAT)

Some of the commenters argued that wastewater flow reduction is not an appropriate basis upon which to base effluent limitations guidelines for this industry. It was claimed that other pollutant specific control techniques will be used, if necessary, to achieve the proposed discharge limits for process wastewater.

The Agency has documentation that flow reduction is an achievable technology for this industry. Industry and Agency studies that confirm this fact are included in the rulemaking record for this regulation. These investigations conclusively demonstrated that refineries have numerous methods available to reduce process wastewater generation or discharge volumes. These studies also demonstrated that the costs and specific methods available are heavily dependent on site-specific factors at each individual refinery. The Agency has also noted that there is a substantial downward trend in historical water usage/discharge rates industry-wide regardless of environmental regulatory requirements.

There may be some refineries which have already achieved a low flow condition or cannot implement flow reduction due to site-specific factors. In these cases, improvements to the existing treatment system design or operation, or in refinery operating practices, may be necessary to meet today's amended BAT effluent limitations. It should be further clarified that the regulation does not preclude the implementation of other control options such as pollutant specific control techniques or other techniques which a refinery considers the most cost-effective method to achieve its permit conditions.

Clarification was sought by commenters on the method that should be followed to determine the appropriate refinery production rates for calculating mass effluent limits. Questions were also raised about the possibility of BAT pollutant limits being less stringent than BPT levels due to differences in the procedures for calculating BAT and BPT permit limits.

The effluent limitations guidelines developed for the petroleum refining industry are production based. Although previous permits may have been issued on the basis of process capacities, permit limits based on the revised BAT regulations should be calculated on the basis of actual production rates. For this reason, the permit writer should undertake a thorough review of a refinery's historical process utilization rates and process groupings to determine a reasonable measure of actual production projected for the period the permit would be in effect. This method of determining appropriate process feedstock rates for use in calculating mass effluent limits is in accordance with 40 CFR 122.45(b). The individual process feedstock rates established should be based on data from the same time period, i.e., all production data for the same time period. Generally, this time period (e.g., calendar year) could be that for which the sum of the crude process feedstock rates is the greatest, but is still representative of anticipated feedstock rates for the duration of the NPDES permit.

The next step in this method is to calculate a daily average feedstock rate for each refinery process included in the determination of effluent limitations. These values may be calculated by dividing an historical annual feedstock rate for each process by the number of days the process was in operation. These same average daily process feedstock rates should be used in the calculation of both daily maximum and 30-day average BAT effluent limitations. This method is consistent with the procedure the Agency used to develop the effluent limitation factors for the amended regulations and with 40 CFR 122.45. Additionally, the daily maximum and 30-day average variability factors, which are components of the effluent limitation factors used to derive permit effluent limitations, reflect short-term (i.e., monthly and daily) deviations from long-term (annual average) performance.

The amended BAT limits for phenolic compounds, total chromium and hexavalent chromium are based on a flow model and daily maximum variability factors which are different than those used to establish the BPT regulations. Some BAT permit limitations could be less stringent than the BPT limitations for a given refinery, even though the BAT and BPT limitations are calculated using the same process feedstock rates determined in accordance with the provisions of 40 CFR 122.45. These occurrences can be caused by the inclusion of additional processes and a

new process grouping in the BAT flow model. In such instances, the resultant permit limitations would be the more stringent of either the calculated BPT limitations or calculated BAT limitations. This is because BAT permit limitations may not be less stringent than BPT. In order to make a proper comparison, the BPT limitations should be recalculated using: (1) Production data from the same time period that are used to calculate the BAT limitations; and (2) the BPT process groupings and subcategorization.

In an effort to provide guidance on the application of the proposed amendments to the BAT effluent limitations guidelines, the Agency held workshops in San Francisco and Dallas for permit writers during November and December 1984.

B. Best Conventional Pollutant Control Technology Effluent Limitations Guidelines (BCT)

Commenters agreed with the approach that was followed by the Agency in its BCT cost evaluation and that the two candidate technologies selected are the most cost effective beyond BPT. Even though the Agency found that none of the four regulatory options that were considered passed the BCT cost test for any of the five subcategories, commenters argued that the actual cost per pound of pollutant removed would be greater than those estimated by EPA. It was argued that the removal cost ratios presented in the Agency's original BCT cost evaluation report were underestimated because filtration costs were understated and removal efficiencies were overstated. It was also pointed out that the BCT evaluation should incorporate available updated information.

As discussed in Section III of this preamble, the Agency has revised its BCT cost evaluation to incorporate the updated information referenced in the notice of data availability published on September 20, 1984 (49 FR 37046). The Agency also believes that the filtration costs and removal efficiencies used in its original evaluation are realistic. Nonetheless, if costs were understated and pollutant removals were overstated as argued, then removal cost ratios would fail the BCT cost test by an even wider margin, which would not change the Agency's original conclusion that BCT should be set equal to BPT for this industry.

C. Effluent Limitations Guidelines for Contaminated Storm Water Runoff

Commenters supported the reinstitution of allocations for the

discharge of contaminated storm water runoff commingled with process wastewater and treated in a refinery's effluent treatment system. Commenters recognized that storm water runoff can have a significant impact on a wastewater treatment system and argued that allocations are appropriate for both contaminated and uncontaminated runoff. In addition, clarifications were requested on the Agency's definition of contaminated runoff and its intentions to include only water which comes into direct contact with raw materials or petroleum products (i.e., exposed or spilled oil) or to extend its coverage to runoff from storage areas or tank farms where, ideally, no direct contact occurs.

The Agency's intent in promulgating storm water runoff limitations is to provide a mechanism for the control of storm water when this waste stream is, or is very likely to be, contaminated by direct contact with raw, intermediate or final products. The collection and treatment of storm water runoff that is uncontaminated can be costly and burden the refinery's wastewater treatment system. For this reason, the Agency wishes to encourage refineries which segregate uncontaminated storm water runoff from contaminated wastewater streams to continue this practice. The regulation, however, does not require such segregation.

One commenter argued that the total organic carbon (TOC) and oil and grease discharge criteria for the control of contaminated runoff effectively sets storm water runoff limitations.

The 110 mg/l TOC and 15 mg/l oil and grease applicability criteria for BAT/BCT effluent limitations apply only to contaminated runoff as defined at § 419.11(g). These values are intended to serve as threshold criteria for including contaminated runoff effluent limitations (e.g., phenolic compounds, total chromium, total suspended solids) in NPDES permits. These criteria or other limitations may be applied to such discharges on a case-by-case basis at the permitting authority's discretion. For example, a particular stormwater runoff discharge that normally meets the threshold criteria may be of a nature where it could become very contaminated by an accidental spill. In such situations it may be appropriate to impose the TOC, oil and grease and/or other values as effluent limitations or to at least require periodic sampling and analysis for such pollutants to monitor the nature of such discharges.

VII. Executive Order 12291

Under Executive Order 12291, EPA

must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because it does not fall within the criteria for major regulations established in Executive Order 12291.

VIII. Regulatory Flexibility Analysis

Under the Regulatory Flexibility Act, 5 U.S.C. 601 et seq., EPA must prepare a Regulatory Flexibility Analysis for all regulations that have a significant impact on a substantial number of small entities. The Agency does not believe that today's rulemaking will have a significant impact on any segment of the petroleum refining industry, large or small. The Agency has not, therefore, prepared a formal analysis for this regulation.

IX. OMB Review

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291. Any comments from OMB to EPA and any EPA responses to those comments are available for public inspection at Room M2404, U.S. EPA, 401 M Street, SW., Washington, D.C. from 9:00 a.m. to 4:00 p.m. Monday through Friday, excluding Federal holidays.

X. List of Subjects in 40 CFR Part 419

Petroleum, water pollution control, Wastewater treatment and disposal.

Dated: July 1, 1985.

A. James Barnes,
Acting Administrator.

For the reasons set out in the preamble, EPA is amending 40 CFR Part 419 as follows:

PART 419—PETROLEUM REFINING POINT SOURCE CATEGORY

1. The authority citation for Part 419 continues to read as follows:

Authority: Secs. 301, 304 (b), (c), (e), and (g), 306 (b) and (c), 307 (b) and (c), and 501, Federal Water Pollution Control Act as amended (the Act); 33 U.S.C. 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.

2. Section 419.11 is amended by revising paragraph (b) and adding paragraph (g) to read as follows:

§ 419.11 Specialized definitions.

(b) The term "runoff" shall mean the flow of storm water resulting from precipitation coming into contact with petroleum refinery property.

(g) The term "contaminated runoff" shall mean runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property.

§ 419.12 [Amended]

3. In § 419.12(a), the table is amended as follows:

A. Under the heading "English units (pounds per 1,000 bbl of feedstock)", in the first column opposite "sulfide", "0.53" is revised to read "0.053".

B. Under the heading "English units (pounds per 1,000 bbl of feedstock)", opposite "sulfide" in the second column, "0.24" is revised to read "0.024".

C. Under the heading "English units (pounds per 1,000 bbl of feedstock)", opposite "hexavalent chromium", in the first column "0.10" is revised to read "0.01".

§ 419.32 [Amended]

4-6. In § 419.32(a), in the second column of the table, under "Metric units (Kilograms per 1,000m³ of feedstock)", opposite "sulfide", "0.52" is revised to read "0.22".

§ 419.52 [Amended]

7. The table in § 419.52(b)(1), under the column "1,000 barrels of feedstock per stream day," the figures "125.0 to 124.9" and "200 to 244.9" are revised to read "125.0 to 149.9" and "200.0 to 224.9," respectively.

§§ 419.12, 419.22, 419.32, 419.42, and 419.52 [Amended]

8. Sections 419.12(e), 419.22(e), 419.32(e), 419.42(e), and 419.52(e) are amended by removing the paragraph heading and the word "reserved" and by adding the following text:

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

(e) *Effluent Limitations for Contaminated Runoff.* The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff, which may be discharged after the application of the best practicable control technology currently available by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process

wastewater, it may be discharged if it does not exceed 15 mg/l oil and grease and 110 mg/l total organic carbon (TOC) based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease or 110 mg/l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BPT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of flow)		
BOD ₅	48	26
TSS	33	21
COD ¹	360	180
Oil and grease	15	8
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(²)	(²)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.22
TSS	0.28	0.18
COD ¹	3.0	1.5
Oil and grease	0.13	0.067
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.0060	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(²)	(²)

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the permitting authority may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD₅. If in the judgment of the permitting authority, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations for BOD₅.

² Within the range of 6.0 to 9.0.

§§ 419.13, 419.23, 419.33, 419.43, and 419.53 [Amended]

9. Sections 419.13, 419.23, 419.33, 419.43, and 419.53 are amended by removing the entries and effluent limitations for phenolic compounds, total chromium, and hexavalent chromium from the tables in paragraph (a).

10. Sections 419.13, 419.23, 419.33, 419.43, and 419.53 are further amended by redesignating paragraph (e) as (f), redesignating paragraph (d) as (e), and redesignating paragraph (c) as (d), and revising the redesignated paragraph (f) to read as follows:

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

(f) *Effluent Limitations for Contaminated Runoff.* The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff, which may be discharged after the application of the best available technology economically achievable by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 110 mg/l total organic carbon (TOC) based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 110 mg/l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BAT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of flow)		
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.60	0.21
Hexavalent chromium	0.062	0.028
COD ¹	360	180
English units (pounds per 1,000 gallons of flow)		
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.0050	0.0018
Hexavalent chromium	0.00052	0.00023
COD ¹	3.0	1.5

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the permitting authority may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD₅. If in the judgment of the permitting authority, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations for BOD₅.

11. Sections 419.23, 419.33, 419.43, and 419.53 are amended in newly designated paragraph (d) by changing "419.13(c)" to read "419.13(d)".

12. Sections 419.12 (a) and (c), 419.13 (a), 419.16 (a) and (c), 419.22(a),

419.23(a), 419.26(a), 419.32(a), 419.33(a), 419.36(a), 419.42(a), 419.43(a), 419.46(a), 419.52(a), 419.53(a), and 419.56(a) are amended by revising footnote (1) to the table to read "See footnote following table in § 419.13(b)".

§§ 419.13, 419.23, 419.33, and 419.53 [Amended]

13. Sections 419.13, 419.23, 419.33, and 419.53 are amended by adding a new paragraph (c) to read as follows:

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

(c)(1) In addition to the provisions contained above pertaining to COD, ammonia and sulfide, any existing 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 available technology economically achievable (BAT):

(i) For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 CFR 122.45(b). Applicable production processes are presented in Appendix A, by process type. The process identification numbers presented in this Appendix A are for the convenience of the reader. They can be cross-referenced in the *Development Document for Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category* (EPA 440/1-82/014), Table III-7, pp. 49-54.

Pollutant or pollutant property and process type	BAT effluent limitation factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 cubic meters of feedstock)		
Phenolic compounds (4AAP):		
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylation	0.377	0.092
Total chromium:		
Crude	0.030	0.011
Cracking and coking	0.340	0.118
Asphalt	0.163	0.064
Lube	0.655	0.207
Reforming and alkylation	0.305	0.106
Hexavalent chromium:		
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0098

Pollutant or pollutant property and process type	BAT effluent limitation factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Asphalt.....	0.0117	0.0053
Lube.....	0.0549	0.0248
Reforming and alkylation.....	0.0196	0.0086
English units (pounds per 1,000 bbl of feedstock)		
Phenolic compounds (4AAP):		
Crude.....	0.013	0.003
Cracking and coking.....	0.147	0.036
Asphalt.....	0.079	0.019
Lube.....	0.369	0.090
Reforming and alkylation.....	0.132	0.032
Total chromium:		
Crude.....	0.011	0.004
Cracking and coking.....	0.119	0.041
Asphalt.....	0.064	0.022
Lube.....	0.299	0.104
Reforming and alkylation.....	0.107	0.037
Hexavalent chromium:		
Crude.....	0.0007	0.0003
Cracking and coking.....	0.0076	0.0034
Asphalt.....	0.0041	0.0019
Lube.....	0.0192	0.0087
Reforming and alkylation.....	0.0069	0.0031

(2) See the comprehensive example in Subpart D, § 419.43(c)(2).

14. Section 419.43 is amended by adding a new paragraph (c) to read as follows:

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

(c)(1) In addition to the provisions contained above pertaining to COD, ammonia and sulfide, any existing 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 available technology economically achievable (BAT):

(i) For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 CFR 122.45(b). Applicable production processes are presented in Appendix A, by process type. The process identification numbers presented in this Appendix A are for the convenience of the reader. They can be cross-referenced in the *Development Document for Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category* (EPA 440/1-82/014), Table III-7, pp. 49-54.

Pollutant or pollutant property and process type	BAT effluent limitation factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of feedstock)		
Phenolic compounds (4AAP):		
Crude.....	0.037	0.009
Cracking and coking.....	0.419	0.102
Asphalt.....	0.226	0.055
Lube.....	1.055	0.257
Reforming and alkylation.....	0.377	0.092
Total chromium:		
Crude.....	0.030	0.011
Cracking and coking.....	0.340	0.118
Asphalt.....	0.183	0.064
Lube.....	0.855	0.297
Reforming and alkylation.....	0.305	0.106
Hexavalent chromium:		
Crude.....	0.0019	0.0009
Cracking and coking.....	0.0218	0.0098
Asphalt.....	0.0117	0.0053
Lube.....	0.0549	0.0248
Reforming and alkylation.....	0.0196	0.0086
English units (pounds per 1,000 bbl of feedstock)		
Phenolic compounds (4AAP):		
Crude.....	0.013	0.003
Cracking and coking.....	0.147	0.036
Asphalt.....	0.079	0.019
Lube.....	0.369	0.090
Reforming and alkylation.....	0.132	0.032
Total chromium:		
Crude.....	0.011	0.004
Cracking and coking.....	0.119	0.041
Asphalt.....	0.064	0.022
Lube.....	0.299	0.104
Reforming and alkylation.....	0.107	0.037
Hexavalent chromium:		
Crude.....	0.0007	0.0003
Cracking and coking.....	0.0076	0.0034
Asphalt.....	0.0041	0.0019
Lube.....	0.0192	0.0087
Reforming and alkylation.....	0.0069	0.0031

(2) Example Application of Effluent Limitations Guidelines as Applicable to Phenolic Compounds, Hexavalent Chromium, and Total Chromium.

The following example presents the derivation of a BAT phenolic compound (4AAP) effluent limitation (30-day average) for a petroleum refinery permit. The methodology is also applicable to hexavalent chromium and total chromium.

Refinery process	Process feedstock rate 1,000 bbl/day
1. Atmospheric crude distillation.....	100
2. Crude desalting.....	50
3. Vacuum crude distillation.....	75
Total crude processes (C).....	225
6. Fluid catalytic cracking.....	25
10. Hydrocracking.....	20
Total cracking and coking processes (K).....	45
18. Asphalt production.....	5
Total asphalt processes (A).....	5
21. Hydrofining.....	3
Total lube processes (L).....	3

Refinery process	Process feedstock rate 1,000 bbl/day
8. Catalytic reforming.....	10
Total reforming and alkylation processes (R).....	10

Note: 30 day average effluent limitation for phenolic compounds (4AAP), lb/day = (0.003) [225] + (0.036) [45] + (0.019) [5] + (0.090) [3] + (0.032) [10] = 2.98 lb/day

15. Section 419.14 is revised to read as follows:

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

(a) Any existing 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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of feedstock)		
BOD ₅	22.7	12.0
TSS.....	15.8	10.1
Oil and Grease.....	6.9	3.7
pH.....	(¹)	(¹)
English units (pounds per 1,000 bbl of feedstock)		
BOD ₅	8.0	4.25
TSS.....	5.6	3.6
Oil and Grease.....	2.5	1.3
pH.....	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor.

1,000 bbl of feedstock per stream day	Size factor
Less than 24.9.....	1.02
25.0 to 49.9.....	1.06
50.0 to 74.9.....	1.16
75.0 to 99.9.....	1.26
100 to 124.9.....	1.36
125.0 to 149.9.....	1.50
150.0 or greater.....	1.57

(2) Process factor.

Process configuration	Process factor
Less than 2.49.....	0.62
2.5 to 3.49.....	0.67

Process configuration	Process factor
3.5 to 4.49	0.80
4.5 to 5.49	0.95
5.5 to 6.49	1.07
6.5 to 7.49	1.17
7.5 to 8.49	1.27
8.5 to 9.49	1.39
9.5 to 10.49	1.51
10.5 to 11.49	1.64
11.5 to 12.49	1.79
12.5 to 13.49	1.95
13.5 to 14.49	2.12
14.5 to 15.49	2.31
15.5 to 16.49	2.51
16.5 to 17.49	2.73
17.5 to 18.49	2.98
18.5 to 19.49	3.24
19.5 to 20.49	3.53
20.5 to 21.49	3.84
21.5 to 22.49	4.16
22.5 or greater	4.36

(3) See the comprehensive example in Subpart D, § 419.43(b)(3).

(c) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to ballast, which may be discharged after the application of best conventional pollutant control technology by a point source subject to this subpart, in addition to the discharge allowed by paragraph (b) of this section. The allocation allowed for ballast water flow, as kg/cu m (lb/1000 gal), shall be based on those ballast waters treated at the refinery.

Pollutant or pollutant property	BCT Effluent limitations for ballast water	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per m ³ of flow)		
BOD ₅	0.048	0.026
TSS	0.033	0.021
Oil and grease	0.015	0.008
pH	(¹)	(¹)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.21
TSS	0.26	0.17
Oil and grease	0.126	0.067
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section.

(e) **Effluent Limitations for Contaminated Runoff.** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff which may be discharged after the application of the

best conventional pollutant control technology by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg/l oil and grease based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BCT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 (m ³) of flow)		
BOD ₅	48	26
TSS	33	21
Oil and grease	15	8
pH	(¹)	(¹)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.22
TSS	0.26	0.16
Oil and grease	0.13	0.067
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

16. Section 419.24 is revised to read as follows:

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

(a) Any existing 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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 (m ³) of feedstock)		
BOD ₅	28.2	15.6
TSS	19.3	12.6

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
English units (pounds per 1,000 bbl of feedstock)		
Oil and grease	8.4	4.5
pH	(¹)	(¹)
English units (pounds per 1,000 bbl of feedstock)		
BOD ₅	9.9	5.5
TSS	6.9	4.4
Oil and grease	3.0	1.6
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor.

1,000 bbl of feedstock per stream day	Size factor
Less than 24.9	0.91
25.0 to 49.9	0.95
50.0 to 74.9	1.04
75.0 to 99.9	1.13
100.0 to 124.9	1.23
125.0 to 149.9	1.35
150.0 or greater	1.41

(2) Process factor.

Process configuration	Process factor
Less than 2.49	0.58
2.5 to 3.49	0.63
3.5 to 4.49	0.74
4.5 to 5.49	0.88
5.5 to 6.49	1.00
6.5 to 7.49	1.09
7.5 to 8.49	1.19
8.5 to 9.49	1.29
9.5 to 10.49	1.41
10.5 to 11.49	1.53
11.5 to 12.49	1.67
12.5 to 13.49	1.82
13.5 to 14.49	1.89

(3) See the comprehensive example in Subpart D, § 419.42(b)(3).

(c) The provisions of § 419.14(c) apply to discharge of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section.

(e) **Effluent Limitations for Contaminated Runoff.** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff which may be discharged after the application of the

best conventional pollutant control technology by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg/l oil and grease based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BCT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of flow)		
BOD ₅	48	26
TSS	33	21
Oil and grease	15	8
pH	(¹)	(¹)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.22
TSS	0.26	0.16
Oil and grease	0.13	0.067
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

17. Section 419.34 is revised to read as follows:

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

(a) Any existing 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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of feedstock)		
BOD ₅	34.6	18.4
TSS	23.4	14.6

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
English units (pounds per 1,000 bbl of feedstock)		
Oil and grease	11.1	5.9
pH	(¹)	(¹)
Metric units (kilograms per 1,000 m ³ of feedstock)		
BOD ₅	12.1	6.5
TSS	8.3	5.25
Oil and grease	3.9	2.1
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor.

1,000 bbl of feedstock per stream day	Size factor
Less than 24.9	0.73
25.0 to 49.9	0.76
50.0 to 74.9	0.83
75.0 to 99.9	0.91
100.0 to 124.9	0.99
125.0 to 149.9	1.06
150.0 or greater	1.13

(2) Process factor.

Process configuration	Process factor
Less than 4.49	0.73
4.5 to 5.49	0.80
5.5 to 5.99	0.91
6.0 to 6.49	0.99
6.5 to 6.99	1.06
7.0 to 7.49	1.17
7.5 to 7.99	1.26
8.0 to 8.49	1.39
8.5 to 8.99	1.51
9.0 to 9.49	1.65
9.5 or greater	1.72

(3) See the comprehensive example in Subpart D, § 419.42(b)(3).

(c) The provisions of § 419.14(c) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section.

(e) *Effluent Limitations for Contaminated Runoff.* The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff which may be discharged after the application of the best conventional pollutant control

technology by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg/l oil and grease based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BCT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of flow)		
BOD ₅	48	26
TSS	33	21
Oil and grease	15	8
pH	(¹)	(¹)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.22
TSS	0.26	0.16
Oil and grease	0.13	0.067
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

18. Section 419.44 is revised to read as follows:

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

(a) Any existing 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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of feedstock)		
BOD ₅	50.6	25.8
TSS	35.6	22.7

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Oil and Grease	16.2	8.5
pH	(¹)	(¹)
English units (pounds per 1,000 bbl of feedstock)		
BOD ₅	17.9	9.1
TSS	12.5	8.0
Oil and Grease	5.7	3.0
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor.

1,000 bbl of feedstock per stream day	Size factor
Less than 49.9	0.71
50.0 to 74.9	0.74
75.0 to 99.9	0.81
100.0 to 124.9	0.88
125.0 to 149.9	0.97
150.0 to 174.9	1.05
175.0 to 199.9	1.14
200.0 or greater	1.19

(2) Process factor.

Process configuration	Process factor
Less than 6.49	0.81
6.5 to 7.49	0.88
7.5 to 7.99	1.00
8.0 to 8.49	1.09
8.5 to 8.99	1.19
9.0 to 9.49	1.29
9.5 to 9.99	1.41
10.0 to 10.49	1.53
10.5 to 10.99	1.67
11.0 to 11.49	1.82
11.5 to 11.99	1.98
12.0 to 12.49	2.15
12.5 to 12.99	2.34
13.0 or greater	2.44

(c) The provisions of § 419.14(c) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section.

(e) **Effluent Limitations for Contaminated Runoff.** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff which may be discharged after the application of the best conventional pollutant control

technology by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg/l oil and grease based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BCT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric unit (kilograms per 1,000 m ³ of flow)		
BOD ₅	48	28
TSS	33	21
Oil and grease	15	8
pH	(¹)	(¹)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

19. Section 419.54 is revised to read as follows:

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

(a) Any existing point 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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of feedstock)		
BOD ₅	54.4	28.9
TSS	37.3	23.7

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Oil and grease	17.1	9.1
pH	(¹)	(¹)
English units (pounds per 1,000 bbl of feedstock)		
BOD ₅	18.2	10.2
TSS	13.2	8.4
Oil and grease	6.0	3.2
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor.

1,000 bbl of feedstock per stream day	Size factor
Less than 124.9	0.73
125.0 to 149.9	0.76
150.0 to 174.9	0.83
175.0 to 199.9	0.91
200.0 to 224.9	0.99
225.0 or greater	1.04

(2) Process factor.

Process configuration	Process factor
Less than 6.49	0.75
6.5 to 7.49	0.82
7.5 to 7.99	0.92
8.0 to 8.49	1.00
8.5 to 8.99	1.10
9.0 to 9.49	1.20
9.5 to 9.99	1.30
10.0 to 10.49	1.42
10.5 to 10.99	1.54
11.0 to 11.49	1.68
11.5 to 11.99	1.83
12.0 to 12.49	1.99
12.5 to 12.99	2.17
13.0 or greater	2.26

(3) See the comprehensive example in Subpart D, § 419.42(b)(3).

(c) The provisions of § 419.14(c) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section.

(e) **Effluent Limitations for Contaminated Runoff.** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to contaminated runoff which may be

discharged after the application of the best conventional pollutant control technology by a point source subject to this subpart.

(1) If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg/l oil and grease based upon an analysis of any single grab or composite sample.

(2) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg/l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the permit writer times the concentrations listed in the following table:

Pollutant or pollutant property	BCT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Metric units (kilograms per 1,000 m ³ of feedstock)		
BOD ₅	46	26
TSS	33	21
Oil and grease	15	8
pH	(¹)	(¹)

Pollutant or pollutant property	BCT effluent limitations for contaminated runoff	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

§ 419.46 and 419.56 [Amended]

20. In §§ 419.46(c) and 419.56(c), "419.15(c)", is revised to read "419.16(c)."

21. 40 CFR Part 419 is amended by adding the following Appendix A:

Appendix A.—Processes Included in the Determination of BAT Effluent Limitations for Total Chromium, Hexavalent Chromium, and Phenolic Compounds (4AAP)

Crude Processes

1. Atmospheric Crude Distillation
2. Crude Desalting
3. Vacuum Crude Distillation

Cracking and Coking Processes

4. Visbreaking
5. Thermal Cracking
6. Fluid Catalytic Cracking
7. Moving Bed Catalytic Cracking
10. Hydrocracking

15. Delayed Coking
16. Fluid Coking
54. Hydrotreating

Asphalt Processes

18. Asphalt Production
32. 200°F Softening Point Unfluxed Asphalt
43. Asphalt Oxidizing
89. Asphalt Emulsifying

Lube Processes

21. Hydrofining, Hydrofinishing, Lube Hydrofining
22. White Oil Manufacture
23. Propane Dewaxing, Propane Deasphalting, Propane Fractionation, Propane Deresining
24. Duo Sol, Solvent Treating, Solvent Extraction, Duotreating, Solvent Dewaxing, Solvent Deasphalting
25. Lube Vac Twr, Oil Fractionation, Batch Still (Naphtha Strip), Bright Stock Treating
26. Centrifuge and Chilling
27. MEK Dewaxing, Ketone Dewaxing, MEK-Toluene Dewaxing
28. Deoiling (wax)
29. Naphthenic Lubes Production
30. SO₂ Extraction
34. Wax Pressing
35. Wax Plant (with Neutral Separation)
36. Furfural Extraction
37. Clay Contacting—Percolation
38. Wax Sweating
39. Acid Treating
40. Phenol Extraction

Reforming and Alkylation Processes

8. H₂SO₄ Alkylation
12. Catalytic Reforming

[FR Doc. 85-16383 Filed 7-11-85; 8:45 am]

BILLING CODE 6560-50-M

federal register

Friday
July 12, 1985

Part IV

Environmental Protection Agency

40 CFR Part 763

**Asbestos Abatement Projects;
Immediately Effective Proposed Rule
Agency Paperwork Reduction Act
Clearance Request Completed by the
Office of Management and Budget**

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 763

[OPTS-62044; FRL 2848-9]

Asbestos Abatement Projects

AGENCY: Environmental Protection Agency (EPA).

ACTION: Immediately effective proposed rule.

SUMMARY: EPA is proposing a rule under section 6(a) of the Toxic Substances Control Act (TSCA), which is effective immediately under section 6(d) of TSCA. The proposed rule will remain in effect until EPA promulgates a final rule. The rule would apply to asbestos abatement projects using employees not protected by regulations of the Occupational Safety and Health Administration (OSHA) or by regulations of State plans adopted under the Occupational Safety and Health Act (OSHA). The rule is similar to the current OSHA Asbestos Standard.

DATE: This rule is effective July 12, 1985. Comments must be submitted by September 10, 1985. A public hearing, if requested, will be held beginning on September 24, 1985.

ADDRESS: Since some comments are expected to contain confidential business information, all comments should be sent in triplicate to: Document Control Officer (TS-793), Office of Toxic Substances, Environmental Protection Agency, Rm. E-209, 401 M St., SW., Washington, D.C. 20460.

Comments should include the docket control number OPTS-62044. Nonconfidential comments and nonconfidential versions of confidential comments received on this proposal will be available for reviewing and copying from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays, in Rm. E-107, at the address given above.

FOR FURTHER INFORMATION CONTACT: Edward A. Klein, Director, Office of TSCA Assistance (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-543, 401 M St., SW., Washington, D.C. 20460. Toll free: (800-424-9065). In Washington, D.C.: (554-1404). Outside the USA: (Operator-202-554-1404).

SUPPLEMENTARY INFORMATION:
OMB Control No. 2070-0072.

I. Authority

Section 6(a) of TSCA authorizes EPA to impose a number of regulatory requirements concerning a chemical substance or mixture if EPA finds that there is a reasonable basis to conclude

that the manufacture, processing, distribution in commerce, use, or disposal of the chemical substance, or any combination of such activities, presents or will present an unreasonable risk of injury to health or the environment. Among the requirements that EPA may impose are those listed in sections 6(a)(5) and 6(a)(6). Section 6(a)(5) of TSCA authorizes EPA to prohibit or otherwise regulate any manner or method of commercial use of a chemical substance or mixture. Section 6(a)(6) of TSCA authorizes EPA to prohibit or otherwise regulate any manner or method of disposal of a chemical substance or mixture or any article containing that substance or mixture, by any person who uses or disposes of it for commercial purposes.

These sections provide authority for EPA to issue this rule, which establishes requirements to protect State and local public employees conducting asbestos abatement activities. The asbestos in buildings where State and local public employees may be involved in abatement has been sold as a commercial product. Therefore, regulation of abatement activities affecting its use in these buildings, such as encapsulation or enclosure, is considered regulation of commercial use. The removal of asbestos, a disposal activity, will affect a number of commercial activities that take place in the public buildings and, therefore, is considered disposal for commercial purposes.

Under section 6(d) of TSCA, EPA may declare a proposed rule under section 6(a) to be effective upon its publication in the *Federal Register* and until the effective date of final action taken if (1) EPA determines that the manufacture, processing, distribution in commerce, use, or disposal of the chemical substance or mixture subject to the proposed rule, or any combination of such activities, is likely to result in an unreasonable risk of serious or widespread injury to health or the environment before the effective date of final action by EPA and (2) EPA determines that making the proposed rule effective upon its publication in the *Federal Register* is necessary to protect the public interest.

II. Background

On November 13, 1983, the Service Employees International Union (SEIU) petitioned EPA under section 21 of TSCA to:

1. Establish standards for the performance of asbestos abatement activities, including standards for the protection of persons performing such activities.

2. Establish standards for determining when friable asbestos-containing materials in schools are hazardous.

3. Establish requirements for corrective action in schools when friable asbestos-containing materials are determined to be hazardous.

4. Establish requirements for inspection and abatement of friable asbestos-containing materials in public and commercial buildings.

EPA granted the petition by a notice in the *Federal Register* of March 7, 1984 (49 FR 8450), and a May 7, 1984, letter to the SEIU in which EPA agreed to commence an appropriate proceeding within the meaning of section 21 of TSCA. The May 7, 1984, letter was published in the *Federal Register* of June 14, 1984 (49 FR 24552). EPA promptly commenced an appropriate proceeding by holding four public hearings between May 7, 1984, and June 28, 1984. EPA received oral and written testimony on each point in the petition from many groups interested in reducing the risks associated with asbestos in schools and other public and commercial buildings.

EPA analyzed the hearing record and all other data available to EPA and announced its plans in a November 30, 1984, letter to the SEIU. In that letter, EPA stated, among other things, that there may be merit to the concept of establishing requirements to protect public employees not protected by OSHA requirements who perform asbestos abatement work. EPA announced that it intended either to propose a rule in June 1985 to establish requirements to protect those public employees or to explain the reasons that have made rulemaking inappropriate. EPA also announced in the letter that it would take appropriate action if EPA determined that a more expedited proceeding, such as the issuance of an immediately effective rule, is necessary. EPA has determined that the issuance of a rule to protect public employees from asbestos released to the air during asbestos abatement work is necessary to reduce the unreasonable risk associated with that activity and that the rule should be immediately effective. Therefore, EPA is proposing such a rule. This rule is part of an integrated EPA program to address the risks associated with asbestos in schools and other public and commercial buildings. As part of that program, EPA is establishing three pilot information centers at the regional level to provide information concerning the identification and abatement of asbestos hazards and to train people in proper abatement techniques. To ensure that asbestos abatement is performed safely and

correctly, EPA is helping States establish certification programs for asbestos abatement contractors. EPA is giving some States grants to help them set up contractor certification programs and is suggesting to States ways to implement such programs. EPA is also expanding its technical assistance program to provide guidance on asbestos matters to public and commercial building owners and managers as well as school officials. Finally, EPA is updating existing guidance material and preparing new material.

III. Provisions of the Rule

Sections 763.120 of the rule states the rule's scope. The rule applies to asbestos abatement projects, which include any activity involving the removal, enclosure, or encapsulation of friable asbestos material. EPA considers any material containing more than 1 percent asbestos by weight, which, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure to be friable asbestos material. The rule covers all employees of State and local governments not covered by either the OSHA Asbestos Standard or an asbestos standard adopted by a State as part of a State plan approved by OSHA under section 18 of the OSHA Act. The rule would be enforced against the employers of those employees. Currently, State and local employees in 27 States are not protected by the OSHA Asbestos Standard. In addition, public employees in some other possessions of the United States are not protected by the OSHA Asbestos Standard. This rule would cover those persons not currently protected. EPA notes that many asbestos abatement projects subject to this rule are also covered under the Clean Air Act by the National Emission Standard for Asbestos, and are obligated to follow that rule also.

Section 763.121 of the rule sets forth the main regulatory requirements. Section 763.121 is almost identical to the current OSHA Asbestos Standard found in 29 CFR 1910.1001. A major substantive change in § 763.121 is in the definition of asbestos. OSHA now defines asbestos as "chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite." OSHA has recognized that its current definition is inconsistent with those of other agencies because the OSHA definition includes non-asbestiform tremolite. In this rule, EPA defines asbestos as "the asbestiform varieties of chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite-grunerite); tremolite; anthophyllite, and actinolite." EPA

specifically requests comment on the appropriated definition of asbestos.

This rule does not include the part of the current OSHA Asbestos Standard which states that personnel rotation is preferred over use of respirators to meet the permissible exposure requirements. OSHA has announced its intention to revoke that provision (Ref. 12). EPA agrees with OSHA's statement that personnel rotation merely increases the population at risk and would not reduce the absolute number of excess deaths attributable to asbestos according to mathematical models.

This rule, following the current OSHA Asbestos Standard, requires that employers collect samples of air levels "of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees."

EPA adopts and will follow OSHA's administrative interpretations of identical provisions in the Asbestos Standard, including the interpretation that the medical surveillance requirements are triggered by an action level of 0.1 fiber per cubic centimeter (f/cc). Employers would be required to conduct personal and environmental monitoring as required by the rule to see if that level is exceeded.

Section 763.124 of this rule requires State and local employers to report to EPA at least 10 days before they begin an asbestos abatement project using public employees covered by this rule. EPA needs this information to enforce the rule. EPA can inspect asbestos abatement projects covered by this rule only if EPA knows where those projects are located. The report would be sent to the Regional Asbestos Coordinator for the EPA region in which the project is located. Employers who give EPA 10 days advance notice of asbestos abatement projects under the National Emission Standard for Asbestos under 40 CFR 61.146 and clearly indicate that employees covered by this rule will perform asbestos abatement activities, are exempt from reporting under this rule. The latter provision will avoid unnecessary duplicative reporting. Section 763.125 of the rule states EPA enforcement authority, and § 763.126 states EPA inspection authority.

While EPA is adopting the provisions of the current OSHA Asbestos Standard in this rule, EPA encourages persons to provide even greater protection to abatement workers and building occupants who may be exposed to asbestos. OSHA has recognized that employees exposed to asbestos at levels permitted by the current standard face a significant risk to health and OSHA has proposed amending the

current standard (Ref. 12). To ensure adequate protection, EPA strongly encourages all employers covered by this rule and other persons to follow EPA guidance materials and take additional steps to control exposure to asbestos. EPA encourages employers covered by this rule to contact a Regional Asbestos Coordinator or the TSCA Assistance Office to obtain EPA guidance documents and other technical assistance information. In addition, OSHA has proposed changes in its Asbestos Standard and EPA is considering adopting the provisions of the revised OSHA Asbestos Standard when that rule is finalized. EPA is considering the permissible exposure limits of 0.5 and 0.2 f/cc proposed by OSHA. EPA is also considering the other issues discussed by OSHA in the preamble to the proposed revised Asbestos Standard. Those issues included the definition of asbestos; a ceiling limit for exposure; and action level to trigger requirements such as exposure monitoring, regulated areas, hygiene facilities, protective clothing, and medical surveillance; exposure monitoring; regulated areas; methods of compliance with the permissible exposure limits; respirator requirements; medical surveillance; signs and labels; and issues concerning the construction industry. EPA may include such provisions in a final rule. EPA expects to adopt a rule very similar to the final OSHA Asbestos Standard.

EPA also specifically requests comments on whether this rule should apply in States that do not have an OSHA-approved State plan but have regulations protecting public employees who perform asbestos abatement work. EPA encourages any State with an existing relevant regulation to inform EPA of the existence of the regulation during the comment period. EPA will consider exempting States from this rule when it is promulgated if they have regulations that are comparable or more stringent than this rule. States which adopt regulations protecting public employees who perform asbestos abatement work after this rule is promulgated should contact EPA at that time. EPA will consider amending this rule to exclude those States from coverage if their regulations provide comparable or greater protection than this rule.

IV. Regulatory Assessment

Under section 6(c)(1) of TSCA, EPA must consider the following factors when determining whether a chemical substance or mixture presents an unreasonable risk:

1. The effects of such substance or mixture on health and the magnitude of the exposure of human beings to such a substance or mixture.

2. The effects of such substance or mixture on the environment and the magnitude of the exposure of the environment to such substance or mixture.

3. The benefits of such substance or mixture for various uses and the availability of substitutes for such uses.

4. The reasonably ascertainable economic consequences of the rule, after consideration of the effect on the national economy, small business, technological innovation, the environment, and public health.

After considering the above factors, EPA proposes the following findings concerning the unregulated removal, enclosure, or encapsulation of friable asbestos material.

A. Health Effects and Magnitude of Exposure to Asbestos

1. Health Effects

The following summarizes the health effects of asbestos. Detailed discussion and assessment of the health effects of asbestos may be found in the "Report to the United States Consumer Product Safety Commission (CPSC), by the Chronic Hazard Advisory Panel on Asbestos" (CHAP), "Health Effects and Magnitude of Exposure" in EPA's "Support Document for Final Rule on Friable Asbestos-Containing Materials in School Buildings," and the "Report of the (National Research Council) Committee on Nonoccupational Health Risks of Asbestiform Fibers" (Refs. 1 and 4).

Asbestos has been thoroughly examined in numerous epidemiology studies. The life-threatening diseases that have been repeatedly identified are asbestosis, lung cancer, and mesothelioma. Also associated with asbestos exposure in some studies are cancers of the larynx, pharynx, gastrointestinal tract, kidney, and ovary. Major health effects are discussed below.

Asbestosis is a serious chronic disease involving fibrosis of lung and pleural tissues. There is no effective treatment for asbestosis and it is often disabling or fatal. Asbestosis is diagnosed from findings which may include radiographic changes, breathlessness, and abnormal lung function. Since some clinical symptoms of asbestosis are similar to those of other fibrosing lung diseases, a history of occupational exposure to asbestos is often a key feature of its diagnosis. Asbestosis can appear and progress

decades after exposure to asbestos fibers. This is partly true because some inhaled asbestos fibers remain in the body for the lifetime of a victim. Under working conditions where average fiber concentrations in the air were high (more than 10 fibers per cubic centimeter) asbestosis has accounted for more than 17 percent of observed deaths (Ref. 11). It is apparently less common than lung cancer or mesothelioma at exposures lower than the current OSHA workplace standard of 2.0 f/cc. (According to the method developed by OSHA and the National Institute for Occupational Safety and Health (NIOSH), 2.0 f/cc means that 2.0 fibers longer than 5 microns are present in each milliliter of air. As many as 98 percent of airborne asbestos fibers are less than 5 microns and thus are not counted by the OSHA/NIOSH method.) Some recent data on the incidence of asbestosis appear compatible with a linear exposure-response relationship with no threshold (Ref. 12). Whether asbestosis is likely from the low doses characteristic of the nonoccupational environment is considered to be uncertain.

Lung cancer is responsible for the largest number of deaths from exposure to asbestos. Lung cancer has been associated with exposure to all the principal commercial asbestos fiber types. Excess lung cancer has been documented in asbestos mining, milling, manufacture, and use. Studies in which the extent of exposure can be approximated provide evidence that lung cancer increases linearly with both level and duration of exposure. Cigarette smoking and asbestos have a strong synergistic interaction in development of lung cancer. Asbestos exposure appears to multiply the underlying risk of lung cancer. Consequently, when exposed to asbestos, the risk of lung cancer for smokers (for whom the risk of lung cancer is already high) is much higher than that for nonsmokers exposed to asbestos. The CHAP estimated that the absolute increase in lung cancers in nonsmokers is about 1/10 of that in smokers exposed to asbestos.

Mesotheliomas are cancers that occur as thick diffuse masses in the serous membranes (mesothelia) that line body cavities. Many human studies have shown that exposures to asbestos produce mesotheliomas in the pleura (the membrane that surrounds the lungs and lines the lung cavity) and the peritoneum (which surrounds the abdominal organs and lines the abdominal cavity). Neither form of mesothelioma can be treated effectively, and both forms are nearly always fatal

within the first 2 years after diagnosis. Epidemiology studies suggest that the incidence of mesothelioma is related to dose and time from first exposure. Association of mesothelioma with smoking is weak or nonexistent. Asbestos fibers appear, by far, to be the most common cause of mesotheliomas.

In occupational studies where the primary route of exposure is through inhalation, lung cancer and mesotheliomas usually account for about 90 percent of the excess cancers seen among workers. However, as noted in the CHAP report (Ref. 1), a number of other cancers, principally of the gastrointestinal tract, have been associated with asbestos exposure. These are cancers of the larynx, pharynx, oral cavity, esophagus, stomach, colon, and rectum. Statistically significant excesses of cancers of the kidney and ovary have also been shown. In addition, the excess of cancers at all other sites combined is statistically significant in some studies.

The conclusions from epidemiology studies concerning the health effects of asbestos are also supported by results of laboratory studies. Animals treated with asbestos have shown increased incidence of fibrosis, lung cancer, and mesotheliomas. All commercial forms and several other types of asbestos are implicated from a variety of modes of exposure. Animal studies, however, have not shown an increased incidence of gastrointestinal or other cancers.

Most occupational studies have been conducted on populations exposed to high airborne concentrations of asbestos for long periods of time. Short-term occupational exposures, however, have also been shown to increase the risk of lung cancer and mesothelioma (Ref. 9). In addition, there are many documented cases of mesothelioma linked to extremely brief exposure to high concentrations of asbestos or long-term exposure to low concentrations (Ref. 4).

Direct evidence of adverse health effects from nonoccupational asbestos exposure also exists. Persons who lived in the household of asbestos workers have developed pleural mesothelioma and signs of asbestosis (Ref. 10). A number of mesotheliomas have also been documented among populations whose only identified exposure was from living near asbestos mining areas, asbestos product factories, or shipyards where asbestos use had been very heavy.

In addition to exposure to asbestos fibers in the air, the general population is also exposed through various oral sources, including drinking water containing asbestos. Because of the

potential for oral exposure as well as the excess of gastrointestinal tract cancers that has frequently been found in occupational groups exposed to asbestos in the air, there has been much study of the possible health effects of ingestion of asbestos fibers. Despite those efforts, evidence showing health effects from ingestion is still ambiguous (Ref. 5).

2. Cancer Risk Extrapolation

As discussed above, numerous human studies have demonstrated that exposure to asbestos has increased the risk of cancer and asbestosis. This unit presents EPA's approach in estimating the cancer risk attributable to exposures during the removal, enclosure, or encapsulation of friable asbestos.

Since a number of epidemiology studies indicate a positive relationship between asbestos exposure and the risk of lung cancer, several models may be used to extrapolate from risk at high exposure to risk at lower exposure. The model that EPA believes is most consistent with available human and animal data is the linear nonthreshold dose/response model. This model assumes that (1) any exposure increases risk, and (2) the increase in risk is proportional to the background risk in the nonexposed population and to the level of exposure, defined as duration of exposure times concentration of asbestos fibers to which populations may be exposed.

The choice of the linear model appears reasonable since there is no evidence for a threshold level of asbestos exposure below which there is no increased risk. It is further supported by evidence of cancers among populations whose asbestos exposure is believed to have been lower than levels reported in the epidemiology studies of asbestos workers mentioned above.

The model adopted by EPA to estimate excess mesothelioma incidence due to asbestos exposure relates disease incidence to dose and the time from first exposure (minus 10 years) raised to the third power. This model reflects a delay (or minimum latency period) of 10 years between first exposure and the likely earliest possible appearance of the disease. Both the lung cancer and mesothelioma models have also been adopted by OSHA (Ref. 12). The derivation and validation of the models is discussed in detail in the CHAP report (Ref. 1) and in EPA's "Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products" (Ref. 3).

Although EPA believes that excess mortality from asbestosis and cancers

other than lung cancer and mesothelioma could occur from exposure to asbestos released during asbestos abatement operations, EPA has not attempted to quantify that excess mortality since lung cancer and mesothelioma appear to present the greatest threats to human health at current exposure levels.

The risk of asbestos-induced disease may be modified by several factors. As mentioned in the earlier discussion on lung cancer, smoking drastically increases the risk of developing lung cancer from exposure to asbestos. Because of their lower underlying risk, the absolute increase of incidence of lung cancer in nonsmokers is about one-tenth of that in smokers. However, complete control of the smoking factor (if possible) would not in itself reduce the overall risk of asbestos health effects to acceptable levels since the risk of mesothelioma (which is apparently unaffected by smoking) and the risk of lung cancer to nonsmokers would still remain.

Another factor that may affect the risk of asbestos-induced disease is the possible differences in biological potency among the different fiber types. Epidemiology studies suggest that chrysotile may have a lower potential for producing peritoneal mesotheliomas than crocidolite or amosite. However, this has not been supported by laboratory studies. There is less evidence of marked differences between fiber types in their potential to produce pleural mesothelioma and lung cancer. Since all major fiber types (chrysotile, crocidolite, and amosite) are capable of causing lung cancer and pleural mesothelioma, and since the observed differences in potency are ambiguous, EPA has concluded that it is prudent to treat all asbestos fiber types as having equivalent biological activity.

Fiber dimension has also been suggested as a factor that may affect incidence of asbestos-induced disease. Animal studies in which asbestos fibers were applied by injection or implantation suggest that longer and finer fibers are more carcinogenic than shorter and coarser fibers. This has not, however, been confirmed by inhalation studies. EPA has not differentiated among fiber sizes in its assessment of the potential risk of asbestos. First, asbestos fibers released during asbestos abatement projects consist of a great range of dimensions, including those suggested as most dangerous. Second, it has not been clearly shown that short

fibers pose a significantly lesser risk. No dimensional threshold for potency has been established.

3. Magnitude of Human Exposure

Persons can be exposed to high levels of airborne asbestos in or near the work area during asbestos abatement projects. Peak exposure during the removal of asbestos insulation have been measured at levels ranging from 4.5 f/cc to 82.2 f/cc. Mean exposure levels during the dry removal of an asbestos-containing ceiling have been measured at 42.2 f/cc. Mean exposure levels during the wet removal of an asbestos-containing ceiling have been measured at 23.1 f/cc. Mean exposure levels during removal of an asbestos-containing ceiling using water and a surfactant have been measured at 8.1 f/cc (Refs. 2 and 13). OSHA has estimated that average airborne concentrations in the dry wall removal, renovation, and demolition industry are 20 f/cc. (Ref. 12).

There may also be much exposure to asbestos during the encapsulation and enclosure of friable asbestos material. Using an electron microscope, levels of 40, 380, 390, and 8,740 nanograms per cubic meter were found in samples taken in the work area with a mobile pump during painting with an encapsulant. Samples taken by personal pumps worn by two painters during encapsulation showed very low levels in one case and levels of 1,000, 1,700, 2,300, and 13,000 nanograms per cubic meter in the other case (Ref. 14). EPA has received anecdotal evidence that there may be much exposure to asbestos during enclosure of friable asbestos material.

Based on available exposure information, EPA estimates that unregulated dry removal of asbestos results in exposure levels of 24.0 f/cc in the work area during abatement, 1.6 f/cc outside the work area during abatement and 0.8 f/cc outside work area post abatement. EPA estimates that unregulated wet removal of asbestos results in exposure levels of 18.0 f/cc in the work area during abatement, 0.9 f/cc outside the work area during abatement, and 0.5 f/cc in the building post abatement (Ref. 13). Many of the estimates are based on data reported in studies, while others are essentially assumed due to a lack of data (Ref. 13).

EPA estimates that this rule would reduce the concentrations of airborne asbestos to 11.9 f/cc in the work area during abatement, 0.3 f/cc outside the work area during abatement, and 0.05 f/cc in the building post abatement (Ref. 13).

EPA estimates that about 450 abatement workers per year would be covered by this rule. This is based on an estimate of the number of abatement projects each year and an estimate of the percentage of those projects in which State and local employees are used. EPA estimates that these asbestos abatement workers would be exposed to asbestos during abatement for 3 to 6 days a year. In addition, other persons would be exposed to asbestos as a result of asbestos abatement activities. EPA estimates that about 1,250 other States and local public employees, such as public school teachers, other public school personnel, public hospital staff, and State and local government office workers, would be exposed during abatement and about 3,700 employees would be exposed post abatement. EPA also estimates that about 400 other building occupants such as school children and hospital patients and visitors would be exposed during abatement and about 38,600 other occupants and visitors would be exposed post abatement (Ref. 13). EPA expects that this rule will reduce the level of asbestos exposure to all of these groups.

B. Environmental Effects

Section 6(c) of TSCA requires that EPA state the relevant environmental factors and key considerations which form the basis for regulatory action under section 6(a). The unreasonable risk finding of this rule is based solely on risks to human health since these risks are by far the most serious consequence of unregulated removal, enclosure, or encapsulation of friable asbestos material and are sufficient to support this rule.

C. Benefits of Asbestos Products and Availability of Substitutes

EPA finds that the benefits of the asbestos-containing products affected by this rule are minimal. This rule applies only when persons have already decided to remove, enclose, or encapsulate friable asbestos material. These people presumably will have already determined that there are no benefits in using the asbestos-containing material in its present condition. In addition, there are adequate substitutes for the asbestos products that are being removed from buildings.

D. Economic Effects of the Rule

This portion of the preamble presents EPA's determination of the "reasonably ascertainable economic consequences of the rule, after consideration of the effect on the national economy, small

business, technological innovation, the environment, and public health" as required by section 6(c)(1)(D) of TSCA.

EPA estimates that this rule would increase the cost of asbestos abatement to some extent. EPA estimates that the rule would increase the cost of typical abatements as follows:

Project	Without rule	With rule	Increase	Percent increase
School	\$12,900	\$15,300	\$2,400	18
Office Building	18,800	22,000	3,200	17
Hospital	58,500	65,800	7,300	12
Boiler room	3,700	4,900	1,200	32
Boiler pipes	1,700	2,500	800	54

EPA estimates that this rule would increase the costs of asbestos abatement a total of about \$730,000. This figure is the present value of cost incurred over the next 15 years, assuming that all friable asbestos is abated. EPA also estimates that this rule would avoid about 200 cancer cases. This is about \$3,650 per cancer case avoided.

This rule would not have a direct impact on small business since it applies only to those public employees not covered by the OSHA Asbestos Standard. However, by establishing regulatory requirements for public employees similar to those of private employees under OSHA jurisdiction, the rule would eliminate cost advantages that may encourage the use of public employees rather than private contractors for asbestos abatement. This rule may, therefore, bring about increased use of private contractors, some of which are small businesses. This rule could have an impact on small government entities because it would increase the cost of performing asbestos abatement activities using public employees. However, the rules would not increase the cost of using contractors to perform asbestos abatement and would not require any government entity to undertake asbestos abatement activities.

EPA does not believe that this rule will restrict technological innovation. The rule allows sufficient flexibility for the development of new technology concerning asbestos abatement.

E. Other EPA Statutes

Section 6(c) of TSCA requires that if EPA determines that a risk of injury to health or the environment could be eliminated or reduced to a sufficient extent by actions taken under another statute administered by EPA, EPA may not promulgate a rule under section 6(a) of TSCA unless EPA finds it is in the

public interest to protect against the risk by action under TSCA. EPA finds that no other law administered by EPA will eliminate or reduce the risks to the workers associated with the removal, renovation, or encapsulation of asbestos to a sufficient extent.

Several EPA statutes have been used to limit asbestos exposure. In 1973, EPA used the authority of the Clean Air Act (CAA) to list asbestos as a hazardous air pollutant, establish a "no visible" emission standard for manufacturers, and ban the use of spray-applied asbestos-containing material as insulation in buildings. The regulation was published in the *Federal Register* of April 6, 1973 (38 FR 8826). EPA amended this regulation in 1975 to ban asbestos-containing pipe lagging, by a rule published in the *Federal Register* of October 12, 1975 (40 FR 48292); and in 1978 extended the ban to all uses of sprayed-on asbestos by a rule published in the *Federal Register* of June 19, 1978 (43 FR 26372). The CAA rule also regulates operations involving the demolition or renovation of buildings containing friable asbestos and the disposal of wastes generated by such operations.

However, the CAA has limitations. The CAA does not apply directly to the protection of workers exposed to indoor air. Consequently, any possible additional use of that statute could leave many workers exposed to situations of inadequate protection.

An additional EPA statute that could be used to limit asbestos exposure is the Resource Conservation and Recovery Act (RCRA). Under RCRA, EPA could list asbestos as a hazardous waste and subject asbestos waste to general RCRA requirements designed to reduce exposure. However, such action under RCRA would reduce exposure only when the wastes from asbestos removal are ultimately placed in disposal facilities. It would not reduce exposure during the actual removal, enclosure, or encapsulation of asbestos products. Therefore, EPA finds it is in the public interest to take action under TSCA rather than under another statute administered by EPA.

F. Other Options Considered

Section 6 of TSCA requires that EPA apply the least burdensome requirements to reduce an unreasonable risk. EPA considered the following options for reducing the risks associated with the removal, enclosure, or encapsulation of asbestos without any regulatory controls beyond those

required by the National Emission Standard for Asbestos.

1. *Take no regulatory action under TSCA; instead provide the public with information and technical assistance.* Under this option, EPA would take no regulatory action, beyond that already taken as part of the National Emission Standard for Asbestos; but would instead provide the public with information and technical assistance. EPA is already increasing the information and technical assistance it provides the public. Persons could use that information to reduce the risk to public employees who perform asbestos abatement work during the removal, enclosure, or encapsulation of asbestos.

This approach would minimize the burden caused by regulatory action. However, this option is an adequate response given the high risk to abatement workers associated with the removal, enclosure, or encapsulation of asbestos following only the requirements of the National Emission Standard for Asbestos. The National Emission Standard for Asbestos was designed to limit the release of asbestos to the ambient air and only incidentally protects abatement workers inside a building.

2. *Take no regulatory action under TSCA; instead defer to the States.* Under this option, EPA would take no regulatory action beyond that already taken as part of the National Emission Standard for Asbestos but would instead provide the States with information and technical assistance so that States can adopt regulations to protect public employees who perform asbestos abatement work.

This approach would minimize the burden caused by Federal regulatory action. However, this option is an inadequate response since a number of States have not taken action in this area in the past and may not take action in the future. Still, EPA encourages States to take action to protect such public employees with requirements more stringent than those in this rule. As stated earlier, employees exposed to asbestos at the level permitted by this rule still face a risk to health.

3. *Propose a rule which provides greater protection than the current OSHA Asbestos Standard.* OSHA has recognized that its current Asbestos Standard is inadequate and has begun rulemaking to adopt a new standard. EPA could propose a rule closer to the proposed OSHA standard or closer to the recommendations for worker protection in EPA's technical guidance documents. Because this proposed rule is immediately effective, EPA decided to follow the current OSHA Asbestos

Standard closely to maintain consistency among Federal agencies. However, EPA is considering adopting one of the proposed OSHA permissible exposure levels of 0.5 and 0.2 f/cc in a final EPA rule. In addition, EPA is considering the other issues discussed by OSHA in the preamble to its proposed amendments to the Asbestos Standard. EPA may adopt some or all of these provisions in a final rule. EPA expects to adopt a rule very similar to the revised OSHA Asbestos Standard.

G. Analysis Under Section 9(a) of TSCA

Section 9(a) of TSCA requires EPA to review other Federal authorities not administered by EPA to determine whether action under those authorities may prevent or reduce to a sufficient extent such risks. EPA has reviewed other Federal authorities. The only statute not administered by EPA that could reduce such risks in the OSHA Act. However, this rule covers only persons not covered by the OSHA Asbestos Standard. OSHA currently has no statutory authority to cover public employees in a State without an OSHA-approved State plan and 27 States do not have an approved plan. Thus, EPA cannot determine that there is a statute administered by another Federal agency that can prevent or reduce the risk presented to persons not covered by the OSHA Asbestos Standard during the removal, enclosure, or encapsulation of friable asbestos.

V. Finding of Unreasonable Risk

EPA has weighed the health risks from unregulated asbestos abatement against the costs attributable to the proposed regulation. EPA estimates that this rule would avoid 200 cancer cases, among abatement workers, other employees in buildings where abatement occurs, and visitors to such buildings while costing about \$730,000 over 15 years. This is about \$3,650 per cancer case avoided. EPA has concluded that the avoidance of these premature deaths substantially outweighs the costs of the control measures required.

Therefore, EPA finds that unregulated removal, enclosure, or encapsulation of friable asbestos material presents an unreasonable risk to human health and proposes to require that certain measures be taken to reduce the risk faced by asbestos abatement workers and persons using and visiting buildings during and after asbestos abatement activities. The finding is based on the following points:

1. The health effects from asbestos exposure are very serious. Asbestos is a demonstrated human carcinogen. The

cancers caused by asbestos are usually fatal and cause much pain and suffering.

2. Available evidence supports the conclusion that there is no safe level of exposure to asbestos. This conclusion is consistent with present theory of cancer etiology and is further supported by the many documented cases where low or short-term exposure has been shown to cause asbestos-related disease.

3. Models developed to estimate the relative risk of developing cancer from exposure to asbestos show a linear dose-response relationship. Based on data from epidemiology studies, these models predict that humans exposed to even very low levels of asbestos incur some risk.

4. A substantial number of persons are involved in asbestos abatement activities, but are not protected by the OSHA Asbestos Standard.

5. Persons can be exposed to high levels of airborne asbestos if they conduct asbestos abatement without any exposure controls.

6. The estimated incremental economic costs of this rule are minimal in view of the number of cancers that may be avoided by the rule.

EPA also finds that such unregulated removal, enclosure, or encapsulation of friable asbestos is likely to result in an unreasonable risk of serious or widespread injury to human health before the effective date of final action by EPA and that making the proposed rule effective upon its publication in the *Federal Register* is necessary to protect the public interest. Asbestos is a known human carcinogen. If persons attempt to abate asbestos hazards, but do so incorrectly, there may be very high levels of exposure to asbestos on the part of abatement workers, other employees who work in the building, and visitors to the building. These levels may far exceed the levels of exposure permitted by the current OSHA Asbestos Standard. For example, in schools that incorrectly abate asbestos hazards, school teachers and other school employees and school children could be exposed as well as abatement workers. State and local public employees could potentially take part in asbestos abatement activities in all State and local public buildings in the States not covered by OSHA State plans. Thus, many persons could be exposed to high concentrations of asbestos before the effective date of this rule. Because of increased public concern about asbestos in buildings and increased abatement activity during the summer months, EPA expects that much asbestos abatement would take place

during the period normally allowed for comment on this proposed rule.

VI. Enforcement

Section 15 of TSCA makes it unlawful to fail or refuse to comply with any provision of a rule promulgated under section 6 of TSCA. Therefore, failure to comply with this rule would be a violation of section 15 of TSCA. In addition, section 15 of TSCA makes it unlawful for any person to (1) fail or refuse to establish and maintain records as required by this rule; (2) fail or refuse to permit access to or copying of records, as required by TSCA; or (3) fail or refuse to permit entry or inspection as required by section 11 of TSCA.

Violators may be subject to both civil and criminal liability. Under the penalty provision of section 16 of TSCA, any person who violates section 15 could be subject to a civil penalty of up to \$25,000 for each violation. Each day of operation in violation of this rule could constitute a separate violation. Knowing or willful violations of this rule could lead to the imposition of criminal penalties of up to \$25,000 for each day of violation and imprisonment for up to 1 year. In addition, other remedies are available to EPA under sections 7 and 17 of TSCA, such as seeking an injunction to restrain violations of this rule.

VII. Rulemaking Process

Under section 6(d) of TSCA, after making the statutory findings discussed in Unit V of this preamble, EPA may issue a proposed rule under section 6(a). Such a proposed rule is effective upon publication in the *Federal Register*.

Section 6(d)(2)(B) of TSCA provides that EPA must give interested persons prompt notice of the action, provide a reasonable opportunity for a hearing in accordance with section 6(c)(2) and (3), and either promulgate the rule as proposed, or with modifications, or revoke it. However, unlike an ordinary section 6(c) rulemaking in which EPA would schedule the hearing after allowing written comment, section 6(d)(2)(B) provides that, if a person requests a hearing, EPA must begin the hearing within 5 days of the request, unless EPA and the person making the request agree upon a later date. Section 6(d)(2)(B) further provides that EPA promulgate a final rule, or revoke the proposed rule, within 10 days of the conclusion of the hearing.

For this rulemaking, EPA has established the following schedule in accordance with the requirements of 40 CFR Part 750: To provide a reasonable opportunity for comment by all interested persons, EPA will accept written comments for 60 days from the

date of publication of this proposed rule in the *Federal Register*. A legislative hearing is scheduled to begin 14 days after the end of the 60-day comment period. The hearing will be held only if EPA receives a formal request from an interested person by the end of the 60-day comment period. If a hearing is requested, interested persons will be given an opportunity to present information. Fourteen days after the conclusion of the initial hearing, EPA may hold a cross-examination hearing. Participants in the initial hearing may request an opportunity for cross-examination within 7 days of the time the full transcript of the initial hearing becomes available. EPA will grant the request for cross-examination if there is a disputed issue of material fact. Within 14 days of the close of the initial hearing, or within 14 days of the close of the cross-examination hearing if such a hearing is held, reply comments may be submitted. After that 14-day period, the hearing is officially concluded, and EPA will promulgate the final rule or revoke it within 10 days.

EPA requests that persons adhere to this schedule to allow all persons an adequate opportunity to comment on the rule. However, if a person requests an immediate hearing during the 60-day comment period, EPA is required to begin the hearing within 5 days of the request. If so, EPA will be forced to cut short the written comment period and proceed with the hearing. EPA will give as much notice as possible of any such hearing request and any change in the rulemaking schedule.

VIII. Confidentiality

A person may assert a claim of confidentiality for any information, including public comments, submitted to EPA in connection with this proposed rule. Any person who submits a confidential public comment must also submit a nonconfidential version. Any claim of confidentiality must accompany the information when it is submitted to EPA. Persons would claim information confidential by circling, bracketing, or underlining it and marking it with "CONFIDENTIAL" or some other appropriate designation. EPA will disclose information subject to a claim of confidentiality only to the extent permitted by section 14 of TSCA and 40 CFR Part 2, Subpart B. If a person does not assert a claim of confidentiality for information at the time it is submitted to EPA, EPA may make the information public without further notice to that person.

IX. Rulemaking Record

EPA has established a record for this rulemaking (docket control number OPTS-62044). A public version of the record, without any confidential business information, is available to the public in the Office of Toxic Substances Public Information Office, from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays. The Public Information Office is located in Rm. E-107, 401 M St., SW., Washington, D.C.

The record includes information considered by EPA in developing this proposed rule. EPA will supplement the record with additional information as it is received. The record now includes the following categories of information:

1. Federal Register notices.
2. Support documents.
3. Reports.
4. Memoranda and letters.

EPA will include by reference the rulemaking record compiled by OSHA as part of the revision of the OSHA Asbestos Standard. Therefore, persons should not send EPA copies of their comments to OSHA. EPA will identify the complete rulemaking record by date of promulgation. EPA will accept additional material for inclusion in the record at any time between this notice and designation of the complete record. The final rule will also permit persons to point out any errors or omissions in the record.

X. References

- (1) USPCSC. Report to the U.S. Consumer Product Safety Commission by the Chronic Hazard Advisory Panel on Asbestos. July 1983.
- (2) USEPA. OPTS. OTS. Exposure Assessment for Asbestos. Draft January 9, 1984.
- (3) USEPA. OPTS. OTS. Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products. Draft March 1985.
- (4) USEPA. OPTS. OTS. Support Document for Final Rule on Friable Asbestos-Containing Materials in School Buildings-Health Effects and Magnitude of Exposure. January, 1982.
- (5) National Research Council. "Asbestos" In: *Drinking Water and Health*. Vol. 3. National Academy Press. Washington, D.C. (1982): 223-283.
- (6) National Research Council. "Nonoccupational Health Risks of Asbestiform Fibers." National Academy Press. Washington, D.C. 1984.
- (7) NIOSH-OSHA Asbestos Work Group. Workplace Exposure to Asbestos: "Review and Recommendations." DHHS (NIOSH) Publication No. 81-103, U.S. Government Printing Office, Washington, D.C. 20402. (1980).
- (8) OSHA. "Quantitative Risk Analysis for Asbestos-Related Cancers: A Preliminary Report." (1983).

- (9) Seidman, H., Selikoff, I.J., Hammond, E.C., "Short-Term Observation." In: "Annals of the New York Academy of Science," 330 (1979): 61-89.
- (10) Selikoff, I.J., Anderson, H.A., Seidman, H., "Asbestos Disease Among Household Contacts of Asbestos Workers" In: "Disability Compensation for Asbestos-Associated Disease in the U.S.," edited by I.J. Selikoff. Environmental Sciences Laboratory, Mount Sinai School of Medicine of the City University of New York. (1982): 73-76.
- (11) Selikoff, I.J., Hammond, E.C., Seidman, H., "Mortality Experience of Insulation Workers in the U.S. and Canada, 1943-1976." In: *Annals of the New York Academy of Science*, 330 (1979): 91-116.
- (12) USDOL, OSHA, "Occupational Exposure to Asbestos; Proposed Rule and Notice of Hearing. (April 10, 1984; 49 FR 14116).
- (13) USEPA, OPTS, OTS, Asbestos Abatement Rules: A Preliminary Cost-Effectiveness Analysis. Revised Draft Report May, 1985.
- (14) USEPA, OPTS, OTS, Evaluation of Asbestos Techniques: Encapsulation. Draft report April 1985.

XI. Regulatory Assessment Requirements

A. Executive Order 12291

Under Executive Order 12291, EPA has prepared a Cost-Effectiveness Analysis. The Analysis estimates that this rule would cost about \$730,000 over 15 years, while avoiding about 200 fatal cancer cases. This is a cost of about \$3,650 per cancer case avoided. As shown in Unit V above, EPA believes that these costs are reasonable. Under Executive Order 12291, EPA must judge whether a regulation is "Major" and therefore requires a Regulatory Impact Analysis. EPA has determined that this rule is not a "Major Rule" because it will not have an effect on the economy of \$100 million or more and it will not have a significant effect on competition, costs, or prices.

This rule was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291.

B. Regulatory Flexibility Act

EPA has analyzed the economic impact of this proposed rule on small businesses. A summary of EPA's analysis appears in Unit IV.D.

C. Paperwork Reduction Act

The information collection requirements in this proposed rule were submitted to the Office of Management and Budget (OMB) for approval under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* (Control No. 2070-0072). Comments on these requirements should be submitted to the Office of Information and Regulatory Affairs of

OMB and marked Attention: Desk Officer for EPA. The final rule package will respond to any OMB or public comments on the information collection requirements.

List of Subjects in 40 CFR Part 763

Environmental protection, Hazardous substances, Reporting and recordkeeping requirements, Asbestos.

Dated: June 22, 1985.

Lee M. Thomas,
Administrator.

PART 763—[AMENDED]

Therefore, 40 CFR Part 763 is amended as follows:

1. The authority citation for Part 763 is revised to read as follows:

Authority: 15 U.S.C. 2605 and 2607(c).

2. Subpart G is added to read as follows:

Subpart G—Asbestos Abatement Projects

Sec.	
763.120	Scope.
763.121	Regulatory requirements.
763.124	Reporting.
763.125	Enforcement.
763.126	Inspections.

Authority: 15 U.S.C. 2605.

Subpart G—Asbestos Abatement Projects

§ 763.120 Scope.

(a) This part establishes requirements which must be followed during asbestos abatement projects, which include any activity involving the removal, enclosure, or encapsulation of any material containing more than 1 percent asbestos by weight which, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

(b) This part applies to all employers of State and local government employees not covered by the Asbestos Standard of the Occupational Safety and Health Administration (OSHA), 29 CFR 1910.1001, or an Asbestos Standard adopted by a State as part of a State plan approved by OSHA under section 18 of the Occupational Safety and Health Act. The rule covers the employees of those employers. The employer is the public department, agency, or entity which hires the employee. This includes, but is not limited to the following examples of public entities: any State, County, City or other local governmental entity which operates or administers schools, a department of health or human services, a library, a police department, a fire department, or similar public service agencies or offices.

§ 763.121 Regulatory requirements.

(a) *Definitions.* For the purpose of this section:

(1) "Asbestos" means "the asbestiform varieties of chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite-grunerite); tremolite; anthophyllite, and actinolite."

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) *Permissible exposure to airborne concentrations of asbestos fibers.*

(1) [Reserved]

(2) *Standard effective July 12, 1985.* The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) *Ceiling concentration.* No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c) *Methods of compliance—(1) Engineering methods.* (i) *engineering controls.* Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) *Local exhaust ventilation.* (A) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1979, (Revision of ANSI Z9.2-1971) which is incorporated by reference herein.

(B) ANSI Z9.2-1979 is available for inspection at the Office of the Federal Register Information Center, Rm. 8301, 1100 L St., NW., Washington, DC 20408. This incorporation by reference was approved by the Director of the Office of the Federal Register. This material is incorporated as it exists on the date of approval and a notice of any change in this material will be published in the Federal Register. Copies of the incorporated material may be obtained from the Document Control Officer (TS-793), Office of Toxic Substances, EPA, Rm. 107, 401 M St., SW., Washington, DC 20460, and from the American National Standards Institute, 1430 Broadway, New York, NY, 10018 (212-354-3473).

(iii) *Particular tools.* All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with paragraph (c)(1)(ii) of this section.

(2) *Work practices—(i) Wet methods.* Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(ii) *Particular products and operations.* No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) *Spraying, demolition, or removal.* Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(2)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) *Personal protective equipment.* (1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(ii) In work situations in which the methods prescribed in paragraph (c) of this section are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by paragraph (b) of this section; or

(iii) In emergencies.

(2) Where a respirator is permitted by paragraph (d)(1) of this section, it shall be selected from among those approved by the Bureau of Mines, Department of the Interior, or the National Institute for Occupational Safety and Health,

Department of Health, Education, and Welfare, under the provisions of 30 CFR Part 11 (37 FR 6244, Mar. 25, 1972), and shall be used in accordance with paragraph (d)(2) (i), (ii), (iii), and (iv) of this section.

(i) *Air purifying respirators.* A reusable or single use air purifying respirator, or a respirator described in paragraph (d)(2) (ii) or (iii) of this section, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than 10 times those limits.

(ii) *Powered air purifying respirators.* A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in paragraph (d)(2) (iii) of this section, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average concentrations of asbestos fibers are reasonably expected to exceed 10 times, but not 100 times, those limits.

(iii) *Type "C" supplied-air respirators, continuous flow or pressure-demand class.* A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(iv) *Establishment of a respirator program.* (A) The employer shall establish a respirator program in accordance with the requirements of the American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980 (Revision of ANSI Z88.2-1969), which is incorporated by reference herein.

(B) ANSI Z88.2-1980 is available for inspection at the Office of the Federal Register Information Center, Rm. 8301, 1100 L St., NW., Washington, DC 20408. This incorporation by reference was approved by the Director of the Office of the Federal Register. This material is incorporated as it exists on the date of approval and a notice of any change in this material will be published in the *Federal Register*. Copies of the incorporated material may be obtained from the Document Control Officer (TS-

793), Office of Toxic Substances, EPA, Rm. 107, 401 M St., SW., Washington, DC 20460, and from the American National Standards Institute, 1430 Broadway, New York, NY 10018, (212-354-3473).

(C) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by his use of a respirator. Such employee shall be rotated to another job or given the opportunity to transfer to a different position whose duties he is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay he had just prior to such transfer, if such a different position is available.

(3) *Special clothing.* The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in paragraph (b) of this section.

(4) *Change rooms.* (i) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, the employer shall provide change rooms for employees working regularly at the place.

(ii) *Clothes lockers.* The employee shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(iii) *Laundrying.* (A) Laundrying of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(B) Any employer who gives asbestos contaminated clothing to another person for laundrying shall inform such person of the requirement in paragraph (d)(4) (iii) (A) of this section to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(C) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (g) of this section.

(e) *Method of measurement.* All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 x (magnification) [4 millimeter objective] with phase contrast illumination.

(f) *Monitoring—(1) Initial determinations.* Every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section. If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with paragraph (c) of this section.

(2) *Personal monitoring.* (i) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) *Sampling frequency and patterns.* After the initial determinations required by paragraph (f)(1) of this section, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees.

(3) *Environmental monitoring.* (i) Samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) *Sampling frequency and patterns.* After the initial determinations required by paragraph (f)(1) of this section, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees.

(4) *Employee observation of monitoring.* Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall have access to the records thereof.

(g) *Caution signs and labels—(1) Caution signs.* (i) *Posting.* Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of

the exposure limits prescribed in paragraph (b) of this section. Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(ii) *Sign specifications.* The warning signs required by paragraph (g)(1)(i) of this section shall conform to the requirements of 20" x 14" vertical format signs specified in 29 CFR 1910.145(d)(4), and to this paragraph (g)(1)(ii). The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in this paragraph (g)(1)(ii).

Legend	Notation
Asbestos.....	1" Sans serif, gothic or block.
Dust Hazard.....	¾" Sans serif, gothic or block.
Avoid Breathing Dust..	¼" gothic.
Wear Assigned Protective Equipment.	¼" gothic
Do Not Remain in Area Unless Your Work Requires it.	¾" gothic.
Breathing Asbestos Dust May be Hazardous To Your Health.	14 point gothic.

Spacing between lines shall be at least equal to the height of the upper of any two lines.

(2) *Caution labels—(i) Labeling.* Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section will be released.

(ii) *Label specifications.* The caution labels required by paragraph (g)(2)(i) of this section shall be printed in letters of sufficient size and contrast to be readily visible and legible. The label shall state:
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM

(h) *Housekeeping—(1) Cleaning.* All external surfaces in any place of employment shall be maintained free of accumulations of asbestos fibers if, with

their dispersion, there would be an excessive concentration.

(2) *Waste disposal.* Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(i) *Recordkeeping—(1) Exposure records.* Every employer shall maintain records of any personal or environmental monitoring required by this section. Records shall be maintained for a period of at least 20 years and shall be made available upon request to the Environmental Protection Agency, the Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health, and to authorized representatives of either.

(2) *Employee access.* Every employee and former employee shall have reasonable access to any record required to be maintained by paragraph (i)(1) of this section, which indicates the employee's own exposure to asbestos fibers.

(3) *Employee notification.* Any employee found to have been exposed at any time to airborne concentrations of asbestos fibers in excess of the limits prescribed in paragraph (b) of this section shall be notified in writing of the exposure as soon as practicable but not later than 5 days of the finding. The employee shall also be timely notified of the corrective action being taken.

(j) *Medical examinations—(1) General.* The employer shall provide or make available at his cost, medical examinations relative to exposure to asbestos required by this paragraph.

(2) *Preplacement.* The employer shall provide or make available to each of his employees, within 30 calendar days following his first employment in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination, which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV_{1.0}).

(3) *Annual examinations.* On or before July 14, 1986, and at least annually thereafter, every employer shall provide,

or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV_{1.0}).

(4) *Termination of employment.* The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV_{1.0}).

(5) *Recent examinations.* No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(6) *Medical records—(i) Maintenance.* Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(ii) *Access.* The contents of the records of the medical examinations

required by this paragraph shall be made available, for inspection and copying, to the Environmental Protection Agency, the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by this paragraph shall furnish to the employer of the examined employee all the information specifically required by this paragraph, and any other medical information related to occupational exposure to asbestos fibers.

§ 763.124 Reporting.

(a) Employers subject to this rule must report to the Regional Asbestos Coordinator for the EPA Region in which the asbestos abatement project is located at least 10 days before they begin an asbestos standard or an Asbestos Standard adopted by a State as part of a State plan approved by OSHA. A list of the EPA Regional Office is given under 40 CFR 1.7(b).

(b) The report must include:

- (1) The employer's name and address.
- (2) The location, including street address, of the asbestos abatement project.
- (3) The scheduled starting and completion dates for the asbestos abatement project.

(c) If a report is mailed to EPA, the report must be postmarked at least 10 days before the asbestos abatement project begins.

(d) Employers do not have to report under this section if they submit a notice

to EPA under the National Emission Standard for Asbestos, 40 CFR 61.146, at least 10 days before they begin the asbestos abatement project and that notice clearly indicates that employees not covered by the OSHA Asbestos Standard or an Asbestos Standard adopted by a State as part of a State plan approved by OSHA will perform some or all of the asbestos abatement work.

(Approved by the Office of Management and Budget under the control number 2070-0072)

§ 763.125 Enforcement.

(a) Failure to comply with any provisions of this part is a violation of section 15 of the Act (15 U.S.C. 2614).

(b) Failure or refusal to establish and maintain records or to permit access to or copying of records, as required by the Act, is a violation of section 15 of the Act (15 U.S.C. 2614).

(c) Failure or refusal to permit entry or inspection as required by section 11 of the Act (15 U.S.C. 2610) is a violation of section 15 of the Act (15 U.S.C. 2614).

(d) Violators may be subject to the civil and criminal penalties in section 16 of the Act (15 U.S.C. 2615) for each violation.

(e) EPA may seek to enjoin an asbestos abatement project in violation of this Part, or take other actions under the authority of sections 7 or 17 of the Act (15 U.S.C. 2606 or 2616).

§ 763.126 Inspections.

EPA will conduct inspections under section 11 of the Act (15 U.S.C. 2610) to ensure compliance with this part.

[FR Doc. 85-16089 Filed 7-11-85; 8:45 am]

BILLING CODE 5550-50-M