will be unable to determine the taxpayer's intent for investing.
*OMB Reviewer:* Karen P. Sagett, (202) 395–6880, Office of Management and Budget, Room 3201, New Executive Office Building, Washington, D.C. 20503
*Date Submitted:* May 17, 1982
*Submitting Bureau:* Alcohol, Tobacco & Firearms
*OMB Number:* 1512–0207
*Form Number:* ATF F 5110.43
*Type of Submission:* Extension (no change)
*Title:* Monthly Report of Processing (Denaturing) Operations
*Purpose:* Necessary audit tool used in performance of revenue collection and protection mission; used to monitor industry operations and compliance; provides raw data for compilation of denatured alcohol statistics.
*OMB Reviewer:* Suzann Evinger, (202) 395–6880, Office of Management and Budget, Room 3208, New Executive Office Building, Washington, D.C. 20503
*Date Submitted:* May 18, 1982
*Submitting Bureau:* Comptroller of the Currency
*OMB Number:* 1557–0081
*Form Number:* FFIEC 101, 012 and 014
*Type of Submission:* Revision
*Title:* Reports of Condition and Income (Call Reports)
*Purpose:* This is the interagency or uniform call report collected by each of the three federal bank supervisory agencies. Data are used for supervisory and statistical purposes.
*OMB Reviewer:* Richard Sheppard, (202) 395–6880, Office of Management and Budget, Room 3208, New Executive Office Building, Washington, D.C. 20503
*Date Submitted:* May 19, 1982
*Submitting Bureau:* Internal Revenue Service
*OMB Number:* 1545–0256
*Form Number:* 941C and 941C PR
*Type of Submission:* Revision
*Title:* Statement to Correct Information Previously Reported Under the Federal Insurance Contributions Act
*Purpose:* Used by employers to correct previously reported tax data on employees.
*OMB Reviewer:* Karen P. Sagett, (202) 395–6880, Office of Management and Budget, Room 3201, New Executive Office Building, Washington, D.C. 20503
*Date Submitted:* May 20, 1982
*Submitting Bureau:* Alcohol, Tobacco & Firearms
*OMB Number:* 1512–0040
*Form Number:* ATF 5630.2 and 5630.3
*Type of Submission:* Extension (no change)
*Title:* Taxpayer Delinquency Program Form Letter Statement of Liability Form Letter
*Purpose:* Used to determine whether an individual has become liable for special occupational taxes involving alcoholic beverages.
*OMB Reviewer:* Suzann Evinger, (202) 395–6880, Office of Management and Budget, Room 3208, New Executive Office Building, Washington, D.C. 20503
*Date Submitted:* May 20, 1982
*Submitting Bureau:* Internal Revenue Service
*OMB Number:* 1545–0576
*Form Number:* 500–5–435
*Type of Submission:* Extension (no change)
*Title:* Southeast Region Exit Questionnaire
*Purpose:* Used to identify unfavorable practices and/or trends that cause competent employees to leave the IRS, and to identify necessity for corrective action.
*OMB Reviewer:* Karen P. Sagett, (202) 395–6880, Office of Management and Budget, Room 3201, New Executive Office Building, Washington, D.C. 20503
*Date Submitted:* May 20, 1982
*Submitting Bureau:* Internal Revenue Service
*OMB Number:* 1545–0573
*Form Number:* 506–6–8
*Type of Submission:* Extension (no change)
*Title:* Reservation for IRS VITA Training
*Purpose:* Used to determine size of training classes needed for volunteers, depth of training, and location for classes.
*OMB Reviewer:* Karen P. Sagett, (202) 395–6880, Office of Management and Budget, Room 3201, New Executive Office Building, Washington, D.C. 20503

**Joy Tucker,**
*Departmental Reports Management Officer.*

[FR Doc. 82–14417 Filed 5–26–82; 8:45 am]
BILLING CODE 4810–25–M

## Customs Service

### American Manufacturer's Petition Concerning Classification of Prefinished Hardboard Siding; Extension of Time for Public Comment

**AGENCY:** Customs Service, Treasury.

**ACTION:** Notice of extension of time for comment.

**SUMMARY:** This notice extends the period of time within which interested members of the public may submit written comments with respect to a notice of receipt of an American manufacturer's petition relating to the classification of prefinished hardboard siding. A document inviting the public to comment on the notice was published in the **Federal Register** on March 22, 1982 (47 FR 12258). Comments were to have been received on or before May 21, 1982. A request has been received to extend the period for the submission of comments claiming that additional time is needed to prepare an adequate response. Customs believes that the request is warranted. Accordingly, the period of time for the submission of written comments is extended to June 21, 1982.

**DATES:** Comments must be received on or before June 21, 1982.

**ADDRESS:** Written comments (preferably in triplicate) may be addressed to the Commissioner of Customs, Attention: Regulations Control Branch, U.S. Customs Service, 1301 Constitution Avenue, NW., Room 2426, Washington, D.C., 20229.

**FOR FURTHER INFORMATION CONTACT:** Jenny Johnson, Classification and Value Division, U.S. Customs Service, 1301 Constitution Avenue, NW., Washington, D.C. 20229 (202–566–8181).

Dated: May 24, 1982.

**John P. Simpson,**
*Director, Office of Regulations and Rulings.*

[FR Doc. 82–14482 Filed 5–26–82; 8:45 am]
BILLING CODE 4820–02–M

# Sunshine Act Meetings

Federal Register
Vol. 47, No. 103
Thursday, May 27, 1982

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

## Content

| | Items |
|---|---|
| Civil Aeronautics Board | 1, 2 |
| Federal Maritime Commission | 3 |
| Federal Reserve System | 4 |
| Nuclear Regulatory Commission | 5 |
| Securities and Exchange Commission | 6 |
| Tennessee Valley Authority | 7, 8 |

1

**CIVIL AERONAUTICS BOARD**

Notice of Cancellation of Presentation

**TIME AND DATE:** 10 a.m., May 25, 1982.

**PLACE:** Room 1027, 1825 Connecticut Avenue, NW., Washington, D.C. 20428.

**SUBJECT:** Presentation to the Board regarding Aeroamerica's activities.

**STATUS:** Open.

**PERSON TO CONTACT:** Phyllis T. Kaylor, *the Secretary (202) 673-5068.*

[S-795-82 Filed 5-25-82; 3:00 pm]

**BILLING CODE 6320-01-M**

2

**CIVIL AERONAUTICS BOARD**

Notice of Deletion From the May 20, 1982 Board Meeting

**TIME AND DATE:** 10 a.m., May 20, 1982.

**PLACE:** Room 1027, 1825 Connecticut Avenue, NW., Washington, D.C. 20428

**SUBJECT:** 8. Docket 40176, Airport "slot" exchange agreement filed by the Air Transport Association of America. (BDA)

**STATUS: OPEN.**

**PERSON TO CONTACT:** Phyllis T. Kaylor, the Secretary (202) 673-5068.

[S-796-82 Filed 5-25-82; 3:00 pm]

**BILLING CODE 6320-01-M**

3

**FEDERAL MARITIME COMMISSION**

**TIME AND DATE:** 9 a.m., June 3, 1982.

**PLACE:** Hearing Room One, 1100 L Street, NW., Washington, D.C. 20573.

**STATUS:** Parts of the meeting will be open to the public. The rest of the meeting will be closed to the public.

**MATTERS TO BE CONSIDERED:** Portions open to the public:

1. Agreement No. 7593-7: Modification of the Hoegh Lines Joint Service to add two parties.
2. Agreement No. T-4004: Terminal service agreement between the Port of Portland, Oregon and the Japanese Six Lines.
3. Docket No. 81-50: Per-Container Rates—Tariff Filing Requirements Applicable to Carriers and Conferences in the Foreign Commerce of the United States—Consideration of comments and proposed final rule.
4. Docket No. 80-13: Licensing of Independent Ocean Freight Forwarders—Further Notice of Proposed Rulemaking—Consideration of comments, request for oral argument and propsoed final rule.

Portion closed to the public:

1. Docket No. 72-35: Pacific Westbound Conference—Investigation of Rates, Rules and Practices Pertaining to the Movement of Wastepaper and Woodpulp from United States West Coast Ports to Ports in Japan—Consideration of responses to Notice regarding further proceedings.

**CONTACT PERSON FOR MORE INFORMATION:** Francis C. Hurney, Secretary, (202) 523-5725.

[S-794-82 Filed 5-25-82; 2:33 pm]

**BILLING CODE 6730-01-M**

4

**FEDERAL RESERVE SYSTEM**

**TIME AND DATE:** 10 a.m., Wednesday, June 2, 1982.

**PLACE:** 20th Street and Constitution Avenue, NW., Washington, D.C. 20551.

**STATUS:** Closed.

**MATTERS TO BE CONSIDERED:**

1. Personnel actions (appointments, promotions assignments, reassignments, and salary actions) involving individual Federal Reserve System employees.
2. Any items carried forward from a previously announced meeting.

**CONTACT PERSON FOR MORE INFORMATION:** Mr. Joseph R. Coyne, Assistant to the Board: (202) 452-3204.

Dated: May 25, 1982.

**James McAfee,**

*Associate Secretary of the Board.*

[S-800-82 Filed 5-25-82; 4:12 pm]

**BILLING CODE 6210-01-M**

5

**NUCLEAR REGULATORY COMMISSION**

**DATE:** Weeks of May 17 and 24, 1982 (changes).

**PLACE:** Commissioner's Conference Room 1717 H Street, NW., Washington, D.C.

**STATUS:** Open and closed.

**MATTERS TO BE DISCUSSED:** *Thursday, May 20* (Additional item):

3:15 p.m.:
Discussion of Enforcement Action (Closed—Exemption 5, 10)

*Tuesday, May 25:*

10:00 a.m.:
Briefing on Human Factors Society Report (Public Meeting) (As scheduled)

*Wednesday, May 26:*

10:00 a.m.:
Briefing on Investigatory Matters (Closed—Exemption 5) (Time Changed)

1:30 p.m.:
Briefing by DOR on TMI-2 Cleanup (Public Meeting) (Time Changed)

Thursday, May 27:

10:00 a.m.:
Discussion of Management-Organization and Internal Personnel Matters (Closed—Exemption 2 and 6)

1:30 p.m.:
Analysis of Licensing Board Decision for San Onofre Units 2 and 3 (Seismic) (Closed—Exemption 10)

3:00 p.m.:
Affirmation/Discussion Session (Public Meeting)
Affirmation and/or Discussion and Vote:
a. Final Amendment to 10 CFR Part 50 and to Appendix E: Modification to Emergency Preparedness Regulations Relating to Low Power Operation

*Friday, May 28:*

10:00 a.m.:
Discussion of Enforcement Action (Closed—Exemption 5)(Postponed from May 21)

**AUTOMATIC TELEPHONE ANSWERING SERVICE FOR SCHEDULE UPDATE:** (202) 634-1498. Those planning to attend a meeting should reverify the status on the day of the meeting.

**CONTACT PERSON FOR MORE INFORMATION:** Walter Magee (202) 634-1410.

**Walter Magee,**

*Office of the Secretary.*

[S-799-82 Filed 5-25-82; 3:24 pm]

**BILLING CODE 7590-01-M**

6

**SECURITIES AND EXCHANGE COMMISSION**

Notice is hereby given, pursuant to the provisions of the Government in the

Sunshine Act, Pub. L. 94–409, that the Securities and Exchange Commission will hold the following meetings during the Week of May 31, 1982, in Room 825, 500 North Capitol Street, Washington, D.C.

A closed meeting will be held on Wednesday, June 2, 1982, at 10:00 a.m. An open meeting will be held on Thursday, June 3, 1982, at 10:00 a.m.

The Commissioners, their legal assistants, the Secretary of the Commission, and recording secretaries will attend the closed meeting. Certain staff members who are responsible for the calendared matters may be present.

The General Counsel of the Commission, or his designee, has certified that, in his opinion, the items to be considered at the closed meeting may be considered pursuant to one or more of the exemptions set forth in 5 U.S.C. 552b(c)(4)(8)(9)(A) and (10) and 17 CFR 200.402(a)(4)(8)(9)(i) and (10).

Chairman Shad and Commissioners Loomis and Thomas voted to consider the items listed for the closed meeting in closed session.

The subject matter of the closed meeting scheduled for Wednesday, June 2, 1982, at 10:00 a.m., will be:

Litigation matter.
Access to investigative files by Federal, State, or Self-Regulatory authorities.
Formal orders of investigation.
Settlement of administrative proceedings of an enforcement nature.
Institution of administrative proceedings of an enforcement nature.
Institution of injunctive action.

The subject matter of the open meeting scheduled for Thursday, June 3, 1982, at 10:00 a.m., will be:

1. Consideration of whether to adopt Rule 10b–18 under the Securities Exchange Act of 1934 and to withdraw proposed Rule 13e–2 under that act. If adopted, Rule 10b–18 would create a "safe harbor" from liability under certain anti-manipulative provisions of the federal securities laws in connection with purchases by an issuer of its common stock. For further information, please contact, Mary Chamberlin at (202) 272–2880.

2. Consideration of whether to authorize publication of a release announcing: (1) revision of Guide 5 (formerly designated Guide 60) for "Preparation of Registration Statements Relating to Interests in Real Estate Limited Partnerships," of the Division of Corporation Finance's Industry Guides, concerning track record disclosure of sponsors of real estate limited partnerships; (2) amendment of the financial statement requirements of Rule 3–14 of Regulation S–X concerning "Special Instructions for Real Estate Operations to be Acquired;" and (3) conforming changes to Guide 5 and to Form 8–K for current reports under the Securities Exchange Act of 1934. For further information, please contact William L. Larsen at (202) 272–2604.

3. Consideration of whether to issue a release adopting revisions to Form S–18, a simplified registration form under the Securities Act of 1933, expanding its availability to non-corporate registrants and registrants engaged in oil and gas related operations, and amending several items. For further information, please contact Suzanne Brannan at (202) 272–2644.

4. Consideration of whether to publish for comment amendments to 17 CFR 201.22(e), 230.403(a), 240.12(b)–12(a) and (b), 250.22(d), 260.7a–17, 260.7a–18(a), 270.0–2(b), 270.8(b)–12(a) and (b), and 275.0–4(b), to require the use of 8½ x 11 inch paper for all statements, applications, reports, documents and amendments thereto filed with the Commission. For further information, please contact Douglas J. Scheidt at (202) 272–2454.

5. Consideration of whether to authorize the General Counsel to send a letter to the Subcommittee on Criminal Justice of the House Committe on the Judiciary, expressing the Commission's concerns about a provision of H.R. 5703 that would bar federal prosecutions in many cases after a person had been prosecuted by a state or local government for the same conduct that would be the basis for the federal prosecution. For further information, please contact Alex White at (202) 272–2444.

At times changes in Commission priorities require alterations in the scheduling of meeting items. For further information and to ascertain what, if any, matters have been added, deleted or postponed, please contact: Paul Siegelbaum at (202) 272–2668.

May 24, 1982.

[S–793–82 Filed 5–25–82; 10:32 am]

BILLING CODE 8010–01–M

---

7

**TENNESSEE VALLEY AUTHORITY**

**TIME AND DATE:** 6:30 p.m. (CDT), Tuesday, May 25, 1982.

**PLACE:** Austin Peay State University, University Center Ballroom, College Street, Clarksville, Tennessee.

**STATUS:** Open.

A—Project Authorizations
1. Project Authorization No. 3606—Installation of automated testing system in the central computer center's network control center located in Chattanooga, Tennessee.
2. Project Authorization No. 3609—Installation of additional chemical treatment ponds at Paradise and Shawnee steam plants.

B—Purchase Awards
1. Invitation C3–200911—Indefinite quantity term contract with Memphis Light, Gas and Water Division, Memphis, Tennessee, to provide natural gas for Allen Fossil Plant.

C—Power Items
1. Renewal power contract with Warren Rural Electric Cooperative Corporation.
2. Bill of sale and quitclaim deed conveying to Water Valley, Mississippi, a section of TVA's Oxford-Water Valley 46–kV line located in Yalobusha County, Mississippi.
3. Agreement with Electric Power Research Institute covering arrangements for demonstration of the 300–MVA superconducting generator to be installed at TVA's Gallatin Steam Plant.

F—Unclassified
1. Termination of the A. W. Overdeer right of way lease covering property located at TVA's Fabius, Alabama, coal project.
2. Revised TVA code relating to transfer, sale and lease of personal property (Code IV Disposal).
3. Appointment of Richard M. Gutekunst as an additional assistant secretary of TVA.

**CONTACT PERSON FOR MORE INFORMATION:** Craven H. Crowell, Jr., Director of Information, or a member of his staff can respond to requests for information about this meeting. Call (615) 632–3257, Knoxville, Tennessee. Information is also available at TVA's Washington Office (202) 245–0101.

Dated: May 25, 1982.

[S–797–82 Filed 5–25–82; 3:06 pm]

BILLING CODE 8120–01–M

---

8

**TENNESSEE VALLEY AUTHORITY**

**TIME AND DATE:** 2 p.m. (e.d.t.), Tuesday, June 1, 1982.

**PLACE:** Conference Room B–32, West Tower, 400 West Summit Hill Drive, Knoxville, Tennessee.

**STATUS:** Open.

Old Business Item
1. Grant of permanent industrial easement to Inland Ports, Inc., and abandonment of certain flowage easement rights affecting Watts Bar Reservoir lands near Harriman Industrial Park in Harriman, Tennessee—Tract Nos. XWBR–695IE, XWBR–693IE, and WBR–I259F.

**CONTACT PERSON FOR MORE INFORMATION:** Craven H. Crowell, Jr., Director of Information, or a member of his staff can respond to requests for information about this meeting. Call (615) 632–3257, Knoxville, Tennessee. Information is also available at TVA's Washington Office (202) 245–0101.

Dated: May 25, 1982.

[S–798–8282 Filed 5–25–82; 3:06 pm]

BILLING CODE 8120–01–M

federal register

Thursday
May 27, 1982

Part II

# Environmental Protection Agency

## Iron and Steel Manufacturing Point Source Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 420**

**[WH-FRL 2033-5]**

# Iron and Steel Manufacturing Point Source Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

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

**ACTION:** Final rule.

**SUMMARY:** EPA is today issuing a final regulation to limit effluent discharges to waters of the United States and the introduction of pollutants into publicly owned treatment works from facilities engaged in manufacturing steel. The Clean Water Act and a consent decree require EPA to issue this regulation.

The purpose of this regulation is to specify effluent limitations for "best practicable technology," "best available technology," "best conventional technology," and "new source performance standards" for direct dischargers and to establish pretreatment standards for indirect dischargers.

**DATE:** This regulation shall become effective May 27, 1982.

**ADDRESSES:** Technical information and copies of technical document may be obtained from Mr. Ernst P. Hall, at: Effluent Guidelines Division (WH-552), Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. The economic analysis may be obtained from Mr. Robert Greene, Office of Policy Analysis (PM 220), at the same address.

**FOR FURTHER INFORMATION CONTACT:** Ernst P. Hall, (202) 426-2586.

**SUPPLEMENTARY INFORMATION:**

**Organization of this Notice**

I. Legal Authority
II. Background
  A. The Clean Water Act
  B. Prior EPA Regulations
  C. Overview of the Industry
III. Scope of this Rulemaking and Summary of Methodology
IV. Data Gathering Efforts
V. Additional Data Gathering
VI. Sampling and Analytical Program
VII. Industry Subcategorization
VIII. Available Wastewater Control and Treatment Technology
  A. Status of In-Place Technology
  B. Control Technologies Considered
IX. Best Practicable Technology (BPT) Effluent Limitations
X. Best Available Technology (BAT) Effluent Limitations
XI. New Source Performance Standards (NSPS)
XII. Pretreatment Standards for Existing Sources (PSES)
XIII. Pretreatment Standards for New Sources (PSNS)
XIV. Best Conventional Technology (BCT) Effluent Limitations
XV. Summary of Public Participation
XVI. Response to Public Comments
XVII. Summary of Changes from Proposed Regulations
XVIII. Regulated Pollutants
XIX. Pollutants and Subcategories Not Regulated
XX. Monitoring Recommendations
XXI. Cost and Economic Impacts
XXII. Non-Water Quality Aspects of Pollution Control
XXIII. Best Management Practices (BMPs)
XXIV. Upset and Bypass Provisions
XXV. Variances and Modifications
XXVI. Relationships to NPDES Permits
XXVII. Executive Order 12291—Regulatory Impact Analysis
XXVIII. Regulatory Flexibility Analysis
XXIX. List of Subjects in 40 CFR Part 420
XXX. Appendices:
  A. Abbreviations, Acronyms, and Terms Used in This Notice
  B. Development of Regulated Pollutant List
  C. Pollutants Considered for Specific Limitation by Subcategory
  D. Control and Treatment Technologies

## I. Legal Authority

The regulation described in this notice is promulgated under authority of sections 301, 304, 306, 307, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, 33 USC §§ 1251 *et seq.*, as amended by the Clean Water Act of 1977, P.L. 92-517) (the "Act"). This regulation is also promulgated in compliance with the Settlement Agreement in *Natural Resources Defense Council, Inc.* v. *Train*, 8 ERC 2120 (D.D.C. 1976), modified, 12 ERC 1833 (D.D.C. 1979).

## II. Background

### *The Clean Water Act*

The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," section 101(a). By July 1, 1977, existing industrial dischargers were required to achieve "effluent limitations requiring the application of the best practicable control technology currently available" ("BPT"), section 301(b)(1)(A); and by July 1, 1983, these dischargers were required to achieve "effluent limitations requiring the application of the best available technology economically achievable * * * which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants" ("BAT"), section 301(b)(2)(A). New industrial direct dischargers were required to comply with section 306 new source performance standards ("NSPS"), based upon best available demonstrated technology; and new and existing dischargers to publicly owned treatment works ("POTWs") were subject to pretreatment standards under sections 307 (b) and (c) of the Act. While the requirements for direct dischargers were to be incorporated into National Pollutant Discharge Elimination System (NPDES) permits issued under section 402 of the Act, pretreatment standards were made enforceable directly against dischargers to POTWs (indirect dischargers).

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

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

On December 27, 1977, the President signed into law the Clean Water Act of 1977. Although this law makes several important changes in the Federal water pollution control program, its most

significant feature is the incorporation into the Act of several basic elements of the Settlement Agreement program for toxic pollution control. Sections 301(b)(2)(A) and 301(b)(2)(C) of the Act now require the achievement by July 1, 1984 of effluent limitations requiring application of BAT for "toxic" pollutants, including the 65 "priority" pollutants and classes of pollutants which Congress declared "toxic" under section 301(b) of the Act. Likewise, the EPA programs for new source performance standards and pretreatment standards are now aimed principally at toxic pollutant controls. Moreover, to strengthen the toxics control program, Congress added section 304(e) to the Act, authorizing the Administrator to prescribe "best management practices" ("BMPs") to prevent the release of toxic and hazardous pollutants from plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage associated with, or ancillary to, the manufacturing or treatment process.

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

The purpose of this regulation is to provide effluent limitations for BPT, BAT and BCT, and to establish NSPS, pretreatment standards for existing sources (PSES), and pretreatment standards for new sources (PSNS), under sections 301, 304, 306, 307, and 501 of the Clean Water Act. Based upon recent court rulings which remanded the BCT methodology to the Agency for further consideration, BCT limitations for those subcategories of the steel industry where BAT limitations more stringent than the respective BPT limitations are promulgated are reserved at this time and not included in this regulation. When a revised BCT methodology is adopted, the Agency will consider whether BCT limitations more stringent than the respective BPT limitations are appropriate for the reserved subcategories.

*Prior EPA Regulations*

On June 28, 1974, EPA promulgated effluent limitations guidelines for BPT and BAT, NSPS, and PSNS for the basic steelmaking operations (Phase I) within the integrated steel industry. 39 FR 24114–24133, 40 CFR Part 420, Subparts A–L. That regulation covered 12 subcategories of the industry: By-Product Cokemaking, Beehive Cokemaking, Sintering, Blast Furnace (Iron), Blast Furnace (Ferromanganese), Basic Oxygen Furnace (Semi-Wet Air Pollution Control Methods), Basic Oxygen Furnace (Wet Air Pollution Control Methods), Open Hearth Furnace, Electric Arc Furnace (Semi-Wet Air Pollution Control Methods), Vacuum Degassing, and Continuous Casting.

In response to several petitions for review, the United States Court of Appeals for the Third Circuit remanded that regulation to the Agency on November 7, 1975. *American Iron and Steel Institute, et al.* v. *EPA*, 526 F.2d 1027 (3rd Cir. 1975) ("AISI I"). While the Court rejected all technical challenges to the BPT limitations, it held that the BAT effluent limitations and NSPS for certain subcategories were "not demonstrated." In addition, the court questioned all of the regulation on the grounds that EPA had failed to consider adequately the impact of plant age on the cost or feasibility of retrofitting pollution control equipment, to assess the impact of the regulations on water scarcity in arid and semi-arid regions of the country, and to make adequate "net/gross" provisions for pollutants found in intake water supplies.[1]

On March 29, 1976, EPA promulgated BPT effluent limitations guidelines and proposed BAT limitations, NSPS and PSNS for steel forming and finishing operations (Phase II) within the iron and steel industry. 39 FR 12990–13030, 40 CFR Part 420, Subparts M–Z. That regulation covered 14 subcategories of the industry: Hot Forming—Primary; Hot Forming—Section; Hot Forming—Flat; Hot Forming—Pipe & Tube; Pickling—Sulfuric Acid—Batch and Continuous; Pickling—Hydrochloric Acid—Batch and Continuous; Cold Rolling; Hot Coatings—Galvanizing; Hot Coatings—Terne; Miscellaneous Runoffs—Storage Piles, Casting, and Slagging; Combination Acid Pickling—Batch and Continuous; Scale Removal—Kolene and Hydride; Wire Pickling and Coating; and Continuous Alkaline Cleaning.

In response to several petitions for review, the U.S. Court of Appeals for the Third Circuit remanded the regulation to the Agency on September 14, 1977, *American Iron and Steel Institute, et al.*, v. *EPA*, 568 F.2d 284 (3rd Cir. 1977). While the court again rejected all technical challenges to the BPT limitations, it again questioned the regulation in regard to the age/retrofit and water scarcity issues. In addition, the court invalidated the regulation as applied to the specialty steel industry for lack of proper notice. Finally, the Court directed EPA to reevaluate its estimates of the cost of compliance with the regulation in light of certain "site-specific" factors and to reexamine its economic impact analysis.[2]

On June 26, 1978 the Agency promulgated General Pretreatment Regulations applicable to existing and new indirect dischargers within the steel industry and other major industries, 43 FR 27936–2773 (40 CFR Part 403). For the most part, those regulations are currently in effect.

On January 7, 1981 the Agency proposed BPT, BAT, and BCT limitations and NSPS, PSES, and PSNS for the steel industry, 46 F.R. 1858. This final regulation follows that proposal.

*Overview of the Industry*

The steel industry is included within the United States Department of Commerce, Bureau of the Census Standard Industrial Classification (SIC) Major Group 33—Primary Metal Industries. Those parts of the industry covered by this regulation are the subgroup SIC Nos. 3312, (except coil coatings) 3315, 3316, and 3317. These include all processes, subprocesses, and alternate processes involved in the manufacture of intermediate or finished products in the above categories.

The manufacture of steel involves many processes which require large quantities of raw materials and other resources. Steel facilities range from comparatively small plants engaging in one or more production processes to

[1] The court also held that the "form" of the regulations was improper, because they did not provide "ranges" of limitations to be selected by permit issuers. This holding, however, was recalled in *American Iron and Steel Institute, et al.* v. *EPA*, 560 F.2d 589 (3rd Cir. 1977).

[2] The court also held that EPA had no statutory authority to exempt plants in the Mahoning Valley region of Eastern Ohio from compliance with the BPT regulat ons.

extremely large integrated complexes engaging in several or all production processes. Even the smallest steel facility, however, represents a fairly large industrial complex. Because of the wide variety of products and processes in this industry, operations vary from plant to plant.

The 1980 revenues of the United States steel industry were about 54 billion dollars. The industry ranks behind the automotive and petroleum industries in the values of its total shipments; and, with about 570,000 employees, is second only to the automotive industry in the number of employees.

Fifteen steel corporations provided approximately 87% of the total annual U.S. steel ingot production. U.S. steel production represents about 15% of world production.

The steel industry can be segregated into two major components: basic steelmaking; and forming and finishing operations. The Agency estimates that there are about 680 plant locations containing over two thousand individual steelmaking and forming and finishing operations. A listing of these plants is contained in the Appendix B to Volume I of the technical Development Document.

In the first major process, coal is converted to coke which is then combined with iron ore and limestone in a blast furnace to produce iron. The iron is then purified into steel in either open hearth, basic oxygen or electric arc furnaces. Finally, the steel can be further refined by vacuum degassing.

Following the steelmaking processes are the hot forming (including continuous casting) and cold finishing operations. Hot forming primary mills reduce steel ingots to slabs or blooms and secondary hot forming mills reduce slabs or blooms to billets, plates, shapes, strip, and various other products. Steel finishing operations involve a number of other processes that do little to alter the dimensions of the hot rolled product, but which impart desirable surface or mechanical properties.

Water is essential to the industry and is used in appreciable quantities in virtually all process operations. An average of 40,000 gallons of water is used in the production of every ton of finished steel, making the industry one of the highest water users of any manufacturing industry.

The following wastewater pollutants have historically been regulated in the steel industry: Suspended solids, oil and grease, ammonia-N, cyanide, phenols, fluoride, iron, total and hexavalent chromium, tin, lead, and zinc. The discharge of these pollutants is limited by this regulation. Other pollutants, such as chloride, are found in the industry's wastewaters. However, the Agency is not limiting those pollutants in this regulation because the technology for their removal is presently considered to be beyond the scope of best practicable or best available technology for this industry.

In addition to the pollutants known to be present in steel industry wastewaters, many other pollutants became subject to consideration as a result of the NRDC/EPA Settlement Agreement noted earlier. The original list of 65 pollutant classes was defined more specifically by selecting definite compounds within each class to facilitate analytical qualification and quantification and to serve as indicators for other members of the classes. The list of 129 specific toxic pollutants was therefore developed.

### III. Scope of This Rulemaking and Summary of Methodology

This regulation expands the water pollution control requirements for the steel industry. In EPA's prior regulations, emphasis was placed on the achievement of best practicable technology (BPT) by July 1, 1977. In general, this technology level represented the average of the best existing performances of well-known technologies for control of familiar (i.e., "classical") pollutants.

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

EPA's implementation of the Act required a complex investigation, described in this section and succeeding sections of this notice. EPA and its laboratories and consultants had to develop analytical methods for toxic pollutant detection and measurement, which are discussed under Sampling and Analytical Program. EPA then gathered technical and financial data about the industry, which are summarized under Data Gathering Efforts.

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

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

The Agency estimated the cost of each control and treatment technology by using standard engineering analysis as applied to the applicable wastewater characteristics. EPA derived unit process costs from model plant characteristics (production and flow) applied to each treatment process (i.e., primary coagulation-sedimentation, activated sludge, multi-media filtration). These unit process costs were added to yield the total costs for each treatment level. After confirming the reasonableness of this methodology by comparing EPA cost estimates to actual treatment system costs reported by the industry, the Agency evaluated the economic impacts of these costs. (Costs are reviewed in each subcategory report of the Development Document. Economic impacts are reviewed in the section of this notice entitled Costs, Effluent Reduction Benefits, and Economic Impacts).

Upon consideration of these factors, as more fully described below, EPA identified various control and treatment technologies including the BPT, BAT, BCT, PSES, PSNS, and NSPS model treatment systems. This regulation, however, does not require the installation of any particular technology. Rather, it requires the achievement of effluent limitations representative of the proper operation of these technologies or equivalent technologies.

The effluent limitations and standards for BPT, BAT, BCT, PSES, PSNS, and NSPS are expressed as mass limitations (lbs/1000 lbs) of product and were calculated by multiplying four figures: (1) Effluent concentrations determined from analysis of control technology performance data, (2) wastewater discharge flow for each subcategory, (3) any relevant process or treatment variability factor (e.g., maximum month vs. maximum day), and (4) the appropriate conversion factor. This basic calculation was performed for each regulated pollutant in each subcategory of the industry. In those few cases where the Agency could not relate wastewater flow to production (e.g., fume scrubbers in acid pickling and hot coating operations), specific daily mass limitations are provided.

In evaluating the previously promulgated BPT limitations in light of the Third Circuit's decisions, EPA found that in most instances those limitations are well demonstrated and, in some instances, are less stringent than can be currently justified.

## IV. Data Gathering Efforts

Before initiating this study, EPA reviewed the original Development Documents and appendices.[3] The Agency concluded that additional data were required to respond to the Third Circuit's rulings in *AISI I* and *AISI II* and to develop regulations in accordance with both the Clean Water Act and the *NDRC* v. *Train* Settlement Agreement.

The Agency sent Data Collection Portfolios (DCPs) to *all* basic steelmaking operations and to at least 85% of the steel forming and finishing operations in the United States. The DCPs requested information concerning production processes, production capacity and rates, process water usage, wastewater generation rates, wastewater treatment and disposal methods, treatment costs, location, age of production and treatment facilities, as well as general analytical information. The Agency received responses for 391 steelmaking operations and for 1632 forming and finishing operations.

The Agency also sent Detailed Data Collection Portfolios (D–DCPs), under the authority of Section 308 of the Act, to 50 steelmaking facilities and 128 forming and finishing facilities. The D–DCPs requested detailed information concerning the cost of installing pollution control equipment including capital, annual and retrofit costs. The D–DCPs also requested long-term analytical data and data regarding specific production operations.

The Agency determined the presence and magnitude of the 129 specific toxic pollutants in steel industry wastewaters in a two-part sampling and analysis program involving 31 steelmaking facilities and 83 forming and finishing facilities.

The Agency obtained data not only from previous studies, questionnaire responses, and sampling visits, but also from NPDES permit files, contacts with pollutant control equipment suppliers, treatability studies, and literature searches. The data gathering program solicited all known sources of data. All available information was used in developing the proposed regulation.

## V. Additional Data Gathering

After the issuance of the proposed regulation, the Agency engaged in a number of additional data gathering activities. These activities included: (1) The collection of a substantial amount of toxic metals data from fifteen plants in the hot forming subcategory; (2) a screening of over twenty cold rolling operations for toxic organic pollutants, and a detailed survey at one cold rolling operation; and, (3) requests for more detailed information to certain commenters. These requests sought information regarding (a) cost, flow, and effluent quality data to permit the Agency to fully evaluate comments received on the proposed regulation, and (b) the financial condition of merchant coke and pig iron producers. These data were placed in the public docket for this rulemaking. In general, the additional data gathered are corroborative of the data the Agency originally had.

A full discussion of the results of these additional data gathering efforts and their relevance to the final rulemaking can be found below in this preamble and in the respective subcategory reports of the Development Document.

## VI. Sampling and Analytical Program

The sampling and analysis program for this rulemaking concentrated on the toxic pollutants designated in the Clean Water Act, as well as on the conventional and nonconventional pollutants found in steel industry wastewaters. Although it was expected that, except for cokemaking wastewaters, toxic pollutants in the steel industry wastewaters would be inorganic rather than organic, the wastewaters from each subcategory were sampled and analyzed for the presence of toxic organic pollutants. The Agency has not promulgated analytical methods for many of the organic toxic pollutants under Section 304(h) of the Act, although a number of these methods have been proposed (44 FR 69464, December 3, 1979; 44 FR 75028, December 18, 1979). Additional information on the development of sampling and analytical methods for toxic organic pollutants is contained in the preamble to the proposed regulation for the Leather Tanning Point Source Category, 40 CFR Part 425, 44 FR 38749, dated

July 2, 1979.

Before analyzing steel industry wastewaters, EPA concluded that it had to designate specific toxic pollutants for analysis. The list of 65 pollutants and classes of pollutants potentially includes thousands of specific pollutants; analyses for all of them would overwhelm private and government laboratory resources. In order to make the task more manageable, EPA selected pollutants for study in this and other industry rulemakings. The criteria for choosing these pollutants included the frequency of their occurrence in water, their chemical stability and structure, the amount of the chemical produced, and the availability of chemical standards for measurement.

EPA checked for the presence and magnitude of the 129 pollutants in steel industry wastewaters in a two-phase sampling and analysis program. The Agency selected plants for sampling which it believed were representative of the manufacturing processes, the prevalent mix of production among plants, and the current treatment technology in the industry. During the first phase of the program, EPA sampled ten steelmaking facilities and eleven forming and finishing facilities. During the second phase of the program, EPA sampled 22 steelmaking facilities and 118 forming and finishing facilities.

The primary objective of the field sampling program was to obtain composite samples of wastewater from

[3] See *EPA* 440/1–74–024a; Development Document for Effluent Limitation Guidelines and New Source Performance Standards for the Steelmaking Segment of the Iron and Steel Manufacturing Point Source Category, June, 1974; and EPA 440/1–76/048–d; Development Document for Interim Final Effluent Limitations Guidelines and Proposed New Source Performance Standards for the Forming, Finishing, and Specialty Steel Segments of the Iron and Steel Manufacturing Point Source Category, March, 1976.

which to determine the concentrations of toxic pollutants. Sampling visits were made during two to three consecutive days of plant operation, with raw wastewater samples taken either before treatment or after minimal preliminary treatment. Treated effluent samples were taken following application of in-place treatment technologies. EPA also sampled intake water to determine the presence of toxic pollutants prior to contamination by steelmaking processes.

During the first phase of the sampling program the Agency detected and quantified wastewater constituents included on the list of 129 toxic pollutants. Wherever possible, each sample of an individual raw waste stream, a combined waste stream, or a treated effluent was collected by an automatic, time series sample compositor over 2 to 3 consecutive 24 hour sampling periods. Where automatic compositing was not possible, grab samples were taken and composited manually. The purpose of the second phase of the sampling program was to confirm the presence and further quantify the concentrations and waste loadings of the toxic pollutants found during the first phase of the program.

EPA used the analytical techniques described in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants*, revised April, 1977. Very similar methods are found among those proposed on December 3, 1979. EPA did not find significant quantities of toxic organic pollutants in most steelmaking wastewaters. The exceptions are cokemaking and cold rolling wastewaters.

Metals analyses for the basic steelmaking oprations were by inductively coupled plasma optical emission spectrometry except that the standard flameless atomic absorption method was used for mercury analyses. Metals analyses for the forming and finishing operations were by a combination of flame and flameless atomic absorption methods.

Analyses for cyanide and cyanide amendable to chlorination were also performed using 304(h) methods.

Analysis for asbestos fibers included transmission electron microscopy with selected area difraction; results were reported as chrysotile fiber count.

Analyses for conventional pollutants ($BOD_5$, TSS, pH, and oil and grease) and nonconventional pollutants (total residual chlorine, iron, ammonia, fluoride, and COD) were performed using 304(h) methods.

## VII. Industry Subcategorization

In developing this regulation, the Agency determined that different effluent limitations and standards are appropriate for distinct segments or subcategories of the steel industry. The Agency's consideration of industry subcategorization included an examination of the same factors and rationale described in its previous studies and the issues raised by the court in *AISI I* and *AISI II*. These factors are:

1. Manufacturing processes and equipment
2. Raw materials
3. Final products
4. Wastewater characteristics
5. Wastewater treatability
6. Size and age of facilities
7. Geographic location
8. Process water usage and discharge rates
9. Costs and economic impacts
10. Non-water quality environmental impacts

Based upon these factors, the Agency decided to retain the same approach to subcategorization as outlined in previous regulations which follows the various manufacturing processes in the steel industry. The Agency found that manufacturing process is the most significant factor and divided the industry into 12 main process subcategories for this regulation. Section IV of Volume I of the Development Document contains a detailed discussion of the factors considered and the rationale for selecting the subcategories. The Agency determined that process based subcategorization is warranted in many cases because the wastewaters of the various processes contain different pollutants, requiring treatment by different control systems (e.g., phenol by biological systems in cokemaking and metals by precipitation in steelmaking). However, in some cases, the wastewaters of different processes were found to contain similar characteristics. In those instances, the Agency determined that subcategorization was appropriate because the variations in process water usage and discharge flow rates. A more detailed discussion of this issue is presented in Volume I of the Development Document.

The subcategories of the steel industry are as follows:

(1) Subpart A—Cokemaking Subcategory

Cokemaking operations involve the production of coke in by-product or beehive ovens. The production of metallurgical coke is essential to steelmaking since coke is one of the basic raw materials necessary for the operation of ironmaking blast furnaces.

(2) Subpart B—Sintering Subcategory

Sintering operations involve the production of an agglomerate which is then used as a raw material in iron and steelmaking processes. This agglomerate (or "sinter") is made up of large quantities of waste particulate matter (fines, mill scale, and flue dust) which have been generated by blast furnaces, open hearth furnaces, basic oxygen furnaces, and recovered from hot forming operations.

(3) Subpart C—Ironmaking Subcategory

Ironmaking operations involve the conversion of iron bearing materials, limestone, and coke into molten iron in a reducing atmosphere in tall cylindrical (blast) furnaces.

(4) Subpart D—Steelmaking Subcategory

Steelmaking operations involve the production of steel in basic oxygen, open hearth, and electric arc furnaces from molten iron and steel scrap materials.

(5) Subpart E—Vacuum Degassing Subcategory

This operation involves the removal of gaseous material (deoxidation) from molten steel by applying a vacuum to the molten steel.

(6) Subpart F— Continuous Casting Subcategory

This operation involves the continuous formation of a primary steel shape (i.e., slab, billet, or bloom) from molten steel by casting the molten steel through a water-cooled mold.

(7) Subart G—Hot Forming Subcategory

Hot forming is the steel forming process in which hot steel, in solid ingot form, is reduced in size during a series of forming steps into finished and semi-finished steel products.

(8) Subpart H—Salt Bath Descaling Subcategory

Scale removal from specialty steels is accomplished by immersing the steel in molten salt baths of oxidizing or reducing compounds.

(9) Subpart I—Acid Pickling Subcategory

Acid pickling is the process of chemically removing oxides and scale from the surface of steel using dilute inorganic acids.

(10) Subpart J—Cold Forming Subcategory

In cold forming operations, steel products are formed or reduced in thickness or size, or acted upon to produce a smooth surface or to control the mechanical properties of the metal. Rolling solutions are used in cold

forming to cool and lubricate the product during the reduction operation.

(11) Subpart K—Alkaline Cleaning Subcategory

This operation involves the removal of rolling oil or other materials from the surface of steel products prior to further processing. The removal can be enhanced by the electrolysis of the steel in an alkaline solution.

(12) Subpart L—Hot Coating Subcategory

In the hot coating process, clean steel products are immersed in baths of various molten metals to deposit a thin layer of the metal on the product surface.

## VIII. Available Wastewater Control and Treatment Technology

### *A. Status of In-Place Technology*

Many different wastewater treatment technologies are currently employed in the steel industry. Generally, primary wastewater treatment systems encompass physical/chemical methods of treatment, including neutralization, sedimentation, flocculation and filtration. Treatment for toxic pollutants require advanced technologies such as biological treatment, carbon adsorption, ion exchange, reverse osmosis, and more sophisticated chemical techniques.

Within the cokemaking subcategory, organic pollutant removal is accomplished by biological treatment in bio-oxidation lagoons and activated sludge plants; and, physical/chemical treatment in ammonia stills, dephenolizers and activated carbon systems. Sedimentation and filtration are also used in this subcategory.

Treatment facilities at plants in the sintering, ironmaking and steelmaking subcategories rely heavily upon flocculation, sedimentation and recycle of treated wastewaters. Clarifiers and thickeners are principally used in connection with polymers and coagulants such as lime, alum, and ferric sulfate.

Wastewaters from nearly all hot forming operations are treated in scale pits followed by lagoons, clarifiers, filters, or combinations thereof. Polymers and coagulants such as lime, alum, and ferric sulfate are normally used in conjunction with clarifiers. Filters are usually either gravity or pressure type with sand or other media.

Cold finishing treatment techniques include equalization prior to further treatment; neutralization with lime, caustic or acid; flocculation with polymer; and, sedimentation. Central or combined treatment systems are common for these operations.

An important treatment method commonly practiced in the steel industry is recycle of treated wastewaters. Recycle can be effectively used to significantly reduce wastewater flows and the amount of pollutants discharged to receiving streams. Systems employing high rates of recycle are demonstrated in several subcategories of the steel industry.

### *B. Advanced Technologies Considered*

The Agency considered advanced treatment systems to control the level of toxic and non-conventional pollutants at the BAT, NSPS, PSES, and PSNS levels of treatment. Some of these include in-plant control, however, most include the installation of additional end-of-pipe treatment components and all are demonstrated in the industry.

Add-on technology to BPT was considered for the BAT, BCT, NSPS, PSES, and PSNS levels of treatment for all of the subcategories. Some of these control measures for the toxic pollutants include two-stage (i.e. extended) biological treatment (cokemaking); granular activated carbon; powdered carbon addition; pressure filtration; pressure filtration accompanied with sulfide addition; and, multi-stage evaporation/condensation systems. Details on these advanced systems are presented in Section VI of Volume I of the Development Document.

## IX. Best Practicable Technology (BPT) Effluent Limitations

The factors considered in defining best practicable control technology currently available (BPT) include the total cost of application of technology in relation to the effluent reduction benefits from such application, the age of equipment and facilities involved, the process employed, non-water quality environmental impacts (including energy requirements) and other factors the Administrator considers appropriate. In general, the BPT technology level represents the average of the best existing performances of plants of various ages, sizes, processes or other common characteristics. Where existing performance is uniformly inadequate, BPT may be transferred from a different subcategory or industry. Limitations based upon transfer technology must be supported by a conclusion that the technology is, indeed, transferable and a reasonable prediction that it will be capable of achieving the prescribed effluent limits. See *Tanners' Council of America* v. *Train*, 540 F.2d 1188 (4th Cir. 1976). BPT focuses on end-of-pipe treatment rather than process changes or internal controls, except where the process changes are common industry practice.

The cost-benefit inquiry for BPT is a limited balancing, committed to EPA's discretion, which does not require the Agency to quantify benefits in monetary terms. See, e.g., *AISI I, supra*. In balancing costs in relation to effluent reduction benefits, EPA considers the volume and nature of existing discharges, the volume and nature of discharges expected after application of BPT, the general environmental effects of the pollutants, and the cost and economic impact of the required pollution control level. The Act does not require or permit consideration of water quality problems attributable to particular point sources or industries, or water quality improvements in particular water bodies. Therefore, EPA has not considered these factors. See *Weyerhaeuser Company* v. *Costle*, 590 F.2d 1011 (D.C. Cir. 1978).

A detailed discussion of the bases for selecting the BPT effluent limitations is set forth in Section IX of each subcategory report of the Development Document. The components of the BPT model treatment systems are presented in Appendix D.

## X. Best Available Technology (BAT) Effluent Limitations

The factors considered in assessing best available technology economically achievable (BAT) include the age of equipment and facilities involved, the process employed, process changes, non-water quality environmental impacts (including energy requirements) and the costs of application of such technology (section 304(b)(2)(B)). In general, the BAT technology level represents, at a minimum, the best economically achievable performance of plants of various ages, sizes, processes or other shared characteristics. As with BPT, where existing performance is uniformly inadequate, BAT may be transferred from a different industry or subcategory. BAT may include process changes or internal controls, even when not common industry practice.

The statutory assessment of BAT "considers" costs, but does not require a balancing of costs against effluent reduction benefits (see *Weyerhaeuser* v. *Costle, supra*). In developing the BAT limitations, however, EPA has given substantial weight to the reasonableness of costs. The Agency has considered the volume and nature of discharges, the volume and nature of discharges expected after application of BAT, the general environmental effects of the pollutants, and the costs and economic

impact of the required pollution control levels.

Despite this expanded consideration of costs, the primary determinant of BAT is effluent reduction capability. As a result of the Clean Water Act of 1977, the achievement of BAT has become the principal national means of controlling toxic water pollution. The steel industry discharges over forty different toxic pollutants. EPA considered two to six alternative BAT treatment systems for each subcategory. A detailed discussion of the bases for selecting the BAT effluent limitations is set forth in Section X of each subcategory report of the Development Document. The components of the BAT model treatment systems are presented in Appendix D.

### XI. New Source Performance Standards (NSPS)

The basis for new source performance standards (NSPS) under section 306 of the Act is the best available demonstrated technology. Industry has the opportunity to design the best and most efficient steelmaking processes and wastewater treatment technologies for new plants. Congress therefore directed EPA to consider the best demonstrated process changes, in-plant controls, and end-of-pipe treatment technologies which reduce pollution to the maximum extent feasible. EPA considered two to four alternative treatment systems for each subcategory in selecting NSPS.

A detailed discussion of the bases for selecting the new source performance standards is set forth in Section XII of each subcategory report of the Development Document. The components of the NSPS model treatment systems are presented in Appendix D.

### XII. Pretreatment Standards for Existing Sources (PSES)

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

EPA has determined that many of the metals present in the steel industry's raw wastewaters pass through POTWs, may limit POTW sludge disposal alternatives and can interfere with biological treatment in POTWs. These metals include: antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

Accordingly, EPA is promulgating pretreatment standards for metals and other toxic and non-conventional pollutants in this regulation. In addition to the factors discussed above, EPA considered the following factors in developing the pretreatment standards:

1. The manufacturing processes employed by the industry;
2. The age and size of the equipment and facilities involved;
3. The location of manufacturing facilities;
4. Process changes;
5. The engineering aspects of the application of pretreatment technology and its relationship to the POTW;
6. The cost of application of technology in relation to the effluent reduction and other benefits achieved from such application; and,
7. Non-water quality environmental impacts (including energy requirements).

The methodology used to develop the pretreatment standards is the same as that used to develop the direct discharger effluent limitations. A detailed discussion of the bases for selecting the pretreatment standards for existing sources is set forth in Section XIII of each subcategory report of the Development Document. The components of the PSES model treatment systems are presented in Appendix D.

### XIII. Pretreatment Standards for New Sources (PSNS)

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

A detailed discussion of the bases for selecting the pretreatment standards for new sources is set forth in Section XIII of each subcategory report of the Development Document. The components of the PSNS model treatment systems are presented in Appendix D.

### XIV. Best Conventional Technology (BCT) Effluent Limitations

The 1977 Amendments added Section 301(b)(4)(E) to the Act, establishing "best conventional pollutant control technology" (BCT) for discharges of conventional pollutants from existing industrial point sources. Conventional pollutants are those defined in section 304(b)(4)—BOD, TSS, fecal coliform, and pH—and any additional pollutants defined by the Administrator as "conventional." On July 30, 1979, the Agency added oil and grease as a conventional pollutant (44 FR 44501).

BCT is not an additional limitation, but replaces BAT for the control of conventional pollutants. BCT requires that limitations for conventional pollutants be assessed in light of a new "cost-reasonableness" test, which involves a comparison of the cost and level of reduction of conventional pollutants from the discharge of publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. In its review of BAT for "secondary" industries, the Agency established BCT levels based upon a methodology described at 44 FR 50732 (Aug. 29, 1979). This methodology compared removal costs (dollars per pound of pollutant, measuring from BPT to BCT) with costs for an average POTW. The removal costs of an average POTW was established by EPA as $1.34 per pound in July, 1978 dollars. However, the Fourth Circuit has remanded the regulation to the Agency for reconsideration with instructions that EPA revise its cost-effectiveness test. (*American Paper Institute, et al.* v. *Costle*, No. 79–1551). The Agency is presently considering those revisions.

### XV. Summary of Public Participation

Between November 1979 and April 1980, EPA circulated nine individual volumes, which together comprise the EPA contractor's draft technical report on its steel industry study, including available treatment alternatives and costs. The draft technical report was distributed to a number of interested parties, including the American Iron and

Steel Institute and several member firms, the Natural Resources Defense Council (NRDC), and affected state and municipal authorities. This document did not include recommendations for proposed effluent limitations and standards, but rather presented the EPA Contractor's draft technical report on treatment alternatives available, costs, and other information relating to this regulation. A meeting was held in Washington, D.C. on May 19, 1980 for public discussion of comments on this document.

The Agency published the proposed regulation on January 7, 1981. Based upon several requests from the industry to extend the comment period, the Agency set May 8, 1981 as the close of the comment period on the proposed regulation. EPA representatives continued to meet with representatives of the steel industry and other members of the public after May 8, 1981 to discuss certain issues relating to the Agency's preparation of the Regulatory Impact Analysis concerning this regulation. The Regulatory Impact Analysis is being prepared pursuant to Executive Order 12291. In addition, Agency representatives met with officials of steel companies which owned plants for which the Agency was considering establishing alternative BAT effluent limitations for their central treatment facilities (see discussion Section XIII of the preamble). The Agency informed the public of its intent to hold these meetings by publishing a notice in the **Federal Register** in 1981 (46 FR 32274) and summarized the data and comments presented at the meetings in memoranda which were promptly placed in the public docket for this regulation.

## XVI. Response to Public Comments

The following general issues raised by the industry and the public are addressed below. Because of the Agency received a large number of comments on the proposed regulation, it has not addressed each of those comments in this preamble. Instead, the major comments and the Agency responses are set out in the preamble. Responses to other comments are contained in a separate document available from Mr. Ernst P. Hall, Effluent Guidelines Division at the address noted at the beginning of this preamble.

1. *Regulation of the Steel Industry Beyond the Current Level of Discharge.* The AISI and some of its member companies have commented that the Agency should not establish effluent limitations and standards for the steel industry which would require more stringent control than existing treatment. To support its position, the industry cites the significant removal of toxic and conventional pollutants from raw waste loadings to the current level of discharge. NRDC and others, however, commented that the proposed BAT limitations are appropriate and, in some cases, more stringent limitations should be established.

(a) *BPT Limitations.* The BPT limitations in this regulation are based upon traditional, well established water pollution control technologies. The final BPT limitations are based upon the average of the best existing performances of steel industry water pollution control facilities, and, in some cases are less stringent than might otherwise have been justified. Indeed, on balance, about eighty percent of the industry is presently in compliance with these limitations.

(b) *BAT Limitations.* Those BAT limitations in this regulation which are more stringent than BPT are based upon traditional water pollution control technologies which are generally demonstrated on a full scale basis in the steel industry. Based on the statute, the Agency does not have discretion to set any less stringent requirements.

2. *Regulation of the Hot Forming Subcategory at the BAT Level.* Industry representatives commented that the Agency should not promulgate BAT limitations for hot forming operations because toxic metals are not contributed by hot forming processes to hot forming wastewaters. Industry representatives also commented that BAT limitations for suspended solids and oil and grease should be established at a level no more stringent than BPT. Environmental groups commented that the BAT limitation for hot forming operations should be zero discharge.

In response to these comments, the Agency reviewed its existing data for the hot forming subcategory and conducted additional extensive sampling programs at fifteen hot forming operations in cooperation with the industry. These data clearly demonstrate that significant quantities of toxic metals are generated by hot forming operations, are present in hot forming raw wastewaters, and are also present in the wastewaters discharged and from the primary scale pits used to recover mill scale. These data also demonstrate that toxic metals are removed to very low levels at plants with the model BPT treatment system installed (i.e., primary scale pit, partial recycle, secondary settling, and filtration). The average gross effluent concentration of all toxic metals in the wastewaters of these plants after treatment is about 0.07 mg/1. The Agency believes that at these levels, the toxic pollutants have been effectively controlled and that the substantial cost (more than $300 million on an industry-wide basis) of full scale (96%) recycle of these wastewaters to further reduce the discharge of toxic metals is not justified.

While zero discharge is reported to be achieved at some hot forming operations, the Agency found that many of these systems do, in fact, have small, and often intermittent, discharges. The Agency does not believe that zero discharge can be achieved at all hot forming operations without the use of costly evaporative technologies. The data for several hot forming operations demonstrate that wastewater recycle rates of 95 to 99% are achievable on a long term basis.

Based upon these factors, the Agency has not promulgated BAT limitations for the hot forming subcategory. As explained in greater detail in the development document, the final BPT limitations were revised from those proposed to take into account actual performance of the BPT technology with respect to suspended solids, oil and grease, and flow. The Agency has maintained high rate recycle (96%) as the basis for NSPS as this technology is well demonstrated throughout the industry and will substantially reduce the total loadings of pollutants discharged by the process.

3. *Central Treatment.* The Agency has received numerous comments from AISI and its members suggesting that it create a subcategory within the regulation which allows for central or combined treatment of wastewaters from various subcategories.

The Agency has not included a central treatment subcategory in this regulation. There are numerous combinations of central wastewater treatment systems that can and are being employed, ranging from individual recycle systems followed by central treatment of blowdowns and once-through flows, to total plant-wide recycle systems with treatment of the blowdown. Often these combinations include the mixing of wastewaters which are not compatible for effective co-treatment. These combinations are so numerous, that it is not possible to define a central treatment subcategory which would effectively regulate the discharge of toxic pollutants. The reduction in discharge flow and treatment of more concentrated wastewaters provides the toxic pollutant loading removal to be achieved by industry's compliance with this regulation. When incompatible wastewaters are mixed, the toxic pollutants are diluted and thus are not

significantly removed or reduced. Consequently, the discharge of large quantities of toxic pollutants would occur as a result of the indiscriminate mixing of incompatible wastewaters.

Based upon the above considerations, the Agency believes that the development of a central treatment subcategory which provides for effective regulation of toxic pollutants is neither possible nor appropriate. However, the Agency has made co-treatment of compatible wastewaters possible with this regulation by carefully selecting the toxic pollutants to be limited for each subcategory. Where the Agency determined that co-treatment is appropriate, the Agency has, as discussed in greater detail below, established the effluent limitations so as to permit co-treatment. The limitations applicable to a central treatment facility in which compatible pollutants are co-treated are the sum of the applicable effluent limitations for the individual subcategory processes tributary to the central treatment facility.

By establishing limitations which permit co-treatment in appropriate cases, the Agency believes it has satisfactorily resolved this issue. The Agency has concluded that wastewaters from the following groups of subcategories can be treated together to achieve the final limitations and standards:

*Group and Subcategory*

1. Cokemaking
2. Sintering, ironmaking
3. Steelmaking, vacuum degassing, continuous casting, acid pickling ($H_2SO_4$, HCl), cold rolling, alkaline cleaning, hot coating
3. Specialty steel operations, salt bath descaling, acid pickling (combination), cold rolling

In developing the regulation so as to permit co-treatment of wastewaters for the subcategory groups, the Agency decided not to allow extensive co-treatment of cokemaking wastewaters with other process wastewaters. The Agency considered the nature of cokemaking wastewaters and the biological treatment currently used to treat those wastewaters in developing the BAT limitations, and believes that cokemaking wastewaters should be treated separately to insure the effective removal of toxic and non-conventional pollutants. However, in some limited cases, combined treatment of cokemaking and ironmaking wastewaters may be appropriate and can be used to achieve the combined limitations for those operations.

The Agency also believes that unrestricted co-treatment of wastewaters from hot forming operations with wastewaters from other subcategories is not appropriate because of the dilution of toxic pollutants by the high volume hot forming wastewaters and potential analytical detection problems. However, central treatment of hot forming wastewaters with wastewaters from other subcategories may be appropriate provided that the metal bearing wastewaters are adequately pretreated prior to mixing with hot forming wastewaters, or, provided that hot forming wastewaters are recycled to a high degree (i.e. greater than 95%). It is not possible for the Agency to establish all of the conditions which define precisely when co-treatment of hot forming wastewaters with wastewaters from other subcategories would be appropriate. These determinations will have to be made on a case-by-case basis. Where hot forming wastewaters are not recycled it may be appropriate to limit toxic pollutants prior to the mixing of wastewaters from other subcategories with hot forming wastewaters.

In developing this central treatment policy, the Agency took into account that at many older steel plants cooling water, surface runoff and roof runoff are drained into existing central treatment systems. As discussed in greater detail below, the Agency believes that dischargers can take the steps necessary to divert these non-process wastewaters from their co-treatment facilities at a reasonable cost so as to achieve the limitations established by this regulation. However, the Agency recognizes that while separation of these non-process waters has been accomplished at many steel plants (including many older steel plants), it may be inordinately expensive to do so at a small number of plants.

The Agency believes its model treatment system cost estimates, which are based upon more costly separate treatment systems for each operation, are sufficiently generous to cover site-specific and retrofit costs associated with upgrading most existing central treatment systems to the point where the BPT and BAT limitations can be achieved (including segregation of non-process wastewaters). However, the Agency recognizes that there may be instances at certain plants where, because of unique site-specific factors, the BPT and BAT limitations or PSES may not be achievable without the expenditure of amounts disproportionately higher than those estimated by the Agency. In such instances, the Agency believes that the dischargers should receive alternative BPT and BAT limitations and PSES.

Prior to issuing the proposed regulation, the Agency met with representatives of AISI and its member companies regarding those plants which they believed were entitled to alternative effluent limitations or inclusion in a central treatment subcategory. At those meetings, the Agency explained that the consideration of whether a plant should be subject to alternative effluent limitations could occur either in the context of this regulation or during the permit issuance process. The industry representatives presented data for 35 plants and requested that the Agency evaluate whether those plants should receive alternative limitations and to do so in the context of the effluent limitations guidelines. Based upon those data, and its independent evaluation of the problem, the Agency identified seven plants in the preamble to the proposed regulation which it believed might be entitled to relief from the generally applicable limitations proposed on January 7, 1981. These plants were listed in the preamble to the proposed regulation and are again listed below:

| Plant and location | Central treatment facility |
|---|---|
| 1. Armco Steel, Ashland, KY | Total plant. |
| 2. Bethlehem Steel, Sparrows Point, MD | Humphrey's Creek. |
| 3. Bethlehem Steel, Burns Harbor, IN | Total plant. |
| 4. National Steel, Granite City, IL | Total plant. |
| 5. Republic Steel, Gadsden, AL | Total plant. |
| 6. U.S. Steel, Lorain, OH | Pipe mill lagoon. |
| 7. U.S. Steel, Provo, UT | Total plant. |

The Agency requested comment on whether these seven plants should be subject to alternative effluent limitations. In addition, the Agency requested comment on whether any *other* plants should be subject to alternative effluent limitations. In response, the Agency received comments that fourteen additional plants should be considered for alternative effluent limitations (some of which were included in the original list of thirty-five plants presented by AISI). These plants are as follows:

| Plant and location | Central treatment facility |
|---|---|
| 1. Ford Motor Co., Dearborn, MI. | Schaefer Road treatment plant. |
| 2. Interlake, Inc, Riverdale, IL. [1] | Discharge to POTW. |
| 3. J & L Steel, Aliquippa, PA | Chemical rinse treatment plant—outfall 018. |
| 4. J & L Steel, Cleveland, OH. | Hot forming and finishing treatment plant. |
| 5. J & L Steel, Hennepin, IL | Total plant. |
| 6. J & L Steel, Louisville, OH | Total plant. |

| Plant and location | Central treatment facility |
|---|---|
| 7. J & L Steel, East Chicago, IN. | Terminal treatment plant. |
| 8. Laclede Steel, Alton, IL..... | Total plant. |
| 9. National Steel, Portage, IN.. | Total plant. |
| 10. National Steel, Wierton, WV. | Outfall B. |
| 11. Republic Steel, Chicago, IL. [1] | Discharge to POTW. |
| 12. U.S. Steel, Fairless Hills, PA. | Terminal treatment plant. |
| 13. U.S. Steel, Gary, IN..... | Terminal lagoons. |
| 14. U.S. Steel, Chicago, IL. [1]... | Discharge to POTW. |

[1] The request for alternative effluent limitations for these plants are for the indirect discharges to POTWs.

The Agency believes that these 21 central treatment facilities comprise all, or nearly all, of those facilities which might qualify for alternative effluent limitations. However, these comments were based upon the expected cost of bringing the plants into compliance with the *proposed* regulation. Because the Agency is promulgating a regulation which, in some instances, if significantly less expensive to comply with, the Agency is uncertain whether the commenters believe that their plants would still qualify for alternative effluent limitations under the previously described standard (cost of compliance significantly higher than that estimated by the Agency). This is especially so in light of the elimination of BAT limitations for hot forming operations. Compliance with those limitations was expected to be quite costly and in many cases was included as a basis for a commenter's request for alternative effluent limitations. The Agency was not in a position to resolve this issue before the promulgation of this regulation. As discussed previously, the Agency is under a court-ordered deadline to promulgate this regulation and does not believe that it would be appropriate to delay its promulgation until this issue was resolved for the 21 central treatment facilities.

Consequently, the Agency decided to promulgate the regulation but to temporarily exclude the 21 central treatment facilities from its requirements until the Agency resolves the issue. The exclusion will serve to provide an opportunity for operators of the 21 central treatment facilities which asserted that they are entitled to alternative effluent limitations based upon the *proposed* regulation to present their views on whether any of the twenty-one plants or central treatment facilities are entitled to alternative effluent limitations based upon the final regulation. These applications must be submitted within sixty day after publication of this regulation. Any of the twenty-one plants or central treatment facilities which do not reapply for consideration during this sixty-day period will have waived their applications for alternative effluent limits.

The applications must include the following information:

(1) A schematic diagram of the existing wastewater treatment facility showing each source of wastewater, cooling waters, and other waters entering the treatment facility; discharge and recycle flow rates for each source, and each major treatment component;

(2) Existing monitoring data relating to discharges to and from the central treatment facility including pollutant concentrations, wastewater flows and mass loadings. As a minimum, monitoring data should be provided for a six month period of normal operation of the production and treatment facilities. The complete data as well as a data summary including the maximum, minimum, and mean gross discharge loadings and the standard deviation of the discharge loadings for each monitored pollutant should be provided. Any supplemental monitoring data for toxic pollutants should also be provided.

(3) A scale map of the area of the plant served by the wastewater treatment facility, including the treatment facility and water supply and discharge points.

(4) An estimate of the least costly investment required to meet the generally applicable limitations or standards for the facility and a description of the treatment system including schematic diagrams showing the major treatment system components and flow rates through the system. At a minimum, the cost estimates should consist of a single page summary for each water pollution control system showing estimated installed direct cost totals for mechanical equipment; piping and instrumentation; foundations and structural components; and electrical components. Indirect costs for contingencies, overhead and profit, engineering fees, and any other indirect costs must be itemized separately. The sum of the direct and indirect costs, which represents the owner's or operator's total estimate, must be shown.

(5) The effluent limitations or standards which could be achieved if the discharger were to spend an amount equal to the Agency's model treatment system cost estimate for the facility and the treatment facilities which would be used to meet those limitations or standards; schematic diagrams and cost estimates as outlined in paragraph (5) above should be provided for each treatment system.

(6) Production rates in tons per day for each process contributing wastewater to the central treatment facility consistent with those reported by the owner or operator in the NPDES permit application for the central treatment facility.

If the Agency determines that the expected cost of compliance with the generally applicable limitations for any of the central treatment facilities is so high in comparison to the Agency's model treatment system cost estimate for that facility that the applicable limitations or standards would not represent BPT, BAT, BCT, or PSES, as the case may be, for the facility, it plans to propose alternative limitations or standards based upon the level of treatment which can be achieved at that facility through the installation of treatment equipment which costs in the range of the Agency's model treatment system cost for that facility.

The Agency intends that the temporary exclusions for these 21 central treatment facilities apply for only the minimum period necessary for it to review the comments, propose alternative limitations or standards where appropriate and take final regulatory action with respect to those facilities. This is not to exceed one year from the date this regulation is published.

Owners and operators of these 21 facilities which still believe that they are entitled to alternative effluent limitations or standards based upon the high cost of complying with the generally applicable limitations under these regulations must raise that issue within 60 days of publication of this regulation. They will not be entitled to request similar relief during the permitting process through the "fundamentally different factor" variance process at the permitting stage. However, they may request relief through the variance provision based on any other permissible basis.

The Agency noted in the preamble to the proposed regulation that the issue of wholly disproportionate costs could be properly handled either in the context of this regulation or, alternatively, at the permit writing stage, under the "fundamentally different factor" variance provisions (40 CFR 125.31(b)(3)). The Agency also stated that, where feasible it would like to resolve this issue in the context of this regulation. The Agency has concluded that it is feasible to resolve this issue in the context of this regulation for the 21 central treatment facilities which requested consideration during the comment period. Because the Agency

can resolve this issue efficiently in the context of this regulation for the 21 central treatment facilities and provide for consistency in both deciding whether to establish alternative effluent limitations and what the limitations should be, it has decided to resolve this issue solely in the context of this regulation for those facilities.

While the Agency believes that the 21 central treatment facilities comprise all, or nearly all, of the facilities which might qualify for alternative effluent limitations, it is not restricting the right of the owner or operator of any other facility to request relief from the generally applicable limitations during the permitting process through the "fundamentally different factors" variance process.

4. *Costs of the Regulation.* The Agency received several comments from the industry regarding the Agency's cost estimates of the model treatment systems used as the basis for the proposed limitations, and on the cost estimates for those model treatment systems presented in the contractor's draft technical report (October 1979) distributed for comment by the Agency. The industry commented that the Agency's cost estimates are substantially lower than industry cost estimates for the same treatment systems, and that the lower cost estimates would cause the Agency to underestimate the economic impact of the regulation on the industry.

In response to these comments and court remand issues on prior regulations dealing with costs, the Agency carefully analyzed and refined its costing methodology and cost estimates for steel industry water pollution control systems. Based upon this analysis, the Agency has reached the following conclusions:

1. The Agency's costing methodology is appropriate for developing industry-wide cost estimates for water pollution control systems that may be installed to comply with this regulation.

2. Agency cost estimates compare favorably with actual costs incurred by the industry for the installation of model water pollution control systems, including retrofit and other site-specific costs.

3. The costs actually incurred by the industry would have to be significantly greater than those estimated by the Agency to produce any significant short or long term adverse economic impacts. For example, even if the actual cost of compliance were one hundred percent greater than EPA's estimates, there would not be any significant economic impacts which would change the Agency's conclusion regarding the economic achievability of this regulation.

The Agency's industry-wide cost estimates for compliance with the proposed regulation are based upon model wastewater treatment systems developed for each level of treatment (BPT, BAT, BCT, PSES, NSPS, and PSNS) for each subcategory. The size of the model treatment system is defined by the average sized production operation and the design or model treatment system flow rate. The model treatment systems are composed of standard process and wastewater treatment components (i.e., pumps, clarifiers, thickeners, vacuum filters, chemical reaction tanks, pressure filters, piping, concrete foundations, buildings). Numerous cost estimates for each of these components were developed through the use of standard engineering cost estimating references including quotes from vendors of pollution control equipment. Costs for each component of the model treatment systems were aggregated with standard estimates for site specific costs (see Development Document) to arrive at the total investment costs for each model treatment system. These model treatment system costs were scaled by production (0.6 factor) for each production facility to develop the total industry-wide investment to comply with the proposed BPT limitations. The industry-wide cost to comply with the proposed BAT limitations was determined by multiplying the model treatment system cost by the number of plants in each subcategory.

The BPT investment cost required for treatment facilities not in-place as of Janaury 1, 1978 was determined by subtracting costs for in-place treatment facilities reported by the industry on a plant by plant basis. Rough estimates were made of the treatment facilities installed between January 1, 1978 and June 30, 1980 by subcategory to develop required BPT costs for the economic impact analysis. Similar estimates were made for the BAT costs.

In determining industry-wide costs, the Agency costed separate wastewater treatment facilities for each process operations without taking into account extensive co-treatment of compatible wastewaters practiced at many plants. Thus, for many steel plants, several treatment facilities were costed where only one central treatment plant exists. This tends to overstate industry-wide costs.

For the final regulation, the above methodology was refined. First, additional cost data for several wastewater treatment components reported by the industry were included in the data base. Second, the large number of individual treatment component cost estimates originally developed were reviewed and adjusted to better reflect changes in flow. The model treatment systems were recosted with computer assisted determinations of component cost by model flow rate. Third, the aggregate costs for BAT and PSES, as well as costs for BPT, were determined by scaling the model treatment system costs by production for each facility. Finally, a detailed plant-by-plant update was completed for treatment facilities installed from January 1, 1978 to July 1, 1981. This update was completed from NPDES compliance records, contact with industry representatives, and personal knowledge of selected plants by EPA staff.

The draft Development Document presents comparisons on a subcategory basis of treatment system costs reported by the industry, and the Agency's estimated costs for the same treatment facilities. The actual costs reported by the industry include site-specific and retrofit costs, where available. These comparisons demonstrate the Agency's costing methodology is appropriate for developing industry-wide cost estimates. In its comments on the costs of the proposed regulation, the industry did not provide any comments on these comparisons, but rather presented its *estimates* of costs for selected treatment facilities and used these estimates to develop industry-wide cost estimates which are significantly higher than those developed by the Agency. These estimates are also significantly higher than those reported by AISI in its 1981 report "Environmental Policy for the 1980's: Impact on the American Steel Industry." The latter estimates for required water pollution control costs for the period 1981–1984 are within 10% of those developed by the Agency for the proposed regulation.

Since the Agency's cost estimates are well within the range of actual industry costs for installed treatment facilities, the Agency believes its cost estimates for required water pollution control facilities will also be within the range of actual industry costs.

Reference is made to Volume I of the Development Document for the subcategory cost comparisons and additional information regarding the Agency's costing methodology. Reference is also made to the subcategory reports of the Development Document for subcategory-specific cost changes which were made in response to industry comments. These include increased energy usage for the

cokemaking subcategory and increased chemical usage and costs for the cokemaking, ironmaking, and acid pickling subcategories. Changes in model treatment system investment costs were made in several subcategories because of changes in wastewater treatment technology (i.e., deletion of filters in cokemaking and steelmaking, deletion of cascade rinse systems for acid pickling and hot coatings).

The economic impact analysis of the costs of this regulation demonstrates that there are only minimal short term and virtually no long term adverse economic impacts associated with this regulation. Within a fairly broad range of higher water pollution control costs, the economic impacts of the regulation are expected to increase proportionally to cost. Thus, an increase in water pollution control costs by a factor of two or three would still produce relatively small adverse economic impacts. (Section XXI of this preamble).

5. *Economic Impact Analysis.* The Agency received several comments on its economic analysis of the proposed regulation and, based upon these comments, the economic analysis of the final regulation was modified. The economic analysis of the proposed regulation projected the economic impacts of the regulation under three scenarios which reflected different economic conditions. The Agency developed these scenarios for the analysis because, at that time, it was uncertain which economic conditions would be prevailing at the time of promulgation of the final regulation. For the final regulation, the Agency analyzed two scenarios. Both scenarios are based upon the existing economic climate including the projected effects of present tax, trade, and pricing policies. The only difference between the two scenarios is their assumptions regarding projected steel shipments. As noted in Section XXI, the Agency has concluded that the economic impact of the final regulation is not significant under either scenario and that the limitations and standards are economically achievable.

Several steel industry commenters argued that the economic impacts of the proposed regulation—a 5 percent reduction in the industry's workforce, a 4.9 percent reduction in its domestic market share along with associated balance of trade effects—should not be considered economically achievable. Several environmental groups believed that a 0.5 to 0.8 percent increase in the price of steel resulting from the regulation was not too much for consumes to pay. The Agency expects the economic impacts of the final regulation to be shorter in duration and of much less magnitude than those predicted for the proposed regulation: 0.6 percent or less of the industry's workforce and domestic market share, and a 0.6 percent price increase. The only impact which is expected to last after the early 1990s is the projected price increase. This change in the projected economic impact resulted from a reduction in expected cost of compliance with the regulation, a more recent forecast of the industry's future shipment levels and an update in the economic impact methodology.

The commenters noted that the magnitude of the economic impact of the water pollution control regulation depends significantly upon the future level of steel shipments. An environmental group suggested that the alternative scenario—which projected the highest level of shipments and the smallest impact—was the most reasonable. That commenter quoted financial market sources to support this view. Several industry commenters suggested that the intermediate scenario economic analysis should be based upon a 1.5 percent annual growth rate rather than upon a 2 percent growth rate. Industry commenters also suggested that the Agency should not base the economic analysis (and therefore projected steel shipments) upon expected changes in government tax, trade and price control policies.

As explained earlier, the economic analysis of the final regulation is based upon the existing economic condition of the steel industry including the projected effects of present trade, tax and pricing policies. Under the scenario which projects the more prolonged economic impact, the annual growth of steel production during 1985–1990 is projected to be about 1% or less. This annual growth rate is representative of the overall growth rate projected under that scenario as it measures annual growth rate in steel production from one peak of an economic cycle to the next peak. Hence, the Agency believes that it has adequately considered the range of expected steel industry shipments in its economic analysis.

The Agency's analysis concludes that steel companies will meet the capital requirements of this regulation by cutting back investment in its existing plant and equipment. A commenter suggested that the steel industry has access to additional funds for pollution control that would not require reducing investment in its existing capital stock (i.e., from industrial revenue bonds, common stock issues and reduced dividend payments). The Agency disagrees with this comment. While industrial revenue bonds are issued by government agencies, they are the legal obligations of private firms and are considered as such by credit analysts. Thus, industrial revenue bonds cannot be used to increase the funds available to a capital-constrained industrial firm which must maintain the quality of its credit. Moreover, the Agency does not believe that steel companies will undertake the issuance of new common stock, or the financially similar action of reducing dividend payments, until they can demonstrate a higher future profitability. Consequently, the Agency believes that its conclusion regarding capital financing requirements reflects the financial situation facing the steel industry and is valid.

The Agency's economic analysis is based, in part, upon the assumption that the added costs of water pollution control will be passed-through to the consumers of steel products. One commenter suggested that these added costs would be only partially passed-through. In the last ten years, the steel industry's operating costs (whether or not related to water pollution control) have increased nearly 150 percent, and, all but a few percent of these costs have been passed-through to consumers in the form of price increases. The Agency believes that the additional 0.6 percent increase in cost which is expected to result from compliance with this regulation will also be fully passed-through to consumers.

Several commenters suggested the Agency should evaluate the economic impact of alternative wastewater treatment systems not selected by the Agency. Moreover, the commenters suggested that the Agency's economic analysis should account for potential cost savings to the industry resulting from the water bubble and co-treatment policies. The Agency does not agree. In selecting the model treatment systems, the Agency considered the costs of the various alternative treatment systems and their respective effectiveness in reducing pollutant discharges. After selecting the model treatment systems, the Agency performed its economic analysis to determine expected economic impacts and whether the limitations and standards are economically achievable. The analysis is based upon the conservative assumption that steel plant wastewaters from each operation would be treated separately and not include an allowance for possible savings associated with the co-treatment and water bubble policies.

The potential cost savings associated with those policies cannot be estimated with a reasonable degree of accuracy because they are highly variable and site-specific in nature. The Agency believes that these conservative assumptions are appropriate and that the economic analysis demonstrates that the limitations and standards are economically achievable even without an allowance for those potential savings. The Agency does not believe it is necessary to assess the economic impact of each alternative treatment system considered by the Agency.

One commenter suggested that the Agency separately evaluate the economic impact of the regulation for each subcategory. The Agency disagrees with this comment and believes that it is neither required to do so nor would such an analysis be feasible. All subcategory operations in the steel industry are typically located within large, integrated plants. A steel company's decisions regarding production from, and investment in, these subcategory operations are highly interrelated. As a result, the economic impact of pollution controls for a given subcategory cannot be meaningfully determined.

Several industry commenters suggested that the loss of salaried jobs in the steel industry should be included in the economic analysis. The Agency agrees with this comment and has included the loss of salaried jobs in its evaluation of the final regulation.

One commenter argued that 10 million tons of capacity expansion projected in the intermediate scenario for the 1988–1990 time period is not possible. The Agency disagrees. EPA believes that the industry has demonstrated the capability of expanding capacity at a rate assumed under the economic analysis and that economic conditions will permit that expansion. For example the industry expanded raw steel capacity by at least 17 million tons during the period 1963–65.

6. *Merchant Coke and Pig Iron.* The Agency received several comments from merchant coke and pig iron producers regarding the appropriateness of including merchant coke producers in the steel industry regulation; the potential economic impact of the proposed regulation on these industries; the Agency's lack of separate consideration of the economic impact of the proposed regulation on the merchant coke industry; and, the cost of operation of the model treatment technologies.

In response to these comments, the Agency reviewed merchant coke operations and found them to be essentially the same as steel industry cokemaking operations with respect to raw materials, production processes and by-product recovery, final products, wastewater characteristics, wastewater treatability, age of facilities, geographic location, process water usage, and non-water quality environmental impacts. While the merchant coke industry has different markets for its products, this fact is not relevant to any of the above factors or to whether merchant coke operations should be subject to this regulation. For these reasons, the Agency concluded that merchant cokemaking operations should be subject to the effluent guidelines regulation for the steel industry, rather than the effluent guidelines limitations for other industries, (i.e. the Organic Chemicals Category or the Secondary Metals Industry as suggested by one commenter). The Agency did find, however, that merchant coke plants tend to be smaller than steel industry coke plants and that merchant plants have slightly higher wastewater discharge rates.

Because of the smaller size of these facilities, the Agency has developed separate cost models for direct and indirect merchant coke dischargers. With respect to the commenter that suggested that the Agency should employ a separate economic impact analysis for merchant coke producers, the Agency agrees. Upon reevaluation, the Agency has concluded that its policy testing model (PTM Steel) used in the economic impact analysis is not appropriate for analyzing the economic impact of this regulation upon merchant coke producers. Hence, the Agency conducted a separate economic impact analysis of merchant coke and pig iron producers.

EPA sent questionnaires soliciting specific financial data to the two known pig iron producers and to eleven merchant coke producers covering all but one merchant coke operation. This operation is in compliance with the BAT limitations and had previously incurred the associated investment costs. The Agency estimates the following costs of compliance with this regulation for merchant coke producers:

[Millions of 1980 Dollars]

| | Investment costs—facilities required | Annual costs—incremental |
|---|---|---|
| BPT | 3.0 | 0.8 |
| BAT | 5.5 | 1.6 |
| PSES | 10.3 | 2.6 |
| Total | 18.8 | 5.0 |

The Agency analyzed the economic impacts of compliance with this regulation for the merchant coke industry by examining its effects upon two key parameters: (a) Annual costs as a percentage of total cash flow, and (b) debt-to-capitalization ratio. As shown above, the incremental annual cost for all levels of treatment is about $5.0 million (including refunding of debt), which is about 20 percent of the estimated cash flow for 1980. The Agency estimates that this added annual cost will cause prices to increase by 0.4 percent. Based upon the assumption that the $18.8 million capital investment which is required to comply with the regulation is funded entirely by debt, the merchant coke industry debt-to-capitalization ratio is projected to move from 39.1 percent to about 39.6 percent.

Based on a current annual capacity of 9.5 million tons per year, the replacement value of the merchant coke industry at $220 per ton would be $2.1 billion. Total capital costs for compliance are projected to be $18.8 million, or less than one percent of the replacement value. If the pollution control expenditures are diverted from capital expenditures which would otherwise be made to maintain production equipment, the Agency projects a loss of productive capability of about 0.9 percent. As a result, in future periods of capacity constraints, about 0.9 percent of production (or about 85,500 tons) would be lost to foreign producers. The Agency projects only minor economic impacts for merchant coke producers and found that the costs of the regulation are unlikely to force closure of any plant.

Based upon the above considerations, and taking into account the slightly higher water use rates exhibited by merchant coke plants, the Agency is promulgating separate effluent limitations and standards for the merchant coke producers which are slightly less stringent than those for cokemaking operations associated with steel production. For those few merchant coke producers with ancillary tar processing operations, appropriate allowances to the mass-based effluent limitations provided by this regulation should be made at the time of permit writing to take into account the process wastewaters from tar processing.

The Agency also conducted a similar review of the two known pig iron operations and concluded that they should be subject to the effluent guidelines regulation for the steel industry. The Agency estimates that these merchant pig iron producers will have to spend $1.91 million to comply

with the BPT requirements and an additional $0.73 million to comply with BAT. The associated annual cost is $0.5 million. This annual cost is expected to increase prices by about 0.2 percent.

Based on an industry capacity of 1.2 million tons per year and a replacement cost of $92 per ton, the total capital expenditure required to comply with the regulation represent 2.4 percent of the industry's replacement value. In periods of future capacity constraints, which at present appear unlikely, reductions in production of as much as 2.4 percent could be attributed to added water pollution controls. During such periods, employment would be impacted by a similar percentage. The Agency concluded that any future retirement of pig iron furnaces would most likely result from declining industry profitability and market share rather than from the costs of added water pollution controls.

7. *Consumptive Use of Water.* a. One commenter suggested that EPA had failed to adequately consider the impact of the proposed limitations on water consumption. The commenter contends that EPA has failed to accurately estimate the water consumption associated with industry's compliance with the regulation; failed to consider the adverse impact which this water consumption would have on users of water downstream from the commenter; and, failed to account generally for the water scarcity problems of the arid and semi-arid western states.

In response to the court's remand on this issue, EPA undertook an extensive analysis of the water consumption impact of both the proposed regulation and this final regulation. The manner in which the Agency examined this issue, and the bases for its conclusions, are presented in detail in Section III of Volume 1 of the Development Document. The Agency estimated the water that will be consumed by the various water pollution control systems available for use in the steel industry. Based on the assumption that the industry will use evaporative cooling devices, the Agency estimates the water loss to be only 0.35 percent of the daily flow of steel industry process waters at the BPT level and less than 0.01 percent of daily flow at the BAT level. The water consumption associated with this regulation is insignificant on a nationwide basis.

Moreover, the Agency surveyed the following four steel plants which it considers to be the only major plants located in arid or semi-arid regions of the country.

0196A CF&I Steel Corporation, Pueblo, Colorado

0448A Kaiser Steel Corporation, Fontana, California

0492A Lone Star Steel Company, Lone Star, Texas

0864A United States Steel Corporation, Provo, Utah

Based upon information provided by these companies, the Agency found that at those plants, virtually all of the recycle and evaporative cooling systems included in the model treatment systems used to develop the limitations and standards contained in this regulation have been installed or are under construction, or alternate methods of achieving the limitations are being practiced. Consequently, compliance with the regulation will not result in any substantial incremental water consumption at the major plants located in arid or semi-arid regions.

Although the commenter noted above suggested the Agency failed to account for water consumption associated with "drift" (as opposed to evaporation) from wet cooling towers, that loss of water was accounted for in the Agency's estimate of water consumption (0.1% of circulating water flow).

The commenter also suggested that the increased water consumption which will result from compliance with this regulation will adversely affect downstream users of water including agricultural and industrial users. Beyond the Agency's determination that the adverse impacts associated with the estimated increase in water consumption is justified by the benefit of reducing the pollutant load discharged to achieve the limitations, EPA is not able to properly consider the site specific factors cited by the commenter in this rulemaking. Such site specific non-water quality environmental factors may be considered in a request for a variance by an NPDES permit applicant (See 40 CFR 125, Subpart D). The Agency notes that the commenter is located in a state which has been delegated the authority to administer the NPDES program. The permitting authority which will issue the permit and consider any requests for a variance is uniquely suited to account for the regional and state concerns cited by the commenter.

b. The commenter also suggests that the Agency is ignoring section 101(g) of the CWA by proposing limitations which will result in increased water consumption. The commenter suggests that section 101(g) recognizes the primacy of state water laws and allocation systems over the CWA.

EPA does not agree with the commenter's conclusion regarding the primacy of state water laws over the CWA. The court, in *AISI II*, noted the primacy of the CWA over state water laws is based upon the Supremacy Clause of the U.S. Constitution. That conclusion is equally applicable now and the existence of state water laws does not prohibit EPA from establishing limitations which incidentally involve the consumptive use of water. The Agency understands, however, that Congress intended that EPA not unnecessarily interfere with those rights. It is noteworthy that EPA is preparing a report to Congress under section 102(d) of the CWA regarding measures to coordinate water quality and water quantity issues and policies. This report demonstrates the Agency's continued sensitivity to this issue and its efforts to accommodate both goals.

8. *Alternate Effluent Limitations—Water Bubble.* In the preamble of the proposed regulation, the Agency announced it was considering whether to adopt an alternate effluent limitations policy ("water bubble"). The Agency solicited comments on whether it should adopt such a policy and, if so, what conditions on the policy might be imposed.

Under the water bubble policy, dischargers with multiple outfalls may discharge greater amounts of pollutants from outfalls where treatment costs are high in exchange for an equivalent decrease in pollutants discharged from outfalls at the same plant where abatement is less expensive. Thus, the same reduction in pollutant loadings can be obtained at less cost.

In this regulation, the Agency has adopted a water bubble policy for the steel industry. The policy is reviewed in detail in Section XXVI of this preamble. Following are the Agency's responses to the most significant comments received concerning the proposed policy outlined in the preamble to the proposed regulation.

Several commenters stated that the bubble concept would be inconsistent and incompatible with the use of indicator pollutants. Specifically, commenters raised concern that under the bubble policy, dischargers would be allowed to discharge an increased amount of those pollutants for which specific limitations have not been established. The Agency shared this concern and examined the issue carefully in developing its final policy. The final policy contains conditions on the use of the water bubble. The Agency found that unless conditions were imposed upon the use of the policy

involving cokemaking, hot forming, and cold rolling operations, there was a probability that there would be a net increase in toxic pollutant discharges under the policy. The conditions established by the Agency are designed to ensure there will not be a net increase in the discharge of toxic pollutants.

Some commenters stated that most of the restrictions set out in the preamble to the proposed regulation were unnecessary and burdensome. With respect to EPA's proposed restriction against trading one pollutant for another, one commenter suggested that EPA develop a method to determine the water quality impact of different combinations of pollutants and allow cross-pollutant trades under the water bubble policy when the water quality impact of the discharges under the bubble policy would be the same as without its use. The Agency has decided not to adopt that approach for the following reasons. The administrative burden associated with implementing such a policy would be unreasonably high. EPA's water bubble policy for the steel industry is an alternative method of achieving a reduction of pollutants discharged that is, at a minimum, *equivalent* to the level of discharge achieved by traditional effluent limitations. The bubble policy proposed by these commenters would involve a water pollution control strategy altogether different from the strategy called for by the Clean Water Act. This strategy would replace the technology based strategy with an alternative, water quality based strategy. The Agency's intent in developing a water bubble policy is to allow dischargers to save money in meeting the technology based limitations imposed by the Clean Water Act; not to provide an alternative regulatory program.

Some commenters opposed the condition which requires that each outfall have a specific discharge limit because they believed that it would preclude opportunities to implement efficient control strategies. They suggested that the Agency adopt a bubble policy which allows effluent limitations to be established on a plantwide basis; the so-called, "floating bubble". Under the suggested "floating bubble", dischargers would be allowed to vary the mix of controls at the various outfalls within a plant on a daily, weekly, or monthly basis, as long as the plantwide limitation is not exceeded. The Agency has carefully evaluated the advantages and disadvantages of the "floating bubble" and has concluded that fixed limits on each outfall are necessary to ensure optimum operation of treatment facilities; enforcement of permit limitations; and, to minimize the administrative burden of the water bubble. The floating bubble would make it difficult for permit authorities to determine compliance using normal sampling techniques. To confirm compliance with a floating bubble permit, the control authority would need simultaneous samples from each outfall for which limitations are established under the policy. Reporting requirements and inspection procedures would have to be significantly modified and would require significant additional resources.

EPA recognizes that in theory, the flexibility to vary the mix of treatment within a plant at different times could reduce the cost of compliance with this regulation. However, despite requests to do so, industry representatives have not provided any data in support of their contention that the floating bubble would allow steel industry dischargers to use control strategies that are not feasible under a policy requiring fixed limits on each outfall. EPA believes the major savings associated with the bubble policy will result from changes in fixed control costs. Dischargers can take advantage of these savings under the policy adopted by the Agency.

The Agency solicited comments on the resource and administrative burden that the bubble policy might place on permit authorities. Several commenters expressed concern that the policy would present an additional burden that permit authorities would be unable to bear. The Agency has tried to design the bubble policy to minimize its administrative burden. First, the Agency has specified that dischargers must initiate bubble proposals at their own expense. In addition, as discussed above, EPA has sought to minimize the resource burden by requiring that bubble permits have fixed enforceable limits on each outfall. Once these limitations are determined, the cost of reviewing inspection and self-monitoring reports will be comparable to the administrative costs associated with traditional permit practices.

Some commenters were opposed to the condition in the Agency's proposed policy which required all wastestreams to meet applicable BPT requirements because it would restrict the utility and cost saving potential of the bubble. EPA reconsidered this condition and has concluded that the requirement would significantly limit opportunities available to dischargers to implement efficient control strategies, particularly in the hot forming subcategory. The Agency originally considered including this requirement to provide an additional measure of water quality protection. The Agency believes that the conditions imposed upon the adopted policy along with the requirements that permits issued under the policy achieve the same pollutant removal as traditional permits and that dischargers meet water quality standards, are adequate to protect water quality. Thus, EPA has decided to not include a condition that all outfalls at plants employing the policy comply with applicable BPT limitations.

In the preamble to the proposed regulation, EPA announced that it was considering restricting its consideration of applications for use of the policy during the normal permit issuance and reissuance process. The Agency still believes this approach is appropriate. In order to keep the administrative burden associated with this policy to a minimum, the Agency believes that application for use of the policy should be raised and considered during normal permit reissuance. Several commenters suggested that dischargers be allowed to submit proposals to modify existing permits to include a water bubble. The Agency has considered that suggestion and has decided to accept bubble applications at any time during the period of currently effective permits where a bubble was not specifically considered during permit issuance. This will permit those dischargers which did not have the opportunity to seek a permit based upon the bubble policy to do so as soon as possible without waiting for reissuance. However, it avoids the long term administrative burdens associated with allowing dischargers to apply for permits based on the bubble policy when they had an adequate opportunity when the permit was last reissued.

One commenter interpreted the proposed bubble policy as excluding new source permittees from eligibility and suggested that such a limitation was inappropriate. This interpretation is correct as the Agency does not believe that it would be appropriate to permit a new source to install less stringent treatment than is required by NSPS because of the bubble policy. Under the Clean Water Act new sources are to achieve the "Best Demonstrated Technology" and therefore, the bubble policy should not be used to permit the discharger to install less stringent treatment.

One commenter stated that it would be inappropriate to address the bubble in the effluent limitation guidelines and suggested instead that all issues relating to a water bubble policy be resolved during the permit issuance process. EPA

believes that this regulation is an appropriate vehicle for implementing the water bubble policy. The Agency recognizes that circumstances affecting the use of the bubble will vary from plant to plant. However, the Agency believes that the bubble policy contained in this regulation allows adequate flexibility to address such circumstances.

The final water bubble policy as it pertains to the steel industry is outlined below and presented in the regulation (§ 420.03).

Under the water bubble policy, a discharger could discharge no more total pounds of pollutants than it could without the bubble. However, with the policy, the discharger would have the flexibility to allocate the discharge among its outfalls in the least costly manner. Properly applied, this policy should promote greater economic efficiency and increased innovation by providing plant managers with an economic incentive to develop new control strategies.

EPA recommends that permitting authorities (1) inform sources that the bubble approach is available, (2) explain the advantages and conditions of the use of the bubble, and (3) be receptive to proposals from sources that want to use a more cost-effective mix of controls.

To ensure that permits using the water bubble policy are equivalent to traditional permits in enforceability and environmental impact, EPA has imposed the following conditions on the use of the policy:

1. *Under the alternate limitations, no more pounds of pollutants can be discharged from a single plant than would be discharged under the traditional process specific limitations.* To satisfy this general condition, permits issued for facilities under the bubble policy must meet the following specific conditions:

a. Trades must not result in an increase in the discharge of pollutants over that allowed by the generally applicable limitations.

b. Trades must involve the same pollutant. EPA will allow dischargers to trade a pollutant in one wastewater only against the same pollutant in another wastewater. For example, zinc can be traded for zinc but not for chromium or lead.

c. Trades involving certain subcategory waste streams will be limited.

EPA has identified certain process subcategories with wastewaters that are significantly different than those from other steel industry subcategories. Unrestricted trades with these subcategories could result in a net increase in toxic pollutants discharged. To ensure that permits issued under the bubble policy do not result in an increase in pollutants discharged, the Agency has imposed the following subcategory limitations:

(i) *Cokemaking.* Permits issued under the bubble policy which involve trades with cokemaking wastewaters will not be allowed. The Agency believes that the number and amounts of toxic organic pollutants found in cokemaking wastewaters cannot be effectively controlled under the bubble policy.

(ii) *Cold Forming.* Permits issued under the bubble policy which involve trades with cold forming wastewaters will not be allowed. The Agency believes that the variability and amounts of toxic organic pollutants associated with cold forming wastewaters are such that it is not possible to ensure effective control of toxic organic pollutants under the water bubble policy.

2. *Dischargers must meet water quality standards.* A change in the distribution of pollutant loadings may adversely affect water quality even if total loadings discharged do not increase. Permit authorities may not approve a bubble application if it would result in a violation of water quality standards.

3. *Each outfall must have a specific discharge limit.* Water bubble permits may not allow limitations to be set on a plant-wide "floating" basis. For the reasons discussed in Section XVI of this preamble, the Agency has decided not to allow the policy to be applied on a "floating" basis.

In the preamble to the proposed regulation, the Agency announced that it was considering imposing a condition on the policy which would require all wastewaters to meet applicable BPT limitations. EPA has decided not to include this requirement in the bubble policy for the steel industry. Such a requirement could significantly restrict the savings associated with the water bubble and is not necessary to achieve levels of removal equivalent to traditional permits, protect water quality, or ensure enforceability. Permits issued under this policy may allow certain wastewaters to exceed applicable BPT limitations if sufficient reductions can be achieved at other outfalls and the other conditions for bubble permits set out in this regulation are met.

*Implementing the Water Bubble*

It is the permittee's responsibility to initiate proposals for implementing the water bubble policy for its facilities. Permitting authorities will continue to develop effluent limitations using the traditional approach of setting technology and water quality based limits on each discharge pipe. During the permit issuance process, the discharger may propose a different set of effluent limitations for its outfalls using the bubble concept. The permittee must demonstrate, to the satisfaction of the permit issuing authority, that its proposal results in a total discharge equivalent to the level required by the technology and water quality based limitations. When the discharger makes such a demonstration to the satisfaction of the permit issuing authority, its NPDES permit may be based upon the alternative discharge limitations.

EPA will accept proposals to modify existing NPDES permits based upon this policy at any time during the life of a permit for which a bubble proposal was not considered at the time of permit issuance. In no case however, may a water bubble proposal delay compliance with pollution control requirements. When a discharger presents a bubble proposal which appears to be capable of achieving the same total removal as required by the existing permit limitation and attaining the goals of the current compliance schedule, the permit authority will review the proposal to verify the equivalency of the alternative limitations. Dischargers will be required to meet their existing schedules until the permit authority approves the bubble permit.

*Eligibility*

In the preamble to the proposed regulation, the Agency announced that it was considering restricting non-complying dischargers from using the bubble policy. The Agency has decided to allow non-complying dischargers to propose the use of the bubble policy at its facilities with conditions under which they could come into compliance. The Agency believes that the flexibility to develop compliance strategies that use the bubble concept will result in faster compliance with effluent limitations and achieve the same total overall treatment of effluent.

9. *Limitations for Toxic Metals.* Some commenters suggested that the limitations for toxic metals should be established for dissolved or soluble metals rather than for total metals and that published hydroxide solubility data for each metal should be used as the basis for the limitations.

The Agency considered establishing limitations for toxic metals on the basis of dissolved or soluble metals in lieu of *total* toxic metals. However, the Agency has decided not to do so. The limitation

of total metals will control dissolved and soluble metals as well as all metal compounds. In addition, the Settlement Agreement and the Clean Water Act direct the Agency to establish limitations for specific toxic metals and all associated metal compounds. Limitations of total metals is consistent with the Settlement Agreement and the Clean Water Act. Moreover, because the toxic metals limited in this regulation serve as indicators for other toxic metal pollutants not specifically limited, the limitation of a metal as "total metal" serves better as an indicator than would a limitation of "dissolved" metals.

The total toxic metals limitations in this regulation are based upon actual performance of the model treatment technologies on steel industry wastewaters rather than on published hydroxide solubility data. The hydroxide solubility data are usually based upon single compound systems and do not take into account co-precipitation effects of excess iron found in many steel industry wastewaters. The Agency believes actual performance data are preferable to theoretical values for establishing effluent limitations.

10. *Monitoring Recommendations.* Several commenters stated that NPDES monitoring requirements are best determined by permit issuers and that the regulation should not contain any monitoring requirements.

The proposed regulation and this regulation do not contain any monitoring requirements. However, the preamble to the proposed regulation contained a recommended monitoring program which was used to estimate industry wide monitoring costs. As noted in the preamble to the proposed regulation, permit writers are not bound by the recommended program and may require more or less frequent monitoring as they consider appropriate.

11. *Analytical Precision and Accuracy.* All of the comments on analytical precision and accuracy pertain to analyses of toxic organic pollutants. The industry commented that the Agency's analytical methods used in the initial industry screening sampling surveys and in some follow-up surveys could lead to "false positive" identification of toxic organic pollutants and that the precision and accuracy of these analyses are poor. The industry also commented that the follow-up analyses for cokemaking and cold rolling wastewaters using the verification analysis protocols could still produce "false positive" identifications and that it is difficult to resolve by packed-column gas chromatography certain isometric polynuclear aromatic hydrocarbons which can co-elute.

The initial industry screening survey data for toxic organic pollutants obtained by the Agency were not used as the basis for any effluent limitations and standards. This regulation contains limitations for four toxic organic pollutants (cokemaking-benzene, benzo-a-pyrene, naphthalene; cold rolling—naphthalene, tetrachlororethylene). In the cokemaking subcategory, these pollutants are used as indicators of other toxic organic pollutants. In both of these subcategories, extensive additional sampling and analysis was performed. All of the supplemental data used to develop limitations for the toxic organic pollutants listed above were obtained with GC/MS "verification" analyses which are completed with strict adherence to detailed quality control procedures including, for example, analyses of spiked samples, and duplicate samples. These procedures are designed to ensure that "false positive" identifications do not occur. Of the pollutants limited in this regulation, there is no co-elution problem for benzene and tetrachloroethylene. For benzo-a-pyrene and naphthalene, there may be co-elution with very similar compounds but not with other designated toxic organic pollutants. These other compounds that may co-elute with benzo-a-pyrene and naphthalene will consistently co-elute with the same gas chromatography columns. Since the Agency recommends a particular column in its analytical protocols and its contractors adhered to the protocols, any co-eluters with benzo-a-pyrene and naphthalene were taken into account in the analyses used as the basis for the limitations. Thus, if industry laboratories follow the Agency's protocol, the results obtained for determining compliance with the regulation should be consistent with the Agency's results. Furthermore, the analytical methodology indicates that other gas chromatography columns which can differentiate between co-eluters may also be used. Thus, the Agency does not consider co-elution of these compounds to be a problem with respect to monitoring for compliance with the regulation.

For those toxic organic pollutants limited in this regulation, the Agency has determined that the data underlying the limitations are sound.

## XVII. Summary of Changes From Proposed Regulation

Following is a summary of changes that the Agency made to the proposed regulation in developing the final regulation. Because of the significant number of changes, the supporting rationale and documentation for every change is not presented here. The Agency has prepared a separate document presenting its detailed response to all significant technical comments on the proposed regulation. (See Section XVI).

1. *Industry Subcategorization.* The Agency has not changed the major subcategorization of the industry outlined above for this final rule. However, it changed certain subdivisions within the following subcategories to provide for more representative model treatment system flow rates and, thus, more appropriate effluent limitations and standards:

Cokemaking.
Steelmaking.
Salt Bath Descaling.
Acid Pickling.
Cold Rolling.
Alkaline Cleaning.

Full discussions of these changes and the impacts on the final limitations and standards are presented in Section XVI and in the respective subcategory reports of the Development Document.

2. *General.* a. *BCT.* Because of the remand of the Agency's BCT methodology by the Fourth Circuit, the Agency has reserved its decision on the limitations for each steel industry subcategory where BAT limitations more stringent than the respective BPT limitations are promulgated. For the remaining subcategories, the applicable BCT limitations for conventional pollutants are identical to the subcategory-specific BPT limitations included in this regulation.

b. *BAT.* Upon review of additional data submitted during the comment period and, as noted earlier, acquired through sampling conducted since proposal of this regulation, the Agency has promulgated BAT limitations no more stringent than BPT limitations for the following subcategories:

Steelmaking (semi-wet).
Hot Forming.
Salt Bath Descaling.
Acid Pickling.
Cold Rolling.
Alkaline Cleaning.
Hot Coating (without fume scrubbers).

The underlying BPT model treatment technologies are essentially the same for this regulation as in prior regulations. Because the BAT model treatment technologies are the same as the BPT technologies for the Salt Bath Descaling, Acid Pickling, Cold Rolling, and Hot Coating subcategories, the same toxic pollutant limitations are included at both BPT and BAT.

As discussed in greater detail in the Development Document, the Agency is not promulgating BAT limitations more

stringent than BPT at this time for those subcategories for the following reasons. The Agency found that toxic metal pollutants present in wastewaters from Hot Forming and Salt Bath Descaling operations are adequately controlled at the BPT levels. For Acid Pickling and Hot Coating operations, the Agency concluded that cascade rinsing cannot be readily retrofitted at all facilities because of space limitations which would require major reconstruction at some lines; and, because of the high industry-wide costs to retrofit cascade rinse systems on all existing sources.

For Cold Rolling operations, the Agency found that the BPT model treatment technology effectively controls certain toxic organic pollutants. However, due to the diversity of toxic organic pollutants found in these wastewaters, the Agency could not establish nationwide limitations for each pollutant. Limitations for these pollutants must be established on a case-by-case basis.

With respect to the Steelmaking (semi-wet) and Alkaline Cleaning subcategories, the Agency had not previously proposed BAT limitations. In promulgating BAT limitations no more stringent than BPT limitations for these subcategories, the Agency believes that toxic pollutants which are present in wastewaters for these subcategories are directly limited, controlled through the use of indicator pollutants, or the toxic pollutants are generally not present in BPT effluents.

c. *Limitations for Toxic Metals.* To promote central treatment of compatible wastewaters, the Agency proposed BAT limitations for chromium, lead, and zinc for most subcategories and copper and nickel for certain specialty steel subcategories. The final regulation has been revised to make central treatment more feasible at both the BPT and BAT levels of treatment. Lead and zinc are limited at the BPT or BAT level in most subcategories and chromium and nickel for specialty steel operations.

3. *Subcategory Specific Changes.* a. *Cokemaking.* (1) *Merchant Coke Plants.* Separate BPT, BAT, PSES, NSPS, and PSNS limitations and standards are included for merchant coke producers. These limitations and standards are based upon the same model treatment technology for coke plants which are captive to iron and steel production, but with slightly higher flow rates found to be typical of merchant coke plants.

(2) *Limitations and Standards.* The final BPT limitations for ammonia-N, total cyanide, and phenols (4AAP) are the same as those set out in the proposed regulation. The BPT limitations for suspended solids have been relaxed. Limitations for total cyanide and phenols (4AAP) were relaxed slightly at the BAT, NSPS, and PSNS levels based upon additional data submitted during the comment period. The BAT phenols (4AAP) limitation for physical-chemical coke plants was also relaxed slightly based upon additional data submitted during the comment period. The Agency significantly relaxed PSES based upon the removal of pollutants in coke plant wastewaters demonstrated in some POTWs. However, NPDES and local authorities should also insure that coke plant pollutants discharged at the PSES level of treatment do not interfere with their individual POTW operations or pass through POTWs.

b. *Sintering.* The model treatment system flow was increased to a demonstrated level of 120 gallons/ton for all levels of treatment. Upon reexamination, the Agency believes that the industry-supplied data originally used by the Agency to develop the lower model BPT and BAT flow rates is not reliable. The BAT limitations for toxic metals are based upon filtration of the BPT recycle system blowdown. BAT limitations, NSPS, PSES, and PSNS for ammonia-N, total cyanide, and phenols (4AAP) are provided for those dischargers which co-treat sintering and ironmaking wastewaters. These limitations and standards are based upon the demonstrated performance on a full scale basis of the selected technology for ironmaking wastewaters.

c. *Ironmaking.* The final BPT limitations are the same as the proposed BPT limitations. The Agency relaxed the ammonia-N limitations for BAT, PSES, NSPS, and PSNS to levels demonstrated at a full scale treatment system. The Agency relied upon data from a pilot scale treatment system in developing the proposed BAT limitations. In addition the 30 day average ammonia-N limitations and standards are based upon a concentration of 10.0 mg/l as compared with a concentration of 1.0 mg/l which was used to develop the proposed limitations and standards.

d. *Steelmaking.* The Agency used a model flow of 110 gallons/ton for the Basic Oxygen Furnace—Open Combustion and Electric Furnace—Wet subdivisions for all treatment levels. The model flow rates used to develop the proposed limitations were 65 gallons/ton and 50 gallons/ton, respectively. The Agency has eliminated the Open Hearth Furnace—Semi-wet subdivision because there are no Open Hearth Furnaces with semi-wet air pollution controls.

e., f. *Vacuum Degassing, Continuous Casting.* Limitations and standards for chromium have been deleted to facilitate co-treatment. The limitations and standards for lead and zinc have been relaxed to reflect the Agency's selection of lime precipitation and sedimentation as the model BAT, NSPS, PSES, and PSNS treatment technology. Filtration was the model treatment technology used to develop the proposed limitations and standards. The limitations and standards for vacuum degassing and continuous casting operations are now consistent with those for wet steelmaking operations, thus, making co-treatment of these wastewaters feasible.

g. *Hot Forming.* The Agency is promulgating only BPT, BCT, and NSPS for the Hot Forming subcategory. The BPT and BCT limitations are based upon the same model treatment systems used for the proposed BPT limitations and actual performance data for those systems. NSPS for total suspended solids and oil and grease are the same as those proposed.

h. *Salt Bath Descaling.* The terms "kolene" and "hydride" have been replaced with the terms "salt bath descaling-oxidizing", and "salt bath descaling-reducing", respectively. The Agency reevaluated the appropriateness of the subdivisions of each steel finishing subcategory and the proposed limitations and standards and has made changes in the final regulation. For salt bath descaling-oxidizing, EPA found that separate limitations and standards are appropriate for the following operations to allow for variations in rinse flow requirements: batch sheet and plate, batch rod and wire; batch pipe and tube; and, all continuous operations. Separate limitations are also provided for batch and continuous salt bath descaling-reducing operations. In both cases, revised BPT limitations and BAT limitations no more stringent than the BPT limitations have been promulgated based upon data supplied during the comment period. Limitations for chromium and nickel are now consistent with those for combination acid pickling to facilitate central treatment.

i. *Acid Pickling.* The Agency has made several changes in the limitations and standards for the acid pickling subcategory. EPA revised the subdivisions within each of the acid pickling operations (sulfuric, hydrochloric, and combination) and established separate limitations and standards by product type (i.e., rod, wire, coil; bar, billet, bloom; pipe, tube, other; and strip, sheet, plate). These revisions better reflect process rinsewater requirements for each group of products. A separate daily mass limitation based upon recycle of fume

scrubber water is provided for those acid pickling operations with fume scrubbers. Revised BPT limitations and BAT limitations no more stringent than the BPT limitations, including limits for toxic metals, have been promulgated. The model treatment system for the BPT limitations is the same as that used to develop the proposed limitations and standards. Cascade rinsing or other rinsewater flow reduction systems are included only in the NSPS and PSNS model treatment systems. Limitations for chromium and nickel for combination acid pickling operations are consistent with those for Salt Bath Descaling operations to facilitate central treatment. Sulfuric acid recovery systems are no longer part of the model treatment system, and thus, zero discharge is not required for any sulfuric acid pickling operations.

j. *Cold Forming.* For cold rolling operations, the Agency has promulgated revised BPT limitations and BAT limitations which are no more stringent than the BPT limitations, including limitations for toxic pollutants. The model treatment system is the same as the proposed BPT model treatment system. The Agency promulgated separate NSPS and PSNS for recirculation, combination, and direct application mills, as opposed to the generally applicable proposed NSPS and PSNS which were based only on recirculation mills. This could have restricted all new source cold rolling mills to recirculating systems on all rolling stands. There are no changes in the limitations and standards for cold worked pipe and tube operations.

k. *Alkaline Cleaning.* The promulgated BPT limitations for alkaline cleaning are based upon higher model treatment system flow rates for both batch and continuous operations. NSPS are based upon a model treatment system including filtration of a lower volume of process wastewater than included in the BPT model treatment system.

l. *Hot Coating.* The final limitations and standards now include a daily mass limitations allowance for fume scrubbers at BPT. There is a reduced allowance at BAT, PSES, NSPS, and PSNS based upon the recycle incorporated in those model treatment systems. Cascade rinsing or other rinsewater flow restrictions are included only in the NSPS and PSNS model treatment systems (see above comments on Acid Pickling). Limitations for toxic metals at all levels of treatment are designed to facilitate central treatment of steel finishing wastewaters.

## XVIII. Regulated Pollutants

The basis for selecting the regulated pollutants, as well as the general nature and environmental effects of these pollutants, is discussed in detail in Section V of Volume I of the Development Document. Some of these pollutants are designated as toxic under Section 307(a) of the Act.

A. *BPT.* The pollutants controlled by this regulation include, for the most part, the same pollutants controlled by the prior BPT limitations. Some pollutants were deleted for various subcategories because studies undertaken subsequent to the promulgation of the previous regulations demonstrate that these pollutants are not found in significant quantities in wastewaters from those operations. In certain steel finishing subcategories where identical BPT and BAT limitations are promulgated, the Agency selected the pollutants for which limitations are promulgated to facilitate central or combined treatment of compatible wastewaters.

With few exceptions, the BPT effluent limitations are expressed in terms of maximum 30-day average and maximum daily mass effluent limitations in kilograms of pollutant per 1000 kilograms (lbs/1000 lbs) of product.

The limitations are calculated by multiplying the demonstrated pollutant concentrations, the BPT model discharge flow for each subcategory, and an appropriate conversion factor. For maximum daily limitations, the long term average concentration is multiplied by an appropriate variability factor, the BPT model discharge flow, and the conversion factor noted above. Because the Agency could not relate production data directly to water flow rates for fume scrubbers associated with acid pickling and hot coating operations, daily mass effluent limitations are expressed in kilograms per day for each fume scrubbing system.

B. *BCT.* The conventional pollutants total suspended solids and oil and grease as well as pH are limited under BCT, where BCT limitations are promulgated.

C. *BAT and NSPS.* 1. *Non-toxic, Non-conventional Pollutants.* The non-toxic, non-conventional pollutants for which BAT limitations and NSPS are promulgated are ammonia-N and phenols (4AAP). These pollutants are subject to numerical limitations expressed in kilograms per 1000 kilograms (lbs/1000 lbs) of product. The Agency also promulgated limitations for total residual chlorine for two categories where chlorine may be used in the treatment process.

2. *Toxic Pollutants.* Forty-nine toxic pollutants were found at concentrations above treatability levels in steel industry wastewaters (see Appendix B). Thirty toxic pollutants were found in cokemaking wastewaters. The Agency is promulgating effluent limitations in one or more subcategories for the following toxic pollutants: cyanide, benzene, naphthalene, benzo(a)pyrene, tetrachloroethylene, chromium, lead, nickel, and zinc. These pollutants are subject to numerical limitations expressed in kilograms per 1000 kilograms (lbs/1000 lbs) of product. The remaining toxic pollutants found in steel industry wastewaters, which are not specifically limited in this regulation, will be controlled by limitations for "indicator" pollutants as discussed below. As noted above, for acid pickling and hot coating operations with fume scrubbers, mass limitations are expressed in kilograms per day for each scrubbing system.

3. *Indicator Pollutants.* The difficulty and cost of analyses for the many toxic pollutants found in steel industry wastewaters has prompted EPA to develop an alternative method of regulating certain toxic pollutants. Instead of promulgating specific effluent limitations for each of the forty-nine toxic pollutants found in the industry's wastewaters above treatability levels, the Agency is promulgating effluent limitations for certain "indicator" pollutants. These include chromium, lead, nickel, zinc, phenols (4AAP) and four toxic organic pollutants. The data available to EPA generally show that control of the selected "indicator" pollutants will result in comparable control of other toxic pollutants found in the wastewaters but not specifically limited. By establishing specific limitations and standards for only the "indicator" pollutants, the Agency will reduce the difficulty, high cost, and delays of pollutant monitoring and analyses that would result if pollutant limitations were established for each toxic pollutant. EPA estimates that industry will save about $5 million annually in monitoring and analysis costs with this approach as opposed to monitoring for all pollutants. Section V of Volume I of the Development Document discusses in detail the pollutants found in steel industry wastewaters and those for which the Agency is promulgating limitations and standards at the BAT and NSPS levels of treatment. Section X of each subcategory report discusses the bases for the selection of "indicator" pollutants.

D. *PSES and PSNS.* Except for PSES for cokemaking operations, the Agency is promulgating PSES and PSNS for the same toxic pollutants which are limited at BAT and NSPS. The Agency is promulgating those standards to insure against POTW upsets, to prevent contamination of POTW sludges and to guard against pass-through of toxic pollutants. The PSES and PSNS are expressed as maximum 30-day average and maximum daily mass limitations in kilograms per 1000 kilograms (lbs/1000 lbs) of product, except for acid pickling and hot coating operations with fume scrubbers where mass limitations are expressed in kilograms per day for each fume scrubber. As a general rule, the Agency establishes pretreatment standards on the basis of concentration. However, for the steel industry, the Agency believes the standards should be based upon mass limitations (kg/kkg) to insure that effective toxic pollutant control is provided and to minimize the hydraulic impact of large volume steel industry discharges on POTWs.

**XIX. Pollutants and Subcategories not Regulated**

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

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

Paragraph 8(a)(iii) of the Revised Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants detected in the effluent in only trace quantities and not likely to cause toxic effects. Appendix B lists the toxic pollutants which were detected in the effluent in trace amounts (at or below the nominal limit of analytical quantification), which are not likely to cause toxic effects and which are excluded from this regulation.

Paragraph 8(a)(iii) of the Revised Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants detected in the effluent from a small number of sources and uniquely related to those sources. Appendix B contains a column labeled "Unique Occurrence" which lists those pollutants detected in the effluents of only one plant and uniquely related to that plant, which have been excluded from the proposed regulation. Appendix C contains the list of pollutants, by subcategory, for which limitations are promulgated.

**XX. Monitoring Recommendations**

When required to carry out the objectives of the Act, EPA is authorized by Section 308 to require the owner or operator of a pollutant discharge source to establish and maintain records; make reports; install and use monitoring equipment or methods; sample effluents; and, provide such other information as the Administrator may reasonably require. The authority under section 308 has been frequently used by permit issuers to set monitoring requirements to "determine whether any person is in violation" of the requirements of a permit or other requirement of the Act (section 308(a)(2)). Additionally, EPA has frequently sought information under section 308 to aid in developing regulations for many industries.

In this and other regulations involving toxic pollutants, EPA has developed typical monitoring programs for direct and indirect dischargers for the purpose of estimating monitoring costs as part of the economic impact analysis of the regulation. These monitoring programs are not intended to supercede or duplicate existing compliance monitoring requirements set by NPDES permit authorities, but may be used as a guide in establishing minimum NPDES monitoring requirements. A minimum monitoring and analysis program is feasible at this time because only a small number of toxic pollutants are limited, the cost of toxic pollutant analyses has decreased, and laboratory availability and efficiency have dramatically increased since the initiation of this study.

The monitoring and analysis program considered by the Agency includes continuous flow monitoring, grab sampling for pH (3 grabs per day, once a week), and oil and grease (3 grabs/day, once a week), and the collection of 24-hour composite samples once per week for all limited pollutants except as noted below. More intensive monitoring is suggested for the period of time necessary to determine compliance with the final limitations and to acquire sufficient data to determine a correlation between the indicator pollutants and other toxic pollutants present in the wastewater. Accordingly, as of July 1, 1984, (the required compliance date for BAT), or as of the date of attainment of operational level of treatment facilities if such facilities are completed prior to July 1, 1984, monitoring and analysis of the limited pollutants should be carried out on a schedule of five daily composite samples per week (once per week for GC/MS pollutants). Complete analyses should also be concurrently performed for all toxic metal and toxic organic pollutants present in wastewaters where toxic metals and organic compounds are specifically limited. When the appropriate regulatory authority determines that compliance has been demonstrated and sufficient data has been acquired to determine a correlation between the indicator and other toxic pollutants, monitoring can then be undertaken in accordance with the long term schedule discussed above. It should be noted that EPA may, on a case-by-case basis request collection of additional samples of raw wastewater or wastewater at points of intermediate treatment to determine treatment efficiencies.

**XXI. Costs and Economic Impacts**

The Agency estimated the costs and economic impacts of this regulation using two scenarios for the future demand for domestically produced steel products. In the first scenario, which is based on rapid growth in shipments reaching 116 million tons by 1990, the Agency estimates that this regulation will require the industry to invest about $310 million (in constant 1980 dollars) by 1984 for existing sources and about $420 by 1990 for new sources. This represents about a 12 percent increase in the industry's current investment in water pollution control facilities for existing sources. The new investment is also less than 2 percent of the capital expenditures projected for the industry in the 1980–1990 period. In the second scenario, which is based upon less expansionary demand for steel products, the Agency estimates that this regulation will require the industry to invest the same $310 million by 1984, and about $270 million by 1990 for new sources. These capital requirements and the annual costs of water pollution control equipment required by the regulation are summarized in Tables 1 and 2. The associated annualized incremental costs for the regulation (including interest, depreciation, operating, and maintenance) in Scenario 1 will be about $72.6 million in 1984, increasing to $127.1 million in 1990. The incremental effect of these costs on steel prices is estimated to be an increase of about 0.6 percent in the baseline price of a ton of steel. In Scenario 2, the annualized incremental costs for the regulation will be about $76.5 million in

1984, and increase to $99.0 million in 1990. By the early 1990's, the price per ton of steel will increase incrementally by about 0.6 percent under this scenario.

*BPT.* EPA estimates that the steel industry must invest an additional $213.2 million (in constant 1980 dollars) by 1984 to comply with the final BPT limitations. In Scenario 1, those guidelines will require incremental annualized costs (including interest, depreciation, operating and maintenance) of $27.0 million in 1984, increasing to $29.4 million in 1990. By 1990, total BPT investments of $1,984.8 million will result in total annual costs of $313.2 million. Total annualized costs under the second scenario will be $298.1 million in 1990.

*BAT.* EPA estimates that the steel industry must invest an additional $70.1 million by 1984 to comply with the final BAT limitations. In Scenario 1, the incremental annual costs necessary to achieve the BAT limitations are about $15.8 million in 1984 and $16.3 million in 1990. Total annual costs will be $21.9 million in 1990. In Scenario 2, incremental annual costs are about $15.5 million in 1984, and $15.9 million in 1990. Total annual costs under this scenario will be $21.2 million.

*PSES.* Compliance with the final PSES is projected to require the industry to invest an additional $26.3 million by 1984. In Scenario 1, the incremental annual costs necessary to achieve these standards are about $4.9 million in 1984 and $5.2 million in 1990. By 1990 total PSES investments of $143.1 million will result in total annual costs of $23.8 million. In Scenario 2, total annual costs will be slightly lower than in the first scenario and will equal $22.9 million in 1990.

*NSPS.* To meet the final NSPS in the first scenario, the industry must invest an estimated $420.5 million by 1990. The annual costs necessary to achieve these standards are about $24.9 million in 1984 and $76.2 million by 1990. In the second scenario, capital expenditures will amount to $273.2 million by 1990 and annual costs will be $27.4 million in 1984 and $51.0 million in 1990.

TABLE 1.—STEEL INDUSTRY EFFLUENT REGULATION COSTS SCENARIO 1

[Million of 1980 dollars]

| | Capital Costs[1] | | |
|---|---|---|---|
| | Facilities in-place[2] | Facilities required | Total |
| BPT | $1,771.6 | $213.2 | $1,984.8 |
| BAT | 26.4 | 70.1 | 96.5 |
| PSES | 116.8 | 26.3 | 143.1 |
| Total | 1,914.8 | 309.6 | 2,224.4 |
| NSPS | 0 | 420.5 | 420.5 |
| PSNS | NA | NA | NA |

NA=Not applicable. All new sources are assumed to be direct dischargers.
[1] Does not include the costs of water pollution controls installed by the industry but not required by the final regulations.
[2] Facilities in-place as of June 30, 1981.

| | Annual Costs | | | |
|---|---|---|---|---|
| | Incremental | | Total | |
| | 1984 | 1990 | 1984 | 1990 |
| BPT | $27.0 | $29.4 | $297.3 | $313.2 |
| BAT | 15.8 | 16.3 | 21.2 | 21.9 |
| PSES | 4.9 | 5.2 | 22.4 | 23.8 |
| Total | 47.7 | 50.9 | 340.9 | 358.9 |
| NSPS | 24.9 | 76.2 | 24.9 | 76.2 |
| PSNS | NA | NA | NA | NA |

NA=Not applicable. All new sources are assumed to be direct dischargers.

TABLE 2.—STEEL INDUSTRY EFFLUENT REGULATION COSTS SCENARIO 2

[Million of 1980 dollars]

| | Capital Costs[1] | | |
|---|---|---|---|
| | Facilities in-place[2] | Facilities required | Total |
| BPT | $1,771.6 | $213.2 | $1,984.8 |
| BAT | 26.5 | 70.1 | 96.4 |
| PSES | 116.8 | 26.3 | 143.1 |
| Total | 1,914.8 | 309.6 | 2,224.4 |
| NSPS | 0 | 273.2 | 273.2 |
| PSNS | NA | NA | NA |

NA=Not applicable. All new sources are assumed to be direct dischargers.
[1] Does not include the costs of water pollution controls installed by the industry but not required by the final regulations.
[2] Facilities in-place as of June 30, 1981.

| | Annual Costs | | | |
|---|---|---|---|---|
| | Incremental | | Total | |
| | 1984 | 1990 | 1984 | 1990 |
| BPT | $28.7 | $27.2 | $305.4 | $298.1 |
| BAT | 15.5 | 15.9 | 20.7 | 21.2 |
| PSES | 4.9 | 4.9 | 22.7 | 22.9 |
| Total | 49.1 | 48.0 | 348.8 | 342.2 |
| NSPS | 27.4 | 51.0 | 27.4 | 51.0 |
| PSNS | NA | NA | NA | NA |

NA=Not applicable. All new sources are assumed to be direct dischargers.

The above capital costs for "facilities required" are different than those presented in the Development Document. The cost differences are largely due to differences in modeling of the industry and the fact that Development Document costs are in 1978 nominal dollars and the above costs are in 1980 real dollars. These differences are fully explained in the economic impact report described below. The aggregate differences in these costs are not significant in terms of the results of the economic impact analysis and were, in fact, accounted for in a sensitivity analysis.

To account for the uncertainties facing the steel industry over the next decade, the Agency evaluated the economic impact of this regulation using the two scenarios described previously regarding the future demand for domestically produced steel products. Both scenarios are based upon the assumption that current government policies toward the industry will continue throughout the 1980s. The policies include: The Economic Recovery Tax Act of 1981 concerning corporate income tax rates, depreciation schedules, and investment tax credits; the relaxation of formal and informal steel price controls; and, effective enforcement of steel trade law including the trigger price mechanism.

As summarized in Table 3–5, the economic impact of this regulation is relatively small under either scenario. The incremental costs associated with the regulation result in incremental short-run changes in price, market share, employment and production of about 0.6 percent or less from their respective baseline levels, and about 0.6 percent for production. Except for a small price increase of about 0.6 percent in the early 1990's there are virtually no long run impacts on production, market share, or employment under either scenario.

The reduced economic impact associated with the recommended regulation compared to that of the proposed regulation is a result of the following: (1) Lower cost of this regulation; (2) a more favorable projected economic climate for the industry; and (3) a decrease in the Agency's estimate of the impact on capacity due to foregone industry modernization and reworks associated with water pollution control costs.

The economic impact analysis contains sensitivity analyses which account for effects of higher inflation rates and higher water pollution control costs than those contained in both scenarios; the stretchout of air pollution control costs; and whether profits will be increased or the price of the product will be reduced due to certain cost savings. These results are also summarized in Table 6. The projected economic impacts of the regulation do not differ significantly under the sensitivity analyses from the results described above except where the

estimates of water pollution control costs were doubled. In this case, the 1985 impacts increased from about 0.6 percent or less to about 1.2 percent or less. These impacts are also projected to disappear by 1990, except for a price increase of 0.9 percent. Thus the impact of the regulation remained minor even with doubling of water pollution control costs.

In addition to the industry-wide economic impact analysis, the Agency analyzed the impact of increased costs associated with this regulation upon potential plant closures. The Agency analyzed models of the twelve steel plants which were expected to be most seriously affected by additional water pollution control costs. For each model plant analyzed, the incremental increases in total production costs associated with compliance with the BPT and BAT limitations are less than one percent. On that basis, the Agency concluded that increases in operating costs associated with this regulation are unlikely to result in the closure of any of the model plants or processes within those plants.

In summary, the Agency concludes that the economic impacts of the additional water pollution control costs likely to be incurred as a result of this regulation are not significant.

TABLE 3.—SHORT-RUN ECONOMIC IMPACT OF FINAL WATER POLLUTION CONTROL REGULATIONS, 1984

| | Price (1980 dollars per ton) | Domestic shipments (millions of tons) | Market share (percent) | Employment (thousands of employees) |
|---|---|---|---|---|
| Industry Status in 1980 [2] | [1] 496.84 | 83.90 | 83.70 | 399.00 |
| Scenario 1: | | | | |
| Baseline | 519.33 | 100.71 | 80.26 | 441.66 |
| Added Water Costs | 520.11 | 100.10 | 79.80 | 439.48 |
| Scenario 2: | | | | |
| Baseline | 519.45 | 102.71 | 83.53 | 462.54 |
| Added Water Costs | 520.18 | 102.06 | 83.01 | 460.15 |

[1] Price as of December 30, 1980.
[2] Source: AISI Statistical Report 1980.

TABLE 4.—SHORT-RUN ECONOMIC IMPACT OF FINAL WATER POLLUTION CONTROL REGULATIONS, 1985

| | Price (1980 dollars per ton) | Domestic shipments (millions of tons) | Market share (percent) | Employment (thousands of employees) |
|---|---|---|---|---|
| Industry Status in 1980 [2] | [1] 496.84 | 83.90 | 83.70 | 399.00 |
| Scenario 1: | | | | |
| Baseline | 533.86 | 98.77 | 77.28 | 425.78 |
| Added Water Costs | 535.18 | 98.15 | 76.80 | 423.60 |

TABLE 4.—SHORT-RUN ECONOMIC IMPACT OF FINAL WATER POLLUTION CONTROL REGULATIONS, 1985—Continued

| | Price (1980 dollars per ton) | Domestic shipments (millions of tons) | Market share (percent) | Employment (thousands of employees) |
|---|---|---|---|---|
| Scenario 2: | | | | |
| Baseline | 533.21 | 101.21 | 82.87 | 448.67 |
| Added Water Costs | 534.52 | 100.54 | 82.32 | 446.20 |

[1] Price of December 30, 1980.
[2] Source: AISI Statistical Report 1980

TABLE 5.—LONG-RUN ECONOMIC IMPACT OF FINAL WATER POLLUTION CONTROL REGULATIONS, 1990

| | Price (1980 dollars per ton) | Domestic shipments (millions of tons) | Market share (percent) | Employment (thousands of employees) |
|---|---|---|---|---|
| Industry Status in 1980 [2] | [1] 496.84 | 83.90 | 83.70 | 399.00 |
| Scenario 1: | | | | |
| Baseline | 558.80 | 116.00 | 84.50 | 459.11 |
| Added Water Costs | 562.06 | 116.00 | 84.50 | 459.96 |
| Scenario 2: | | | | |
| Baseline | 555.28 | 103.39 | 80.67 | 401.86 |
| Added Water Costs | 556.72 | 102.95 | 80.33 | 400.78 |

[1] Prices as of December 30, 1980.
[2] Source: AISI Statistical Report 1980.

## XXII. Non-Water Quality Aspects of Pollution Control

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

A detailed discussion of these impacts is contained in Section VIII of each subcategory report of the Development Document. Following is a summary of the non-water quality environmental impacts associated with this regulation:

A. *Air Pollution.* Industry compliance with the proposed BPT, BAT, NSPS, PSES, and PSNS limitations and standards will not create any substantial air pollution problems. However, in several subcategories, slight air impacts can be expected. For example, minimal amounts of volatile organic compounds may be released to the atmosphere by aeration of cokemaking wastewaters in biological treatment; small emissions of air pollution may result if ironmaking wastewaters are used to quench the hot slag generated in the process; and, water vapor containing some particulate matter will be released from the cooling tower systems used in several of the subcategories. The Agency does not consider any of these impacts to be significant.

B. *Solid Waste.* The Agency has determined that about 20 million tons per year of solid waste (at 30% solids) have been and will be generated by the steel industry in complying with this regulation. Of this amount, almost all is currently generated by the steel industry in complying with current NPDES permit conditions. This solid waste is comprised almost entirely of treatment plant sludges. EPA recognizes that significant quantities of other solid wastes, such as steelmaking slag and blast furnace slag, are generated by the steel industry. However, those solid wastes are generated by the manufacturing processes and are not associated with this water pollution control regulation. For this reason, process solid wastes are not included in this impact analysis. The cost of disposing of these solid wastes were included as baseline costs in the economic impact analysis.

The data gathered for this study demonstrate that the industry collects and disposes of most sludges currently generated in existing treatment systems. Hence, the industry is presently incurring sludge disposal costs and finding the necessary disposal sites. The Agency believes that the industry will continue to be able to do so. (EPA is unable to accurately estimate the number of disposal sites that are secure, well maintained operations). The average sludge disposal cost used in this analysis is $5.00 per ton for sludges not classified as hazardous under RCRA and $18.00 per ton for hazardous wastes. These costs were included in the economic impact analysis. The Agency has determined that the solid waste impacts associated with this regulation are small.

C. *Consumptive Water Loss.* Water loss is a remand issue of the 1974 and 1976 regulations. As discussed in detail in Section III of Volume I of the Development Document, the Agency

concludes that the benefits derived from compliance with the limitations justify the negative impacts associated with the consumption of water. The Agency has reached this conclusion after considering this issue on both an industry-wide basis and on a water-scarce regional basis.

D. *Energy Requirements.* EPA estimates that compliance with this regulation will result in a net increase of electrical energy consumption at the BPT and BAT levels of treatment as shown below:

| Treatment level | Net energy consumption (kw-hr) (billion) |
|---|---|
| BPT | 1.24 |
| BAT | 0.08 |
| PSES | 0.09 |
| Total | 1.41 |

The electric power requirements associated with the limitations and standards for existing sources amount to 2.7 percent of the 52.3 billion kw-hrs of electrical energy consumed by the steel industry in 1980. This amounts to only 0.2 percent of the total energy (electrical and non-electric) consumed by the industry. The Agency concludes that the impacts of energy consumed from compliance with this regulation are justified by the benefits derived from compliance with the limitations and standards.

## XXIII. Best Management Practices (BMPs)

Section 304(e) of the Clean Water Act authorizes the Administrator to prescribe "best management practices" ("BMPs"). EPA intends to develop BMPs which are: (1) Applicable to all industrial sites; (2) applicable to a designated industrial category; and (3) provide guidance to permit authorities in establishing BMPs required by unique circumstances at a given plant.

EPA is not promulgating BMPs specific to the steel industry in this regulation.

## XXIV. Upset and Bypass Provisions

An issue of recurrent concern has been whether industry guidelines should include provisions authorizing noncompliance with effluent limitations during periods of "upset" or "bypass." An upset, sometimes called an "excursion," is unintentional noncompliance occurring for reasons beyond the reasonable control of the permittee. It has been argued that an upset provision in EPA's effluent guidelines is necessary because such upsets will inevitably occur in even properly operated control equipment. Because technology-based limitations are based upon what technology can achieve, it is claimed that liability for such situations is improper. When confronted with this issue, courts have been divided on the question of whether an explicit upset or excursion incidents may be handled through EPA's exercise of enforcement discretion. Compare *Marathon Oil Co.* v. *EPA*, 564 F.2d 1253 (9th Cir. 1977) with *Weyerhaeuser* v. *Costle, supra* and *Corn Refiners Association, et al.* v. *Costle*, 594 F.2d 1223 (8th Cir. 1979). See also *American Petroleum Institute* v. *EPA*, 540 F.2d 1023 (10th Cir. 1976); *CPC International, Inc.* v. *Train*, 540 F.2d 1320 (8th Cir. 1976); *FMC Corp.* v. *Train*, 539 F.2d 973 (4th Cir. 1976).

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

EPA has determined that both upset and bypass provisions should be included in NPDES permits and they are included in the NPDES regulations, 40 CFR § 122.60, 45 FR 33298; May 19, 1980. The upset provisions establishes an upset as an affirmative defense to prosecution for violation of technology-based effluent limitations. The bypass provision authorizes bypassing to prevent loss of life, personal injury, or severe property damage. Because this issue is resolved in the NPDES permit regulations, this regulation does not address these issues.

## XXV. Variances and Modifications

Upon the promulgation of this regulation, the numerical effluent limitations for the appropriate subcategory must be included in all federal and state NPDES permits thereafter issued to steel industry direct dischargers. In addition, the pretreatment standards are directly applicable to indirect dischargers upon promulgation.

For the BPT limitations, the only exception to the binding limitations is EPA's "fundamentally different factors" variance. See *E. I. duPont de Nemours and Co.* v. *Train*, 430 U.S. 112 (1977); *Weyerhaeuser Co.* v. *Costle, supra.* This variance recognizes factors concerning a particular discharger which are fundamentally different from the factors considered in this rulemaking. Although this variance clause was set forth in EPA's 1974–1976 steel industry regulations, it is now included in the NPDES regulations and is not included in the steel or other industry regulations. See the final NPDES regulations, Act 45 FR 33290 (May 19, 1980), for the text and explanation of the "fundamentally different factors" variance.

The BAT limitations in this regulation also are subject to EPA's "fundamentally different factors" variance. In addition, BAT limitations for non-toxic and non-conventional pollutants are subject to modifications under sections 301(c) and 301(g) of the Act. According to section 301(j)(1)(B), applications for these modifications must be filed within 270 days after promulgation of final effluent limitations guidelines. See 40 CFR Part 125 Part D. Under section 301(1) of the Act, these statutory modifications are not applicable to "toxic" pollutants. Likewise, limitations on nonconventional pollutants used as "indicators" for toxic pollutants are not subject to section 301(c) or section 301(g) modifications, unless the discharger demonstrates that a waste stream does not contain any of the toxic pollutants for which the "indicator" was designed to demonstrate removal.

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

## XXVI. Relationship to NPDES Permits

1. *Administrative Issues.* The BPT, BAT, and NSPS limitations and standards in this regulation will be applied to individual steel plants through NPDES permits issued by EPA or approved state agencies under section 402 of the Act. The preceding section of this preamble discussed the binding effect of this regulation of NPDES permits, except to the extent that variances and modifications are expressly authorized. This section describes several other aspects of the interaction of this regulation and NPDES permits.

One matter which has been subject to different judicial views is the scope of NPDES permit proceedings in the absence of effluent limitations, guidelines and standards. Under

currently applicable EPA regulations, states and EPA Regions issuing NPDES permits prior to promulgation of this regulation and before June 30, 1981 must include a "reopener clause," providing for permits to be modified to incorporate "toxics" regulations when they are promulgated. Permits issued after June 30, 1981 must meet the requirements of sections 301(b)(2) of the Clean Water Act whether or not applicable effluent limitation guidelines have been promulgated. See 40 CFR 122.62(c), 44 FR 33290, 33339 (May 19, 1980).

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

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

3. *Application of Effluent Limitations.* As noted in each subcategory report of the Development Document, all of the limitations and standards contained in this regulation were developed on a gross basis; that is, the performance of the model treatment systems was determined without subtracting contributions of regulated pollutants in intake waters. The Agency determined that in no case it investigated did regulated pollutant levels found in the intake waters have an impact on the effluent quality from the model treatment systems. All of the limitations and standards contained in this regulation should be applied on a gross basis with no allowance for pollutants in the intake waters, except in those instances where allowances may be granted in accordance with the net/gross provisions of the consolidated NPDES permit regulations.

4. *Alternate Effluent Limitations—Water Bubble.* The Agency's responses to comments received on the proposed water bubble policy are presented in Section XVI. The final water bubble policy as it pertains to the steel industry is outlined in Section XVI and presented in the regulation, (Section 420.03).

## XXVII. Executive Order 12991

Under Executive Order 12291, The Agency must determine whether a regulation is "Major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is Major and requires a Regulatory Impact Analysis because the annual effect on the economy is more than $100 million. The Regulatory Impact Analysis for this regulation can be obtained from Alec McBride, Monitoring and Data Support Division, WH-553, US EPA, 401 M Street, S.W., Washington, D.C. 20460.

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 response to those comments are available for public inspection at the EPA Public Information Reference Unit, Room 2922 (EPA Library), Environmental Protection Agency, 401 M Street, S.W., Washington, D.C.

## XXVIII. Regulatory Flexibility Analysis

Pub. L. 96-354 requires EPA to prepare an Initial regulatory Flexibility Analysis for all regulations that may have a significant impact on a substantial number of small entities. This analysis may be done in conjuction with or as a part of any other analysis conducted by the Agency. The economic impact analysis described above indicates that there will not be a significant impact on any segment of the regulated population, large or small. Therefore, the Agency determined that a formal regulatory flexibility analysis is not required for this regulation.

## XXIX. List of Subjects in 40 CFR Part 420

Iron, Steel, Water pollution control, Wastewater treatment and disposal.

Dated: May 18, 1982.

**Ann M. Gorsuch,**

*Administrator.*

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

Act—The Clean Water Act

Agency—The U.S. Environmental Protection Agency

BAT—The best available technology economically achievable under Section 304(b)(2)(B) of the Act

BCT—The best conventional pollutant control technology, under Section 304(b)(4) of the Act.

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

BPT—The best practicable control technology currently available under Section 304(b)(1) of the Act.

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

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

Indirect Discharger—A facility which introduces or may introduce pollutants into a publicly owned treatment works

NPDES Permit—A National Pollutant Discharge Elimination system permit issued under section 402 of the Act

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

POTW—Publicly owned treatment works

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

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

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

Appendix B—Development of Regulated Pollutant List Iron & Steel Industry

| No | Pollutant | Not deleted | Unique occurrence | Not treatable | Regulation Considered |
|---|---|---|---|---|---|
| 001 | Acenaphthene | - | - | - | X |
| 002 | Acrolein | X | - | - | - |

Appendix B—Development of Regulated Pollutant List Iron & Steel Industry—Continued

| No | Pollutant | Not deleted | Unique occurrence | Not treatable | Regulation Considered |
|---|---|---|---|---|---|
| 003 | Acrylonitrile | - | - | - | X |
| 004 | Benzene | - | - | - | X |
| 005 | Benzidine | X | - | - | - |
| 006 | Carbon Tetrachloride | - | - | - | X |
| 007 | Chlorobenzene | X | - | - | - |
| 008 | 1,2,4-Trichlorobenzene | X | - | - | - |
| 009 | Hexachlorobenzene | - | - | - | X |
| 010 | 1,2-Dichloroethane | - | - | X | - |
| 011 | 1,1,1-Trichloroethane | - | - | - | X |
| 012 | Hexachloroethane | X | - | - | - |
| 013 | 1,1-Dichloroethane | - | - | - | X |
| 014 | 1,1,2-Trichloroethane | - | X | - | - |
| 015 | 1,1,2,2-Tetrachloroethane | - | - | X | - |
| 016 | Chloroethane | X | - | - | - |
| 017 | Bis(chloromethyl)ether | X | - | - | - |
| 018 | Bis(2-chloroethyl)ether | X | - | - | - |
| 019 | 2-Chloroethyl vinyl ether | X | - | - | - |
| 020 | 2-Chloronaphthalene | - | - | X | - |
| 021 | 2,4,6-Trichlorophenol | - | - | X | - |
| 022 | Parachlorometacresol | - | - | - | X |
| 023 | Chloroform | - | - | - | X |
| 024 | 2-Chlorophenol | - | - | X | - |
| 025 | 1,2-Dichlorobenzene | - | - | X | - |
| 026 | 1,3-Dichlorobenzene | X | - | - | - |
| 027 | 1,4-Dichlorobenzene | - | - | X | - |
| 028 | 3,3'-Dichlorobenzidine | X | - | - | - |
| 029 | 1,1-Dichloroethylene | - | X | - | - |
| 030 | 1,2-Transdichloroethylene | - | - | X | - |
| 031 | 2,4-Dichlorophenol | - | - | X | - |
| 032 | 1,2-Dichloropropane | X | - | - | - |
| 033 | 1,2-Dichloropropylene | X | - | - | - |
| 034 | 2,4-Dimethylphenol | - | - | - | X |
| 035 | 2,4-Dinitrotoluene | - | - | - | X |
| 036 | 2,6-Dinitrotoluene | - | - | - | X |
| 037 | 1,2-Diphenylhydrazine | - | - | X | - |
| 038 | Ethylbenzene | - | - | - | X |
| 039 | Fluoranthene | - | - | - | X |
| 040 | 4-Chlorophenyl phenyl ether | X | - | - | - |
| 041 | 4-Bromophenyl phenyl ether | X | - | - | - |
| 042 | Bis (2-chloroisopropyl)ether | X | - | - | - |
| 043 | Bis (2-chloroethoxy)methane | X | - | - | - |
| 044 | Methylene chloride | - | - | X | - |
| 045 | Methyl chloride | X | - | - | - |
| 046 | Methyl bromide | X | - | - | - |
| 047 | Bromoform | X | - | - | - |
| 048 | Dichlorobromomethane | - | - | X | - |
| 049 | Trichlorofluoromethane | X | - | - | - |
| 050 | Dichlorodifluoromethane | X | - | - | - |
| 051 | Chlorodibromomethane | X | - | - | - |
| 052 | Hexachlorobutadiene | X | - | - | - |
| 053 | Hexachlorocyclopentadiene | X | - | - | - |
| 054 | Isophorone | - | - | X | - |
| 055 | Naphthalene | - | - | - | X |
| 056 | nitrobenzene | - | - | X | - |
| 057 | 2-Nitrophenol | - | - | X | - |
| 058 | 4-Nitrophenol | - | - | - | X |
| 059 | 2,4-Dinitrophenol | - | - | X | - |
| 060 | 4,6-Dinitro-o-cresol | - | - | - | X |
| 061 | N-Nitrosodimethylamine | X | - | - | - |
| 062 | N-Nitrosodiphenylamine | X | - | - | - |
| 063 | N-Nitrosod-n-propylamine | X | - | - | - |
| 064 | Pentachlorophenol | - | - | - | X |
| 065 | Phenol | - | - | - | X |
| 066 | Bis(2-ethylhexyl)phthalate | - | - | - | X |
| 067 | Butyl benzyl phthalate | - | - | - | X |
| 068 | Di-n-butyl phthalate | - | - | - | X |
| 069 | Di-n-octyl phthalate | - | - | - | X |
| 070 | Diethyl phthalate | - | - | - | X |
| 071 | Dimethyl phthalate | - | - | - | X |
| 072 | Benzo(a)anthracene | - | - | - | X |
| 073 | Benzo(a)pyrene | - | - | - | X |
| 074 | 3,4-Benzofluoranthene | - | X | - | - |
| 075 | Benzo(k)fluoranthene | - | X | - | - |
| 076 | Chrysene | - | - | - | X |
| 077 | Acenaphthylene | - | - | - | X |
| 078 | Anthracene | - | - | - | X |
| 079 | Benzo(ghi)perylene | - | X | - | - |
| 080 | Fluorene | - | - | - | X |
| 081 | Phenathrene | - | - | - | X |
| 082 | Dibenzo(a,h)-anthracene | - | X | - | - |
| 083 | Indeno(1,2,3,cd)pyrene | - | X | - | - |
| 084 | Pyrene | - | - | - | X |
| 085 | Tetrachloroethylene | - | - | - | X |
| 086 | Toluene | - | - | - | X |
| 087 | Trichloroethylene | - | - | - | X |
| 088 | Vinyl Chloride | - | X | - | - |
| 089 | Aldrin | - | X | - | - |
| 090 | Dieldrin | - | X | - | - |
| 091 | Chlordane | - | X | - | - |
| 092 | 4,4'-DDT | - | X | - | - |
| 093 | 4,4'-DDE | - | X | - | - |

Appendix B—Development of Regulated Pollutant List Iron & Steel Industry—Continued

| No | Pollutant | Not deleted | Unique occurrence | Not treatable | Regulation Considered |
|---|---|---|---|---|---|
| 094 | 4,4'-DDD | - | X | - | - |
| 095 | a-endosulfan-Alpha | - | X | - | - |
| 096 | b-endosulfan-Beta | - | X | - | - |
| 097 | Endosulfan sulfate | - | X | - | - |
| 098 | Endrin | - | X | - | - |
| 099 | Endrin aldehyde | - | X | - | - |
| 100 | Heptachlor | - | X | - | - |
| 101 | Heptachlorepoxide | - | X | - | - |
| 102 | a-BHC-Alpha | - | X | - | - |
| 103 | b-BHC-Beta | - | X | - | - |
| 104 | r-BHC-Gamma | - | X | - | - |
| 105 | g-BHC-Delta | - | X | - | - |
| 106 | PCB-1242 | - | X | - | - |
| 107 | PCB-1254 | - | X | - | - |
| 108 | PCB-1221 | - | X | - | - |
| 109 | PCB-1232 | - | X | - | - |
| 110 | PCB-1248 | - | X | - | - |
| 111 | PCB-1260 | - | X | - | - |
| 112 | PCB-1016 | - | X | - | - |
| 113 | Toxaphene | - | X | - | - |
| 114 | Antimony | - | X | - | - |
| 115 | Arsenic | - | - | - | X |
| 116 | Asbestos | - | - | - | X |
| 117 | Beryllium | X | - | - | - |
| 118 | Cadmium | - | - | X | - |
| 119 | Chromium | - | - | - | X |
| 120 | Copper | - | - | - | X |
| 121 | Cyanide | - | - | - | X |
| 122 | Lead | - | - | - | X |
| 123 | Mercury | - | - | - | X |
| 124 | Nickel | - | - | X | - |
| 125 | Selenium | - | - | - | X |
| 126 | Silver | - | - | - | X |
| 127 | Thallium | - | - | - | X |
| 128 | Zinc | - | - | - | X |
| 129 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | - | - | - | X |
| 130 | Xylene | X | - | - | - |
| | Aluminum | - | - | - | X |
| | Ammonia-n | - | - | - | X |
| | Dissolved Iron | - | - | - | X |
| | Fluoride | - | - | - | X |
| | Hexavalent Chromium | - | - | - | X |
| | Manganese | - | - | - | X |
| | Oil and Grease | - | X | - | - |
| | pH | - | - | - | X |
| | Phenols(4AAP) | - | - | - | X |
| | Chlorine Residual | - | - | - | X |
| | Total Suspended Solids | - | - | - | X |

Key:
X: Indicates heading which applies to pollutant.
-: Indicates heading which does not apply to pollutant.
Not Detected: Not detected in any raw waste samples analyzed.
Unique Occurrence: Found at one or two plants at low levels.
Not Treatable: Detected at levels below practical treatability levels.
Reg. Conisidered: Found in average concentrations of greater than 10 ppb in at least one iron and steel subcategory.

## Appendix C—Regulated Pollutants Iron & Steel Industry

A. Cokemaking
- Total Suspended Solids
- Oil & Grease
- Ammonia
- Cyanide
- Phenols (4AAP)
- Benzene
- Naphthalene
- Benzo (a)pyrene
- pH

B. Sintering
- Total Suspended Solids
- Oil & Grease
- Ammonia
- Cyanide
- Phenols (4AAP)
- Total Residual Chlorine
- Lead
- Zinc
- pH

C. Ironmaking
- Total Suspended Solids
- Oil & Grease
- Ammonia
- Cyanide
- Phenols (4AAP)
- Benzene
- Total Residual Chlorine
- Lead
- Zinc
- pH

D. Steelmaking

1. Basic Oxygen Furnace
   - Total Suspended Solids
   - Lead
   - Zinc
   - pH
2. Open Hearth Furnace
   - Total Suspended Solids
   - Lead
   - Zinc
   - pH
3. Electric Arc Furnace
   - Total Suspended Solids
   - Lead
   - Zinc
   - pH

E. Vacuum Degassing
- Total Suspended Solids
- Lead
- Zinc
- pH

F. Continuous Casting
- Total Suspended Solids
- Oil & Grease
- Lead
- Zinc
- pH

G. Hot Forming
- Total Suspended Solids
- Oil & Grease
- pH

H. Scale Removal

1. Oxidizing
   - Total Suspended Solids
   - Chromium
   - Nickel
   - pH
2. Reducing
   - Total Suspended Solids
   - Cyanide

Chromium
Nickel
pH
I. Acid Pickling
1. Sulfuric Acid Pickling
Total Suspended Solids
Lead
Zinc
pH
2. Hydrochloric Acid Pickling
Total Suspended Solids
Lead
Zinc
pH
3. Combination Acid Pickling
Total Suspended Solids
Chromium
Nickel
pH
J. Cold Forming
Total Suspended Solids
Oil & Grease
Chromium
Lead
Nickel
Zinc
Naphthalene
Tetrachloroethylene
pH
K. Alkaline Cleaning
Total Suspended Solids
Oil and Grease
pH
L. Hot Coating
Total Suspended Solids
Oil & Grease
Chromium (Hexavalent)
Lead
Zinc
pH

Title 40 of the Code of Federal Regulations is amended by revising Part 420 to read as follows:

## PART 420—IRON AND STEEL MANUFACTURING POINT SOURCE CATEGORY

### General Provisions

Sec.
420.01 Applicability.
420.02 General definitions.
420.03 Alternate effluent limitations

### Subpart A—Cokemaking Subcategory

420.10 Applicability; description of the cokemaking subcategory.
420.11 Specialized definitions.
420.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.13 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.14 New source performance standards (NSPS).
420.15 Pretreatment standards for existing sources (PSES).
420.16 Pretreatment standards for new sources (PSNS).
420.17 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

### Subpart B—Sintering Subcategory

420.20 Applicability; description of the sintering subcategory.
420.21 Specialized definitions.
420.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.23 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.24 New source performance standards (NSPS).
420.25 Pretreatment standards for existing sources (PSES).
420.26 Pretreatment standards for new sources (PSNS).
420.27 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

### Subpart C—Ironmaking Subcategory

420.30 Applicability; description of the ironmaking subcategory.
420.31 Specialized definitions.
420.32 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.33 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.34 New source performance standards (NSPS).
420.35 Pretreatment standards for existing sources (PSES).
420.36 Pretreatment standards for new sources (PSNS).
420.37 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

### Subpart D—Steelmaking Subcategory

420.40 Applicability; description of the steelmaking subcategory.
420.41 Specialized definitions.
420.42 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.43 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.44 New source performance standards (NSPS).
420.45 Pretreatment standards for existing sources (PSES).
420.46 Pretreatment standards for new sources (PSNS).
420.47 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

### Subpart E—Vacuum Degassing Subcategory

420.50 Applicability; description of the vacuum degassing subcategory.
420.51 Specialized definitions.
420.52 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.53 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.54 New source performance standards (NSPS).
420.55 Pretreatment standards for existing sources (PSES).
420.56 Pretreatment standards for new sources (PSNS).
420.57 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

### Subpart F—Continuous Casting Subcategory.

420.60 Applicability; description of the continuous casting subcategory.
420.61 Special definitions.
420.62 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.63 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.64 New source performance standards (NSPS).
420.65 Pretreatment standards for existing sources (PSES).
420.66 Pretreatment standards for new sources (PSNS).
420.67 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

### Subpart G—Hot Forming Subcategory

420.70 Applicability; description of the hot forming subcategory.
420.71 Specialized definitions.
420.72 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.73 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Sec.
420.74 New source performance standards (NSPS).
420.75 Pretreatment standards for existing sources (PSES).
420.76 Pretreatment standards for new sources (PSNS).
420.77 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Subpart H—Scale Removal Subcategory**

420.80 Applicability; description of the scale removal subcategory.
420.81 Specialized definitions.
420.82 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.83 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.84 New source performance standards (NSPS).
420.85 Pretreatment standards for existing sources (PSES).
420.86 Pretreatment standards for new sources (PSNS).
420.87 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Subpart I—Acid Pickling Subcategory**

420.90 Applicability; description of the acid pickling subcategory.
420.91 Specialized definitions.
420.92 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.93 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.94 New source performance standards (NSPS).
420.95 Pretreatment standards for existing sources (PSES).
420.96 Pretreatment standards for new sources (PSNS).
420.97 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Subpart J—Cold Forming Subcategory**

420.100 Applicability; description of the cold forming subcategory.
420.101 Specialized definitions.
420.102 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.103 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.104 New source performance standards (NSPS).
420.105 Pretreatment standards for existing sources (PSES).
420.106 Pretreatment standards for new sources (PSNS).
420.107 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Subpart K—Alkaline Cleaning Subcategory**

420.110 Applicability; description of the alkaline cleaning subcategory.
420.111 Specialized definitions.
420.112 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.113 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.114 New source performance standards (NSPS).
420.115 Pretreatment standards for existing sources (PSES).
420.116 Pretreatment standards for new sources (PSNS).
420.117 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Subpart L—Hot Coating Subcategory**

420.120 Applicability; description of the hot coating-galvanizing subcategory.
420.121 Specialized definitions.
420.122 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
420.123 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
420.124 New source performance standards (NSPS).
420.125 Pretreatment standards for existing sources (PSES).
420.126 Pretreatment standards for new sources (PSNS).
420.127 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Authority:** Sections 301; 304 (b), (c), (e), and (g); 306 (b) and (c); 307; 308 and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, as amended by the Clean Water Act of 1977) (the "Act"); 33 U.S.C. 1311; 1314 (b), (c), (e), and (g); 1316 (b) and (c); 1317; 1318; and 1361; 86 Stat. 816, Pub. L. 92–500; 91 Stat. 1567; Pub. L. 95–217.

## General Provisions

### § 420.01 Applicability.

(a) The provisions of this part apply to discharges and to the introduction of pollutants into a publicly owned treatment works resulting from production operations in the Iron and Steel Point Source Category.

(b) Control Treatment Facilities: The following central treatment facilities presently discharging through the specified outfall are temporarily excluded from the provisions of this part, *provided,* the owner or operator of the facility requests the Agency to consider establishing alternative effluent limitations and provides the Agency with the information set out in section (b)(2), on or before July 26, 1982.

| Plant | NPDES permit No. | Central treatment facility |
|---|---|---|
| 1. Armco Steel, Ashland, KY. | KY 0000485 | Total Plant. |
| 2. Bethlehem Steel, Sparrows Point, MD. | MD 0001201 | Humphrey's Creek Outfall 014. |
| 3. Bethlehem Steel, Burns Harbor, IN. | IN 0000175 | Total Plant. |
| 4. Ford Motor Co., Dearborn, MI. | MI 0003361 | Schaefer Road Treatment Plant. |
| 5. Interlake, Inc.,[1] Riverdale, IL. | IL 0002119 | Discharge to POTW. |
| 6. J&L Steel, Aliquippa, PA. | PA 0006131 | Chemical Rinse Treatment Plant Outfall 018. |
| 7. J&L Steel, Cleveland, OH. | OH 0000850 | Hot Forming and Finishing Treatment Plant. |
| 8. J&L Steel, Hennepin, IL. | IL 0002631 | Total Plant. |
| 9. J&L Steel, Louisville, OH. | OH 0007188 | Total Plant. |
| 10. J&L Steel, East Chicago, IN. | IN 0000205 | Terminal Treatment Plant. |
| 11. Laclede Steel, Alton, IL. | IL 0000612 | Total Plant. |
| 12. National Steel, Granite City, IL. | IL 0000329 | Total Plant. |
| 13. National Steel, Portage, IN. | IN 0002445 | Total Plant. |
| 14. National Steel, Weirton, WV. | WV 0003336 | Outfall B. |
| 15. Republic Steel, Gadsden, AL. | AL 0003522 | Total Plant. |
| 16. Republic Steel,[1] Chicago, IL 0002593. | IL 0002593 | Discharge to POTW. |
| 17. U.S. Steel, Lorain, OH. | OH 0001562 | Pipe Mill Lagoon. |
| 18. U.S. Steel, Provo, UT. | UT 0000361 | Total Plant. |
| 19. U.S. Steel, Fairless Hills, PA. | PA 0013463 | Terminal Treatment Plant. |
| 20. U.S. Steel, Gary, IN. | IN 0000281 | Terminal Lagoons. |
| 21. U.S. Steel,[1] Chicago, IL. | IL 0002691 | Discharge to POTW. |

[1] The request for alternative effluent limitations for these plants are for indirect discharges to POTWs

(2) The information to be submitted with the request for consideration of alternative effluent limitations is to include:

(i) A schematic diagram of the existing wastewater treatment facility showing each source of wastewater, cooling water, and other waters entering the treatment facility; discharge and recycle flow rates for each water source and each major treatment component;

(ii) Existing monitoring data relating to discharges to and from the central treatment facility including pollutant concentrations, flows and mass loadings; As a minimum, monitoring data should be provided for a six month period of normal operation of the

production and treatment facilities. The complete data as well as a data summary including the maximum, minimum, and mean gross discharge loadings and the standard deviation of the discharge loadings for each monitored pollutant should be provided. Any supplemental monitoring data for toxic pollutants should also be provided.

(iii) A scale map of the area of the plant served by the wastewater treatment facility, including the treatment facility and water supply and discharge points;

(iv) An estimate of the least costly investment required to meet the generally applicable limitations or standards for the facility and a description of such treatment system including schematic diagrams showing the major treatment system components and flow rates through the system. As a minimum, the cost estimates should be comprised of a single page summary for each water pollution control system showing estimated installed direct cost totals for mechanical equipment; piping and instrumentation; foundations and structural components; and, electrical components. Indirect costs for contingencies, overhead and profit, engineering fees, and any other indirect costs must be itemized separately. The sum of the direct and indirect costs which represents the owner's or operator's total estimate, must be shown.

(v) The effluent limitations or standards which could be achieved if the discharger were to spend an amount equal to the Agency's model treatment system cost estimate for the facility and the treatment facilities which would be used to meet those limitations or standards. Schematic diagrams and cost estimates as outlined in paragraph (b)(2)(iv) above should be provided for each treatment system; and,

(vi) Production rates in tons per day for each process contributing wastewater to the central treatment facility consistent with those reported by the owner or operator in the NPDES permit application for the central treatment facility.

(3) The request described in subsection (b)(1) above must be based upon the owner's or operator's belief that the cost of bringing the specified central treatment facilities into compliance with the provisions of this part would require expenditures so high compared to the Agency's model treatment system cost estimate applicable to that facility that the applicable limitations or standards would not represent BPT, BAT, BCT, or PSES, as the case may be, for the facility.

**§ 420.02 General definitions.**

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

(a) The term "TSS" (or total suspended solids, or total suspended residue) means the value obtained by the method specified in 40 CFR 136.3.

(b) The term "oil and grease" (or O&G) means the value obtained by the method specified in 40 CFR 136.3.

(c) The term "ammonia-N" (or ammonia-nitrogen) means the value obtained by manual distillation (at pH 9.5) followed by the Nesslerization method specified in 40 CFR 136.3.

(d) The term "cyanide" means total cyanide and is determined by the method specified in 40 CFR 136.3.

(e) The term "phenols 4AAP" (or phenolic compounds) means the value obtained by the method specified in 40 CFR 136.3.

(f) The term "TRC" (or total residual chlorine) means the value obtained by the iodometric titration with an amperometric endpoint method specified in 40 CFR 136.3.

(g) The term "chromium" means total chromium and is determined by the method specified in 40 CFR 136.3.

(h) The term "hexavalent chromium" (or chromium VI) means the value obtained by the method specified in 40 CFR 136.3.

(i) The term "copper" means total copper and is determined by the method specified in 40 CFR 136.3.

(j) The term "lead" means total lead and is determined by the method specified in 40 CFR 136.3.

(k) The term "nickel" means total nickel and is determined by the method specified in 40 CFR 136.3.

(l) The term "zinc" means total zinc and is determined by the method specified in 40 CFR 136.3.

(m) The term "benzene" (or priority pollutant No. 4) means the value obtained by the standard method Number 602 specified in 44 FR 69464, 69570 (December 3, 1979).

(n) The term "benzo(a)pyrene" (or priority pollutant No. 73) means the value obtained by the standard method Number 610 specified in 44 FR 69464, 69570 (December 3, 1979).

(o) The term "naphthalene" (or priority pollutant No. 55) means the value obtained by the standard method Number 610 specified in 44 FR 69464, 69571 (December 3, 1979).

(p) The term "tetrachloroethylene" (or priority pollutant No. 85) means the value obtained by the standard method Number 610 specified in 44 FR 69464, 69571 (December 3, 1979).

(q) The term "pH" means the value obtained by the standard method specified in 40 CFR 136.3.

**§ 420.03 Alternative effluent limitations representing the degree of effluent reduction attainable by the application of best practicable control technology currently available, best available technology, and best conventional technology.**

Except as provided in paragraphs (a) through (c) below, any existing point source subject to this part may qualify for alternative effluent limitations to those specified in Part 420, Subparts A through L for a number of its processes representing the degree of effluent reduction attainable by the application of best practicable control technology currently available, best available technology economically achievable, and best conventional technology. The alternative effluent limitations are determined for a combination of processes by totaling the mass limitations of each pollutant allowed under the applicable Subparts A though L. The point source must achieve the total mass limitation for each pollutant for the combination of processes.

(a) A discharger cannot qualify for alternative effluent limitations if the application of such alternative effluent limitations would result in an increase in the amount of pollutants discharged from a combination of processes over that allowed under the limitations established by applicable Subparts A through L.

(b) A discharger cannot qualify for alternative effluent limitations if the application of such alternative effluent limitations would result in violation of any applicable state water quality standards.

(c) Each outfall from which process wastewaters are discharged must have specific, fixed effluent limitations for each pollutant limited by the applicable Subparts A through L.

(d) Subcategory—Specific Restrictions

(1) There shall be no alternate effluent limitations for cokemaking process wastewaters.

(2) There shall be no alternate effluent limitations for cold forming process wastewaters.

## Subpart A—Cokemaking Subcategory

**§ 420.10 Applicability; description of the cokemaking subcategory.**

The provisions of this subpart are

applicable to discharges and introduction of pollutants into publicly owned treatment works resulting from by-product and beehive cokemaking operations.

**§ 420.11 Specialized definitions.**

(a) The term "beehive cokemaking" means those operations in which coal is heated with the admission of air in controlled amounts for the purpose of producing coke. There are no by-product recovery operations associated with beehive cokemaking operations.

(b) The term "by-product cokemaking" means those cokemaking operations in which coal is heated in the absence of air to produce coke. In this process, by-products may be recovered from the gases and liquids driven from the coal during cokemaking.

(c) The term "merchant" means those by-product cokemaking operations which provide more than fifty percent of the coke produced to operations, industries, or processes other than iron making blast furnaces associated with steel production.

(d) The term "iron and steel" means those by-product cokemaking operations other than merchant cokemaking operations.

(e) The term "wet desulfurization system" means those systems which remove sulfur compounds from coke oven gases and produce a contaminated process wastewater.

(f) The term "indirect ammonia recovery system" means those systems which recover ammonium hydroxide as a by-product from coke oven gases and waste ammonia liquors.

(g) The term "physical chemical treatment system" means those full scale coke plant wastewater treatment systems incorporating full scale granular activated carbon adsorption units which were in operation prior to January 7, 1981, the date of proposal of this regulation.

**§ 420.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) By-product cokemaking—iron and steel.

SUBPART A

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.253 | 0.131 |
| O&G | 0.0327 | 0.0109 |
| Ammonia-N | 0.274 | 0.0912 |
| Cyanide | 0.0657 | 0.0219 |
| Phenols (4AAP) | 0.00451 | 0.00150 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(1) Increased loadings, not to exceed 11 percent of the above limitations, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 27 percent of the above limitations, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent that such systems generate an increased effluent volume.

(b) *By-product cokemaking—merchant.*

SUBPART A

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.270 | 0.140 |
| O&G | 0.0349 | 0.0116 |
| Ammonia-N | 0.292 | 0.0973 |
| Cyanide | 0.0701 | 0.0234 |
| Phenols (4AAP) | 0.00481 | 0.00160 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(1) Increased loadings, not to exceed 10 percent of the above limitations, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 25 percent of the above limitations, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent that such systems generate an increased effluent volume.

(C) *Beehive cokemaking.* No discharge of process wastewater pollutants to navigable waters.

**§ 420.13 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) *By-product cokemaking—iron and steel.*

SUBPART A

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0543 | 0.0160 |
| Cyanide | 0.00638 | 0.00351 |
| Phenols (4AAP) | 0.0000638 | 0.0000319 |
| Benzene | 0.0000319 | ..... |
| Naphthalene | 0.0000319 | ..... |
| Benzo(a)pyrene | 0.0000319 | ..... |

(1) Increased loadings, not to exceed 16 percent of the above limitations, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 39 percent of the above limitations, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(3) The following BAT effluent limitations shall be applicable to by-product coke plants with physical chemical treatment systems:

SUBPART A

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0645 | 0.0322 |
| Phenols (4AAP) | 0.0000659 | 0.0000430 |
| Benzene | 0.0000215 | ..... |
| Naphthalene | 0.0000215 | ..... |
| Benzo(a)pyrene | 0.0000215 | ..... |

Increased loadings, not to exceed 24 percent of the above limitations, are allowed for by-product coke plants with physical chemical treatment systems which have wet desulfurization systems

but only to the extent such systems generate an increased effluent volume.

(b) *By-product cokemaking—merchant.*

SUBPART A

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0603 | 0.0177 |
| Cyanide | 0.00709 | 0.00390 |
| Phenols (4AAP) | 0.0000709 | 0.0000355 |
| Benzene | 0.0000355 | |
| Naphthalene | 0.0000355 | |
| Benzo(a)pyrene | 0.0000355 | |

(1) Increased loadings, not to exceed 15 percent of the above limitations, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 35 percent of the above limitations, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(3) The following BAT effluent limitations shall be applicable to by-product coke plants with physical chemical treatment systems:

SUBPART A

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0751 | 0.0375 |
| Phenols(4AAP) | 0.000100 | 0.0000501 |
| Benzene | 0.0000250 | |
| Naphthalene | 0.0000250 | |
| Benzo(a)pyrene | 0.0000250 | |

Increased loadings, not to exceed 21 percent of the above limitations, are allowed for by-product coke plants with physical chemical treatment systems which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(c) *Beehive cokemaking.* No discharge of process wastewater pollutants to navigable waters.

**§ 420.14 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) *By-product cokemaking—iron and steel.*

SUBPART A

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.172 | 0.0894 |
| O&G | 0.00638 | |
| Ammonia-N | 0.0543 | 0.0160 |
| Cyanide | 0.00638 | 0.00351 |
| Phenols (4AAP) | 0.0000638 | 0.0000319 |
| Benzene | 0.0000319 | |
| Naphthalene | 0.0000319 | |
| Benzo(a)pyrene | 0.0000319 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(1) Increased loadings, not to exceed 16 percent of the above standards, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 39 percent of the above standards, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(b) *By-product cokemaking—merchant.*

SUBPART A

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.192 | 0.0993 |
| O&G | 0.00709 | |
| Ammonia-N | 0.0603 | 0.0177 |
| Cyanide | 0.00709 | 0.00390 |
| Phenols (4AAP) | 0.0000709 | 0.0000355 |
| Benzene | 0.0000355 | |
| Naphthalene | 0.0000355 | |
| Benzo(a)pyrene | 0.0000355 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(1) Increased loadings, not to exceed 15 percent of the above standards, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 35 percent of the above standards, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(c) *Beehive cokemaking.*

No discharge of process wastewater pollutants to navigable waters.

**§ 420.15 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) *By-product cokemaking—iron and steel.*

SUBPART A

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0645 | 0.0322 |
| Cyanide | 0.0172 | 0.00859 |
| Phenols (4AAP) | 0.0430 | 0.0215 |

(1) Increased loadings, not to exceed 24 percent of the above standards, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 58 percent of the above standards, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(b) *By-product cokemaking—merchant.*

SUBPART A

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0751 | 0.0375 |
| Cyanide | 0.0200 | 0.0100 |
| Phenols (4AAP) | 0.0501 | 0.0250 |

(1) Increased loadings, not to exceed 21 percent of the above standards, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 50 percent of the above standards, are

allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(c) *Beehive cokemaking* [Reserved].

**§ 420.16 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

(a) *By-product cokemaking—iron and steel.*

SUBPART A

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0645 | 0.0322 |
| Cyanide | 0.0172 | 0.00859 |
| Phenols (4AAP) | 0.0430 | 0.0215 |

(1) Increased loadings, not to exceed 24 percent of the above standards, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 58 percent of the above standards, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(b) *By-product cokemaking—merchant.*

SUBPART A

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.0751 | 0.0375 |
| Cyanide | 0.0200 | 0.0100 |
| Phenols (4AAP) | 0.0501 | 0.0250 |

(1) Increased loadings, not to exceed 21 percent of the above standards, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 50 percent of the above standards, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent such systems generate an increased effluent volume.

(c) *Beehive cokemaking* [Reserved].

**§ 420.17 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR §§ 125.30–.32, 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 technology.

(a) *By-product cokemaking—iron and steel.*

SUBPART A

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.253 | 0.131 |
| O&G | 0.0327 | 0.0109 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(1) Increased loadings, not to exceed 11 percent of the above limitations, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 27 percent of the above limitations, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent that such systems generate an increased effluent volume.

(b) *By-product cokemaking—merchant.*

SUBPART A

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.270 | 0.140 |
| O&G | 0.0348 | 0.0116 |

SUBPART A—Continued

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(1) Increased loadings, not to exceed 10 percent of the above limitations, are allowed for by-product coke plants which have wet desulfurization systems but only to the extent such systems generate an increased effluent volume.

(2) Increased loadings, not to exceed 25 percent of the above limitations, are allowed for by-product coke plants which include indirect ammonia recovery systems but only to the extent that such systems generate an increased effluent volume.

(c) *Beehive cokemaking.* No discharge of process wastewater pollutants to navigable waters.

## Subpart B—Sintering Subcategory

**§ 420.20 Applicability; description of the sintering subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from sintering operations conducted by the heating of iron bearing wastes (mill scale and dust from blast furnaces and steelmaking furnaces) together with fine iron ore, limestone, and coke fines in an ignition furnace to produce an agglomerate for charging to the blast furnace.

**§ 420.21 Specialized definitions [Reserved].**

**§ 420.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

SUBPART B

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0751 | 0.0250 |
| O&G | 0.0150 | 0.00501 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

### § 420.23 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30–.32, 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.

SUBPART B

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N [1] | 0.0150 | 0.00501 |
| Cyanide [1] | 0.00100 | 0.000501 |
| Phenols (4AAP) [1] | 0.000100 | 0.0000501 |
| TRC [1] | 0.000250 | |
| Lead | 0.000375 | 0.000125 |
| Zinc | 0.000450 | 0.000150 |

[1] The limitations for ammonia-N, cyanide, phenols (4AAP), and TRC shall be applicable only when sintering wastewaters are treated with ironmaking wastewaters.

### § 402.24 New source performance standards.

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

SUBPART B

| Pollutant of pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0200 | 0.00751 |
| O&G | 0.00501 | |
| Ammonia-N [1] | 0.0150 | 0.00501 |
| Cyanide [1] | 0.00100 | 0.000501 |
| Phenols(4AAP) [1] | 0.000100 | 0.0000501 |
| TRC [1] | 0.000250 | |
| Lead | 0.000375 | 0.000125 |
| Zinc | 0.000450 | 0.000150 |

SUBPART B—Continued

| Pollutant of pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| pH | (2) | (2) |

[1] The standards for ammonia-N, cyanide, phenols (4AAP), and TRC shall be applicable only when sintering wastewaters are treated with ironmaking wastewaters.
[2] Within the range of 6.0 to 9.0.

### § 420.25 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

SUBPART B

| Pollutant of pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N [1] | 0.0150 | 0.00501 |
| Cyanide [1] | 0.00100 | 0.000501 |
| Phenols(4AAP) [1] | 0.000100 | 0.0000501 |
| Lead | 0.000375 | 0.000125 |
| Zinc | 0.000450 | 0.000150 |

[1] The standards for ammonia-N, cyanide, and phenols (4AAP), shall be applicable only when sintering wastewaters are treated with ironmaking wastewaters.

### § 420.26 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

SUBPART B

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N [1] | 0.0150 | 0.00501 |
| Cyanide [1] | 0.00100 | 0.000501 |
| Phenols (4AAP) [1] | 0.000100 | 0.0000501 |
| Lead | 0.000375 | 0.000125 |
| Zinc | 0.000450 | 0.000150 |

[1] The standards for ammonia-N, cyanide, and phenols (4AAP) shall be applicable only when sintering wastewaters are treated with ironmaking wastewaters.

### § 420.27 [Reserved]

## Subpart C—Ironmaking Subcategory

### § 420.30 Applicability; description of the ironmaking subcategory.

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from ironmaking operations in which iron ore is reduced to molten iron in a blast furnace.

### § 420.31 Specialized definitions.

(a) The term "ferromanganese blast furnace" means those blast furnaces which produce molten iron containing more than fifty percent manganese.

(b) The term "iron blast furnace" means all blast furnaces except ferromanganese blast furnaces.

### § 420.32 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR §§ 125.30–.32, 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 practicable control technology currently available.

(a) *Iron blast furnace.*

SUBPART C

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0782 | 0.0260 |
| Ammonia-N | 0.161 | 0.0537 |
| Cyanide | 0.0234 | 0.00782 |
| Phenols (4AAP) | 0.00626 | 0.00210 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) *Ferromanganese blast furnace.*

SUBPART C

| Pollutant or pollutant property | BPT effluent limitations | Average of daily values for 30 consecutive days |
|---|---|---|
| | Maximum for 1 day | |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.313 | 0.104 |
| Ammonia-N | 1.29 | 0.429 |
| Cyanide | 0.469 | 0.156 |
| Phenols (4AAP) | 0.0624 | 0.0208 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.33 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) *Iron blast furnace.*

SUBPART C

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.00876 | 0.00292 |
| Cyanide | 0.000584 | 0.000292 |
| Phenols (4AAP) | 0.0000584 | 0.0000292 |
| TRC [1] | 0.000146 | |
| Lead | 0.000219 | 0.0000730 |
| Zinc | 0.000263 | 0.0000876 |

[1] The limitation for TRC shall be applicable only when chlorination of ironmaking wastewaters is practiced.

(b) *Ferromanganese blast furnace* [Reserved].

**§ 420.34 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) *Iron blast furnace.*

SUBPART C

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of products | |
| TSS | 0.0117 | 0.00438 |
| O&G | 0.00292 | |
| Ammonia-N | 0.00876 | 0.00292 |
| Cyanide | 0.000584 | 0.000292 |
| Phenols (4AAP) | 0.0000584 | 0.0000292 |
| TRC [1] | 0.000146 | |
| Lead | 0.000219 | 0.0000730 |
| Zinc | 0.000263 | 0.0000876 |
| pH | (2) | (2) |

[1] The standards for TRC shall be applicable only when chlorination of ironmaking wastewaters is practiced.
[2] Within the range of 6.0 to 9.0.

(b) *Ferromanganese blast furnace.* [Reserved]

**§ 420.35 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) *Iron blast furnace.*

SUBPART C

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of products | |
| Ammonia-N | 0.00876 | 0.00292 |
| Cyanide | 0.000584 | 0.000292 |
| Phenols (4AAP) | 0.0000584 | 0.0000292 |
| Lead | 0.000219 | 0.0000730 |
| Zinc | 0.000263 | 0.0000876 |

(b) *Ferromanganese blast furnace.* [Reserved]

**§ 420.36 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

(a) *Iron blast furnace.*

SUBPART C

| Pollutant or pollutant property | Pretreatment standards for new sources: Maximum for any 1 day | Pretreatment standards for new sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Ammonia-N | 0.00876 | 0.00292 |
| Cyanide | 0.000584 | 0.000292 |
| Phenols (4AAP) | 0.0000584 | 0.0000292 |
| Lead | 0.000219 | 0.0000730 |
| Zinc | 0.000263 | 0.0000876 |

(b) *Ferromanganese blast furnace.* [Reserved]

**§ 420.37 [Reserved]**

## Subpart D—Steelmaking Subcategory

**§ 420.40 Applicability; description of the steelmaking subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from steelmaking operations conducted in basic oxygen, open hearth, and electric arc furnaces.

**§ 420.41 Specialized definitions.**

(a) The term "basic oxygen furnace steelmaking" means the production of steel from molten iron, steel scrap, fluxes, and various combinations thereof, in refractory lined furnaces by adding oxygen.

(b) The term "open hearth furnace steelmaking" means the production of steel from molten iron, steel scrap, fluxes, and various combinations thereof, in refractory lined fuel-fired furnaces equipped with regenerative chambers to recover heat from the flue and combustion gases.

(c) The term "electric arc furnace steelmaking" means the production of steel principally from steel scrap and fluxes in refractory lined furnaces by passing an electric current through the scrap or steel bath.

(d) The term "wet" means those steelmaking air cleaning systems that primarily use water for furnace gas cleaning.

(e) The term "semi-wet" means those steelmaking air cleaning systems that use water for the sole purpose of conditioning the temperature and humidity of furnace gases such that the gases may be cleaned in dry air pollution control systems.

(f) The term "open combustion" means those basic oxygen furnace steelmaking wet air cleaning systems which are designed to allow excess air to enter the air pollution control system for the purpose of combusting the carbon monoxide in furnace gases.

(g) The term "suppressed combustion" means those basic oxygen furnace steelmaking wet air cleaning systems which are designed to limit or suppress the combustion of carbon monoxide in furnace gases by restricting the amount of excess air entering the air pollution control system.

**§ 420.42 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) *Basic oxygen furnace steelmaking—semi-wet; and electric arc furnace steelmaking—semi-wet.* No discharge of process wastewater pollutants to navigable waters.

(b) *Basic oxygen furnace steelmaking—wet-suppressed combustion.*

SUBPART D

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of Product | |
| TSS | 0.0312 | 0.0104 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

(c) *Basic oxygen furnace steelmaking—wet open combustion; open hearth furnace steelmaking—wet; and electric arc furnace steelmaking—wet.*

SUBPART D

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0687 | 0.0229 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.43 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) *Basic oxygen furnace steelmaking—semi-wet; and electric arc furnace steelmaking—semi-wet.* No discharge of process wastewater pollutants to navigable waters.

(b) *Basic oxygen furnace steelmaking—wet-suppressed combustion.*

SUBPART D

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000188 | 0.0000626 |
| Zinc | 0.000282 | 0.0000939 |

(c) *Basic oxygen furnace steelmaking—wet open combustion; open hearth furnace steelmaking—wet; and electric arc furnace steelmaking—wet;*

SUBPART D

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000413 | 0.000138 |
| Zinc | 0.000620 | 0.000207 |

**§ 420.44 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) *Basic oxygen furnace steelmaking—semi-wet; and electric arc furnace steelmaking—semi-wet.* [Reserved]

(b) *Basic oxygen furnace steelmaking—wet-suppressed combustion.*

SUBPART D

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0146 | 0.00522 |
| Lead | 0.000188 | 0.0000626 |
| Zinc | 0.000282 | 0.0000939 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(c) *Basic oxygen furnace steelmaking—wet open combustion; and electric arc furnace steelmaking—wet.*

SUBPART D

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0321 | 0.0115 |
| Lead | 0.000413 | 0.000138 |
| Zinc | 0.000620 | 0.000207 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(d) *Open hearth furnace steelmaking—wet.* [Reserved]

**§ 420.45 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) *Basic oxygen furnace steelmaking—semi-wet; and electric arc furnace steelmaking—semi-wet.* [Reserved]

(b) *Basic oxygen furnace steelmaking—wet-suppressed combustion.*

SUBPART D

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000188 | 0.0000626 |
| Zinc | 0.000282 | 0.0000939 |

(c) *Basic oxygen furnace steelmaking—wet open combustion; open hearth furnace steelmaking—wet; and electric arc furnace steelmaking—wet.*

SUBPART D

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000413 | 0.000138 |
| Zinc | 0.000620 | 0.000207 |

**§ 420.46 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

(a) *Basic oxygen furnace steelingmaking—semi-wet; and electric arc furnace steelmaking—semi-wet.* [Reserved]

(b) *Basic oxygen furnace steelmaking—wet-suppressed combustion.*

SUBPART D

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000188 | 0.000626 |
| Zinc | 0.000282 | 0.000939 |

(c) *Basic oxygen furnace steelmaking—wet—open combustion; electric arc furnace steelmaking—wet.*

SUBPART D

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000413 | 0.000138 |
| Zinc | 0.000620 | 0.000207 |

(d) *Open hearth furnace steelmaking—wet.* [Reserved]

**§ 420.47 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional control technology.**

(a) *Basic oxygen furnace steelmaking—semi-wet; and electric arc furnace steelmaking—semi-wet.* No discharge of process wastewater pollutants to navigable waters.

(b) *Basic oxygen furnace steelmaking—wet-suppressed combustion.* [Reserved]

(c) *Basic oxygen furnace steelmaking—wet—open combustion; electric arc furnace steelmaking—wet.* [Reserved]

(d) *Open hearth furnace steelmaking—wet.* [Reserved]

## Subpart E—Vacuum Degassing Subcategory

**§ 420.50 Applicability; description of the vacuum degassing subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from vacuum degassing operations conducted by applying a vacuum to molten steel.

**§ 420.51 Specialized definitions. [Reserved]**

**§ 420.52 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

SUBPART E

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0156 | 0.00521 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.53 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

SUBPART E

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |

**§ 420.54 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the values set forth below.

SUBPART E

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00730 | 0.00261 |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.55 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

SUBPART E

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |

**§ 420.56 Pretreatment standards for new sources.**

Any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

SUBPART E

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |

**§ 420.57 [Reserved]**

## Subpart F—Continuous Casting Subcategory

**§ 420.60 Applicability; description of the continuous casting subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from the continous casting of molten steel into intermediate or semi-finished steel products through water cooled molds.

**§ 420.61 Specialized definitions. [Reserved]**

**§ 420.62 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

SUBPART F

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0780 | 0.0260 |
| Oil & Grease | 0.0234 | 0.0078 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.63 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

SUBPART F

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |

**§ 420.64 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

SUBPART F

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00730 | 0.00261 |
| O&G | 0.00313 | 0.00104 |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.65 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

SUBPART F

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.000141 | 0.0000469 |

**§ 420.66 Pretreatment standards for new sources.**

Any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

SUBPART F

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |

SUBPART F—Continued

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| Zinc | 0.000141 | 0.0000469 |

**§ 420.67 [Reserved]**

## Subpart G—Hot Forming Subcategory

**§ 420.70 Applicability; description of the hot forming subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from hot forming operations conducted in primary, section, flat, and pipe and tube mills.

**§ 420.71 Specialized definitions.**

(a) The term "hot forming" means those steel operations in which solidified, heated steel is shaped by rolls.

(b) The term "primary mill" means those steel hot forming operations that reduce ingots to blooms or slabs by passing the ingots between rotating steel rolls. The first hot forming operation performed on solidified steel after it is removed from the ingot molds is carried out on a "primary mill".

(c) The term "section mill" means those steel hot forming operations that produce a variety of finished and semi-finished steel products other than the products of those mills specified below in subsections (d), (e), (g), and (h).

(d) The term "flat mill" means those steel hot forming operations that reduce heated slabs to plates, strip and sheet, or skelp.

(e) The term "pipe and tube mill" means those steel hot forming operations that produce butt welded or seamless tubular steel products.

(f) The term "scarfing" means those steel surface conditioning operations in which flames generated by the combustion of oxygen and fuel are used to remove surface metal imperfections from slabs, billets, or blooms.

(g) The term "plate mill" means those steel hot forming operations that produce flat hot-rolled products which are (1) between 8 and 48 inches wide and over 0.23 inches thick; or (2) greater than 48 inches wide and over 0.18 inches thick.

(h) The term "hot strip and sheet mill" means those steel hot forming

operations that produce flat hot-rolled products other than plates.

(i) The term "specialty steel" means those steel products containing alloying elements which are added to enhance the properties of the steel product when individual alloying elements (e.g., aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, vanadium, zirconium) exceed 3% or the total of all alloying elements exceed 5%.

(j) The term "carbon steel" means those steel products other than specialty steel products.

(k) The term "carbon hot forming operation" (or "carbon") means those hot forming operations which produce a majority, on a tonnage basis, of carbon steel products..

(l) The term "specialty hot forming operation" (or "specialty") applies to all hot forming operations other than "carbon hot forming operations."

**§ 420.72 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) Primary mills, carbon and specialty.

(1) Without scarfing.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.150 | 0.0561 |
| O&G | 0.0374 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) With scarfing.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.221 | 0.0830 |
| O&G | 0.0553 | |

SUBPART G—Continued

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Section mills.

(1) Carbon.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.357 | 0.134 |
| O&G | 0.0894 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Specialty.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.224 | 0.0841 |
| O&G | 0.0561 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(c) Flat mills.

(1) Hot strip and sheet mills, carbon and specialty.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.427 | 0.160 |
| O&G | 0.107 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Carbon plate mills.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.227 | 0.0851 |
| O&G | 0.0568 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

(3) Specialty plate mills.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.100 | 0.0376 |
| O&G | 0.0250 | (1) |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

(d) Pipe and tube mills, carbon and specialty.

SUBPART G

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.212 | 0.0795 |
| O&G | 0.0530 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

**§ 420.73 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

The Agency has determined that there are not significant quantities of toxic pollutants in hot forming wastewaters after compliance with applicable BPT limitations. Accordingly, since the BPT level of treatment provides adequate control, the Agency is not promulgating more stringent BAT limitations.

**§ 420.74 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) Primary mills, carbon and specialty.

(1) Without scarfing.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0150 | 0.00563 |
| O&G | 0.00373 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) With scarfing.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0234 | 0.00876 |
| O&G | 0.00584 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Section mills.

(1) Carbon.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0334 | 0.0125 |
| O&G | 0.00834 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Specialty.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0217 | 0.00813 |
| O&G | 0.00542 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(c) Flat mills.

(1) Hot strip and sheet mills, carbon and specialty.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of products | |
| TSS | 0.0435 | 0.0163 |
| O&G | 0.0109 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

(2) Carbon plate mills.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of products | |
| TSS | 0.0234 | 0.00876 |
| O&G | 0.00584 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

(3) Specialty plate mills.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of products | |
| TSS | 0.0100 | 0.00375 |
| O&G | 0.00250 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

(d) Pipe and tube mills, carbon and specialty.

SUBPART G

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of products | |
| TSS | 0.0369 | 0.0138 |
| O&G | 0.00917 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0

**§ 420.75 Pretreatment standards for existing sources.**

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

**§ 420.76 Pretreatment standards for new sources.**

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

**§ 420.77 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR 125.30–32, 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 technology.

(a) Primary mills, carbon and specialty.

(1) Without scarfing.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.150 | 0.0561 |
| O&G | 0.0374 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) With scarfing.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.221 | 0.0830 |
| O&G | 0.0553 | ..... |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Section mills.

(1) Carbon.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.357 | 0.134 |
| O&G | 0.0894 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Specialty.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.224 | 0.0841 |
| O&G | 0.0561 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(c) Flat mills.

(1) Hot strip and sheet mills, carbon and specialty.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.427 | 0.160 |
| O&G | 0.107 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Carbon plate mills.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.227 | 0.0851 |
| O&G | 0.0568 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(3) Speciality plate mills.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.100 | 0.0376 |
| O&G | 0.0250 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(d) Pipe and tube mills, carbon and speciality.

SUBPART G

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.212 | 0.0795 |
| O&G | 0.0530 | |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

## Subpart H—Salt Bath Descaling Subcategory

### § 420.80 Applicability; description of the salt bath descaling subcategory.

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from oxidizing and reducing salt bath descaling operations.

### § 420.81 Specialized definitions.

(a) The term "salt bath descaling, oxidizing" means the removal of scale from semi-finished steel products by the action of molten salt baths other than those containing sodium hydride.

(b) The term "salt bath descaling, reducing" means the removal of scale from semi-finished steel products by the action of molten salt baths containing sodium hydride.

(c) The term "batch, sheet and plate" means those descaling operations that remove surface scale from sheet and plate products in batch processes.

(d) The term "batch, rod and wire" means those descaling operations that remove surface scale from rod and wire products in batch processes.

(e) The term "batch, pipe and tube" means those descaling operations that remove surface scale from pipe and tube products in batch processes.

(f) The term "continuous" means those descaling operations that remove surface scale from the sheet or wire products in continuous processes.

(g) The term "batch" means those descaling operations in which the products are processed in discrete batches.

### § 420.82 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) Salt bath descaling, oxidizing.

(1) Batch, sheet and plate.

SUBPART H

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum of any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.204 | 0.0876 |
| Chromium | 0.00292 | 0.00117 |
| Nickel | 0.00263 | 0.000876 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Batch, rod and wire.

SUBPART H

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum of any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0123 | 0.0526 |
| Chromium | 0.00175 | 0.000701 |
| Nickel | 0.00158 | 0.000526 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(3) Batch, pipe and tube.

SUBPART H

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.496 | 0.213 |
| Chromium | 0.00709 | 0.00284 |
| Nickel | 0.00638 | 0.00213 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(4) Continuous.

SUBPART H

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0964 | 0.0413 |
| Chromium | 0.00138 | 0.000551 |
| Nickel | 0.00124 | 0.000413 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Salt bath descaling, reducing.

(1) Batch.

SUBPART H

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0949 | 0.0407 |
| Cyanide | 0.00102 | 0.000339 |
| Chromium | 0.00136 | 0.000542 |
| Nickel | 0.00122 | 0.000407 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Continuous.

SUBPART H

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0532 | 0.228 |
| Cyanide | 0.00569 | 0.00190 |
| Chromium | 0.00759 | 0.00304 |
| Nickel | 0.00683 | 0.00228 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.83 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) Salt bath descaling, oxidizing.

(1) Batch, sheet and plate.

SUBPART H

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00292 | 0.00117 |
| Nickel | 0.00263 | 0.000876 |

(2) Batch, rod and wire.

SUBPART H

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00175 | 0.000701 |
| Nickel | 0.00158 | 0.000526 |

(3) Batch, pipe and tube.

SUBPART H

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00709 | 0.00284 |
| Nickel | 0.00638 | 0.00213 |

(4) Continuous.

SUBPART H

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00138 | 0.000551 |
| Nickel | 0.00124 | 0.000413 |

(b) Salt bath descaling, reducing.

(1) Batch.

SUBPART H

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Cyanide | 0.00102 | 0.000339 |
| Chromium | 0.00136 | 0.000542 |
| Nickel | 0.00122 | 0.000407 |

(2) Continuous.

SUBPART H

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Cyanide | 0.00569 | 0.00190 |
| Chromium | 0.00759 | 0.00304 |
| Nickel | 0.00683 | 0.00228 |

**§ 420.84 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) Salt bath descaling, oxidizing.

(1) Batch, sheet and plate.

SUBPART H

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.204 | 0.0876 |
| Chromium | 0.00292 | 0.00117 |
| Nickel | 0.00263 | 0.000876 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Batch, rod and wire.

SUBPART H

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.123 | 0.0526 |
| Chromium | 0.00175 | 0.000701 |
| Nickel | 0.00158 | 0.000526 |

SUBPART H—Continued

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(3) Batch, pipe and tube.

SUBPART H

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.496 | 0.213 |
| Chromium | 0.00709 | 0.00284 |
| Nickel | 0.00638 | 0.00213 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(4) Continuous.

SUBPART H

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0964 | 0.0413 |
| Chromium | 0.00138 | 0.000551 |
| Nickel | 0.00124 | 0.000413 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Salt bath descaling, reducing.
(1) Batch.

SUBPART H

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0949 | 0.0407 |
| Cyanide | 0.00102 | 0.000339 |
| Chromium | 0.00136 | 0.000542 |
| Nickel | 0.00122 | 0.000407 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Continuous.

SUBPART H

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.532 | 0.228 |
| Cyanide | 0.00569 | 0.00190 |
| Chromium | 0.00759 | 0.00304 |
| Nickel | 0.00683 | 0.00228 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.85 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) Salt bath descaling, oxidizing.
(1) Batch, sheet and plate.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00292 | 0.00117 |
| Nickel | 0.00263 | 0.000876 |

(2) Batch, rod and wire.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00175 | 0.000701 |
| Nickel | 0.00158 | 0.000526 |

(3) Batch, pipe and tube.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00709 | 0.00284 |
| Nickel | 0.00638 | 0.00213 |

(4) Continuous.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00138 | 0.000551 |
| Nickel | 0.00124 | 0.00413 |

(b) Salt bath descaling, reducing.
(1) Batch.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Cyanide | 0.00102 | 0.000339 |
| Chromium | 0.00136 | 0.000542 |
| Nickel | 0.00122 | 0.000407 |

(2) Continuous.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for existing sources: Maximum for any 1 day | Pretreatment standards for existing sources: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product) | |
| Cyanide | 0.00569 | 0.00190 |
| Chromium | 0.00759 | 0.00304 |
| Nickel | 0.00683 | 0.00228 |

**§ 420.86 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must

comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

(a) Salt bath descaling, oxidizing.

(1) Batch, sheet and plate.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00292 | 0.00117 |
| Nickel | 0.00263 | 0.000876 |

(2) Batch, rod and wire.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00175 | 0.000701 |
| Nickel | 0.00158 | 0.000526 |

(3) Batch, pipe and tube.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00709 | 0.00284 |
| Nickel | 0.00638 | 0.00213 |

(4) Continuous.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00138 | 0.000551 |
| Nickel | 0.00124 | 0.000413 |

(b) Salt bath descaling, reducing.

(1) Batch.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Cyanide | 0.00102 | 0.000339 |
| Chromium | 0.00136 | 0.000542 |
| Nickel | 0.00122 | 0.000407 |

(2) Continuous.

SUBPART H

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Cyanide | 0.00569 | 0.000190 |
| Chromium | 0.00759 | 0.000304 |
| Nickel | 0.00683 | 0.000228 |

**§ 420.87 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR 125.30–.32, 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 technology.

(a) Salt bath descaling, oxidizing.

(1) Batch, sheet and plate.

SUBPART H

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.204 | 0.0876 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Batch, rod and wire.

SUBPART H

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.123 | 0.0526 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(3) Batch, pipe and tube.

SUBPART H

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.496 | 0.213 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(4) Continuous.

SUBPART H

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0964 | 0.0413 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Salt bath descaling, reducing.

(1) Batch.

SUBPART H

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0949 | 0.0407 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(2) Continuous.

SUBPART H

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0532 | 0.228 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

## Subpart I—Acid Pickling Subcategory

### § 420.90 Applicability; description of the acid pickling subcategory.

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from sulfuric acid, hydrochloric acid, or combination acid pickling operations.

### § 420.91 Specialized definitions.

(a) The term "sulfuric acid pickling" means those operations in which steel products are immersed in sulfuric acid solutions to chemically remove oxides and scale, and those rinsing operations associated with such immersions.

(b) The term "hydrochloric acid pickling" means those operations in which steel products are immersed in hydrochloric acid solutions to chemically remove oxides and scale, and those rinsing operations associated with such immersions.

(c) The term "combination acid pickling" means those operations in which steel products are immersed in solutions of more than one acid to chemically remove scale and oxides, and those rinsing steps associated with such immersions.

(d) The term "fume scrubber" means those pollution control devices used to remove and clean fumes originating in pickling operations.

(e) The term "batch" means those pickling operations which process steel products such as coiled wire, rods, and tubes in discrete batches or bundles.

(f) The term "continuous" means those pickling operations which process steel products other than in discrete batches or bundles.

(g) The term "acid recovery" means those sulfuric acid pickling operations that include processes for recovering the unreacted acid from spent pickling acid solutions.

(h) The term "acid regeneration" means those hydrochloric acid pickling operations that include processes for regenerating acid from spent pickling acid solutions.

(i) The term "neutralization" means those acid pickling operations that do not include acid recovery or acid regeneration processes.

(j) The term "spent acid solution" (or spent pickle liquor) means those solutions of steel pickling acids which have been used in the pickling process and are discharged or removed therefrom.

(k) The term "rod, wire and coil" means those acid pickling operations that pickle rod, wire or coiled rod and wire products.

(l) The term "bar, billet and bloom" means those acid pickling operations that pickle bar, billet or bloom products.

(m) The term "strip, sheet and plate" means those acid pickling operations that pickle strip, sheet or plate products.

(n) The term "pipe, tube and other" means those acid pickling operations that pickle pipes, tubes or any steel product other than those included in paragraphs (k), (l) and (m) herein.

### § 420.92 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) Sulfuric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire and coil.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0818 | 0.0350 |
| O&G [1] | 0.0350 | 0.0117 |
| Lead | 0.000526 | 0.000175 |
| Zinc | 0.000350 | 0.000117 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Bar, billet and bloom.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0263 | 0.0113 |
| O&G [1] | 0.0113 | 0.00375 |
| Lead | 0.000169 | 0.0000563 |
| Zinc | 0.000113 | 0.0000375 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Strip, sheet and plate.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0526 | 0.0225 |
| O&G [1] | 0.0225 | 0.00751 |
| Lead | 0.000338 | 0.000113 |
| Zinc | 0.000225 | 0.0000751 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.146 | 0.0626 |
| O&G [1] | 0.0626 | 0.0209 |
| Lead | 0.000939 | 0.000313 |
| Zinc | 0.000626 | 0.000209 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a sulfuric acid pickling operation.

(b) Hydrochloric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire and coil.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.143 | 0.0613 |
| O&G [1] | 0.0613 | 0.0204 |
| Lead | 0.000920 | 0.000307 |
| Zinc | 0.000613 | 0.000204 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Strip, sheet and plate.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0818 | 0.0350 |
| O&G [1] | 0.0350 | 0.0117 |
| Lead | 0.000526 | 0.000175 |
| Zinc | 0.000350 | 0.000117 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.298 | 0.128 |
| O&G [1] | 0.128 | 0.0426 |
| Lead | 0.00192 | 0.000638 |
| Zinc | 0.00126 | 0.000426 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a hydrochloric acid pickling operation.

(5) Acid regeneration.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 38.2 | 16.3 |
| O&G [1] | 16.3 | 5.45 |
| Lead | 0.245 | 0.0819 |
| Zinc | 0.163 | 0.0545 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to the absorber vent scrubber wastewater associated with hydrochloric acid regeneration plants.

(c) Combination acid pickling (spent acid solution and rinse waters).

(1) Rod, Wire, and Coil.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.149 | 0.0638 |
| O&G [1] | 0.0638 | 0.0213 |
| Chromium | 0.00213 | 0.000852 |
| Nickel | 0.00192 | 0.000638 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0672 | 0.0288 |
| O&G [1] | 0.0288 | 0.00960 |
| Chromium | 0.000960 | 0.000384 |
| Nickel | 0.000864 | 0.000288 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Strip, sheet, and plate—continuous.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.433 | 0.188 |
| O&G [1] | 0.188 | 0.0626 |
| Chromium | 0.00626 | 0.00250 |
| Nickel | 0.00563 | 0.00188 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Strip, sheet and plate—batch.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.134 | 0.0576 |
| O&G [1] | 0.0576 | 0.0192 |
| Chromium | 0.00192 | 0.000768 |
| Nickel | 0.00173 | 0.000576 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.225 | 0.0964 |
| O&G [1] | 0.0964 | 0.0322 |
| Chromium | 0.00322 | 0.00129 |
| Nickel | 0.00289 | 0.000964 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(6) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| Chromium | 0.0819 | 0.0327 |
| Nickel | 0.0735 | 0.0245 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a combination acid pickling operation.

**§ 420.93 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) Sulfuric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire and coil.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000526 | 0.000175 |
| Zinc | 0.000350 | 0.000117 |

(2) Bar, billet and bloom.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000169 | 0.0000563 |
| Zinc | 0.000113 | 0.0000375 |

(3) Strip, sheet and plate.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000338 | 0.000113 |
| Zinc | 0.000225 | 0.0000751 |

(4) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000939 | 0.000313 |
| Zinc | 0.000626 | 0.000209 |

(5) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |

The above limitations shall be applicable to each fume scrubber associated with a sulfuric acid pickling operation.

(b) Hydrochloric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire and coil.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000920 | 0.000307 |
| Zinc | 0.000613 | 0.000204 |

(2) Strip, sheet and plate.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000526 | 0.000175 |
| Zinc | 0.000350 | 0.000117 |

(3) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00192 | 0.000638 |
| Zinc | 0.00128 | 0.000426 |

(4) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |

The above limitations shall be applicable to each fume scrubber associated with a hydrochloric acid pickling operation.

(5) Acid regeneration.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kilograms per day | |
| Lead | 0.245 | 0.0819 |
| Zinc | 0.163 | 0.0545 |

The above limitations shall be applicable to the absorber vent scrubber wastewater associated with hydrochloric acid regeneration plants.

(c) Combination acid pickling (spent acid solution and rinse waters).

Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00213 | 0.000852 |
| Nickel | 0.00192 | 0.000638 |

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000960 | 0.000384 |
| Nickel | 0.000864 | 0.000288 |

(3) Strip, sheet, and plate—continuous.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00626 | 0.00250 |
| Nickel | 0.00563 | 0.00188 |

(4) Strip, sheet, and plate—batch.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00192 | 0.000768 |
| Nickel | 0.00173 | 0.000576 |

(5) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00322 | 0.00129 |
| Nickel | 0.00289 | 0.000964 |

(6) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kilograms per day | |
| Chromium | 0.0819 | 0.0327 |
| Nickel | 0.0735 | 0.0245 |

The above limitations shall be applicable to each fume scrubber associated with a combination acid pickling operation.

**§ 420.94 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) Sulfuric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0146 | 0.00626 |
| O&G* | 0.00626 | 0.00209 |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.0000626 | 0.0000209 |
| pH | (1) | (1) |

*The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.

[1] Within the range of 6.0 to 9.0.

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00876 | 0.00376 |
| O&G* | 0.00376 | 0.00125 |
| Lead | 0.0000563 | 0.0000188 |
| Zinc | 0.0000376 | 0.0000125 |
| pH | (1) | (1) |

*The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.

[1] Within the range of 6.0 to 9.0.

(3) Strip, sheet, and plate.

SUBPART I

| Pollutant or pollutant property | New source performance standards: Maximum for any 1 day | New source performance standards: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0117 | 0.00501 |
| O&G [1] | 0.00501 | 0.00167 |
| Lead | 0.0000751 | 0.0000250 |
| Zinc | 0.0000501 | 0.0000167 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.

[2] Within the range of 6.0 to 9.0.

(4) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0204 | 0.00876 |
| O&G [1] | 0.00876 | 0.00292 |
| Lead | 0.000131 | 0.0000438 |
| Zinc | 0.0000876 | 0.0000292 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a sulfuric acid pickling operation.

(b) Hydrochloric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0175 | 0.00751 |
| O&G [1] | 0.00751 | 0.00250 |
| Lead | 0.000113 | 0.0000376 |
| Zinc | 0.0000751 | 0.0000250 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Strip, sheet, and plate.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0117 | 0.00501 |
| O&G [1] | 0.00501 | 0.00167 |
| Lead | 0.0000751 | 0.0000250 |
| Zinc | 0.0000501 | 0.0000167 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0321 | 0.0138 |
| O&G [1] | 0.0138 | 0.00459 |
| Lead | 0.000206 | 0.0000688 |
| Zinc | 0.000138 | 0.0000459 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a hydrochloric acid pickling operation.

(c) Combination acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0204 | 0.00876 |
| O&G [1] | 0.00876 | 0.00292 |
| Chromium | 0.000292 | 0.000117 |
| Nickel | 0.000263 | 0.0000876 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0117 | 0.00501 |
| O&G [1] | 0.00501 | 0.00167 |
| Chromium | 0.000167 | 0.0000667 |
| Nickel | 0.000150 | 0.0000501 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Strip, sheet and plate—continuous.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0496 | 0.0213 |
| O&G [1] | 0.0213 | 0.00710 |
| Chromium | 0.000710 | 0.000284 |
| Nickel | 0.000638 | 0.000213 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Strip, sheet, and plate—batch.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0175 | 0.00751 |
| O&G [1] | 0.00751 | 0.00250 |
| Chromium | 0.000250 | 0.000100 |
| Nickel | 0.000225 | 0.0000751 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0292 | 0.0125 |
| O&G [1] | 0.0125 | 0.00418 |
| Chromium | 0.000418 | 0.000167 |
| Nickel | 0.000376 | 0.000125 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(6) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| Chromium | 0.0819 | 0.0327 |
| Nickel | 0.0735 | 0.0245 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a combination acid pickling operation.

**§ 420.95 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) Sulfuric acid (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000526 | 0.000175 |
| Zinc | 0.000350 | 0.000117 |

(2) Bar, billett, and bloom.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000169 | 0.0000563 |
| Zinc | 0.000113 | 0.0000375 |

(3) Strip, sheet, and plate.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000338 | 0.0000113 |
| Zinc | 0.000225 | 0.0000751 |

(4) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000939 | 0.000313 |
| Zinc | 0.000626 | 0.000209 |

(5) Fume scrubber.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |

NOTE.—The above limitations are applicable to each fume scrubber associated with sulfuric acid pickling operations.

(b) Hydrochloric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000920 | 0.000307 |
| Zinc | 0.000613 | 0.000204 |

(2) Strip, sheet, and plate.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000526 | 0.000175 |
| Zinc | 0.000350 | 0.000117 |

(3) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00192 | 0.000638 |
| Zinc | 0.00126 | 0.000426 |

(4) Fume scrubber.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |

NOTE.—The above limitations shall be applicable for each fume scrubber associated with hydrochloric acid pickling operations.

(5) Acid regeneration.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.245 | 0.0819 |
| Zinc | 0.163 | 0.0544 |

NOTE.—The above limitations shall be applicable to the absorber vent scrubber wastewater associated with hydrochloric acid regeneration plants.

(c) Combination acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00213 | 0.000852 |
| Nickel | 0.00192 | 0.000638 |

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000960 | 0.000384 |
| Nickel | 0.000864 | 0.000288 |

(3) Strip, sheet, and plate—continuous.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00626 | 0.00250 |
| Nickel | 0.00563 | 0.00188 |

(4) Strip, sheet, and plate—batch.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00192 | 0.000768 |
| Nickel | 0.00173 | 0.000576 |

(5) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.00322 | 0.00129 |
| Nickel | 0.00289 | 0.000964 |

(6) Fume scrubber.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Chromium | 0.0819 | 0.0327 |
| Nickel | 0.0735 | 0.0245 |

NOTE.—The above limitations shall be applicable to each fume scrubber associated with a combination acid pickling operation.

**§ 420.96 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

(a) Sulfuric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, coil.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000939 | 0.0000313 |
| Zinc | 0.0000626 | 0.0000209 |

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000563 | 0.0000188 |
| Zinc | 0.0000376 | 0.0000125 |

(3) Strip, sheet, and plate.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000751 | 0.0000250 |
| Zinc | 0.0000501 | 0.0000167 |

(4) Pipe, tube, other products.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000131 | 0.0000438 |
| Zinc | 0.0000876 | 0.0000292 |

(5) Fume scrubber.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |

(b) Hydrochloric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, coil.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000113 | 0.0000376 |
| Zinc | 0.0000751 | 0.0000250 |

(2) Strip, sheet, and plate.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.0000751 | 0.0000250 |
| Zinc | 0.0000501 | 0.0000167 |

(3) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000206 | 0.0000688 |
| Zinc | 0.000138 | 0.0000459 |

(4) Fume scrubber.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |

NOTE.—The above limitations shall be applicable for each fume scrubber associated with hydrochloric acid pickling operations.

(c) Combination acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000292 | 0.000117 |
| Nickel | 0.000263 | 0.0000876 |

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000167 | 0.0000667 |
| Nickel | 0.000150 | 0.0000501 |

(3) Strip, sheet, and plate—continuous.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000710 | 0.000284 |
| Nickel | 0.000638 | 0.000213 |

(4) Strip, sheet, and plate—batch.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000250 | 0.000100 |
| Nickel | 0.000225 | 0.0000751 |

(5) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium | 0.000418 | 0.000167 |
| Nickel | 0.000376 | 0.000125 |

(6) Fume scrubber.

SUBPART I

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Chromium | 0.0619 | 0.0327 |
| Nickel | 0.0735 | 0.0245 |

**§ 420.97 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR 125.30–.32, 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 technology.

(a) Sulfuric acid pickling (spent acid solutions and rinse waters)

(1) Rod, wire and coil.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0819 | 0.0350 |
| O&G [1] | 0.0350 | 0.0117 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Bar, billet and bloom.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0263 | 0.0113 |
| O&G [1] | 0.0113 | 0.00376 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Strip, sheet and plate.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0526 | 0.0225 |
| O&G [1] | 0.0225 | 0.00751 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.146 | 0.0626 |
| O&G [1] | 0.0626 | 0.0209 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a sulfuric acid pickling operation.

(b) Hydrochloric acid pickling (spent acid solutions and rinse waters).

(1) Rod, wire and coil.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.143 | 0.0613 |
| O&G [1] | 0.0613 | 0.0204 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Strip, sheet and plate.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0819 | 0.0350 |
| O&G [1] | 0.0350 | 0.0117 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Pipe, tube and other products.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.298 | 0.128 |
| O&G [1] | 0.128 | 0.0426 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0

(4) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a hydrochloric acid pickling operation.

(5) Acid regeneration.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations: Maximum for any 1 day | BCT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Kilograms per day | |
| TSS | 38.2 | 16.3 |
| O&G [1] | 16.3 | 5.45 |
| pH | ([2]) | ([2]) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to the absorber vent scrubber wastewater associated with hydrochloric acid regeneration plants.

(c) Combination acid pickling (spent acid solution and rinse waters).

(1) Rod, wire, and coil.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.149 | 0.0638 |
| O&G [1] | 0.0638 | 0.0213 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Bar, billet, and bloom.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0672 | 0.0288 |
| O&G [1] | 0.0288 | 0.00960 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Strip, sheet, and plate—continuous.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.438 | 0.188 |
| O&G [1] | 0.188 | 0.0626 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Strip, sheet and plate—batch.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.134 | 0.0576 |
| O&G [1] | 0.0576 | 0.0192 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Pipe, tube, and other products.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.225 | 0.0964 |
| O&G [1] | 0.0964 | 0.0321 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

(6) Fume scrubbers.

SUBPART I

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 5.72 | 2.45 |
| O&G [1] | 2.45 | 0.819 |
| pH | (2) | (2) |

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with a combination acid pickling operation.

## Subpart J—Cold Forming Subcategory

### § 420.100 Applicability; description of the cold forming subcategory.

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works from cold rolling and cold working pipe and tube operations in which unheated steel is passed through rolls or otherwise processed to reduce its thickness, to produce a smooth surface, or to develop controlled mechanical properties in the steel.

### § 420.101 Specialized definitions.

(a) The term "recirculation" means those cold rolling operations which include recirculation of rolling solutions at all mill stands.

(b) The term "combination" means those cold rolling operations which include recirculation of rolling solutions at one or more mill stands, and once-through use of rolling solutions at the remaining stand or stands.

(c) The term "direct application" means those cold rolling operations which include once-through use of rolling solutions at all mill stands.

(d) The term "single stand" means those recirculation or direct application cold rolling mills which include only one stand of work rolls.

(e) The term "multiple stands" means those recirculation or direct application cold rolling mills which include more than one stand of work rolls.

(f) The term "cold worked pipe and tube" means those cold forming operations that process unheated pipe and tube products using either water or oil solutions for cooling and lubrication.

### § 420.102 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) Cold rolling mills.

(1) Recirculation—single stand.

SUBPART J

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00125 | 0.000626 |
| O&G | 0.000522 | 0.000209 |
| Chromium [1] | 0.0000209 | 0.0000084 |
| Lead | 0.0000094 | 0.0000031 |
| Nickel [1] | 0.0000188 | 0.0000063 |
| Zinc | 0.0000063 | 0.0000021 |
| Naphthalene | 0.0000021 | |
| Tetrachloroethylene | 0.0000031 | |
| pH | (2) | (2) |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Recirculation—multiple stands.

SUBPART J

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00626 | 0.00313 |
| O&G | 0.00261 | 0.00104 |
| Chromium [1] | 0.000104 | 0.0000418 |
| Lead | 0.0000469 | 0.0000156 |
| Nickel [1] | 0.0000939 | 0.0000313 |

SUBPART J—Continued

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| Zinc | 0.0000313 | 0.0000104 |
| Naphthalene | 0.0000104 | |
| Tetrachloroethylene | 0.0000156 | |
| pH | (2) | (2) |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Combination.

SUBPART J

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0751 | 0.0376 |
| O&G | 0.0313 | 0.0125 |
| Chromium [1] | 0.00125 | 0.000501 |
| Lead | 0.000563 | 0.000188 |
| Nickel [1] | 0.00113 | 0.000376 |
| Zinc | 0.000376 | 0.000125 |
| Naphthalene | 0.000125 | |
| Tetrachloroethylene | 0.000188 | |
| pH | (2) | (2) |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are cotreated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Direct application—single stand.

SUBPART J

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0225 | 0.0113 |
| O&G | 0.00939 | 0.00376 |
| Chromium [1] | 0.000376 | 0.000150 |
| Lead | 0.000169 | 0.0000563 |
| Nickel [1] | 0.000338 | 0.000113 |
| Zinc | 0.000113 | 0.0000376 |
| Naphthalene | 0.0000376 | |
| Tetrachloroethylene | 0.0000563 | |
| pH | (2) | (2) |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(5) Direct application—multiple stands.

SUBPART J

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.100 | 0.0501 |
| O&G | 0.0417 | 0.0167 |
| Chromium [1] | 0.00167 | 0.000668 |
| Lead | 0.000751 | 0.000250 |
| Nickel [1] | 0.00150 | 0.000501 |
| Zinc | 0.000501 | 0.000167 |
| Naphthalene | 0.000167 | |
| Tetrachloroethylene | 0.000250 | |
| pH | (2) | (2) |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(b) Cold worked pipe and tube.

(1) *Using water.* No discharge of process wastewater pollutants to navigable waters.

(2) *Using oil solutions.* No discharge of process wastewater pollutants to navigable waters.

**§ 420.103 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) Cold rolling mills.

(1) Recirculation—single stand.

SUBPART J

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.0000209 | 0.0000084 |
| Lead | 0.0000094 | 0.0000031 |
| Nickel [1] | 0.0000188 | 0.0000063 |
| Zinc | 0.0000063 | 0.0000021 |
| Naphthalene | 0.0000021 | |
| Tetrachloroethylene | 0.0000031 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(2) Recirculation—multiple stands.

SUBPART J

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.000104 | 0.0000418 |
| Lead | 0.0000469 | 0.0000156 |
| Nickel [1] | 0.0000939 | 0.0000313 |
| Zinc | 0.0000313 | 0.0000104 |
| Naphthalene | 0.0000104 | |
| Tetrachloroethylene | 0.0000156 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(3) Combination.

SUBPART J

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.00125 | 0.000501 |
| Lead | 0.000563 | 0.000188 |
| Nickel [1] | 0.00113 | 0.000376 |
| Zinc | 0.000376 | 0.000125 |
| Naphthalene | 0.000125 | |
| Tetrachloroethylene | 0.000188 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are cotreated with descaling or combination acid pickling wastewaters.

(4) Direct application—single stand.

Subpart J

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.000376 | 0.000150 |
| Lead | 0.000169 | 0.0000563 |
| Nickel [1] | 0.000338 | 0.000113 |
| Zinc | 0.000113 | 0.0000376 |
| Naphthalene | 0.0000376 | |
| Tetrachloroethylene | 0.0000563 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(5) Direct application—multiple stands.

SUBPART J

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.00167 | 0.000668 |
| Lead | 0.000751 | 0.000250 |
| Nickel [1] | 0.00150 | 0.000501 |
| Zinc | 0.000501 | 0.000167 |
| Naphthalene | 0.000167 | |
| Tetrachloroethylene | 0.000250 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(b) Cold worked pipe and tube.

(1) *Using water.* No discharge of process wastewater pollutants to navigable waters.

(2) *Using oil solutions.* No discharge of process wastewater pollutants to navigable waters.

**§ 420.104 New source perfrmance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) Cold rolling mills.

(1) Recirculation—single stand.

SUBPART J

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00125 | 0.000626 |
| O&G | 0.000522 | 0.000209 |
| Chromium [1] | 0.0000209 | 0.0000084 |
| Lead | 0.0000094 | 0.0000031 |
| Nickel [1] | 0.0000188 | 0.0000063 |
| Zinc | 0.0000063 | 0.0000021 |
| Naphthalene | 0.0000021 | |
| Tetrachloroethylene | 0.0000031 | |
| pH | [2] | [2] |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are cotreated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(2) Recirculation—multiple stands.

SUBPART J

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00250 | 0.00125 |
| O&G | 0.00104 | 0.000417 |
| Chromium [1] | 0.0000418 | 0.0000167 |
| Lead | 0.0000188 | 0.0000063 |
| Nickel [1] | 0.0000376 | 0.0000125 |
| Zinc | 0.0000125 | 0.0000042 |
| Naphthalene | 0.0000042 | |
| Tetrachloroethylene | 0.0000063 | |
| pH | [2] | [2] |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(3) Combination.

SUBPART J

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0326 | 0.0163 |
| O&G | 0.0136 | 0.00543 |
| Chromium [1] | 0.000543 | 0.000217 |
| Lead | 0.000244 | 0.0000814 |
| Nickel [1] | 0.000488 | 0.000163 |
| Zinc | 0.000163 | 0.0000542 |
| Naphthalene | 0.0000542 | |
| Tetrachloroethylene | 0.0000813 | |
| pH | [2] | [2] |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastwaters are treated with descaling or combination acid pickling wastewaters.
[2] Within the range of 6.0 to 9.0.

(4) Direct application—single stand.

SUBPART J

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00626 | 0.00313 |
| O&G | 0.00261 | 0.00104 |
| Chromium [1] | 0.000104 | 0.0000418 |
| Lead | 0.0000469 | 0.0000156 |
| Nickel [1] | 0.0000939 | 0.0000313 |
| Zinc | 0.0000313 | 0.0000104 |
| Naphthalene | 0.0000104 | |
| Tetrachloro-ethylene | 0.0000156 | |
| pH | [2] | [2] |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling watewaters.
[2] Within the range of 6.0 to 9.0.

(5) Direct application—multiple stands.

SUBPART J

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0726 | 0.0363 |
| O&G | 0.0302 | 0.0121 |
| Chromium [1] | 0.00121 | 0.000484 |
| Lead | 0.000545 | 0.000182 |
| Nickel [1] | 0.00109 | 0.000363 |
| Zinc | 0.000363 | 0.000121 |
| Naphthalene | 0.000121 | |
| Tetrachloro-ethylene | 0.000182 | |
| pH | [2] | [2] |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling watewaters.
[2] Within the range of 6.0 to 9.0.

(b) Cold worked pipe and tube mills.

(1) *Using water.* No discharge of process wastewater pollutants to navigable waters.

(2) *Using oil solutions.* No discharge of process wastewater pollutants to navigable waters.

**§ 420.105 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) Cold rolling.

(1) Recirculation—single stand.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.0000209 | 0.0000084 |
| Lead | 0.0000094 | 0.0000031 |
| Nickel [1] | 0.0000188 | 0.0000063 |
| Zinc | 0.0000063 | 0.0000021 |
| Naphthalene | 0.0000021 | |
| Tetrachloroethylene | 0.0000031 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(2) Recirculation—multiple stands.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.000104 | 0.0000418 |
| Lead | 0.0000469 | 0.0000156 |
| Nickel [1] | 0.0000939 | 0.0000313 |
| Zinc | 0.0000313 | 0.0000104 |
| Naphthalene | 0.0000104 | |
| Tetrachloroethylene | 0.0000156 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(3) Combination.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.00125 | 0.000501 |
| Lead | 0.000563 | 0.000188 |
| Nickel [1] | 0.00113 | 0.000376 |
| Zinc | 0.000376 | 0.000125 |
| Naphthalene | 0.000125 | |
| Tetrachloroethylene | 0.000188 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(4) Direct application—single stand.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.000376 | 0.000150 |
| Lead | 0.000169 | 0.0000563 |
| Nickel [1] | 0.000338 | 0.000113 |
| Zinc | 0.000113 | 0.0000376 |
| Naphthalene | 0.0000376 | |
| Tetrachloroethylene | 0.0000563 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(5) Direct application—multiple stands.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.00167 | 0.000668 |
| Lead | 0.000751 | 0.000250 |
| Nickel [1] | 0.00150 | 0.000501 |
| Zinc | 0.000501 | 0.000167 |
| Napthalene | 0.000167 | |
| Tetrachloroethylene | 0.000250 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(b) Cold worked pipe and tube mills.

(1) *Using water.* No discharge of process wastewater pollutants to publicly owned treatment works.

(2) *Using oil solutions.* No discharge of process wastewater pollutants to publicly owned treatment works.

**§ 420.106 Pretreatment standards for new sources.**

Except as provided in 40 CFR § 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources.

(a) Cold rolling.

(1) Recirculation—single stand.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.0000209 | 0.0000084 |
| Lead | 0.0000094 | 0.0000031 |
| Nickel [1] | 0.0000188 | 0.0000063 |
| Zinc | 0.0000063 | 0.0000021 |
| Naphthalene | 0.0000021 | |
| Tetrachloroethylene | 0.0000031 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(2) Recirculation—multiple stands.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.0000418 | 0.0000167 |
| Lead | 0.0000188 | 0.0000063 |
| Nickel [1] | 0.0000376 | 0.0000125 |
| Zinc | 0.0000125 | 0.0000042 |
| Naphthalene | 0.0000042 | |
| Tetrachloroethylene | 0.0000063 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(3) Combination.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Chromium [1] | 0.000543 | 0.000217 |
| Lead | 0.000244 | 0.0000814 |
| Nickel [1] | 0.000488 | 0.000163 |
| Zinc | 0.000163 | 0.0000542 |
| Naphthalene | 0.0000542 | |
| Tetrachloroethylene | 0.0000813 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(4) Direct application—single stand.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg pounds per 1,000 lb) of product | |
| Chromium [1] | 0.000104 | 0.0000418 |
| Lead | 0.0000469 | 0.0000156 |
| Nickel [1] | 0.0000939 | 0.0000313 |
| Zinc | 0.0000313 | 0.0000104 |
| Naphthalene | 0.0000104 | |
| Tetrachloroethylene | 0.0000156 | |

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(5) Direct application—multiple stands.

SUBPART J

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg pounds per 1,000 lb) of product | |
| Chromium[1] | 0.00121 | 0.000484 |
| Lead | 0.000545 | 0.000182 |
| Nickel[1] | 0.00109 | 0.000363 |
| Zinc | 0.000363 | 0.000121 |
| Naphthalene | 0.000121 | |
| Tetrachloroethylene | 0.000182 | |

[1]The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters.

(b) Cold worked pipe and tube mills.

(1) *Using water.* No discharge of process wastwater pollutants to publicly owned treatment works.

(2) *Using oil solutions.* No discharge of process wastewater pollutants to publicly owned treatment works.

**§ 420.107 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR 125.30–.32, 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 technology.

(a) Cold rolling mills.

(1) Recirculation—single stand.

SUBPART J

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00125 | 0.000626 |
| O&G | 0.000522 | 0.000209 |
| pH | (1) | (1) |

[1]Within the range of 6.0 to 9.0.

(2) Recirculation—multiple stands.

SUBPART J

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.00626 | 0.00313 |
| O&G | 0.00261 | 0.00104 |

SUBPART J—Continued

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| pH | (1) | (1) |

[1]Within the range of 6.0 to 9.0.

(3) Combination.

SUBPART J

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0751 | 0.0376 |
| O&G | 0.0313 | 0.0125 |
| pH | (1) | (1) |

[1]Within the range of 6.0 to 9.0.

(4) Direct application—single stand.

SUBPART J

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0225 | 0.0113 |
| O&G | 0.00939 | 0.00378 |
| pH | (1) | (1) |

[1]Within the range of 6.0 to 9.0.

(5) Direct application—multiple stands.

SUBPART J

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.100 | 0.0501 |
| O&G | 0.0417 | 0.0167 |
| pH | (1) | (1) |

[1]Within the range of 6.0 to 9.0.

(b) Cold worked pipe and tube.

(1) *Using water.* No discharge of process wastewater pollutants to navigable waters.

(2) *Using oil solutions.* No discharge of process wastewater pollutants to navigable waters.

## Subpart K—Alkaline Cleaning Subcategory

**§ 420.110 Applicability; description of the alkaline cleaning subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from operations in which steel and steel products are immersed in alkaline cleaning baths to remove mineral and animal fats or oils from the steel, and those rinsing operations which follow such immersion.

**§ 420.111 Specialized definitions.**

(a) The term "batch" means those alkaline cleaning operations which process steel products such as coiled wire, rods, and tubes in discrete batches or bundles.

(b) The term "continuous" means those alkaline cleaning operations which process steel products other than in discrete batches or bundles.

**§ 420.112 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) Batch.

SUBPART K

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0730 | 0.0313 |
| O&G | 0.0313 | 0.0104 |
| pH | (1) | (1) |

[1]Within the range of 6.0 to 9.0.

(b) Continuous.

SUBPART K

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of products | |
| TSS | 0.102 | 0.0438 |
| O&G | 0.0438 | 0.0146 |

SUBPART K—Continued

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.113 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

The Agency has determined that there are not significant quantities of toxic pollutants in alkaline cleaning wastewaters after compliance with applicable BPT limitations. Accordingly, since the BPT level of treatment provides adequate control, the Agency is not promulgating more stringent BAT limitations.

**§ 420.114 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) Batch and continuous.

SUBPART K

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0146 | 0.00626 |
| O&G | 0.00626 | 0.00209 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

**§ 420.115 Pretreatment standards for existing sources.**

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

**§ 420.116 Pretreatment standards for new sources.**

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

**§ 420.117 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR 125.30–.32, 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 technology.

(a) Batch.

SUBPART K

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0730 | 0.0313 |
| O&G | 0.0313 | 0.0104 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Continuous.

SUBPART K

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.102 | 0.0438 |
| O&G | 0.0438 | 0.0146 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

## Subpart L—Hot Coating Subcategory

**§ 420.120 Applicability; description of the hot coating subcategory.**

The provisions of this subpart are applicable to discharges and to the introduction of pollutants into publicly owned treatment works resulting from the operations in which steel is coated with zinc, terne metal, or other metals by the hot dip process, and those rinsing operations associated with that process.

**§ 420.121 Specialized definitions.**

(a) The term "galvanizing" means coating steel products with zinc by the hot dip process including the immersion of the steel product in a molten bath of zinc metal, and the related operations preceding and subsequent to the immersion phase.

(b) The term "terne coating" means coating steel products with terne metal by the hot dip process including the immersion of the steel product in a molten bath of lead and tin metals, and the related operations preceding and subsequent to the immersion phase.

(c) The term "other coatings" means coating steel products with metals other than zinc or terne metal by the hot dip process including the immersion of the steel product in a molten bath of metal, and the related operations preceding the subsequent to the immersion phase.

(d) The term "fume scrubber" means wet air pollution control devices used to remove and clean fumes originating from hot coating operations.

(e) The term "strip, sheet, and miscellaneous products" means steel products other than wire products and fasteners.

(f) The term "wire products and fasteners" means steel wire, products manufactured from steel wire, and steel fasteners manufactured from steel wire or other steel shapes.

**§ 420.122 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30–.32, 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 practicable control technology currently available.

(a) Galvanizing, terne coating, and other coatings.

(1) Strip, sheet, and miscellaneous products.

SUBPART L

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.175 | 0.0751 |
| O&G | 0.0751 | 0.0250 |
| Lead | 0.00113 | 0.000376 |
| Zinc | 0.000751 | 0.000250 |
| Chromium (hexavalent) [1] | 0.000150 | 0.0000501 |
| pH | (2) | (2) |

[1] The limitations for hexavalent chromium shall apply only to galvanizing operations which discharge wastewaters from the chromate rinse step.
[2] Within the range of 6.0 to 9.0.

(b) Galvanizing and other coatings.

(1) Wire products and fasteners.

SUBPART L

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.701 | 0.300 |
| O&G | 0.300 | 0.100 |
| Lead | 0.00451 | 0.00150 |
| Zinc | 0.00300 | 0.00100 |
| Chromium (hexavalent) [1] | 0.000600 | 0.000200 |
| pH | (2) | (2) |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.
[2] Within the range of 6.0 to 9.0.

(c) Fume scrubbers.

SUBPART L

| Pollutant or pollutant property | BPT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg per day | |
| TSS | 38.1 | 16.3 |
| O&G | 16.3 | 5.45 |
| Lead | 0.245 | 0.0819 |
| Zinc | 0.163 | 0.0545 |
| Chromium (hexavalent) [1] | 0.0327 | 0.0109 |
| pH | ([2]) | ([2]) |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with any or the coating operations specified above.

**§ 420.123 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30–.32, 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.

(a) Galvanizing, terne coating and other coatings.

(1) Strip, sheet, and miscellaneous products scrubbers.

SUBPART L

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00113 | 0.000376 |
| Zinc | 0.000751 | 0.000250 |
| Chromium (hexavalent) [1] | 0.000150 | 0.0000501 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewater from the chromate rinse step.

(b) Galvanizing and other coatings.

(1) Wire products and fasteners.

SUBPART L

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00451 | 0.00150 |
| Zinc | 0.00300 | 0.00100 |
| Chromium (hexavalent) [1] | 0.000601 | 0.000200 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

(c) Fume scrubbers.

SUBPART L

| Pollutant or pollutant property | BAT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| Chromium (hexavalent) [1] | 0.00490 | 0.00163 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

The above limitations shall be applicable to each fume scrubber associated with any of the coating operations specified above.

**§ 420.124 New source performance standards.**

The discharge of wastewater pollutants from any new source subject to this subpart shall not exceed the standards set forth below.

(a) Galvanizing, terne coating and other coatings.

(1) Strip, sheet, and miscellaneous products.

SUBPART L

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.0438 | 0.0188 |
| O&G | 0.0188 | 0.00626 |
| Lead | 0.000282 | 0.0000939 |
| Zinc | 0.000188 | 0.0000626 |
| Chromium (hexavalent) [1] | 0.0000376 | 0.0000125 |
| pH | ([2]) | ([2]) |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.
[2] Within the range of 6.0 to 9.0.

(b) Galvanizing and other coatings.

(1) Wire products and fasteners.

SUBPART L

| Pollutant or pollutant property | New source performance standards | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.175 | 0.0751 |
| O&G | 0.0751 | 0.0250 |
| Lead | 0.00113 | 0.000376 |
| Zinc | 0.000751 | 0.000250 |
| Chromium (hexavalent) [1] | 0.000150 | 0.0000501 |
| pH | ([2]) | ([2]) |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.
[2] Within the range of 6.0 to 9.0.

(c) Fume scrubbers.

SUBPART L

| New source performance standards | Pollutant or pollutant property | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | kg/per day | |
| TSS | 5.72 | 2.45 |
| O&G | 2.45 | 0.819 |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| Chromium (hexavalent) [1] | 0.00490 | 0.00163 |
| pH | ([2]) | ([2]) |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.
[2] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with any of the coating operations specified above.

**§ 420.125 Pretreatment standards for existing sources.**

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources.

(a) Galvanizing, terne coating and other coatings.

(1) Strip, sheet, and miscellaneous products.

SUBPART L

| Pretreatment standards for existing sources | Pollutant or pollutant property | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00113 | 0.000376 |
| Zinc | 0.000751 | 0.000250 |
| Chromium (hexavalent)[1] | 0.000150 | 0.0000501 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

(b) Galvanizing and other coatings.

(1) Wire products and fasteners.

SUBPART L

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00451 | 0.00150 |
| Zinc | 0.00300 | 0.00100 |
| Chromium (hexavalent)[1] | 0.000601 | 0.000200 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

(c) Fume scrubbers.

SUBPART L

| Pollutant or pollutant property | Pretreatment standards for existing sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| Chromium (hexavalent)[1] | 0.00490 | 0.00163 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

The above limitations shall be applicable to each fume scrubber associated with any of the coating operations specified above.

**§ 420.126 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources:

(a) Galvanizing, terne coatings and other coatings.

(1) Strip, sheet, and miscellaneous products.

SUBPART L

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.000282 | 0.0000939 |
| Zinc | 0.000188 | 0.0000626 |
| Chromium (hexavalent)[1] | 0.0000376 | 0.0000125 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

(b) Galvanizing and other coatings.

(1) Wire products and fasteners.

SUBPART L

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| Lead | 0.00113 | 0.000376 |
| Zinc | 0.000751 | 0.000250 |
| Chromium (hexavalent)[1] | 0.000150 | 0.0000501 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

(c) Fume scrubbers.

SUBPART L

| Pollutant or pollutant property | Pretreatment standards for new sources | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| Lead | 0.0368 | 0.0123 |
| Zinc | 0.0245 | 0.00819 |
| Chromium (Hexavalent)[1] | 0.00490 | 0.00163 |

[1] The limitations for hexavalent chromium shall be applicable only to galvanizing operations which discharge wastewaters from the chromate rinse step.

The above limitations shall be applicable to each fume scrubber associated with any of the coating operations specified above.

**§ 420.127 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional technology.**

Except as provided in 40 CFR 125.30–.32, 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 technology.

(a) Galvanizing, terne coating, and other coatings.

(1) Strip, sheet, and miscellaneous products.

SUBPART L

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.175 | 0.0751 |
| O&G | 0.0751 | 0.0250 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(b) Galvanizing and other coatings.

(1) Wire products and fasteners.

SUBPART L

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kg/kkg (pounds per 1,000 lb) of product | |
| TSS | 0.701 | 0.300 |
| O&G | 0.300 | 0.100 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

(c) Fume scrubbers.

SUBPART L

| Pollutant or pollutant property | BCT effluent limitations | |
|---|---|---|
| | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Kilograms per day | |
| TSS | 38.1 | 16.3 |
| O&G | 16.3 | 5.45 |
| pH | (1) | (1) |

[1] Within the range of 6.0 to 9.0.

The above limitations shall be applicable to each fume scrubber associated with any of the coating operations specified above.

[FR Doc. 82-14117 Filed 5-26-82; 8:45 am]

BILLING CODE 6560-50-M

federal register

Thursday
May 27, 1982

Part III

# Department of Justice

Antitrust Division

**United States of America v. Western Electric Company, Inc., et al., Civil Action No. 82-0192 (D.D.C.) and United States of America v. American Telephone & Telegraph Company, et al., Civil Action No. 74-1698 (D.D.C.); Response to Public Comments on Proposed Modification of Final Judgment**

## DEPARTMENT OF JUSTICE

### Antitrust Division

### United States of America v. Western Electric Company, Inc., et al., Civil Action No. 82-0192 (D.D.C.) and United States of America v. American Telephone & Telegraph Company, et al., Civil Action No. 74-1698 (D.D.C.); Response to Public Comments on Proposed Modification of Final Judgment

Notice is hereby given that, pursuant to an order of the United States District Court for the District of Columbia dated January 21, 1982, in Civil Actions No. 74-1698 and 82-0192, as modified by orders of the same Court dated February 5 and May 5, 1982, the Response of the United States to comments received from the public in connection with the proposed Modification of Final Judgment in *United States* v. *Western Electric Company, Inc.* was filed with the Court on May 20, 1982.

The proposed Modification of Final Judgment was filed with the Court on January 8, 1982, and was published in the **Federal Register** on January 28, 1982 (Vol. 47, No. 19, Pp. 4166-4170). Pursuant to the Court's order of January 21, 1982, a Competitive Impact Statement was filed by the United States on February 10, 1982, and published in the **Federal Register** on February 17, 1982 (Vol. 47, No. 32, Pp. 7170-7184). During the sixty-day period established by the Court for the submission by the public of comments concerning the proposed modification, the United States received a substantial number of such comments. On May 17, 1982, the United States published in the **Federal Register** an announcement concerning procedures to be followed in making available to the public the comments received, together with a list of the names and addresses of the persons who submitted comments (Vol. 47, No. 95, Pp. 21214-21224). The Response of the United States to those comments is set forth in full below.

Persons desiring copies of the Response should direct their requests to: Mr. Eric Donovan, Antitrust Division, Room 1028 SAFE, U.S. Department of Justice, Washington, D.C. 20530, (202) 724-5790.

**Joseph H. Widmar,**
*Director of Operations, Antitrust Division.*

### United States District Court for the District of Columbia

*United States of America,* Plaintiff, v. *American Telephone & Telegraph Company; Western Electric Company, Inc. and Bell Telephone Laboratories, Inc.,* Defendants; Civil Action No. 74-1698.

*United States of America,* Plaintiff, v. *Western Electric Company, Inc., and American Telephone & Telegraph Company,* Defendants; Civil Action No. 82-0192.

### Response of the United States to Public Comments on Proposed Modification of Final Judgment

William F. Baxter,
*Assistant Attorney General, Antitrust Division.*
Ronald G. Carr,
*Deputy Assistant Attorney General, Antitrust Division.*
Richard O. Levine,
*Director, Office of Policy Planning, Antitrust Division.*
Gerald A. Connell, James P. Denvir, Jeffrey Blumenfeld, Peter B. Kenney, Jr., Michael D. McNeely, Alan L. Silverstein, Michael F. Altschul, Gary M. Cohen, Luin P. Fitch, David C. Jordan, James H. Phillips, Andrew L. Pringle, Douglas Ross, J. Philip Sauntry, Jr., Thomas A. Schhulz, Theodore C. Whitehouse,
*Attorneys, Antitrust Division, United States Department of Justice, Washington, D.C. 20530.*

**TABLE OF CONTENTS**

Table of Cases and Authorities
Introduction
- Legal Standards Governing the Court's Public Interest Determination
- The Proposed Modification of Final Judgment

I. Role of Interested Parties in the Implementation of the Proposed Modification
- A. Implementation of Divestiture
- B. The Role of the FCC and the State Regulatory Agencies
  1. The FCC Proceedings
  2. Consultation With State Regulators
  3. Proposals for Resolution of Jurisdictional Issues
- C. The Possibility of Conflicting State Regulatory Action

II. Issues Relating to the Viability and Performance of the BOCs
- A. Financial Viability and Valuation of Transferred Assets
- B. Effects of Access Charge Provisions
- C. Line of Business Restrictions
  1. Clarification of Restrictions
  a. Routing Among Interexchange Carriers
  b. Pole Attachments and Conduit Space
  c. Inside Wiring
  d. Telephone Answering Services Equipment
  e. Information Services
  f. Cellular Radio, Land Mobile Radio and Cable Television
  g. Customer Premises Equipment
  2. Rationale for Restrictions and Effects on BOC Viability
  a. Intrastate Interexchange Services
  b. Information Services
  c. Customer Premises Equipment
  d. Yellow Pages
- D. By-pass of BOC Facilities by AT&T

III. Issues Relating to the Definition of Exchange Areas and Effects on Independent Telephone Companies
- A. The Meaning of "Exchange Area"
- B. Criteria for Determining Exchange Areas
- C. Implications of Size of Exchange Areas
- D. Subzones and Access Charges
- E. Effects of Exchange Areas on Independent Telephone Companies
- F. Ability of Independent Telephone Companies to Engage in Joint Activities with BOCs
- G. Participation in the Process of Setting Exchange Boundaries

IV. Issues Relating to the Provision of Equal Exchange Access
- A. The Division of Facilities Between AT&T and the BOCs
  1. Class 4 Toll Centers
  2. Switching Equipment and Other Facilities Used to Provide Digital and Advanced Services
  3. Transmission Facilities Used to Provide Exchange Service and Exchange Access for Interexchange Carriers' Private Line Services
  4. Co-location and Future Sharing of Facilities
- B. Issues Relating to the Equal Access Injunctions
  1. Applicability of Equal Access Provisions
  a. Private Systems
  b. Intraexchange Carriers
  2. BOC Facilities and Services Covered by the Equal Access Injunctions
  3. Provision Regarding Equal Charges Per Unit of Traiffic Delivered
  4. BOC Charges for Unequal Exchange Access
  5. Phase-in Period For Equal Access
  6. BOC Routing of Customers' Traffic to Predesignated Interexchange Carriers
  7. BOC Billing Services
  8. The Cost Methodology to be Used in the BOCs' Exchange Access Tariffs
  9. The Effect of the Exchange Access Injunctions on the BOCs' Other Obligations to Interexchange Carriers

V. Issues Raised Regarding Potential Anticompetitive Conduct by AT&T Resulting From AT&T's Position in Intercity Services and Equipment Markets Following Divestiture
- A. Intercity Services Market
  1. Cross-Subsidies
  2. Access to AT&T's Intercity Network
- B. Unregulated Information Services Market
  1. Cross-Subsidies
  2. Access to AT&T's Network
  3. CATV
- C. Acquisition of Non-BOC Exchange Carriers
- D. Telecommunications Equipment Market
  1. Bias in Long Lines Procurement
  2. Acess to Network Standards and Technical Information
- E. Issues Relating to AT&T's Market Power in the Provision of Customer Premises Equipment (CPE)

VI. Telecommunications Equipment Issues
- A. BOC Procurement
  1. Adequacy of Anti-discrimination and Compliance Provisions

2. Centralization of BOC Procurement Functions
B. Trademarks
C. Patent Licensing Issues
VII. Effects of the Modification on Interests of Third Parties
A. Prima Facie Effects of the Proposed Modification
B. Private Enforcement of the Modification
C. Investor Interests
D. Employee Rights
VIII. Conclusion

**TABLE OF CASES AND AUTHORITIES**

*Cases:*

*Bates* v. *State Bar of Arizona*, 433 U.S. 350 (1977)
*California Retail Liquor Dealers Ass'n* v. *Midcal Aluminum, Inc.*, 445 U.S. 97 (1980)
*Cantor* v. *Detroit Edison Co.*, 428 U.S. 579 (1976)
*City of Lafayette* v. *Louisiana Power & Light Co.*, 435 U.S., 389 (1978)
*Community Communications Co.* v. *City of Boulder*, 102 S. Ct. 835 (1982)
*Computer & Communication Industry Ass'n* v. *FCC*, D.C. Cir. Nos. C.A. 80–1471 *et al*
*Cooper* v. *Aaron*, 358 U.S. 1 (1958)
*Dawn Donut Co., Inc.* v. *Hart's Foods Stores*, 267 F.2d 358 (2d Cir. 1959)
*Emich* v. *General Motors Corp.*, 340 U.S. 558 (1951)
*EPA* v. *Brown*, 431 U.S. 99 (1977)
*Essential Communications Systems, Inc.*, v. *American Telephone & Telegraph Co.*, 610 F.2d 1114 (3d Cir. 1979)
*FPC* v. *Hope National Gas Co.*, 320 U.S. 591 (1944)
*Goldfarb* v. *Virginia State Bar*, 421 U.S. 773 (1975)
*Hanover Shoe, Inc.* v. *United Shoe Machinery Corp.*, 392 U.S. 481 (1968)
*MCI Telecommunications Corp.* v. *FCC*, 561 F.2d 365 (D.VC. Cir. 1977), *cert. denied* 434 U.S. 1040 (1978)
*MCI Telecommunications Corp* v. *FCC*, 580 F.2d 590 (D.C. Cir.), *cert. denied*, 439 U.S. 980 (1978)
*Nash* v. *Florida Industrial Comm'n*, 389 U.S. 235 (1967)
*Northeastern Telephone Co.* v. *American Telephone & Telegraph Co.*, 477 F. Supp. 251 (D. Conn. 1978), rev'd on other grounds, 651 F.2d 76 (2d Cir. 1981), *cert. denied*, 102 S. Ct. 1438 (1982)
*Orbo Theater Corp.* v. *Loew's Inc.*, 156 F. Supp. 770 (D.D.C. 1957), *aff'd*, 261 F.2d 380 (D.C. Cir. 1958), *cert. denied*, 359 U.S. 943 (1959)
*Parker* v. *Brown*, 317 U.S. 341 (1943)
*Phonetele* v. *American Telephone & Telegraph Co.*, Nos. 77–3877, 77–2936 (9th Cir. 1981)
*Sam Fox Publishing* v. *United States*, 366 U.S. 683 (1961)
*Sound, Inc.* v. *American Telephone & Telegraph Co.*, 631 F.2d 1324 (8th Cir. 1980)
*Sperry* v. *Florida*, 373 U.S. 379 (1963)
*Swift & Co.* v. *United States*, 276 U.S. 311 (1928)
*Toilet Goods Ass'n* v. *Gardner*, 387 U.S. 158 (1967)
*United States* v. *American Telephone & Telegraph Co.*, 427 F. Supp. 57 (D.D.C. 1976), *cert. denied*, 434 U.S. 966 (1977)
*United States* v. *American Telephone & Telegraph Co.*, 461 F. Supp. 1314 (D.D.C. 1978)
*United States* v. *AMPI*, 394 F. Supp. 29 (W.D. Mo. 1975)
*United States* v. *Armour & Co.*, 402 U.S. 673 (1971)
*United States* v. *Bechtel*, 1979–1 Trade Cases ¶62, 430 (N.D. Cal. 1979), *aff'd* 648 F.2d 660 (9th Cir. 1981), *cert. denied*, 102 S. Ct. 639 (1982)
*United States* v. *Carrol Dev. Corp.*, 454 F. Supp. 1215 (N.D.N.Y. 1978)
*United States* v. *Carter Products, Inc.*, 211 F. Supp. 144 (S.D.N.Y. 1962)
*United States* v. *Gillette*, 406 F. Supp. 713 (D. Mas. 1975)
*United States* v. *Mid-America Dairymen, Inc.*, 1977–1 Trade Cases ¶61,508 (W.D. Mo. 1977)
*United States* v. *Morgan Drive Away, Inc.*, 1976–1 Trade Cases ¶50,949 (D.D.C. 1976)
*United States* v. *National Broadcasting Co.*, 449 F. Supp. 1127 (C.D. Cal. 1978)
*United States* v. *Radio Corp. of America*, 46 F. Supp. 654 (D. Del. 1942), *appeal dismissed*, 313 U.S. 796 (1943)
*United States* v. *United Shoe Machinery Corp.*, 391 U.S. 244 (1968)
*United States* v. *St. Louis Terminal Railroad Ass'n*, 224 U.S. 383 (1912)
*Washington* v. *Fishing Vessel Ass'n*, 443 U.S. 658 (1979)

*Regulatory Proceedings:*

*Amendment of Part 67 of the Commission's Rules and Establishment of a Joint Board*, CC Docket No. 80–286, Notice of Proposed Rulemaking and Order Establishing a Joint Board, 78 F.C.C. 2d 837 (1980)
*AT & T Private Lines Rate Structure and Volume Discount Practices*, CC Docket 79–246, Notice of Inquiry and Proposed Rulemaking (released October 17, 1979)
*In the Matter of Amendment of Section 64.702 of the Commission Rules and Regulations (Second Computer Inquiry)*, Docket No. 20828, 77 F.C.C. 2d 384, *on reconsideration* 84 F.C.C. 2d 50 (1980), *on further reconsideration*, F.C.C. No. 81–481 (released October 30, 1981), review *pending sub nom. Computer & Communications Industry Ass'n* v. *FCC*, D.C. Cir., Nos. 80–1471 *et al.*
*Procedures for Implementing the Detariffing of Customer Premises Equipment and Enhanced Service (Second Computer Inquiry)*, CC Docket No. 81–893, Notice of Inquiry (released April 13, 1982)
*MTS and WATS Market Structure*, CC Docket No. 78–72, Second Supplemental Notice of Inquiry and Proposed Rulemaking, 77 F.C.C. 2d 244 (1980)

*Statutes:*

15 U.S.C. Section 2
15 U.S.C. Section 16(a)
15 U.S.C. Section 16(b) *et seq.*
15 U.S.C. Section 18
47 U.S.C. Section 201
47 U.S.C. Section 214(a)
47 U.S.C. Section 221(a)
47 U.S.C. Section 224
47 U.S.C. Section 310(d)
47 U.S.C. Section 410
47 U.S.C. Section 410(c)

*Miscellaneous:*

H.R. Rep. No. 1463, 93rd Cong., 2d Sess. (1974) *reprinted in* (1974) U.S. Code Cong. and Ad. News 6542

**United States District Court for the District of Columbia**

*United States of America*, Plaintiff, v. *American Telephone & Telegraph Company; Western Electric Company, Inc.; and Bell Telephone Laboratories, Inc.*, Defendants; Civil Action No. 74–1698.

*United States of America*, Plaintiff, v. *Western Electric Company, Inc., and American Telephone & Telegraph Company*, Defendants; Civil Action No. 82–0192.

## RESPONSE OF THE UNITED STATES TO PUBLIC COMMENTS ON PROPOSED MODIFICATION OF FINAL JUDGMENT

Pursuant to this Court's order of January 21, 1982, plaintiff, the United States of America, hereby files its response to comments received from the public on the proposed Modification of Final Judgment in this civil antitrust action.

### Introduction

On January 8, 1982, the United States and the American Telephone and Telegraph Company ("AT&T") filed in the United States District Court for the District of New Jersey an agreed-upon modification of the Final Judgment entered in *United States* v. *Western Electric Company, Inc., et al.*, Civil Action No. 17–49 ("the *Western Electric* case").[1] The proposed modification would vacate the 1956 Judgment in its entirety and substitute various structural and injunctive provisions. Simultaneously, the parties filed in the District Court for the District of Columbia a Stipulation for Voluntary Dismissal of *United States* v. *American Telephone and Telegraph Company, et al.*, Civil Action No. 74–1698 ("the *AT&T* case").

By order of January 21, 1982, this Court, at the suggestion of the parties, directed that procedures identical to those called for by the Antitrust Procedures and Penalties Act, 15 U.S.C. § 16(b) *et. seq.* ("the Tunney Act"), be followed in connection with the modification. To date, the parties have complied with the procedures of the Tunney Act as set forth in the Order of January 21, 1982,[2] as follows:

[1] On January 14, 1982, the New Jersey District Court transferred *United States* v. *Western Electric*, docketed there under C.A. No. 17–49, to the United States District Court for the District of Columbia, where it was docketed under C.A. No. 82–0192.

[2] As modified by orders of this Court of February 5, 1982, and May 5, 1982.

1. The proposed Modification of Final Judgment and the Stipulation for Voluntary Dismissal were published by the United States in the **Federal Register** on January 28, 1982 (Vol. 47, No. 19, pp. 4166–4170).

2. On February 5, 1982, AT&T filed with this Court a description of any and all written or oral communications by or on its behalf with any officer or employee of the United States concerning or relevant to the proposal, and certified it as a complete and true description of such communications known to AT&T or which it should reasonably have known.

3. A Competitive Impact Statement was filed by the United States on February 10, 1982, and published in the **Federal Register** on February 17, 1982 (Vol. 47, No. 32, pp. 7170–7184).

4. Beginning February 19, 1982, the United States made available at the twenty-six district courts specified in the Order of January 21, 1982, copies of the proposed Modification of Final Judgment. There were no other materials and documents which the United States considered determinative in formulating the proposal.

5. A summary of the terms of the proposed Modification of Final Judgment and Competitive Impact Statement, and directions for the submission to the United States of written comments relating to the proposal, were published in newspapers of general circulation in the twenty-six districts specified in this Court's January 21 Order for seven days over a period of two weeks in February, 1982.

6. The sixty-day period for submission of written comments relating to the proposal commenced on February 19, 1982 and terminated on April 20, 1982.[3]

7. The written comments submitted were filed with this Court by the United States on April 21, April 23, April 27, and May 4, 1982.

8. A press release was issued by the United States on May 10, 1982, and published in the **Federal Register** on May 17, 1982 (Vol. 47, No. 95, pp. 21214–21224), describing the procedures to be used in lieu of **Federal Register** publication of all written comments, as set forth in this Court's order of May 5, 1982.

9. The name and address of each person filing a written comment, with a statement of the number of pages in the comment, was published by the United States in the **Federal Register** on May 17, 1982 (Vol. 47, No. 95, pp. 21214–21224).

[3]The United States has treated as timely filed all comments received between February 11 and April 23, 1982.

10. On May 20, 1982, the United States made available for inspection by the public at each of the twenty-six district courts listed in the Court's January 21 order a copy of each comment received.

*Legal Standards Governing the Court's Public Interest Determination*

Because these proceedings are being conducted under procedures identical to those specified in the Tunney Act, the Department sets out, in the following discussion, what it believes are the legal standards that govern public interest determinations under that Act. Because this proceeding concerns the substitution of a new consent judgment for an existing consent judgment, the Department believes that the standards generally governing consent judgments apply in this case.

The courts have clearly established that the Department of Justice has broad discretion in controlling government antitrust litigation, including negotiating and agreeing to consent decrees and determining whether such settlements are in the public interest. See *Sam Fox Publishing* v. *United States*, 366 U.S. 683, 689 (1961); *Swift & Co.* v. *United States*, 276 U.S. 311, 331–32 (1928). The Tunney Act reaffirms the long-standing equitable rule that the Court is to provide an independent "check upon the government's good faith and expertise" by conducting procedures to help it determine whether the negotiated decree is in the public interest. *United States* v. *Morgan Drive Away, Inc.*, 1976–1 Trade Cases ¶50, 949 at 69, 161 (D.D.C. 1976).[4] The Tunney Act suggests a number of factors that a court may consider in making its determination. 15 U.S.C. § 16(e) (1) and (2). In general, the Court should test the proposed decree by determining "Whether the relief provided * * * is adequate to remedy the allegations of antitrust violaton as set out in the complaint". *United States* v. *Bechtel*, 1979–1 Trade Cases ¶62,430 (N.D. Cal. 1979), *aff'd*, 648 F.2d 660 (9th Cir. 1981), *cert. denied*, 102 S.Ct. 638 (1982). Thus, one highly significant factor is the degree to which the proposed decree advances and is consistent with the government's prayer for relief. *United States* v. *National Broadcasting Co.*, 449 F. Supp. 1127, 1144 (C.D. Cal. 1978); *United States* v. *Carrol Dev. Corp.* 454 F. Supp. 1215, 1222 (N.D.N.Y. 1978).

At the same time, the Court must recognize that the consent decree process normally entails compromise, and that the parties each give up something which they might otherwise have won. *United States* v. *Mid-America Dairymen, Inc.*, 1977–1 Trade Cases, ¶61,508 at 71,980 (W.D. Mo. 1977); *United States* v. *Armour & Co.*, 402 U.S. 673, 681 (1971). As explained in *United States* v. *Gillette*, 406 F. Supp. 713, 716 (D. Mass. 1975).

> It is not the court's duty to determine whether this is the best possible settlement that could have been obtained if, say, the government had bargained a little harder. The Court is not settling the case. It is determining whether the settlement achieved is within the reaches of the public interest.

As the *Gillette* court observed, while the reviewing court should not act *pro forma*, "too much tillage can destroy the garden" by decreasing the utility of consent decrees as a means for resolving antitrust cases. 406 F. Supp. at 715. Thus, while a court should consider the degree to which a proposed consent decree comports with the relief sought by the government in making the public interest determination, its role is considerably more limited than the role of a court in formulating relief following trial.

A number of commenting parties seemed to assume, and others suggested, that the Court may make changes to the proposed modification without the consent of the parties. The Department strongly disagrees with these suggestions. The proposed modification is an agreed compromise between the parties. As the court in *United States* v. *AMPI*, 394 F. Supp. 29, 42 (W.D. Mo. 1975), stated in construing the recently-enacted Tunney Act:

> If the Congress wants the judicial branch to have more power than that implicit in the threat of total rejection of a proposed decree, such power must be authorized by legislation which is considerably broader in scope than that vested by the newly enacted Antitrust Procedures and Penalties Act or by existing law.

The responsibility of the Court, therefore, is not to determine whether the modification might be improved, as suggested in some comments, but rather whether, as submitted to the Court for

[4]Prior to the passage of the Tunney Act in 1974, it was already clear that entry of a "consent decree is a judicial act * * * and, therefore involves a determination by the chancellor that it is equitable and in the public interest." United States v. Radio Corp. of American, 46 F. Supp. 654, 655 (D. Del. 1942), *appeal dismissed*, 313 U.S. 796 (1943); United States v. Carter Products, Inc., 211 F. Supp. 144, 147–48 (S.D.N.Y. 1982). The Tunney Act formalized this process but did not change the pre-existing standards for determining whether entry of an antitrust decree is in the public interest. United States v. Mid-America Dairymen, Inc., 1977–1 Trade Cases ¶61,508 at 71979 (W.D. Mo. 1977). As the House Report states, the Tunney Act is "unambiguous" is adopting prior law as to the standards for judicial review of a consent decress. H.R. Rep. No. 1463, 93rd Cong., 2d Sess. 11–12 (1974) (U.S. Code Cong. and Admin. News 1974, 93rd Cong., 2d Sess., p. 6542.)

its consideration, it is "within the reaches of the public interest."

*The Proposed Modification of Final Judgment*

The proposed modification before the Court disposes of controversies between the United States and AT&T beginning with the *Western Electric* case filed in 1949 and continuing with the filing of the *AT&T* case in 1974. As set out in the Department's Competitive Impact Statement, the basic theory of both cases was that, as a rate base/rate of return regulated monopolist, AT&T has had both the incentive and ability, through cross-subsidization and discriminatory practices, to leverage the power it enjoys in its regulated monopoly markets to foreclose and impede the development of competition in related, potentially competitive markets.

The proposed modification, through the central mechanism of divestiture of AT&T's regulated local franchise monopolies, eliminates the anticompetitive incentives and abilities which were the focus of both the *Western Electric* and *AT&T* cases. It does so by separating the provision of competitive or potentially competitive products and services from those services which, under current technological and regulatory conditions, exhibit monopoly bottleneck characteristics. As a necessary complement to this separation, the modification prohibits the reintegration of regulated monopoly services into competitive or potentially competitive markets and, therefore, prevents the reemergence of the very conditions that gave rise to the *Western Electric* and *AT&T* cases.

The modification is not intended to nor can it, deal with every conceivable anticompetitive problem that might arise in the telecommunications industry. Rather, it focuses on and deals effectively with those anticompetitive means and incentives out of which the *Western Electric* and *AT&T* cases arose. Indeed, the modification, in its essentials, would provide precisely the relief sought by the United States in the 1974 *AT&T* case. It thus establishes an industry structure that will eradicate the potential for anticompetitive behavior made possible by the integration of regulated monopoly and competitive products and services.

The Department of Justice received over 600 comments on the proposed modification, totalling over 8,500 pages. The comments raised a variety of issues relating to such matters as the role of the states and other interested parties in the procedures leading to implementation of the plan of reorganization, the effects of the modification's restrictions on BOC viability and local rates, the adequacy of the modification's provisions in dealing with various competitive, employee and investor interests, and the interests of private plaintiffs. The Department also received a submission from the Department of Defense setting out that agency's concerns that the modification's provisions be implemented in a manner that will maximize the responsiveness of the industry to national security and emergency preparedness interests. Because the Department of Defense is a part of the plaintiff, the Department will not address the issues raised in its comments in this Response. The Department of Justice will however, work closely with the Department of Defense to ensure that its concerns are fully taken into account in the implementation of the modification's various provisions.[5]

**I. Role of Interested Parties in the Implementation of the Proposed Modification**

The Department received a very large number of comments which expressed concern regarding the procedures to be used in implementing the divestiture required by the proposed modification and the role of interested parties in the implementation process. In the following discussion, the Department addresses these concerns.

*A. Implementation of Divestiture*

The proposed modification sets out a sequence of events that will result in full divestiture. These events break down into two phases: those concerned with the entry of the proposed modification mandating divestiture, and those concerned with the implementation of the divesture.

Over eighty comments addressed the procedures to be followed in both assessing and implementing the proposed modification. Many of the comments were concerned with the roles to be played by the Court and the parties. These comments generally suggested that the Court should assert close and continuing supervision over the parties during the evolution and execution of the plan of implementation. They also asserted that the parties' plans and actions for reorganization should be subject to Court approval after public comment. Other comments addressed the role in the reorganization process of federal and state regulators, ranging from suggestions that there be some mechanism for ascertaining the views of the regulators, or that the regulators be given a formalized role in the proceedings, to assertions that functions apportioned by the modification to the parties or the Court should be performed solely by regulators.

Finally, a number of the comments were concerned that the public be informed of developments at each stage of the proceedings and have an opportunity to comment. Recommendations ranged from the suggestion that there be some opportunity for public comment at critical stages to the assertion that full Tunney Act procedures should apply at each point.

A majority of the comments raising procedural objections to the proposed modification were based on the view that no distinction can or should be made between the entry of the proposed modification mandating divestiture and its implementation accomplishing that objective. Some comments argued generally that whether the public interest will be served by the proposed divestiture simply cannot be assessed until the divestiture plan, in all of its details, is known. Other comments pointed more specifically to possibilities that particular aspects of the plan—for example, the allocation of debt between AT&T and the local exchange companies—could have adverse consequences to particular concerns. They expressed fears that, once the Court has approved the modification, there would be no opportunity either to voice their concerns, or to seek appropriate relief if their concerns went unheard. The comments suggested a variety of means to overcome these perceived difficulties. Some proposed that the Court withhold approval pending completion of the plan of implementation; others suggested that the Court grant only "conditional" or "interim" approval now, and final approval after the detailed plan is reviewed. Still others proposed that the Court reject the modification now with leave to refile after the details are known, or that court approval be withheld and the detailed plan inserted into the modification itself.

The Department believes that the fears on which these suggestions are based, both as generally expressed and as to points of specific concern, are unfounded. The proposed modification now before the Court is not merely an

[5] The Department also received a submission from the Small Business Administration, also an Executive Branch agency and also a part of the plaintiff. The Department will also consult with that agency regarding concerns expressed in the submission.

"agreement to agree" or an empty ceremonial proclamation. Rather, it both mandates a fundamental divestiture within the Bell System, and sets forth the principles that are to govern the separation of facilities and functions among the divested parts of the enterprise. The divestiture will separate local exchange functions, which, in today's technology, by and large have monopoly characteristics and are to be provided by the local operating companies, from those that technology has opened to competition, which will be provided by AT&T. This separation will remove the incentives and abilities that have existed within the Bell System to subsidize competitive activities with supracompetitive earnings from monopoly activities.

The Court is being asked now to find that the divestiture proposed and described in the modification is in the public interest, and enter the modification as its order. Contrary to the suggestion of some comments, the modification plainly sets forth the principles that are to govern the separation of ownership and complementary injunctive provisions. Indeed, the modification itself provides substantial detail as to the line of separation and the intended operation of the various injunctive provisions; further detail has been provided in the Competitive Impact Statement and in the sections of this Response that follow. Accordingly, the Department believes it is not only possible, but altogether appropriate for the Court to determine now whether the contemplated divestiture is or is not "in the public interest," the standard that governs any consent decree proceeding. Of course, following entry of the modification, the Court will have complete jurisdiction to ensure that it is implemented in a manner consistent with its provisions and objectives.

It is possible that the implementation plan will raise concerns that, although incidental to the basic divestiture proposal, may have significant consequences to various interests. Particular concern has been raised, for example, about the allocation of debt and about contracts for jointly used facilities, because of the potentially adverse impact of these arrangements on the financial soundness of the local operating companies and the possible consequences for ratepayers. To a substantial extent, the specific content of such concerns has been anticipated in the various comments. The Department addresses these concerns in succeeding sections of this Response. As those sections explain, the Department believes that some of the anticipated problems, particularly with respect to valuation of assets for debt allocation and, in some comments' contention, for reimbursement of ratepayers, derive from fundamental misconceptions about the nature of the proposed divestiture and its effects on on-going regulatory responsibilities. But in many other respects, the Department recognizes that the implementation plan will involve matters of ligitimate concern. The succeeding sections explain in detail the standards by which the Department proposes to ensure that such legitimate concerns are addressed. On all of these matters of substantive concern, the Department believes that the Court can and will take the Department's approach, detailed here, fully into account in judging whether the modification will serve the public interest.

Some of the comments, however, express doubt, not as to whether the standards the Department proposes to apply are sound, but as to whether it will have the information necessary to apply them, *i.e.*, to ascertain precisely what the problems are, to assess their severity, and to develop appropriate solutions. The Department believes that the procedures it proposes to employ in assessing the implementation plan are fully adequate to the task. For a period of sixty days after the final implementation plan is submitted, the Department will remain open to formal or informal comments from anyone who wishes to address any of the details set forth in the plan. The Department welcomes all input, recognizing that the broader the spectrum of opinion it receives, the better equipped it will be to discharge its obligations in the implemention of the divestiture. The Department has previously stated in the Competitive Impact Statement, and now reaffirms, its intention to work closely with knowledgeable and interested parties (including state and federal regulators) during the period before the last of the details are available. Indeed, the Department is already exploring with the FCC a regular working relationship, and would welcome suggestions from the state authorities as to a means of regularizing a similar consultative relationship. In deciding whether to approve or disapprove the plan, the Department will take into account the comments it has received, as well as the results of its own investigations. The Department thus will not be reviewing a secret plan in a vacuum, but rather will be reviewing a public plan with the benefits of input from all interested persons.[6]

The National Association of Regulatory Utility Commissioners (NARUC), and some state regulators individually, were concerned that the procedures set forth in the proposed modification do not adequately protect the interests of the local operating companies and their ratepayers in the valuation and division of assets. The point is made that, however well intended the Department may be, as a practical matter it might be forced to rely primarily on technical information supplied by AT&T itself, without access to information from sources that have the interests of the local exchange companies, their ratepayers and, indeed, their regulators, predominantly or exclusively in mind. While several different suggestions were made to remedy these perceived problems, common to them all is the felt need for direct representation of BOC interests. One suggestion was that the Court appoint guardians *ad litem* to represent the BOCs. Another was that the local companies be divested intact as the first step, and then negotiate asset valuation and transfer with AT&T. Other comments advocated a transfer of assets and valuation by the state regulators prior to the actual divestiture.

These suggestions pose, in the Department's view, enormous practical and procedural problems. Under the terms of the modification, AT&T's divestitute plan will be completed and made public six months after entry of the Court's order. After a sixty-day public comment period, the Department will be able to pass on the plan well within the time necessary for the divestitiure to occur, as scheduled, eighteen months after the modification is entered as a Court order. The procedures thus assure that the modification's competitive objectives will be achieved as soon as possible, with minumum disruption of the firms' continuing operations. The suggested alternatives, in contrast, would inevitably delay the process. Indeed, one of the proposed alternatives—that the BOCs be divested intact, with subsequent buy-back of assets by

[6] It is important to note that while the Department and, ultimately, the Court have authority as to the implementation plan, the FCC has on-going jurisdiction over the regulated activities of AT&T and the BOCs. Where elements of the plan entail exercise of that jurisdiction, FCC proceedings offer a further opportunity for public participation concerning regulated activities related to plan implementation.

AT&T—would be likely to delay achievement of divestiture indefinitely.[7]

To the extent that these proposals are directed to assuring full consideration of BOC interests,[8] they are, in the Department's view, as unnecessary as they are unwise. Steps have been taken to ensure that, in assessing the reorganization plan, the Department will have full access to information from sources both knowledgeable in the affairs of the BOCs and loyal to their interests and the interests of the ratepayers they serve. On May 19, AT&T announced the appointment of the chief executive officers of the 7 regional companies that will own the 22 divested BOCs. These executives will direct and coordinate planning which must be accomplished prior to implementation of the modification. These executives, and the staffs they develop, will represent their local companies in dealing with the Department. As the comments in this area all agree, such officers will be in the best position to assess the effects the reorganization will have on their companies.[9]

The recently-appointed officers will have complete independence of AT&T in formulating and representing their views to the Department, and will have every incentive to represent the interests of the local companies. Because they will be responsible for the viability of the local companies after divestiture, it will be in their interest to ensure that the detailed plan maximizes that viability. Moreover, after divestiture, the details of asset valuation and assignment will be reviewed by state regulators, either directly or in the course of rate hearings for the post-divestiture operating companies. Assets which were incorrectly assigned or valued could be disallowed from the operating companies' rate bases. Because the regional officers will have to live with the consequences of the asset valuation and assignment, they will also have to be sure it is done correctly.

The Department accordingly believes that the substantive standards by which it will judge the reorganization plan, and the procedures by which it will apply them, assure that the objectives of the modification will be achieved, and allow the Court to determine now that the modification is in the public interest. Some comments argued, however, that, even though the standards and procedures for implementation may seem clear and appropriate, the Department would have, in effect, unfettered discretion to ignore them once the modification is adopted; that concerns, although voiced, would go unheard, and those who had voiced them would be left without remedy. These fears have resulted in numerous suggestions that boil down to two central themes. One is that the Court should not enter the proposed modification until the finalized details of the plan have been made public, with appropriate opportunity for comment. The other is that the Court, not the Department, should have the right to review and approve the details of the divestiture and its implementation.

The Department believes that these fears and the suggestions that flow from them misapprehend both the intention of the parties and the authority of the Court—authority that the parties could not have affected even had they tried. While the proposed modification is now only an agreement between the parties, once entered it becomes an order of the Court. The Court will then have the authority to ensure that any actions taken are consistent with the order, and the attendant powers to hold hearings, appoint experts and seek assistance by appropriate means from interested parties. The Department is confident that many of the fears now voiced regarding the implementation plan will prove groundless if the procedures and the standards it proposes to apply are allowed to work. If issues remain, the parties fully expect that the Court will exercise, as appropriate, the authority it undoubtedly has to interpret and enforce the modification, and to assure that the Department adheres to the principles and procedures undertaken to govern its implementation.

*B. The Role of the FCC and the State Regulatory Agencies*

The *amicus* submission of the FCC and the comments of numerous state agencies, officials and private parties observe that the implementation of the modification necessarily concerns those charged with regulation of telecommunications. They urge that the federal and state regulatory authorities be allowed to participate actively in the Department's consideration of the implementation plan. As pointed out above, the Department intends to afford all interested parties the fullest possible notice of the details of the implementation plan as soon as they become available. The Department expects and welcomes elucidation of affected interests from all sources, most particularly from the FCC and state regulators. The Department believes that this process of full notice and consultation will reduce and possibly remove the potential that aspects of the plan will adversely affect the achievement of legitimate regulatory objectives. Indeed, although some states have suggested that they have and will exercise a power to countermand the obligations imposed by the modification—a notion addressed at length in the following section—the consultation process will, we believe, reduce and perhaps eliminate the likelihood that state regulatory agencies will find it appropriate to attempt to do so.

*1. The FCC Proceedings:* The FCC has stated that the core of the proposed modification, including divestiture of AT&T's local exchange operations, is reasonable and will produce significant competitive benefits. The Commission foresees that it will assess the "collateral effects" of the plan of reorganization in a unified proceeding (the "214 proceeding"). That proceeding would consolidate consideration of all applications by AT&T under the Communications Act for approval of asset transfers and other activities that normally require FCC approval.[10] In making the regulatory determinations that may be occasioned by implementation, the FCC stated that it

[7] The proposal presumably does not envision negotiations of the normal sort, in which both the buyer and seller can, if they believe the terms unacceptable, refuse the bargain, and resort to alternatives. Instead, apparently what is contemplated is that the BOCs would be forced to sell, and AT&T would be forced to buy; they would merely haggle over the terms. But neither, in that situation, would have any incentive to recede from the position most favorable to it. Thus the process presumably would result in alternative sets of terms, and some decision-maker would have to decide which set of terms, if either, more nearly serves the interests at stake. The process proposed thus would not advance the goal of divestiture at all. Yet, in the interim, of course, the ongoing operations of the firms—most particularly the Long Lines network—would be disrupted, and the financial standing of the firms, hence their ability to attract capital, would be most uncertain.

[8] The divestiture/buy-back proposal appears to derive primarily from the view that ratepayers' interests can be protected only if AT&T is compelled to "purchase" the assets it will retain at fair market value, a value presumed to be above the regulated value on which debt is to be allocated among AT&T and the local exchange companies. As explained below, the Department believes that these premises of the proposal are fundamentally incorrect.

[9] In addition, as also indicated in the Competitive Impact Statement, if necessary the Department will utilize the visitorial powers of Section VI of the proposed modification to learn the views of appropriate employees, including present or future BOC executives, as to the adequacy of the proposed reorganization plan.

[10] The FCC anticipates that implementation of the reorganization plan will occasion applications by AT&T or the BOCs under Sections 214(a) (discontinuance of service; acquisition of facilities), 221(a) (acquisition of another carrier's property), and 310(d) (transfer of radio license or stock of radio licensee) of the Communications Act of 1934.

will weigh the plan's competitive benefits.

The FCC's consideration of the collateral effects of the details of the divestiture required by the modification seems an appropriate exercise of its jurisdiction in this area. The Department and the FCC have consulted on the coordination of the 214 proceedings with the Department's own consideration of the plan. In all events, the Department will give great weight to the FCC's views, whether developed in the course of the 214 proceedings or otherwise, in carrying out its responsibilities under the modification.

Apart from this consultation with the Department, the FCC proposed that it be authorized to institute proceedings for construction or revision of the modification provisions, so that it can independently seek early determinations by the Court of the meaning of modification provisions that might have a collateral effect on action the Commission is contemplating. The Department believes that such a provision should not be added to the proposed modification.

The absence of an explicitly stated right to seek construction or revision of the modification need not prevent the FCC from seeking resolution of questions concerning the relation between its actions and the modification's provisions under appropriate circumstances. Consultation with the Department will provide one means of assessing the effect of the modification. If an actual conflict between the modification and a Commission action nonetheless arises, it is likely that, if the FCC's interests were significantly affected by the conflict, it would be permitted to intervene for the purpose of resolving that conflict.

The FCC's proposal is thus unnecessary. Moreover, if it were adopted, it would be used to institute proceedings in the absence of a justifiable controversy. The express purpose of the Commission's proposal is to enable it to request that the Court predetermine the bearing of the modification's requirements on possible Commission rules or orders. At the time of such a request, the Commission would not have settled on the terms of a final rule or order, nor even have committed itself to a particular policy or the broad outlines of its contemplated action. Thus, what the Commission would be seeking would be a purely advisory construction of the modification or a revision that might well prove unnecessary or inapposite to the FCC's final order. Even if the general thrust of the FCC's contemplated action were known, the Court would not have available a Commission record of the sort that would undoubtedly underlie any final rule or order, nor would the Court have the benefit of an opinion or other record of Commission deliberations to amplify the Commission's intent. Without such information, the task of determining the proper accommodation between the obligations of the modification and the Commission's action would have to be conducted in the abstract. In circumstances such as these the courts have consistently refused to render opinions in the absence of an actual controversy concerning the application of a final agency action. *E.g., Toilet Goods Ass'n* v. *Gardner,* 387 U.S. 158 (1967). Indeed, the Supreme Court has found that "to review regulations not yet promulgated, the final form of which has only been hinted at, would be wholly novel." *EPA* v. *Brown,* 431 U.S. 99, 104 (1977). Accordingly, even if the FCC were given express authority to seek construction or revision, such a provision would not override established doctrines of ripeness, and is unnecessary in light of the opportunities otherwise available for resolving actual controversies concerning FCC actions.

The FCC also urged that the Court add to the proposed modificaion a clause stating that: "Nothing in this decree shall be construed to affect any power conferred by law upon the Federal Communications Commission." A number of private parties made similar proposals. While, as these parties, noted, a similar clause was included in the decree in *United States* v. *St. Louis Terminal Railroad Ass'n,* 224 U.S. 383 (1912), the Department believes that such an addition to the proposed modification is neither necessary nor advisable. The FCC itself acknowledged that its proposed provision "would not expand the court's power or contract the Commission's powers." FCC Comments at 28. If this is the case, it would not only be unnecessary but also a source of possible misinterpretation to add such a provision to the agreement negotiated by the parties.

*2. Consultation with State Regulators:* Comments of state officials and agencies also recognize that divestiture may be a reasonable means of promoting competition in telecommunications. The primary concern expressed in these comments was that consequences to state regulatory schemes should be taken into account in implementing the proposed modification. Accordingly, the commenting states were virtually uniform in requesting, with varying degrees of specificity, that they be given a role in reviewing (and, some states urged, approving or disapproving) the details of the plan of reorganization required by the proposed modification. To this end, many states informally renewed the request for intervention that a few states presented to the Court earlier in this proceeding.

The Department recognizes that the plan of reorganization affects aspects of intrastate communications, for which state authorities will have ongoing regulatory responsibility. Thus we agree with the states' view that they must have a full opportunity to express their concerns about the implementation plan consistent with the need to implement the decree expeditiously, and that the department should take their concerns and suggested alternatives into account in deciding whether the implementation plan meets the modification's obligations and objectives. The states' regulatory interests and the proposed modification's antitrust enforcement objectives can be accommodated most effectively if the concerns of the states are identified and made specific as soon as possible. With the time approaching when the details of AT&T's plan of reorganization must be analyzed, the Department agrees that a well defined procedure for receiving the views of state regulatory officials should be created.

Joint comments filed by nine state regulatory agencies contained a specific proposal that could provide the basis for developing such a procedure. Joint Comments of South Dakota *et al.* These states recommended that they be given access to proposals for the plan of reorganization; that they present their views in comments and working sessions with the parties; that they be given data necessary to evaluate the plan; and that their views be meaningfully considered in evaluating the plan. In the view of the Department, if these recommendations were combined with procedures to ensure that the states' views were presented in an orderly, manageable and reasonably expeditious fashion, the states' interests in this matter could be fully protected, and the Department could secure the benefits of the states' experience in regulating the BOCs. The Department will begin discussions with those regulators to fashion such a mechanism, and will inform the Court when a plan for state participation has been reduced to specifics.[11]

[11] As noted above, this opportunity for state participation will be complemented by the states' right to participate in the 214 proceeding to be conducted by the FCC. In that forum the states may explore many of the "collateral effects" upon which the FCC will be focusing.

Another avenue of state participation was suggested in several of the comments, which proposed that the states be given the right to petition the Court for construction or modification of the decree after it is entered. This proposal should be rejected for all the reasons given above in connection with the FCC's similar proposal. In addition, the Department would regard as unwieldy and potentially disruptive any provision that accorded an automatic right to seek decree interpretations to numerous parties having separate and possibly divergent interests.

3. *Proposals for Resolution of Jurisdictional Issues:* A few comments noted that some activities affected by the decree are arguably subject to the jurisdiction of either the FCC or the state regulatory agencies, but not both, and asked that the Court resolve potential jurisdictional disputes between the FCC and state agencies. In the view of the Department, the Court should not attempt to do so. Since the proposed modification has not been entered as a decree of the Court, none of the predicted jurisdictional disputes has ripened sufficiently to be amenable to adjudication by any court. More important, the questions of the respective jurisdiction of the FCC and state regulators about which some commentors have speculated have no direct connection to the issues in this proceeding, and no attempt should be made to adjudicate them here.

*C. The Possibility of Conflicting State Regulatory Action*

The process of consultation described above and the consequent development and approval of an implementation plan that adhreres to the modification's principles will, in the Department's view, substantially remove the concerns that many state comments have expressed about the effects of the modification on their continuing exercise of regulatory responsibility. Many of the possibilities of conflict that some states seemed to perceive are, at present, only hypothetical; some, indeed, are based on a misunderstanding of what the modification is intended to do. All such possibilities should be addressed only if and when they arise.

Some possibilities, however, must be addressed now. The comments of certain states contended that, because they currently regulate the intrastate aspects of BOC operations, the divestiture provisions of the proposed modification and the restrictions on post-divestiture BOC operations are subject to state review and that state regulators have the power, as a matter of state law, to approve or disapprove actions taken in compliance with the modification's requirements. These comments further contended that states could refuse to authorize the intracorporate transactions involved in the divestiture itself and thus, if they see fit, frustrate achievement of the modification's basic objectives. *E.g.*, Comments of Alabama *et al.*, at 12. The idea apparently is that, even though this Court would have found the decree in the public interest as a means of enforcing federal law, the states, by disallowing actions the decree requires, or by authorizing or compelling actions it forbids, could excuse the BOCs from any obligation to comply with the decree's mandates.

Of course, it is possible that no state would find it appropriate to take such actions. Even so, however, these sorts of contentions call into question the federal judicial power that the proposed modification necessarily invokes, and the Court therefore should now consider their validity. If, in effect, the modification did no more than present to the state regulators a possible remedy, which they, in turn, were free either to accept or to reject, the modification could not be deemed adequate to the antitrust task and hence in the public interest. This, however, is not the case. The Court unquestionably has the power to enter the modification and to enforce compliance with its basic features. The principles governing the resolution of actual conflicts between state law or regulatory action and the obligations imposed on private parties by courts order enforcing federal law refute the states' contention that, under the "state action" doctrine of the *Parker* v. *Brown* line of cases,[12] states could block implementation of the decree by issuing regulatory orders inconsistent with its provisions. It is established law that a "state law prohibition against compliance with the (federal district court's) decree cannot survive the command of the Supremacy Clause of the United States Constitution." [13] In short, otherwise valid state regulation cannot be applied to frustrate the objectives of federal law.[14]

The principles underlying the limited "state action" exemption from the federal antitrust laws do not confer the preemptive power the states seem to claim. The issue in state action cases usually is whether the state's involvement in allegedly anticompetitive conduct renders that conduct exempt from the antitrust laws. In this proceeding for review of the proposed decree modification, however, the question is not whether state regulation has immunized AT&T's activities from the antitrust laws. Indeed, the private anticompetitive actions at which the proposed modification is directed repeatedly and consistently have been held not exempt from the antitrust laws.[15] Rather, the issue raised by the states' assertion is whether a state can validly exercise its regulatory powers to block compliance with a decree designed to prevent conduct unquestionably within the purview of a federal statute.

Of course it is true that neither federal antitrust law nor the proposed modification deprives the states of their power to regulate intrastate telecommunications services. We emphasize what was said in the Competitive Impact Statement (47 FR 7180 (1982)):

> (The proposed modification) would in no way limit or expand the respective scope of present federal and state regulatory jurisdictions. The states would continue to regulate the provisions of both intrastate toll service and local exchange service. The FCC would continue to regulate the provision of interstate service.

Accordingly, in considering whether the proposed modification provides an appropriate remedy for non-exempt conduct, the Court properly should take into account the modification's impact on the states' ability to achieve legitimate state regulatory objectives—whether the modification's terms necessarily conflict with the regulatory policy of a state, or whether the policy can be vindicated consistently with the modification's requirements.

The Department believes, however, that state regulatory powers cannot operate to bar implementation of the

[12] Parker v. Brown, 317 U.S. 341 (1943); Goldfarb v. Virginia State Bar, 421 U.S. 773 (1975); Cantor v. Detroit Edison Co., 428 U.S. 579 (1976); Bates v. State Bar of Arizona, 433 U.S. 350 (1977); City of Lafayette v. Louisiana Power & Light Co., 435 U.S. 389 (1978); California Retail Liquor Dealers Ass'n v. Medical Aluminum, Inc., 445 U.S. 97 (1980); Community Communications Co. v. City of Boulder, 102 S.Ct. 835 (1982).

[13] Washington v. Fishing Vessel Ass'n, 443 U.S. 658, 695 (1979). *See also, e.g.*, Cooper v. Aaron, 358 U.S. 1 (1958).

[14] *E.g.*, Nash v. Florida Industrial Comm'n, 389 U.S. 235 (1967); Sperry v. Florida, 373 U.S. 379 (1963).

[15] United States v. American Tel. & Tel. Co., 461 F. Supp. 1314, 1320–21 (D.D.C. 1978). *Accord*, United States v. American Tel. & Tel. Co., 427 F. Supp. 57 (D.D.C. 1976, Judge Waddy), *cert. denied*, 434 U.S. 966 (1977); Phonetele v. American Tel. & Tel. Co., Nos. 77–3877, 77–2936 (9th Cir. 1981); Sound, Inc. v. American Tel. & Tel. Co., 631 F.2d 1324 (8th Cir. 1980); Essential Communications Systems, Inc. v. American Tel. & Tel. Co., 610 F.2d 1114 (3d Cir. 1979); Northeastern Tel. Co. v. American Tel. & Tel. Co., 477 F. Supp. 251 (D. Conn. 1978), *rev'd on other grounds*, 651 F.2d 76 (2d Cir. 1981), *cert. denied*, 102 S. Ct. 1438 (1982).

modification. This is particularly clear with respect to the modification's basic divestiture requirement, a requirement that the Department has long viewed as fundamental to the achievement of the objectives of the federal antitrust laws in the telecommunications industry. Structural separation of the Bell System's potentially competitive enterprises from its monopoly holdings was the principal relief sought in both the *Western Electric* and *AT&T* cases. Well before the commencement of trial in the *AT&T* case, the Government indicated clearly that federal antitrust policy required the separation of the Bell System's local and interexchange facilities. Plaintiff's First Statement of Contentions and Proof at 527. Consequently, when the states warn (as some have) that they may issue orders blocking BOC asset transfers required to comply with the divestiture requirements of the decree, the states threaten to undermine the most basic mechanism for achieving the antitrust enforcement objectives of the decree.[16]

The state interests identified in the comments as likely grounds for forbidding asset transfers, however, could be effectuated in other ways, and do not, in any event, outweigh the strong federal interest that divestiture would serve. Many states noted that they have jurisdiction over, and thus an interest in, the provision of intrastate toll service, and asserted that this would justify their refusal to permit BOCs to transfer intrastate toll facilities to AT&T.[17] But an asserted state interest in identifying the particular firm that is to own intrastate toll facilities thus regulated cannot override the substantial federal interest in creating a competitive structure by separating the ownership of interexchange and exchange facilities. The states overlooked the significant federal interest in those same facilities, which are in many instances used to provide both interstate and intrastate toll service. In addition, as discussed elsewhere in this Response, after entry of the proposed modification and implementation of the plan of reorganization, the states will continue to be able to exercise regulatory power to achieve the regulatory objectives that could validly underlie their asserted interest in controlling the ownership of these facilities.

Moreover, to the extent that the states concerns with the transfer of intrastate toll facilities reflect their opinions concerning the proper configuration of exchange areas under the proposed modification, these concerns will be addressed early in the process of reviewing the plan of reorganization. As discussed in Section III, *infra*, the Department intends to consult closely with the states in reviewing the configuration of exchange areas, and that configuration will control the identification of assets that the BOCs will transfer to AT&T.

The Department accordingly believes that the process of consultation with the states will be a vehicle for the elimination of potential conflicts concerning the transfer of assets from the BOCs to AT&T. If conflicts nonetheless persist and result in state orders forbidding divestiture required by the decree, the state orders would, under applicable law, be preempted.

The states also contended that they could preempt the modification's prohibition of BOC entry into various competitive markets. In assessing this claim, it must be remembered that even if the *Parker v. Brown* doctrine applied with full force to actions required by the decree, that regulatory doctrine would protect only state action that evinced a legislative intent to displace competition. Simply granting a regulated firm permission to engage in a particular activity without displacing competition does not constitute state action under the *Parker line of cases and cannot prevail over efforts to enforce the antitrust laws. California Retail Liquor Dealers Ass'n v. Midcal Aluminum, Inc., supra; Cantor v. Detroit Edison Co., supra.* Accordingly, if a state, without displacing the competitive regime, purports to permit (or indeed, require) the BOC it regulates to participate in competitive markets solely in an effort to increase competition or to widen the BOC's business opportunities, as many states have indicated they may, its action would be preempted by the modification's prohibition on BOC entry. Moreover, as discussed elsewhere in this Response, the states may protect their interests in this area without issuing orders conflicting with the decree.

In sum, once the Court has determined that the modification is in the public interest—that it serves the purposes of the federal antitrust policy without obstructing legitimate state regulatory objectives—its judgment is not subject to negation by the states. The Supremacy Clause and the normal rules of preemption require that the decree prevail.

This is enough, we believe, to dispose of the general contention that the states are empowered to authorize, compel or excuse actions that violate the modification's terms. It is essential to emphasize, however, that questions of preemption come into play at all only when there is an actual conflict between enforcement of the antitrust laws and the mandates of state regulation. *See, e.g., Cantor* v. *Detroit Edison Co.*, 428 U.S. 595, 598 (1976). The requisite conflict would exist only if an order of a state regulatory scheme and the provisions of the decree imposed conflicting obligations on AT&T or a BOC. As observed above, the department is confident that, in the course of implementation and enforcement of the decree, many of the fears of possible conflict now voiced will prove to have been unfounded. Indeed, it must be assumed that state regulators themselves will take the operation and purposes of the decree into account in assessing the appropriate application of state law.[18]

In any event, there is no need to attempt to anticipate all possible situations in which a state might conclude that it must impose obligations arguably, or even clearly, inconsistent with the decree's terms. The proposed modification will provide the states ample opportunity to resolve questions concerning its application after it is entered as the decree of the Court. As indicated in the Competitive Impact Statement, if a state regulator's order conflicts with the decree, AT&T, the affected BOC, or the Department may invoke the judicial process to resolve the matter. In such a proceeding, with the force and possibly the validity of its order at issue, a state regulatory agency would normally have a sufficiently strong interest in the resolution of the controversy that it would be permitted to intervene.

In any such proceeding, the first question would be whether, in fact, the state obligation interferes with the provisions and objectives of the modification, as properly construed. Only then would it be necessary to

[16] The joint comments of 23 states, 6 utility consumer advocates and 4 public utility commissions assert that: The power possessed by State public utility commissions pursuant to the state action doctrine could, if exercised by some and not by others, result in a balkanized scheme of the telecommunications service and effectively frustrate the procompetitive intent of the proposed settlement. Alabama *et al.* at 12.

[17] It should be noted that pending legislative proposals would give the FCC, rather than the states' jurisdiction over intrastate interexchange communications. If such legislation is enacted, it will preempt state regulation and remove this area of potential conflict.

[18] For example, the "first in the field" policy identified by Illinois (at 8–11) as a potential source of conflict appears designed to protect continuity of service and the utility's investment. There would be no need to apply this policy to prohibit replacement of BOC interexchange service where the BOC has consented and service would not be disrupted.

determine, under Supremacy Clause standards, that the federal antitrust interest served by the particular provision of the decree involved must be deemed superior. The Department expects that the cases of genuine conflict, thus determined, will be rare. In many circumstances, accommodation of the federal and state interests will be possible, and certainly such accommodation is to be preferred. In all events, the procedures and standards involved in making such judgments plainly demonstrate the wisdom and, indeed, the necessity of waiting until conflicts arise before attempting to resolve them.

**II. Issues Relating to the Viability and Performance of the BOCs**

In this section of the Response, the Department will address a number of concerns raised in the comments regarding the consequences of certain requirements of the proposed modification on the continuing viability of the BOCs. We first address issues raised regarding the BOCs' continuing financial viability, including the relationship between asset valuation and divestiture, and the consequences for BOC viability of divestiture, and the consequences for BOC viability of divestiture and termination of the license contracts under which the BOCs paid for certain Bell System research and development. The Department will then address the effects on local rates of the modification's requirement that the division of revenues process be replaced by a system of access charges. Following this discussion, the Department will address concerns expressed in the comments regarding the rationale for, and likely effects of, the modification's restrictions on the lines of business in which the BOCs may engage. Finally, the Department will discuss issues raised by the comments concerning the absence of restrictions in the modification on AT&T's ability to construct and operate alternative local distribution facilities in competition with the BOCs.

*A. Financial Viability and Valuation of Transferred Assets*

Many comment expressed concern that the modification fails explicitly to discribe the means by which the Department intends to assure that the divestiture does not adversely affect the financial integrity and soundness of the local exchange companies. The ongoing financial soundness of the companies turns on their ability, under sound regulatory principles, to earn sufficient revenues to recover their costs of providing service, including a sufficient rate of return to attract new capital. The proposed modification thus will affect the financial viability of the local companies adversely only if it somehow forces them to incur costs that the regulators believe it appropriate to disallow in order to avoid increases in local rates.[19]

As set forth in the Competitive Impact Statement, the Department's review of the plan of reorganization will pay particularly close attention to the BOCs' technical and financial integrity. Section I of the proposed modification requires that the BOCs have the facilities, personnel and resources (including working capital) needed to carry out effectively the business of exchange telecommunications and exchange access. Accordingly, the modification will not occasion any need to incur capital costs for the provision of local service. In addition, the Department will review carefully the proposed financial structures of the BOCs to ensure that they reflect a sound mix of debt and equity and a cost of embedded debt, in terms of rates and maturities, comparable to the present average cost of debt to the Bell System as a whole.

A number of commenting parties, state governments and regulatory commissions in particular, expressed various concerns regarding proper values to be assigned to the assets which must be transferred between AT&T and the BOCs pursuant to the divestiture required by Section I of the modification. These comments argued that improper asset valuations could unfairly burden BOC ratepayers or afford AT&T unfair competitive advantages. Some of these parties argued that, to minimize any potential adverse impact of improper asset valuations, such valuations should take place before divestiture of the BOCs, or, in the alternative, that the BOCs should be divested intact with a subsequent transfer of assets.

The comments that addressed valuation raised a variety of analytically distinct concerns; the appropriateness of the procedures advanced to deal with them depends, in part, on whether the concerns expressed are actually raised by the kind or divestiture the modification contemplates. The Department believes that, in fact, the contemplated divestiture requires no independent effort to assign values to assets.

In the course of the divestiture it will be necessary to allocate the existing debt of the Bell System between AT&T and the BOCs. Many comments rightly pointed out that, were the BOCs to assume debt in addition to that now attributed to the services they will provide, regulators would be forced either to increase local rates to cover the increased cost of debt or to disallow the costs, thus potentially impairing the financial health of the firms. In considering allocation of debt, however, the Department intends that the allocation follow the asset values generally employed in the existing regulatory processes. Since the allocation will depend on existing regulatory treatment of asset values, it should not disturb present relative rate levels.

The Department therefore sees no need for the suggested alternative approaches, approaches which could have significant adverse consequences not only to AT&T, but to the BOCs themselves.[20] The suggested alternative procedures appear to stem, not so much from debt allocation questions, but from the view that the divestiture itself will result in some potential gain in value to AT&T in which the BOCs and their ratepayers, as distinct from AT&T's ratepayers, rightly should share. The model that the commentators invoke, either explicity or implicity, is that of withdrawal of regulated assets from service, and sale to an unaffiliated and unregulated enterprise. Even in its most basic terms, the model is inapplicable to the divestiture the modification proposes: the divestiture is not a sale to an unaffiliated enterprise, but a division of assets that AT&T and its shareholders already own.

To understand why the divestiture does not require valuation in any sense beyond that involved in appropriate division of the existing embedded debt, it may be useful to set out a brief explanation of asset valuation and its significance to traditional cost of service regulation. In unregulated markets, the value of any asset is determined by market processes. Investors value assets according to the discounted value of the net income stream (revenue less

[19] The concern that the modification's line-of-business restrictions will affect the local companies' long-term financial health and their ability to provide service at affordable rates is dealt with below.

[20] The divestiture/buy-back suggestion, in particular, could have serious adverse consequences. Were AT&T forced to "purchase" assets from the BOCs, it presumably would have to incur substantial new debt at rates substantially above the average rates of embedded debt. These increased debt costs, which could be enormous, would be borne by the ratepayers whom AT&T would continue to serve. Moreover, to the extent that the purchase price exceeds the adjusted tax basis of the assets, the BOCs would incur a potentially very large tax obligation.

variable costs) associated with the production of that output, plus the expected salvage value of the asset on retirement. Thus, in unregulated markets, the value of an asset is the result of market-determined prices. In a regulated environment, the process is just the reverse. Regulators establish the "value" of the regulated firm's capital assets—the rate base on which a rate of return is allowed. This process determines the price of the firm's output. Most regulatory agencies determine the value of the firm's capital stock according to the acquisition cost of assets. Subsequent value is determined by the acquisition cost adjusted for the subsequent recovery of capital from ratepayers through depreciation and return on capital.

Under traditional regulatory practice, if an asset is removed from public service, the economic value at the time of its removal is estimated, and an appropriate adjustment made to the rate base of the regulated firm. If regulated firms were allowed to remove property from regulated service, sell the property for an amount greater than its depreciated value in regulated service, and keep the proceeds, perverse incentives could develop. Such incentives could undermine the integrity of the regulatory scheme, unless such transactions were otherwise accounted for in establishing the firm's revenue requirements. The cost of service collected from ratepayers includes an allowance for the decline in the value of the asset. If an asset is sold for more than its regulatory value, then, unless potential appreciation had been reflected in the allowed rate of return, stockholders will in effect be able to earn an amount greater than what regulators had determined to be reasonable.

The argument has been made that ratepayers contribute to the capital recovery of regulated assets. Therefore, the argument has also been made, although of doubtful general validity, that if an assets is sold and the amount realized is greater than the value at which the asset is carried on the books, ratepayers have been deprived of their share of the appreciation in value, unless the rate base of the regulated firm is reduced to account for the difference between book value and market value.

In the view of the Department, the divestiture required by the proposed modification does not give rise to these concerns. In the first place, the modification will not result in the removal of assets from regulated service. The customer premises equipment assets as well as the facilities used to provide intrastate interexchange service, which must be transferred to AT&T, will continue to be subject to regulation. Under the FCC's *Second Computer Inquiry* decision, 77 F.C.C. 2d 384 (1980), embedded customer premise equipment will not be immediately deregulated on January 1, 1983, when separation of new CPE from regulated services is required. In Docket No. 81–893, the FCC has solicited comments on procedures that might be used to detariff such equipment.[21]

Accordingly rates charged for the provision of services transferred to AT&T will continue to be based upon the cost of the assets devoted to regulated service: There will be no realized gain to any regulated firm as a result of divestiture. To the extent that embedded CPE is deregulated, the FCC has indicated in Docket No. 81–893 that it will prescribe appropriate means of valuation and of protecting ratepayer interests.

Some comments nevertheless argued that local service ratepayers should be compensated for any excess of the market value of transferred assets over book value. Even assuming that the divestiture were an appropriate occasion for recognition of gain (and, presumably, loss [22]) and for participation in gain (or loss) by the ratepayers, the argument could be sound only if neither CPE customers nor intrastate interexchange customers as a distinct class paid for the excess capital recovery responsible for the excess of market values over book values. Put another way, the argument would be correct only if local ratepayers as a class, but not interexchange or CPE customers, paid the excess depreciation responsible for the differences between market and book value.

With respect to transferred interexchange facilities, assuming that the market value of such facilities exceeds book value,[23] there is no indication that local ratepayers as a distinct class have "paid for" any excess capital recovery which accounts for the difference. In order for this to have occurred, revenue from the provision of local exchange service would have to have exceeded the costs of providing such service. In other words, for local ratepayers to have "paid for" the excess capital recovery resulting in an excess of market over book value, local rates would have to have subsidized intrastate interexchange services.[24] Yet this is directly contrary to the arguments of many of the comments, which assert that the flow of revenues is in the opposite direction, *i.e.*, from interexchange to local. In any event, it is highly unlikely that it would be possible to identify such particular classes of customers with any precision.

Similarly, with respect to customer premises equipment, it is difficult to understand how local ratepayers as a class would be disadvantaged by the transfer of customer premises equipment to AT&T even if the market value of such equipment exceeds its book value.[25] Under the FCC's *Second Computer Inquiry* decision, embedded customer premises equipment may remain regulated for some period. States, therefore, would continue to have jurisdiction to determine the prices AT&T may charge for such equipment.[26] Thus, even if local ratepayers can be said to have "paid for" the excess capital recovery, they may retain after divestitures, if they wish, the very same regulated customer premise equipment. The only difference, from the customer's point of view, will be that maintenance of such equipment will be the responsibility of AT&T rather than the BOCs. If the book value is lower than

---

[21] Procedures for Implementing the Detariffing of Customer Premises Equipment and Enhanced Services (Second Computer Inquiry), CC Docket No. 81–893, Notice of Inquiry (Released April 13, 1982). The Commission's *Second Computer Inquiry* decision is currently on appeal before the U.S. Court of Appeals for the District of Columbia, Computer & Communication Industry Ass'n v. FCC, D.C. Cir. Nos. 80–1471 *et al.* If the Commission's decision is reversed on jurisdictional grounds, of course, the states would retain their existing jurisdiction over customer premises equipment.

[22] If book value were above market value for assets transferred to AT&T, and local ratepayers were responsible for the underdepreciation of such assets, the argument that divestiture provides an occasion for recognition of gain or loss would dictate that the BOCs should compensate AT&T for the difference.

[23] With the rapid technological changes that have occurred in interexchange technology, it is likely that such assets have been underdepreciated, rather than overdepreciated, in relation to their economic value—that is, the book value of such assets is likely to be *higher* than their economic value.

[24] If this is indeed the case, it would benefit local ratepayers to have the divestiture occur as soon as possible.

[25] Some comments asserted that the BOCs should be permitted to retain such equipment because it has generated revenues in excess of costs which have been used to hold down the rates charged for other services. These comments, therefore, implicitly argued that the market value of such equipment is likely to be higher than book value. On the other hand, a number of comments, including those of United Telecommunications and nine Western state utility commissions, argued that customer premises equipment has been greatly underdepreciated and that, therefore, the book value of such equipment exceeds market value. There is, therefore, substantial disagreement on this issue.

[26] As discussed in Section V, while some state statutes may not clearly grant state commissions jurisdiction over CPE provided by AT&T, there is no apparent reason why such jurisdiction could not be enacted if the state legislatures deem it appropriate.

market value for such equipment, local ratepayers will continue to benefit by a regulated price that is lower than the price that the market value of such equipment would otherwise indicate. Even if such equipment is deregulated, as discussed above, the FCC has indicated that it will prescribe proper methods of valuation and means of protecting ratepayer interests.

The Department believes, therefore, that many of the concerns articulated in the comments on this issue have no basis in economic reality. Even in the event that such concerns do materialize, however, regulatory agencies will retain complete authority to make such adjustments as may be appropriate to the rate bases of the BOCs and AT&T. All these considerations demonstrate that any legitimate regulatory concerns in this area are a product of regulatory action and susceptible to regulatory solution. Accordingly, none of these concerns constitutes a basis for suggesting that the modification is not in the public interest.

Additional concern was expressed that if assets were transferred to AT&T at a value below market value, AT&T would gain an unfair competitive advantage. While, as discussed above, the Department believes that this possibility is unlikely to occur, even if it did, it would not confer a competitive advantage on AT&T. The embedded CPE assets which will be transferred to AT&T, for example, will continue to be regulated for some period of time. The states, therefore, will retain jurisdiction over the prices at which such equipment will be offered. If, in fact, the market value of such equipment is higher than the transfer value, AT&T's prices for such equipment would be constrained *by regulation* at a level below what the market value would dictate. In these circumstances, regulation, not AT&T, would determine the price of CPE.

Even in the event that embedded CPE is deregulated, the consequence would be that AT&T would be permitted to sell such CPE for a price higher than the regulatorily-determined price. But that price would be the same, *i.e.*, the maximum price sustainable in the competitive context, regardless of any payment to the BOCs: The sunk cost of CPE is irrelevant to its pricing by an unregulated enterprise.[27] Accounting profitability, but neither prices nor market share, would be affected. Similarly, the transfer of interexchange assets to AT&T at a value below market value would similarly convey no unfair competitive advantage to AT&T in the event of deregulation. It would not lower the incremental cost to AT&T of providing interexchange service, or provide any continuing advantage to AT&T relative to its interexchange competitors.

Some comments, from state commissions in paticular, argued that the modification should contain some mechanism for compensating the BOCs for the research and development funded by the BOCs under the license contracts. These comments argue that BOC ratepayers have in effect paid, through license contract fees, for Bell Labs research which has not yet been embodied in products and services used by the BOCs. Therefore, according to these comments, the BOCs are entitled to some compensation for these payments with the termination of the license contracts.[28]

Under the modification, the BOCs will have substantial rights to make use of the fruits of research and development performed by Bell Labs. Under Section I of the modification, AT&T must transfer to the ABOCs the rights to sufficient technical information to permit the BOCs, independently of AT&T, to perform "exchange telecommunication and exchange access functions, including the procurement for and engineering, marketing and management of those functions." In addition, AT&T has made a commitment to the Department that it will continue to license to the BOCs, on a royalty-free basis, all existing patents and patents issued within five years of the date of entry of the modification. Such licenses will be for the life of the patent and will include the right to grant sublicenses to others to provide the BOCs with goods and services for the BOCs' own use.

With respect to technical information other than patents, AT&T has also made a commitment that it will furnish to the BOCs additional Bell System technical information, of the type required to be furnished on divestiture, that is created within one year of that date. The BOCs will have the royalty-free right to make such use of that information as is necessary to enable them to perform their functions, including the right to license the use of such information to others for purposes of obtaining additional sources of supply for products and services now obtained from AT&T and its affiliates. These rights, the Department believes, will substantially benefit the BOCs in ensuring their ability to operate in a sound technical and financial manner.

*B. Effects of Access Charge Provisions*

Section II and Appendix B of the modification require the BOCs to provide exchange access to intercity carriers and information service providers that is equal in type, quality and price to that provided to AT&T. Such access arrangements must be offered by the BOCs under tariff on an unbundled basis with separate, cost-justified charges for each element of access. A number of comments expressed concern that the access charges, which will substitute for the division of revenue process, will result in a substantial increase in local telephone rates because such charges will eliminate contributions flowing to local exchange rates from interexchange services under current division of revenues procedures.

The proposed modification does not, nor is it intended to, affect the jurisdictional separation rules under which the FCC and the states allocate the costs of providing service between federal and state jurisdictions, or the state commissions' power to allocate costs between local exchange and intrastate interexchange services they regulate. The cost-based pricing required by the modification governs only the BOCs' own efforts in formulating rates in order to assure that those efforts do not discriminate among interexchange carriers. The level of access charges, and their contribution to the costs of local telephone service, therefore, will continue to be a product of state and federal regulatory policy.

A number of comments from independent telephone companies and state commissions also raise issues regarding the effects on independent telephone companies of replacing the division of revenues process with access charges. Some of the comments submitted in this area appear to assume that the modification requires the replacement of the current settlements process between AT&T and

[27] Some comments seem to assume that any realized difference there may be between book value and unregulated market value would be used by AT&T to subsidize the provision of interexchange services or CPE to disadvantage competitors in those markets. Foregoing current porfit to subsidize anticompetitive pricing strategies, however, only makes sense if those profits can be recouped later after competitors have been driven from the market. Since the divestiture required by the modification would remove entry barriers to interexchange services and CPE, AT&T would not be able to recoup such foregone profits by raising prices later, because to do so would only invite further entry.

[28] In addition, in its comments, the Ohio Public Counsel stated that when AT&T acquired its interest in Cincinnati Bell, the sole consideration given for such interest was an agreement to provide services to Cincinnati Bell under the license contract. The Department has been advised by AT&T that it is negotiating arrangements with both Cincinnati Bell and SNETCO to take into account the termination of the license contracts.

independent telephone companies with access charge tariffs. Other comments expressed concern that the filing of access charge tariffs will have the effect of raising rates to customers of independent telephone companies.

The modification by its terms applies only to AT&T and its affiliates. The access charge requirement imposed by the modification, therefore, only applies to the BOCs and not to independent telephone companies. It is possible, however, that regulatory authorities may decide to substitute an access charge arrangement for the current settlements process between AT&T and independent telephone companies.[29]

As to concern that the access charge mechanism will cause increases in rates for subscribers of independent telephone companies, as discussed above, the modification leaves unaffected the jurisdiction of regulatory bodies to allocate costs within and among their jurisdictions. Thus, the joint federal-state boards established by the FCC pursuant to Section 410(c) of the Communications Act, 47 U.S.C. 410(c), may, consistent with the modification, continue to allocate the costs of providing service between federal and state jurisdictions in the same manner as they have in the past. Similarly, the states may continue to allocate the costs of providing services within their jurisdiction in the same manner as they have in the past. Any contribution to the costs of the local exchange service provided by independent telephone companies deemed appropriate by regulatory bodies can be recovered, just as it is now, through contractual settlements arrangements, through a system of access charges prescribed by regulatory authorities, or a combination of both.

A number of comments expressed concern regarding the proposed modification's effect on service to independent exchange carriers, many of which serve sparsely populated, rural areas of the country. One such concern, expressed in joint filings made by Wyoming Telephone Company, Inc., *et al.*, and by Haviland Telephone Company, Inc., *et al.*, is that after divestiture of the BOCs, independents may have difficulty in obtaining adequate connecting interexchange services from AT&T in rural areas where the costs of operation are high. More specifically, it has been suggested that an interexhange carrier such as AT&T will not have an incentive to serve high cost rural areas if its costs exceed its revenues for that service.

At the outset, it should be noted that the exchange areas for which the BOCs will have exchange access responsibilities encompass rural areas associated with an SMSA. Thus, to the extent that an independent rural carrier obtains connecting facilities (Class 5 to Class 4 trunks) from a BOC, it may continue to do so in the future. Thus, interexchange carriers, including AT&T, need only construct transmission facilities to a single point of interconnection in an exchange area to serve all points in the exchange area, including territory served by an independent telephone company.

Even with respect to AT&T, it should be emphasized that the modification will have no effect on its incentives to serve particular areas of the country. Whether or not the BOCs were divested from AT&T, a carrier would have little incentive to provide service unless it is permitted to recover the costs of doing so.

In addition, assuming that there are significantly higher costs in the provision of service to rural areas,[30] the costs of providing such service can be recovered either through a de-averaged rate structure, or by setting rates in a way that averages costs over high cost and low cost areas. In either case, jurisdiction over AT&T's interstate rates will continue to reside in the FCC, while the states will continue to exercise jurisdiction over intrastate rates. Moreover, as set forth in the Competitive Impact Statement, the states and the FCC will continue to exercise jurisdiction with respect to the level of access charges for the provision of intrastate and interstate interexchange service. Thus, as a matter of regulatory policy, a state may decide to pool the costs of providing intrastate access within a state and thus require the filing of access charges that reflect the average cost of providing intrastate access. The FCC may similarly decide, consistently with the modification, to require averaging of interstate access charges. The modification thus leaves unaffected the jurisdiction of federal and state agencies to prescribe rate structures.

Furthermore, after divestiture, the FCC and state regulatory bodies will have the same powers as previously to ensure that interexchange carriers provide adequate service to all areas of the country. Typically, regulatory bodies are empowered to order connections between carriers, to grant operating authority on the condition that a carrier provide service to rural areas, and to prevent the abandonment or discontinuance of service by a carrier.[31]

In its comments the State of Illinois indicated that the Illinois Commerce Commission has this authority over intrastate telephone carriers in Illinois. It expressed concern, however, regarding the Commission's ability to enforce existing contracts for connecting service between Illinois Bell Telephone Company and independent carriers because, after the proposed divestiture, Illinois Bell would be precluded from providing interexchange service. While clearly an order directing a BOC such as Illinois Bell to maintain its contracts with independents for the provision of interexchange service would be inconsistent with the proposed modificiation, such an order directed to AT&T would not be. Since, after the divestiture, AT&T will own and operate the interexchange facilities previously used by the BOCs in providing intrastate interexchange service, it seems clear that the state commissions will have jurisdiction over AT&T for its intrastate operations and may enforce state laws requiring AT&T to interconnect with independents and to provide intrastate interexchange service.

Consequently, regulatory bodies' jurisdiction to ensure the adequate provision of interexchange service to rural areas will be unimpaired by the proposed modification.

### *C. Line of Business Restrictions*

A great deal of the concern regarding BOC viability expressed in the comments relates to the line of business restrictions placed on the BOCs by Section II(D) of the proposed modification. In addition, the comments showed a significant degree of uncertainty regarding the reach and application of the line of business restrictions. In this section of the Response, the Department will attempt to clarify those aspects of the line of business restrictions regarding which the comments have expressed some confusion. The Department will also

[29] There were conflicting views in the comments as to whether independent telephone companies should be required to file access charge tariffs. A number of comments also expressed conflicting views as to whether access charges should be structured in a way that averages the costs over high and low cost exchange areas. The FCC is currently examining these issues in Docket No. 78-72.

[30] While it has been argued that the cost of providing interexchange service to rural areas exceeds the cost of providing service to more densely populated areas, that showing has not been convincingly made. In the trial of United States v. AT&T, for example, evidence was introduced which tended to show that the cost of construction in more densely populated areas outweighed whatever cost penalties might be associated with providing interexchange service to less populated areas.

[31] See, *e.g.*, 47 U.S.C. 201 and 214.

address here issues raised by the comments concerning the need for, and effects of, the restrictions.

1. *Clarification of Restrictions:* A number of comments addressed the scope of the restrictions contained in the proposed modification on the businesses in which the divested BOCs may engage.

Paragraph II(D) of the modification places three limitations on the divested BOCs.[32] First, the BOCs are prohibited from providing interexchange telecommunications and information services as these terms are defined in Section IV. Second, a BOC may not manufacture or provide telecommunications products or customer premises equipment, including equipment presently under tariff, except for the provision of customer premises equipment for emergency services. Finally, except for exchange telecommunications and exchange access services, the divested BOCs may not provide any products or services apart from natural monopoly services actually regulated by tariff.

a. *Routing Among Interexchange Carriers.* A number of comments raised questions regarding the scope of these restrictions. Western Union, for example, questioned whether the BOCs would be permitted to route calls to implement arrangements between interexchange carriers for handling traffic overflows. As the Department understands the question, the BOCs would be permitted to perform such functions. The routing of calls among interexchange carriers in overflow conditions is a network management function which, under the proposed modification, would be an exchange service. Section II(D)'s prohibition on the offering of interexchange telecommunications is intended to preclude the BOCs from performing the *interexchange* switching or routing functions integral to the operations of an interexchange carrier. The network management function, as described, which merely sorts calls *among carriers*, would not fall within this category.[33]

b. *Pole Attachments and Conduit Space.* Some comments, principally those of cable television operators, expressed concern that the proposed modification be fully consistent with the Federal Pole attachment act of 1978, 47 U.S.C. 224. That Act gives the Federal Communications Commission authority to "regulate the rates, terms, and conditions for pole attachments to provide that such rates, terms, and conditions, are just and reasonable." 47 U.S.C. 224(4)(b)(1). The FCC is empowered to regulate rates, terms and conditions for pole attachments only where those matters are not regulated by a state. 47 U.S.C. 224(4)(c)(1). A state that regulates these matters must certify to the FCC that it does so and that its regulation satisfies the requirements of the Act.

In the Department's Competitive Impact Statement, pole attachments were cited as an example of a natural monopoly service actually regulated by tariff. The Federal Pole Attachment Act of 1978, however, does not require that pole attachments be regulated by tariff. The National Cable Television Association pointed out that, if the modification is read to require that pole attachments actually be regulated by tariff, a conflict may arise between the 1978 Act and the modification.

It is not the intent of the modification to change the regulatory scheme governing pole attachments or to impose obligations inconsistent with existing law. The reference to pole attachment as a natural monopoly service actually regulated by tariff was based upon a misunderstanding of the current regulatory scheme. Even though not actually regulated by tariff, however, conduit space and pole attachments would remain within the ambit of BOC operations. Poles and conduit space are clearly facilities essential for the provision of exchange telecommunications. Leasing of capacity in conduit space and pole attachments would similarly be permitted under the modification, since the BOCs have traditionally shared such space and attachments with other utilities as a natural adjunct of their exchange operations.

c. *Inside Wiring.* A number of commenting parties raised issues regarding the status of inside wiring under the modification. Xerox, for example, questioned whether inside wiring, which, under the modification, falls within the category of exchange telecommunications, includes all customer premise wiring between the BOC's outside plant and the customer's terminal equipment. The intent of the modification is to include within exchange telecommunications at least the wiring which connects the BOC's protection block with one or more pieces of customer premises equipment, e.g., a PBX. It is not clear at this time, however, whether such wiring connecting two pieces of customer premises equipment, e.g., a PBX and an individual telephone, is more appropriately classified as an aspect of the provision of customer premises equipment. The Department intends to give this issue further consideration and will provide clarification at the earliest possible date.

Some comments expressed concern that leaving inside wiring with the BOCs might be read to imply that such wiring is a natural monopoly. As noted above, however, the BOCs may provide inside wiring, not because it is a natural monopoly service actually regulated by tariff, but rather because it constitutes an aspect of exchange telecommunications.

Other comments suggested that the BOCs should be required to give customers the option of purchasing inside wiring at a regulatorily-determined price. The Department recognizes that New York and other states permit customer ownership of inside wiring and that more states are considering that option. The modification would neither require nor prohibit such regulatory action. Indeed, the modification is not intended to imply that inside wiring should not be offered on a competitive basis.[34]

d. *Telephone Answering Services Equipment.* Comments from providers of telephone answering services raised questions regarding the ability of the BOCs to offer particular types of equipment necessary to the provision of telephone answering services. The major types of equipment used to provide this service are switchboards

[32] Some comments, particularly from independent telephone companies, expressed concern that the restrictions on BOC lines of business might be interpreted to restrict the businesses of independent telephone companies. The proposed modification would settle a controversy between the United States and AT&T, and applies by its terms only to AT&T and its affiliates. The obligations and restrictions contained in the proposed modification, therefore, do not apply to independent telephone companies.

[33] In addition, the modification excludes from the definition of prohibited information services those services when used for the management, control, or operation of a telecommunications system, or for the management of a telecommunications service. The modification thus contemplates that the BOCs may perform a variety of network management functions for the benefit of interexchange carriers. Such functions would include, in addition to functions such as those discussed above, reassignment of traffic for back up and restoration purposes pursuant to agreements among carriers and in response to requests from agencies with responsibility for national security and emergency preparedness.

[34] While, under the modification, the BOCs would be permitted to offer inside wiring as a part of exchange telecommunications, even if deregulated, regulatory agencies may decide as a matter of policy that the BOCs should be foreclosed from its provision. This result would not conflict with the modification, which only permits the BOCs to provide such wiring. Indeed, the fact that the modification would permit the BOCs to provide inside wiring should not be taken as an indication of the Department's views with respect to the appropriate role of BOCs, as regulated monopolists, in the provision of competitive services which fall within the ambit of exchange telecommunications.

and a system called a concentrator-identifier.

The confusion appears to stem from the fact that the concentrator-identifier consists of two piece of equipment. The concentrator is located in the central office. As its name suggests, it concentrates up to 100 customer access lines into six lines which run from the central office to the telephone answering service. The indentifier, which is located on the telephone answering service's premises, identifies which customer has an incoming call to be answered.

Where the BOCs offer the concentrator-identifier as a single service, the modification would permit the BOCs to continue to offer both the concentrator and identifier, even though the identifier is located on the customer's premises. As pointed out in the comments, even though separately located, the concentrator-identifier is a single system and performs an integrated function, similar to the multiplexing and demultiplexing equipment excluded from the definition of customer premises equipment under Paragraph IV (E) of the modification. As such, the identifier does not fall within the category of prohibited customer premises equipment merely because it is located on a customer's premises. The switchboard, on the other hand, like other kinds of customer switching equipment, could not be provided by the BOCs.[35]

e. *Information Services.* Other comments raised issues regarding the distinction between permitted exchange telecommunications and prohibited information services. As explained in the Department's Competitive Impact Statement, the BOCs may offer exchange telecommunications services, which are defined derivatively to mean the offering for hire, within an exchange, of telecommunications facilities, or of telecommunications by means of such facilities via electronic means, without regard to the type of transmission facilities used. Such services may not, however, involve a change in the form of content of the message as sent or received. Nor may the BOCs provide a service which includes voice or data storage as a feature of such service offering. The fact, however, that a particular technology inherently involves the storage of information would not, by itself, be sufficient to classify a particular offering as a prohibited information service. The modification thus draws a distinction between those functions which are inherent in the provision of telecommunications services within an exchange and those intervening changes in the form or content of a message which may be performed on a competitive basis. The modificaiton does not, nor is it intended to, limit the ability of the BOCs to take advantage of new technologies in the provision of exchange telecommunications.

Among others, the California Public Utilities Commission questioned whether, under the proposed modification, the BOCs would be permitted to offer Centrex, Custom Calling I and Custom Calling II services. Centrex service is simply the remote switching of calls at a customer location by a central office switching machine. As such, it is inherently simply an exchange switching function and an integral aspect of exchange telecommunications which the BOCs may provide. Similarly, Custom Calling I, which includes call waiting, call forwarding and speed dialing, is an application of basic switching capabilities inherent in electronic central office switching machines and thus may also be provided by the BOCs.

Custom Calling II, on the other hand, goes beyond the mere switching and transmission of calls basic to the provision of exchange telecommunications services. Custom Calling II includes, for example, call answering and advance calling. The former provides the ability to record and store incoming messages for later retrieval by customers. Advance calling permits a customer to pre-record a message to be transmitted to a predesignated number within a 24 hour period. These applications are functionally separate and distinct from basic switching and transmission of telecommunications within an exchange and can be provided on a competitive basis.[36] The proposed modification would, therefore, prohibit the offering of Custom Calling II services by the BOCs.

A number of comments questioned whether the BOCs would be permitted to offer time and weather announcements, mass calling services, and enhanced 911 service under the proposed modification.

Time and weather announcements are normally provided by the BOCs to the public without separate charge. These services involve making information available to customers by electronic means and thus would constitute prohibited information services under the proposed modification. At the present time, however, in light of the pricing of these services, it is unclear whether the provision of these services by firms other than the BOCs is feasible. Such services could be offered by an independent information services vendor in areas that have measured rate local calling. The local BOC and the vendor would have every incentive to agree to share the message unit revenue from calls to time and weather. It is not the intention of the Department to preclude the provision of services by the BOCs that may not be provided on a competitive basis. As the date of divestiture approaches, if it is not clear that such services may be provided on a competitive basis, the Department will join with the BOCs in seeking a waiver from the Court to permit the offering by the BOCs of such services until such time as it becomes clear that they can be provided feasibly by firms other than the BOCs.

Mass calling or announcement services, such as "dial-it," involve the provision to customers of a capability to acquire certain types of information. Like time and weather, such services are also information services under the proposed modification. These services, however, are today only offered in areas with measured local calling, or which otherwise permit a per-call charge for the service. Again, the BOCs have every incentive to establish payment arrangements to permit economical provision of such services. The comments of Productions-by-Phone, Inc. made specific reference to mass calling equipment already installed by New York Telephone. New York Telephone could continue to provide the specialized local trunking for such services (the "976" exchange) as part of its information access responsibilities under the proposed modification. Such information access could include nondiscriminatory announcements to New York Telephone customers of the recordings provided by the various programmers making use of the 976 service. Any information access must be arranged so that multiple vendors could be provided nondiscriminatory access to the local networking portion of the 976 offering.

Enhanced 911 service involves the provision to public safety agencies of certain information to assist them in responding to emergencies such as residential or business fires. Under this

[35] Some comments suggested that equipment such as the switchboard used by telephone answering services could be offered by the BOCs under the modification's emergency services exception, because such equipment may be used in emergency situations. The intent of the emergency services exception however, is not to permit the BOCs to provide equipment that may be used in emergencies, but to permit the provision of equipment by the BOCs in emergency situations when it may be impracticable to obtain equipment from other vendors.

[36] Indeed, these services are already available in CPE from non-Bell sources.

service a telephone subscriber would dial 911. The central office would identify the calling number and supply this information to a computer which would then match the calling number with other data in the computer's memory and display that data to the customer, for example, a municipal fire department. This service would clearly constitute an information service since it involves generating and making available information to customers.

The Department is not sufficiently knowledgeable regarding the marketing of this service, however, to know whether it could be offered to public safety agencies under the same terms and conditions by competitive firms. If, as the date of divestiture approaches, it is clear that enhanced 911 service could not be offered by firms other than the BOCs under the same terms and conditions, the Department will join with the BOCs in petitioning the Court for an exception which would permit them to offer such services.

*f. Cellular Radio, Land Mobile Radio and Cable Television.* Questions were also raised regarding the ability of the BOCs to provide cellular radio, land mobile radio, and cable television services.

As set out in the Department's Competitive Impact Statement, the proposed modification would not prohibit the BOCs from offering either cellular radio or land mobile radio.[37] These types of services fall within the definition of exchange telecommunications.[38] The provision of cable television service, on the other hand, clearly involves the generation, transformation and conveyance of information and is thus an information service. As noted above, the modification does not limit the technologies a BOC may employ to provide exchange telecommunications. Thus, while a BOC may not provide cable television service, it may provide the broadband transmission medium necessary for such services to cable television operators.

*g. Customer Premises Equipment.* The Independant Data Communication Manufacturers Association (IDCMA) expressed concern that the proposed modification might be interpreted to sanction the BOCs as sole suppliers of equipment located on customers premises used to multiplex, maintain, or terminate access lines. IDCMA's concern arises out of the definition of customer premises equipment, which the BOCs are precluded from providing, and the limitations on BOC activities to exchange telecommunications and exchange access, except natural monopoly services actually regulated by tariff. IDCMA is concerned that these provisions, taken together, might be read to imply that equipment located on customer premises used to multiplex, maintain, or terminate access lines constitute natural monopoly services.

That result is neither intended by the modification nor required by a construction of its terms. The ability of the BOCs to provide such equipment, even though located on customer premises, stems not from any natural monopoly characteristic inherent in its provision, but rather because of its relationship to the provision of exhange telecommunications. As noted above with respect to cellular radio and land mobile radio, the classification of a particular offering as exchange telecommunications is not intended to imply that such offering should be offered on a non-competitive basis.

2. *Rational for Restrictions and Effects on BOC Viability:* Many comments, including those of a large number of state governments, state public utility commissions and the Federal Communications Commission, raised issues regarding the need for, and likely effects of, the restrictions placed on the businesses in which the BOCs may engage. The following discussion will first address general arguments and concerns raised in the comments regarding the BOC line of business restrictions. The Department will then address several specific issues raised by the comments relating to restrictions on particular lines of business.

As set forth in the Department's Competitive Impact Statement, the purpose of the restrictions is to prevent the reemergence of the incentives and ability to engage in anticompetitive behavior that existed prior to divestiture. This purpose is wholly consistent with the duty of a trial court, after having found a violation of Section 2 of the Sherman Act, 15 U.S.C. 2, to ensure "that there remain no practices likely to result in monopolization in the future." *United States* v. *United Shoe Machinery Coup.*, 391 U.S. 244, 250 (1968).

The theory of both the *Western Electric* and *AT&T* cases was that, as a rate base/rate of return regulated monopolist, AT&T has had both the inventive and the ability, through cross-subsidization and discriminatory actions, to leverage the power it enjoys in its regulated monopoly markets to foreclose or impede competition in related, potentially competitive markets. The linchpin of AT&T's monopolu power, the United States alleged, was its ownership and control, through the BOCs, of regulated local exchange monopolies. It was through leveraging of these local franchise monopolies in the markets for intercity services, customer premises equipment and telecommunications equipment. Absent the modification's restrictions on BOC lines of business, the BOCs would have the very same incentives and ability to foreclose or impede competition in related markets. Thus, given the BOCs continuing status as regulated monopolies, the modification's line of business restrictions are intended to ensure, consistent with the obligations of this Court, "that there remain no practices likely to result in monopolization in the future."

As some of the comments pointed out, the proposed modification goes beyond restricting BOC entry into related or dependent markets, placing a blanket prohibition on the offering of non-exchange access or non-exchange telecommunications products or services that are not natural monopoly services actually regulated by tariff. The Department recognizes that the anticompetitive dangers inherent in the joint provision of regulated monopoly services and unregulated competitive products or services attenuate as the characteristics of the regulated and unregulated markets become increasingly distinct. In the case of the BOCs, businesses that present little opportunity for cross-subsidization from monopoly exchange revenues, because of the absence of common costs and little opportunity for discrimination, would also present little anticompetitive potential. Thus, there would be little danger in permitting the BOCs to engage in businesses wholly distinct from and unrelated to the provision of exchange telecommunications and exchange access. It would be very difficult, however, to draw a workable distinction between those businesses which do not present unacceptable dangers to

[37] As the Department also noted, the ability of the BOCs to offer such competitive exchange telecommunications services under the proposed modification should not be taken as an indication of the Department's position with respect to the appropriate role of the BOCs, as regulated monopoly carriers, in the provision of competitive telecommunications services within an exchange area.

[38] The BOCs would not, however, be permitted to offer customer equipment associated with the provision of mobile radio since such equipment is a form of customer premises equipment. Some comments questioned the status of Advanced Mobile Phone Service Inc., a separate affiliate which is being formed by AT&T to provide cellular radio services. The Department has been advised by AT&T that, since the BOCs are permitted under the modification to offer cellular radio service, seven separate subsidiaries will be formed, to be owned by the BOCs, to provide such services.

competition and those which do. Moreover, there was no suggestion in the comments that the BOCs would have any interest in entering such unrelated competitive businesses or that there would be any significant public benefit from such entry. Rather, the comments urged that the BOCs be permitted to enter businesses in related markets. Yet, as discussed below, it is in these markets that the anticompetitive dangers of BOC participation are greatest.

A number of commenting parties, including the Federal Communications Commission, several states and state public utilities commissions, argued that the restrictions on the BOCs are actually anticompetitive, since the BOCs are among the most likely entrants into markets where AT&T has, or is likely to gain, a dominant position. These comments argued that the BOCs would be a procompetitive force in these markets because they are in the best position to present a serious competitive threat to AT&T. Entry by the BOCs into these markets, it was argued, would most quickly bring about competitive market structures. It was also argued that permitting the BOCs to compete against AT&T would more quickly sever any remaining ties of loyalty between AT&T and the BOCs and reduce the potential for anticompetitive cooperation among them.

The Department agrees with a basic premise of these comments—that restrictions on entry are generally anticompetitive and deserve the most careful scrutiny. Absent control by the BOCs of regulated bottleneck monopolies, the Department would also agree that any limitation on the businesses in which the BOCs may engage would be unnecessary and unwise. However, as commenters such as the North American Telephone Association, the Associated Telephone Answering Exchanges, the American Newspaper Publishers Association, and the National Cable Television Association pointed out, even after divestiture from AT&T, the BOCs' control over essential local exchange facilities will give them both the power and incentive to disadvantage competitors in related markets through cross-subsidization and discriminatory actions.

Moreover, the competitive value of the BOCs as potential competitors is likely to be slight. As the number of actual competitors increases, the competitive value of additional firms entering the market is reduced. The divestiture required by the modification, together with its equal exchange and information access provisions, will substantially lower entry barriers and thus encourage entry by other firms into these markets. There are already hundreds of firms which provide customer premises equipment. The BOCs would, of course, have an advantage over other potential competitors by virtue of their control of local exchange facilities. The anticompetitive dangers inherent in such control, however, are precisely those dangers the modification is designed to avoid. In these circumstances, whatever competitive benefits might be gained from the presence of additional firms in these related markets are clearly outweighed by the likelihood of the reemergence of the anticompetitive market structure the modification is designed to end.

Among others, the FCC argued that, even if competitive dangers exist in permitting BOC participation in related markets, they can be adequately protected against by regulatory intervention. More specifically, it has been argued that accounting or quasi-structural regulatory remedies, such as a separate subsidiary requirement for the provision of competitive products and services, would adequately safeguard competition.

While, as discussed below, the Department believes that regulatory mechanisms may have some limited utility in alleviating any transitional potential for anticompetitive conduct on the part of the remaining AT&T, they are not sufficient to control the long term incentives and abilities the BOCs would have to disadvantage competitors in related markets. At the heart of the government's case in *United States* v. *AT&T* was the failure of regulation to safeguard competition in the face of the powerful incentives and abilities of a firm engaged in the provision of both regulated monopoly and competitive services. If the BOCs, as rate base/rate of return regulated monopolists, were permitted to enter related competitive markets, they would have the means and incentive to disadvantage their competitors by cross-subsidization and discrimination in the terms and conditions of access to the local exchange. Neither of these problems has thus far proven amenable to successful regulatory solution. Indeed, the very basis for divestiture is that the anticompetitive problems inherent in the joint provision of regulated monopoly and competitive services are otherwise insoluble. Thus, permitting BOC entry into competitive markets would undermine the rationale for the divestiture that is the central remedial mechanism of the modification.

With respect to cross-subsidization, as Leghorn Telepublishing Company, among others, pointed out, the FCC struggled for more than 20 years unsuccessfully to solve the problem of allocating common costs between competitive and non-competitive services. This very same problem would confront regulators if the BOC's were permitted to engage in competitive lines of business. There is simply no single correct formula for the allocation of such common costs among services. Moreover, even if such a formula existed, the possession by the BOCs of relevant cost information, the extent of common costs, and the high degree of discretion in the treatment of such costs enjoyed by the BOCs, would very likely frustrate meaningful regulatory oversight, especially in light of strong incentives on the part of the BOCs to do so.

Nor is it likely that regulation could effectively ensure non-discriminatory access to essential local exchange facilities. Again, as a number of commenters pointed out, this is a subject that has preoccupied regulation for more than a decade with little success. Particularly in a technologically dynamic industry such as telecommunications, there is little possibility that regulation is capable of detecting or preventing the very subtle forms of discrimination that would be available to the BOCs. Thus, even were it possible to prescribe in detail the appropriate technical parameters of interconnection under current technological conditions, regulators would have to have sufficient foresight to determine in advance the discriminatory potential inherent in tomorrow's technology, effectively to ensure fair competition. Even if it were possible, moreover, effectively to monitor the technical aspects of interconnection in an evolving technological environment, there would remain still more subtle means of discrimination in operational activities, such as the timely provision, maintenance, testing, and restoration of facilities. In short, the BOCs, if permitted to engage in competitive activities, would have substantial ability to frustrate regulatory attempts to prevent discriminatory conduct.

A regulatory requirement that competitive products or services be provided through a separate subsidiary, like regulatory proscriptions against anticompetitive pricing and discrimination, would not affect the incentives to engage in anticompetitive

conduct. The FCC recognized this fact in its *Second Computer Inquiry* decision:[39]

> A separate subsidiary requirement, from a purely structural perspective, does not guarantee a competitive market-place because it does not significantly change the incentives of a firm upon which it is imposed. The requirement does not impart an incentive to operate the subsidiary in a manner that would detract from the overall profitability of the parent corporation. Thus, in general, if the parent has an incentive to exercise its market power to the disadvantage of consumers and competitors in the absence of a separate subsidiary, it has the same incentive to do so after one is required.

The purpose of such a requirement, therefore, would be to circumscribe the ability of firms to act in accordance with their incentives. While the Department believes that a separate subsidiary requirement may eliminate some of the potential avenues for anticompetitive abuse, it cannot effectively foreclose all of the ways in which the BOCs could discriminate in favor of a separate affiliate providing competitive products and services.

In addition to the danger of cross-subsidization which would arise from any permitted joint use of assets, facilities, or personnel between the BOCs and any separate affiliates, all of the potential for discriminatory treatment discussed above would also exist. Thus, even assuming sufficient cost separation between a BOC and its separate affiliate to prevent cross-subsidization, the BOC would still have available numerous opportunities for discrimination in the terms and conditions of access to facilities which are essential for the provision of competitive services.

Several comments, particularly those submitted by state regulators, expressed concern that restricting the BOCs to the provision of exchange telecommunications and exchange access will threaten their viability or cause increases in local rates.

As set forth in the Competitive Impact Statement, a principal focus of the Department's review of the plan of reorganization will be the financial and technical integrity of the divested BOCs, unless the BOCs. The Department believes, however, that the inability of the BOCs to engage in certain competitive activities will not adversely affect either the ability of the BOCs to operate in a sound financial manner or the level of local rates.

As to financial and technical viability, as discussed above, in its review of the plan of reorganization the Department will ensure, consistently with Section I of the proposed modification, that the BOCs are transferred sufficient assets, facilities, personnel and other resources to permit them efficiently to engage in the provision of exchange telecommunications and exchange access. The Department will also examine the proposed financial structures of the BOCs to ensure that they reflect a prudent mix of debt and equity and an embedded cost of debt comparable to the embedded cost of debt to the Bell System as a whole.

Under established regulatory principles,[40] regulated firms are entitled to earn a return on assets dedicated to the provision of regulated services sufficient to recover the costs of both debt and equity to the regulated enterprise. Sound application of these principles by regulatory agencies to the BOCs will ensure both the ability to recover all of the costs of providing exchange telecommunications and exchange access and the continued ability to attract capital. The inability to offer other products and services which also must recover their costs and continue to attract capital bear no relation to the viability of the basic business of providing exchange telecommunication and exchange access.[41]

The argument was also made in the comments that, while it is in the province of state regulators to assure the financial viability of the BOCs are permitted to engage in competitive enterprises, local rates will have to rise to permit the BOCs to recover their costs and continue to attract capital. While it is not clear in every case, the premise of this argument appears to be that the provision of competitive products and services will return to the BOCs revenues in excess of costs, including the cost of capital, and thus provide a subsidy to local rates. The argument thus appears to assume that the BOCs will be able to earn above competitive profits in the provision of competitive products and services.[42] If this were to occur, it would indicate that the BOCs were in fact abusing the monopoly power inherent in control of the local exchange bottleneck to disadvantage their rivals in other markets. This is precisely the outcome the modification is designed to avoid.

A number of comments also expressed concern regarding the absence of any time limit on the BOC line of business restrictions. Some have suggested that in the absence of limitations on the duration of the restrictions, as technology changes, the modification will have unintended anticompetitive consequences by needlessly restricting entry.

The Department believes that these concerns are valid. As discussed above, the basic premise underlying the restrictions is that exchange telecommunications is a bottleneck monopoly to which non-discriminatory access is necessary to ensure competitive conditions in related markets. It is quite possible that, as technology evolves, the rationale for the restrictions will erode as the BOCs lose the ability to disadvantage competitors in these markets. As set out in its Competitive Impact Statement, the Department intends to review carefully the continuing need for the restrictions. In order to ensure that the Court is fully apprised of developments in this area, the Department will undertake to make a formal report to the Court on the continuing need for the restrictions on the third anniversary of the date of divestiture, and every third year thereafter so long as the restrictions remain in force. In the event that the Department concludes in its report that the state of competition and technology is such that any or all of the restrictions should be lifted, it will move the Court for a modification of the Judgment to permit such activity by the BOCs. The Department believes that this procedure will assure both continuing scrutiny of the factors underlying the restrictions and, as well, limit the duration of the restrictions to the minimum period required by the state of technology and competition.

Several comments raised arguments with respect to particular restrictions on the BOCs. The following discussion addresses the limitations on the BOCs ability to participate in the markets for

[39] In the Matter of Amendment of Section 64.702 of the Commission Rules and Regulations (Second Computer Inquiry), Docket No. 20828, 77 F.C.C. 2d 384, 462 (1980).

[40] See, *e.g.*, FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944).

[41] As a theoretical matter, in the event that demand for exchange telecommunications and exchange access disappeared, regulators would be unable to ensure BOC viability. Of course, long before this possibility could occur, the BOCs would have lost their status as monopoly bottlenecks and the Department would have moved for a modification of the Judgment to remove restrictions on BOC activities. As discussed below, the Department intends to pay careful attention to changing technological and competitive conditions to ensure that the restrictions do not outlive their utility.

[42] With respect to customer premises equipment, for example, a number of comments asserted that revenues from the provision of CPE exceeded relevant costs. On the other hand, comments received from a number of other parties, including comments submitted by nine Western state public utilities commissions, argued that CPE has historically been under-depreciated, or sold below cost, and thus, that transfer of such equipment to AT&T would enhance the viability of the BOCs.

interexchange services, information services, customer premises equipment, and directory advertising.

a. *Intrastate Interexchange Services.* Some comments, particularly those submitted by state governments and state regulatory agencies, argued that the BOCs should be permitted to offer intrastate interexchange services. In addition to arguments already discussed, it was argued that since intrastate toll is by and large not now competitive, there is no rationale for not permitting the BOCs to provide it. Some comments also argued that permitting the BOCs to offer interexchange services would provide a built-in phase-out period for their involvement in that market because intrastate toll rates are priced above cost. According to these comments, the pricing of intrastate toll would invite entry which would eventually drive the BOCs from the market. One implicit premise of this argument is that state regulators would not permit the BOCs to charge cost-based rates.

The Department recognizes that in many states interexchange services are not currently provided on a competitive basis. The purpose of the proposed modification, however, is not merely to preserve and enhance competitive prospects where some competition already exists, but to create a market structure conducive to competitive entry and fair competition wherever technologically and economically feasible. As discussed above, the rationale for restricting BOC entry is to prevent the reemergence of incentives and abilities to frustrate competition in actually or potentially competitive markets. If the BOCs were permitted to enter potentially, but not actually, competitive markets they would be vested with the incentive and opportunity to ensure that such markets never become competitive.

The same rationale applies to the argument regarding the phase-out of BOC competitive operations. If, as assumed, intrastate toll rates are priced above costs, the incentive of the BOCs to blockade entry by discriminatory actions is increased, since even less efficient firms would be able to undercut BOC rates and capture market share.[43]

A number of comments suggested that, irrespective of the competitive rationale for restricting entry, the BOCs should be permitted to offer interexchange services in order to maintain the contribution that intrastate toll service makes to local telephone rates. Implicit in this argument is an assumption that competition in intrastate interexchange services will drive prices down and reduce or eliminate any contribution that intrastate toll service makes to the costs of providing local exchange service. As discussed above, however, the modification does not disturb the authority and discretion of the states to allocate costs among the services provided within their jurisdictions. Thus, any contribution the states deem appropriate to help defray the common costs of providing exchange and interexchange services may be recovered by the BOC's through intrastate access charge tariffs that differ from the access tariffs for interstate services.

b. *Information Services.* Many of the comments that discussed the prohibition against the BOC's offering of information services expressed the concern that demand for new and innovative services and technologies would not be met without BOC participation. The United States Independent Telephone Association (USITA), for example, questioned whether the restriction would result in a situation in which "enhanced services may be enjoyed by the Independents' customers but not those served by the BOC."[44] USITA and others also expressed concern that, by limiting the activities in which the BOCs may participate, their incentive to introduce new, less costly technologies into the local exchange would be impaired. The California Public Utilities Commission suggested that the restriction on the offering of information services by the BOCs would be inefficient to the extent that such services may be provided using facilities in common with those used to provide exchange telecommunications.

As discussed earlier, it is not the intention of the Department to foreclose the offering of services that can only be economically provided by the BOCs. The Department does not believe, however, that the ban on BOC provision of information services will lead to such a result.

USITA's concern that customers of BOCs would be deprived of services enjoyed by customers of independent telephone companies would only be realized if the cost characteristics of providing such services were such that they could only be economically provided in conjunction with the provision of local exchange service. There are currently, however, a number of companies that provide a variety of information services that are viable apart from the provision of exchange telecommunications. The firms that provide information services must, however, rely on access to local exchange facilities under the ownership and control of the BOCs. As commenters such as the American Newspaper Publishers Association and the Association of Telephone Answering Exchanges point out, if the BOCs were permitted to offer information services they would have the power and the incentive to deter the development of competitive markets for these services. The Department, therefore, continues to believe that the BOCs must be precluded from engaging in such activities to ensure the development of competitive markets for information services.

With respect to the incentives of the BOCs to introduce new technologies into the local exchange, the Department believes that the modification will not have the effect of dampening incentives for technological innovation, but rather will enhance such incentives. In combination, the divestiture required by the modification and its information access provisions will enhance competition in the markets for information services. As such competition evolves, new demands will arise for new and innovative methods of local distribution. The modification does not place any limitations on the BOCs' ability to respond to such demands. Indeed, it should be expected that the BOCs will respond energetically to such demands as a means of generating revenue. In addition, because the modification does not place any restrictions on the ability of information services providers to construct their own distribution facilities, the BOCs will have an additional incentive to introduce new technologies in the local exchange simply to retain business.

The California Public Utilities Commission argued that the modification might, under some circumstances, prohibit the BOCs from making the maximum efficient use of facilities used to provide local exchange services. It is possible to conceive, for example, of using a portion of the capacity of electronic switches to perform functions integral to the provision of information services. It is

[43] A number of comments argued that whatever anticompetitive danges are inherent in BOC participation in interexchange service, they may be overcome by effective regulatory oversight. While these arguments have been addressed above, it may be useful to point out that the provision by the BOCs of interexchange services would present the dahger of both cross-subsidization and discriminatory treatment. Neither of these competition problems has proven amenable to effective regulatory monitoring.

[44] Comments of the United States Independent Telephone Association at 12.

this very possibility, however, which presents the greatest anticompetitive potential, since the BOCs would have tremendous discretion in the allocation of the common costs of switching capacity between the provision of competitive information services and regulated exchange telecommunications.

Moreover, permitting the BOCs to offer information services that make use of equipment that is used in common with the provision of regulated exchange telecommunications would simply create an incentive for the BOCs artificially to design information services to make use of such capacity, whether or not such common use would be dictated by the economic characteristics of the service. Because of the complex technical and cost characteristics of these kinds of decisions, the discretion of the BOCs in this regard would be effectively unreviewable by regulatory agencies. The modification would not prohibit the BOCs, however, from leasing any excess capacity in their switches to information services providers, so long as such arrangements do not result in an economic integration with those providers or have the effect of violating the modification's non-discrimination requirements. Because of the anticompetitive potential inherent in such arrangements, the Department will subject any such activity to the closest scrutiny. The Department believes, therefore, that the modification's restriction on the provision of information services will not adversely affect the efficient utilization of BOC facilities.

c. *Customer Premises Equipment.* A large number of comments, particularly those of state governments and state public utility commissions, raised issues regarding the advisability of restricting the provision of customer premises equipment by the BOCs. A number of comments suggested that there is no competitive rationale for restricting the BOCs from either the manufacture or sale of customer premises equipment. Most of those commenting on this issue argued that the BOCs should at least be permitted to market customer premises equipment, because the FCC's registration program largely eliminates any possibility of discriminatory treatment in the interconnection of CPE.[45] Others argued that the FCC's *Second Computer Inquiry* decision, which requires the new CPE be marketed through a separate subsidiary, would be sufficient to guard against the danger of cross-subsidization of CPE with local exchange revenues.

The Department recognizes that FCC actions regarding the interconnection of CPE to the network over the past decade have reduced or eliminated a number of significant competitive problems in this area. For example, the FCC registration program would forbid the BOCs from denying interconnection to equipment that meets specified technical requirements.

Deregulation of CPE and a requirement, such as the FCC's, that AT&T provide CPE through a separate subsidiary, would also reduce the potential for cross-subsidization.

In spite of these actions, however, the Department continues to believe that the anticompetitive potential inherent in the provision of CPE by the BOCs outweighs any benefits that might be gained from such provision. Despite an inability to ban interconnection of CPE to their lines, the BOCs, if permitted to engage in its provision, nontheless would retain significant opportunities to disadvantage interconnection of CPE by their competitors. While this potential is probably limited with respect to the most simple interconnection of equipment such as customer handsets, it is significantly greater with respect to the connection of more sophisticated equipment, such as customer premises switching equipment, which requires more detailed planning and ongoing provider involvement.

With respect to interconnection of such sophisticated equipment, the BOCs would have substantial opportunities to discriminate between their own offerings and those of their competitors as to such matters as the type and quality of interconnection facilities. timing of cutovers, and testing and maintenance. Neither a separate subsidiary requirement nor the FCC's registration program would be sufficient protection against the potential for such discrimination. Moreover, because of the highly complex nature of such interconnection, regulatory monitoring of BOC discretion in this area would likely be ineffective.

While, as discussed above, the same degree of anticompetitive potential may not exist with respect to less sophisticated types of interconnection, it would be difficult to draw a viable distinction between those types of CPE that pose an unacceptable degree of competitive danger from those that do not. Even if such a distinction could be drawn, moreover, it is not apparent that either the BOCs or their customers would benefit significantly from the ability to provide a limited class of such equipment.

Some of the comments argued that the BOCs should be permitted to offer CPE in rural areas, on the ground that other vendors may not have the incentive to provide CPE in such areas. Customer premises equipment, however, is already provided by hundreds of companies. Basic telephone handsets are marketed through thousands of retail outlets, including general purpose outlets that provide other small home appliances. Indeed, such equipment may be ordred through mail order catalogues. It thus does not appear to be a realistic possibility that foreclosure of the BOCs from this market will deprive rural customers of access to basic customer premises equipment.

Other comments argued that the BOCs should be permitted to market specialized equipment, such as CPE for deaf or otherwise handicapped persons. Again, the premise of the argument appears to be that there would be an insufficient market after divestiture to interest other vendors in the provision of such equipment. The Department is not sufficiently familiar with the market for such equipment to know whether it would likely be provided under the same terms and conditions in the absence of BOC supply. It may be, for example, that such products are currently provided by the BOCs below cost and financed out of revenues derived from the provision of other products and services. The Department will undertake to investigate this issue. If it is the case that below-cost offerings of such equipment are financed with general ratepayer revenues, and if no other reasonable alternatives are available, the Department will move the Court for an exception to the modification's restriction on the offering of such specialized customer premise equipment.

A number of comments, particularly by state commissioners and some CPE manufacturers, urged that the BOCs be permitted to retain embedded customer premises equipment until fully depreciated to minimize customer disruption.[46] It was also argued that requiring transfer of embedded CPE to AT&T would conflict with the FCC's *Second Computer Inquiry* decision under which embedded CPE would remain regulated by tariff.

It should be emphasized that the modification cannot (as some comments

[45] Some made the suggestion that BOCs be permitted to market customer premises equipment, but that manufacture of such equipment be prohibited for some period of time.

[46] Some comments argued that the BOCs should retain embedded CPE to prevent AT&T from continuing its migration strategy. This issue is addressed in Section V (E).

appear to assume) cause the deregulation of CPE.[47] Thus, after divestiture, while embedded CPE will be the responsibility of AT&T rather than of the BOCs, it will continue to be subject to the respective jurisdictions of the states and the FCC. Moreover, the Department does not believe that transfer of embedded CPE to AT&T will cause significant customer inconvenience. Responsibility for maintenance of existing CPE will merely be transferred from the BOCs to AT&T. Indeed, AT&T will have every incentive to ensure a smooth transition to avoid losing customers.

Under the FCC's *Second Computer Inquiry* decision, the BOCs would have the ability to continue to furnish refurbished CPE and lease CPE out of inventory. Thus, if the BOCs were permitted to retain embedded CPE, they would have an incentive to discriminate against the CPE offerings of their competitors. The Department believes that, balancing these considerations, customers will be better served by transfer of all CPE assets from the BOCs to AT&T.

Some comments argued that AT&T (or the BOCs if permitted to retain embedded CPE) should be required to offer customers the opportunity to purchase embedded CPE at book value, or at a regulatorily determined price. The Department understands that some state commissions, including California, are considering giving customers the option of purchasing embedded CPE as a means of deregulation. The Department believes this is a matter of regulatory prerogative. The modification would neither prohibit nor require such action.

d. *Yellow Pages.* A large number of comments addressed the satus of directory advertising—"Yellow Pages." Almost without exception, these comments objected to the modification's restriction on the ability of the BOCs to engage in the provision of directory advertising. Many comments argued that the restriction would deprive the BOCs of revenue currently used to help defray the costs of providing other services. Others argued that all aspects of Yellow Pages directory advertising are integral to BOC operations and should be considered a part of exchange telecommunications.

In its Competitive Impact Statement, the Department stated that the BOCs would retain the rights inherent in their files of telephone subscribers, including machine-readable listings and copyright interests in printed alphabetical directories. The BOCs, therefore, would have the right effectively to auction off the Yellow Pages "franchise" to the highest bidder. As a consequence, the Department stated, the BOCs would have the ability to retain all of the above-competitive profits that are presently derived from provision of the Yellow Pages. Many of the comments questioned whether this was so, expressing doubt, inparticular, that the machine readable listings could account for all of the above-competitive profits currently associated with Yellow Pages.[48]

The Department's subsequent analysis of the issue suggests that there may indeed be reason to doubt whether franchising could recover all present above-competitive Yellow Pages revenues. It continues to appear, however, that the BOCs would be able to extract, by means of franchising, a significant fraction of their present Yellow Pages net revenues, although it is not possible to know just how high the fraction might be, or, indeed, to determine just what the net revenues now are. Moreover, it continues to appear that the provision of directory advertising is, or can be, competitive. The provision of such services by the BOCs, however, will give them the incentive to disadvantage others in the provision of directory advertising, both in its current printed format, and, more importantly, in electronic form. Accordingly, despite the indeterminate revenue effects, the Department continues to believe that the rationale for excluding the BOCs from the provision of Yellow Pages is, inprinciple, correct.

### *D. By-pass of BOC Facilities by AT&T*

A number of commenting parties noted that the modification does not place any restrictions on AT&T's ability to construct its own local distribution facilities. Among those commenting on this issue were several state commissions, NARUC, and a number of carriers which compete with AT&T in the provision of intercity services. These comments generally expressed concern that by-pass of local exchange facilities by AT&T would siphon off BOC revenues and necessarily result in increases in either local exchange rates, charges for exchange access, or both. Several of those commenting urged that AT&T be prohibited from constructing such facilities indefinitely, or at least for a period of time sufficient for the BOCs to establish their financial viability.

The Deaprtment recognizes that a necessary effect of such by-pass by AT&T, as well as others, would be to divert demand for local distribution from the BOCs to other firms, with consequent pressure on BOC revenues. The likelihood of such by-pass, as recognized by some commenters, is directly related to the level of charges for access to the BOC's local distribution facilities. As discussed above, the level of such charges is a matter within the purview of state and federal regulatory bodies. The extent to which such by-pass becomes economically attractive to AT&T and others, therefore, will largely be determined by regulatory policy regarding the appropriate level of access charges.

As some commenting parties noted, a number of firms, including intercity competitors of AT&T, have applied for authority to construct alternate local distribution systems, such as digital termination service. Precluding AT&T, therefore, from constructing its own facilities would place a burden on AT&T not shared by its competitors.

The Department believes that a ban on the provision by AT&T of local distribution facilities would needlessly restrict entry into the market for lcal distribution services and unncessarily prolong the status of the BOCs as monopoly bottlenecks and, therefore, also the need for restrictions on the businesses in which the BOCs may engage.[49]

## III. Issues Relating to the Definition of Exchange Areas and Effects on Independent Telephone Companies

### *A. The Meaning of "Exchange Area"*

A number of comments raised issues which indicate some confusion regarding the meaning of the terms "exchange" and "exchange area" as used in the proposed modification. Some of these comments appeared incorrectly to equate the term "exchange" as used in the modification with the same term's traditional usage by the FCC, state commissions and telephone companies, with resulting confusion as to the modification's intended consequences. The Rural Telephone Coalition suggested, in order to eliminate any misunderstanding, that the modification

[47] See discussion in Section V (E), with respect to possible need to modify regulatory statutes in certain states.

[48] The Department notes in this connection that AT&T has publicly stated its intention to quarantee the BOCs' revenue from the provison of directory advertising for four years.

[49] In addition, it should be noted that the modification does not affect the jurisdiction of the state or of the FCC to regulate the construction of local distribution facilities. Thus, whether or not AT&T will actually be permitted to construct such facilities is a matter committed to regulatory authority.

be amended to use a different term to express the exchange area concept, such as the acronym "LATA" (Local Access and Transport Area) developed by AT&T.

The Department of Justice does not believe that it is necessary to amend the modification for a proper understanding of the exchange area concept. The definition of exchange area is unambiguously stated, and, in addition, is an integral component of other concepts in the modification, such as "interexchange telecommunications" and "exchange access."

The concept of an exchange area in the modification serves two purposes. First, it designates a geographic area that defines the limits of the serving responsibilities of the BOCs and represents the corresponding dividing line for the division of assets between AT&T and the BOCs. Second, it defines the boundaries of the exchange access obligations placed on the BOCs. The exchange area concept does not, nor is it intended to, diminish a state's regulatory authority to establish rate structures such as those which currently define local calling areas or extended area service plans. For example, even if an exchange area boundary divided a local calling area or extended area service plan region, a state commission could require that access charge tariffs for affected traffic be structured in a manner to maintain the existing rates for such traffic.

*B. Criteria for Determining Exchange Areas*

The Ad Hoc Telecommunications Users Committee asserted that the proposed modifications should contain precise standards for creating exchange areas, standards which would directly relate the establishment of exchange boundaries to competitive conditions. According to the Ad Hoc Committee, the modification is based upon the premise that interexchange service is potentially competitive. The committee, therefore, argued that the Department should be guided by the likelihood of competitive entry in establishing exchange boundaries. The Ad Hoc Committee suggested that standard metropolitan statistical areas (SMSAs) and state boundaries represent political divisions that often bear no relationships to the resources used to provide telecommunications services. It argued, in addition, that Class 4 switching offices do not represent an appropriate delineation of exchange boundaries because Class 4 and 5 offices frequently share the same switching machine, and in many high traffic metropolitan areas interexchange toll service may be furnished on direct routes between Class 5 offices. The Committee, therefore, recommended that economically integrated metropolitan areas be treated as single exchange areas without regard to state boundaries, Class 4 offices, or SMSAs.

Other issues relating to the SMSA criterion were raised by commenting parties such as the California Public Utilities Commission which suggested that the limitation on exchange areas to one SMSA should be waived for adjacent, relatively low population SMSAs and that the BOCs should be permitted to provide service in areas consistent with current local calling areas even if such areas cross state boundaries or SMSAs. The Haviland Telephone Company in joint comments with six other independent telephone companies in Kansas, urged that the exchange area definition be modified to remove the limitation of one SMSA per exchange area, to preclude AT&T from taking the profitable intrastate interexchange routes from the BOCs and to preserve the economic viability of the BOCs.

The Department of Justice continues to believe that the criteria specified in the modification for the establishment of exchange areas constitute a workable, comprehensive framework for defining exchange areas consistent with the modification's goals. The primary objective of the exchange area concept is to separate competitive, or potentially competitive intercity services, from the bottleneck local distribution function. In defining an appropriate dividing line between these functions, the modification takes a somewhat broader view of the local distribution function than currently established local calling areas for flat rate or message unit telephone service. As a result of the significant economies available in the concentration of traffic before it enters the toll network, the modification treats the local distribution function as continuing to the first point (or points) of concentration of such traffic. For purposes of the division of assets between AT&T and the BOCs, this first point of concentration is regarded generally as the AT&T Class 4 office.

The modification's definition of exchange area also takes the existence of contiguous areas of common social and economic interest into consideration. Thus in its review of the plan of reorganization, the Department will seek to ensure that to the maximum extent possible, such areas are included within a single exchange area. In reviewing the plan's formulation of exchange areas, the Department will also take into consideration the current configuration of facilities. Thus, for example, traffic arrangements which involve direct trunking between Class 5 end offices may suggest that these end offices should be within a single exchange areas. On the other hand, there may be direct trunking arrangements between Class 5 end offices involving two major metropolitan areas between which intercity competition exists or is highly likely. In these circumstances, exchange areas should be arranged so that the metropolitan areas are located in separate exchange areas. Finally, the modification intends, to the maximum extent possible, to leave intact local calling areas and other regulatory boundaries.

In separating intercity services from the local distribution function, in most cases the appropriate geographic delineation is the standard metropolitan statistical area (or consolidated statistical area for densely populated states). Other considerations, however may dictate exceptions to the general rule. Thus, for example, social or economic considerations in a particular situation might indicate that an exchange area should include two or more SMSAs or cross a state boundary. In such circumstances, the Department intends to apply to the Court for exceptions to the modifications to the modification's general standards. In addition, the Department would recommend to the Court that exceptions be permitted in cases involving two adjacent, relatively small population SMSAs, and in cases where local calling areas presently cross state lines or where common facilities presently serve parts of different states. In cases where two SMSAs are combined into a single exchange area, however, the Department of Justice may condition its recommendation to the Court on an agreement by the BOCs that equal access will be provided to other carriers for service between the two SMSAs (*i.e.*, as if the two SMSAs were in separate exchange areas). As discussed above, even where exchange area boundaries may be drawn in a manner inconsistent with current local calling areas, the modification leaves undisturbed the jurisdiction of the states to prescribe rate structures that preserve existing pricing patterns. Moreover, where local calling areas cross an appropriately drawn exchange area boundary, the Department would not necessarily object to calls within that local calling area being treated as if they were intraexchange traffic; *i.e.*, exchange area

boundaries may overlap slightly in appropriate circumstances.

*C. Implications of Size of Exchange Areas*

Some of the comments raised issues concerning the relationship between the size of the exchange areas established under the modification and the resulting effect on existing or potential competition. Comments submitted by Southern Pacific Communications Company ("SPCC"), for example, state that the possibility for the creation of large exchange areas creates ambiguities as to the anticipated role of interexchange carriers in providing service between points within the same exchange area, since the BOCs would not be required to provide access to other carriers for intraexchange service. SPCC asserted that this represents a reassignment of responsibility for providing what is today interexchange service, and that carriers like SPCC might be excluded from a portion of the current interexchange market. SPCC further requested that the modification be amended by requiring the BOCs to provide access to other carriers for both intraexchange and interexchange services. Similar concerns were expressed in the comments filed by MCI.

The Washington County Coalition for Better Phone Service also expressed concern that exchange areas might cover too large a territory. The Coalition stated that New England Telephone has indicated its intention to establish only one exchange area in Rhode Island, to cover the entire state. It was argued that this will eliminate the prospect for intercity competition within Rhode Island, and thus deprive Rhode Island of the lower rates and high quality service resulting from competition.

On the other hand, some comments expressed concern that exchange areas might be too small. The New Jersey Board of Public Utilities urged that exchange areas be drawn in a manner consistent with common economic, social and political interests, and that they be large enough to retain a significant portion of existing intrastate toll and message unit revenues, to alleviate upward pressure on basic monthly service rates.[50] The Western Union Telegraph Company was concerned that AT&T might use its remaining period of control over the BOCs to reduce the size of exhange areas, increase their number, and thus increase the burden on other carriers attempting to establish nationwide systems to compete with AT&T.

The Department of justice believes that the modification as currently written takes into account the various concerns raised in the comments regarding the size of exchange areas. With respect to the concerns that exchange areas may be drawn too large, the modification's basic limitation that an exchange area not contain more than one SMSA generally assures that interexchange carriers will have access to the entire intercity services market and, contrary to SPCC's assertions, will not be prevented from serving any part of what is today considered interexchange service. Nevertheless, in any particular case where a single exchange area includes two metropolitan areas between which the appropriate regulatory commission permits competition, the regulatory commission is free to make the modification's equal access provisions applicable to intraexchange service, or even to prevent the BOCs from serving certain routes. Similarly, in cases where two SMSAs are included within a single exchange area, as noted earlier, the Department may condition its recommendation that the Court approve an exception on an agreement by the BOCs to provide intraexchange access to traffic between the two SMSAs. The Department believes that these criteria will assure the development of markets and, in addition, assure that competitive interexchange competitive interexchange service will be available even to sparsely populated areas, since these areas will be within the exchange access obligations of the BOCs.

With regard to the concerns that exchange areas may be drawn too small, the Department of Justice believes that the modification largely eliminates this possibility. As discussed in the Competitive Impact Statement, as a general proposition an exchange area should not be smaller than the geographic region currently served by an existing AT&T Class 4 office. This permits the local distribution function to continue to the first point of concentration of interexchange traffic, and at least encompasses the area served by an existing local exchange area.

*D. Subzones and Access Charges*

The Southern Pacific Communications Company expressed some confusion regarding the term "subzone" in the modification. SPCC argued that interexchange carriers with a terminal in an exchange area should be permitted to serve any and all subzones within that exchange area. SPCC further argued that access charges should be related to subzones and that if a carrier locates a terminal within a subzone to serve only that subzone, access charges should reflect only the cost of that specific access.

The use of the term "subzone" in the modification relates solely to the cost of transporting traffic from all the end offices in an exchange area to the particular point or points designated by the interexchange carrier for connection of its facilities with those of the BOC, and does not apply to other services provided as part of exchange access. Subzones therefore relate only to a portion of the exchange access charges. As described in the Competitive Impact Statement, the purpose of the subzone concept is to ensure that until September 1, 1991, charges for transporting the traffic from end offices are equal for all interexchange carriers whose facilities are located within the same subzone, per unit of traffic delivered or received.

The subzone concept does not operate at all to limit the portions of an exchange area that an interexchange carrier is permitted to serve. Under the modification, the BOCs are required to provide exchange access which permits an interexchange carrier to serve every end office throughout the exchange area, from a single point (or a number of points) designated by the interexchange carrier. Beyond this requirement, however, nothing in the modification prevents a BOC from, in addition, offering exchange access to a limited group of end offices within an exchange area if an interexchange carrier only requests service to and from such limited group of end offices.

*E. Effects of Exchange Areas on Independent Telephone Companies*

A number of comments sought clarification of the effect of the exchange area concept on the independent telephone companies, including the intended role and degree of participation of the independents in the determination and operation of exchange areas. Some independent telephone companies stated that they have been asked by AT&T and the BOCs to decide whether or not they wish to be included in a particular exchange area established under the modification which surrounds, or may be drawn to encompass, their serving territory. The independents view this as an important decision which could have a significant impact on their financial viability and the economic well-being of their customers. They stated that they have been unable to reach an informed

[50] The New Jersey Board agreed, however, with the criteria relating to SMSAs and consolidated statistical areas.

decision, however, because they have not been given sufficient information by AT&T and the BOCs concerning the effects of alternative decisions.

A number of the independent telephone companies submitting comments raised specific issues regarding the effects of the exchange area concept on current arrangements, services and facilities such as: existing independent-BOC traffic agreements; exchange service revenues and expenses; message toll telephone service substitutes (*e.g.*, extended area service and optional toll calling plans); continuation of join and through rates and services; division of revenues for joint and through services (both interexchange and intraexchange); and joint tariffs, including the consequences to an independent within an exchange area of not agreeing to a joint tariff with the BOC. The Rural Telephone Coalition also sought clarification of whether higher cost independent service areas within an exchange area will be assigned separate access charges as a part of a subzone.

The modification neither intends nor requires that existing functional and operational relationships between the BOCs and the independents be disturbed. The need for AT&T and the BOCs to divide the ownership of various assets between them does not require an immediate decision by independents whether to be included in an exchange area established under the modification. With respect to those independents for whom toll access is provided through an existing AT&T Class 4 office, the Bell System assets will be divided as if the independent's Class 5 offices were BOC Class 5 offices. A decision by an independent telephone company not to be included within an exchange area will not by itself require treating the local exchange traffic between an independent and an adjacent BOC as interexchange traffic. Nor would such a decision affect the ownership of any independent telephone company facilities. This approach is consistent with the views of the Rural Telephone Coalition.

If an independent telephone company chooses to join in the access charge tariffs filed by the BOC, such tariffs would cover the costs associated with providing access to all of the independent company's serving territory. The modification would not disturb the ability of the BOC and independent telephone company to work out appropriate financial arrangements, subject to appropriate regulatory oversight. In the event that an independent telephone company decides not to join in an access charge tariff with the BOC, separate arrangements will have to be worked out between that company and interexchange carriers for the delivery of interexchange traffic. Such a decision need not affect the character of the traffic between an independent and an adjacent BOC.

While the division of assets between AT&T and the BOCs does not depend on an independent telephone company's decision to be included within an exchange area, many independents will have to reach a decision on this matter for purposes of making financial arrangements with AT&T and the BOCs. The modification does not affect the ability of independent telephone companies to make these decisions based upon an assessment of their own operations and needs.

*F. Ability of Independent Telephone Companies to Engage in Joint Activities with BOCs*

A number of comments raised questions regarding the effects of the modification on the ability of independent telephone companies to engage in certain activities with the BOCs. Central Telephone & Utilities Corporation, for example, urged that independent telephone companies be permitted to acquire BOC assets or territories. Similarly, USITA suggested that minor transfer of BOC territory or facilities to independent telephone companies should be permitted.

The modification, under Section III, is binding upon the "BOCs, their affiliates, successors and assigns." As a result, any company, including an independent telephone company, purchasing a BOC or its franchised territory or facilities, would be bound by the restrictions of the modification and thus would not be permitted to engage in activities that the BOC could not perform. This restriction is necessary in order to prevent circumvention of the modification by a mere transfer of ownership. Of course, if a minor transfer of territory or facilities is involved and there is good cause for relieving the purchaser of the modification's restrictions and obligations, the purchaser may apply to the Court for appropriate relief.

Other comments questioned whether the modification would forbid joint ownership of facilities by BOC's and independents as well as with AT&T. The Virginia State Corporation Commission, for example, urged that BOCs should not be restricted from entering into joint ownership or sharing arrangements with independent telephone companies or with interexchange carriers.

Paragraph I(A)(2) of the proposed modification precludes the joint ownership of facilities by the BOCs and AT&T. However, neither that paragraph nor any other specifically addresses whether joint ownership by BOCs and independent companies is permitted. The answer to the question is therefore dependent upon whether such joint ownership would result in an arrangement causing the BOC to violate other requirements of the modification.

Under paragraph II(C)(1) of the proposed modification, a BOC is precluded from providing interexchange telecommunications or information services either directly or through an affiliated enterprise. Consequently, the joint ownership by a BOC and an independent carrier of facilities used in whole or in part to provide interexchange services would be prohibited under the modification. In contrast, the modification would not preclude joint ownership with an independent telephone company of purely exchange facilities.

The lease or other sharing of facilities by a BOC and an independent is also not specifically addressed in the proposed modification. Again, whether or not such sharing would be permitted depends upon whether it would result in a conflict with any of the modification's restrictions on BOC activities. If the shared facilities are to be used in whole or in part for exchange or exchange access functions, and if the participation of the BOC in sharing the facilities is limited to exchange and exchange access operations, the sharing would not violate the modification.[51] The modification would not permit, however, a sharing of facilities that results in an economic integration of the BOCs and providers of interexchange or information services or which would result in a violation of the modification's non-discrimination provisions.[52]

*G. Participation in the Process of Setting Exchange Boundaries*

Some comments addressed the question of appropriate representation in the process of setting exchange boundaries, and what form participation

[51] Some comments expressed concern that independent telephone companies might be precluded, under the modification, from participating in joint ownership of toll switches which result from consolidation of independent toll switches. There is nothing in the modification which would prohibit the independent telephone companies from jointly owning switches with AT&T, which will very likely own the toll offices resulting from consolidation of independent toll switches.

[52] As set out in Section IV, the potential for such violations in BOC sharing of facilities with an interexchange carrier or information service provider requires close scrutiny of such arrangements.

by interested parties should take. The Mid-Continent Telephone Corporation, for example, stated that the exchange area concept appears to be a workable method for assuring quality service to customers, provided that the independent telephone companies are permitted to participate in the establishment of exchange boundaries. Similarly, the Rural Telephone Coalition suggested that independent telephone companies be permitted to submit further comments when the reorganization plan is made public. Other comments urged that procedures be established for the participation of state and federal regulatory agencies in the process.

The Department of Justice believes that the FCC, state regulatory commissions and the independent telephone companies should have the ability to present their views concerning the exchange areas to be established under the modification. The Department fully expects that in establishing exchange areas under the modification, the BOCs and AT&T will work with the independent telephone companies and the regulatory commissions to the maximum feasible extent. As discussed earlier, the Department itself intends to solicit the views of the FCC and state regulatory commissions on these matters, and to give great weight to these views. In addition, the Department intends to solicit and accord similar weight to the views of the independent telephone companies. As set out in Section I, the Department will provide a period of sixty days following the submission of the reorganization plan for additional comments. Exchange area boundaries would, of course, be an important aspect of the plan. Moreover, the Department expects that exchange area boundaries will be available prior to the submission of the plan. if this is the case, the Department will solicit views of interested parties on these boundaries separately.

## IV. Issues Relating to the Provision of Equal Exchange Access

### *A. The Division of Facilities Between AT&T and the BOCs*

Many comments, submitted principally by intercity competitors of AT&T and state regulatory commissions, raised issues regarding the criteria to be used in allocating facilities between AT&T and the BOCs. Several were concerned that the BOCs would not receive the facilities necessary for them to provide exchange services and equal exchange access.

The types of facilities addressed by these comments fall into three categories: toll centers performing the Class 4 function; facilities used for providing digital and other advanced services; and transmission facilities used in providing exhange services and exchange access for interexchange private line services.

As discussed below in more detail, the modification specifically requires that the BOCs own facilities or control functions needed to provide exchange telecommunications service and equal exchange access to all interexchange carriers. It also recognizes and takes account of sharing and co-location of AT&T and BOC facilities permitted by the modification by requiring that the BOCs file exchange access tariffs that provide for delivery of the interexchange traffic of all carriers (including AT&T) from end offices to the einterexchange carriers' points of interconnection at equal charges per unit of traffic. This "uniform delivered price" provision must remain part of the BOCs' exchange access tariffs at least until September 1, 1991, five years after they are required to provide equal access to all interexchange carriers.

*Class 4 Toll Centers:* Several comments, particularly those of state regulators and interexchange carriers, criticized the modification for not requiring that all Class 4 switches be owned by the BOCs. These comments argued that, without ownership of Class 4 switches, it would be impossible for the BOCs to provide either exchange telecommunications or equal exchange access.

The concerns regarding the BOCs' ability to provide exchange service centered on the role of the Class 4 offices in providing tendem switching of calls originating and terminating within an exchange area, in providing operator services for BOC customers, and in recording information necessary for the BOCs to prepare bills for their services.

Several comments stated that the only appropriate way for the BOCs to provide equal exchange access was to route all carriers' interexchange calls through Class 4 switches that are connected to each of the end offices by toll quality connecting trunks. According to these comments, if the BOCs were precluded from providing exchange access through Class 4 switches they would be required to construct expensive, duplicative trunk groups from each competing carrier's terminal to each of the Class 5 offices in the exchange area. To the extent that such trunk groups were smaller than those serving AT&T, they would be less efficient and more costly for the BOCs to provide. The comments argued such arrangments would be burdensome for the BOCs, and, after 1991, when the equal charges for delivered traffic requirement expires, competing interexchange carriers would be exposed to higher access charges than AT&T.[53]

Some comments argued that, in addition to potential cost penalties, it would be physically impossible for the BOCs to provide equal quality exchange access to carriers competing with AT&T without the ability to route the competitors' traffic through the Class 4 switch. Satellite Business Systems ("SBS"), for example, stated that the Class 4 office is the only gateway through which interexchange carriers could gain access to the modern digital trunks in the local network and that the only alternative faciilities available to provide exchange access for competing carriers would be two-wire analog facilities.

The SBS and Sourthern Pacific Communications Company ("SPCC") comments emphasized that a large proportion of AT&T's Class 4 switching capacity is, or soon will be, provided by the digital Number 4 ESS switches that will offer high quality switching of traffic from digital carrier systems without the need for analog to digital conversion, thereby making possible end to end digital services. According to these comments, if the BOCs are not able to route competing carriers' traffic through these switches, it will be impossible to provide exchange access that would permit competitors to offer services equal to AT&T's intercity digital services.

The Department believes that these various criticisms in large part are based upon a misperception of the basic premise of the modification's equal access requirement as it relates to the delivery of traffic between an end office and the facilities of an interexchange carrier. Simply put, the fundamental judgment that underlies the modification is that the BOCs, once separate from AT&T, will be in a better position than the Department or a court to establish the most efficient configuration of switching and transmission facilities in a given exchange area to provide exchange access equal in type and quality to that provided AT&T. Depending on the nature of the local

[53] Comments submitted by several of AT&T's interexchange competitors described the current ENFIA interconnection arrangments offered to competing carriers by the BOCs, arrangements that do not include routing through the Class 4 toll center. These comments explained the deficiences in those arrangements, citing testimony given in *United States* v. *AT&T*.

network, there may be several ways of configuring connecting arrangements to provide all carriers equal access. For example, the relative efficiency of direct trunking from end offices to an interexchange carrier and trucking through an intermediate tandem switch may vary from situation to situation. If the modification required a particular routing system in all circumstances it migth impose inefficiencies on the BOCs. Thus, the modification's only requirement is that acutual equality between competing carriers be achieved.

The modification recognizes that, because the local distribution networks were not designed for a multiple supplier environment, the use of existing facilities to achieve equal access in the delivery of traffic to and from end offices may encounter problems of technical and economic feasibility. Thus, additional or newly-configured facilities necessarily may be required to fulfill the BOCs' equal access responsibilities. The modification takes acccount of these factors by requiring that, at least until September 1, 1991, the charges for receipt and delivery of traffic to and from end offices be uniform per unit of traffic carried for all carriers. Therefore, even if different transmission and switching facilities are used in serving other carriers than are employed in serving AT&T, there will be no cost disadvantage to such carriers. This uniform delivered pricing requirement is discussed in more detail below.

Before setting out the principles that will guide the Department's review of the ownership and sharing of switching systems under the reorganization plan, it may be useful to describe briefly the functions currently performed by telephone switching systems and how such functions will change after the reorganization.

Presently, the switching functions in the network include the end office or Class 5 function, the local tandem function, the toll connecting Class 4 function, and the higher level interexchange switching functions (Class 1, 2, or 3 functions) that connect intertoll trunks to intertoll trunks. In fact, all but one of the switching systems in service performing the Class 1, 2 or 3 functions also perform the Class 4 function. The Class 5, or end office, connects the network with subscriber equipment such as a telephone or PBX. The local tandem switching function connects a number of end office switches and is used to complete calls within the local calling area without the need to construct separate trunks between all of the end offices. The Class 4 switching function has two primary purposes: To perform routing of originating and terminating toll traffic, and to provide a point at which AT&T's long distance calls to and from end offices in the area may be concentrated.

In order to understand how the modification resolves the Class 4 ownership issue, it is important to recognize that, following the reorganization, the present classification scheme will not accurately describe the functions performed by the various switching systems. This results from two factors. The first is that, since the modification's exchange areas will be larger than current exchange areas, a portion of intrastate toll service will be provided by the BOCs. The second factor is that the BOCs' responsibility is to provide *equal* exchange access to all interexchange carriers.

The Department expects that switching systems providing only end office or local tandem functions will be owned by the BOCs. Switching systems that provide both AT&T interexchange and BOC exchange and exchange access functions will generally be owned by the party with predominant use.[54] The other party will obtain access to the fuctions or capacity it requires under leasing arrangements to be described in the reorganization plan. Since the great majority of switches providing Class 4 functions also provide local tandem or end office functions, the BOCs will own many of these switches under the predominant use test. Indeed, it is likely that the BOCs will own all, or nearly all, switching systems currently providing both the Class 4 and Class 5 functions.

It is also probable that the BOCs will retain control over a significant proportion of the capacity of Class 4 switches used predominantly for interexchange purposes and to be owned by AT&T. In particular, most Number 4 ESS electronic toll switches now perform three distinct functions that will be part of the BOCs' responsibilities: they perform local tandem switching; they perform toll switching for what will be intraexchange toll traffic; and they perform the exchange acces function of switching incoming toll calls to the appropriate end offices. Since Section 1(A)(2) of the proposed modification requires that each BOC retain control over the exchange telecommunications and exchange access functions of shared switches, the BOCs will have the right to use their leased portion of such switches for exchange access purposes, should such additional use be the most appropriate means of providing equal exchange access.[55]

At the present time, it is not clear that use of a switching system performing a Class 4 function and predominately used to route AT&T's interexchange traffice would be the only or best way to provide equal exchange access. For example, it may be that use of a separate toll-quality BOC tandem switch for the provision of exchange access could benefit competition by permitting the BOCs to move their switching of intraexchange traffic out of the AT&T-owned Class 4 switches and inot such facilities.

The Department will require that the reorganization plan identify the resources that will be available to the BOCs after divestiture for providing equal exchange access, the current plans for implementing equal exchange access, and other options that would be available to the BOCs after divestiture for achieving that goal. The views of the newly-appointed senior executives of the regional companies, as well as comments from other interested persons, will assist in assuring the BOCs' ability to fullfil the modification's equal access requirements.[56]

---

[54] This was the approach for determining ownership of multifunction facilities that the Department recommended a trial in *United States* v. *AT&T* and which AT&T has agreed to use.

[55] In this regard, it should be noted that the modification prohibits AT&T from interfering with the BOCs' implementation of equal exchange access. Thus, while AT&T is not required to maintain a BOC presence in all existing multi-function facilities that might be used to perform exchange access functions, it must transfer sufficient facilities and make available sufficient resources to permit the BOCs to meet their exchange access obligations. The Department will examine the lease agreements for BOC use of AT&T switches to ensure that the BOCs are not unduly restricted in their ability to obtain additional switching capacity should they need increased capacity to meet their responsibilities. In addition, the exchange access tariffs filed by the BOCs to be effective on the date of divestiture will be examined by the Department to assure that they do not impair the ability of the BOCs to concentrate traffic through a tandem switch if that is necessary to provide equal exchange access service efficiently to all interexchange carriers.

[56] Some of the comments expressed concern that use of the phrase "through the end offices" in the modification was intended to mean that equal access would only be provided to interexchange carriers connecting directly to the Class 5 offices with dedicated trunk groups. These comments misunderstand the meaning of the modification which requires that equal exchange access be provided to all interexchange carriers at those carriers' locations, not at any particular switching point in a BOC's network. The use of the phrase "through the end offices" was only intended to estblish a reference point, the end office, by which compliance with the modification's timing requirements for phased in access could be measured.

Some comments expressed concern that under the modification the BOCs would not retain the operator, testing, and billing facilities necessary to provide exchange and exchange access service. These concerns were largely based on the assumption that such facilities were associated with the Class 4 switching office and that AT&T would own such offices. In fact, such facilities in many cases are not necessarily associated with the Class 4 office. To the extent that the facilities used to provide operator and testing services are multifunction facilities, suitable allocation of such facilities between AT&T and the BOCs can be accomplished within the framework of the modification.

2. *Switching Equipment and Other Facilities Used to Provide Digital and Advanced Services:* American Satellite, SBS, and SPCC commented that the BOCs should own the digital distribution facilities necessary for economical access by interexchange carriers. The digital facilities which appear to be of most concern to competing carriers are those used to provide AT&T's private line Digital Data Service ("DDS"), the proposed Circuit Switched Digital Capability ("CSDC") and Local Area Data Transport ("LADT").

DDS facilities will be divided between AT&T and the BOCs using the same principles which apply to the voice network. Transmission and multiplexing equipment necessary for the BOCs to provide intraexchange service and exchange access will be owned or controlled by the BOCs. Multifunction facilities will be owned by the party having predominant use which will lease the other party capacity in such facilities necessary to provide its services.

As described by AT&T, CSDC will be a step toward an Integrated Digital Service Network. Integrated Digital Services refers to the fact that voice, data, video, and facsimile signals will be transmitted and switched over the same digital facilities on an end to end basis without any intermediate analog to digital conversions. CSDC is a switched high speed service over which a customer may transmit either voice or data. This service will be offered to customers directly from ESS Number 1A switches that switch digital signals without converting them to analog form. At the ESS Number 1A switches, the digital circuits will be multiplexed onto appropriate digital carrier systems. Higher level switching will be performed by Number 4 ESS switching systems. Since the 1A switches will be interfacing directly with the customer (serving an end office function), and since access through this switch is the only means through which interexchange carriers may be provided switched access to the increasing amount of digital transmission facilities in subscriber line plant, competing carriers must be able to access such switching systems. Since these switching systems will generally be assigned to the BOCs in the reorganization plan on the basis of predominant use for intraexchange services, interexchange carriers will have access to such switches. If there is a case where such a switch is currently serving predominantly as an interexchange switch, an alternative means of providing economical access to the local digital network will have to be specified in the reorganization plan.

The proposed LADT discussed by the comments is a low speed data service that will provide packet switched access from homes and businesses to information vendors, alarm services, and other interactive data applications. It will be provided by either dial-up access over a customer's regular access line, or "piggy backed" onto the regular voice channel of a telephone line. Since this service appears to be derived from exchange service, the facilities associated with LADT would be owned by the BOCs.

3. *Transmission Facilities Used to Provide Exchange Service and Exchange Access for Interexchange Carriers' Private Line Services:* The transmission systems currently used to provide telephone company message services will be divided between AT&T and the BOCs under the reorganization plan in accordance with the same principles used for switching systems. Transmission systems which carry message traffic that is predominantly intraexchange will be owned by the BOCs, as will all the transmission systems between switching systems providing the Class 4 and Class 5 functions. Transmission systems that predominantly carry intraexchange traffic will be owned by AT&T. It is probable that application of the predominant use test will assign ownership of most short haul systems to the BOCs and most long haul systems to AT&T. Where necessary, the reorganization plan will provide for leases between AT&T and the BOCs for transmission capacity needed to provide their respective services.

Many comments focused on the need for the BOCs to retain ownership of the distribution facilities used for private line services. Some concern was expressed that AT&T might own the local as well as intraexchange portion of private line circuits, thus allowing it to bypass completely the BOC facilities in connecting its customers to the AT&T network. AT&T ownership of such facilities, it was argued, would deny necessary access to intercity competitors.

Under the modification, the term "exchange access" is not limited to switched services such as MTS/WATS, but includes all distribution facilities used for providing interexchange telecommunications service. Following the reorganization, AT&T will obtain such distribution facilities for private line services pursuant to the BOCs' exchange access tariffs instead of the current division of revenue contracts. The BOCs will retain ownership of transmission facilities that will enable them to continue the facilities offerings now made to competing interexchange carriers provided that both ends of each end link facility provided are within the same exchange area. The BOCs will also retain the transmission facilities used to provide intraexchange private line services.

4. *Co-location and Future Sharing of Facilities:* Many comments stated that, if AT&T were allowed to co-locate and share facilities with the BOCs, competitors of AT&T should be offered the same opportunity. Specific concerns were raised concerning the absence of any requirement that the BOCs allow joint ownership or use of switches or co-location of the equipment of other carriers.

As a matter of practical necessity, the reorganization plan will have to provide for a substantial amount of sharing of transmission, switching and other facilities between AT&T and the BOCs through the use of leasing arrangements. There is simply no alternative, given the extent to which multifunction facilities have been utilized by the Bell System. To prohibit such shared use of existing multifunction facilities would result in the construction of unneeded, duplicative facilities. For example, there are many situations where AT&T and a BOC will both own facilities which are located in the same building, conduit, transmission tower, or right of way. If not permitted to co-locate, the BOCs or AT&T would be required to construct duplicative facilities, increasing costs to ratepayers as a whole. There may also be cases where planned facilities will have to be completed on a co-located basis under the reorganization plan in order to avoid increased costs or disruptions in service.

Any agreements between AT&T and the BOCs for sharing or co-location entered into after January 8, 1982,

however, will receive close scrutiny during the Department's review of the reorganization plan. Additionally, the Department may require that AT&T-owned switches to be installed after the date of divestiture, but presently scheduled to perform BOC related functions, be configured to provide all exchange access functions, requested by a BOC to be provided in that switching systems as a condition precedent to continuation of the project on a shared-used basis.

After divestiture, the modification, by its terms, would not prohibit the BOCs from sharing excess capacity in their facilities with interexchange carriers or information service providers, as long as such capacity is made available on a nondiscriminatory basis. Nevertheless, such sharing arrangements create a significant potential for violation of particular provisions of the modification. First, to the extent that, as a practical matter, such agreements amount to a joint venture with the sharing enterprise, or otherwise give the BOC a stake in its financial success, *e.g.*, payments on a per-unit-of-traffic basis (exclusive of tariffed access charges), the modification's prohibition against the BOCs' reintegration into interexchange or information services markets would be violated. Second, an arrangement which interferes with the ability or incentive of a BOC to provide equal exchange acess or information access would violate the modification's nondiscrimination provisions. Finally, if a BOC were to construct additional or "excess" facilities for the purpose of leasing them to third parties, the BOCs might be engaging in an independent business of leasing facilities apart from providing exchange telecommunications. Consequently, such sharing of BOC-owned facilities requires careful review. Agreements by a BOC to share facilities owned by others might also pose potential problems under the modification. Again, such agreements must not be formulated or operate in a manner that interferes with the ability of the BOC to provide equal access, or tends to create a partnership relationship between a BOC and the other carriers.

*B. Issues Relating to the Equal Access Injunctions*

A large number of comments raised specific questions regarding the reach and scope of the BOCs' obligation to provide equal exchange access under Section II and Appendix B of the proposed modification. The following discussion addresses these issues.

1. *Applicability of Equal Access Provisions:* Several comments criticized the modification for not specifically requiring the BOCs to provide equal exchange access for users other than interexchange carriers. Most of these comments addressed the interests of private communications systems and competing intraexchange carriers.

a. *Private Systems.* Comments by owners and representatives of private communications systems argued that evidence presented in *United States* v. *AT&T* showed that the BOCs have in the past discriminated against private communications systems and that such conduct should be enjoined.

SBS emphasized that private communications systems should be assured equal access to local distribution facilities so that customers of competing interexchange carriers will be able to obtain access to facilities connecting their own systems with the networks of the interexchange carriers and not have to rely on the interexchange carriers to provide such facilities. The comments addressing this issue in general did not discuss specific access problems. Indeed, comments submitted by the Association of American Railroads stated that "in general, telephone company interconnection relationships with railroad systems has been satisfactory over the years."

The Department does not believe it necessary or appropriate for the modification to address the interconnection of the BOCs with private systems. First, the needs of private customers and common carriers are likely to be different. To that extent, inclusion of provisions relating to private systems would add complexity to the modification and its administration. Second, the FCC is expected to conclude shortly a three-year inquiry into AT&T's private line rate structure in Docket 79-246. Whether distinctions should be make between offerings to private customers and common carriers is an issue in Docket 79-246, and there is no reason to believe that a more appropriate solution could be formulated in the modification than will be reached by the Commission. Finally, the establishment of unbundled exchange access tariffs pursuant to the modification should facilitate the ability of private systems to obtain access to such BOC facilities and services and as the regulatory authorities deem appropriate.

b. *Intraexchange Carriers.* Representatives of the radio common carriers (RCCs) argued that, as competitors of the BOCs, they would be subject to discrimination against them by the BOCs, and thus the modification should provide for equal access for such carriers. These comments noted that the complaint in *United States* v. *AT&T* contained allegations that AT&T has impeded the access of RCCs to telephone company facilities. The RCCs did not raise any specific problems that they were now experiencing in obtaining interconnections with BOC facilities.

As the RCCs correctly noted, the United States did not make any contentions at trial regarding the access of RCCs to BOC facilities. As discussed above, the focus of the government's case was the anticompetitive consequences of the vertical integration of franchised local exchange monopolies with potentially competitive intercity services. The relief requested by the United States was designed to deal with this anticompetitive potential. The interconnection of RCCs as exchange carriers is simply not related to the anticompetitive vertical integration which was at the heart of the government's case and which the modification was designed to end. As discussed above, the modification's silence regarding the role of the BOC's are regulated monopolists engaged in the provision of competitive activities within an exchange is not indicative of the Department's view of such activities. Regulators, of course, may take action with regard to competitive problems arising in this area.

2. *BOC Facilities and Services Covered by the Equal Access Injunctions:* Many comments proposed that the equal access injunctions contained in Appendix B should specify particular elements of exchange access that would be made available by the BOCs. For example, it was suggested that the modification should specifically provide for equal access to private line facilities including: digital and broadband carrier systems; facilities used for the automated ordering, installation, testing and repair of circuits; engineering services; and, conduits and rights of way.

The modification requires the BOCs to file tariffs, to be effective on the date of the reorganization, for the provision of exchange access with unbundled schedules of charges which shall not discriminate against any carrier. Since AT&T must obtain its exchange access under these tariffs, as opposed to the existing division of revenue arrangements, there will be every incentive for the BOCs to file tariffs that will offer a very broad array of facilities and services. The only BOC facilities which AT&T will not have to obtain through the exchange access tariffs will be the multifunction facilities which

AT&T will share with the BOCs pursuant to the leasing arrangements specified in the reorganization plan.

3. *Provision Regarding Equal Charges Per Unit of Traffic Delivered:* Several comments requested that the meaning of Paragraph (B)(3) of Appendix B be clarified. This provision requires that, from the date of divestiture until September 1, 1991, the transmission of interexchange traffie between end offices and the facilities of interexchange carriers within and exchange area or reasonable subzone be at charges that are equal for all interexchange carriers, per unit of traffic delivered or received. This requirement is limited to charges for the transmission of calls above end offices, and does not apply to other services provided as part of exchange access.

Questions were raised concerning the relationship between the cost-based standard for access charges and the "uniform delivered pricing" requirement; how the requirement for uniform transmission charges would apply to private line services; and the basis for requiring such averaging only until September 1, 1991.

Several comments argued that the modification was inconsistent to require that the exchange access tariffs be cost-based and also to require that transmission charges be the same for all customers receiving service. In fact, charging uniform prices to all customers of a service is a very common practice in utility rate design and is accepted by both the FCC and state regulatory agencies. The purpose of this practice is to prevent certain customers from being substantially disadvantaged as a result of their geographic location.

In the case of the BOCs' exchange access tariffs, the purpose of uniform pricing is to compensate for the possibility that traffic to some carriers may be carried over smaller and thus less efficient trunk groups and to limit the advantage that AT&T will have as a result of the co-location of its facilities with those of the BOCs.

The SBS comments expressed concern that equal charges per unit of traffic would not be an appropriate way to equalize exchange access costs for private line services. This section of the modification was only intended to apply, however, to switched services. Nevertheless, when the BOCs' exchange access tariffs for private lines services are submitted, the Department will examine any provisions which appear to advantage AT&T competitively by reason of the co-location of its facilities with those of the BOCs.

Several comments questioned the expiration of the equal charges per unit of traffic requirement in 1991. They proposed instead that the requirement should remain in effect until a determination is made that interexchange carriers are receiving equal exchange access or that the market for interexchange services has become competitive.

The Department believes that a period of 5 years following the time at which the modification's equal access provisions become fully effective is a reasonable period during which the BOCs can make necessary adjustments to their facilities. However, once the BOCs file the equal access tariffs required by the modification and they become effective, any changes in such tariffs will be subject to approval by the FCC for interstate services and the state commissions for intrastate services. If the BOCs should decide, after September 1, 1991, that is would be in their interest to change from a uniform minutes of use basis, they would be free under the modification to file such tariffs for regulatory approval. Conversely, regulators could require continuation of uniform pricing.

4. *BOC Charges for Unequal Exchange Access:* Some comments criticized Paragraph (3) of Appendix B which permits, but does not require, the BOCs to charge lower rates to carriers receiving unequal access during the phase-in period specified in Section A of Appendix B. For example MCI argued that the BOCs should be prohibited from charging rates for exchange access which exceed the charges made for comparable services to AT&T business customers. These carrier fear that AT&T will use the interim period until divestiture is completed to weaken its competitors by filing exchange access rate increases which could make their services noncompetitive. They argued that, since the government's evidence in *United States* v. *AT&T* charged that such conduct by AT&T was anticompetitive, the modification should preclude AT&T from initiating such rate increases.

These comments correctly state that the modification does not purport to deal with AT&T's charges for exchange access during the period before the reorganization. The issues involved in the charges for connections with interexchange carriers are, however, currently before the FCC and involve the interpretation of a contract between AT&T and several of the interexchange carriers (n the ENFIA Agreement). Under these circumstances, it is quite possible that any provision in the modification which enjoined any increase in ENFIA charges could be inconsistent with the FCC's decision in this matter.

Therefore, although the Department would be concerned if rates for exchange access prior to implementation of the modification's equal access provisions did not reflect the reduced value of unequal access, it would not be appropriate to supplant the FCC in resolving these issues.

5. *Phase-in Period For Equal Access:* Some comments, including those of SBS, stated that the modification should require AT&T to begin providing equal access immediately, as opposed to "no later than September 1, 1984." It was suggested that such equal access could be provided much earlier than specified in the modification if AT&T routed traffic designated for competitors through Class 4 switches. Other comments criticized the modification for not setting a specific date by which exchange subscribers would have the ability to dial the same number of digits to access competing interexchange carriers as to place a call with AT&T.

The issues presented by these comments are, first, whether it is practical for the modification to regulate the interconnection practices of the BOCs prior to the divestiture; second, whether the phase in periods under which the divested BOCs will be required to provide equal access are reasonable; and, third, whether the modification should force a revision in the national numbering plan earlier than it may occur under present regulatory authority.

As to the first issue, the Department has concluded that attempting to inject itself and the Court into questions of how AT&T should provide interconnections to interexchange carriers prior to divestiture would not substantially enhance the prospects for improved interconnections, and could delay the schedule for the BOCs' divestiture. Indeed, the very basis for divestiture is that such questions cannot be completely resolved until separation of the BOCs and AT&T. The FCC has been attempting to formulate a regulatory solution to the equal access problem for several years without success.

The second issue is whether the phase-in period for provision of equal access is reasonable in view of the need to make changes in the network to offer such services. The provision of access required by the modification requires the reprogramming of existing stored program controlled switches to offer the enhanced interconnection arrangements, and the replacement of existing electromechanical switches with electronic equipment capable of providing equal access features. The

Department believes that the time period permitted will provide proper incentives for the BOCs to produce equal access expeditiously, but will not result in the wasteful expenditure of resources that might be required to accomplish the task in a much shorter period of time. If the FCC determines that equal exchange access should be provided more quickly, there is nothing in the modification which would preclude it from ordering that this be done.

The Department believes that the question of when the national numbering plan should be changed to permit access code equality is a matter which is more appropriately resolved by regulatory authorities than by the modification.

6. *BOC Routing of Customers' Traffic to Predesignated Interexchange Carriers*: Several comments criticized the provision in the modification requiring the BOCs to tariff a service offering that would route all of an exchange customer's intercity calls to a predesignated intercity carrier. Some stated that this provision would have the effect of continuing AT&T's monopoly position, since customers would not want to have all their calls routed to a competing carrier that might not be able to complete calls to every part of the country.

Since all intercity calls are now automatically routed to AT&T, this service would not apply to AT&T. Rather, the purpose of this provision is to allow exchange customers the right to substitute another interexchange carrier for AT&T as the carrier to be used if no other designation is made by dialing an access code. A variation of this service, which would allow customers to select from more than one predesignated interexchange carrier by dialing one or two digits, is possible, although such a service is not required by the modification. Regulatory authorities have the jurisdiction to determine what, if any, charges should be imposed for these services.

7. *BOC Billing Services:* Numerous comments criticized the modification for not prohibiting the BOCs from discriminating among interexchange carriers in the provision of billing services. The modification prohibits the BOCs from terminating local exchange service to customers who fail to pay bills for interexchange service unless billing service is made available to all interexchange carriers, but otherwise permits the BOCs to decide to what interexchange carriers, if any, they will provide billing and collection services.

While it is true that joint billing may reduce costs for both the customer and the interexchange carrier, as pointed out in the SBS comments, there are alternatives available to such carriers in addition to billing by the BOCs. MCI, for example, has an agreement with American Express which bills its card members for their use of MCI's intercity services.

A requirement in the modification that the BOCs provide actual billing to all interexchange carriers on an equal basis could impose a substantial administrative burden on the BOCs including the need to maintain computerized schedules of all the varieties of charges and billing categories an interexchange carrier may have. If a need to regulate the provision of billing services by the BOCs emerges in the future, the appropriate regulatory agencies may do so.

8. *The Cost Methodology to be Used in the BOCs' Exchange Access Tariffs:* Several comments suggested that the modification should specify the cost methodology to be used in the exchange access tariffs, or, at least, that AT&T should be required to specify the methodology that it intends to use so that problems can be resolved prior to the reorganization. May comments made particular recommendations as to how the tariffs should treat particular costs.

Because access charge tariffs must be in effect at the time of divestiture, the Department expects the BOCs to complete the appropriate tariff filings, including the required cost justification, with the FCC and the various state regulatory agencies by early 1983. This should allow ample opportunity for the agencies and the public to make determinations as to cost methodology and to prescribe any changes that may be necessary to bring the tariffs into compliance with regulatory requirements. Since the FCC plans to issue its regulations on access charges before the end of this year, the BOCs should be able to incorporate these regulations into their filings.

Several comments stated that the modification should determine how subscriber plant or non-traffic sensitive costs should be allocated to exchange access services. MCI stated that the current Ozark formula is anticompetitive and that the modification should prohibit its use as a basis for determining exchange access charges.

Although the formula used for the allocation of non-traffic sensitive costs may in fact have competitive significance, the modification is not the appropriate vehicle for determing such allocations. The FCC has created a federal-state joint board under Section 410 of the Communications Act to modify the current Separations Manual in light of the developing competition in telecommunications markets. *Amendment of Part 67*, 78 F.C.C. 2d 837 (1980). The FCC has already implemented certain interim changes in the manual recommended by the joint board, and a new manual is scheduled to be recommended to the Commission during the first quarter of 1983. Thus, the exchange access tariffs should reflect the new manual.

9. *The Effect of the Exchange Access Injunctions on the BOCs' Other Obligations to Interexchage Carriers:* Several comments expressed concern that the failure of the modification specifically to require a particular kind of access service might be interpreted to imply an antitrust immunity for failure to provide such a service, or that it could be interpreted as a finding by the Court or the Department that such a service should not be required by an appropriate regulatory agency.

There is no basis for such concerns. The modification cannot, and is not intended to, resolve all the issues facing the telecommunications industry, nor does it assume that the regulatory agencies responsible for overseeing the activities of AT&T and the BOCs will now abandon that task. The purpose of the modification is to bring about an industry structure that will end the incentive and ability of the BOCs to monopolize potentially competitive markets, and to provide a framework for the transition to full equality of treatment by the BOCs between AT&T and its competitors after divestiture. It does not establish the rights or liabilities of any person under the antiturst laws or regulatory statutes.

## V. Issues Raised Regarding Potential Anticompetitive Conduct by AT&T Resulting From AT&T's Position in Intercity Services and Equipment Markets Following Divestiture

A number of commenting parties, principally competitors of AT&T, as well as some state commissions, asserted that, following the reorganization and divestiture required by the proposed modification, AT&T will continue to be the dominant firm in the intercity services market with an overall market share in excess of 95 percent. These parties argued that such a dominant position in the intercity services market will give AT&T the power to engage in various anticompetitive activities both in the intercity services market itself as well as in adjacent markets such as the telecommunications equipment market, the unregulated information services market, and the market for customer premises equipment. For example, it

was suggested that AT&T would be able to cross-subsidize some of its intercity service offerings, its unregulated information services, and its telecommunications equipment with monopoly profits from non-competitive intercity service offerings; that AT&T could restrict competition in the intercity services market and the information services market by denying competitors reasonable access to its intercity network; that the continued integration of AT&T's intercity service business with its equipment manufacturing business may give Western Electric preferential access to technical information about the AT&T network; that AT&T will be free to re-integrate into the local exchange market by acquiring non-BOC exchange carriers; and that AT&T's dominance in the market for customer premises equipment will permit it to engage in anticompetitive pricing strategies.

The Department does not believe that AT&T's possession of such a large market share at the time of divestiture means that AT&T possesses the monopoly power necessary to engage in anticompetitive activities such as those described.[57] In the *AT&T* case, while recognizing that its enormous market share was indicative of AT&T's market power, the Department contended that the true source of AT&T's monopoly power was its integrated structure in which AT&T controlled both the local service monopolies and the dominant carrier in the intercity services market. This integrated structure gave AT&T the ability to deny its intercity competitors the access they needed to the local network and permitted AT&T to cross-subsidize competitive services with revenues from regulated monopoly services.

The proposed modification establishes an industry structure in which AT&T will be deprived of the source of this monopoly power by divestiture of its ownership of the regulated local companies. AT&T will thereafter not be able to deny competitors access to essential bottleneck facilities and it will not be able to cross-subsidize competitive service offerings with its revenues from regulated natural monopoly services. Further, the separation of AT&T's natural monopoly service from the rest of the business means that following divestiture AT&T will operate exclusively in competitive markets. While the degree of competition currently existing in each segment of the business varies, the Department believes that competition will flourish in all segments of the business in the long-term once the source of AT&T's monopoly power has been removed.

*A. Intercity Services Market*

A number of commenting parties asserted that, until such time as a fully competitive market develops, AT&T will still be able to monopolize the intercity services market by cross-subsidizing competitive intercity services with revenues from non-competitive intercity services or by imposing limitations on the ability of competitors to gain access to AT&T's intercity network.

1. *Cross-Subsidies:* The Department does not believe that there is a significant danger of cross-subsidization occurring within the intercity services market during the transition to a fully competitive market. In order to implement such a scheme of cross-subsidy, there would have to be substantial segments of the intercity services market that AT&T could protect from competitive entry. Otherwise, any effort to secure supracompetitive profits in one segment of the market in order to cross-subsidize other segments of the market will merely invite entry in the high-priced segments of the market, which will have the effect of driving prices back to the level of costs in both segments of the market.

Thus, an attempt by AT&T to engage in interservice cross-subsidy (for example, subsidizing private line services with revenues from MTS services) is not likely to succeed. Because of the high level of demand substitutability among various intercity services, a truly significant distortion of AT&T's rates will drive much of the demand from the newly high-priced segment of the market to the newly low-priced segment. Further, and more importantly, the extremely high level of supply substitutability in the intercity services market means that competitors can quite easily shift transmission capacity from one service to another in response to significant shifts in AT&T's rates. There is already substantial competitive transmission capacity in place on routes between most major population centers, and that capacity is expanding rapidly. Under these circumstances, the Department believes that even though the intercity market will still be quite concentrated after implementation of the divestiture plan, there will be sufficient competitive pressure to guard against significant interservice cross-subsidization over the transitional period.

Similarly, the Department does not believe there is a significant danger that AT&T might attempt to extract supracompetitive profits from low density or short distance routes on which it does not presently face competition, to subsidize low prices for the same services on routes which are subject to competition. An effort to secure monopoly profits on any particular route or class of routes will attract additional carriers to serve those routes, again driving prices to a competitive level. While the competitive response to a geographic cross-subsidy scheme may not come as swiftly as the response to an interservice cross-subsidy, it is entirely feasible through construction of terrestrial microwave systems, in which significant economies of scale can be obtained at fairly low levels of traffic, as well as through the relatively inexpensive addition of earth stations to an existing satellite network.[58] In addition, since competitive alternatives already exist over most dense routes, a scheme of geographic cross-subsidization would require that a fairly small segment of the intercity services market bear the burden of cross-subsidizing the bulk of the market. In such a scheme, the rate levels on the low density routes would have to be so high as to make such a scheme impractical, or, at least, quite apparent to regulators and to the Department.

Finally, even if there is a danger that some degree of cross-subsidization could occur over the short run, there are no additional tools available that could be incorporated into the proposed modification to guard against it effectively. As the Department

[57] AT&T's substantial market share reflects the fact that, as a result of regulatory policy that did not permit competitive entry, AT&T has served the intercity market for much of the twentieth century on a monopoly basis. The market has only recently been open to meaningful competitive entry. Indeed, entry into the market for switched services, which accounts for most of the market by far, has occurred only in the past few years following the Court of Appeals' decisions in the *Execunet* litigation in 1977 and 1978. MCI Telecommunications Corp. v. FCC, 561 F.2d 365 (D.C. Cir. 1977), *cert. denied*, 434 U.S. 1040 (1978); MCI Telecommunications Corp. v. FCC, 580 F.2d 590 (D.C. Cir.), *cert. denied*, 439 U.S. 980 (1978). Prior to the *Execunet* litigation, entry had occurred only for private line service, which constitutes only a small portion of the overall intercity services market. Most importantly, AT&T's current market share does not reflect the substantial lowering of entry barriers that will be achieved by divestiture of the BOCs and the modification's equal access provisions. Thus, while a substantial market share is often indicative of a firm's ability effectively to exercise monopoly power, it does not necessarily reflect the continued existence of monopoly power in an industry in which the transition from a monopoly to a competitive market structure has only recently been initiated.

[58] It is also likely that many of what are now low density or short-haul toll routes will be included within the exchange areas to be served by the BOCs. These revenues will therefore go to the BOCs, not to AT&T.

demonstrated at trial, regulatory programs designed to police the reasonableness of AT&T's rates on a cost basis have proven to be ineffective, even when administered by a regulatory body with the staff, expertise and mandate to implement such programs. The Department does not believe the public interest would be served by engaging either the Court or the Department in such a regulatory program. Instead, the Department believes that the public interest is best served by implementing the restructuring of the company as quickly as possible in order to facilitate the rapid development of a fully competitive market.

2. *Access to AT&T's Intercity Network:* A number of parties commented that as long as AT&T held the dominant position in the intercity services market, other common carriers and operators of private telecommunications systems would still need to be able to interconnect their networks with AT&T's network and to resell AT&T intercity services as a part of their own service offerings. These parties expressed concern that since the proposed modification does not contain injuctive provisions requiring AT&T to provide non-discriminatory access to its intercity facilities and services after the divestiture, AT&T may be able to restrict competition in the intercity services market by imposing interconnection restrictions or prohibitions on resale.

As a number of these parties themselves acknowledge, existing regulatory requirements already obligate AT&T to provide non-discriminatory interconnection and to permit resale of its services. The failure of the decree to impose a similar requirement in no way disturbs those existing interconnection obligations or displace the authority of appropriate regulatory commissions to impose such obligations or to enforce them as they deem appropriate.

In addition, while such interconnection restrictions and prohibitions on resale were potent anticompetitive devices employed by AT&T during the incipiency of competition in the intercity market,[59] the Department believes that, even if regulatory authorities permitted re-imposition of these restrictions, they would no longer have a significant effect on the market due to the increasing availability of alternative intercity transmission capacity from non-AT&T sources. Therefore, the Department does not believe that the modification, which is intended to establish the long-term industry structure, should include such injunctive provisions on AT&T.

*B. Unregulated Information Services Market*

The elimination of the restrictions in the 1956 consent decree will free AT&T to compete directly in the information services market on an unregulated basis. A number of commenting parties expressed concern that, because of its dominance in the intercity services market, AT&T would be able to engage in anticompetitive conduct in the information services market, such as cross-subsidizing its information services with revenues from its intercity telecommunications services or discriminating against other firms in that market that need to secure transmission capacity from AT&T. It was suggested either that AT&T be prohibited from entering the information services market, that it be permitted to enter the information services market only on a separate subsidiary basis, or that other forms of injunctive restraints be imposed.

The Department does not believe that the public interest would be served in the long run if AT&T is prohibited from entering the information services market, provided that it no longer also provides regulated natural monopoly services. In fact, the Department believes that entry by AT&T in these fields will be procompetitive, bringing to the market additional resources, technology and potential for innovation that are likely to accelerate and expand the growth and development of these new services. In the long-term, the Department believes that a competitive intercity telecommunications market structure will more than adequately protect against the dangers of anticompetitive conduct by AT&T in the information services market. Therefore, in light of the restructuring required by the proposed modification, the Department believes that the restrictions in the existing decree that have prevented AT&T participation in the information services market should now be removed.[60] To the extent that opportunities for anticompetitive conduct may exist during the transition from the existing market structure to a more fully competitive market structure, the Department does not believe that dangers of AT&T engaging in such conduct are so substantial as to warrant finding the proposed modification not in the public interest or to require incorporating further behavioral restrictions on AT&T in the proposed modification.

1. *Cross-Subsidies:* The number of parties expressed concern that AT&T would be able to cross-subsidize its new information services with monopoly profits from its intercity services business. The Department does not believe that there is a significant danger of such conduct occurring. As discussed above, it is unlikely that AT&T would be able to pursue a scheme of cross-subsidization. In order to accomplish such a scheme, there must be a set of services which AT&T is able to protect from competition and from which it is therefore able to derive monopoly profits. The divestiture of the local operating companies together with elimination of regulatory barriers to entry for all intercity services deprives AT&T of the power to protect any of its services from competition. The existence or threat of competition in all of its services will substantially constrain AT&T's ability to secure supracompetitive profits from any of its intercity services in order to cross-subsidize other lines of business, such as information services.

Some parties have suggested that the danger of cross-subsidization could be reduced if AT&T were required to provide unregulated information services only through a separate subsidiary such as that currently pending before both the FCC and Congress. Depending on the manner in which the separate subsidiary concept were implemented, it is possible that the existence of such an arrangement would provide some added measure of control over AT&T's ability to cross-subsidize. However, given that such cross-subsidization is unlikely to occur and would be a transitional phenomenon in any event, the Department does not believe a potentially complex regulatory device such as a separate subsidiary

[59] Thus, AT&T's interconnection restrictions designed to prevent "piece-out" of its intercity network formed an important part of the government's liability case because they demonstrated not only AT&T's anticompetitive conduct and intent but also its market power resulting from entry barriers that exist in the industry. These tariff restrictions, however, have subsequently been declared unlawful by the FCC and are no longer included in AT&T's tariffs.

[60] The question of whether the decree should be construed to permit AT&T's entry into the information services market under the separate subsidiary mechanism established by the FCC's *Computer II* decision was the issue litigated before the court in New Jersey. Notwithstanding the Department's opposition, the court entered the cosntruction sought by AT&T, and the Department's appeal of that decision was pending before the Third Circuit at the time the parties entered into the agreement now pending before this Court.

requirement should be incorporated in the proposed modification.

2. *Access to AT&T's Network:* A number of parties also expressed concern that AT&T, which will continue to provide intercity transmission services to other firms competing in the information services market, would have the ability and incentive to discriminate against those firms with respect to the quality of transmission services provided and the dissemination of technical information about the AT&T network. The Department believes that in the long run, the growth of competition in the intercity market will also constrain AT&T's ability to discriminate against information services competitors who must lease transmission services, because those competitors will have an increasing supply of competitive alternatives available.

In any event, however, the Department believes that the types of anticompetitive conduct that could occur—*e.g.*, provision of inferior quality circuits, delays in providing circuits, faulty repair of circuits and improper pricing of circuits—are best controlled, to the extent they can be controlled at all, through regulatory devices that are not particularly well-suited for use by either the Court or the Department. Given the transitional nature of the potential opportunity to engage in such conduct and the impracticality of relying on the enforcement mechanisms of a decree to guard against such conduct, the Department has elected not to embark on such a course as a part of the modification. It should be noted, however, that the regulatory authorities are presently considering, and would have the jurisdiction to implement, regulatory schemes directed at these potential problems.

3. *CATV:* Under the terms of the proposed modification, CATV service would be treated as an information service. As a result, the BOCs would be prohibited from providing CATV service, but AT&T would be free to enter that market if it chooses to do so. Various CATV interests have commented that they not only agree that the BOCs should be excluded from the market but believes that AT&T should be excluded as well. The Department does not agree with this position. In the past, the justification for prohibiting AT&T entry into the CATV business was the competitive advantage it enjoyed as a result of its control over the local franchises. The proposed modification eliminates AT&T's control over the local franchises and puts AT&T in the same position as any other potential entrant in the CATV business—it must secure local franchise rights and construct local transmission networks. The fact that AT&T is a large company or that it possesses substantial technological expertise in the telecommunications field does not distinguish it from any of a number of potential entrants in this market.

*C. Acquisition of Non-BOC Exchange Carriers*

The proposed decree prohibits reacquisition of the divested BOCs by AT&T, but imposes no prohibition on the acquisition of non-BOC exchange carriers. The Rural Telephone Coalition and the Attorney General of Virginia expressed concern that AT&T may attempt to acquire such non-BOC exchange carriers. Such an acquisition would be subject to scrutiny by the FCC under Section 221 of the Communications Act, 47 U.S.C. 221, or by the Department of Justice under Section 7 of the Clayton Act, 15 U.S.C. 18. The Department, of course, would look with disfavor on any arrangement that would threaten to re-create an anticompetitive market structure. Any competitive concerns regarding such activity are, therefore, adequately protected under existing law.

*D. Telecommunications Equipment Market*

A number of commenting parties expressed the view that AT&T's dominant position in the intercity services market, coupled with its continued integration with Western Electric, would enable AT&T to engage in anticompetitive conduct in the telecommunications equipment market.

1. *Bias In Long Lines Procurement:* A substantial number of parties, particularly equipment vendors, asserted that because of the continued integration of Western Electric and Long Lines, Long Lines' procurement will continue to be biased in favor of Western Electric products following the entry of the proposed modifications. These comments argued that by selling its products to Long Lines at prices above competitive levels, Western Electric will be able to earn excess profits that can be applied to cross-subsidize anticompetitive conduct in other markets. These parties argued that to prevent potential cross-subsidies, Western Electric and Long Lines should be either subject to a separate subsidiary requirement, separately owned, or that Long Lines' procurement practices should be subject to regulatory devices such as the procurement injunctions imposed on the BOCs or a quota system.

It should first be emphasized that the Department's case in *United States* v. *AT&T* focused on procurement by the BOCs. The modification effectively resolves those problems. Even in the absence of remedies addressing Long Lines, however, there is little danger of cross-subsidies flowing from Long Lines to Western Electric. Even in the short run, AT&T will have strong incentives to procure equipment as efficiently as possible. Procuring equipment from Western Electric at supracompetitive prices would simply impose economic penalties on Long Lines not shared by actual and potential competitors. None of the comments appear to dispute this basic premise. Instead, the comments disagree with the view that interexchange competition will increase significantly in coming years.[61] The critical point, however, is not the rapidity with which new competition actually emerges, but the fact that any attempt to engage in cross-subsidization by AT&T would merely increase the pace of new entry.

The Department, therefore, believes that there is clearly no need for further divestiture to deal with what many of the comments concede is at worst a transitional problem. In addition in light of the consequences to AT&T's competitive position in intercity markets of cross-subsidization between Long Lines and Western Electric, there would be no useful purpose served by imposing injunctions on Long Lines that would merely reinforce its own procurement incentives. As to the imposition of quotas, such purchaser requirements do not prodduce efficient procurement decisions. Indeed, a quota would amount to instructing Long Lines to procure equipment from vendors without regard to quality or price. Such an outcome would benefit neither ratepayers nor competition.

2. *Access to Network Standards and Technical Information:* A number of parties, particularly competitors of Western Electric asserted that Western Electric will continue to enjoy an anticompetitive advantage due to its unique access to the Bell Telephone Laboratories and the Long Lines Department. These comments noted the absence in the proposed modification of any requirement that AT&T provide network standards and technical information to competitors. Those commenting fear that AT&T will provide

[61] The comments of Long Lines' intercity competitors, such as MCI and Southern Pacific, endorse the government's belief that effective interexchange competition will develop as a result of the proposed modification's functional divestiture.

Western Electric with preferential access to key interexchange network standards and technical information (while withholding this information from others), thereby establishing *de facto* network standards which, when combined with Long Lines' market power, will preserve AT&T's ability to impede competition in both the telecommunications equipment and CPE markets.

The Department believes, however, that the structure of the industry after the functional divestiture will encourage an increase in the flow of technical information to competitive manufacturers from both the divested BOCs and the Long Lines Department. The divested BOCs will control information concerning the provision of local exchange and exchange access service, and will necessarily have access to information concerning the provision of interexchange service necessary to interconnect with the facilities of Long Lines and other interexchange carriers. Section II(B)(2) of the proposed modification requires the BOCs to establish and disseminate technical information, interconnection standards and procurement standards. Accordingly, the Department expects that the divested BOCs will seek out competitive manufacturers and freely share technical information and standards once the BOCs' corporate and financial ties to Western Electric and Bell Laboratories have been severed by the entry of the modified judgment.

Long Lines will also have new incentives to disseminate technical information and standards widely. As discussed above, as non-discriminatory interconnection of other common carriers by the BOCs fosters competition in the market for interexchange services, Long Lines will experience an increasing need to procure facilities on the basis of quality and price, without regard to corporate affiliation, since any supracompetitive transfer prices for such equipment would only disadvantage AT&T in the market for interexchange services.

Therefore, as interexchange competition develops, Long Lines will lose its incentive to procure equipment from Western Electric solely because of its affiliation and, correspondingly, Long Line will have increasing incentives to share network information more freely with non-affiliated manufacturers. In addition, as other long distance carriers become fully competitive with Long Lines, they will dilute Long Lines' power in the market for purchases of telecommunications equipment. Thus any advantage Western might enjoy initially will become less important over time.[62]

With respect to customer premises equipment, AT&T's superior access to network information will be greatly diminished, since the divested BOCs, the owners of the facilities to which CPE will be connected, will be the principal repositories of relevant network information. For the first time, the divested BOCs will have no incentive to deny such information to non-Western Electric manufacturers.

*E. Issues Relating to AT&T's Market Power in the Provision of Customer Premises Equipment (CPE)*

Comments filed by General Dynamics Communications Company ("GDCC") and others expressed concern that by virtue of AT&T's obtaining embedded customer premises equipment (CPE) as well as providing new CPE, AT&T will be able to maintain its dominance in the CPE market by implementing a "migration pricing" strategy. As described by GDCC, migration pricing is a strategy under which AT&T substantially increases the rates charged for currently installed and in use CPE (which would all be included in the category of embedded CPE), With the objective of shifting customers to newer generation AT&T CPE and locking these customers into long term leases for the new equipment.

The migration pricing issue was raised in the specific context of the telephone answering service (TAS) industry in the comments of Associated Telephone Answering Exchanges, Inc.("ATAE"). According to ATAE, the TAS industry is almost exclusively dependent on the electromechanical 557B switchboards and associated concentrator-indentifier equipment currently provided by the BOCs. ATAE asserted that due to reasons of business size and technology, many telephone answering services require this equipment, and that viable competitive alternatives do not exist for all telephone answering services. ATAE also stated that the BOCs have proposed larage rate increases for this equipment, and many BOCs have proposed to obsolete or grandfather this equipment and replace it with a new equipment system called AUTOTAS. ATAE asserted that this represents an effort to migrate the TAS industry from the older vintage equipment to the new AUTOTAS. in order to deal with these concerns, ATAE requested that the proposed modification leave open the issue of the role of state regulation of embedded CPE, and/or that a forum be available during a reasonable transition period to resolve these concerns. A similar solution was requested in the comments of Answering Service, Inc. which stated that there should be continued regulation of AT&T's embedded CPE.

Over the long run, the Department of Justice does not believe that "migration pricing" could be a competitive problem. With respect to the majority of CPE, while raising rates for embedded equipment may induce customers to switch to new equipment, the customer will have a variety of competitive new generation equipment to choose from. AT&T thus could not be assured of retaining customers by such a strateg.

Furthermore, even in the case of a type of CPE for which no competitive alternatives are currently available (as claimed by ATAE for the equipment used by the TAS industry), by raising the rates for embedded CPE, AT&T over the long run will encourage entry into those areas where there are presently no competitive alternatives.

In the short run, the modification will have no effect on the regulation of embedded CPE, despite the fact that AT&T will own this equipment. The regulatory commissions remain free to adopt whatever approach to the regulation of embedded CPE provided by carriers as they deem appropriate.[63]

The comments submitted by GDCC raised the issue that as a result of AT&T providing new CPE, Western Electric will be able to cross-subsidize CPE from its telecommunications equipment (*i.e.*, transmission and central office equipment) by attributing a disproportionate share of its costs to telecommunications equipment. The Department of Justice does not believe that this problem will occur. In order for such cross-subsidy to be effective, Western Electric would need monopoly power in the market for telecommunications equipment. However, the evidence presented in *United States* v. *AT&T* demonstrated the availablity of competitive alternatives

[62] In the event that problems regarding access to network information persist, the modification does not disturb the authority of the FCC to require dissemination of such information.

[63] It may be that in some state, separation of ownership of the local franchise monopoly from ownership of CPE will raise a question whether the regulatory jurisdiction over CPE continues to apply. If and when such questions arise, however, they can be resolved completely by appropriate statea legislation. If the state legislature believes that continued regulatory jurisdiction over embedded CPE is appropriate and desirable, the modification does not prevent legislation to that end. Of course, a state legislature also might decide that continued regulation is not desirable, but that possibility certainly does not suggest that the decree is inappropriate simply because it provides an occasion for state legislatures to make that choice.

for a wide range of Western Electric's transmission and switching equipment. These competitors were foreclosed, the government alleged, as a result of monopoly power resulting from the vertical integration of Western Electric and the BOCs. After this vertical integration is ended by the divestiture called for in the proposed modification, if the Western Electric attempted to cross-subsidize its CPE from its transmission and switching equipment, the correspondingly higher prices which would result for Western Electric's transmission and switching equipment would result in competitice losses for Western Electric in that market.

In addition, as set our above, because supracompetitive transfer prices between AT&T impose economic penalties on AT&T not shared by its competitors, the prospect of a Long Lines—Western Electric cross-subsidy seems equally remote. The Department, therefore, does not believe that any amendment to the modification in this regard is necessary.

**VI. Telecommunications Equipment Issues**

The Department received comments from a number of parties, principally telecommunications equipment vendors, which raised a number of issues relating to the impact of the modification on BOC procurement practices. Other commenting parties raised specific concerns regarding the modification's effects on AT&T trademarks and patents. These issues are addressed in the following discussion.

*A. BOC Procurement*

A number of comments, particularly those submitted by Western Electric's competitors, suggested that after divestiture Western Electric will continue to enjoy an unwarranted advantage in selling telecommunications equipment to the BOCs. Some of these comments questioned whether the injunctive provisions of the proposed modification will put an end to past BOC discrimination against Western's competitors, while others expressed concern that other provisions will encourage a continued BOC preference for Western Electric's products. Several other commenting parties predict that permitting the BOCs to centralize certain functions relating to procurement will discourage the growth of competition in the procurement of telecommunications equipment.

The Department believes that the divestiture called for by the proposed modification will, over time, eliminate any anticompetitive BOC bias in favor of Western Electric, and that the injunctive provisions now included in the proposed modification are the most effective alternative for controlling any potential for BOC bias until the effects of divestiture are fully realized.

*1. Adequacy of Anti-discrimination and Compliance Provisions:* The key injunctive provisions of the modification intended to prevent BOC discrimination in favor of Western Electric are Section II(B)(1), which generally forbids such discrimination, and Section II(C), which requires that each divested BOC submit to the Department procedures for ensuring compliance with each of the antidiscrimination provisions of the proposed modification. Several comments expressed the fear that the objectives of these provisions may not be realized adequately due to the persistence after divestiture of certain conditions which are a consequence of AT&T's present vertical integration, and which might tend to confer unwarranted competitive advantages on Western Electric. For example, Western Union cited the advantage Western Electric might gain in the future because it is so frequently designated as the equipment supplier in the BOCs' current long range plans for expanding their facilities. Comments anticipating continuing discrimination in BOC procurement proposed a variety of provisions in the modification to supplement or replace the antidiscrimination and compliance provisions cited above. These comments generally suggested expanding the language of these provisions to impose more specific injunctive requirements on the BOCs. A number of other commenting parties proposed quasi-regulatory provisions such as the imposition of purchase quotas on the BOCs, requirements for detailed reporting of BOC purchases, or regulation of Western Electric's prices.

The reorganization required by the proposed modification, by separating the BOCs' regulated monopoly functions from equipment manufacturing, will create the most hospitable climate possible for competition in the sale of telecommunications equipment. This competitive structure will be reinforced by the antidiscrimination and compliance provisions of Paragraph II(B) and II(C) of the proposed modification. In light of the transitional nature of the incentives they are designed to counteract, the imposition of a general prohibition on discrimination, together with the BOCs' submission after divestiture of procedures to insure compliance, will enable the Department to verify that the BOCs are conducting their equipment procurement in a non-discriminatory manner. If the compliance procedures submitted by any BOC do not appear likely to accomplish the objectives of the modification, the Department will file an enforcement action to compel appropriate modifications in the procedures.

In the Department's view, these flexible procedures are adequate to deal with the transitional problems identified in the comments until the procompetitive incentives created by divesting the BOCs have had their full effect. Indeed, the antidiscrimination and compliance provisions in the proposed modification are preferable to any of the alternatives suggested in the comments, many of which would impose on the Bell operating companies a detailed scheme of regulation, difficult at best to enforce judicially, which might well carry its own anticompetitive effects. For example, the imposition of quotas would necessarily entail detailed reporting requirements and product classification schemes, imposing substantial administrative burdens on the Court, the Department and the BOCs. A quota system, moreover, might in some cases deprive the BOCs of the choice to purchase the best and least expensive equipment or create a sheltered market for suppliers with competitively deficient products. Either result would be wholly at odds with the objectives of the antitrust laws, and of the modification. Other proposals, which would involve detailed reporting or price regulation schemes, are similarly flawed.

Other comments raised the possibility that a continuing pro-Western bias would be fostered by the requirement of Paragraph I(C) of the proposed modification that AT&T, Western Electric and Bell Laboratories provide the BOCs research, development, manufacturing and other support services on a priority basis until September 1, 1987, to enable the BOCs to fulfill the requirements of the proposed modification. This requirement does not modify in any way the applicability or force of the proposed modification's ban on discrimination in BOC procurement, and creates no priority for Western Electric or Bell Laboratories. Rather, it was included in the modification as a specific application of Paragraph I(C)'s requirement that "AT&T and its affiliates . . . take no action that interferes with the BOCs' requirements of nondiscrimination * * * ." It was intended to ensure that the BOCs would have full access to the equipment and equipment-related services necessary to provide equal exchange access, and was included in recognition that the BOCs'

current facilities consist predominantly of Western Electric equipment, so that modifications or additions to provide equal access would often have to be provided by Western or Bell Labs.

The Illinois Commerce Commission suggested that the BOCs be permitted to purchase equipment on a sole-source basis, if that were most efficient. Nothing in the proposed modification would explicity prohibit such a practice by a particular BOC, although the Department would scrutinize carefully any sole-source arrangement with Western Electric to assure compliance with the anti-discrimination provisions of the modification. Other sole-source purchasing arrangements would of course remain subject to the antitrust laws.

Finally, one commenting party, fearing AT&T efforts to disrupt general trade sales efforts prior to divestiture of the BOCs, urged that AT&T be forbidden to take actions to impair its existing procedures for procurement of general trade equipment. The Department has no reason to believe that AT&T will dismantle its existing procurement procedures in the period before divestiture. In any event, any action by AT&T to obstruct fully competitive procurement by the BOCs would violate Paragraph I(C) of the proposed modification, and the Department will monitor AT&T's activities to insure that such conduct does not occur.

2. *Centralization of BOC Procurement Functions:* Paragraph I(B) of the proposed modification permits the divested BOCs to support and share the costs of a centralized organization providing engineering, administrative and other services. A number of comments expressed concern over the effects if the BOCs conducted centralized purchasing under this provision. In particular, some comments asserted that a centralized purchasing agency would constitute a monopsony and thus violate the Sherman Act, and questioned the need for any such arrangement on efficiency grounds.

The purpose of a centralized staff is to end the BOCs' dependence on AT&T, Western Electric and Bell Laboratories for services that can most efficiently be provided on a centralized basis. The Department intends to review proposals for a centralized entity carefully to insure that its proposed functions are consistent with this goal.

Although several comments questioned whether centralization can ever be efficient, at least one independent telephone company, United Telecommunications, appears to recognize that such efficiences are possible, recommending the inclusion of independent telephone companies in the work of a central staff. Nothing in the proposed modification would prevent such a joint effort, provided it did not operate in such a way as to involve participation by the BOCs in activities prohibited by the proposed modification.

The Department will scrutinize with particular care proposals for joint purchasing activity, to assure that this activity violates neither the proposed modification's non-discrimination requirements nor limitations on joint activity imposed by the antitrust laws. A number of the comments seem to base their concern about a joint purchasing entity on the assumption that a single entity would be given exclusive discretion to make purchasing decisions on behalf of the BOCs. In discussions with the Department, AT&T, has given firm assurances that under the plan of reorganization purchasing will be undertaken at the regional or BOC level, not by a centralized entity. This commitment assures that there will be diverse decision-makers for the purchase of goods and services by the divested BOCs.

Finally, the Independent Telecommunications Suppliers Council urged that the proposed modification require the transfer to the BOCs of warehousing, distribution and product evaluation functions now centralized in Western Electric. According to the proposed modification, AT&T is required to transfer to the BOCs "sufficient facilities, personnel, systems and rights to technical information" to enable the BOCs to perform their permitted functions independently of AT&T. If, as the Department expects, the divested BOCs will require the ability to perform independently some product support functions now performed by Western Electric, it will be AT&T's obligation to transfer to the BOCs the capability to perform those functions.

*B. Trademarks*

Tandy Corporation filed comments in which it proposed adding to the modification a specific requirement "that neither AT&T nor a separate subsidiary of AT&T sell, offer for sale or advertise any terminal equipment using names, trademarks, service marks, symbols, or other methods of promotion or identification which are the same as or similar to, the names, trademarks, service marks or other methods of promotion or identification employed by BOC." The comments stated that such a provision was needed to prevent "non-monetary cross-subsidization". It was argued that by concurrent use of the same mark, AT&T could implicitly suggest to consumers a link between Western Electric's CPE and the BOC's local service, or between Long Lines' intercity service and the BOCs' local service. Similarly, the argument continued, the BOCs could implicitly suggest that they endorsed use of AT&T's CPE or long distance service.

The proposed modification together with federal trademark law will prevent concurrent use of trademarks and trade names [64] by AT&T and the BOCs after divestiture. The existence of a licensing arrangement which would be the basis for such concurrent use would constitute economic and operational integration of a sort prohibited by the proposed modification. In any event, AT&T could not enter into a valid trademark or trade name licensing arrangement with the BOCs, because the modification does not permit AT&T to control the quality of services provided by the BOCs, and such quality control is required to maintain a valid trademark license.

Sections 5 and 45 of the Lanham Act, 15 U.S.C. 1055 and 1127, which regulate licensing of federally registered marks, permit such licensing only if the licensor imposes adequate quality controls on the licensee's products or services with which the mark is used. *E.g., Dawn Donut Co. Inc.* v. *Hart's Foods Stores,* 267 F. 2d 358, 366–67 (2d Cir. 1959). Common law trademark principles impose similar requirements for trade-names and other unregisterable marks. If a licensor fails to exert the necessary control, the trademark is considered abandoned, and enters the public domain.

The central feature of the proposed modification is the severance of existing economic and operational relations between AT&T and the BOCs, except insofar as certain explicitly identified transactions are permitted after divestiture. Concurrent use of the Bell System trademarks after divestiture would continue a relation in which, as Tandy Corporation suggests, AT&T and the BOCs would be unacceptably intertwined. Accordingly, the Department will not approve the plan of reorganization which contemplates the concurrent use of the Bell trademarks by AT&T and the BOCs.

*C. Patent Licensing Issues*

The Department received approximately 40 comments, mainly from competitors of AT&T, that criticize

[64] The phrase "trademarks and trade names" as used here includes trademarks, service marks, trade names and all other similar types of intellectual property, whether or not registerable under provision of the Lanham Trademark Act, that have been used to identify the Bell System or portions of its business in the past.

the proposed modification because it does not retain in some form the provisions of the 1956 decree which required AT&T to license its United States patents to all applicants on a non-discriminatory, reasonable royalty basis. Some commenting parties would be satisfied with a phasing-out of the compulsory licensing requirement over some finite period of time; for example, all patents issued during a fixed period after the divestiture of the BOCs would be subject to compulsory licensing by AT&T but patents obtained beyond that time would not. Other comments proposed that the perpetual licensing requirements of the 1956 decree be retained. The Department does not believe that the inclusion of any form of compulsory patent licensing in the proposed modification is either necessary or appropriate.

At the outset, it should be recognized that, notwithstanding the elimination of the compulsory patent licensing provision, AT&T will continue to engage in extensive patent licensing. First, all or almost all of AT&T's existing U.S. patents have been licensed to a variety of firms for many uses. With very few exceptions, these licenses will run for the life of the patents involved and cannot be terminated unilaterally by AT&T. Second, AT&T's patent licenses typically include a provision for the licensing of new patents within the scope of the license issued within five years of the execution of the agreement. AT&T also had entered into more formal patent cross-licensing agreements which also typically run for a period of five years.

Finally, the reorganization plan will require AT&T to grant royalty-free licenses to the BOCs for all of its existing patents, and for all patents issued for a period of five years following entry of the proposed modification. In turn, the BOCs will have the right to sublicense these patents for their own use, including the manufacture of equipment for the BOCs' purchase. Thus, as a practical matter, many AT&T patents issued within the next several years must also be licensed to AT&T's competitors notwithstanding entry of the proposed modification.

In this environment of widespread licensing, including licensing by BOCs, there would appear little profit to AT&T in refusing to license a new entrant. Rather, AT&T would have every incentive to continue to issue licenses in view of the potential that licensees will find new uses for existing technology from which AT&T could gain royalty revenue, including royalties arising from a new entrants' sales of products. Moreover, the communications industry has been characterized by extensive patent cross-licensing arrangements in the past. Given the dispersion of technology in the electronics, telecommunications and computer industries, it is likely that AT&T will find it in its interest to continue to license its patents in order to gain access to the patents of others.

Some comments argued that because AT&T research had been funded in part from monopoly exchange revenues, AT&T should be required to continue compulsory licensing for some period of time. The 1956 Judgment was, in part, based on the concept that research funded from revenues generated by AT&T's regulated telecommunications monopoly should be made available to AT&T's competitors in other markets. Consequently, the logic of the 1956 Judgment suggests that patents substantially derived from pre-divestiture research be licensed regardless of when the patent is issued. Because of the delay inherent in the patent application process, however, any cutoff date for the licensing of such patents is necessarily arbitrary. The date chosen by the proposed modification is the date of its entry. Because of the existence of requirements that AT&T license patents heretofore issued or issued during the next five years, and in view of the BOCs' sublicensing rights, it is apparent that a significant portion, if not all, of such "work in progress" patents will be licensed. Once such patents are licensed, as discussed, it will be in AT&T's interest to license them to others. Consequently, regardless of the date specified in the proposed modification for the vacation of the 1956 decree's licensing provisions, there is no reason to believe that entry of the proposed modification will result in the removal of "work in progress" patents from the pool of AT&T patents generally available to industry. Hence, in practice, the proposed modification fully protects the public's interest in the licensing of such patents.

Finally, suggestions that AT&T should be required to license its future patents based on post-divestiture research because of its dominant position in the intercity telecommunications service market are without merit. These comments assert that there is danger that AT&T will cross-subsidize research and development efforts in competitive fields with revenues obtained from its intercity services. for the reasons discussed above in Section V, the Department believes that there will be sufficient competitive pressure on all of AT&T's intercity services that there is little danger of significant cross-subsidies flowing from the intercity services market, even in the short run. In the short run, of course, new AT&T patents will continue to be licensed under existing licensing agreements. AT&T will also have continuing incentives to license its patents in order to get the benefits of the inventions of others.

Most important, the proposed modification would terminate the license contracts under which research is funded in part by monopoly revenues. AT&T, like other firms, will thus be forced to fund its research and development from the sale of products and services in competitive markets. AT&T will, therefore, have no inherent advantage over other firms in funding such research and development.

## VII. Effects of the Modification on Interests of Third Parties

The Department received a large number of comments, mainly from competitors of AT&T, which raised issues regarding the effects of the modification on the interests of private parties. Two principal concerns expressed in the comments relate to possible *prima facie* effect which may be given to the modification and the rights of private parties to seek enforcement of the modification. The Department also received a number of comments from AT&T investors and employees regarding the modification's effects on their interests. The following discussion addresses these issues.

### *A. Prima Facie Effects of the Proposed Modification*

The concerns expressed on the comments on this issue stem principally from Section III of the proposed modification, which states, in pertinent part:

> Neither this Modification of Final Judgment nor any of its terms or provisions shall constitute any evidence against, an admission by, or an estoppel against any party or BOC.

Section IV of the Department's Competitive Impact Statement, in discussing this provision, stated:

> The proposed modification, if entered, would in no way affect the rights of any present (or potential) private plaintiff who has or might have been damaged by the alleged violations to sue for monetary damages and any other legal or equitable relief to which they might otherwise be entitled. Because, however, Section 5(a) of the Clayton Act, as amended, 15 U.S.C. 16(a), allows a judgment to be invoked as *prima facie* evidence in private litigation only

where the judgment operates as an estoppel between the parties, the proposed modification would not have such *prima facie* effect.

Some of the comments argued that the Court should treat the proposed modification of final judgment as a settlement of *U.S.* v. *AT&T,* on the ground that to do otherwise would permit the parties to circumvent he Congressional intent underlying Section 5(a) of the Clayton Act, 15 U.S.C. 16(a), which deals with the *prima facie* effects of final judgments. Other comments argued that the Court should not enter the modification without first making specific findings of fact that could be used by private parties in subsequent litigation. Finally, it was argued that there is no need for this Court to decide the scope or effect of the modification on other litigation since that responsibility is committed to trial courts in subsequent litigation.

The proposed modification contains a stipulation between the United States and AT&T that it shall not constitute any evidence against, an admission by, or an estoppel against any party or BOC. This provision, by its terms, is therefore binding between the parties in any subsequent litigation.

Under relevant case law and Section 5(a) of the Clayton Act, the *prima facie* effect of a judgment is determined by reference to the general law of estoppel. Broadly stated, the estoppel effect or prior judgments is limited to matters actually adjudicated.[65] Thus, because there has been no final adjudication, without regard to any agreement between the parties, and regardless of whether the modification is treated as a settlement of *United States* v. *AT&T,* the Department believes that the modification would not be given *prima facie* effect in subsequent litigation. The Department agrees, however, with the point made in some of the comments that the ultimate responsibility for determining the *prima facie* effect of the modification rests with the trial court in any subsequent litigation.

*B. Private Enforcement of the Modification*

A number of comments argued that private parties should, under certain circumstances, be given the right to seek enforcement of the modification on the ground that the limited resources of the Department may result in ineffective enforcement. Some comments suggested that since private parties are intended beneficiaries of the modification, they have a legitimate interest in independent enforcement. It was argued that permitting private enforcement would assist the Justice Department in its enforcement efforts.

The Department of Justice, while aware of the extensive non-party interest in the Modification of Final Judgment, is persuaded that no such procedure need be created at this time. First, the Court specifically retains jurisdiction over this judgment and its enforcement (Section VII of the modification), making it unnecessary, in the absence of any showing that the Department of Justice is unwilling or unable to enforce the judgment itself, to create further enforcement provisions on behalf of non-parties. Second, given the widespread non-party interest in the judgment, as demonstrated by the numerous comments, it is likely that such interest will also extend to enforcement. It can be expected that non-parties will communicate any alleged violations of the judgment to the Court, the Department, or both. Prior to any showing that the Department of Justice is unable or unwilling to investigate and, if warranted, to prosecute such allegations, no formal procedure for non-party enforcement is necessary. Should such a showing be made, the Court, pursuant to its retention of jurisdiction, may at that time order such procedures as it deems necessary.

The Department is aware of only one instance in which specific provision was made for private parties to petition the court for enforcement. In *United States* v. *AMPI,* 394 F. Supp. 29, 56 (W.D. Mo. 1975), the court established a detailed procedure for enforcement of its judgment. Under the court's supplemental order, private parties were required first to petition the Department to institute an enforcement action. Within 20 days, the Department was required to respond to the complaining party in writing setting out its intended course of action and the reasons therefor. In the event the Department failed to take action deemed appropriate by the complaining party, the complainant could then suggest to the court that it exercise its independent power and jurisdiction to direct enforcement proceedings on its own motion.

Thus, even in the *AMPI* case, private parties were not given a right of private enforcement. Rather, the court simply set out procedures for informing it of circumstances that might lead it to establish enforcement proceedings on its own motion. The Department does not believe that such detailed procedures are likely to promote effective enforcement of the modification. Rather, such procedures are more likely to lead to repeated complaints to the Department and the Court, each time triggering mandatory deadlines and filings which would interfere with, rather than advance, the Department's enforcement efforts. In addition, such procedures may have unintended consequences. For example, the requirement imposed in *AMPI* that the Department respond in writing within 20 days of receiving a written complaint has already obstructed enforcement by providing a defendant in that case with an estoppel argument that it would not otherwise have had.

Even in the absence of such procedures, the modification would not impair the ability of private parties to bring to the attention of the Court information which might lead it to direct enforcement proceedings on its own motion. The Department, therefore, believes that the establishment of special procedures for private enforcement is both unnecessary and likely to be counterproductive.

*C. Investor Interests*

A number of AT&T stockholders have expressed concern that divestiture of the BOC's will adversely affect the value of their investment and jeopardize future dividends. AT&T currently contemplates that the 22 BOC's will be divested into seven regional holding companies holding roughly two thirds of current Bell System assets; AT&T will control the remaining one third of the assets. Stockholders' interests will be divided between stock in AT&T and proportional values in the newly separate holding companies. Thereafter, shareholders can decide whether to retain all or part of their investment.

The Department believes that shareholder interests will not be adversely affected by the modification. AT&T stock currently in the hands of investors represents an investment in the total Bell System—AT&T and each of its units, including the 22 companies to be divested. Upon divestiture, shareholders will continue to hold ownership in the *same assets* currently represented by their investment, which they may retain or dispose of as they wish. The divestiture required by the modification, therefore, will not change ownership interests currently represented by an investment in AT&T stock.

While it is not possible to predict with absolute confidence the future earnings

[65] *See e.g.,* Hanover Shoe, Inc. v. United Shoe Machinery Corp., 392 U.S. 481 (1968); Emich v. General Motors Corp. 340 U.S. 558 (1951); Orbo Theater Corp. v. Loew's Inc., 156 F. Supp. 770 (D.D.C. 1957), *aff'd,* 261 F. 2d 380 (D.C. Cir. 1958), *cert. denied,* 359 U.S. 943 (1959).

potential of an investment in AT&T or in the BOCs, it is unlikely that the modification will adversely affect the value of the portfolio of AT&T and BOC stocks investors will hold following divestiture. Indeed, by removing restrictions on the business in which AT&T may engage, it is likely that the modification will have the effect of increasing the value of that investment. Of course, as in the past, the earning potential of such stock, particularly that of the BOCs, will be determined in large measure by the actions of regulatory authorities.

The Department received some comments from BOC bondholders which expressed concern regarding the continuing quality of their investments. As discussed above, the Department will review the reorganization plan carefully to insure that the BOCs begin operations on a sound financial basis. This would include an ability on the part of the BOCs to meet their debt obligations. As companies providing franchised monopoly services, there is no reason, with the application of established regulatory principles, that the BOCs will not continue to operate on a secure financial basis.

*D. Employee Rights*

The Department received a small number of comments, from labor organizations, the California Department of Consumer Affairs, the Kentucky Public Service Commission, and others, which raised questions regarding the effect of the modification on employee rights. The Communication Workers of America ("CWA") and the Federation of Telephone Workers of Pennsylvania ("FTWP") expressed concern that the modification not impair rights under existing agreements or otherwise reduce the protection afforded employee and their collective bargaining representatives under applicable laws. CWA was also concerned that the modification not bar national or regional bargaining. The Kentucky Public Service Commission argued that the BOCs should be divested immediately and should not be required to assume certain exisiting labor contract obligations protecting job, pay, and seniority benefits. Both CWA and FTWP urged that the modification include explicit provisions protecting the right of employees affected by the reorganization comparable to those contained in pending legislation designed to deal with the creation of separate subsidiaries.

The modification will not have any effect on the rights of current employees under current collective bargaining agreements. Assuming that the divestiture of the BOCs takes place before the expiration of current contracts, they will remain in full force. Should the divestiture occur after the expiration of these contracts, there is nothing in the modification that would interfere with the rights of employees and the BOCs to enter into new agreements to be binding following divestiture. The modification simply leaves unaffected the rights of employees under current arrangements. Nor does the modification reduce or otherwise impair any employee protections guaranteed under applicable laws.

As to the ability of the BOCs to bargain on a national or regional level, the modification does not change existing law with respect to such bargaining. Nor does the modification itself preclude the BOCs from engaging in such collective bargaining.

The Department does not believe that it is either necessary or appropriate to include in the modification explicit provisions regarding employee rights. As discussed above, the ability of employees to negotiate satisfactory arrangements with the BOCs and AT&T will remain unaffected by the modification. As CWA noted, it and AT&T negotiated in August 1980 a Memorandum of Agreement protecting the rights of transferrd employees. There is no reason apparent from the comments why collective bargaining will not prove to be a satisfactory mechanism for achieving whatever arrangements are appropriate for the protection of employee interests affected by the reorganization.

## VIII. Conclusion

The Department has carefully considered the comments submitted. The proposed modification is fully consistent with the relief sought by the Government. It will result in a reorganization of the Bell System that will remove structural impediments to competition in the telecommunications industry, and allow efficient and rapid development of competitive telecommunications markets. Under the applicable legal standards, the proposed modification is in the public interest. Accordingly, the Department respectfully requests the Court to enter the proposed modification as its Final Judgment.

Respectfully submitted,

William F. Baxter,
*Assistant Attorney General, Antitrust Division.*
Ronald G. Carr,
*Deputy Assistant Attorney General, Antitrust Division.*
Richard O. Levine,
*Director, Office of Policy Planning, Antitrust Division.*
Gerald A. Connel, James P. Denvir, Jeffrey Blumenfeld, Peter B. Kenney, Jr., Michael D. McNeely, Alan L. Silverstein, Michael F. Altschul, Gary M. Cohen, Luin P. Fitch, David C. Jordan, James H. Phillips, Andrew L. Pringle, Douglas Ross, J. Philip Sauntry, Jr., Thomas A. Schulz, Theodore C. Whitehouse, *Attorneys, Antitrust Division, United States Department of Justice, Washington, D.C. 20530.*

May 20, 1982.

### Certificate of Service

I, James P. Denvir, one of the attorneys for the United States, hereby certify that I have on this day served the *Response of the United States to Public Comments on Proposed Modification of Final Judgment* on defendants by delivering a copy thereof to: George L. Saunders, Jr., Esq., Sidley & Austin, c/o AT&T, 499 South Capitol Street, 8th Floor, Washington, D.C. 20003.

James P. Denvir.

May 20, 1982.

[FR Doc. 82-14229 Filed 5-26-82; 8:45 am]
BILLING CODE 4410-01-M

federal register

Thursday
May 27, 1982

Part IV

# Environmental Protection Agency

## Friable Asbestos-Containing Materials in Schools; Identification and Notification

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 763**

**[OPTS 61004B; TSH-FRL 2064-3]**

## Asbestos; Friable Asbestos-Containing Materials in Schools; Identification and Notification

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

**ACTION:** Final rule.

**SUMMARY:** EPA issues this rule to reduce risks to human health from exposure to asbestos-containing materials in school buildings. The rule requires public and private elementary and secondary schools in the United States to identify friable asbestos-containing building materials, maintain records and notify employees of the location of the friable materials which contain asbestos, provide the employees with instructions on reducing exposures to asbestos, and notify the School's parent-teacher association of the inspection results. School districts are encouraged to consult with EPA Regional Asbestos Coordinators when complying with the rule and, where asbestos-containing materials are found, to consult with EPA regarding corrective actions. A school that has already inspected, sampled, and analyzed the friable asbestos-containing material according to the procedures in this regulation need only comply with the recordkeeping and notification provisions of the rule. Schools that determined that they contain no friable asbestos-containing materials prior to the effective date of this rule, need only certify these results and retain the certification statement in their files. Schools need not repeat sampling and analysis under any circumstances.

**DATES:** This rule becomes effective June 28, 1982. Local education agencies must comply with all portions of this rule by May 27, 1983.

**ADDRESS:** The public record for this rulemaking is located at Rm. E-107, Environmental Protection Agency, 401 M St. SW., Washington, D.C. 20460, and is open to the public from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays.

**FOR FURTHER INFORMATION CONTACT:** Douglas G. Bannerman, Acting Director, Industry Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-511, 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).

EPA has prepared several major support documents for this rule. These documents have been added to the rulemaking record. Copies may be obtained by calling EPA at the telephone numbers given above.

**SUPPLEMENTARY INFORMATION:** OMB Control Number: (2000-0463).

### I. Introduction

The purpose of this rule is to protect users of school buildings from unwitting exposure to concentrations of airborne asbestos which occurs when friable asbestos-containing materials are damaged or disturbed. Compliance with this rule will both ensure that these materials are identified and that school users are notified of their presence so that they can prevent or reduce release of asbestos. This rule is needed because many school districts have not responded adequately to EPA's effort under the Technical Assistance Program (TAP) to encourage schools to identify these materials and notify employees of their presence.

Each local education agency is required to: (1) Inspect all areas of each school building within the agency for friable materials applied to structural surfaces in the building; (2) Take at least three samples of each distinct type of friable material found; and (3) Have those samples analyzed for their asbestos content using polarized light microscopy augmented by x-ray diffraction if necessary. Each local education agency shall also keep a record of the findings of all inspections, sampling, and analyses conducted in accordance with this rule.

After inspection, sampling and analysis have been completed, if a school does not have friable asbestos-containing material, no further action is required. However, in a school with friable asbestos-containing materials, the local education agency is required to inform all employees of the location of these materials and to provide each custodial or maintenance employee with a copy of "A Guide For Reducing Asbestos Exposure". See § 763.111 (b) and (c) of the rule (proposed § 763.6(b)). The parent-teacher groups of schools found to contain friable asbestos-containing materials shall be notified of the presence of friable asbestos. The purpose of notification is to inform people where there is a potential problem from the release of friable asbestos fiber in schools. In order to reduce the costs associated with notification, the Agency has decided not to require notification where there are no friable asbestos materials.

Compliance with these requirements will ensure that potentially hazardous materials are identified and that school users are notified of their presence so that they can reduce or prevent the release of asbestos from them. This should eliminate much unnecessary exposure due to lack of knowledge of the presence of asbestos.

Many of the friable asbestos-containing materials in schools do not require abatement or removal. A reasonable effort by school officials to manage the materials can prevent damage to or deterioration of them and the consequent release of asbestos and exposure of school users. This is particularly the case where access to the materials is limited (e.g., material in a boiler room or behind a false ceiling) and the persons using the area can be instructed to avoid contacting or disturbing the material and to take necessary precautions when their jobs require that they work with the material. EPA strongly recommends that, where a local education agency determines that a management program for friable asbestos-containing material is the most appropriate response, the local education agency should institute a program to advise and educate its employees of the need for caution and proper procedures. Such a management program should also include a provision for periodic reevaluation of the material to determine whether the management program has prevented further damage or deterioration.

Some asbestos-containing materials identified when complying with this rule may be determined to require corrective action such as removal, encapsulation with a sealant which improves the cohesive strength of the material, or enclosure behind a barrier to prevent access. EPA has issued guidance both for identifying materials which should be controlled because of greater exposure potential and for procedures to be used when engaging in corrective activities (see "Asbestos-Containing Materials In School Buildings: A Guidance Document," which can be obtained by calling the toll-free number. Supervisors of public school districts and private schools will be automatically sent the Guidance Document and need not call). Chapter 7 of the Guidance Document lists the factors which should be considered when determining whether to take corrective action.

Abatement is often needed whenever the friable asbestos-containing material is visibly damaged and easily accessible or has inherently poor cohesive strength. Material which is separating from the surface to which it is applied, is separating into layers, or is otherwise

heavily damaged should be considered for removal. If damage is due to water, the cause of the damage (e.g., a roof leak) should also be corrected. Again, the amount of asbestos-containing material requiring abatement compared to the total amount of material in school buildings is small.

Local education agencies which desire assistance in determining an appropriate course of action for particular materials should contact the Asbestos Coordinator at the USEPA Regional Office in their area. The addresses and phone numbers of the Asbestos Coordinators are:

EPA Region I

Asbestos Coordinator
Air and Hazardous Materials Division
JFK Federal Bldg.
Boston, MA 02203
(617) 223–0585

EPA Region II

Asbestos Coordinator
Room 1013
Woodbridge Avenue
Edison, NJ 08837
(201) 321–6668

EPA Region III

Asbestos Coordinator
Curtis Building
Sixth and Walnut Streets
Philadelphia, PA 19106
(215) 597–9859, 597–8683

EPA Region IV

Asbestos Coordinator
345 Courtland Street
Atlanta, GA 30365
(404) 881–3864

EPA Region V

Asbestos Coordinator
230 S. Dearborn St.
Chicago, IL 60604
(312) 886–6003

EPA Region VI

Asbestos Coordinator
First Internat'l Bldg.
1201 Elm Street
Dallas, TX 75270
(214) 767–2734

EPA Region VII

Asbestos Coordinator
324 East 11 Street
Room 1500
Kansas City, MO 64106
(816) 374–6538

EPA Region VIII

Asbestos Coordinator
1860 Lincoln Street
Denver, CO 80295
(303) 837–3926

EPA Region IX

Asbestos Coordinator
215 Fremont Street
San Francisco, CA 94105
(415) 974–8123

EPA Region X

Asbestos Coordinator
1200 Sixth Avenue
Seattle, WA 98101 (206) 442–2888.

Although this rule does not require reporting of information to EPA, school districts are encouraged to contact EPA for assistance. EPA has worked closely with many States in providing training and technical assistance to school districts. The Regional Asbestos Coordinator will provide technical recommendations, provide additional State or local asbestos experts for assistance, or, in some cases, be able to provide training to the local education agency on the factors affecting abatement decisions. EPA is extending the compliance period for this rule by six months to ensure that school districts have sufficient time to consult with the Agency, if desired, after finding asbestos in their schools.

**A. Background**

"Asbestos" refers to a group of hydrated mineral silicates which readily separate into fibers. Asbestos-containing materials have been used widely for fireproofing, thermal and acoustical insulation, and decoration in building construction and renovation. These materials usually were applied by spraying, but also have been trowelled onto overhead surfaces, steel beams, ceilings, walls, furnaces, and pipes.

Asbestos is a known human carcinogen. Extensive epidemiologic evidence demonstrates that inhalation of asbestos can lead to pleural and peritoneal mesothelioma, lung cancer, asbestosis, and other diseases which are serious, irreversible, and often fatal. Asbestos has been responsible for the premature deaths of many persons who worked with the types of insulating materials now found in some schools.

The potential for release of asbestos fibers from asbestos-containing materials depends in part upon the characteristics of the material which contains the asbestos fibers. Soft, crumbly materials tend to release fibers more easily than do hard, cementitious materials. This regulation addresses friable materials, which are defined as all materials that when dry may be crumbled, pulverized, or reduced to powder by hand pressure.

Asbestos fibers are extremely durable, and their size and shape permit them to remain airborne for long periods of time. Fibers become suspended in the air by disturbance of the friable asbestos-containing materials or deterioration causing the material to release fibers, and by resuspension of previously released fibers that have settled onto floors and other surfaces. Resuspension of asbestos fibers that have settled may result from many different activities, including dusting, sweeping, vacuuming, and even ordinary movement in the vicinity of the settled fibers. This process of release and resuspension of asbestos fibers results in continued dispersal of asbestos fibers throughout the building.

**B. EPA's Program**

EPA issued a Notice of Proposed Rulemaking in the Federal Register of September 17, 1980 (45 FR 61966) regarding the identification of friable asbestos-containing material in schools. EPA held a public hearing on this proposal on November 17, 1980, and has received comments from 63 parties on the proposal. EPA has analyzed and responded to these comments in "Analysis of Comments on the Proposed Rule for Identification and Notification of Friable Asbestos-Containing Materials in Schools" (hereinafter "Analysis of Comments").

EPA's Science Advisory Board (SAB) reviewed the "Support Document—Asbestos-Containing Materials in Schools—Health Effects and Magnitude of Exposure" (hereinafter "the Technical Support Document") which was published with the proposal and which presents EPA's findings on the risk of exposure to asbestos in schools. The SAB met on December 2–3, 1980, to discuss the document with EPA personnel. The SAB found the risk assessment scientifically credible and made several recommendations for improving the document. EPA has considered these recommendations when preparing the final Technical Support Document published with this rule. The transcript of the meeting and a report of the SAB's recommendations with respect to the document have been added to the rulemaking record.

This final rule implements that proposal, which was made after the Agency had operated a Technical Assistance Program (TAP) for 18 months to help school districts identify and correct potential hazards due to asbestos in schools. The TAP continues to provide assistance to schools. In each EPA Regional office, there is a person to respond to inquiries and help school officials locate necessary services. In addition, each EPA region has a technical advisor, hired and trained

under a grant to the National Retired Teachers Association/American Association of Retired Persons, to assist schools.

A number of comments on the proposal urged EPA not to impose regulations in this area, some arguing that the TAP is sufficient. EPA finds, however, that it is necessary to promulgate this rule because many schools have not been inspected adequately. For example, EPA estimates that 30 percent of the schools in the 11 States in EPA Regions V and VI had not been inspected as of August, 1981. If this proportion applies to the nation as a whole, 33,000 public and private schools remain uninspected. Further, a number of States either have not surveyed their schools at all or have not surveyed their schools adequately, such as the case in one State where analysis of samples looked only for chrysotile asbestos (see Analysis of Comments, pp. 2–3).

In May of 1979, EPA distributed "Asbestos-Containing Materials in School Buildings: A Guidance Document" (hereinafter "the Guidance Document") to school districts across the country. EPA also has prepared "Asbestos-Containing Materials in Schools: Guidance for Asbestos Analytical Programs," which provides additional guidance on taking samples of friable materials and on selecting laboratories to analyze these samples.

General information on EPA's TAP, copies of the Guidance Document, and a list of laboratories may be obtained by telephoning the numbers given above. Finally, EPA operates a toll-free, technical assistance number (800–334–8571, extension 6741) especially for school districts and laboratories which need up-to-date information on analysis, including results of subsequent rounds of the quality assurance program.

Comments on the rule stated that EPA should do more to ensure proper analysis of samples of friable material, perhaps including certification of laboratories or analysis by EPA laboratories. EPA finds that, with the guidance and assistance EPA provides, school districts can obtain satisfactory analysis of their samples when acting in accordance with the requirements of this rule (see Analysis of Comments, pp. 35–38).

### C. Education Department Assistance

On May 16, 1980, the U.S. Congress passed the Asbestos School Hazard Detection and Control Act of 1980. In the **Federal Register** of January 16, 1981 (46 FR 4536), the Education Department (ED) issued rules to implement a Federal grant and loan program under the Act to assist local education agencies in detecting and controlling asbestos hazards. Funds have not been appropriated by Congress for this program.

Comments on EPA's rulemaking suggested that the ED program makes rules under the Toxic Substances Control Act (TSCA) unnecessary. EPA finds, however, that the availability of grants, if funding occurs, to cover one-half the cost of detection programs is not in itself sufficient incentive to ensure that schools will be inspected and school employees notified. Since ED does not have authority to require these actions, EPA is requiring them under TSCA (see Analysis of Comments, p. 2 and p. 7).

## II. Legal Authority

TSCA section 6 requires the Administrator to regulate the use of a chemical substance or mixture that the Administrator finds presents an unreasonable risk of injury to human health or the environment. The finding of unreasonable risk involves a balancing of the risk, including the severity and probability of injury, with the adverse effects of possible regulatory action.

If the Administrator finds that a substance presents an unreasonable risk, TSCA section 6(a)(3) authorizes the Administrator to promulgate:

> A requirement that such substance or mixture be marked with or accompanied by clear and adequate warnings and instructions with respect to its use, distribution in commerce, or disposal or with respect to any combination of such activities. The form and content of such warnings and instructions shall be prescribed by the Administrator.

Thus section 6(a)(3) authorizes EPA to require school officials to provide warnings to school employees of the location of asbestos and instructions on how to reduce exposures. In order to determine whether a school is subject to the warning and instruction requirements, school officials will have to inspect for and identify friable asbestos-containing materials; therefore, such inspection and identification are required under this same provision of section 6 by this rule.

## III. Findings

This unit summarizes the findings required by TSCA for the Administrator to regulate friable asbestos-containing materials under section 6(a) of TSCA.

### A. Findings Required By Section 6(c) of TSCA

This part presents the statement required by section 6(c) of TSCA.

1. *Health effects of and magnitude of exposure to asbestos—*

a. *Health effects.* A detailed discussion of the health effects findings appears in Chapter 3 of the Technical Support Document. Although several comments strongly criticized several aspects of the Agency's proposed findings on the health effects of asbestos (see Analysis of Comments, pp. 9–10), no one contested the finding that exposure to asbestos increases risks of developing asbestosis, pleural and peritoneal mesothelioma, and cancers of the lung, larynx, oral cavity, esophagus, stomach, colon and kidney. Nor did anyone dispute the finding that the effects of exposure to asbestos are serious, irreversible, and often fatal.

EPA emphasizes the strength of the epidemiologic evidence that exposure to asbestos is a cause of cancer. In a major study of over 12,000 asbestos insulation workers, cancers induced by asbestos were responsible for elevating the overall mortality rate by approximately 50 percent. Seventeen percent of all deaths in this group were due to asbestosis, pleural mesothelioma, or peritoneal mesothelioma. These causes of deaths are virtually unheard of in the general population. The International Agency for Research on Cancer has listed asbestos among only 18 chemicals, groups of chemicals, and industrial processes for which the evidence of human carcinogenicity is conclusive.

In addition, EPA finds that adverse health effects of non-occupational exposure to asbestos have been amply demonstrated. Some persons whose only known exposure to asbestos has been from living in the same households as asbestos workers or in the neighborhoods of asbestos mines, mills, and processing facilities have developed mesothelioma and signs of asbestosis (see Technical Support Document, pp. 30–34 and 44–48).

b. *Magnitude of exposure in schools.* EPA finds that the prevailing airborne concentrations of asbestos (concentrations of asbestos present most of the time in occupied areas) in school buildings which have friable asbestos-containing materials are frequently higher than asbestos concentrations in the ambient air. The specific airborne concentration in a given building at a given time depends, however, on such factors as the condition and accessibility of the friable material, the amount of activity, and cleaning methods used in the building.

EPA estimates that the prevailing exposure to asbestos in schools with friable asbestos-containing materials ranges from 57 to 270 nanograms per cubic meter (ng/m$^3$). Prevalent levels

could become as high as 500 ng/m³ as friable asbestos-containing material further deteriorates or is damaged (see Technical Support Document, pp. 68–74). Several comments questioned EPA's method of estimating prevailing concentrations, noting that the data used came from buildings in Paris and that not all of the available data points were used. EPA has carefully reconsidered these estimates and finds that they are reasonable representations of exposure to asbestos in U.S. schools. Measurements of airborne asbestos in U.S. schools are not significantly different from the Paris data (see Analysis of Comments, pp. 23–25). EPA notes that measurements from Paris were selected from buildings in which friable asbestos-containing materials were exposed and in which there was normal activity, e.g. the simple comings and goings of people, at the time of measurement. These data most closely fit the situation in schools when students are present. Moreover, prevalent concentrations in schools with intact friable materials are not the main concern of this rule.

This rule is addressed to the control of "peak" exposures. Peak exposures can be much in excess of the prevailing concentration of asbestos in buildings and occur during damage, repair, renovation, or cleaning, when the friable asbestos-containing material is contacted, or settled asbestos fibers are resuspended.

Peaks up to 500,000 ng/m³ may be common due to simple maintenance or cleaning chores or to vandalism and other damage (see Technical Support Document, pp. 80–84). This is at least 1000 times higher than the prevalent levels discussed above. Although EPA has documented these high exposure levels and considers them significant, EPA has not been able to quantitatively estimate the contribution which peaks make to cumulative exposure among school children and teachers because of the extreme variability in the occurrence of such peaks.

However, EPA emphasizes that peaks contribute significantly to exposure, even if they occur intermittently and for short periods. As an illustration, a person exposed to a peak of 500,000 ng/m³ for one hour inhales as much asbestos as one exposed to 250 ng/m³ over a full work year. Given that these peak exposures are likely to be repetitive (unless proper precautions are taken), this mode of exposure may predominate.

Currently, an estimated 2,990,000 students and 269,000 teachers and staff, including 17,200 janitors and maintenance personnel, regularly use the 8,600 public schools estimated to have friable asbestos-containing materials in the United States (accurate estimates for non-public schools cannot be made at this time). Many of these persons, especially maintenance personnel, can be exposed regulary to peaks during routine repairs, cleaning, or renovation.

c. *Risks due to exposure in schools.* EPA finds it highly likely that exposure to asbestos in schools may increase the risk of developing numerous types of cancer, most notably pleural and peritoneal mesothelioma and lung cancer. This finding is based on:

(1) Incontrovertible epidemiologic evidence that occupational exposure to asbestos markedly increases the risk of developing several types of cancer and asbestosis.

(2) Evidence that both less intense and briefer exposures to asbestos, as may occur in the neighborhoods of asbestos processors or in the homes of asbestos workers, can produce mesothelioma and signs of asbestosis in some individuals.

(3) Demonstrated airborne concentrations of asbestos in buildings with friable asbestos-containing material which can be above urban ambient levels, especially peaks which can exceed occupational standards.

The conclusion that a risk due to exposure in schools can exist is supported by studies that demonstrate a relationship between exposure to asbestos and the risk of cancer resulting from workplace concentrations of airborne fibers.

A key to EPA's assessment of the risk from asbestos exposure in schools is an epidemiologic study which covered more than 12,000 asbestos insulation workers who were exposed to asbestos for at least 10 years and who had survived at least 20 years after first exposure before their mortality experience was observed. The estimate of attributable cancer risk from this study is 7 deaths per 1000 workers per year of observation (7 deaths per 1000 person-years). The attributable risk is the difference between observed and expected death rates for asbestos-induced diseases in an exposed group. This difference represents the number of deaths resulting annually from asbestos exposure in a population of a given size. The 95 percent confidence interval for this estimate (a way of reflecting the role of chance variation) is a range of 6 to 8 deaths per 1000 person-years. The average exposure incurred by these workers is estimated to have been between 100,000 ng/m³ and 500,000 ng/m³ for 20 years.

The cumulative exposure of the insulation workers greatly exceeds exposures expected to occur in schools, especially that of students. EPA has considered plausible models for assessing risk at low levels, including the possibility that a threshold at or above the exposure levels in schools exists and that exposure below this threshold would not increase risk. Based on these considerations, EPA has determined that there is a non-zero risk of cancer due to exposure to asbestos in schools.

Especially important to EPA's assessment of risk are the peak exposures incurred by persons who, perhaps unknowingly, work on friable asbestos-containing material. It would not be unusual for a custodian to receive 10 times the cumulative exposure EPA has estimated for prevailing levels by sustaining peak exposures during normal custodial activities.

Comments on the proposed rule questioned both the estimate of exposure among the insulation workers (3,000,000 to 15,000,000 fibers per cubic meter (f/m³)) and EPA's factor for converting fibers to nanograms (30 fibers equal 1 nanogram). The comments stated that exposure among the workers may have been higher than estimated by EPA, so that the risk attributed to the lower exposure in schools would be lower than predicted by EPA. EPA finds that its estimated exposure levels are reasonable (see Analysis of Comments, pp. 14–18).

2. *Environmental effects.* Section 6(c) requires the Administrator to state the relevant factors and key considerations which form the basis for regulatory action under section 6(a). This regulation addresses risks to human health. EPA finds that the environmental effects of asbestos exposure are not relevant to this rulemaking, a finding not contested by public comment.

3. *Benefits of asbestos in schools and availability of substitutes.* EPA finds that it is not necessary for this rulemaking to publish a detailed review of the benefits of asbestos use in schools or the availability of substitutes. As noted in the proposal (45 FR 61971), this rule does not require schools to forego the benefits of asbestos, a point upon which there was no public comment.

4. *Economic effects.* This unit presents EPA's determinations of the economic consequences of the regulation as required by section 6(c)(1)(D) of TSCA.

Using data obtained from a variety of sources, EPA computed the unit costs of the major individual actions required by the rule (inspection, sampling and analysis of materials, recordkeeping,

and notification of employees), and estimated the rule's impact on individual schools.

EPA estimates that the overwhelming majority of schools will each spend less than $55 on compliance with the regulation, and that the total cost for all schools will be approximately $4.7 million. Table I presents the average school costs for the required actions. Details on these computations are in the preamble to the Proposed Rule (45 FR 61971) and in Chapters II and III of the "Economic Impact Analysis of the Final Identification and Notification Rule on Friable Asbestos-Containing Materials in Schools," a separate document EPA has entered into the rulemaking record.

TABLE I.—AVERAGE UNIT COSTS

| Action | Unit Cost |
|---|---|
| Familiarization with rule | $10.00 |
| Inspection | 21.00 |
| Sampling | 25.00 |
| Analysis | 150.00 |
| Recordkeeping: | |
| For schools with friable material | 25.00 |
| For schools without friable material | 10.00 |
| Certification statement for schools which determine no friable asbestos material prior to rule | 5.00 |
| Notification: | |
| For schools with asbestos | 42.50 |
| Recordkeeping (Unit cost for a school district) | 20.00 |

There are approximately 91,000 public and 19,000 private elementary and secondary schools in the country. The 91,000 public schools are organized into about 16,000 school districts. Many schools have already been inspected and, where necessary, have sampled and analyzed friable materials, in response to State programs or to EPA's TAP. These schools will not have to repeat inspections, sampling, and analyses in order to comply with this rule. The number of public and private schools which remain to be inspected is approximately 44,000. EPA estimates that the total number of public and private schools with friable materials may be as high as 14,000.

Table II presents the total estimated cost of compliance.

Several comments on the proposal questioned the cost estimates, stating that the unit costs were either too high or too low, or that the impact analysis should also include the cost of corrective actions, e.g. removal of asbestos, which schools may be forced to take. One comment contested the estimated number of schools with friable asbestos-containing material.

TABLE II.—COMPLIANCE COSTS

| Action | Unit cost | Schools affected | Total cost (in thousands) |
|---|---|---|---|
| Familiarization | $10.00 | 44,000 | $440 |
| Inspection | 21.00 | 44,000 | 924 |
| Sampling | 25.00 | 5,600 | 140 |
| Analysis | 150.00 | 5,600 | 840 |
| Recordkeeping: | | | |
| For schools with friable material | 25.00 | 14,000 | 350 |
| For schools without friable material | 10.00 | 38,400 | 384 |
| Certification statement for schools which determine no friable asbestos material prior to rule | 5.00 | 57,600 | 288 |
| Notification: | | | |
| For schools with asbestos | 42.50 | 10,300 | 438 |
| Recordkeeping (for school districts and private organizations) | 20.00 | 19,000 | 380 |
| Total cost | | | 4,184 |

EPA finds no basis to conclude that the estimates should be changed (see Analysis of Comments, pp. 27–28).

5. *Other EPA statutes.* Section 6(c) of TSCA also requires that if the Administrator 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 Federal law administered by EPA, the Agency may not promulgate a rule under section 6(a) of TSCA to protect against the risk unless the Administrator finds it is in the public interest to use TSCA. EPA finds no other law administered by the Agency that will enable it to eliminate or reduce the risks against which this rule protects. This proposed finding was not commented on by the public.

**B. Findings Required by Section 6(a): Unreasonable Risk**

On the basis of the foregoing factual information and on the information in the rulemaking record weighed against the minimal costs imposed by this rule, EPA finds that the presence of unidentified friable asbestos-containing materials in schools and the absence of notice of their presence and of instructions on proper handling and maintenance procedures to reduce exposure constitute an unreasonable risk of injury to school employees. These unreasonable risks can occur when school employees unknowingly disturb friable asbestos materials or such materials are allowed to deteriorate. When activities by school employees disturb or promote deterioration of friable asbestos materials, risk to users of school buildings may be elevated. Therefore, the Agency finds that this rule is needed to prevent such activities as lead to unreasonable risk.

The scientific evidence compiled by EPA demonstrates that asbestos is a human carcinogen. EPA places great weight on an epidemiologic study of a large cohort of asbestos insulation workers who were exposed to the same type of asbestos as that present in schools. The Agency finds it highly significant that, out of a group of over 12,000 persons, approximately one-half of those who died during the time the data were compiled died prematurely as compared to a non-exposed control population.

The study of asbestos insulation workers is especially valid for assessing risks. It covered a relatively large number of persons exposed to materials similar to those in schools. In addition, the study investigated all the known hazards of exposure to asbestos, verified cause of death for most of the cohort, included smoking history data, and compared the mortality rate of the cohort to that of a group selected to avoid confounding factors.

EPA also has substantial evidence of mesothelioma and asbestosis among persons exposed to asbestos because they lived in the same home as an asbestos worker or in the neighborhood of an asbestos plant. EPA has determined that this evidence, especially in light of the large number of persons exposed in schools, justifies imposing the very low cost requirements contained in this rule.

The presence of unidentified friable asbestos-containing materials in school buildings increases significantly the likelihood that peak exposures to asbestos will occur. Peaks will occur during disturbances of the friable material, either accidentally or during repair or renovation operations, and during resuspension of previously released fibers by cleaning and maintenance operations, such as sweeping, dusting, vacuuming, etc., or by general activities in the vicinity of fibers that have settled on floors and other surfaces.

Since peak exposures to asbestos in schools entail risks of serious injuries which may be reduced at extremely low costs, EPA finds that these exposures present an unreasonable risk and should be reduced accordingly.

The 8,600 public schools which EPA estimates contain friable asbestos-containing material employ over 17,000 custodians and other maintenance personnel. These custodians sweep in areas containing friable asbestos. They clean and dust in these areas; they change lights in ceilings covered with friable asbestos-containing materials; they undertake minor repairs and renovations. Without knowing that these areas contain asbestos, these custodians

will continue to undertake normal maintenance activities with no protection against unnecessary exposures, and may consequently risk serious injuries as a result.

Moreover, all of these activities which cause peak exposures further contaminate the building and increase the prevailing concentrations. Sweeping, dusting, and cleaning suspend previously released fibers and disperse them throughout the building. Minor repairs and disturbances to the friable asbestos-containing materials release additional fibers. Both types of activities will increase prevalent concentrations which, in turn, will increase the risk to the larger population of children, teachers, and school administrators who occupy the buildings.

EPA finds that the requirements of this regulation will reduce these risks. School officials and maintenance personnel, once informed of the risks of asbestos and of interim measures to avoid the risks, will act in their own best interests and the interests of school children to reduce the peak exposures as much as possible. If friable asbestos-containing materials in schools are identified, custodians will be able to avoid them during renovation projects and minimize disruptions of them during routine maintenance. If the custodians are provided with information on the use of wetting agents and on proper work practices when conducting necessary repairs and renovations, they will be able to reduce fiber release during such operations and reduce risks to themselves and to others. Instructions on proper cleaning activities in contaminated areas, including wet mopping and wet dusting, will reduce risks caused by unnecessary resuspension of asbestos fibers that would otherwise occur.

Finally, once local school officials know of the presence of friable asbestos-containing materials in buildings, they can take steps to ensure that occupants of the building avoid areas which contain the materials or avoid activities which unnecessarily disturb the materials.

Thus, by identifying friable asbestos-containing materials in school buildings and by implementing specific interim control procedures for reducing exposures, local school officials will reduce the risks of injury resulting from such exposures to school children, custodians, and other building occupants.

In addition to reducing peak exposures, the requirements of the regulation will reduce the prevalent level of fiber concentrations in schools by reducing the frequency of disturbances of the material and resuspension of released fibers. This present inspection regulation will enable school officials to complete the initial steps in a program which may lead to a determination at the local level that removal or abatement is needed and will, in the interim, reduce risks that would otherwise occur.

As reviewed above, the economic impacts of the rule are small. This regulation imposes costs upon all schools, but to varying degrees, as explained in the "Economic Effects" section above. In some instances, e.g. where there are friable materials which must be sampled because they are likely to contain asbestos, costs to individual schools may reach several hundred dollars. These costs are not unreasonable in view of the reduction in exposure to asbestos that will result from this rule. Furthermore, the identification of asbestos in schools, is a prerequisite to making the ultimate abatement determinations at the local level and will, therefore, contribute to the reduction in risk that will result from abatement.

### C. Analysis Under Section 9 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 sufficiently reduce unreasonable risks. EPA has reviewed other Federal authorities and finds that action under those authorities will not sufficiently reduce the risks addressed by this rule. Specifically, EPA has considered the regulatory authority of the Consumer Product Safety Commission (CPSC), the Occupational Safety and Health Administration (OSHA), and the Education Department (ED).

One comment stated the Agency had not adequately considered the authority of CPSC and ED (see Analysis of Comments, p. 5), a view with which the Agency disagrees. ED is not authorized to require detection of asbestos (the School Asbestos Hazard Detection and Control Act establishes a program to assist school districts financially). Further, as stated in the preamble to the proposal (45 FR 61973), EPA finds that it would be prohibitively difficult to identify companies which could be required to provide notice to schools under the authority of the Consumer Product Safety Act, sections 12 and 15. It is therefore necessary to regulate under TSCA (45 FR 61974).

## IV. Discussion of the Rule

This section discusses modifications and clarifications of the rule as a result of public comment on and further analysis of the provisions of the proposed rule. The Agency's detailed analysis of major comments and the response to each are presented in the support document titled "Analysis of Comments," published with this rule and also added to the rulemaking record.

### A. Definitions

Section 763.103 of the proposal (now § 763.103) defined various terms used in the regulation (45 FR 61986). The Agency finds that the definitions in the proposed rule are clear and adequate. They appear in § 763.103 of this final rule.

The Agency has received several comments on the definition of "friable material" (see Analysis of Comments, pp. 28–29). After reviewing the comments, EPA has decided to leave that definition unchanged. The operative language of the definition of a friable material is that it "may be crumbled, pulverized, or reduced to powder by hand pressure" (45 FR 61974). EPA stresses that materials rendered nonfriable, as by some methods of encapsulation, are not included under this definition.

### B. Inspecting Schools

Regarding § 763.3 of the proposed rule (now § 763.105), "Inspection for friable materials," one comment pointed out that not all schools own the structure they use and may not be able, practically or legally, to take the steps required by the rule. EPA is clarifying the identification requirements in this final rule (§ 763.105) to indicate that local education agencies which lease or use a structure for school purposes must take steps to ensure that the required procedures are carried out, regardless of ownership (see Analysis of Comments, p. 29).

EPA has also changed the description of the inspection process to make it clear that an inspector must touch suspect material to determine whether it is friable.

### C. Sampling Friable Materials

Section 763.4 of the proposed rule (now § 763.107) laid out the Agency's sampling requirements (45 FR 61987). The proposed rule stated that three samples must be taken from each area of friable asbestos-containing material (45 FR 61975). Section 763.107 of the rule adopts that requirement. EPA has published "Asbestos-Containing Materials in School Buildings—Guidance for Asbestos Analytical Programs" to provide guidance on a

method for randomly selecting these samples.

Several comments questioned the ability of only three samples to yield reliable results, citing instances where the analytical results from three or more analyses differed greatly. EPA recognizes that there may be instances in which the analysis of three samples of friable materials might produce inconclusive results. As stated in the preamble to the proposal, the requirements for three samples is based on the Agency's finding that most materials can be characterized by three samples and that requiring additional samples for all materials would be an unnecessary expense. Less than three samples, however, cannot accurately characterize the material, and in cases where only one sample was taken, additional samples will be required (see H. Exemptions below). The Agency does not intend to publish any additional rules at this time to address potential problems with sampling but recommends that local officials consult with their Regional Enforcement Office as to the Advisability of taking additional samples in specific instances (see Analysis of Comments, Definitions).

Comments on the proposal questioned whether inspectors could distinguish "sampling areas" from which to take the samples. EPA emphasizes that the definition is meant to provide guidance to inspectors who may find two or more distinct friable materials in a school. If two areas differ in appearance, the rule requires that three samples be taken from each. In this way, inspectors may be able to determine, for example, that one area contains asbestos and that another does not. If all the friable material in a building is homogeneous in appearance, then it should be treated as one sampling area.

EPA is also noting in the rule that the use of respirators is highly recommended when inspecting behind a false ceiling and when taking large numbers of samples of friable materials. One comment suggested respirators be required. EPA finds that sampling may lead to exposures up to 0.1 fibers per cubic centimeter (f/cc) and that the use of respirators during sampling may prevent such exposures. While it is always advisable to avoid unnecessary exposure to asbestos, EPA does not find the evidence sufficient to require the use of respirators (see Analysis of Comments, p. 34).

### D. Analyzing Friable Materials

Section 763.5 of the proposal (now 763.109), "Analyzing friable materials," (45 FR 61987) required the use of specific analytical techniques for bulk materials. EPA described the analytical protocol to be followed as "Polarized Light Microscopy (PLM), supplemented where necessary by X-ray Diffraction * * *" This requirement (§ 763.109 of the rule) has not changed. In the preamble to the proposal, the word "supplemented" was accidentally omitted from the discussion of the analytical method (45 FR 61976). The Agency re-emphasizes that PLM is the preferred method, and that X-ray Diffraction is not in itself adequate to identify asbestos.

### E. Warnings and Notifications

Section 763.6 of the proposal (now § 763.111), "Warnings and notifications," (45 FR 61987) presented proposals to require posting of a notice of inspection, provision of certain information on asbestos to employees, and direct notification of inspection results to parent-teacher associations. The Agency received comments concerning the duration of the posted warnings for school employees. EPA is dropping the requirement for the posting of notices in schools where there is no friable asbestos-containing material. Because some schools may not have parent-teacher associations, as pointed out by comments, the Agency is adding direct notification of parents as an alternative to notifying such associations (see Analysis of Comments, pp. 38–39).

Several comments said that the notice to parents would incite over-reaction, perhaps forcing the removal of materials in good condition. EPA recommends that the notification to parents, in addition to stating the results of inspections, include the statement: "It is important to note that not all friable asbestos-containing material need be removed from schools. Once such material has been identified, a program can be implemented to ensure that the material is maintained in good condition and that appropriate precautions are followed when the material is disturbed for any reason."

Finally, the content of the "Guide for Reducing Asbestos Exposure" has been changed slightly. Now included are recommendations that water to which a wetting agent has been added be used when asbestos-containing material is to be worked on and that debris from such work be disposed of in plastic bags (see Analysis of Comments, pp. 40–41).

### F. Recordkeeping

Sections 763.7 and 763.8 of the proposal dealt with records to be kept by local education agencies (45 FR 61992). EPA is promulgating § 763.114, *Recordkeeping* (proposed § 763.7), without changes. However, the Agency has determined that the proposed § 763.8 *Optional Form*, should be eliminated from the regulation. Despite one comment to the effect that the Optional Form should be mandatory, the Agency finds that the material in the form is unnecessary for this rule.

EPA recommends that local education agencies institute a management system based on these records. The management system should be used to control access to friable asbestos-containing materials, such as when repair work is to be done. Local education agencies can then ensure, before maintenance or renovation is done, that workers are properly protected and that any debris from the work is cleaned up. Local education agencies should also periodically inspect friable asbestos-containing material to determine whether, due to deterioration or damage, the material requires corrective action.

### G. Compliance

In § 763.9 of the proposal (now § 763.115), EPA stated the compliance date for the rule and proposed possible penalties for violations (45 FR 61997). Comments on the compliance section of the proposal indicated that some persons were not aware of exemptions to the rule. To clarify the compliance provision under § 763.115, EPA is reminding local education agencies that they may be eligible for exemptions if they have conducted certain detection activities. Local education agencies are advised to refer to the exemption section.

### H. Exemptions

Section 763.10 of the proposal (now § 763.117) provided exemptions to local education agencies which had undertaken certain activities (45 FR 61997). EPA has changed the exemptions section. The proposal exempted from §§ 763.3, 763.4, and 763.5 (now §§ 763.105, 763.107, and 763.109) schools in which past activities in compliance with the inspection, sampling and analysis provisions of the rule had been conducted (45 FR 61977). This exemption is adopted in § 763.117. EPA is now also exempting schools built after December 31, 1978 from all provisions of the rule because the application of friable asbestos-containing material was banned by EPA by that date. Little purpose would be served by inspecting these schools and keeping records of (presumably) negative findings.

However, EPA has decided that the exemption of past actions in compliance with the recommendations for inspections and sampling under the TAP is too broad in one respect: where a

finding of "no asbestos" is based on analysis of less than three samples of the friable material, EPA will require that the material be resampled in accordance with the rule. Less than three samples may have been analyzed in some schools because there were less than 15,000 square feet of friable materials which, according to TAP guidance to take one sample per 5,000 square feet, would have required only one or two samples.

This revision is made because, when the true asbestos content of a material is low, the analysis of only one or two samples may not detect asbestos. Some low content materials may have been incorrectly classified as nonasbestos merely because the one or two samples analyzed were taken from spots in which poor mixing of the original material resulted in very little asbestos being present. EPA finds that a total of three samples are necessary to provide a high degree of certainty that any asbestos present throughout the sampling area is detected. This revision should not affect the majority of schools which have already taken samples because many have more than 15,000 square feet of materials (and therefore took at least three samples) and many others have taken more samples than recommended under the TAP.

In addition, EPA has decided to specifically exempt from the inspection, sampling, analysis, notification and recordkeeping requirements schools which can meet one of two criteria. These criteria are: (1) Schools which, prior to the effective date of ths rule, have inspected, sampled and analyzed according to the procedures in this rule, and found no friable asbestos-containing materials. The school record must contain a copy of all laboratory reports, and all correspondence with laboratories, (letters discussing analyses, results, etc); (2) Schools that can document that, at the time of construction, modification, or renovation, no friable asbestos-containing building materials were used. To qualify for these exemptions, a school must keep the supporting records and a certification statement signed by the person responsible for compliance. The certification, found in § 763.117 of this rule, must state that, to the best of the official's knowledge, the school does not contain friable asbestos-containing materials.

The Agency is concerned that education agencies fully understand the exemption for schools which can document that no friable asbestos-containing building materials were used at the time of construction, modification, or renovation. The utility of building records often is extremely limited because the records are incomplete, if available at all. Records may indicate that a fireproofing spray was used without indicating its content, or they may incorrectly state that a material has asbestos when some other fiber was substituted during application. The records used as documentation for this exemption must clearly indicate that no friable asbestos-containing materials were used. For example, EPA's experience from the Technical Assistance Program was that architectural plans are insufficient documentation in themselves if they only state that asbestos-containing materials should not be used. Therefore, unless the records clearly show that the friable materials themselves used during construction, modification, or renovation did not include asbestos, a school should not consider the records sufficient jusitification to qualify for the exemption.

Schools in which school officials decided to treat friable materials as though they contain asbestos are also exempt from the inspection sampling and analysis requirements of this rule. EPA requires that, where a positive finding of asbestos is based either on records or on only one or two samples, local education agencies should take up to three samples. This will provide greater certainty and perhaps eliminate unnecessary treatment of nonasbestos materials.

One comment on the proposed rule pointed out wide variation in analytical results from three laboratories analyzing split samples of several friable materials. Analyses were apparently done prior to EPA's preparation of an interim analytical protocol for PLM (in mid-1980), and there is some question about the ability of the three laboratories to properly detect asbestos. EPA will not require that all analyses done before the protocol was prepared be repeated. However, EPA strongly recommends that school districts review their information on all earlier analyses' results to determine whether proper techniques were used.

The Agency has also determined that, in a school where previously discovered friable asbestos-containing material has been removed or satisfactorily encapsulated so that it is no longer friable, the provisions of this rule should not apply. By undertaking these corrective actions, school officials not only will have substantially complied with the identification requirements, they will also have removed the types of materials which are the focus of the recordkeeping and notification parts of this rule.

### V. Export Reporting

Section 12(b)(2) of TSCA requires any person who exports or intends to export a chemical substance for which a rule exists under TSCA section 6 to notify the Administrator of such export or intent to export. This requirement applies to export of bulk asbestos and asbestos in mixtures which must be processed or fabricated before further distribution in commerce.

Regulations regarding this requirement were published in the **Federal Register** of December 16, 1980 (45 FR 82844). EPA issued a clarification on these requirements in the **Federal Register** of July 21, 1981 (46 FR 37609).

Notices shall be sent to: Document Control Officer, TS–793, Office of Pesticides and Toxic Substances, Environmental Protection Agency, 401 M St., SW., Washington, D.C. 20460.

### VI. Rulemaking Record

EPA has established a Public Record for this rulemaking (docket number OPTS 61004) which along with a complete index is available for inspection in the OPTS reading room from 8:00 a.m. to 4:00 p.m., Monday through Friday, excluding legal holidays, at 401 M Street SW., Washington, D.C. The record was listed in the preamble to the proposed rule (45 FR 61980), and is hereby incorporated. Documents and letters have been added to appropriate sections of the record as listed below under each section's title:

#### E. Comments on the Proposal

The Agency received 45 main comments and 11 reply comments on the proposed rule.

#### G. Support Documents

1. USEPA, OPTS, OTS. Support Document for Final Rule on Friable Asbestos-Containing Materials in School Buildings—Health Effects and Magnitude of Exposure. Draft. August 3, 1981.

2. USEPA, OPTS, OTS. Support Document—Asbestos-Containing Materials in Schools—Health Effects and Magnitude of Exposure. Final Rule. January, 1982.

3. USEPA, OPTS, OTS. Support Document—Economic Impact Analysis of the Final Identification and Notification Rule on Asbestos-Containing Materials in Schools. January, 1982.

4. USEPA, OPTS, OTS. Analysis of Comments on Proposed Rule for Identification and Notification of

Asbestos-Containing Materials in Schools. January, 1982.

**J. Other Federal Register Notices**

1. 45 FR 61950. Department of Education. Asbestos Detection and Control: Local Educational Agencies; Asbestos Detection and State Plan: State Educational Agencies (September 17, 1980).

2. 46 FR 4536. Department of Education. Asbestos Detection and Control: Local Educational Agencies; Asbestos Detection and State Plan: State Educational Agencies; Final Regulations. (January 16, 1981).

**K. USEPA News Releases**

1. USEPA. "EPA Adopts Interim Cancer Assessment Procedures." (May 19, 1976).

**L. Reports**

1. Albert RE, Train RE, Anderson E. "Rationale Developed by the Environmental Protection Agency for the Assessment of Carcinogenic Risks." *JNCI.* 58 (1977): 1537–1541.

2. Atkins Research and Development. *Asbestos: Review Of Uses, Health Effects, Measurement and Control.* Epsom Surrey, England. (January 1977.)

3. Auerbach O, Conston A, Garfinkel L, Parks V, Kaslow HD, Hammond EC. "Presence of Asbestos Bodies in Organs Other Than the Lung." *Chest.* 77 (1980): 133–137.

4. Baris YI, Artvinli M, Sahin AA. "Environmental Mesothelioma in Turkey." *Ann NY Acad Sci.* 330 (1979): 423–432.

5. Churg A, Warnock ML. "Asbestos Fibers in the General Population." *Am Rev Respir Dis.* 122 (1980): 669–678.

6. Commission of European Communities. *Public Health Risks of Exposure to Asbestos: Report of a Working Group of Experts Prepared for the CEC, Directorate-General for Social Affairs, Safety and Health Directorate.* (1977): Elmsford, NY: Pergamon Press.

7. Corn M. "Sampling Strategy, Air Sampling Methods Analysis, and Airborne Concentrations of Fibrous Glass in Selected Manufacturing Plants." Paper presented at the Symposium on Occupational Exposure to Fibrous Glass held on 26–27 June 1974. Sponsored by the National Institute for Occupational Safety and Health, College Park, Maryland (1976): 91–96.

8. Davis JMG. "The Use of Animal Inhalation Experiments in the Study of Asbestos Bioeffects." *Staub-Reinhalt. Luft.* 40 (1980): 453–455.

9. Elmes PC, Simpson MJC. "Insulation Workers in Belfast. Mortality 1940–66." *Brit J Ind Med.* 28 (1971): 226–236.

10. Gehring PJ, Watanabe PG, Blau GE. "Risk Assessment of Environmental Carcinogens Utilizing Pharmacokinetic Parameters." *Ann NY Acad Sci.* 329 (1979): 137–152.

11. Harries, PG. "A Comparison of Mass and Fibre Concentrations of Asbestos Dust in Shipyard Insulation Processes." *Am. Occup. Hyg.* 14 (1971): 235–40.

12. Hinds MW. "Mesothelioma in the United States: Incidence in the 1970's." *J Occup Med.* 20 (1978): 469–471.

13. Hinds MW, Thomas DB, O'Reilly HP. "Asbestos, Dental X-Rays, Tobacco, and Alcohol in the Epidemiology of Laryngeal Cancer." *Cancer.* 44 (1979): 1114–1120.

14. Hirsch A, Bignon J, Sebastien P, Gaudichet A. "Asbestos Fibers in Laryngeal Tissues: Findings in Two Patients with Asbestosis Associated with Laryngeal Tumors." *Chest.* 76 (1979): 697–699.

15. Hurst GA, Spivey CG, Matlage WT, Miller JM, Faulk G, Hieger LR, McLarty JW, Greenberg SD. "The Tyler Asbestos Workers Program. I. A Medical Surveillance Model and Method." *Arch Environ Health.* 34 (1979): 432–439.

16. Knelson JH. "Problem of Estimating Respiratory Lead Dose in Children." *Environ Health Perspect.* 7 (1974): 53–57.

17. Knox JF, Holmes S, Doll R, Hill ID. "Mortality from Lung Cancer and Other Causes Among Workers in an Asbestos Textile Factory." *Brit J Ind Med.* 25 (1968): 293–303.

18. Lakowicz JR, Bevan DR, Riemer SC. "Transport of a Carcinogen, Benzo[a]Pyrene, from Particulates to Lipid Bilayers: A Model for the Fate of Particle-Absorbed Polynuclear Aromatic Hydrocarbons Which Are Retained in the Lungs." *Biochemica et Biophysica Acta* 629 (1980): 243–258.

19. McDonald JC. "Asbestos and Lung Cancer: Has the Case Been Proven?" *Chest.* 78:2 (1980): 374–376. (Supplement).

20. McDonald JC, Liddell FDK, Gibbs GW, Eyssen GE, McDonald AD. "Dust Exposure and Mortality in Chrysotile Mining, 1910–75." *Br J Ind Med.* 37 (1980): 11–24.

21. McMillan GHG, Pethybridge RJ, Sheers G. "Effect of Smoking on Attack Rates of Pulmonary and Pleural Lesions Related to Exposure to Asbestos Dust." *Brit J Ind Med.* 37 (1980): 268–272.

22. NAS, Committee on BEAP. *Asbestos: the Need for and Feasibility of Air Pollution Controls.* (1971): Washington, D.C. ISBN 0–309–01927–3.

23. Newhouse ML, Berry G. "Asbestos and Laryngeal Carcinoma" (letter). *Lancet.* (1973): 615.

24. Peto J. "Dose-Response Relationships for Asbestos-Related Disease: Implications for Hygiene Standards. Part II. Mortality." *Ann NY Acad Sci.* 330 (1979): 195–203.

25. Pooley FD. "Methods for Assessing Asbestos Fibers and Asbestos Bodies in Tissue by Electron Microscopy." In: Bogovski P, Gilson JC, Timbrell V, Wagner JC, eds. *Biological Effects of Asbestos.* (1973): WHO, IARC. Lyon, France.

26. Roggli VL, Greenberg SD, McLarty JL, Hurst GA, Spivey CG, Hieger LR. "Asbestos Body Content of the Larynx in Asbestos Workers: A Study of Five Cases." *Arch Otolaryngol.* 106 (1980): 533–535.

27. Rohl AN, Langer AM, Wolff MS, Weisman I. "Asbestos Exposure During Brake Lining Maintenance and Repair." *Environ Res.* 12: (1976) 110–128.

28. Rubino GF, Newhouse, M, Murray R, Scansetti G, Piolatto G, Aresini G. "Radiologic Changes after Cessation of Exposure Among Chrysotile Asbestos Miners in Italy." *Ann NY Acad Sci.* 330 (1979): 157–161.

29. Selikoff IJ, Hammond EC, Seidman H. "Latency of Asbestos Disease among Insulation Workers in the United States and Canada." *Cancer* 46 (1980): 2736–2740.

30. Selikoff IJ, Seidman H, Hammond EC. "Mortality Effects of Cigarette Smoking Among Amosite Asbestos Factory Workers." *JNCI* 65 (1980): 507–513.

31. Stopford W, Bundy SD, Goldwater LJ, Bittikofer JA. 1978. "Microenvironmental exposure to mercury vapor." *Am Ind Hyg Assoc J.* (1978) 39: 378–384.

32. USDHEW, PHS, CDC. "Survey of Teenage Smokers—United States, 1979." In: *Morbidity and Mortality Weekly Reports.* 28: 18 (1979): 206.

33. USDHEW, PHS, NCHS. *Vital Statistics of the United States, 1976.* Volume II—Mortality, Part A, Section 5, Table 5–3. (1980): Hyattsville, MD.

34. USDHEW, PHS, NIH. *Epidemiologic Analysis With A Programmable Calculator.* NIH Pub. #79–1649. (June 1979): Washington, D.C.

35. USDHEW, PHS, OHRST, NCHS. *Use Habits Among Adults of Cigarettes, Coffee, Aspirin, and Sleeping Pills: United States, 1976.* DHEW Pub. # (PHS) 80–1559. (October 1979): Hyattsville, MD.

36. USEPA, OTS, OTE. *Risk Assessment of Asbestos in Schools.* May 21, 1980. Life Systems, Inc.

37. USEPA, OPTS, OTS, EED. *Asbestos-Containing Materials in School Buildings: Bulk Sample Analysis*

*Quality Assurance Program. Round Two.* EPA 560/5–81–001. (March 1981.)

38. USEPA, OPTS, OTS, EED. *Characteristics of the Asbestos Exposure Assessment Algorithm.* Draft as prepared by RTI [November 1980].

39. USEPA, SAB. *Review of "Technical Support Document for Regulatory Action Against Friable Asbestos-Containing Materials in School Buildings" (Draft dated September 1980).* A report of the Toxic Substance Subcommittee EPA/SAB/81/001. (February, 1981) Washington, D.C.

40. Weill H, Hughes J, Waggenspack C. "Influence of Dose and Fiber Type on Respiratory Malignancy Risk in Asbestos Cement Manufacturing." *Am Rev Respir Dis.* 120 (1979): 345–354.

41. WHO, IARC. "An Evaluation of Chemicals and Industrial Processes Associated with Cancer in Humans Based on Human and Animal Data: IARC Monographs 1 to 20." *Cancer Research.* 40 (1980): 1–12.

**N. Written Communications**

1. State of Hawaii, Department of Health. Letter from MK Kolzum, D.D. for Env. Health, to John Ritch, Jr. Director, IAO, OTS USEPA. Subject: Response to J. Ritch's notice of May 15, 1981 re: Conference on Encapsulation of Asbestos-Containing Material. (05/22/81). With Enclosure—State of Hawaii, DOH, et al., *Report on House Resolution #358. Requesting a Report on the Status of Efforts to Remedy the Problem of Asbestos-Containing Materials in the Public Schools and Related Health Risks.* 10th Legislature, State of Hawaii. 1980.

2. Letter from T.S. Hardy, Kirkland and Ellis, Counsel for AIA. To E.A. Klein, Esq. Subject: Friable Asbestos-Containing Materials in Schools; Proposed ID, (specifically Quantitative Risk Assessment). (08–18–81).

Any person wishing to notify EPA of any errors or omissions in the rulemaking record must do so before the effective date of this rule.

**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: the overall economic impact of the rule is under $6 million; it imposes only a small increase in costs on the schools affected by the rule; and it has no adverse impact on competition, employment, investment, innovation, or on the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets.

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

**VIII. Paperwork Reduction Act**

The Paperwork Reduction Act of 1980, 44 U.S.C. 3510 *et seq* (the "Act"), authorized the Director of the OMB to review certain information collection requests by Federal agencies. EPA has determined that the recordkeeping and reporting requirements of this rule constitute a "collection of information" as defined in 44 U.S.C. 3502(4). In accordance with the Act, the recordkeeping and reporting of this rule has been reviewed by OMB and the Federal Education Data Acquisition Council. The OMB control number is (2000–0463).

**List of Subjects in 40 CFR Part 763**

Environmental protection, Hazardous materials, Recordkeeping and reporting requirements, Asbestos.

Dated: May 21, 1982.

**Anne M. Gorsuch,**

*Administrator.*

Therefore, Chapter I of Title 40 of the Code of Federal Regulations is amended by adding a new Part 763 consisting at this time of Subpart F to read as follows:

## PART 763—ASBESTOS

**Subparts—A—E [Reserved]**

**Subpart F—Friable Asbestos-Containing Materials in Schools**

Sec.

763.100 Scope and purpose.
763.103 Definitions.
763.105 Inspection for friable material.
763.107 Sampling friable material.
763.109 Analyzing friable material.
763.111 Warnings and notifications.
763.114 Recordkeeping.
763.115 Compliance.
763.117 Exemptions.
763.119 References.
Appendix A—Interim Methods for the Determination of Asbestos In Bulk Insulation Samples.

**Authority:** Sec. 6 of the Toxic Substances Control Act, Pub. L. 94–469, 90 Stat. 2020 (15 U.S.C. 2605).

**Subparts—A-E [Reserved]**

**Subpart F—Friable Asbestos-Containing Materials in Schools**

**§ 763.100 Scope and purpose.**

(a) This rule requires local education agencies to identify friable asbestos-containing material in public and private schools by visually inspecting school buildings for friable materials, sampling such materials, and having samples analyzed by appropriate techniques referred to in the rule. In addition, the rule requires local education agencies to post a notice of the results of inspections and analyses. The rule requires local education agencies to provide warnings on the health effects of asbestos and instructions on methods to avoid or reduce exposure to school employees of any school with friable asbestos-containing material and to notify parent-teachers associations of the results of inspections. The rule also includes recordkeeping requirements. Local education agencies may contractually delegate their duties under this rule, but they remain responsible for the proper performance of those duties. Local education agencies are encouraged to consult with EPA Regional Asbestos Coordinators for assistance in complying with this rule.

(b) The addresses and telephone numbers of the EPA Regional Asbestos Coordinators are:

(1) EPA Region I

Asbestos Coordinator
Air and Hazardous Materials Division
JFK Federal Bldg.
Boston, MA 02203
(617) 223–0585

(2) EPA Region II

Asbestos Coordinator
Room 1013, Woodbridge Avenue
Edison, NJ 08837
(201) 321–6668

(3) EPA Region III

Asbestos Coordinator
Curtis Building
Sixth and Walnut Streets
Philadelphia, PA 19106
(215) 597–9859, 597–8683

(4) EPA Region IV

Asbestos Coordinator
345 Courtland Street
Atlanta, GA 30365
(404) 881–3864

(5) EPA Region V

Asbestos Coordinator
230 S. Dearborn St.
Chicago, IL 60604
(312) 886–6003

(6) EPA Region VI

Asbestos Coordinator
First Internat'l Bldg.
1201 Elm Street
Dallas, TX 75270
(214) 767–2734

(7) EPA Region VII

Asbestos Coordinator
324 East 11 Street
Room 1500

Kansas City, MO 64106
(816) 374–6538

(8) EPA Region VIII

Asbestos Coordinator
1860 Lincoln Street
Denver, CO 80295
(303) 837–3926

(9) EPA Region IX

Asbestos Coordinator
215 Fremont Street
San Francisco, CA 94105
(415) 974–8123

(10) EPA Region X

Asbestos Coordinator
1200 Sixth Avenue
Seattle, WA 98101
(206) 442–2888

**§ 763.103 Definitions.**

For the purposes of this part:

(a) "Act" means the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601, et seq.

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

(c) "Asbestos-containing material" means any material which contains more than 1 percent asbestos by weight.

(d) "Friable material" means any material applied onto ceilings, walls, structural members, piping, ductwork, or any other part of the building structure which, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

(e) "Local education agency" means:

(1) Any local education agency as defined in section 198(a)(10) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 2854).

(2) The governing authority of any nonprofit elementary or secondary school, where the term "nonprofit" means owned and operated by one or more nonprofit corporations or associations no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual.

(f) "Sampling area" means any area, whether contiguous or not, within a school building which contains friable material that is homogeneous in texture and appearance.

(g) "School" means any public or private day or residential school that provides elementary or secondary education for grade 12 or under as determined under State law, or any school of any Agency of the United States.

(h) "School buildings" means:

(1) Structures used for the instruction of school children, including classrooms, laboratories, libraries, research facilities and administrative facilities.

(2) School eating facilities, and school kitchens.

(3) Gymnasiums or other facilities used for athletic or recreational activities, or for courses in physical education.

(4) Dormitories or other living areas of residential schools.

(5) Maintenance, storage, or utility facilities essential to the operation of the facilities described in subparagraphs 1 through 4 of this paragraph.

(i) "Use of asbestos" means the presence of asbestos-containing material in school buildings.

**§ 763.105 Inspection for friable material.**

(a) Local education agencies shall inspect each school building which they lease, own, or otherwise use as a school building, to locate all friable material.

(b) This inspection shall consist of looking for and touching all suspect materials, including surfaces behind suspended ceilings or other non-permanent structures which may be entered during normal building maintenance or repairs. For further information on inspection procedures, officials should consult Chapter 4 of "Asbestos-Containing Materials in School Buildings: A Guidance Document," Part 1 (EPA no. C00090). Particular attention should be paid to the recommendation regarding respirators. Copies of the document can be obtained by calling 800–424–9065 (in Washington, D.C. call 554–1404).

**§ 763.107 Sampling friable material.**

(a) If friable materials are found in a school building, local education agencies shall identify each distinct sampling area of friable materials within the school building, take at least three samples from locations distributed throughout the sampling area, and label each sample container with a sample identification number unique to the sampling location and building.

(b) Officials should consult "Asbestos-Containing Materials in School Buildings: A Guidance Document," Part 1, Chapter 5, for further information on sampling procedures. The requirement that three samples be taken in each sampling area supersedes the recommendation made in the Guidance Document to take one sample per 5000 square feet of friable material.

(c) Sampling locations should be randomly distributed within the sampling; the locations should not be selected simply for convenience or ease of reaching the sample, or because the sampler judges the location to be representative. Samples shall be taken using small sealable containers; samples shall penetrate the depth of the friable material to the substrate.

**§ 763.109 Analyzing friable material.**

Local education agencies shall have all samples of friable material analyzed for asbestos using Polarized Light Microscopy (PLM), supplemented where necessary by X-ray Diffraction, in accordance with "Interim Method for the Determination of Asbestiform Minerals in Bulk Insulation Samples," which is found under appendix A of this Subpart. Persons interested in analyzing bulk samples for asbestos can obtain copies of the document by calling 800–424–9065 (in Washington, D.C., call 554–1404). A list of laboratories capable of conducting analyses of friable materials can be obtained by calling 800–334–8571, extension 6741. Officials should consult "Asbestos-Containing Materials in School Buildings: A Guidance Document," Part 1, Chapter 6, for further information on analysis of friable materials.

**§ 763.111 Warnings and notifications.**

(a) Local education agencies shall post in the primary administrative and custodial offices and in the faculty common rooms of each school under their authority a completed copy of the following Notice to School Employees unless no friable asbestos-containing material is present in the school. The notice shall remain posted indefinitely in any school which has friable asbestos-containing material.

BILLING CODE 6560-50-M

# NOTICE TO SCHOOL EMPLOYEES

In accordance with EPA regulations, this school has been inspected for friable (easily crumbled) materials which contain asbestos. Friable asbestos-containing material may cause health problems.

**Friable asbestos-containing material is present in**

_____

*(Name of School)*

A record of the inspection, a diagram of the location(s) of friable asbestos-containing materials, and a copy of relevant EPA regulations are available in

| Building | Room |
| --- | --- |
| | |

For further information, interested persons should call 800-424-9065 (554-1404 in the Washington, DC area).

Signed:

_____

*(Name)*

_____

*(Title)*

_____

*Date*

EPA Form 7730-3 (6-82)

BILLING CODE 6560-50-C

(b) Local education agencies shall provide to all persons employed in school buildings under their authority which contain friable asbestos-containing materials a written notice of the location, by room or building area, of all friable asbestos-containing materials in the school.

(c) The following information on interim procedures to reduce exposures, "A Guide for Reducing Asbestos Exposure," shall be provided to all custodial or maintenance employees:

BILLING CODE 6560-50-M

# A GUIDE FOR REDUCING ASBESTOS EXPOSURE

## PURPOSE

Your school building contains materials which contain asbestos and may release fibers into the air. Breathing asbestos fibers is dangerous. This fact sheet tells how to reduce exposure to asbestos fibers. Please read it carefully.

## PROTECTING YOURSELF FROM ASBESTOS

Some of the friable building materials in your school contain asbestos. Friable asbestos-containing materials crumble easily and release fibers into the air. Breathing these fibers may cause cancer and other diseases. The more asbestos you breathe, the greater your chances are of getting disease. You can take precautions that will reduce or eliminate the risk of being exposed to asbestos.

Find out from your supervisor where these friable asbestos-containing materials are in your building. Do not touch or disturb them unless you have to. If you must handle an asbestos-containing material, first lightly spray it with water. (EPA recommends using water which contains wetting agents, if they are available.) Wet asbestos-containing materials will not release as many fibers.

Even if friable asbestos-containing materials are not disturbed, they may release asbestos fibers, which will fall slowly to the floor. If you are cleaning in areas which contain these materials, do not use a broom: it will stir the fibers into the air. Do not use a vacuum cleaner unless it is equipped with a High Efficiency Particulate Absolute filter. The fibers are so small they can pass through an ordinary vacuum cleaner and out into the room.

When cleaning in areas which contain friable asbestos-containing materials, use dampened mops and dustcloths. Dampened mops and dustcloths will hold the fibers much better than dry mops and dustcloths, and will reduce the number of fibers put back into the air. It is best to use mops with disposable heads and to throw away the mop head after use. Otherwise fibers will be released as the mop dries. Use either lightly dampened mops or cloths or a vacuum with a High Efficiency Particulate Absolute filter to clean areas where wet mopping cannot be used (such as carpeting or hardwood floors).

Clean tables and chairs in the area with damp cloths. Do not dust them with brushes or with dry cloths, and do not vacuum them.

After you use the mop heads and cloths, put them in a plastic bag while they are still wet. Dislodged materials should also be placed in plastic bags for disposal.

## A LIST OF IMPORTANT POINTS TO REMEMBER

1. Do not handle or disturb friable asbestos containing materials unless necessary.
2. If you must handle asbestos-containing materials, wet them first.
3. If you must disturb asbestos (for example, to repair a light), see your supervisor before starting work. Then;
   a. Place a plastic dropcloth below the work area.
   b. Spray asbestos-containing material with water before you disturb it.
   c. Make sure that only those persons who are necessary for the job are in the area.
   d. Put all the asbestos you remove into a heavy plastic bag. Seal the bag and discard it.
   e. After the job, clean all the ladders and tools you used with a wet cloth.
   f. Roll up the dropcloth carefully and put it in a plastic bag. Discard the bag.
   g. Clean the floor below the work area with a wet mop.
   h. Put the mop head and the cloth used to clean the ladders in a plastic bag while they are still wet, seal the bag, and discard it.
4. If you must disturb or remove large sections of asbestos-containing material, see your supervisor before you begin. The National Institute for Occupational Safety and Health recommends that a respirator approved for toxic dusts be worn during such work.

You should make arrangements to turn off the school's ventilation system if you are disturbing or removing large sections of asbestos-containing material. The ventilation system should remain off until the work is completed and the area has been cleaned.

EPA Form 7730-2 (6-82)

BILLING CODE 6560-50-C

(d) Local education agencies shall provide notice of the results of inspections and analyses in each school in which friable asbestos materials are found to the appropriate parent-teacher association of that school. If there is no parent-teacher association for the school, the local education agency shall notify directly the parents of its pupils.

**§ 763.114 Recordkeeping.**

(a) Local education agencies shall compile and maintain in the administrative office of each school under their authority a record which shall include:

(1) The name and address of the school.

(2) A list of all school buildings associated with the school, indicating whether each building has been inspected for friable materials in compliance with § 763.105, and which buildings contain friable materials.

(3) Copies of the Notice to School Employees, found in § 763.111(a).

(4) For each school building which contains friable materials:

(i) A blueprint, diagram, or written description of the building which identifies clearly the location(s) and approximate area(s) in square feet of each sampling area of such material(s), the locations at which samples were taken, and the identification number of each sample, and which shows or describes clearly whether each sampling area of friable material contains asbestos, including an estimate of its percent asbestos content as determined by calculating the average of the percent asbestos contents of all samples taken in that area.

(ii) A copy of all laboratory reports and all correspondence with laboratories concerning the analysis of samples taken in accordance with § 763.107.

(5) If the school contains friable asbestos-containing materials, copies of the "Guide for Reducing Asbestos Exposure" contained in § 763.111(b), and one copy of "Asbestos-Containing Materials in School Buildings: A Guidance Document," Parts 1 and 2 (EPA No. C00090), which can be obtained by calling 800–424–9065.

(6) A statement that the requirements of the rule have been satisfied signed by the person responsible for compliance with the rule and including the date and the person's name and title.

(b) Each local education agency shall retain in the administrative office of the agency:

(1) A list of all schools under its authority, indicating whether schools were inspected in accordance with § 763.105, and which schools contain friable materials.

(2) A record of the friable materials in schools which were sampled and analyzed in accordance with §§ 763.107 and 763.109, indicating which materials contain asbestos.

(3) For each school which contains friable asbestos-containing materials, the total area of such materials in square feet, and the total number of school employees who regularly work in the school.

(c) *Form.* Each local education agency shall complete and retain in the administrative office of the local education agency the following form "Inspections for Friable Asbestos-Containing Materials."

BILLING CODE 6560-50-M

## INSPECTIONS FOR FRIABLE ASBESTOS–CONTAINING MATERIALS

1. Please provide the following information about the local education agency:

| NAME OF AGENCY | |
|---|---|
| CITY | COUNTY |
| STATE | ZIP CODE |

Please fill in the following information about the schools under the authority of this local education agency:

| | |
|---|---|
| 2. The number of schools which have been inspected for friable materials in accordance with §763.105 of Title 40 of the Code of Federal Regulations. | |
| 3. The number of schools where friable materials are present. | |

If the answer to question 3 is none, disregard questions 4 – 7 and go on to the certification. Otherwise, fill in the following information about the schools enumerated in question 3:

| | |
|---|---|
| 4. The number of schools in which all friable materials have been sampled and analyzed in accordance with §§763.107 and 763.109 of Title 40 of the Code of Federal Regulations. | |
| 5. The number of schools with friable material(s) that contain(s) asbestos. | |

If the answer to question 5 is none, disregard questions 6 – 7 and go on to the certification. Otherwise, fill in the following information about the schools enumerated in question 5.

| | |
|---|---|
| 6. The total area in square feet of all friable asbestos-containing materials found in these schools. | |
| 7. The total number of school employees who regularly work in schools where friable asbestos-containing materials are present. | |

**CERTIFICATION:** Please read and sign below the following statement:

I hereby certify that this local education agency has complied with the EPA regulation 40 CFR 763.100 through 763.117, "Asbestos-Containing Materials in Schools Identification and Notification," and that the information on this form is, to the best of my knowledge, true and complete.

| SIGNATURE | TYPED OR PRINTED NAME |
|---|---|
| TYPED OR PRINTED TITLE | DATE |

Additional forms can be obtained by calling 800-424-9065 (554-1404 in the Washington, DC area).

EPA Form 7730-1 (6-82)

BILLING CODE 6560-50-C

**§ 763.115 Compliance.**

(a) Local education agencies shall comply with all parts of this regulation by May 27, 1983. Local education agencies that have already conducted detection activities should consult § 763.117 *Exemptions.*

(b) Actions undertaken by municipal or State officials on behalf of local education agencies as a part of a municipal or State school asbestos program shall constitute compliance with this regulation to the extent that such actions conform to the requirements of this regulation.

(c) Section 15(1) of TSCA (15 U.S.C. 2614) makes it unlawful for any person to fail or refuse to comply with any rule promulgated or order issued under section 6 of TSCA (15 U.S.C. 2605). Thus, failure to comply with any aspect of this rule constitutes a violation as defined by section 15(1) of TSCA.

(d) Section 16(a) of TSCA (15 U.S.C. 2615) provides that any person who violates any provision of section 15 shall be liable to the United States for civil penalties. If a violation is knowing or willful, criminal penalties may also be assessed. Under section 17 of TSCA (15 U.S.C. 2616), the Agency may take injunctive action to restrain persons from violating a rule promulgated under section 6 of TSCA.

**§ 763.117 Exemptions.**

(a) *Schools that were inspected, sampled, and analyzed prior to this rule.* (1) Schools are exempt from §§ 763.105, 763.107, and 763.109, if, prior to the effective date of this rule, local education agencies, or municipal or State agencies, acting on their behalf, have:

(i) Visually inspected all areas of the school for friable materials.

(ii) Sampled each type of friable material found in the school, as distinguished by different appearance or texture.

(iii) Had the sample(s) analyzed using Polarized Light Microscopy supplemented by X-ray Diffraction where necessary, or by Electron Microscopy.

This exemption for previous sampling activity does not apply to school buildings where it was determined that a friable material does not contain asbestos based on fewer than three samples of the material.

(2) If a school was found to contain friable asbestos-containing materials, then §§ 763.111, 763.114 and 763.115, the recordkeeping and notification requirements, shall apply to the local education agencies.

(3) If a school was found to contain *no* friable asbestos-containing materials, the school also is exempt from §§ 763.111, 763.114, and 763.115, the recordkeeping and notification requirements, provided the school retains a copy of all laboratory reports and all correspondence with laboratories concerning the analyses of samples taken and maintains in the school record the following certifying statement, signed and dated by the person responsible for compliance with the rule: "I hereby certify that this school, to the best of my knowledge, does not contain friable asbestos-containing materials."

(b) *Schools which can document that no friable asbestos-containing building materials were used in construction, modification, or renovation.* A school is exempt from §§ 763.105, 763.107, and 763.109, the inspection, sampling, and analysis requirements, and §§ 763.111, 763.114, and 763.115, the recordkeeping and notification requirements, if:

(1) the school record contains documentation showing that, at the time of construction, modification, or renovation, no friable asbestos/containing building materials were used. To qualify for this exemption, documentation must clearly show that the friable materials used did not contain asbestos.

(2) the school record contains the following certifying statement, signed and dated by the person responsible for compliance with the rule: "I hereby certify that this school, to the best of my knowledge, does not contain friable asbestos-containing materials."

(c) *Other exemptions.* (1) Sections 763.105, 763.107, and 763.109 shall not apply to a school in which the record contains a signed statement certifying that any friable materials in the school shall be treated for purposes of this rule as asbestos-containing. In this case, the record shall also include information on the location of these materials.

(2) No provision of this subpart applies to any school if:

(i) The local education agency has conducted abatement programs that result in the elimination of all friable asbestos materials from the school either by removal or encapsulation of the materials.

(ii) No part of the school building was built before January 1979.

**§ 763.119 References.**

(a) *General.* The following reference contains detailed information on sampling and analysis of friable materials and provides a background on which this part is based. Copies may be obtained from the Document Control Officer, Management Support Division (TS–793), Office of Pesticides and Toxic Substances, Environmental Protection Agency, Room E–106, 401 M Street SW, Washington, D.C. 20460.

(1) USEPA. 1979. "Asbestos-Containing Materials in School Buildings: A Guidance Document" Part 1. (EPA no. C00090).

(2) [Reserved]

(b) [Reserved]

**Appendix A—Interim Method of the Determination of Asbestos in Bulk Insulation Samples**

Section 1, Polarized Light Microscopy

1.1 Principle and Applicability

Bulk samples of building materials taken for asbestos identification are first examined for homogeneity and preliminary fiber identification at low magnification. Positive identification of suspect fibers is made by analysis of subsamples with the polarized light microscope.

The principles of optical mineralogy are well established.[1,2] A light microscope equipped with two polarizing filters is used to observe specific optical characteristics of a sample. The use of plane polarized light allows the determination of refractive indices along specific crystallographic axes. Morphology and color are also observed. A retardation plate is placed in the polarized light path for determination of the sign of elongation using orthoscopic illumination. Orientation of the two filters such that their vibration planes are perpendicular (crossed polars) allows observation of the birefringence and extinction characteristics of anisotropic particles.

Quantitative analysis involves the use of point counting. Point counting is a standard technique in petrography for determining the relative areas occupied by separate minerals in thin sections of rock. Background information on the use of point counting [2] and the interpretation of point count data [3] is available.

This method is applicable to all bulk samples of friable insulation materials submitted for identification and quantitation of asbestos components.

*1.2 Range*

The point counting method may be used for analysis of samples containing from 0 to 100 percent asbestos. The upper detection limit is 100 percent. The lower detection limit is less than 1 percent.

1.3 Interferences

Fibrous organic and inorganic constituents of bulk samples may interfere with the identification and quantitation of the asbestos mineral content. Spray-on binder materials may coat fibers and affect color or obscure optical characteristics to the extent of masking fiber identity. Fine particles of other materials may also adhere to fibers to an extent sufficient to cause confusion in identification. Procedures that may be used for the removal of interferences are presented in Section 1.7.2.2.

1.4 Precision and Accuracy

Adequate data for measuring the accuracy and precision of the method for samples with various matrices are not currently available. Data obtained for samples containing a single asbestos type in a simple matrix are available in the EPA report *Bulk Sample Analysis for Asbestos Content: Evaluation of the Tentative Method.*[4]

1.5 Apparatus

1.5.1 *Sample Analysis*

A low-power binocular microscope, preferably stereoscopic, is used to examine the bulk insulation sample as received.

- *Microscope:* binocular, 10–45X (approximate).
- *Light Source:* incandescent or fluorescent.
- *Forceps, Dissecting Needles, and Probes*
- *Glassine Paper or Clean Glass Plate*

Compound microscope requirements: A polarized light microscope complete with polarizer, analyzer, port for wave retardation plate, 360° graduated rotating stage, substage condenser, lamp, and lamp iris.

- *Polarized Light Microscope:* described above.
- *Objective Lenses:* 10X, 20X, and 40X or near equivalent.
- *Dispersion Staining Objective Lens* (optional)
- *Ocular Lens:* 10X minimum.
- *Eyepiece Reticle:* cross hair or 25 point Chalkley Point Array.
- *Compensator Plate:* 550 millimicron retardation.

1.5.2 *Sample Preparation*

Sample preparation apparatus requirements will depend upon the type of insulation sample under consideration. Various physical and/or chemical means may be employed for an adequate sample assessment.

- *Ventilated Hood* or negative pressure glove box.
- *Microscope Slides*
- *Coverslips*
- *Mortar and Pestle:* agate or porcelain. (optional)
- *Wylie Mill* (optional)
- *Beakers and Assorted Glassware* (optional)
- *Centrifuge* (optional)
- *Filtration apparatus* (optional)
- *Low temperature asher* (optional)

1.6 Reagents

1.6.1 *Sample Preparation*

- *Distilled Water (optional)*
- *Dilute $CH_3COOH$:* ACS reagent grade (optional)
- *Dilute HCl:* ACS reagent grade (optional)
- *Sodium metaphosphate* $(NaPO_3)_6$ (optional)

1.6.2 *Analytical Reagents*

*Refractive Index Liquids:* 1.490–1.570, 1.590–1.720 in increments of 0.002 or 0.004.

- *Refractive Index Liquids for Dispersion Staining:* high-dispersion series, 1.550, 1.605, 1.630 (optional).
- *UICC Asbestos Reference Sample Set:* Available from: UICC MRC Pneumoconiosis Unit, Llandough Hospital, Penarth, Glamorgan CF6 1XW, UK, and commercial distributors.
- *Tremolite-asbestos* (source to be determined)
- *Actinolite-asbestos* (source to be determined)

1.7 Procedures

Note.—Exposure to airborne asbestos fibers is a health hazard. Bulk samples submitted for analysis are usually friable and may release fibers during handling or matrix reduction steps. All sample and slide preparations should be carried out in a ventilated hood or glove box with continuous airflow (negative pressure). Handling of samples without these precautions may result in exposure of the analyst and contamination of samples by airborne fibers.

1.7.1 *Sampling*

Samples for analysis of asbestos content shall be taken in the manner prescribed in Reference 5 and information on design of sampling and analysis programs may be found in Reference 6. If there are any questions about the representative nature of the sample, another sample should be requested before proceeding with the analysis.

1.7.2 *Analysis*

1.7.2.1 *Gross Examination*

Bulk samples of building materials taken for the identification and quantitation of asbestos are first examined for homogeneity at low magnification with the aid of a stereomicroscope. The core sample may be examined in its container or carefully removed from the container onto a glassine transfer paper or clean glass plate. If possible, note is made of the top and bottom orientation. When discrete strata are identified, each is treated as a separate material so that fibers are first identified and quantified in that layer only, and then the results for each layer are combined to yield an estimate of asbestos content for the whole sample.

1.7.2.2 Sample Preparation

Bulk materials submitted for asbestos analysis involve a wide variety of matrix materials. Representative subsamples may not be readily obtainable by simple means in heterogeneous materials, and various steps may be required to alleviate the difficulties encountered. In most cases, however, the best preparation is made by using forceps to sample at several places from the bulk material. Forcep samples are immersed in a refractive index liquid on a microscope slide, teased apart, covered with a cover glass, and observed with the polarized light microscope.

Alternatively, attempts may be made to homogenize the sample or eliminate interferences before further characterization. The selection of appropriate procedures is dependent upon the samples encountered and personal preference. The following are presented as possible sample preparation steps.

A mortar and pestle can sometimes be used in the size reduction of soft or loosely bound materials though this may cause matting of some samples. Such samples may be reduced in a Wylie mill. Apparatus should be clean and extreme care exercised to avoid cross-contamination of samples. Periodic checks of the particle sizes should be made during the grinding operation so as to preserve any fiber bundles present in an identifiable form. These procedures are not recommended for samples that contain amphibole minerals or vermiculite. Grinding of amphiboles may result in the separation of fiber bundles or the production of cleavage fragments with aspect ratios greater than 3:1.

Grinding of vermiculite may also produce fragments with aspect ratios greater than 3:1.

Acid treatment may occasionally be required to eliminate interferences. Calcium carbonate, gypsum, and bassanite (plaster) are frequently present in sprayed or trowelled insulations. These materials may be removed by treatment with warm dilute acetic acid. Warm dilute hydrochloric acid may also be used to remove the above materials. If acid treatment is required, wash the sample at least twice with distilled water, being careful not to lose the particulates during decanting steps. Centrifugation or filtration of the suspension will prevent significant fiber loss. The pore size of the filter should be 0.45 micron or less. Caution: prolonged acid contact with the sample may alter the optical characteristics of chrysotile fibers and should be avoided.

Coatings and binding materials adhering to fiber surfaces may also be removed by treatment with sodium metaphosphate.[7] Add 10 mL of 10g/L sodium metaphosphate solution to a small (0.1 to 0.5 mL) sample of bulk material in a 15-mL glass centrifuge tube. For approximately 15 seconds each, stir the mixture on a vortex mixer, place in an ultrasonic bath and then shake by hand. Repeat the series. Collect the dispersed solids by centrifugation at 1000 rpm for 5 minutes. Wash the sample three times by suspending in 10 mL distilled water and recentrifuging. After washing, resuspend the pellet in 5 mL distilled water, place a drop of the suspension on a microscope slide, and dry the slide at 110° C.

In samples with a large portion of cellulosic or other organic fibers, it may be useful to ash part of the sample and view the residue. Ashing should be performed in a low temperature asher. Ashing may also be performed in a muffle furnace at temperatures of 500° C or lower. Temperatures of 550° C or higher will cause dehydroxylation of the asbestos minerals, resulting in changes of the refractive index and other key parameters. If a muffle furnace is to be used, the furnace thermostat should be checked and calibrated to ensure that samples will not be heated at temperatures greater than 550° C.

Ashing and acid treatment of samples should not be used as standard procedures. In order to monitor possible changes in fiber characteristics, the material should be viewed microscopically before and after any sample preparation procedure. Use of these procedures on samples to be used for quantitation requires a correction for percent weight loss.

1.7.2.3 Fiber Identification

Positive identification of asbestos requires the determination of the following optical properties.

- Morphology
- Color and pleochroism
- Refractive indices
- Birefringence
- Extinction characteristics
- Sign of elongation

Table 1–1 lists the above properties for commercial asbestos fibers. Figure 1–1 presents a flow diagram of the examination procedure. Natural variations in the conditions under which deposits of asbestiform minerals are formed will occasionally produce exceptions to the published values and differences from the UICC standards. The sign of elongation is determined by use of the compensator plate and crossed polars. Refractive indices may be determined by the Becke line test. Alternatively, dispersion staining may be used. Inexperienced operators may find that the dispersion staining technique is more easily learned, and should consult Reference 9 for guidance. Central stop dispersion staining colors are presented in Table 1–2. Available high-dispersion (HD) liquids should be used.

BILLING CODE 6560-50-M

TABLE 1-1. OPTICAL PROPERTIES OF ASBESTOS FIBERS

| Mineral | Morphology, color[a] | Refractive indices[b] α | Refractive indices[b] γ | Birefringence | Extinction | Sign of elongation |
|---|---|---|---|---|---|---|
| Chrysotile (asbestiform serpentine) | Wavy fibers. Fiber bundles have splayed ends and "kinks". Aspect ratio typically >10:1. Colorless[c], nonpleochroic. | 1.493-1.560 | 1.517-1.562[f] (normally 1.556) | .008 | ∥to fiber length | + (length slow) |
| Amosite (asbestiform grunerite) | Straight, rigid fibers. Aspect ratio typically >10:1. Colorless to brown, nonpleochroic or weakly so. Opaque inclusions may be present. | 1.635-1.696 | 1.655-1.729[f] (normally 1.696-1.710) | .020-.033 | ∥to fiber length | + (length slow) |
| Crocidolite (asbestiform riebeckite) | Straight, rigid fibers. Thick fibers and bundles common, blue to purple-blue in color. Pleochroic. Birefringence is generally masked by blue color. | 1.654-1.701 | 1.668-1.717[e] (normally close to 1.700) | .014-.016 | ∥to fiber length | - (length fast) |
| Anthophyllite-asbestos | Straight fibers and acicular[d] cleavage fragments. Some composite fibers. Aspect ratio <10:1. Colorless to light brown. | 1.596-1.652 | 1.615-1.676[f] | .019-.024 | ∥to fiber length | + (length slow) |
| Tremolite-actinolite-asbestos | Normally present as acicular or prismatic cleavage fragments[d]. Single crystals predominate, aspect ratio <10:1. Colorless to pale green. | 1.599-1.668 | 1.622-1.688[f] | .023-.020 | Oblique extinction, 10-20° for fragments. Composite fibers show ∥ extinction. | + (length slow) |

[a] From reference 5; colors cited are seen by observation with plane polarized light.

[b] From references 5 and 8.

[c] Fibers subjected to heating may be brownish.

[d] Fibers defined as having aspect ratio >3:1.

[e] ⊥ to fiber length.

[f] ∥ to fiber length.

Polarized light microscopy analysis: For each type of material identified by examination of sample at low magnification. Mount spacially dispersed sample in 1.550 RI liquid. (If using dispersion staining, mount in 1.550 HD.) View at 100X with both plane polarized light and crossed polars. More than one fiber type may be present.

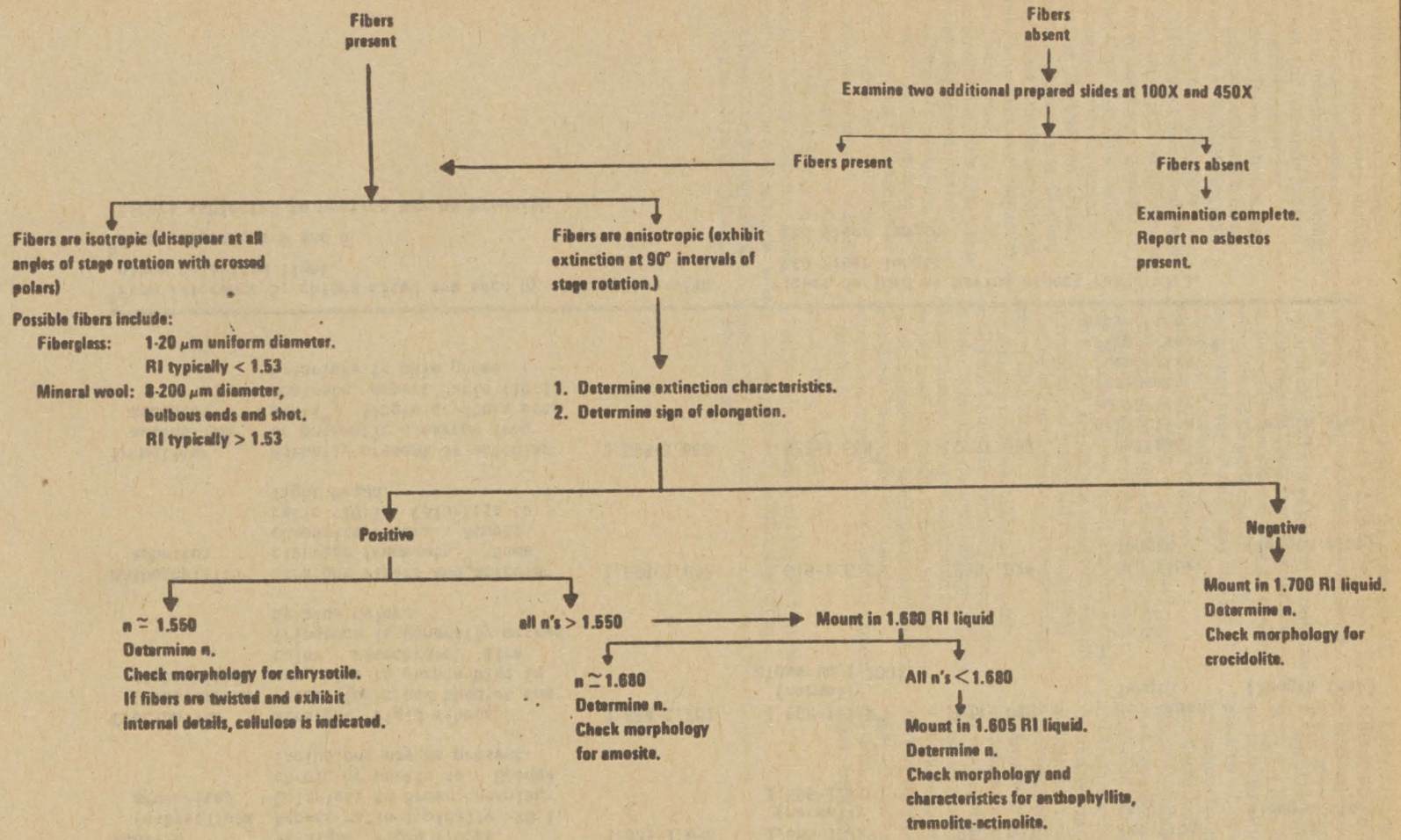



Figure 1-1. Flow chart for analysis of bulk samples by polarized light microscopy.

TABLE 1-2. CENTRAL STOP DISPERSION STAINING COLORS[a]

| Mineral | RI Liquid | $n \perp$ | $n \parallel$ |
|---|---|---|---|
| Chrysotile | $1.550^{HD}$ | Blue | Blue-magenta |
| Amosite | 1.680 | Blue-magenta to pale blue | Golden-yellow |
| | $1.550^{HD}$ | Yellow to white | Yellow to white |
| Crocidolite[b] | 1.700 | Red magenta | Blue-magenta |
| | $1.550^{HD}$ | Yellow to white | Yellow to white |
| Anthophyllite | $1.605^{HD}$ | Blue | Gold to gold-magenta |
| Tremolite | $1.605^{HD}$[c] | Pale blue | Yellow |
| Actinolite | $1.605^{HD}$ | Gold-magenta to blue | Gold |
| | $1.630^{HD}$[c] | Magenta | Golden-yellow |

[a]From reference 9.

[b]Blue absorption color.

[c]Oblique extinction view.

BILLING CODE 6560-50-C

1.7.2.4 Quantitation of Asbestos Content

Asbestos quantitation is performed by a point-counting procedure. An ocular reticle (cross-hair or point array) is used to visually superimpose a point or points on the microscope field of view. Record the number of points positioned directly above each kind of particle or fiber of interest. Score only points directly over asbestos fibers or nonasbestos matrix material. Do not score empty points for the closest particle. If an asbestos fiber and a matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored for both categories. Point counting provides a determination of the area percent asbestos. Reliable conversion of area percent to percent of dry weight is not currently feasible unless the specific gravities and relative volumes of the materials are known.

For the purpose of this method, "asbestos fibers" are defined as having an aspect ratio greater than 3:1 and being positively identified as one of the minerals in Table 1–1.

A total of 400 points superimposed on either asbestos fibers or nonasbestos matrix material must be counted over at least eight different preparations of representative subsamples. Take eight forcep samples and mount each separately with the appropriate refractive index liquid. The preparation should not be heavily loaded. The sample should be uniformly dispersed to avoid overlapping particles and allow 25–50 percent empty area within the fields of view. Count 50 nonempty points on each preparation, using either

- A cross-hair reticle and mechanical stage; or
- A reticle with 25 points (Chalkley Point Array) and counting at least 2 randomly selected fields.

For samples with mixtures of isotropic and anisotropic materials present, viewing the sample with slightly uncrossed polars or the addition of the compensator plate to the polarized light path will allow simultaneous discrimination of both particle types. Quantitation should be performed at 100X or at the lowest magnification of the polarized light microscope that can effectively distinguish the sample components. Confirmation of the quantitation result by a second analyst on some percentage of analyzed samples should be used as standard quality control procedure.

The percent asbestos is calculated as follows:

% asbestos = (a/n) 100%

where

a = number of asbestos counts,

n = number of nonempty points counted (400).

If a = 0, report "No asbestos detected." If $0 < a < 3$, report "<1% asbestos".

The value reported should be rounded to the nearest percent.

1.8 References

1. Paul F. Kerr, *Optical Mineralogy*, 4th ed., New York, McGraw-Hill, 1977.

2. E. M. Chamot and C. W. Mason, *Handbook of Chemical Microscopy, Volume One*, 3rd ed., New York: John Wiley & Sons, 1958.

3. F. Chayes, *Petrographic Modal Analysis: An Elementary Statistical Appraisal*, New York: John Wiley & Sons, 1956.

4. E. P. Brantly, Jr., K. W. Gold, L. E. Myers, and D. E. Lentzen, *Bulk Sample Analysis for Asbestos Content: Evaluation of the Tentative Method*, U.S. Environmental Protection Agency, October 1981.

5. U.S. Environmental Protection Agency, *Asbestos-Containing Materials in School Buildings: A Guidance Document*, Parts 1 and 2, EPA/OTS No. C00090, March 1979.

6. D. Lucas, T. Hartwell, and A. V. Rao, *Asbestos-Containing Materials in School Buildings: Guidance for Asbestos Analytical Programs*, EPA 560/13–80–017A, U.S. Environmental Protection Agency, December 1980, 96 pp.

7. D. H. Taylor and J. S. Bloom, Hexametaphosphate pretreatment of insulation samples for identification of fibrous constituents, *Microscope, 28*, 1980.

8. W. J. Campbell, R. L. Blake, L. L. Brown, E. E. Cather, and J. J. Sjoberg. *Selected Silicate Minerals and Their Asbestiform Varieties: Mineralogical Definitions and Identification-Characterization*, U.S. Bureau of Mines Information Circular 8751, 1977.

9. Walter C. McCrone, *Asbestos Particle Atlas*, Ann Arbor: Ann Arbor Science Publishers, June 1980.

**Section 2, X-Ray Powder Diffraction**

2.1 Principle and Applicability

The principle of X-ray powder diffraction (XRD) analysis is well established.[1,2] Any solid, crystalline material will diffract an impingent beam of parallel, monochromatic X-rays whenever Bragg's Law,

$$\lambda = 2d \sin \theta,$$

is satisfied for a particular set of planes in the crystal lattice, where

$\lambda$ = the X-ray wavelength, Å;

d = the interplanar spacing of the set of reflecting lattice planes, Å; and

$\theta$ = the angle of incidence between the X-ray beam and the reflecting lattice planes.

By appropriate orientation of a sample relative to the incident X-ray beam, a diffraction pattern can be generated that, in most cases, will be uniquely characteristic of both the chemical composition and structure of the crystalline phases present.

Unlike optical methods of analysis, however, XRD cannot determine crystal morphology. Therefore, in asbestos analysis, XRD does not distinguish between fibrous and nonfibrous forms of the serpentine and amphibole minerals (Table 2–1). However, when used in conjunction with optical methods such as polarized light microscopy (PLM), XRD techniques can provide a reliable analytical method for the identification and characterization of asbestiform minerals in bulk materials.

For *qualitative analysis* by XRD methods, samples are initially scanned over limited diagnostic peak regions for the serpentine (~7.4 Å) and amphibole (8.2–8.5 Å) minerals (Table 2–2). Standard slow-scanning methods for bulk sample analysis may be used for materials shown by PLM to contain significant amounts of asbestos (>5–10 percent). Detection of minor or trace amounts of asbestos may require special sample preparation and step-scanning analysis. All samples that exhibit diffraction peaks in the diagnostic regions for asbestiform minerals are submitted to a full (5°–60° $2\theta$; 1° $2\theta$/min) qualitative XRD scan, and their diffraction patterns are compared with standard reference powder diffraction patterns[3] to verify initial peak assignments and to identify possible matrix interferences when subsequent quantitative analysis will be performed.

BILLING CODE 6560–50–M

TABLE 2-1. THE ASBESTOS MINERALS AND THEIR NONASBESTIFORM ANALOGS

| Asbestiform | Nonasbestiform |
|---|---|
| SERPENTINE | |
| Chrysotile | Antigorite, lizardite |
| AMPHIBOLE | |
| Anthophyllite asbestos | Anthophyllite |
| Cummingtonite-grunerite asbestos ("Amosite") | Cummingtonite-grunerite |
| Crocidolite | Riebeckite |
| Tremolite asbestos | Tremolite |
| Actinolite asbestos | Actinolite |

TABLE 2-2. PRINCIPAL LATTICE SPACINGS OF ASBESTIFORM MINERALS[a]

| Minerals | Principal d-spacings (Å) and relative intensities | | | JCPDS Powder diffraction file[3] number |
|---|---|---|---|---|
| Chrysotile | $7.37_{100}$ | $3.65_{70}$ | $4.57_{50}$ | 21-543[b] |
| | $7.36_{100}$ | $3.66_{80}$ | $2.45_{65}$ | 25-645 |
| | $7.10_{100}$ | $2.33_{80}$ | $3.55_{70}$ | 22-1162 (theoretical) |
| "Amosite" | $8.33_{100}$ | $3.06_{70}$ | $2.756_{70}$ | 17-745 (nonfibrous) |
| | $8.22_{100}$ | $3.060_{85}$ | $3.25_{70}$ | 27-1170 (UICC) |
| Anthophyllite | $3.05_{100}$ | $3.24_{60}$ | $8.26_{55}$ | 9-455 |
| | $3.06_{100}$ | $8.33_{70}$ | $3.23_{50}$ | 16-401 (synthetic) |
| Actinolite | $2.72_{100}$ | $2.54_{100}$ | $3.40_{80}$ | 25-157 |
| Crocidolite | $8.35_{100}$ | $3.10_{55}$ | $2.720_{35}$ | 27-1415 (UICC) |
| Tremolite | $8.38_{100}$ | $3.12_{100}$ | $2.705_{90}$ | 13-437[b] |
| | $2.706_{100}$ | $3.14_{95}$ | $8.43_{40}$ | 20-1310[b] (synthetic) |
| | $3.13_{100}$ | $2.706_{60}$ | $8.44_{40}$ | 23-666 (synthetic mixture with richterite) |

[a]This information is intended as a guide, only. Complete powder diffraction data, including mineral type and source, should be referred to, to ensure comparability of sample and reference materials where possible. Additional precision XRD data on amosite, crocidolite, tremolite, and chrysotile are available from the U.S. Bureau of Mines.[4]

[b]Fibrosity questionable.

BILLING CODE 6560-50-C

Accurate *quantitative analysis* of asbestos in bulk samples by XRD is critically dependent on particle size distribution, crystallite size, preferred orientation and matrix absorption effects, and comparability of standard reference and sample materials. The most intense diffraction peak that has been shown to be free from interference by prior qualitative XRD analysis is selected for quantitation of each asbestiform mineral. A "thin-layer" method of analysis [5 6] is recommended in which, subsequent to comminution of the bulk material to ~10 μm by suitable cryogenic milling techniques, an accurately known amount of the sample is deposited on a silver membrane filter. The mass of asbestiform material is determined by measuring the integrated area of the selected diffraction peak using a step-scanning mode, correcting for matrix absorption effects, and comparing with suitable calibration standards. Alternative "thick-layer" or bulk methods,[7 8] may be used for *semiquantitative analysis.*

This XRD method is applicable as a confirmatory method for identification and quantitation of asbestos in bulk material samples that have undergone prior analysis by PLM or other optical methods.

2.2 Range and Sensitivity

The range of the method has not been determined.

The sensitivity of the method has not been determined. It will be variable and dependent upon many factors, including matrix effects (absoprtion and interferences), diagnostic reflections selected, and their relative intensities.

2.3 Limitations

2.3.1 *Interferences*

Since the fibrous and nonfibrous forms of the serpentine and amphibole minerals (Table 2–1) are indistinguishable by XRD techniques unless special sample preparation techniques and instrumentation are used,[9] the presence of nonasbestiform serpentines and amphiboles in a sample will pose severe interference problems in the identification and quantitative analysis of their asbestiform analogs.

The use of XRD for identification and quantitation of asbestiform minerals in bulk samples may also be limited by the presence of other interfering materials in the sample. For naturally occurring materials the commonly associated asbestos-related mineral interferences can usually be anticipated. However, for fabricated materials the nature of the interferences may vary greatly (Table 2–3) and present more serious problems in identification and quantitation.[10] Potential interferences are summarized in Table 2–4 and include the following:

- *Chlorite* has major peaks at 7.19 Å and 3.58 Å That interfere with both the primary (7.36 Å) and secondary (3.66 Å) peaks for chrysotile. Resolution of the primary peak to give good quantitative results may be possible when a step-scanning mode of operation is employed.
- *Halloysite* has a peak at 3.63 Å that interferes with the secondary (3.66 Å) peak for chrysotile.
- *Kaolinite* has a major peak at 7.15 Å that may interfere with the primary peak of chrysotile at 7.36 Å when present at concentrations of >10 percent. However, the secondary chrysotile peak at 3.66 Å may be used for quantitation.
- *Gypsum* has a major peak at 7.5 Å that overlaps the 7.36 Å peak of chrysotile when present as a major sample constituent. This may be removed by careful washing with distilled water, or be heating to 300° C to convert gypsum to plaster of paris.
- *Cellulose* has a broad peak that partially overlaps the secondary (3.66 Å) chrysotile peak.[8]
- Overlap of major diagnostic peaks of the amphibole asbestos minerals, amosite, anthophyllite, crocidolite, and tremolite, at approximately 8.3 Å and 3.1 Å causes mutual interference when these minerals occur in the presence of one another. In some instances, adquate resolution may be attained by using step-scanning methods and/or by decreasing the collimator slit width at the X-ray port.

BILLING CODE 6560-50-M

TABLE 2-3. COMMON CONSTITUENTS IN INSULATION AND WALL MATERIALS[10]

A. Insulation materials

Chrysotile
"Amosite"
Crocidolite
*Rock wool
*Slag wool
*Fiber glass
Gypsum ($CaSO_4 \cdot 2H_2O$)
Vermiculite (micas)
*Perlite
Clays (kaolin)
*Wood pulp
*Paper fibers (talc, clay, carbonate fillers)
Calcium silicates (synthetic)
Opaques (chromite, magnetite inclusions in serpentine)
Hematite (inclusions in "amosite")
Magnesite
*Diatomaceous earth

B. Spray finishes or paints

Bassanite
Carbonate minerals (calcite, dolomite, vaterite)
Talc
Tremolite
Anthophyllite
Serpentine (including chrysotile)
Amosite
Crocidolite
*Mineral wool
*Rock wool
*Slag wool
*Fiber glass
Clays (kaolin)
Micas
Chlorite
Gypsum ($CaSO_4 \cdot 2H_2O$)
Quartz
*Organic binders and thickeners
Hydromagnesite
Wollastonite
Opaques (chromite, magnetite inclusions in serpentine)
Hematite (inclusions in "amosite")

*Amorphous materials--contribute only to overall scattered radiation and increased background radiation.

BILLING CODE 6560-50-C

TABLE 2-4. INTERFERENCES IN XRD ANALYSIS OF ASBESTIFORM MINERALS

| Asbestiform mineral | Primary diagnostic peaks (approximate d-spacings, in Å) | Interference |
|---|---|---|
| Serpentine | | |
| Chrysotile | 7.4 | Nonasbestiform serpentines (antigorite, lizardite) |
| | | Chlorite |
| | | Kaolinite |
| | | Gypsum |
| | 3.7 | Chlorite |
| | | Halloysite |
| | | Cellulose |
| Amphibole | | |
| "Amosite" | 3.1 | Nonasbestiform amphiboles (cummingtonite-grunerite, anthophyllite, riebeckite, tremolite) |
| Anthophyllite | | |
| Crocidolite | | |
| Tremolite | | |
| | | Mutual interferences |
| | | Carbonates |
| | | Talc |
| | 8.3 | Mutual interferences |

- *Carbonates* may also interfere with quantitative analysis of the amphibole asbestos minerals, amosite, anthophyllite, crocidolite, and tremolite. Calcium carbonate ($CaCO_3$) has a peak at 3.035 Å that overlaps major amphibole peaks at approximately 3.1 Å when present in concentrations of >5 percent. Removal of carbonates with a dilute acid wash is possible; however, if present, chrysotile may be partially dissolved by this treatment.[11]
- A major *talc* peak at 3.12 Å interferes with the primary tremolite peak at this same position and with secondary peaks of crocidolite (3.10 Å), amosite (3.06 Å), and anthophyllite (3.05 Å). In the presence of talc, the major diagnostic peak at approximately 8.3 Å should be used for quantitation of these asbestiform minerals.

The problem of intraspecies and matrix interferences is further aggravated by the variability of the silicate mineral powder diffraction patterns themselves, which often makes definitive identification of the asbestos minerals by comparison with standard reference diffraction patterns difficult. This variability results from alterations in the crystal lattice associated with differences in isomorphous substitution and degree of crystallinity. This is especially true for the amphiboles. These minerals exhibit a wide variety of very similar chemical compositions, with the result being that their diffraction patterns are chracterized by having major (110) reflections of the monoclinic amphiboles and (210) reflections of the orthorhombic anthophyllite separated by less than 0.2 Å.[12]

2.3.2 *Matrix Effects*

If a copper X-ray source is used, the presence of iron at high concentrations in a sample will result in significant X-ray fluorescence, leading to loss of peak intensity along with increased background intensity and an overall decrease in sensitivity. This situation may be corrected by choosing an X-ray source other than copper; however, this is often accompanied both by loss of intensity and by decreased resolution of closely spaced reflections. Alternatively, use of a diffracted beam monochromator will reduce background fluorescent raditation, enabling weaker diffraction peaks to be detected.

X-ray absorption by the sample matrix will result in overall attenuation of the diffracted beam and may seriously interfere with quantitative analysis. Absorption effects may be minimized by using sufficiently "thin" samples for analysis.[5 13 14] However, unless absorption effects are known to be the same for both samples and standards, appropriate corrections should be made by referencing diagnostic peak areas to an internal standard [7 8] or filter substrate (Ag) peak.[5 6]

2.3.3 *Particle Size Dependence*

Because the intensity of diffracted X-radiation is particle-size dependent, it is essential for accurate quantitative analysis that both sample and standard reference materials have similar particle size distributions. The optimum particle size range for quantitative analysis of asbestos by XRD has been reported to be 1 to 10 μm.[15] Comparability of sample and standard reference material particle size distributions should be verified by optical microscopy (or another suitable method) prior to analysis.

2.3.4 *Preferred Orientation Effects*

Preferred orientation of asbestiform minerals during sample preparation often poses a serious problem in quantitative analysis by XRD. A number of techniques have been developed for reducing preferred orientation effects in "thick layer" samples.[7 8 15] However, for "thin" samples on membrane filters, the preferred orientation effects seem to be both reproducible and favorable to enhancement of the principal diagnostic reflections of asbestos minerals, actually increasing the overall sensitivity of the method.[12 14] (Further investigation into preferred orientation effects in both thin layer and bulk samples is required.)

2.3.5 *Lack of Suitably Characterized Standard Materials*

The problem of obtaining and characterizing suitable reference materials for asbestos analysis is clearly recognized. NIOSH has recently directed a major research effort toward the preparation and characterization of analytical reference materials, including asbestos standards;[16 17] however, these are not available in large quantities for routine analysis.

In addition, the problem of ensuring the comparability of standard reference and sample materials, particularly regarding crystallite size, particle size distribution, and degree of crystallinity, has yet to be adequately addressed. For example, Langer et al.[18] have observed that in insulating matrices, chrysotile tends to break open into bundles more frequently than amphiboles. This results in a line-broadening effect with a resultant decrease in sensitivity. Unless this effect is the same for both standard and sample materials, the amount of chrysotile in the sample will be underestimated by XRD analysis. To minimize this problem, it is recommended that standardized matrix reduction procedures be used for both sample and standard materials.

2.4 Precision and Accuracy

Precision of the method has not been determined.

Accuracy of the method has not been determined.

2.5 Apparatus

2.5.1 *Sample Preparation*

Sample preparation apparatus requirements will depend upon the sample type under consideration and the kind of XRD analysis to be performed.

- *Mortar and Pestle:* Agate or porcelain.
- *Razor Blades*
- *Sample Mill:* SPEX, Inc., freezer mill or equivalent.
- *Bulk Sample Holders*
- *Silver Membrane Filters:* 25-mm diameter, 0.45-μm pore size. Selas Corp. of America, Flotronics Div., 1957 Pioneer Road, Huntington Valley, PA 19006.
- *Microscope Slides*
- *Vacuum Filtration Apparatus:* Gelman No. 1107 or equivalent, and side-arm vacuum flask.
- *Microbalance*
- *Ultrasonic Bath or Probe:* Model W140, Ultrasonics, Inc., operated at a power density of approximately 0.1 W/mL, or equivalent.
- *Volumetric Flasks:* 1-L volume.
- *Assorted Pipettes*
- *Pipette Bulb*
- *Nonserrated Forceps*
- *Polyethylene Wash Bottle*
- *Pyrex Beakers:* 50-mL volume.
- *Desiccator*
- *Filter Storage Cassettes*
- *Magnetic Stirring Plate and Bars*
- *Porcelain Crucibles*
- *Muffle Furnace or Low Temperature Asher*

2.5.2 *Sample Analysis*

Sample analysis requirements include an X-ray diffraction unit, equipped with:

- *Constant Potential Generator; Voltage and mA Stabilizers*
- *Automated Diffractometer with Step-Scanning Mode*
- *Copper Target X-Ray Tube:* High intensity, fine focus, preferably.
- *X-Ray Pulse Height Selector*
- *X-Ray Detector* (with high voltage power supply): Scintillation or proportional counter.
- *Focusing Graphite Crystal Monochromator;* or *Nickel Filter* (if copper source is used, and iron fluorescence is not a serious problem).
- *Data Output Accessories:*
  - *Strip Chart Recorder*
  - *Decade Scaler/Timer*
  - *Digital Printer*
- *Sample Spinner* (optional).
- *Instrument Calibration Reference Specimen:* α-quartz reference crystal (Arkansas quartz standard, #180–147–00, Philips Electronics Instruments, Inc., 85 McKee Drive, Mahwah, NJ 07430) or equivalent.

2.6 Reagents

2.6.1 *Standard Reference Materials*

The reference materials listed below are intended to serve as a guide. Every attempt should be made to acquire pure reference materials that are comparable to sample materials being analyzed.

- *Chrysotile:* UICC Canadian, or NIEHS Plastibest. (UICC reference materials available from: UICC, MRC Pneumoconiosis Unit, Llandough Hospital, Penarth, Glamorgan, CF61XW, UK).
- *Crocidolite:* UICC
- *Amosite:* UICC
- *Anthophyllite:* UICC
- *Tremolite Asbestos:* Wards Natural Science Establishment, Rochester, N.Y.; Cyprus Research Standard, Cyprus Research, 2435 Military Ave., Los Angeles, CA 90064 (washed with dilute HCl to remove small amount of calcite impurity); India tremolite, Rajasthan State, India.
- *Actinolite Asbestos*

2.6.2 *Adhesive*

Tape, petroleum jelly, etc. (for attaching silver membrane filters to sample holders).

2.6.3 *Surfactant*

1 percent aerosol OT aqueous solution or equivalent.

2.6.4 *Isopropanol*

ACS Reagent Grade.

2.7 Procedure

2.7.1 *Sampling*

Samples for analysis of asbestos content shall be collected as specified in EPA Guidance Document #C0090, *Asbestos-Containing Materials in School Buildings.*[16]

2.7.2 *Analysis*

All samples must be analyzed initially for asbestos content by PLM. XRD should be used as an auxiliary method when a second, independent analysis is requested.

Note.—Asbestos is a toxic substance. All handling of dry materials should be performed in an operating fume hood.

2.7.2.1 Sample Preparation

The method of sample preparation required for XRD analysis will depend on: (1) the condition of the sample received (sample size, homogeneity, particle size distribution, and overall composition as determined by PLM); and (2) the type of XRD analysis to be performed (qualitative, quantitative, thin layer or bulk).

Bulk materials are usually received as inhomogeneous mixtures of complex composition with very wide particle size distributions. Preparation of a homogeneous, representative sample from asbestos-containing materials is particularly difficult because the fibrous nature of the asbestos minerals inhibits mechanical mixing and stirring, and because milling procedures may cause adverse lattice alterations.

A discussion of specific matrix reduction procedures is given below. Complete methods of sample preparation are detailed in Sections 2.7.2.2 and 2.7.2.3.

Note.—*All samples should be examined microscopically before and after each matrix reduction step* to monitor changes in sample particle size, composition, and crystallinity, and to ensure sample representativeness and homogeneity for analysis.

2.7.2.1.1 *Milling*—Mechanical milling of asbestos materials has been shown to decrease fiber crystallinity, with a resultant decrease in diffraction intensity of the specimen; the degree of lattice alteration is related to the duration and type of milling process.[19-22] Therefore, all milling times should be kept to a minimum.

For *qualitative analysis*, particle size is not usually of critical importance and initial characterization of the material with a minimum of matrix reduction is often desirable to document the composition of the sample as received. Bulk samples of very large particle size (>2–3 mm) should be comminuted to ~100 μm. A mortar and pestle can sometimes be used in size reduction of soft or loosely bound materials though this may cause matting of some samples. Such samples may be reduced by cutting with a razor blade in a mortar, or by grinding in a suitable mill (e.g., a microhammer mill or equivalent). When using a mortar for grinding or cutting, the sample should be moistened with ethanol, or some other suitable wetting agent, to minimize exposures.

For accurate, reproducible *quantitative analysis*, the particle size of both sample and standard materials should be reduced to ~10 μm (see Section 2.3.3). Dry ball milling at liquid nitrogen temperatures (e.g., Spex Freezer Mill, or equivalent) for a maximum time of 10 min. is recommended to obtain satisfactory particle size distributions while protecting the integrity of the crystal lattice.[5] Bulk samples of very large particle size may require grinding in two stages for full matrix reduction to <10 μm.[8 16]

Final particle size distributions should always be verified by optical microscopy or another suitable method.

2.7.2.1.2 *Low temperature ashing*—For materials shown by PLM to contain large amounts of gypsum, cellulosic, or other organic materials, it may be desirable to ash the samples prior to analysis to reduce background radiation or matrix interference. Since chrysotile undergoes dehydroxylation at temperatures between 550° C and and 650° C, with subsequent transformation to forsterite,[23 24] ashing temperatures should be kept below 500° C. Use of a low temperature asher is recommended. In all cases, calibration of the oven is essential to ensure that a maximum ashing temperature of 500° C is not exceeded.

2.7.2.1.3 *Acid leaching*—Because of the interference caused by gypsum and some carbonates in the detection of asbestiform minerals by XRD (see Section 2.3.1), it may be necessary to remove these interferents by a simple acid leaching procedure prior to analysis (see Section 1.7.2.2).

2.7.2.2 Qualitative Analysis

2.7.2.2.1 *Initial screening of bulk material*—Qualitative analysis should be performed on a representative, homogeneous portion of the sample with a minimum of sample treatment.

1. Grind and mix the sample with a mortar and pestle (or equivalent method, see Section 2.7.2.1.1.) to a final particle size sufficiently small (~100 μm) to allow adequate packing into the sample holder.

2. Pack the sample into a standard bulk sample holder. Care should be taken to ensure that a representative portion of the milled sample is selected for analysis. Paticular care should be taken to avoid possible size segregation of the sample. (Note: Use of a back-packing method [25] of bulk sample preparation may reduce preferred orientation effects.)

3. Mount the sample on the diffractometer and scan over the diagnostic peak regions for the serpentine (~67.4 Å) and amphibole (8.2–8.5 Å) minerals (see Table 2–2). The X-ray diffraction equipment should be optimized for intensity. A slow scanning speed of 1° 2θ/min is recommended for adequate resolution. Use of a sample spinner is recommended.

4. Submit all samples that exhibit diffraction peaks in the diagnostic regions for asbestiform minerals to a full qualitative XRD scan (5°–60° 2θ; 1°2θ/min) to verify initial peak assignments and to identify potential matrix interferences when subsequent quantitative analysis is to be perform.

5. Compare the sample XRD pattern with standard reference powder diffraction patterns (i.e., JCPDS powder diffraction data [3] or those of other well-characterized reference materials). Principal lattice spacings of asbestiform minerals are given in Table 2–2; common constituents of bulk insulation and wall materials are listed in Table 2–3.

2.7.2.2.2 *Detection of minor or trace constituents*—Routine screening of bulk materials by XRD may fail to detect small concentrations (<5 percent) of asbestos. The limits of detection will, in general, be improved if matrix absorption effects are minimized, and if the sample particle size is reduced to the optimal 1 to 10 μm range, provided that the crystal lattice is not degraded in the milling process. Therefore, in those instances where confirmation of the presence of an asbestiform mineral at very low levels is required, or where a negative result from initial screening of the bulk material by XRD (see Section 2.7.2.2.1) is in conflict with previous PLM results, it may be desirable to prepare the sample as described for quantitative analysis (see Section 2.7.2.3) and step-scan over appropriate 2θ ranges of selected diagnostic peaks (Table 2–2). Accurate transfer of the sample to the silver membrane filter is not necessary unless subsequent quantitative analysis is to be performed.

2.7.2.3 Quantitative Analysis

The proposed method for quantitation of asbestos in bulk samples is a modification of the NIOSH-recommended thin-layer method for chrysotile in air.[5] A thick-layer or bulk method involving pelletizing the sample may be used for semiquantitative analysis; [7 8] however, this method requires the addition of an internal standard, use of a specially fabricated sample press, and relatively large amounts of standard reference materials. Additional research is required to evaluate the comparability of thin- and thick-layer methods for quantitative asbestos analysis.

For quantitative analysis by thin-layer methods, the following procedure is recommended:

1. Mill and size all or a substantial representative portion of the sample as outlined in Section 2.7.2.1.1.

2. Dry at 100° C for 2 hr; cool in a desiccator.

3. Weigh accurately to the nearest 0.01 mg.

4. Samples shown by PLM to contain large amounts of cellulosic or other organic materials, gypsum, or carbonates, should be submitted to appropriate matrix reduction procedures described in Sections 2.7.2.1.2 and 2.7.2.1.3. After ashing and/or acid treatment, repeat the drying and weighing procedures described above, and determine the percent weight loss; L.

5. Quantitatively transfer an accurately weighed amount (50–100 mg) of the sample to a 1–L volumetric flask with approximately 200 mL isopropanol to which 3 to 4 drops of surfactant have been added.

6. Ultrasonicate for 10 min at a power density of approximately 0.1 W/mL, to disperse the sample material.

7. Dilute to volume with isopropanol.

8. Place flask on a magnetic stirring plate. Stir.

9. Place a silver membrane filter on the filtration apparatus, apply a vacuum, and attach the reservoir. Release the vacuum and

add several milliliters of isopropanol to the reservoir. Vigorously hand shake the asbestos suspension and immediately withdraw an aliquot from the center of the suspension so that total sample weight, $W_T$, on the filter will be approximately 1 mg. Do not adjust the volume in the pipet by expelling part of the suspension; if more than the desired aliquot is withdrawn, discard the aliquot and resume the procedure with a clean pipet. Transfer the aliquot to the reservoir. Filter rapidly under vacuum. Do not wash the reservoir walls. Leave the filter apparatus under vacuum until dry. Remove the reservoir, release the vacuum, and remove the filter with forceps. (Note: Water-soluble matrix interferences such as gypsum may be removed at this time by careful washing of the filtrate with distilled water. Extreme care should be taken not to disturb the sample.)

10. Attach the filter to a flat holder with a suitable adhesive and place on the diffractometer. Use of a sample spinner is recommended.

11. For each asbestos mineral to be quantitated select a reflection (or reflections) that has been shown to be free from interferences by prior PLM or qualitative XRD analysis and that can be used unambiguously as an index of the amount of material present in the sample (see Table 2–2).

12. Analyze the selected diagnostic reflection(s) by step scanning in increments of 0.02° 2$\theta$ for an appropriate fixed time and integrating the counts. (A fixed count scan may be used alternatively; however, the method chosen should be used consistently for all samples and standards.) An appropriate scanning interval should be selected for each peak, and background corrections made. For a fixed time scan, measure the background on each side of the peak for one-half the peak-scanning time. The net intensity, $I_a$, is the difference between the peak integrated count and the total background count.

13. Determine the net count, $I_{Ag}$, of the filter 2.36 Å silver peak following the procedure in step 12. Remove the filter from the holder, reverse it, and reattach it to the holder. Determine the net count for the unattenuated silver peak, $I^{\circ}_{Ag}$. Scan times may be *less* for measurement of silver peaks than for sample peaks; however, they should be *constant* throughout the analysis.

14. Normalize all raw, net intensities (to correct for instrument instabilities) by referencing them to an external standard (e.g. the 3.34 Å peak of an α-quartz reference crystal). After each unknown is scanned, determine the net count, $I^{\circ}_r$, of the reference specimen following the procedure in step 12. Determine the normalized intensities by dividing the peak intensities by $I^{\circ}_r$:

$$\hat{I}_a = \frac{I_a}{I^{\circ}_r}, \quad \hat{I}_{Ag} = \frac{I_{Ag}}{I^{\circ}_r}, \text{ and } \hat{I}^{\circ}_{Ag} = \frac{I^{\circ}_{Ag}}{I^{\circ}_r}$$

2.8 Calibration

2.8.1 *Preparation of Calibration Standards*

1. Mill and size standard asbestos materials according to the procedure outlined in Section 2.7.2.1.1. *Equivalent, standardized matrix reduction and sizing techniques should be used for both standard and sample materials.*

2. Dry at 100° C for 2 hr; cool in a desiccator.

3. Prepare two suspensions of each standard in isopropanol by weighing approximately 10 and 50 mg of the dry material to the nearest 0.01 mg. Quantitatively transfer each to a 1-L volumetric flask with approximately 200 mL isopropanol to which a few drops of surfactant have been added.

4. Ultrasonicate for 10 min at a power density of approximately 0.1 W/mL, to disperse the asbestos material.

5. Dilute to volume with isopropanol.

6. Place the flask on a magnetic stirring plate. Stir.

7. Prepare, in triplicate, a series of at least five standard filters to cover the desired analytical range, using appropriate aliquots of the 10 and 50 mg/L suspensions and the following procedure.

Mount a silver membrane filter on the filtration apparatus. Place a few milliliters of isopropanol in the reservoir. Vigorously hand shake the asbestos suspension and immediately withdraw an aliquot from the center of the suspension. Do not adjust the volume in the pipet by expelling part of the suspension; if more than the desired aliquot is withdrawn, discard the aliquot and resume the procedure with a clean pipet. Transfer the aliquot to the reservoir. Keep the tip of the pipet near the surface of the isopropanol. Filter rapidly under vacuum. Do not wash the sides of the reservoir. Leave the vacuum on for a time sufficient to dry the filter. Release the vacuum and remove the filter with forceps.

2.8.2 *Analysis of Calibration Standards*

1. Mount each filter on a flat holder. Perform step scans on selected diagnostic reflections of the standards and reference specimen using the procedure outlined in Section 2.7.2.3, step 12, and the same conditions as those used for the samples.

2. Determine the normalized intensity for each peak measured, $\hat{I}^{\circ}_{std}$, as outlined in Section 2.7.2.3, step 14.

2.9 Calculations

For each asbestos reference material, calculate the exact weight deposited on each standard filter from the concentrations of the standard suspensions and aliquot volumes. Record the weight, w, of each standard. Prepare a calibration curve by regressing $\hat{I}2^{\circ}_{std}$ on w. Poor reproducibility (±15 percent RSD) at any given level indicates problems in the sample preparation technique, and a need for new standards. The data should fit a straight line equation.

Determine the slope, m, of the calibration curve in counts/microgram. The intercept, b, of the line with the $\hat{I}^{\circ}_{std}$ axis should be approximately zero. A large negative intercept indicates an error in determining the background. This may arise from incorrectly measuring the baseline or from interference by another phase at the angle of background measurement. A large positive intercept indicates an error in determining the baseline or that an impurity is included in the measured peak.

Using the normalized intensity, $\hat{I}_{Ag}$, for the attenuated silver peak of a sample, and the corresponding normalized intensity from the unattenuated silver peak, $\hat{I}^{\circ}_{Ag}$, of the sample filter, calculate the transmittance, T, for each sample as follows:[26 27]

$$T = \frac{\hat{I}_{Ag}}{\hat{I}^{\circ}_{Ag}}$$

Determine the correction factor, f(T), for each sample according to the formula:

$$f(T) = \frac{-R\ (\ln T)}{1-T^R}$$

where

$$R = \frac{\sin \theta_{Ag}}{\sin \theta_a},$$

$\theta_{Ag}$ = angular position of the measured silver peak (from Bragg's Law), and
$\theta_a$ = angular position of the diagnostic asbestos peak.

Calculate the weight, $W_a$, in micrograms, of the asbestos material analyzed for in each sample, using the appropriate calibration data and absorption corrections:

$$W_a = \frac{\hat{I}_a f(t) - b}{m}$$

Calculate the percent composition, $P_a$, of each asbestos mineral analyzed for in the parent material, from the total sample weight, $W_T$, on the filter:

$$P_a = \frac{W_a\ (1-.01L)}{W_T} \times 100$$

where

$P_a$ = percent asbestos mineral in parent material;
$W_a$ = mass of asbestos mineral on filter, in μg;
$W_T$ = total sample weight on filter, in μg;
L = percent weight loss of parent material on ashing and/or acid treatment (see Section 2.7.2.3).

2.10 References

1. H. P. Klug and L. E. Alexander, *X-ray Diffraction Procedures for Polycrystalline and Amorphous Materials*, 2nd ed., New York: John Wiley and Sons, 1979.

2. L. V. Azaroff and M. J. Buerger, *The Powder Method of X-ray Crystallography*, New York: McGraw-Hill, 1958.

3. *JCPDS-International Center for Diffraction Data Powder Diffraction File*, U.S. Department of Commerce, National Bureau of Standards, and Joint Committee on Powder Diffraction Studies, Swarthmore, PA.

4. W. J. Campbell, C. W. Huggins, and A. G. Wylie, *Chemical and Physical Characterization of Amosite, Chrysotile, Crocidolite, and Nonfibrous Tremolite for National Institute of Environmental Health Sciences Oral Ingestion Studies*, U.S. Bureau of Mines Report of Investigation RI8452, 1980.

5. B. A. Lange and J. C. Haartz, Determination of microgram quantities of asbestos by X-ray diffraction: Chrysotile in thin dust layers of matrix material, *Anal. Chem., 51*(4):520–525, 1979.

6. *NIOSH Manual of Analytical Methods*, Volume 5, U.S. Dept. HEW, August 1979, pp. 309–1 to 309–9.

7. H. Dunn and J. H. Stewart, Jr., Quantitative determination of chrysotile in building materials, *The Microscope, 29*(1), 1981.

8. M. Taylor, Methods for the quantitative determination of asbestos and quartz in bulk samples using X-ray diffraction, *The Analyst, 103*(1231):1009–1020, 1978.

9. L. Birks, M. Fatemi, J. V. Gilfrich, and E. T. Johnson, *Quantitative Analysis of Airborne Asbestos by X-ray Diffraction,* Naval Research Laboratory Report 7879, Naval Research Laboratory, Washington, D.C., 1975.

10. U.S. Environmental Protection Agency, *Asbestos-Containing Materials in School Buildings: A Guidance Document,* Parts 1 and 2, EPA/OTS No. C00090, March 1979.

11. J. B. Krause and W. H. Ashton, Misidentification of asbestos in talc, pp. 339–353, in: *Proceedings of Workshop on Asbestos: Definitions and Measurement Methods* (NBS Special Publication 506), C. C. Gravatt, P. D. LaFleur, and K. F. Heinrich (eds.), Washington, D.C.: National Measurement Laboratory, National Bureau of Standards, 1977 (issued 1978).

12. H. D. Stanley, The detection and identification of asbestos and asbesti-form minerals in talc, pp. 325–337, *in Proceedings of Workshop on Asbestos: Definitions and Measurement Methods* (NBS Special Publication 506), C. C. Gravatt, P. D. LaFleur, and K. F. Heinrich (eds.), Washington, D.C., National Measurement Laboratory, National Bureau of Standards, 1977 (issued 1978).

13. A. L. Rickards, Estimation of trace amounts of chrysotile asbestos by X-ray diffraction, *Anal. Chem., 44*(11):1872–3, 1972.

14. P. M. Cook, P. L. Smith, and D. G. Wilson, Amphibole fiber concentration and determination for a series of community air samples: use of X-ray diffraction to supplement electron microscope analysis, in: *Electron Microscopy and X-ray Applications to Environmental and Occupation Health Analysis,* P. A. Russell and A. E. Hutchings (eds.), Ann Arbor: Ann Arbor Science Publications, 1977.

15. A. N. Rohl and A. M. Langer, Identification and quantitation of asbestos in talc, *Environ. Health Perspectives, 9*:95–109, 1974.

16. J. L. Graf, P. K. Ase, and R. G. Draftz, *Preparation and Characterization of Analytical Reference Minerals,* DHEW (NIOSH) Publication No. 79–139, June 1979.

17. J. C. Haartz, B. A. Lange, R. G. Draftz, and R. F. Scholl, Selection and characterization of fibrous and nonfibrous amphiboles for analytical methods development, pp. 295–312, in: *Proceedings of Workshop on Asbestos: Definitions and Measurement Methods* (NBS Special Publication 506), C. C. Gravatt, P. D. LaFleur, and K. F. Heinrich (eds.), Washington, D.C.: National Measurement Laboratory, National Bureau of Standards, 1977 (issued 1978).

18. Personal communication, A. M. Langer, Environmental Sciences Laboratory, Mount Sinai School of Medicine of the City University of New York, New York, New York.

19. A. M. Langer, M. S. Wolff, A. N. Rohl, and I. J. Selikoff, Variation of properties of chrysotile asbestos subjected to milling, *J. Toxicol. and Environ. Health, 4*:173–188, 1978.

20. A. M. Langer, A. D. Mackler, and F. D. Pooley, Electron microscopical investigation of asbestos fibers, *Environ. Health Perspect., 9*:63–80, 1974.

21. E. Occella and G. Maddalon, X-ray diffraction characteristics of some types of asbestos in relation to different techniques of comminution, *Med. Lavoro, 54*(10):628–636, 1963.

22. K. R. Spurny, W. Stöber, H. Opiela, and and G. Weiss, On the problem of milling and ultrasonic treatment of asbestos and glass fibers in biological and analytical applications, *Am. Ind. Hyg. Assoc. J., 41*:198–203, 1980.

23. L. G. Berry and B. Mason, *Mineralogy,* San Francisco: W. H. Greeman & Co., 1959.

24. J. P. Schelz, The detection of chrysotile asbestos at low levels in talc by differential thermal analysis, *Thermochimica Acta, 8*:197–204, 1974.

25. Reference 1, pp. 372–374.

26. J. Leroux, *Staub-Reinhalt Luft, 29*:26 (English), 1969.

27. J. A. Leroux, B. C. Davey, and A. Paillard, *Am. Ind. Hyg. Assoc. J., 34*:409, 1973.

[FR Doc. 82–14477 Filed 5–26–82; 8:45 am]

BILLING CODE 6560–50–M