PLAINTIFF'S EXHIBIT

UC-3552

Abstract
The U.S. Environmental Protection Agency has established effluent limitations and standards for regulating the discharges from pulp, paper, and paperboard mills. The Agency has recently signed a consent decree (June 1976) as a result of litigation brought by five public interest groups. The consent decree requires the Agency to establish revised effluent limitations and standards regulating the discharge of up to 65 classes of pollutants from pulp, paper, and paperboard mills, builders paper mills, and converted paper plants. The regulations must be promulgated within 3 years and would be applicable to new facilities, to existing facilities (on or before 1983), and to users of publicly owned treatment works.

Keywords
Pollution
Effluents
Pollution control
Standards
Toxicity
Carcinogens

Revision of the 1983 effluent guidelines

The role of toxic compounds

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Under the authority of the Federal Water Pollution Control Agency (FWPCA), the U.S. Environmental Protection Agency (EPA) has established effluent limitations for existing sources, standards of performance for new sources (NSPS), and pretreatment standards for discharges to publicly owned treatment facilities for 43 industrial categories (including the pulp, paper, and paperboard industry). Regulations have been established for existing sources which had to be met by July 1, 1977, through application of the best practicable control technology currently available, and by July 1, 1983, through application of the best available technology economically achievable (BATEA). The basis for the NSPS is the best available demonstrated technology (BADT). The regulations are required under sections 301, 304, 306, 307(b), and 307(c) of the FWPCA and (except for pretreatment) are intended for use in the section 402 NPDES program.

In order to develop effluent limitations and standards for the pulp and paper industry, the industry was divided into two phases: unbleached and bleached production. Regulations for the unbleached or Phase I segment of the industry were promulgated in May 1974, challenged in litigation, and affirmed by the U.S. Court of Appeals in August 1976. Regulations for the 1977 effluent limitations for the Phase II segment were promulgated in January 1977 and are presently in litigation. The regulations for the Phase II 1983 effluent limitations and NSPS were proposed in February 1976. Pollutants controlled by the regulations include such classical pollutant parameters as BOD_5, TSS, and pH but do not include toxic compounds required to be regulated under section 307 (a).

To urge the EPA to proceed to develop regulations for the control of additional pollutants including toxic pollutants, five public interest groups filed civil suits in the U.S. District Court in the District of Columbia against EPA. The public interest groups were the following: Natural Resources Defense Council, Inc.; Environmental Defense Fund, Inc.; Businessmen for the Public Interest, Inc.; National Audubon Society, Inc.; and Citizens for a Better Environment, Inc. The litigation was settled out of court and a consent decree was signed by the Agency and approved by the U.S. District Court on June 7, 1976.

REQUIREMENTS OF AGREEMENT

The consent decree, or Settlement Agreement, requires the Agency to develop and promulgate regulations which establish effluent limitations and guidelines for existing sources to be met no later than June 30, 1983, in effect requiring the application of BATEA which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, including toxic pollutants. The Settlement Agreement also requires establishment of standards of performance for new sources requiring the application of BADT and pretreatment standards for existing and new sources for controlling discharges of toxic materials into publicly owned treatment facilities.

The pollutants which are to be regulated are specified in the Agreement, and these include 65 individual or classes of compounds as shown in Table I. The Agency must also identify the types of mills discharging the compounds shown in Table II.

Regulations must be established for 21 major industry categories specified in the Settlement Agreement, and these are shown in Table III. The Settlement Agreement requires that regulations be established for pulp, paper, and paperboard mills, builders paper mills, and converted paper plants. The SIC codes to be covered within the pulp and paper industry are shown in Table IV.

The schedule for promulgating the limitations and standards is also set. For the pulp and paper industry, the regulations must be promulgated by September 30, 1979, which allows one year for contractor studies beginning June 30, 1977. The regulations are to be

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Table I. Settlement Agreement Pollutants

Acenaphthene	DDT & metabolites	Mercury & compounds
Acrolein	Dichlorobenzene	
Acrylonitrile	Dichlorobenzidine	
Aldrin/dieldrin	Dichloroethylenes	Napthalene
Antimony & compounds	2, 4-dichlorophenol	Nickel & compounds
Arsenic & compounds	Dichloropropane & dichloropropene	Nitrobenzene
Asbestos	2, 4-Dimethylphenol	Nitrophenols
	Dinitrotoluene	Nitrosamines
Benzene	Diphenylhydrazine	
Benzidine		Pentachlorophenol
Beryllium & compounds		Phenol
	Endosulfan & metabolites	Phthalate esters
Cadmium & compounds	Endrin	Polychlorinated biphenyls
Carbon tetrachloride	Ethylbenzene	Polynuclear aromatic hydrocarbons
Chlordane		
Chlorinated benzenes	Fluoranthene	Selenium & compounds
Chlorinated ethanes		Silver & compounds
Chloralkyl ethers	Haloethers	2, 3, 7, 8 - Tetrachlorodibenzo-p-dioxin
Chlorinated napthalene	Halomethanes	
Chlorinated phenols	Heptachlor & metabolites	Tetrachloroethylene
Chloroform	Hexachlorobutadiene	Thallium & compounds
2-Chlorophenol	Hexachlorocyclohexane	Toluene
Chromium & compounds	Hexachlorocyclopentadiene	Toxaphene
Copper & compounds	Isophorone	Trichloroethylene
Cyanides	Lead & compounds	Vinyl chloride
		Zinc & compounds

Table II. Settlement Agreement Pollutants (Secondary)

Acetone	Dialklyl ethers	Nitrites
n-Alkanes ($C_{10} - C_{30}$)	Dibenzofuran	Secondary amines
Biphenyl	Diphenyl ether	Styrene
Chlorine	Methylethyl ketone	Terpenes

proposed within 6 months of completion of the economic contractor studies (due 3 months after technical studies) and promulgated 6 months after proposal.

The 65 compounds shown in Table I were determined for inclusion in the Settlement Agreement through the efforts of a special Agency ad hoc work group assisted by consultants and environmental interest groups. The group developed an initial list of 232 candidate pollutants of concern from information supplied from the Agency's Office of Toxic Substances, Water Supply, and Water Planning and Standards, the National Science Foundation, the Environmental Defense Fund, and the Natural Resources Defense Council. Additional information was obtained from the National Institute of Occupational Safety and Health, the International Agency for Research on Cancer, and the National Cancer Institute.

Each of the pollutants on the initial list was researched to determine human carcinogenicity, other chronic toxicity, aquatic toxicity, bioaccumulation, persistence, and presence in effluents, aquatic environment, drinking water supplies, and media sources (air, water, and food) of the pollutant. The initial list of 232 substances was reduced to the 65 individual compounds or classes of compounds through examination of such criteria as (1) known occurence in point source effluents, in the aquatic environment, in fish, or in drinking water, (2) carcinogencity, mutagenicity, or teratogenicity in human epidemiological studies or in animal bioassays, and (3) known toxic effects on humans or aquatic organisms.

In order to develop a specific list of pollutants which are to be considered in setting the effluent regulations, the 65 compounds were examined by the Agency and a specific list of 129 pollutants was determined. The selection of the specific compounds was based upon a number of criteria including (1) the frequency of occurrence of the compounds in receiving waters, (2) the availability of chemical standards for analytical requirements, (3) the production and number of plants involved in the manufacture of the compounds, and (4) the chemical stability and structure of the compound.

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PROGRAM STRATEGY

The agency's approach to satisfying the requirements of the Settlement Agreement involves the staff included in the office of Water Planning and Standards which is included in the organizational structure under the Office of Water and Hazardous Materials.

Table III. Industries Covered by Consent Decree

1. Timber Products Processing
2. Leather Tanning & Finishing
3. Steam Electric Power Plants
4. Iron & Steel Manufacturing
5. Petroleum Refining
6. Nonferrous Metals Manufacturing
7. Paint & Ink Formulation & Printing
8. Auto & Other Laundries
9. Paving & Roofing Materials
10. Ore Mining & Dressing
11. Coal Mining
12. Textile Mills
13. Soap & Detergent Manufacturing
14. Plastic & Synthetic Materials Manufacturing
15. Pulp & Paperboard Mills; Converted Paper Products
16. Rubber Processing
17. Miscellaneous Chemicals
18. Machinery & Mechanical Products Manufacturing
19. Electroplating
20. Inorganic Chemicals Manufacturing
21. Organic Chemicals Manufacturing

Table IV. Settlement Agreement: Pulp and Paper Industry

Pulp, paper, and paperboard mills; converted paper products

- SIC 2611 — Pulp Mills
- SIC 2621 — Paper Mills, Except Building Paper Mills
- SIC 2631 — Paperboard Mills
- SIC 2641 — Paper Coating and Glazing
- SIC 2642 — Envelopes
- SIC 2643 — Bags, Except Textile Bags
- SIC 2645 — Die-Cut Paper and Paperboard and Cardboard
- SIC 2646 — Pressed and Molded Pulp Goods
- SIC 2647 — Sanitary Paper Products
- SIC 2648 — Stationary, Tablets, and Related Products
- SIC 2649 — Converted Paper and Paperboard Products, Not Elsewhere Classified
- SIC 2651 — Folding Paperboard Boxes
- SIC 2652 — Set-Up Paperboard Boxes
- SIC 2653 — Corrugated and Solid Fiber Boxes
- SIC 2654 — Sanitary Food Containers
- SIC 2655 — Fiber Cans, Tubes, Drums, and Similar Products
- SIC 2661 — Building Paper and Building Board Mills
- SIC 2782 — Blankbooks, Looseleaf Binders and Devices

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and Standards, four separate divisions have specific responsibilities in a program which has been designed to fully integrate the Agency's regulatory programs under sections 301, 304, 306, and 307 and which is keyed to the effective control of toxic and hazardous pollutants discharged by industrial point sources. These divisions include the Effluent Guidelines Division (EGD), Criteria and Standards Division (CSD), Monitoring and Data Support Division (MDSD), and the Office of Analysis and Evaluation (OAE). Section 301 (d) of the FWPCA requires the Agency to review and revise, if necessary, the effluent limitations within 5 years, and the Agency's approach to responding to the Settlement Agreement will also satisfy this requirement. The program strategy is to integrate studies of the health and environmental effects of individual pollutants or families of pollutants along with industry-by-industry technical and economic studies to provide a final framework for regulating the 123 pollutants. These studies will be conducted primarily by private consulting firms contracted to the Agency.

Health/Environmental Studies

The CSD and the MDSD are responsible for conducting studies into the health and environmental impacts of the 65 classes of compounds. These studies will gather, develop, and analyze scientific, technical, economic, analytical, and background information pertaining to the evaluation of potential human-related or ecological-related hazards in the water environment of the 65 compounds listed in Table I and the 12 compounds listed in Table II. The studies will include geographical and quantitative identification of the toxic pollutants in water, fish, wildlife, air, and on land; geographical and quantitative identification of importing, manufacturing, distribution, consumption, uses, disposal, and fate of the pollutants; relative significance of indirect and direct discharges of the pollutants to the total environment burden; and the identification of geographical and environmental areas of concern and the potential sources of each of the pollutants.

Economic Impact Studies

The OAE is responsible for economic studies which will examine the economic impact of achieving the effluent limitations and standards. Preliminary analyses will be conducted to establish ranges of acceptable, marginal, or unacceptable costs associated with installation of pollution control technologies. The purpose of the preliminary analyses is to provide the EGD with some information relative to the magnitude of the costs which can be [illegible] various industries. Thus, economic studies will be integrated into the program at the outset which will minimize problems with coordination, subcategorization, and setting of effluent limitations.

Technology Studies

The EGD has the responsibility for investigating alternative pollution control technologies which can be applied to each subcategory for reduction of the compounds in Table I. Costs for each of the treatment alternatives will be determined in addition to the effluent reduction capabilities. In the course of collecting information and data for these efforts, it is anticipated that extensive use of section 308 requests for information and data from individual plants will be used. This will place a responsibility on industry to provide data and on the Agency's contractor and in-house resources to analyze the data and complete the engineering studies. Within the Agency, the Office of Research and Development and the Regional Office staffs (Surveillance and Analysis Division) will also provide information and data from on-going projects and plant surveys.

In addition, sampling of mill raw water supplies, raw waste waters, and final effluents will be conducted by the contractor. These sampling surveys will be conducted in two phases. The initial survey efforts (termed "screening" surveys) will include approximately one or two plants in each subcategory, and, in the second, all 123 pollutants are to be measured. Present plans are to collect one 72-hr composite sample from the mill's raw water, raw wastewater, and final effluent. Following analysis of the screening survey results, the second phase surveys ("verification surveys") will be conducted at approximately five plants in each subcategory, and more extensive sampling will be conducted including at least 3 days of sampling efforts during which 24-hr composite samples will be collected. It is anticipated that many of the 123 pollutants will not be found in significant amounts in the screening survey samples, and thus the verification survey samples will hopefully be analyzed for much fewer than the original 123 pollutants. In addition to measuring the 123 pollutants, the classical pollutant parameters (such as BOD_5 and COD) will also be measured because correlations between the 123 pollutants and the more classical parameters may exist and surrogate parameters may be desirable to be used to regulate the 123 pollutants.

These sampling surveys are a major focus of a program which has been designed to use Agency resources initially to identify information and data requirements. Following these efforts, emphasis is to be placed on industry to provide the extensive information and data required. The initial data base put together by the Agency will thus include all available information and data from the literature, from mill sources, and from mill sampling surveys. It is presently anticipated that this initial information and data base will be used as a basis to request by the section 308 mechanism, if necessary, on-site monitoring (sampling and analysis) of mill effluents by mill personnel over extended periods of time. The Agency is hopeful that the industry will initiate self-monitoring programs at an early stage of the regulations development in order to generate an extensive data base.

The effluent limitations and standards will be determined using the information and data derived from all of the above studies. Depending upon the assessment of health and environmental risk avoidance and the economic impact, one of the treatment technology alternatives will be selected as the basis for the limitations and standards.

SUMMARY

In summary, the Office of Water Planning and Standards strategy is to: (1) integrate its control options for water quality constituents of concern under sections 301, 304, 306, 307 into one program; (2) initiate a series of health/environmental, economic, and technical studies to support the ranges of regulatory options; (3) complete health and environmental effects studies, pollutant-by-pollutant, as well as for other constituents associated with the section 304(a) water quality criteria mandate; (4) complete a general overview study; (5) accomplish technical and economic studies, industry-by-industry and place increased emphasis on statistics and technology demonstration; and (6) use sections 301, 304, and 306 in most cases to achieve effective control of the substances of concern. However, if a BATEA technology level is not deemed sufficient control, and the health/environmental risks are severe, section 307 (a) will be used to require more stringent, environmentally protective controls. Section 307(b) and (c) would continue to control indirect dischargers. The water quality monitoring program will be used where possible as a feedback mechanism to determine the effectiveness of the final regulations over the long term. If more stringent controls are determined to be necessary, the section 302 and 303 processes will be used to achieve the desired control.

Received for review May 24, 1977.
Accepted May 24, 1977.
Based on a paper published in *TAPPI Conference Papers — 1977 Environmental*, a copyrighted publication of the Technical Association of the Pulp and Paper Industry, Inc., Atlanta, Ga.

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