Pretreatment Issues

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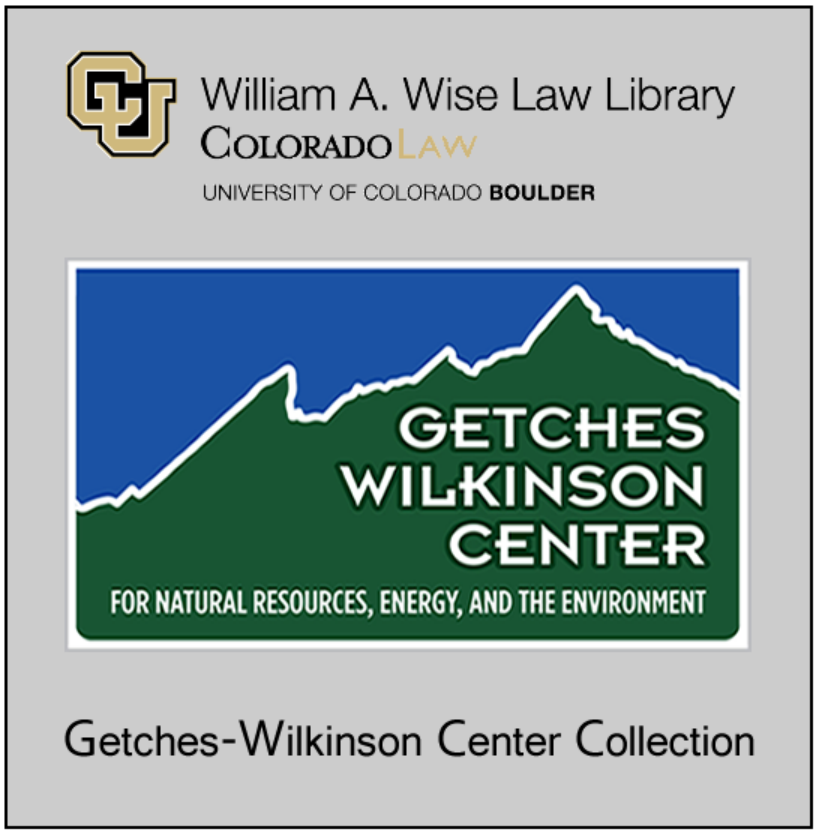

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WATER QUALITY CONTROL

INTEGRATING BENEFICIAL USE AND ENVIRONMENTAL PROTECTION

PRETREATMENT ISSUES

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WATER QUALITY CONTROL

INTEGRATING BENEFICIAL USE AND ENVIRONMENTAL PROTECTION

PRETREATMENT ISSUES

I. INTRODUCTION

A. Summary

Pretreatment is the treatment of industrial wastes prior to their discharge into a municipal sewer system, which discharges into a publicly owned treatment works ("POTW"), and then into the receiving waters associated with that POTW. Since the late 1970's, the United States Environmental Protection Agency (EPA) has been in the process of implementing the original pretreatment requirements that appeared in P.L. 92-500, the Federal Water Pollution Control Act of 1972, now amended and more commonly referred to as the Clean Water Act.

The National Pretreatment Program implements the federal approach to pretreatment as defined in the CWA and the pretreatment regulations. The Program focuses on protecting POTWs from the discharge of hazardous and toxic wastes into their systems, as those wastes could be detrimental to the POTW or the receiving waters. Congress has focused on the control of toxic pollutants by mandating responsibilities for both the industrial sector and the POTW. It is the primary responsibility of the POTWs to enforce the National Pretreatment Program and it is the responsibility of the industries to meet those effluent limitations as defined in the National Pretreatment Standards.

This outline summarizes the present pretreatment program and regulations. In addition, the outline discusses other pretreatment topics,

including litigation and enforcement issues, and the impact of other federal hazardous waste statutes on the pretreatment program.

B. General References

1. The Clean Water Act ("CWA"), 33 U.S.C. § 1251 et seq., particularly §§ 307(b) (33 U.S.C. § 1317), 402(b)(8) (33 U.S.C. § 1342(b)(8)), and 405(b) (33 U.S.C. § 1345(b)).

2. The Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act ("CERCLA" and "SARA"), 42 U.S.C.A. § 9601 et seq., as amended.

3. Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6901 et seq., as amended.

4. The Pretreatment Regulations, 40 C.F.R. Part 403 (1987) and 52 Fed. Reg. 42,434 (Nov. 5, 1987).

5. "The National Pretreatment Program," Environmental Regulations and Technology, United States Environmental Protection Agency, July 1986 (EPA/625/10-86/005).

6. "Overview of the National Pretreatment Program," United States Environmental Protection Agency, Office of Water Enforcement and Permits, April 1985.

7. "Final Report to the Administrator," Pretreatment Implementation Review Task Force, January 30, 1985.

8. "Report to Congress on the Discharge of Hazardous Wastes to POTWs" (the "Domestic Sewage Study"), United States Environmental Protection Agency, Office of Solid Waste, February 1986.

9. "Guidance Manual for POTW Pretreatment Program Development," United States Environmental Protection Agency, Office of Water Enforcement and Permits, October 1983.

II. HISTORY

A. Pretreatment Goals & Purposes

1. The goal of pretreatment is to protect POTWs, and ultimately the environment, from the discharge of toxics by industrial sources. There are two types of industrial dischargers - direct and indirect. The direct dischargers are those that discharge directly into receiving water, and are subject to NPDES permits, while indirect dischargers discharge into municipal sewage treatment systems. In theory, both direct and indirect dischargers should have to meet the same standards prior to discharging, thus preventing any one discharger from having an economic advantage over another due to the location of its discharge. However, pretreatment is based on the notion that "double" treatment is economically inefficient, and industries should not have to remove pollutants if the POTW is capable of such removal.

2. The purpose of the pretreatment regulations is to control pollutants which pass through or interfere with POTW treatment processes or which may contaminate sewage sludge. (40 C.F.R. § 403.1 (1987)).

3. The primary purposes for controlling these pollutants is as follows:

a. Pass Through.

Pass through occurs when pollutants simply go through a plant untreated and are discharged directly into the receiving

waters. Pass throughs are responsible for detrimental impacts on receiving waters including fish kills and increased health risks. EPA has estimated that of the fifty-six million pounds of toxic metal compounds that are discharged annually by industries into POTWs, approximately twenty-two million pounds of those metals pass through directly to receiving water. ("The National Pretreatment Program," page 4).

b. Interference.

Toxic pollutants can interfere in both the primary and secondary treatment systems of POTWs and negatively impact the processes that utilize bacteria in stabilizing the organic matter in the wastewater. Thus, the effectiveness of the bacteria is reduced in treating for other pollutants.

c. Sludge Contamination.

The sludge from a POTW may become contaminated when toxic materials are removed and remain in the wastewater sludge. This limits the ability of a POTW to dispose of this sludge, and also increases the cost of such disposal. Sludge can become contaminated so as to be unacceptable for crops, it can contaminate ground water and landfills, and it can contaminate air through incineration.

d. Corrosion.

Highly acidic wastes can result in corrosion of sewage treatment systems.

e. Explosions.

Volatile compounds can explode causing serious damage and injuries. The most famous example is the February, 1981,

explosion in Louisville, Kentucky, where a discharge of hexane by a dog food plant into the Louisville sewer system resulted in the destruction of three miles of sewer and twenty million dollars in damages. ("The National Pretreatment Program," page 8).

f. Worker Hazards.

A failure to adequately control pollutants at their source can result in the release of poisonous gases not only into the industries where they are being utilized, but also at the POTW. This is a problem that occurs primarily when highly acidic wastes combine with other wastes such as cyanide from the electroplating industry and sulfides from the leather tanning industry.

4. The regulatory focus is on toxic pollutants. Toxic pollutants can be roughly divided into the following categories:

a. Organic pollutants - pesticide solvents, PCBs and dioxins.

b. Metals - primarily the "heavy metals" - silver, mercury, copper, chromium, zinc, and cadmium. To date, EPA's focus has been on the metals.

c. Others, i.e., asbestos, cyanide, etc.

5. Conventional pollutants are generally controlled by the POTWs and include biochemical oxygen demand (BOD), suspended solids, fecal coliform, pH, and oil and grease. Although these pollutants are not generally controlled in pretreatment regulations, limitations may be imposed if those pollutants are discharged at levels that may interfere with the POTW.

B. Program Chronology

1. Prior to 1972, some communities controlled the pretreatment of certain wastes into their systems. The oldest of these appears to be regulations that existed in the 1920's in the City of Milwaukee, Wisconsin, which regulated pH, oil and grease, and temperature levels. ("The National Pretreatment Program," page 10).

2. In 1972, Congress enacted P.L. 92-500, the Federal Water Pollution Control Act. Section 307(b) existed in that Act in essentially the same form that it exists in the CWA today. EPA was required to establish pretreatment standards controlling the introduction of pollutants into POTWs. Industries were required to meet these standards not later than three years from the date of the promulgation of the standards. The standards were to "prevent the discharge of any pollutant through treatment works which are publicly owned, which pollutant interferes with, passes through, or otherwise is incompatible with such works." (33 U.S.C. § 1317(b)(1)).

3. On June 26, 1978, EPA proposed the first set of pretreatment regulations, and these regulations became final on January 28, 1981, with an effective date of March 30, 1981. In addition to the previously stated objectives, these regulations also stated the following goal: "To improve opportunities to recycle and reclaim municipal industrial wastewaters and sludges." (40 C.F.R. § 403.2(c) (1987)).

4. The Clean Water Act Amendments of 1987.

a. Section 307(e) allowed for an extension of two years in order to meet pretreatment standards if a facility applies an "innovative

system" meeting the requirements of § 301(k) of the CWA. (33 U.S.C. § 1317(e)).

b. P.L. 100-4, § 309(b) directed EPA to take whatever actions are necessary to increase the number of employees in order to effectively implement the pretreatment requirements of the CWA.

III. THE NATIONAL PRETREATMENT PROGRAM

A. National Standards

1. Prohibited Discharges. (40 C.F.R. § 403.5 (1987)).

a. General Prohibition. Industrial users (IU) are generally prohibited from introducing pollutants which would cause pass through or interference to POTWs.

i. Affirmative Defenses.

IUs have affirmative defenses that are available in enforcement actions for alleged violations of this section. These defenses protect the IU if a local limit has been developed for that particular pollutant, and the IU did not violate that local limit. If a local limit has not been developed, and the IU's discharge did not "change substantially in nature or constituents" from the IU's prior discharge when the POTW was in compliance with the NPDES permit, then that would also constitute an affirmative defense. Affirmative defenses apply only to general prohibitions and only occur if there has been a violation of an NPDES permit. (40 C.F.R. § 403.5(a)(2) (1987)).

b. Specific Prohibitions. 40 C.F.R. § 403.5(b) (1987). The following pollutants are specifically prohibited from being introduced into a POTW:

i. Pollutants which create a fire or explosion hazard in a POTW.

ii. Pollutants which will cause corrosive structural damage to the POTW, but in no case shall discharges have a pH lower than 5.0.

iii. Solid or viscous pollutants in amounts which will obstruct flow in the POTW.

iv. Any pollutant which causes interference.

v. Heat which will inhibit biological activity in the POTW, but in no case shall it exceed 40°C (104°F) without separate approval.

c. Local limits. 40 C.F.R. § 403.5(d) (1987). POTWs must develop local limits, where necessary, to protect their systems.

2. Categorical Standards. (40 C.F.R. § 403.6 (1987)).

Categorical pretreatment standards have been set for specific industries. They set specific numbers on specific wastes for industrial categories and subcategories. Restrictions are placed on 126 toxic pollutants that had been identified by EPA as having the greatest potential for harm to human health or the environment. See Table 1. These appear to be subsets of the 65 pollutants listed in the CWA, § 307(a)(1), (40 C.F.R. § 401.15 (1987)). Other nonconventional pollutants may be added if an industry is in fact discharging such a pollutant. Presently, categorical pretreatment standards have been adopted for the industries that discharge the bulk of the toxic industrial pollutants.

a. Development of Categorical Standards.

i. These standards are developed by the Industrial Technology Division of the EPA Office of Water Regulations and Standards.

ii. BAT (best available technology economically achievable) for an industry is identified. EPA then considers the removal capabilities of sewage treatment plants and sets a number that avoids redundancy between the industry and the sewage treatment plant. However, if an industry's pollutant would typically pass through or interfere with the POTW, then the BAT number would be the pretreatment number.

iii. Dilution prohibited as a substitute for treatment. (40 C.F.R. § 403.6(d) (1987)).

iv. Industries must comply with categorical pretreatment standards within three years of the effective date of the standard (40 C.F.R. § 403.6(b)(1987)). This process is initiated by a category determination request to the local EPA region. (40 C.F.R. § 403.6(a) (1987)).

v. The "combined wastestream formula" is utilized where process effluent is mixed prior to treatment with other wastewater. (40 C.F.R. § 403.6(e) (1987)).

b. Modifications of Categorical Pretreatment Standards.

i. Net gross adjustment. (40 C.F.R. § 403.15 (1987)).

The net gross calculation allows pretreatment standards to be adjusted to reflect the presence of pollutants in the IU's intake water.

ii. Removal Credits. (40 C.F.R. § 403.7 (1987)).

Removal credits can be granted by a POTW to an IU at its discretion, to reflect removal by the POTW of pollutants specified in the pretreatment standards. However, this section has been the subject of much litigation and at the present time, POTWs are unable to grant removal credits without satisfying the statutory requirements of the sludge regulations as set forth in the CWA, § 405 (33 U.S.C. § 1345). These regulations have not yet been promulgated, so POTWs must demonstrate a compliance with the substance of this section, a seemingly impossible task.

iii. Fundamentally different factors ("FDF") variance. (40 C.F.R. § 403.13 (1987)).

This is a process whereby an IU can request a variance from a pretreatment standard if the IU has data indicating that factors exist which are fundamentally different from those that were considered by EPA in developing a particular limit that is applicable to that IU. This section is seldom used, for although the regulations do list certain factors that EPA will consider (see 40 C.F.R. § 403.13(d) (1987)), most common problems would be associated with factors that they will not consider, e.g., feasibility, ability to pay, and impact of the discharge on the receiving waters. In addition, an FDF variance can be a two-edged sword, as EPA may require more stringent limitations if the facility can meet those numbers.

The CWA amendments of 1987 amended the fundamentally different factors variance provision, making it more stringent to achieve such variances. This section will need to be incorporated into the

pretreatment regulations. However, it should be noted that variances must be requested within 180 days after the effective date of the categorical pretreatment standards. With the exception of organic chemical manufacturing, unless new categorical standards are proposed, this is essentially a dead issue.

IV. INSTITUTIONAL RESPONSIBILITIES

A. EPA

1. Development of categorical pretreatment standards.

2. Review state programs for adequacy and approval of state programs.

3. Review individual POTW programs for their adequacy and approval if there is no approved state program. If there is a state program, then EPA exercises an oversight role.

B. State responsibilities

1. Optional choice to develop and submit to EPA requests for state program approval. (40 C.F.R. § 403.10 (1987)).

2. Some states choose to control the pretreatment program at the state level, i.e., Vermont, Connecticut, and Mississippi. IUs must investigate each individual state to see whether the program is being run by the state, by EPA, by the POTW, or a combination of the three.

C. Industry responsibility

1. Comply with the national pretreatment standards.

2. Comply with any local limits developed by states or POTWs.

3. Comply with reporting requirements.

a. Baseline Monitoring Report (BMR). This is an initial analysis of the IU's discharge. The purpose of the BMR is to demonstrate compliance with effective pretreatment standards, and if the IU is not in compliance, then the IU must submit a compliance schedule to the appropriate authority. (40 C.F.R. § 403.12(b) (1987)).

b. Self-monitoring results are to be submitted at least twice a year.

c. Slug loads must also be reported to the POTW. (40 C.F.R. § 403.12(f) (1987)).

D. POTW's Responsibilities

1. POTWs are the cornerstone of the National Pretreatment Program. It is their responsibility to enforce the pretreatment requirements on local industries.

2. All POTWs with a flow greater than 5 mgd or which are industry impacted are required to develop pretreatment programs (40 C.F.R. § 403.8 (1987)). However, interference and pass through are prohibited in any event.

3. In July, 1986, EPA estimated that out of 1,468 required programs, 1,369 of those had been approved. However, the number of required programs is constantly being revised upward.

4. NPDES permit renewals require pretreatment program development where appropriate. (40 C.F.R. § 403.10 (1987)).

V. REQUIREMENTS OF A LOCAL PRETREATMENT PROGRAM (40 C.F.R. § 403.8(f) (1987)).

A. Legal Authority

See generally, "Guidance Manual for POTW Pretreatment Development."

1. The POTW must have the ability to apply and enforce requirements of §§ 307(b) and (c) and 402(b)(8) of the CWA and the regulations which implement those sections.

a. Generally this requires the ability to control through permits, contracts, orders, or similar means, the contribution to the POTW by each IU.

b. The POTW must have the authority to carry out all inspections, surveillance, and monitoring procedures.

c. The POTW must be able to seek injunctive relief for noncompliance, including the immediate ability to halt or prevent the discharge of pollutants that present an imminent endangerment to the health or welfare of persons.

B. Resources

Adequate funds, equipment, and personnel must exist at a level to operate an effective program.

C. Procedures

The POTW must develop and implement administrative procedures for the pretreatment program, including compliance monitoring and public participation.

D. Development of Local Limits

1. The POTW must have the ability to develop, if necessary, local limits that are more stringent than the federal limits in order to provide adequate protection for the POTW. POTWs must assess whether the discharge from an IU will interfere or pass through their system, will contaminate the sludge, will cause NPDES violations, or will impact workers' safety.

2. This is often a difficult and expensive problem that is compounded by a lack of expertise at the POTW and by the political reality of financially impacting local industries.

3. POTW has a legitimate fear of future POTW hazardous waste liability for unknown problems.

4. POTWs may not have the financial resources to develop local limits, thus, there may be a need for cost recovery from IUs.

E. Enforcement. (40 C.F.R. § 403.8(f)(2) (1987)).

1. POTWs need to establish effective enforcement systems that will survive judicial scrutiny, including sampling methodology and chain of command.

2. Present penalties may be inadequate, usually $300.00 per day of violation and an annual publication in the largest daily newspaper of IUs with significant violations (40 C.F.R. § 403.8(f)(2)(vii) (1987)). EPA may increase requirement to a minimum of $1,000.00 per day of violation.

3. Local ordinances should specifically require that violations of <u>each</u> parameter per day are subject to the maximum amount.

4. In Colorado, home rule cities <u>may</u> have the authority to

fine up to $5,000.00 per day of violation. See SS 13-10-103, 13-10-119, and 18-1-106, C.R.S. Statutory cities are limited to $300.00 per day.

5. Local political problems exist concerning levying fines against the local industrial base. Region VIII EPA advises that the penalty should remove any economic benefits derived from noncompliance plus an additional amount to reflect the seriousness of the violation. Thus, POTWs need to develop a "benefit component" and a "gravity component." This may be a difficult and expensive process.

6. There are problems associated with the deterrence effect of fines on corporations. It may be more economical for corporations, particularly larger, well capitalized ones, to absorb a fine as opposed to implementation of a remedy in a timely fashion.

7. Thus, criminal prosecution and prison may be the most effective deterrent for pretreatment violations. Schneider, Criminal Enforcement of Federal Water Pollution Laws in an Era of Deregulation, 73 J. Crim L. & Criminology 642, 661-674 (1982).

a. In April, 1988, Region VIII EPA personnel were involved in special training for criminal prosecutions, reflecting a general trend towards increased criminal enforcement activity in this area.

b. Regulatory agencies believe that pretreatment violations are "fertile" ground for enforcement, and may well represent the bulk of CWA violations today. However, there are difficult proof problems associated with such cases.

c. There is an increased effort by POTWs to utilize toxic waste detectives and sophisticated techniques in their efforts to prosecute pretreatment violators.

VI. LITIGATION

A. General Pretreatment Regulations

1. Extensive litigation surrounded the initial promulgation of the general pretreatment regulations. This resulted in considerable chaos in the early 1980's concerning the status of the regulations.

a. Natural Resources Defense Council v. Train, 8 Env't Rep. Cas. (BNA) 2110 (D.D.C.1976), modified sub nom. NRDC v. Costle, 12 Env't Rep. Cas. (BNA) 1833 (D.D.C.1979), aff'd in part sub nom. Environmental Defense Fund v. Costle, 636 F.2d 1229 (D.C.Cir.1980), modified on remand sub nom. NRDC v. Gorsuch, Nos. 2153-73 et al. (D.D.C. Oct 26, 1982). Four cases were combined in a settlement which required EPA to promulgate pretreatment standards for the 65 toxic pollutants listed in the CWA, § 307(a)(1) and pretreatment standards for specific point source categories. This case is often referred to as the NRDC v. Costle Consent Decree.

b. National Association of Metal Finishers vs. EPA, 719 F.2d 624, (3rd Cir. 1983). This case challenged the definitions of interference and pass through, the combined waste stream formula, and the provisions for applying removal credits. The Court held that in defining interference, EPA must allow for affirmative defenses by the IU if the IU did not cause the disruption of the treatment process. The challenges to the pass through definition were procedural and the Court upheld the removal credit provision and the combined waste stream formula. Finally, the Court struck down the FDF variance provision. This last section was appealed to the U.S. Supreme Court, which overruled the Third Circuit decision on the FDF

variances. Chemical Manufacturers Assoc. et al. v. NRDC, 470 U.S. 116, 84 L. Ed. 2d 90, 105 S.Ct. 1102 (1985).

c. Natural Resources Defense Council v. EPA, 790 F.2d 289 (3rd Cir. 1986). This case focused on removal credits and the formula utilized for the determination of removal credits. The Court struck down the removal credit provision, and that provision has been reenacted in the November 5, 1987 regulations. In addition, the Court discussed the requirement of the CWA, § 405 sludge regulations, affirming that those regulations must be promulgated prior to the granting of removal credits.

d. Armco Inc. v. EPA, No. 88-3070, (6th Cir. filed January 26, 1988). This case seeks review of the November 5, 1987 removal credit review.

B. Citizen Suits

1. NYPIRG et al. v. Limco Manufacturing Corp., Civ. No. 87-2850 (E.D. N.Y. Nov. 3, 1987). This citizen suit was filed pursuant to the CWA in order to enforce pretreatment requirements. The Court held that the ban on citizen suits under the CWA, § 505(b)(1)B, 33 U.S.C. § 1365(b)(1)(B) applies only when judicial enforcement actions have been filed by the State or EPA, and not by a municipality.

2. PIRGNJ et al. v. Ferro Merchandising Equipment Corp., Cir. No. 86-474, (D.N.J. Oct. 6, 1987). In this citizen suit, the Court granted plaintiffs' motion for contempt for violations of a previously filed consent decree. The Court rejected a "good faith" defense to the contempt motion under the theory that consent decrees are both judicial and voluntary contractual acts, and defendant's failure to anticipate deficiencies in its system was an assumed risk.

VII. CERCLA ISSUES

A. Superfund Liability For Sludge Deposition

1. Municipalities may be liable as generators for the deposition of sewage sludge at a landfill, e.g., Marshall Landfill, Boulder County, Colorado. This underscores the importance of maintaining a sludge that can be utilized for land treatment and that does not need to be disposed of as a hazardous waste.

B. Discharge of wastewater from CERCLA sites into POTWs. (April 15, 1988, EPA Memorandum from Henry Longest, Director, Office of Emergency and Remedial Response, et al. to Waste Management Division Directors, et al.)

1. EPA will allow such discharges if they are protective of human health and the environment.

2. Various criteria should be evaluated in the Remedial Investigation/Feasibility Study ("RI/FS") process.

a. Full compliance with the CWA and RCRA.

b. Pretreatment requirements must be met, i.e., an analysis must be performed to determine if any pass through or interference will occur. In addition, the constituents in the CERCLA discharge must not contaminate sludge, appear in toxic amounts in the receiving waters, or be a hazard to POTW employees.

c. The POTW must have an acceptable compliance history, and an ability to ensure future enforcement.

d. The use of the POTWS must be cost effective.

e. The CERCLA discharge must not negatively impact other environmental media, e.g., groundwater.

f. The potential for violation of the wastewater at both the CERCLA site and the POTW must be evaluated and appropriate air quality and worker safety measures must be required.

g. The CERCLA discharge may not negatively impact the POTW's toxics requirements.

2. Difficult issues for a POTW.

a. Legitimate fear of liability.

b. Ability to charge discharger for present and future costs, and how much is enough?

c. The acceptance of CERCLA dischargers is an important issue for both the POTWs and the dischargers. It is preferable to avoid duplication of treatment processes, however, the present pretreatment program has focused primarily on protecting the POTW and its ability to meet its NPDES permit. But CERCLA focuses on the contaminant, and at present, little information exists about the fate of those contaminants and POTWs.

VIII. SLUDGE ISSUES

A. RCRA Amendments of 1984

1. These amendments established new and more stringent requirements for the treatment, storage and disposal of hazardous waste. These requirements might restrict the ability of POTWs to dispose of their sewage sludge. As a result of RCRA and the CWA, § 405, EPA published the "Domestic Sewage Sludge" study, which will provide the basis for future legislation.

B. Development of EPA Sludge Regulations

1. State program regulations proposed. 53 Fed. Reg. 7642, March 9, 1988.

2. Technical regulations were delayed after the decision in NRDC v. EPA, 824 F.2d 1146 (D.C. 1987). This was a Clean Air Act case which held that economics cannot be considered in developing a risk based standard, in this case, for vinyl chloride. In April, 1988, the Administrator decided that this case would only be applicable to the Clean Air Act. However, in doing so, certain generic risk factors were developed. For sludge, this does not include economic reasonableness. These regulations are now projected for proposal in early 1989.

C. Domestic Sewage Exclusion

The "domestic sewage exclusion" provision of RCRA, § 1004(27), 42 U.S.C. § 6903(27), (40 C.F.R. § 261.4(a)(1)) exempts industrial wastes that are discharged to POTWs that contain domestic sewage. They are not hazardous wastes pursuant to RCRA. Thus, discharges could occur that would be problematic for the POTW. The March 9, 1988 regulations and the unpublished technical regulation, focus on improving local programs by strengthening the ability of POTWs to regulate hazardous wastes entering their systems.

1. The regulations are expected to require POTW modeling based on the pass through into its sludge for a number of pollutants. Initially, that will be for six heavy metals, but will probably be expanded to include all of the pollutants regulated in the sludge regulations and the POTW's NPDES permit. These modeling efforts should result in limitations being imposed by

POTWs on industries, particularly since there is limited ability to regulate domestic wastewater.

IX. THE FUTURE

A. Whole Effluent Toxicity

1. Presently, pretreatment permits restrict specific concentrations of particular toxics rather than the toxic effect resulting from the combination of all the pollutants. This may change in the future with the imposition of requirements on IUs that are similar to the biomonitoring requirements presently being imposed on POTWs.

2. Biomonitoring requirements are a result of the general toxicity requirements that are being inserted into the NPDES permits of POTWs, so it is reasonable to assume that the same requirements may be passed on to the IUs. However, it is anticipated that the POTWs will first utilize biomonitoring as a tool for further investigation.

B. Increased Criminal Enforcement

C. Shift in "Metals Mentality"

D. New Categorical Pretreatment Standards

1. Domestic Sewage Study identifies areas that need either new standards or existing standards that may need to be more stringent.

2. NRDC v. Costle Consent Decree, Paragraph 8, allowed for the exemption of industries from categorical standards where justified. EPA is presently reviewing those industries that were exempt, and it is anticipated that this review will result in some additional standards.

E. Removal Credits

1. Such credits are presently unachievable, but they may have more validity as EPA shifts from metals to other organics and wastes.

2. New categorical standards will provide a window of opportunity for removal credit requests.

3. Previous requests have been based on "incidental" treatment. Removal credits may be appropriate for designed removal.

F. Controls on Domestic Users

G. CERCLA or Other Hazardous Waste Disposal

1. POTW monitoring has been lax in the past, but that will have to change.

2. Hazardous waste disposal options are either forbidden or very expensive.

3. It is expected that industries and those responsible for cleaning up hazardous waste sites will look more to the sewers and POTWs for disposal.

PW SE CVY

Table 1. Toxic Pollutants Regulated Under Categorical Standards

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzene
5. benzidine
6. carbon tetrachloride
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloroethyl) ether
18. 2-chloroethyl vinyl ether (mixed)
19. 2-chloronaphthalene
20. 2,4,6-trichlorophenol
21. parachlorometa cresol
22. chloroform (trichloromethane)
23. 2-chlorophenol
24. 1,2-dichlorobenzene
25. 1,3-dichlorobenzene
26. 1,4-dichlorobenzene
27. 3,3-dichlorobenzidine
28. 1,1-dichloroethylene
29. 1,2-trans-dichloroethylene
30. 2,4-dichlorophenol
31. 1,2-dichloropropane
32. 1,2-dichloropropylene (1,3-dichloropropene)
33. 2,4-dimethylphenol
34. 2,4-dinitrotoluene
35. 2,6-dinitrotoluene
36. 1,2-diphenylhydrazine
37. ethylbenzene
38. fluoranthene
39. 4-chlorophenyl phenyl ether
40. 4-bromophenyl phenyl ether
41. bis(2-chloroisopropyl) ether
42. bis(2-chloroethoxy) methane
43. methylene chloride (dichloromethane)
44. methyl chloride (chloromethane)
45. methyl bromide (bromomethane)
46. bromoform (tribromomethane)
47. dichlorobromomethane
48. chlorodibromomethane
49. hexachlorobutadiene
50. hexachlorocyclopentadiene
51. isophorone
52. naphthalene
53. nitrobenzene
54. 2-nitrophenol
55. 4-nitrophenol
56. 2,4-dinitrophenol
57. 4,6-dinitro-o-cresol
58. N-nitrosodimethylamine
59. N-nitrosodiphenylamine
60. N-nitrosodi-n-propylamine
61. pentachlorophenol
62. phenol
63. bis(2-ethylhexyl) phthalate
64. butyl benzyl phthalate
65. di-n-butyl phthalate
66. di-n-octyl phthalate
67. diethyl phthalate
68. dimethyl phthalate
69. benzo(a)anthracene (1,2-benzanthracene)
70. benzo(a)pyrene (3,4-benzo-pyrene)
71. 3,4-benzofluoranthene (benzo(b)fluoranthene)
72. benzo(k)fluoranthene (11,12-benzofluoranthene)
73. chrysene
74. acenaphthylene
75. anthracene
76. benzo(ghi)perylene (1,12-benzoperylene)
77. fluorene
78. phenanthrene
79. dibenzo(ah)anthracene (1,2,5,6-dibenzanthracene)
80. indeno (1,2,3-cd)pyrene (2,3-o-phenylenepyrene)
81. pyrene
82. tetrachloroethylene
83. toluene
84. trichloroethylene
85. vinyl chloride (chloroethylene)
86. aldrin
87. dieldrin
88. chlordane (technical mixture & metabolites)
89. 4,4-DDT
90. 4,4-DDE (p,p-DDX)
91. 4,4-DDD (p,p-TDE)
92. Alpha Endosulfan
93. Beta Endosulfan
94. endosulfan sulfate
95. endrin
96. endrin aldehyde
97. heptachlor
98. heptachlor epoxide (BHC-hexachlorocyclohexane)
99. Alpha-BHC
100. Beta-BHC
101. Gamma-BHC (lindane)
102. Delta-BHC (PCB-polychlorinated biphenyl)
103. PCB-1242 (Arochlor 1242)
104. PCB-1254 (Arochlor 1254)
105. PCB-1221 (Arochlor 1221)
106. PCB-1232 (Arochlor 1232)
107. PCB-1248 (Arochlor 1248)
108. PCB-1260 (Arochlor 1260)
109. PCB-1016 (Arochlor 1016)
110. toxaphene
111. antimony (total)
112. arsenic (total)
113. asbestos (total)
114. beryllium (total)
115. cadmium (total)
116. chromium (total)
117. copper (total)
118. cyanide (total)
119. lead (total)
120. mercury (total)
121. nickel (total)
122. selenium (total)
123. silver (total)
124. thallium (total)
125. zinc (total)
126. 2,3,7,8-tetrachlorodibenzo-o-dioxin (TCDD)

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CLEAN WATER ACT, Section 307, 33 U.S.C. Section 1317

§ 1317. Toxic and pretreatment effluent standards

[Sec. 307] (a)(1) On and after the date of enactment of the Clean Water Act of 1977, the list of toxic pollutants or combination of pollutants subject to this Act shall consist of those toxic pollutants listed in table 1 of Committee Print Numbered 95-30 of the Committee on Public Works and Transportation of the House of Representatives, and the Administrator shall publish, not later than the thirtieth day after the date of enactment of the Clean Water Act of 1977, that list. From time to time thereafter, the Administrator may revise such list and the Administrator is authorized to add to or remove from such list any pollutant. The Administrator in publishing any revised list, including the addition or removal of any pollutant from such list, shall take into account the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms, and the nature and extent of the effect of the toxic pollutant on such organisms. A determination of the Administrator under this paragraph shall be final except that if, on judicial review, such determination was based on arbitrary and capricious action of the Administrator, the Administrator shall make a redetermination.

(2) Each toxic pollutant listed in accordance with paragraph (1) of this subsection shall be subject to effluent limitations resulting from the application of the best available technology economically achievable for the applicable category or class of point sources established in accordance with section 301(b)(2)(A) and 304(b)(2) of this Act. The Administrator, in his discretion, may publish in the Federal Register a proposed effluent standard (which may include a prohibition) establishing requirements for a toxic pollutant which, if an effluent limitation is applicable to a class or category of point sources, shall be applicable to such category or class only if such standard imposes more stringent requirements. Such published effluent standard (or prohibition) shall take into account the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms and the nature and extent of the effect of the toxic pollutant on such organisms, and the extent to which effective control is being or may be achieved under other regulatory authority. The Administrator shall allow a period of not less than sixty days following publication of any such proposed effluent standard (or prohibition) for written comment by interested persons on such proposed standard. In addition, if within thirty days of publication of any such proposed effluent standard (or prohibition) any interested person so requests, the Administrator shall hold a public hearing in connection therewith. Such a public hearing shall provide an opportunity for oral and written presentations, such cross-examination as the Administrator determines is appropriate on disputed issues of material fact, and the transcription of a verbatim record which shall be available to the public. After consideration of such comments and any information and material presented at any public hearing held on such proposed standard or prohibition, the Administrator shall promulgate such standards (or prohibition) with such modifications as the Administrator finds are justified. Such promulgation by the Administrator shall be made within two hundred and seventy days after publication of proposed standard (or prohibition). Such standard (or prohibition) shall be final except that if, on judicial review, such standard was not based on substantial evidence, the Administrator shall promulgate a revised standard. Effluent limitations shall be established in accordance with sections 301(b)(2)(A) and 304(b)(2) for every toxic pollutant referred to in table 1 of Committee Print Numbered 95-30 of the Committee on Public Works and Transportation of the House of Representatives as soon as practicable after the date of enactment of the Clean Water Act of 1977, but no later than July 1, 1980. Such effluent limitations or effluent standards (or prohibitions) shall be established for every other toxic pollutant listed under paragraph (1) of this subsection as soon as practicable after it is so listed.

(3) Each such effluent standard (or prohibition) shall be revised and, if appropriate, revised at least every three years.

(4) Any effluent standard promulgated under this section shall be at that level which the Administrator determines provides an ample margin of safety.

(5) When proposing or promulgating any effluent standard (or prohibition) under this section, the Administrator shall designate the category or categories of sources to which the effluent standard (or prohibition) shall apply. Any disposal of dredged material may be included in such a category of sources after consultation with the Secretary of the Army.

(6) Any effluent standard (or prohibition) established pursuant to this section shall take effect on such date or dates as specified in the order promulgating such standard, but in no case, more than one year from the date of such promulgation. If the Administrator determines that compliance within one year from the date of promulgation is technologically infeasible for a category of sources, the Administrator may establish the effective date of the effluent standard (or prohibition) for such category at the earliest date upon which compliance can be feasibly attained by sources within such category, but in no event more than three years after the date of such promulgation.

(7) Prior to publishing any regulations pursuant to this section the Administrator shall, to the maximum extent practicable within the time provided, consult with appropriate advisory committees, States, independent experts, and Federal departments and agencies.

(b)(1) The Administrator shall, within one hundred and eighty days after the date of enactment of this title and from time to time thereafter, publish proposed regulations establishing pretreatment standards for introduction of pollutants into treatment works (as defined in section 212 of this Act) which are publicly owned for those pollutants which are determined not to be susceptible to treatment by such treatment works or which would interfere with the operation of such treatment works. Not later than ninety days after such publication, and after opportunity for public hearing, the Administrator shall promulgate such pretreatment standards. Pretreatment standards under this subsection shall specify a time for compliance not to exceed three years from the date of promulgation and shall be established to prevent the discharge of any pollutant through treatment works (as defined in section 212 of this Act) which are publicly owned, which pollutant interferes with, passes through, or otherwise is incompatible with such works. If, in the case of any toxic pollutant under subsection (a) of this section introduced by a source into a publicly owned treatment works, the treatment by such works removes all or any part of such toxic pollutant and the discharge from such works does not violate that effluent limitation or standard which would be applicable to such toxic pollutant if it were discharged by such source other than through a publicly owned treatment works, and does not prevent sludge use or disposal by such works in accordance with section 405 of this Act, then the pretreatment requirements for the sources actually discharging such toxic pollutant into such publicly owned treatment works may be revised by the owner or operator of such works to reflect the removal of such toxic pollutant by such works.

(2) The Administrator shall, from time to time, as control technology, processes, operating methods, or other alternative[s] change, revise such standards following the procedure established by this subsection for promulgation of such standards.

(3) When proposing or promulgating any pretreatment standard under this section, the Administrator shall designate the category or categories of sources to which such standard shall apply.

(4) Nothing in this subsection shall affect any pretreatment requirement established by any State or local law not in conflict with any pretreatment standard established under this subsection.

(c) In order to insure that any source introducing pollutants into a publicly owned treatment works, which source would be a new source subject to section 306 if it were to discharge pollutants, will not cause a violation of the effluent limitations established for any such treatment works, the Administrator shall promulgate pretreatment standards for the category of such sources simultaneously with the promulgation of standards of performance under section 306 for the equivalent category of new sources. Such pretreatment standards shall prevent the discharge of any pollutant into such treatment works, which pollutant may interfere with, pass through, or otherwise be incompatible with such works.

(d) After the effective date of any effluent standard or prohibition or pretreatment standard promulgated under this section, it shall be unlawful for any owner or operator of any source to operate any source in violation of any such effluent standard or prohibition or pretreatment standard.

(e) In the case of any existing facility that proposes to comply with the pretreatment standards of subsection (b) of this section by applying an innovative system that meets the requirements of section 301(k) of this Act, the owner or operator of the publicly owned treatment works receiving the treated effluent from such facility may extend the date for compliance with the applicable pretreatment standard established under this section for a period not to exceed 2 years—

(1) if the Administrator determines that the innovative system has the potential for industrywide application, and

(2) if the Administrator (or the State in consultation with the Administrator, in any case in which the State has a pretreatment program approved by the Administrator)—

(A) determines that the proposed extension will not cause the publicly owned treatment works to be in violation of its permit under section 402 or of section 405 or to contribute to such a violation, and

(B) concurs with the proposed extension.

[*Editors note:* Section 309(b) of PL 100-4 provides:

"(b) Increase in EPA Employees.—The Administrator shall take such actions as may be necessary to increase the number of employees of the Environmental Protection Agency in order to effectively implement pretreatment requirements under section 307 of the Federal Water Pollution Control Act."]

CLEAN WATER ACT, Section 405, 33 U.S.C. Section 1345

§ 1345. Disposal or use of sewage sludge

[Sec. 405] (a) Notwithstanding any other provision of this Act or of any other law, in the case where the disposal of sewage sludge resulting from the operation of a treatment works as defined in section 212 of this Act (including the removal of in-place sewage sludge from one location and its deposit at another location) would result in any pollutant from such sewage sludge entering the navigable waters, such disposal is prohibited except in accordance with a permit issued by the Administrator under section 402 of this Act.

(b) The Administrator shall issue regulations governing the issuance of permits for the disposal of sewage sludge subject to subsection (a) of this section and section 402 of this Act. Such regulations shall require the application to such disposal of each criterion, factor, procedure, and requirement applicable to a permit issued under section 402 of this title.

(c) Each State desiring to administer its own permit program for disposal of sewage sludge subject to subsection (a) of this section within its jurisdiction may do so in accordance with section 402 of this Act.

(d)(1) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after the date of enactment of this subsection and from time to time thereafter, regulations providing guidelines for the disposal of sludge and the utilization of sludge for various purposes. Such regulations shall—

(A) identify uses of sludge, including disposal,

(B) specify factors to be taken into account in determining the measures and practices applicable to each such use or disposal (including publication of information on costs),

(C) identify concentrations of pollutants which interfere with each such use or disposal.

The Administrator is authorized to revise any regulation issued under this subsection.

(2)(A)(i) Not later than November 30, 1986, the Administrator shall identify those toxic pollutants which, on the basis of available information on their toxicity, persistence, concentration, mobility, or potential for exposure, may be present in sewage sludge in concentrations which may adversely affect public health or the environment, and propose regulations specifying acceptable management practices for sewage sludge containing each such toxic pollutant and establishing numerical limitations for each such pollutant for each use identified under paragraph (1)(A).

(ii) Not later than August 31, 1987, and after opportunity for public hearing, the Administrator shall promulgate the regulations required by subparagraph (A)(i).

(B)(i) Not later than July 31, 1987, the Administrator shall identify those toxic pollutants not identified under subparagraph (A)(i) which may be present in sewage sludge in concentrations which may adversely affect public health or the environment, and propose regulations specifying acceptable management practices for sewage sludge containing each such toxic pollutant and establishing numerical limitations for each pollutant for each such use identified under paragraph (1)(A).

(ii) Not later than June 15, 1988, the Administrator shall promulgate the regulations required by subparagraph (B)(i).

(C) From time to time, but not less often than every 2 years, the Administrator shall review the regulations promulgated under this paragraph for the purpose of identifying additional toxic pollutants and promulgating regulations for such pollutants consistent with the requirements of this paragraph.

(D) The management practices and numerical criteria established under subparagraphs (A), (B), and (C) shall be adequate to protect public health and the environment from any reasonably anticipated adverse effects of each pollutant. Such regulations shall require compliance as expeditiously as practicable but in no case later than 12 months after their publication, unless such regulations require the construction of new pollution control facilities, in which case the regulations shall require compliance as expeditiously as practicable but in no case later than two years from the date of their publication.

(3) For purposes of this subsection, if, in the judgment of the Administrator, it is not feasible to prescribe or enforce a numerical limitation for a pollutant identified under paragraph (2), the Administrator may instead promulgate a design, equipment, management practice, or operational standard, or combination thereof, which in the Administrator's judgment is adequate to protect public health and the environment from any reasonably anticipated adverse effects of such pollutant. In the event the Administrator promulgates a design or equipment standard under this subsection, the Administrator shall include as part of such standard such requirements as will assure the proper operation and maintenance of any such element of design or equipment.

(4) Prior to the promulgation of the regulations required by paragraph (2), the Administrator shall impose conditions in permits issued to publicly owned treatment works under section 402 of this Act or take such other measures as the Administrator deems appropriate to protect public health and the environment from any adverse effects which may occur from toxic pollutants in sewage sludge.

(5) Nothing in this section is intended to waive more stringent requirements established by this Act or any other law.

[*Editor's note*: Section 406(e) of PL 100-4 stipulates:

"(e) Removal Credits — The part of the decision of Natural Resources Defense Council, Inc. v U.S. Environmental Protection Agency, No. 84-3530 (3d. Cir. 1986), which addresses section 405(d) of the Federal Water Pollution Control Act is stayed until August 31, 1987, with respect to—

(1) those publicly owned treatment works the owner or operator of which received authority to revise pretreatment requirements under section 307(b)(1) of such Act before the date of the enactment of this section, and

(2) those publicly owned treatment works the owner or operator of which has submitted an application for authority to revise pretreatment requirements under such section 307(b)(1) which application is pending on such date of enactment and is approved before August 31, 1987.

The Administrator shall not authorize any other removal credits under such Act until the Administrator issues the regulations required by paragraph (2)(A)(ii) of section 405(d) of such Act, as amended by subsection (a) of this section."]

(e) The determination of the manner of disposal or use of sludge is a local determination, except that it shall be unlawful for any person to dispose of sludge from a publicly owned treatment works or any other treatment works treating domestic sewage for any use for which regulations have been established pursuant to subsection (d) of this section, except in accordance with such regulations.

(f)(1) Any permit issued under section 402 of this Act to a publicly owned treatment works or any other treatment works treating domestic sewage shall include requirements for the use and disposal of sludge that implement the regulations established pursuant to subsection (d) of this section, unless such requirements have been included in a permit issued under the appropriate provisions of subtitle C of the Solid Waste Disposal Act, part C of the Safe Drinking Water Act, the Marine Protection, Research, and Sanctuaries Act of 1972, or the Clean Air Act, or under State permit programs approved by the Administrator, where the Administrator determines that such programs assure compliance with any applicable requirements of this section. Not later than December 15, 1986, the Administrator shall promulgate procedures for approval of State programs pursuant to this paragraph.

(2) In the case of a treatment works described in paragraph (1) that is not subject to section 402 of this Act and to which none of the other above listed permit programs nor approved State permit authority apply, the Administrator may issue a permit to such treatment works solely to impose requirements for the use and disposal of sludge that implement the regulations established pursuant to subsection (d) of this section. The Administrator shall include in the permit appropriate requirements to assure compliance with the regulations established pursuant to subsection (d) of this section. The Administrator shall establish procedures for issuing permits pursuant to this paragraph.

(g)(1) The Administrator is authorized to conduct or initiate scientific studies, demonstration projects, and public information and education projects which are designed to promote the safe and beneficial management or use of sewage sludge for such purposes as aiding the restoration of abandoned mine sites, conditioning soil for parks and recreation areas, agricultural and horticultural uses, and other beneficial purposes. For the purposes of carrying out this subsection, the Administrator may make grants to State water pollution control agencies, other public or nonprofit agencies, institutions, organizations, and individuals. In cooperation with other Federal departments and agencies, other public and private agencies, institutions, and organizations, the Administrator is authorized to collect and disseminate information pertaining to the safe and beneficial use of sewage sludge.

(2) For the purposes of carrying out the scientific studies, demonstration projects, and public information and education projects authorized in this section, there is authorized to be appropriated for fiscal years beginning after September 30, 1986, not to exceed $5,000,000.