

ENVIRONMENTAL LAW IN THE UNITED STATES

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I. INTRODUCTION

Pollution obviously existed before the recent era of environmental awareness. In fact, ever since we began living in communities, humans have had to dispose of waste. The usual solution however was to simply dump the waste into the environment, whether it be air, water, or land, and avoid living in or near those waste dumps. This worked because land, air, and water were large in comparison to the amount of waste dumped into them. However, the primitive methods of dealing with pollution are no longer workable today.

Environmental law in the United States initially was a specific application of tort and property law. Later Congress and state legislatures passed statutes to deal with particular pollution or environmental problems. U.S. environmental statutes are now highly complex and detailed and apply to many aspects of daily life and the conduct of a business. They sometimes spell out how a business is to be physically operated, require extensive record keeping, and affect how the business relates to its employees, customers, and neighbors.

II. U.S. COMMON LAW

The common law developed methods of resolving disputes between private individuals over disposal of wastes as well as claims by the state against individuals who were disposing of their waste in a manner that harmed the public. The common law concept of private nuisance protects private landowners, or other persons in possession of land, from any unreasonable interference with their use and enjoyment of the land. A similar, but distinct, doctrine of public nuisance protects the public from activities that would endanger the public health and safety or offend public morals.

Nuisance. Private nuisance is defined as anything that disturbs, damages, or interferes with the use of land by its owners or others with property rights in the land. A private nuisance affects one or a few persons whereas a public nuisance is defined as one that affects a large number of people in the same way. Even as late as the 1970's private nuisance law was one of the principal methods available to individuals for combating pollution. Its effectiveness in dealing with pollution problems was limited, however, since only landowners, lessees or other persons in possession of land could use the doctrine of private nuisance. In addition, many common law rules further limited the circumstances in which a private landowner could use the private nuisance doctrine to prevent or stop a polluter from harming the landowner. For example, under U.S. common law the pollution must be an unreasonable interference with the

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landowner's use of his or her land. Unreasonableness depends on the circumstances in each individual's case. Determining unreasonableness necessarily requires that the landowner's interest be balanced against the utility of the conduct alleged to cause the nuisance. The courts typically decide that the conduct is a nuisance if the harm outweighs the utility of the conduct. Thus it is difficult to determine in advance what will be unreasonable. In addition, the pollution must interfere with the landowner's use of his or her land. Although a variety of effects, including noxious odors and damage to health, have been considered interferences with the use of land, this connection to land also limits the types of problems that private nuisance can remedy.

In an early case a court held that noise from compressed air machines at a granite finishing plant was a nuisance to nearby summer cottage owners. The court noted that the defendant had never seriously tried to diminish the noise and that several methods of doing so appeared feasible. The court carefully limited the injunction to requiring that the noise be reduced and noted that this would not require closing the plant, which may have changed the result. (*Stevens v. Rockport Granite Co.*, 216 Mass. 486, 104 N.E. 371 (1914)).

Even where the harm to the landowner is severe courts may hold that there is no nuisance. If the landowner comes onto the scene after the activity alleged to cause the nuisance is already established, then courts are likely to hold that the landowner "came to the nuisance," and therefore, can not complain that the activity unreasonably interferes with his or her use and enjoyment of the land.

When courts do hold that there has been a nuisance, they have broad powers to remedy the nuisance. The court may simply order the person causing the nuisance to pay money damages to compensate the landowner for the interference with the use and enjoyment of the land. The court may also issue an injunction prohibiting the defendant from continuing the nuisance. In the case of an industrial plant an injunction might require the company to install pollution control equipment or even to move the plant if technology could not prevent the nuisance. (See *Spur Industries, Inc. v. Del E. Webb Development Co.*, 108 Ariz. 178, 494 p.2d 700 (1972) requiring a cattle feed lot to move because suburbs had developed nearby and no technology could eliminate the attendant odors and insects). Because requiring huge capital expenditures for technology or relocation often causes social problems, courts are typically hesitant to use the full powers of injunction when the activity causing the nuisance is of higher value than the affected land.

Toxic Torts. Although the common law has not been considered adequate to deal with most pollution problems, one area where the common law still has potential for a significant role is compensation to individual victims for what have become known as toxic torts. Toxic torts involve injuries, or a risk of injuries, to a class of people where the injuries were allegedly caused by exposure to harmful substances. The full extent of the injuries is often not known because of long latency periods for diseases associated with toxic agents, such as cancer. The connection between the exposure and the injury is usually ambiguous because the injuries often have multiple potential causes, and science rarely can establish with certainty that exposure to a specific amount of a substance will cause a particular injury.

Congress has studied systems for compensating people whose health has been injured by toxic chemicals but, to date, has not enacted any legislation. Thus, the courts have applied traditional common law principles of negligence, strict liability, and products liability to decide cases where individuals' health has been damaged by such toxic substances as Agent Orange,

asbestos, dioxin, and radioactive substances.

Victims in these cases face numerous difficulties in recovering for their injuries. Among those difficulties are technical legal defenses such as statutes of limitations, which set time limits within which a person must bring an action or it is barred. The purpose of a statute of limitations is to prevent claims from becoming stale. It reduces problems of proof that could occur as witnesses' memories fade as time passes or documents are lost or destroyed. Other difficulties that victims face in recovering for these toxic torts include: the high cost of litigation, especially given the long time that these cases typically take; scientific uncertainty in determining actual causation; problems proving what substance, if any, caused the harm; problems proving which defendant is responsible for the substance that caused the harm; uncertainty in apportioning the damages among several potential defendants; and the potential insolvency of defendants.

In many cases these problems are insurmountable and plaintiffs' cases are dismissed for lack of definitive proof that the plaintiff was injured due to exposure to a specific substance released by a particular defendant. In a few cases, U.S. courts have developed novel approaches for coping with some of these uncertainties. When a harmful substance was manufactured by a limited number of known companies and persons exposed to it would normally have no ability to determine which manufacturer had produced the specific amounts that injured the plaintiff, some courts have held all the manufacturers liable proportionate to their share of the market for the substance. This method has been used only where exposure to the substance is directly linked to a specific disease and where the nature of the substance and the market for it prevent those whom have been exposed from determining who was responsible for their exposure.

Trespass. Another common law theory often used as an alternative to a nuisance claim is trespass. Like nuisance, trespass developed to protect owners or occupiers of real property from acts that harmed their interest in the land. The cause of action of trespass protects the property holder's interest in possession of the land from an entry onto the land by another without the consent of the person in possession.

Since trespass allowed recovery for an invasion of property simply based on the lack of consent, courts had little trouble in holding it could apply when a defendant caused or allowed hazardous substances to invade neighboring property. A chemical company that disposed of hazardous chemicals on its property and allowed them to migrate into the groundwater and then off-site to contaminate the groundwater and subsurface underlying numerous neighboring property owners and occupiers was held liable for trespass.* In *Sterling v. Velsicol*, the court determined the damages based on the diminution of the market value of the property caused by the defendant or, in this case, the difference in the value of the property in its contaminated state compared to if it were not contaminated.

Trespass is an intentional tort requiring the defendant to intend the act that is the entry without consent onto the plaintiff's land, but the defendant need not have intended the consequences or damage to the land.** In *Shockley v. Hoechst Celanese*, the defendant had delivered drums of waste chemicals to a former employee who operated a chemical reclamation facility across the street from the defendant's property. During his reclamation operations the

* *Sterling v. Velsicol Chemical Corp.*, 17 ELR 170081(W.D. Tenn. 1986) *rev'd in part Sterling v. Velsicol Chemical Corp.* 855 F.2d 1188 (6th Cir. 1988) (the appellate court reversed most of the claims for medical injuries of the plaintiffs, but affirmed the claim for damage to property, including the method of determining the amount of damages).

** *Shockley v. Hoechst Celanese Corp.* 793 F. Supp. 670 (D. S.C. 1992), 23 ELR 20155, 20156.

independent contractor spilled chemicals, which contaminated the groundwater under that property and eventually migrated to the adjoining property. The court held the defendant Hoechst Celanese liable for trespass based on the ample evidence that it intended the act of delivering the chemicals to its former employee and that it knew or should have known that the result would follow.^{***} The plaintiff in Shockley filed claims under theories of strict liability, negligence, and nuisance, in addition to trespass, and the court reasoned that the defendant's knowledge of the abnormally dangerous nature of the chemicals was sufficient to establish that it knew or should have known of the consequences of its act.^{*} Thus, a claim for trespass may be allowed where the entry onto the land occurred via contamination that reaches groundwater, which then flows onto the property of the plaintiff.

Strict Liability. The common law developed other methods for dealing with situations where one property owner's actions actually damaged the property of another. The rule of strict liability is particularly import in cases where land is contaminated with hazardous substances. The English courts first articulated a rule of strict liability for injuries that result from unnatural uses of land or dangerous activities almost a century and a half ago in *Rylands v. Fletcher*.^{**} This rule of strict liability has been adopted by the courts in most states as applicable to "abnormally dangerous activities."^{***} The general rule is that: (1) [o]ne who carries on an abnormally dangerous activity is subject to liability for harm . . . resulting from the activity, although he has exercised the utmost care to prevent the harm. (2) This strict liability is limited to the kind of harm, the possibility of which makes the activity abnormally dangerous.^{****} It is based on a public policy that "requires the defendant to make good the harm which results to others from abnormal risks which are inherent in activities that are not considered blameworthy because they are reasonably incident to desirable industrial activity."^{*****} In other words, society will tolerate an activity that creates abnormal risks because the person engaging in the dangerous activity is required to insure the public against the risk.^{*****} This rule has been applied to cases involving contamination of wells and groundwater,^{*****} streams,^{*****} and land.^{*****} Many legislatures, beginning with New Jersey's^{*****} and followed by Congress and then other states, have adopted strict liability as the standard of liability to apply where hazardous substances contaminate land or water.

Third Part Damages. In most cases of contamination of land by hazardous substances the owner or occupier of the land had no formal relationship with the party responsible for the contamination other than being adjacent or neighboring landholders. In such cases the property holder who makes a claim for injuries to her or his land is referred to as a third party claimant

*** *Id.*

* *Id.*

** *Rylands v. Fletcher*, 3 H. & C. 774, 159 Eng. Rep. 737 (1865) rev'd in *Fletcher v. Rylands*, L.R. 1 Ex. 265 (1866), aff'd in *Rylands v. Fletcher*, L.R. 3 H.L. 330 (1868).

*** RESTATEMENT (SECOND) OF TORTS §519 (1977).

**** *Id.*

***** *McLane v. Northwest Natural Gas Co.*, 467 P.2d 635, 637 (Or. 1970).

***** *Arlington Forest Assocs. v. Exxon Corp.*, 774 F. Supp. 387, 389 (E.D. Va. 1991).

***** *Branch v. Western Petroleum, Inc.*, 13 ELR 20362 No. 17178 (Utah Nov. 8, 1982).

***** *Cities Service Co. v. Florida*, Fla. App., 312 So. 2d 799 (1975).

***** *Indiana Belt Railroad Co. v. American Cyanamid Co.*, 517 F. Supp. 314 (N.D. Ill. 1981).

***** See note ? *infra* and accompanying text.

because the claim is not based on a contract or other formal relationship with the defendant. Most of the cases discussed in the preceding subsections on Nuisance, Trespass, and Strict Liability involve third party damage claims.

The plaintiff in *Shockley v. Hoechst Celanese*, for example, owned property adjacent to the property on which Hoechst Celanese's former employee had operated the chemical reclamation facility.* The plaintiff's trespass claim did not rely on any contractual relationship with Hoechst Celanese and thus was a claim for third party damages. Similarly, plaintiffs bringing claims for private nuisance are third parties because they allege that a neighboring landowner's use of land was unreasonable and injured them.

III. FEDERAL LEGISLATIVE SOLUTIONS TO ENVIRONMENTAL PROBLEMS

The Constitution of the United States establishes a framework for dividing and sharing governance responsibilities between the federal government and states. The constitution grants specific and limited powers to the federal government and reserves all powers not so specified for the states. When the federal government is authorized to act, national legislation is superior to state legislation. One of the powers granted to the federal government is the power to regulate commerce with other nations and between the states. It is this power to regulate interstate commerce that is the basis for virtually all federal legislation to control pollution. Federal statutes such as the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) all regulate pollution because, and to the extent that, it affects interstate commerce.

Under the Constitution, the states have plenary power to protect the public health and welfare within their boundaries. Thus many states had statutes regulating pollution that pre-dated the federal pollution laws. The states retain their power to regulate pollution and their own environmental affairs in any subject area not regulated by federal statute. Among the areas that states retain authority with little or no involvement by the federal government are land use planning and control, mining other than coal, groundwater, allocation and regulation of water supply, and natural resources other than those on lands owned by the federal government.

The common law has largely been supplanted by statutes as a method of controlling pollution and remedying environmental problems. An explosion of concern over environmental issues occurred in the 1960s and 1970s in the U.S. Congress responded to this outpouring of public concern with the passage of several key pieces of environmental legislation in the late sixties and early seventies. The cornerstones of federal efforts to reduce pollution and halt the degradation of the environment were considered and passed between 1969 and 1972. Such statutes depend on government agencies staffed by experts to implement their provisions.

The Environmental Protection Agency (EPA), created in 1970, is the federal agency that deals with most forms of pollution. Congress delegated to the EPA the authority to establish and enforce standards governing pollution of particular parts of the environment, such as air, land and water. Congress has also made the EPA responsible for regulating particular types of pollution such as pesticides, solid wastes, hazardous wastes, toxic substances, and noise.

The EPA is not, however, the only federal agency that regulates pollution or has authority

* *Shockley v. Hoechst Celanese Corp.*, *supra* note 3.

over environmental problems. There are a number of other federal agencies with specific and more generalized responsibilities to regulate the environmental impact of public and private actions. Among them are the Department of Transportation, which regulates transportation of hazardous wastes; the Department of the Interior, which regulates the environmental effects of coal mining and activities on federally owned lands; the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, which regulates marine fisheries and sanctuaries, studies climate change, and manages marine resources; the Nuclear Regulatory Commission, which regulates the use and effects of radioactive materials; and the Department of Agriculture, which regulates logging and other activities in the National Forests. This is by no means an exhaustive list of federal agencies that regulate pollution or environmental matters. Rather, it should suggest the wide variety of federal environmental laws and agencies that have responsibilities for environmental matters.

The remainder of this paper discusses the substantive provisions of several of the most important federal environmental statutes. Many aspects of pollution control and environmental protection are regulated by state and local governments. These important controls are not discussed here.

The National Environmental Policy Act (NEPA)

Congress first established a national policy to prevent damage to the environment when it passed the National Environmental Policy Act of 1969 (NEPA). This act marked a fundamental change in national policy and decision-making. Congress declared that as far as possible it would be "the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, ... to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans." (42 U.S.C. §4331).

Congress chose a unique mechanism to enforce this policy. Unlike the clean air and clean water acts that were soon to follow NEPA, Congress did not require individuals and companies to take specific actions to decrease pollution. Rather, Congress required federal agencies proposing to take "major federal actions significantly affecting the quality of the human environment" to prepare a detailed statement on the environmental impact of the proposed action. This statement was required to discuss any adverse environmental effects that could not be avoided, alternatives to the proposal, the relationship between short-term uses of the environment and maintenance and enhancement of long term productivity, and any irreversible and irretrievable commitments of resources that the proposed action would require if it were implemented. (42 U.S.C. §4332). This detailed statement quickly became known as an environmental impact statement (EIS).

NEPA does not require federal agencies to make specific decisions; instead, it requires that they consider the environmental impacts of any proposed major federal action. Thus, NEPA has been considered to be essentially a procedural rather than a substantive statute. Nevertheless, it has institutionalized consideration of environmental issues in federal decision making.

Furthermore, because the term "major federal action" was construed rather broadly in order to further Congress's policy of improving the environment, NEPA has affected a wide range of actions beyond those that are purely federal. NEPA has been held to apply to actions by private entities that require approval, in the form of permits or licenses, by an agency of the

federal government. For example, construction and operation of a nuclear power plant requires a license from the Nuclear Regulatory Commission (NRC). Thus the NRC must prepare an EIS on its decision to approve a construction or operating license. NEPA also applies when a federal agency leases land to a private person for activities such as grazing, oil and gas production, coal mining, or timber cutting.

One result of NEPA that was not anticipated by Congress was that the requirement to produce an EIS has been used by the courts to review actions by the federal government. Courts have held that agencies may not go forward with proposed actions if they have not met the requirement to prepare an EIS that complies with the statute. Thus, EIS requirements have been used by environmental groups, property owners, state and local governments, and even business groups to oppose actions by the federal government. The court will order the federal government either to re-think the proposed action or, more commonly, to redo the EIS or re-think the decision not to prepare any EIS. While this may not actually force the government to change its proposed action, it does force the government to consider environmental concerns and has convinced the government to change its decision on some projects. Such consideration of environmental concerns is what Congress intended.

NEPA has also been used to delay implementation of federal decisions. This sometimes allows opponents to bring political pressure or other weapons to bear against a project to get it changed or canceled. Although Congress may not have originally intended NEPA to be enforced by the courts, it is presumably satisfied with the results since it has not amended the statute to prohibit such use despite years of experience with such litigation.

Clean Air Act (CAA)

Background. One year after the passage of NEPA Congress completely revised its strategy for dealing with air pollution. Air pollution was first controlled locally and at the state level. In 1955, the first federal pollution control statute was passed, focusing primarily on research and technical aid grants to state programs. This changed with passage of the Clean Air Act of 1970. On December 31, 1970 President Nixon signed the Clean Air Act, greatly expanding the role of the federal government in air pollution control. The Act creates a framework for the attainment and maintenance of air quality standards, with the goal of identifying and controlling air pollutants that could endanger the public health and welfare.

There has been much controversy over the Clean Air Act. It is the most complex of the federal environmental regulatory statutes. Many critics have questioned whether the Act's complex provisions are the most efficient way to achieve improved air quality. Environmentalists have charged, on the other hand, that the Act is not stringent enough and that it has not been adequately enforced. Despite these criticisms Congress has used it as the model for other environmental regulatory statutes.

State--Federal Cooperative Program. The structure of the 1970 CAA was radically different from past federal pollution laws, which basically left control with the states and made the federal government a source of money. Under the 1970 CAA the federal government set uniform standards for ambient air quality and emissions, but the states were allowed to implement these standards if they demonstrated to EPA that they had the authority and ability to enforce the national standards. Thus, the Clean Air Act follows a federalism model of federal - state cooperation. This approach is particularly appropriate in attacking a pollution problem that

crosses state lines and clearly affects the nation as a whole while also having a particular impact in local areas.

The principal method of state involvement was through state implementation plans (SIPs). The states were given primary responsibility for designing and implementing plans to achieve the new national minimum air quality standards within their boundaries. Thus they have wide latitude in choosing among the various control methods and technologies to achieve the ambient air quality standards. These could include transportation control plans (TCPs), new source performance standards, controls on existing stationary sources, and siting or zoning requirements for new sources. The SIP must be approved by the EPA and must include: enforceable emission limitations and other control measures and schedules and timetables for compliance; monitoring and modeling measures to assess ambient air quality; adequate funding, personnel, and authority for day-to-day implementation, including enforcement; provisions to ensure that in-state emissions do not interfere with another state's statutory compliance; provision for revising SIP and emergency response authority and contingency plans. When it is approved, a SIP has the force of state and federal law and is thus enforceable by the federal and state governments. In practice, these SIPs are so complex that they are in a nearly continual process of revision.

Numerical Standards. In 1970, Congress for the first time put the federal government in the business of setting specific limits on pollutants in the atmosphere. These limits were in the form of standards setting the maximum amount of a pollutant that would be allowed in the atmosphere or "ambient air." The statute required the EPA to set uniform national ambient air quality standards (NAAQS) for certain pollutants. EPA was directed to establish two levels of NAAQS. Primary standards were to protect human health, and secondary standards were intended to protect the environment. Six conventional pollutants are now covered by NAAQS, including particulates, sulfur oxides, carbon monoxide, nitrogen dioxide, ozone, and lead. These standards are really goals that were to be achieved by imposition, by the states if they met certain conditions and received approval from EPA, of specific limits on individual sources. Thus, the statute also for the first time set emissions standards--national standards for the amounts of pollutants an individual source could emit.

The 1970 Act also revised the national emission standards for cars first set in 1965. These standards prevented states from setting different emissions standards for cars, with the exception of California, which was allowed to keep its more stringent standards because of its severe smog problems.

In 1970, Congress also first introduced the concept of new source performance standards (NSPS) for categories of new stationary sources. Generally, stationary sources are industrial and commercial locations that emit air pollution, and are distinguished from mobile sources such as cars and trucks. Sources covered by NSPS were required to meet emission limits based on the best system of emissions reduction that had been "adequately demonstrated." These standards were to apply to newly constructed sources and have also been interpreted to apply to major modifications of existing sources.

Another significant addition in 1970 was the national emissions standards for hazardous air pollutants (NESHAP). This section authorized EPA to establish emission standards for hazardous pollutants, defined as those that would cause an increase in death rates or an increase in serious irreversible or incapacitating reversible illnesses. Without mentioning costs, this section required EPA to set extremely protective standards that would eliminate serious health

risks. There are potentially hundreds of hazardous substances subject to these rules, but EPA has listed only 8 such pollutants and developed standards for seven. Under the 1990 Clean Air Act Amendments, Congress directed EPA to establish technology based standards for 189 additional hazardous substances based on the use of Maximum Available Control Technology (MACT)

NonAttainment. Each state is required to classify areas within its boundaries as attainment, nonattainment or unclassifiable and submit the information to EPA. State SIPs are supposed to be designed to provide for attainment of primary NAAQS as quickly as possible but no later than 3 years after SIP approval and for attainment of secondary NAAQS within a reasonable period of time. When much of the country failed to meet the CAA's original NAAQS deadlines, they were extended. Under current regulations, states are required to make reasonable progress towards attainment.

The final type of emissions standards that Congress established in 1970 was "reasonably available control technology" (RACT) for existing sources in nonattainment areas. RACT, like the NSPS, are technology-based standards in that they require the source to install a certain level of technology or meet the levels of emissions attainable through the use of that technology.

Despite these RACT and NSPS standards, it soon became apparent that the 1970 CAA did not deal effectively with the issue of building new sources in nonattainment areas. The problem of how to allocate the cleanup burden in such "dirty" areas between existing and new sources was not addressed.

In 1977, Congress passed further amendments to the Clean Air Act to deal with these and other problems. In 1977 Congress clearly distinguished between attainment and nonattainment areas. Standards and procedures for areas that have not attained the primary or secondary NAAQS for each individual pollutant are now different from those for regions that meet or exceed the NAAQS.

In 1990 Congress again revised the Act in order to deal with the problem of nonattainment areas, among other problems that had become apparent after experience with the Act. In the 1990 CAA Amendments Congress adopted a detailed and graduated program for areas in nonattainment. This program reflects the diversity of conditions that exist in different areas. Areas such as Los Angeles, with severe nonattainment problems are given the most time to comply. Existing sources in nonattainment areas are required to meet emissions levels based on RACT. To aid states in determining appropriate RACTs for different industries, EPA is required to issue control technique guidelines. Once EPA has developed and released these guidelines, states must submit a list of all major stationary sources that fall under one or more of the guidelines. New sources in these areas fall under very stringent control and in some cases are required to show they will produce a net decrease in area emissions through some kind of offsetting. Thus, a new source may be required to purchase, or otherwise obtain, from an existing source, sufficient emissions reductions to more than offset the new emissions from the new facility. The 1977 amendments also created several new emissions standards for stationary sources. Major new or modified stationary sources that would emit particulates, sulfur dioxide, nitrous oxide (NO_x), volatile organic compounds (VOCs), or carbon monoxide (CO) were required to obtain permits that would require the major new or modified source to meet a "least achievable" emissions rate (LAER) technology-based emissions standard.

Prevention of Significant Deterioration. The 1977 amendments created the prevention of significant deterioration (PSD) program as one response to the problem that the 1970 Act contained no provisions specifying how much dirtier the air could get in areas that were cleaner

than the NAAQS. The PSD program required detailed review, before construction could begin, of proposed major new stationary sources in attainment areas. Such sources were required to meet emission limits based on "best available control technology" (BACT) if they were to locate in clean air areas. Finally, such sources were required to show that the ambient air would not be significantly degraded by their emissions. The Act specifically defined what would be considered significant degradation depending on the location of the source. The cleaner the air was in the area where the new source proposed to build, the less the source would be allowed to emit. Thus, the cleanest air is protected the most while areas that are closer to the NAAQS may be allowed to approach those minimum standards.

Permit Program. The 1990 CAA Amendments created a universal federal permit program for existing stationary sources. Under this program, all major sources are required to get an operating permit that will include emissions limits and other conditions. States are in charge of implementing the permit program but EPA has the authority to veto state permits that do not comply with the CAA.

Enforcement. One of the major changes made by the 1970 and 1977 amendments to the Clean Air Act was the mechanism of enforcement. The 1970 act provided for direct federal enforcement of the clean air provisions for the first time. If the federal government brings a lawsuit to force compliance it may also seek civil penalties of up to \$25,000 per day per violation. The statute also allows for criminal penalties, including fines of up to \$25,000 per day of violation, and possible imprisonment. The federal government is also given the power to enforce a state's SIP if it determines that the state is not adequately enforcing the SIP.

In response to concerns that violators would simply pay the civil penalties rather than clean up their emissions, the EPA was given the authority to compute civil penalties in a way that would remove any economic benefit that a source would gain by failing to comply. Thus the penalty would equal the amount of money that the source would save by not installing pollution control equipment.

The 1990 Amendments provide for stronger enforcement of CAA violations including field citations of up to \$5,000, upgrading many criminal penalties from misdemeanors to felonies and creation of a \$10,000 bounty hunter award for providing information that leads to a penalty.

Citizen Suits. To provide a further method of enforcement and a check on state and federal enforcement, Congress allowed any person to file suit to enforce provisions of the act. Such "citizen suits" may be brought against the source and the federal or state government agency. To further encourage such suits, citizens or any party to a suit may be awarded reasonable attorneys' fees.

Clean Water Act (CWA)

Overview. The primary federal law governing water pollution control is the Federal Water Pollution Control Act (FWPCA); also known as the Clean Water Act (CWA). The CWA authorizes federal and state control of discharges of pollutants into U.S. waters through a system of permits and regulations.

Under the Clean Water Act, EPA or state agencies approved by EPA, regulate the direct or indirect discharges of pollutants into U.S. waters. The goal of U.S. water pollution control regulation is zero discharge. Every discharger must obtain a permit and comply with technology-based or water quality-based standards.

Water pollution control regulation is performed under a complex division of

responsibilities. The federal government sets standards, which the state and local governments are required to implement. EPA remains as overseer, responsible for review of state programs, enforcement, and auditing compliance with grant requirements.

History. The federal government's involvement in water pollution control originated in its regulation of navigable rivers. Under the Rivers and Harbors Act of 1899, the federal government, through the U.S. Army Corps of Engineers, prohibited the dumping of materials into navigable waters of the United States. The provision was generally understood to apply only to disposal of debris into waters where such disposal could actually interfere with navigation. The FWPCA was first introduced in 1948. Amendments to the Act in 1965 introduced water quality standards for all interstate navigable waters, requiring states to establish present and future uses of streams within their boundaries and to develop water quality criteria that would describe the water quality needed for designated uses and create a plan to achieve the designated use.

In 1972, Congress radically changed the regulatory scheme. Although the 1972 Act retained the water quality criteria, it added a completely new system of effluent limitations (limits on pollutants contained in the water discharged from a plant) and permits for individual discharges. It also established a two-tiered technology-based implementation system. Finally, it increased the role of the federal government, giving it primary responsibility for setting policy and standards, with the states responsible for implementation. This scheme followed the "federalism" model first used in the environmental area by the Clean Air Act.

Effluent Limitations. The 1972 Act established a new goal of zero discharges by 1985, later extended to 1989. The Act also established an interim goal that, wherever attainable, waters were to be fishable and swimmable by 1983. The interim goal of fishable/swimmable waters by 1983 and the ultimate goal of zero discharges by 1989 have not been met. This is, at least in part, due to the indirect mechanism that the Act uses to reach these goals. Rather than specifically requiring dischargers to eliminate their discharges, the Act relies on effluent limitations. Effluent limitations are specific numerical limits on particular substances that are applied to each source that discharges pollutants (the effluent) into the water.

Permit System. The effluent limitations are imposed through a system of permits under the National Pollutant Discharge Elimination System (NPDES). No point source, such as a factory or a sewage treatment facility, may discharge into waters of the U.S. unless it obtains a permit. The NPDES permit then serves as a detailed and highly regulated exception to the no discharge rule. Dischargers must get permits from EPA or from an EPA-approved state program. Discharges without a permit or in violation of permit conditions give rise to government enforcement action and may result in civil or criminal penalties. A noncomplying discharger may also be subject to enforcement action by private individuals or groups under the CWA's citizen suit provision. It seems clear that effluent limitations will be around for a long time and that the goal of zero discharges is unlikely to be met.

Technology-Based Standards. The NPDES permit sets the effluent limitations for a particular plant. Those effluent limitations are based on several levels of pollution control technologies specified in the statute. Like the NSPS standards under the Clean Air Act, an industrial source can meet these technology-based standards by achieving the levels of pollutants that would be discharged using the specified technology. Congress required the technology-based standards to be implemented in two stages. All industrial plants were first required to install the best practicable control technology currently available (BPT) by July, 1977. Such

plants were then required to meet a more stringent standard of best available technology economically achievable (BAT) by July, 1984 (since extended into 1989). Effluent standards are set based on categories of industry. Because particular characteristics of plants may vary, EPA has the power to authorize variances or modifications on the standards.

As it did with the Clean Air Act, Congress in 1977 and again in 1987, amended the CWA in order to correct some perceived deficiencies in the 1972 Act. In 1977 water pollutants were divided into conventional, nonconventional, and toxic pollutants. BAT was required for the nonconventional and toxic pollutants. A new standard -- best conventional control technology (BCT) -- was created for conventional pollutants. The new BCT standards were required to be at least as stringent as the old BPT limits; however, any additional removal of pollutants beyond those BPT limits was required to be cost effective.

Sewage treatment plants were required to have secondary treatment by 1977 and by 1983 to be able to apply BPT over the life of the treatment works. Primary sewage treatment essentially removes the solids from the sewage. Secondary treatment uses primarily bacterial processes to digest and thus remove the organic matter in the sewage. Secondary treatment leaves a sludge that must be disposed of as a solid waste. Because secondary treatment removes only the organic matter and does not treat or remove toxic substances such as heavy metals, disposal of the sludge may present pollution problems of its own. The most recent amendments to the Act in 1987 require the EPA to identify toxic pollutants in sewage sludge and to establish standards for those pollutants and "best management practices" to achieve those standards. This is an example of how all pollution problems are interconnected. Solving the water pollution problem may lead to solid waste or air pollution problems if not dealt with carefully.

Water Quality Standards. The CWA also provides for an additional level of control based on the original water quality standards from the pre-1972 Act. These standards apply when the technology-based (BCT and BAT) standards are insufficient to meet water quality standards established for the receiving stream. These standards are based on information relating to a body of water's capacity to absorb or dilute pollutants (which will vary depending on the characteristics of the body of water: local conditions, stream flow, turbidity, and other factors). These standards will also vary depending on the designated use the state is trying to protect. The primary method provided in the statute for ensuring these water quality improvements is through calculating the total maximum daily load (TMDL) for the pollutant or pollutants and then allocating that pollutant load among the sources of pollutants entering the water body.

Additional Standards for Industrial Sources. The Act contains a number of other effluent limitations. It provides for new source performance standards (NSPS) similar to those contained in the CAA. Industrial point sources that discharge into sewage treatment plants must also meet pre-treatment standards. These standards require that the industrial point source pre-treat its discharge to remove toxic pollutants so that it will not interfere with the treatment technology used in the sewage treatment plant. This was intended to prevent industrial discharges from either contaminating or killing the biological organisms used to treat organic pollution.

Oil and Hazardous Substance Cleanups. The Clean Water Act also prohibits the discharge of oil or hazardous substances into the waters of the U.S. This provision requires owners or operators of vessels or facilities that discharge oil or hazardous substances in quantities that may be harmful to clean up the spill and to report it to the federal government.

If the owner does not clean up the spill, then the government can recover from the owner its cost for cleaning up the spill. The statute includes a no-fault strict liability standard that holds

an owner or operator liable for the cost, up to specific monetary limits set in the statute, of the clean-up. There are four limited defenses to the strict liability standard. Owners or operators may avoid liability if the spill was caused by an act of God, an act of war, negligence by the government, or an act or omission by a third party. If the discharge was caused solely by the act or omission of a third party, then the third party, rather than the owner or operator of the facility or vessel, is liable for the cost of the cleanup. However, the third party is not considered the sole cause of the discharge if the owner or operator was negligent in allowing a situation to develop where a third party could cause a discharge.

In 1990, in response to the Exxon Valdez spill, Congress passed the Oil Pollution Act, which raised the liability limits and extended liability to include damage to natural resources.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Background. Pesticide use in the United States has been under some form of federal control since the Insecticide Act of 1910. In 1947 Congress enacted the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), requiring that pesticides distributed in interstate commerce be registered with the Department of Agriculture. This responsibility was transferred to EPA, upon its creation, on December 2, 1970. FIFRA has been amended several times. FIFRA prohibits the sale, distribution, shipment, or receipt of any pesticide that is not registered with the Administrator of EPA. The regulations apply to all types of pesticides, insecticide, herbicides, and fungicides and cover both interstate and intrastate commerce. Because FIFRA does not fully preempt state or local law, each state and local government may also regulate pesticide use.

Registration. Under the registration process, EPA requires an applicant (usually the manufacturer or U.S. distributor of the product) to submit extensive information on the product including the name of the pesticide, a complete copy of the label stating the directions for use and a statement of claims made for the product; and any additional information needed by EPA to determine whether the pesticide meets the statutory criteria for registration. To register a pesticide, the Administrator must find the following: 1) that claims made for the product are warranted by its composition; 2) that the label satisfactorily describes the product and gives appropriate instructions for use; 3) that the pesticide will perform its intended function without unreasonable adverse effects on the environment; 4) that the pesticide, when used in accordance with widespread and commonly recognized practice, will not generally cause unreasonable adverse effects on the environment.

EPA assesses the risk of the product, looking at toxicity, hazards to human health, risks it may pose to species protected under the Endangered Species Act (ESA), and potential impacts to critical habitat of endangered or threatened species. As part of this assessment process, EPA provides an opportunity for the applicant and other interested parties to comment and provide additional information that may aid in the decision.

Classification. After reviewing all of the information, EPA classifies the pesticide. Some pesticides have been banned outright and not registered (e.g., DDT), others that are considered dangerous may have restrictions placed on their use such as requirements that they be applied only by a certified applicator. General use pesticides are those that do not require certified applicators. Registration of a pesticide under FIFRA requires a finding by EPA that use of the pesticide will not generally cause "an unreasonable adverse effect as any unreasonable risk to man or the environment." This phrase is defined taking into account the economic, social, and

environmental costs and benefits of the use of the pesticide. Thus, FIFRA creates a balancing test, under which EPA is allowed to register a pesticide that is deemed to be beneficial overall although it may have adverse effects on human health.

Suspension/Cancellation. Under FIFRA, EPA is authorized to cancel registration of a substance suspected of posing a substantial question of safety. Cancellation generally leads to a public hearing and/or scientific review committee and review of the product. Additionally, EPA may suspend a product that constitutes an imminent hazard to man or the environment. Ordinary suspension provides the registrant notice and the opportunity of a hearing. Emergency suspension immediately halts all uses, sales, and distributions of a pesticide without notice to a registrant and has been used only rarely.

Food Quality Protection Act

The adoption of the Food Quality Protection Act (FQPA) in 1996 changed the way pesticides are regulated. The FQPA amended two existing laws that govern pesticide use: the Federal Food, Drug and Cosmetic Act and FIFRA.

A central element of the FQPA is the establishment of a single standard for pesticide residues in both raw and processed foods. Under the law, EPA may approve a pesticide tolerance only if the agency determines that “there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue....” In light of the new standard, the FQPA requires EPA to review all pesticide tolerances within ten years and to review all existing and new pesticide registrations. The law sets out several factors that must be considered by the government when establishing or changing tolerances.

The law contains several provisions that focus on the protection of children. In establishing or changing a pesticide tolerance, EPA must ensure there is a reasonable certainty that no harm will result to infants and children from aggregate exposure to the pesticide, and the agency must publish a determination that the tolerance is safe for children. The law provides for a ten-fold margin of safety to ensure the tolerance is safe for children. The FQPA also directs the federal government to collect data documenting pesticide exposure for infants and children.

The Food Quality Protection Act also addresses endocrine-disrupting chemicals. The law requires a screening and testing program for estrogenic and other effects of pesticides, and it gives the government authority to require chemical manufacturers to provide product data, including potential endocrine effects. Finally, the FQPA requires the federal government to distribute a brochure on the health effects of pesticides and ways of avoiding risks.

Toxic Substances

Since 1976 Congress has passed several statutes that comprehensively, if not coherently, regulate substances that are toxic. Congress first dealt with toxic substances independently in 1976 when it passed two statutes, the Toxic Substances Control Act (TSCA) and the Resource Conservation and Recovery Act (RCRA). TSCA regulates the production and manufacture of toxic chemicals other than pesticides, whereas RCRA regulates hazardous wastes produced by industry. TSCA grants the EPA broad authority to write rules as needed to protect health and the environment from unreasonable risks from any substance. The only constraint on the EPA is that it must choose the least burdensome rule that will be effective. TSCA is also intended to be used as a last resort if no other statute would effectively reduce the risk.

In 1980 Congress added another major statute to the regulatory scheme for hazardous or

toxic substances when it passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), otherwise known as Superfund. The following sections cover the hazardous waste disposal (RCRA) and cleanup (Superfund) statutes as examples of the federal efforts to regulate toxic substances. In addition, the final section describes the federal statute that establishes the public's right to know about toxic chemicals in their communities.

Resource Conservation and Recovery Act (RCRA).

Determining What is Hazardous Waste. The regulation of hazardous waste under RCRA starts from the assumption that such wastes are first solid wastes that are then determined to be hazardous. The term solid waste is, however, defined in the statute to include "solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, agriculture operations, and from community activities." (42 U.S.C. §6903(27)). Thus, solid waste appears to include just about any type of waste except gases that are not in containers. Hazardous waste is then defined as solid waste that either causes increases in deaths or serious illnesses, or poses a substantial threat to human health or the environment. (42 U.S.C. §6903(5)).

EPA has promulgated regulations that define hazardous waste more specifically, if not more useably, to include: 1) specifically listed substances or constituents; 2) wastes that meet one or more of four criteria of ignitability, corrosivity, reactivity, or toxicity; or 3) substances that are determined through testing by the generator to possess dangerous characteristics. In practice most wastes are identified as hazardous under the first method, by being specifically listed by EPA.

RCRA has been described as a "cradle to grave" regulatory scheme for hazardous waste. Thus, it covers generators and transporters of hazardous waste as well as operators of treatment, storage, or disposal facilities. The cradle to grave description is in many ways, however, a misnomer. The "cradle" merely starts at the point that a substance is determined to be a "waste," even though that substance may have had a long history as a potentially toxic or hazardous substance in use as a raw material, intermediary, or even as a final product in the industrial stream. Nor is it really accurate to say there is a "grave" for hazardous wastes since many such wastes retain their hazardous characteristics after storage or disposal. Hazardous wastes are active even after disposal because no currently used method of disposal can guarantee that the waste remains isolated from the environment forever. Chemical conversion to non-toxic substances or complete destruction are the only truly permanent solutions.

Manifests and Labels. Even so, RCRA is an ambitious attempt to identify, track, and ensure the safe treatment and disposal of all hazardous wastes. This is accomplished by requiring that detailed records be kept of all such wastes from the time they are determined to be hazardous. These records include labelling requirements for waste containers and manifests that must accompany wastes when they are transported.

Generators are responsible for where the wastes are sent. Thus, transporters are required to take hazardous wastes only to the treatment, storage, or disposal facility designated by the generator. These provisions, along with the manifest and labelling requirements, were intended to help stop the practice of "midnight dumping" at unpermitted, uncontrolled sites.

Treatment, Storage and Disposal Facilities. Probably the most important aspect of RCRA is its regulation of treatment, storage, and disposal facilities. RCRA requires operators of facilities that treat, store, or dispose of hazardous wastes to obtain a permit. To obtain a permit,

the facility must meet design, operation, performance, insurance, and financial responsibility standards issued by the EPA. The statute authorizes EPA to issue standards that are "necessary to protect human health and the environment." (42 U.S.C. §6922(a)).

Congress, however, was not satisfied with EPA's progress in issuing standards and enforcing RCRA and thus amended RCRA in 1984. It added specific deadlines for EPA to issue regulations and imposed specific design and operation standards. For example, Congress banned the land disposal of uncontained liquid wastes and of certain specified wastes unless they were first treated to reduce their risk. Congress also required all new landfills and surface impoundments to have double liners. Liners are either thick sheets of plastic or several feet of packed clay, both of which, if undamaged, allow negligible amounts of liquid to pass through them. Requirements such as double liners are known as design standards since they specify how a facility is to be designed or constructed. Each type of treatment, storage or disposal facility now has specific design standards.

In addition, RCRA requires treatment, storage and disposal facilities to comply with operation standards. For example, landfills and surface impoundments must continually monitor the quality of any leachate (liquid that percolates through the fill picking up toxic chemicals) from the facility and the quality of the groundwater surrounding facility. If the level of a suspect chemical in the surrounding groundwater exceeds background levels, then corrective action may be required, including pumping of the leachate, or, if the levels exceed drinking water standards, pumping and treating the groundwater. Corrective action may also be required for any solid waste management unit within the boundaries of the treatment, storage or disposal facility, even if it is an older facility that was closed before RCRA rules went into effect.

In most cases RCRA requires the operator to be responsible for the facility, including groundwater monitoring, for 30 years after the facility is closed. In addition, the operator must place a restriction on the deed for the property containing the facility. The restriction informs all potential purchasers that the land includes a treatment, storage, or disposal facility that is covered by RCRA post-closure standards. Finally, the operator is required to have insurance that covers both the operation and the post-closure periods, including potential claims due to contaminated groundwater.

Superfund (Comprehensive Environmental Response Compensation and Liability Act)

In the late 1970s the public in the U.S. became aware of the risks inherent in the uncontrolled and undocumented methods that had for decades been used to dispose of hazardous waste. In response to the public uproar, Congress, immediately after the 1980 election, enacted the Superfund statute (CERCLA). It addresses the cleanup of sites where hazardous waste was treated or disposed of in an unsafe manner. Because it was passed in a final rush of compromise, however, CERCLA contained many ambiguous provisions and gaps where Congress did not resolve issues.

CERCLA addresses the cleanup of sites where hazardous substances were deposited, stored, disposed of, placed, or otherwise came to be located.* Congress modeled CERCLA on New Jersey's Spill Compensation and Control Act of 1976, which was the first statute to require cleanup of land contaminated with hazardous substances, and on part of the Clean Water Act

* 42 U.S.C. § 9601(9) (definition of "facility").

requiring cleanup of spills of oil or hazardous substances into surface water.**

Revolving Fund. The basic scheme of the Act is simple. Superfund takes its name from the revolving fund set up to finance hazardous waste site cleanups. The money for the fund came partly from a tax on chemical feedstock manufacturers and petroleum companies and partly from general revenues. Congress initially set the amount of the fund at \$1.6 billion, thinking that would be enough to clean up most of the hazardous waste sites in the country, but added \$8.5 billion in 1986 and another \$5.1 billion in 1990 to extend funding through September 30, 1994. The taxing authority expired at the end of 1995 and has not been reauthorized and thus the Superfund program is now funded entirely through annual appropriations from general revenues.* It is a revolving fund because Congress envisioned that money from the fund would be used to clean up some sites, but that the government would recover most of those funds from the parties responsible for the hazardous wastes at the sites. This has in fact been the case as the federal government reports that it recovers approximately 70 percent of the costs of cleanups from liable parties.*

Liability. Congress gave the federal government, and state and tribal governments, several tools to enable them to recover the costs of cleanup from responsible parties. The most important of these tools is a strict liability provision very similar to the one for spills of oil and hazardous substances contained in the Clean Water Act,** which derives from the common law rules on strict liability. Congress specified several categories of people that were liable for the cost of cleaning up a contaminated site, including: the current owner or operator of a site; anyone who owned or operated a site at the time of disposal of any hazardous substance at the site; anyone who arranged for disposal or treatment, or who arranged for transportation for disposal or treatment, of hazardous substances owned or possessed by that person and those hazardous substances ended up at the site; and anyone who transported hazardous substances to the site if that person selected the site.*** Thus, except for limited defenses, including that the release or threatened release of a hazardous substance was caused solely by an act of God, an act of war, or an act or omission of a third party, those responsible for hazardous substances at a site that was cleaned up with Superfund money are liable for the cost of the cleanup.**** Notably absent from these defenses is fault. Under CERCLA, the government need not prove that a person was negligent or otherwise at fault, just that the person meets one of the above criteria. In connection with the strict liability provision, the government is authorized to sue the responsible parties for the government's costs of cleanup. The government is also authorized to order responsible parties to clean up the site themselves or to sue them to force them to perform the cleanup.* Although the statute is clear about who is liable and about the limited set of defenses, it is silent as to how to apportion liability when more than one party was responsible for the hazardous substances at the site. Parties that contributed some but not all of the hazardous substances at a site argued that they should not be responsible for the entire cost of the cleanup since they were

** See *infra* note ? and accompanying text.

* KATHERINE N. PROBST & DAVID M. KONISKY, SUPERFUND'S FUTURE 2 (RFF 2001).

* ?

** 33 U.S.C. § 1321(b)(3), for a discussion of the oil spill provisions of the Clean Water Act, see note ? and accompanying text.

*** 42 U.S.C. § 9607 (a).

**** 42 U.S.C. § 9607 (b).

* 42 U.S.C. § 9605 (a).

not responsible for all the hazardous substances released into the environment.

The courts, however, uniformly decided that each party that had contributed waste to a site that was subject to a cleanup action would be "jointly and severally" liable for the entire cost of the cleanup. This meant that each party that had contributed any amount of waste to the site was potentially liable for the entire cost of the cleanup of that site. This seemingly harsh standard, which could place a crushing financial burden on parties that had contributed relatively small amounts of waste, was based on the common law rules of strict liability. Furthermore, that a party was potentially liable for the entire cost did not preclude it from obtaining a contribution toward that liability from the other parties that had contributed waste to the site. The imposition of the joint and several liability standard simply was intended to leave it to the responsible party, rather than to the government, to find those other responsible parties and to obtain contributions from them. The policy was to focus the government's resources on effective cleanup and not waste them on determining which of the potentially responsible parties should pay for the cleanup.

In 2004, the Supreme Court overturned years of practice in adjudicating contribution claims by holding that section 113(f) of CERCLA allowed an action for contribution only if the party paying for the cleanup had been sued by an authorized government agency or resolved its liability to the government through an administrative or judicial settlement.** Based on prior decisions in lower courts, many responsible parties had decided to avoid litigation and take control of the cleanup process by paying for the cleanup without any governmental enforcement action and seek contribution from other responsible parties later. This was particularly true at less contaminated or brownfield sites that were not listed on the NPL and thus not eligible for cleanup funding under the Superfund. Such sites typically are cleaned up under state voluntary cleanup programs (VCPs) or brownfields programs, which are premised on voluntary action by property owners, other potentially responsible parties, and prospective purchasers. Because these programs have been based on the fundamental premise of avoiding litigation, state VCP and brownfields program administrators and brownfield officials at US EPA have been concerned that fewer property owners or other responsible parties will be willing to pay for the cost of cleanup if they have no prospect of obtaining contributions from other potentially responsible parties without subjecting themselves to enforcement actions by state and tribal governments. Moreover, state officials lack the personnel and other resources to bring such actions in numbers approximating the number of sites that have been cleaned up under VCPs.

This was accomplished by including a strict liability provision very similar to the one for spills of oil and hazardous substances contained in the Clean Water Act. Thus, except for limited defenses, those responsible for hazardous waste at a site that was cleaned up with Superfund money were made strictly liable for the cost of the cleanup.

Cleanups. CERCLA authorizes the EPA to remove wastes or take other remedial action whenever there is a release, or a substantial threat of a release, into the environment of any hazardous substance or any pollutant or contaminant that may present an imminent and substantial danger to the public health and welfare. Removal is a temporary response to immediate emergencies, whereas remedial actions are intended to be permanent remedies, including treatment that renders the hazardous substances benign or less dangerous.

In connection with the strict liability provision, the government was allowed to sue the responsible parties for the government's costs of clean-up. The government was also authorized

** *Cooper Industries, Inc. v. Aviall Services, Inc.* 543 U.S. __ (2004), 34 ELR 20154.

to order responsible parties to clean up the site themselves or to sue them to force them to perform the cleanup.

Problems. A number of inadequacies in the statutory provisions quickly became apparent. First, although \$1.6 billion may have initially seemed to be a large amount of money, state and federal investigators continued to find many more sites of improper hazardous waste treatment, storage, and disposal. Thus, there are far more sites than Congress originally thought existed. It also became apparent that the cost of cleaning up a single site would far exceed initial estimates. The estimated cost of cleaning all of the potentially leaking hazardous sites quickly escalated to \$30-\$100 billion and some estimates are as high as \$750 billion.

In addition, confusion developed over the standard of liability to be applied to the responsible party. Although the statute stated that parties that contributed waste to potentially leaking sites were liable for the cost of removal or remedial actions unless they met one of the defenses, the statute was silent as to how to apportion liability when more than one party was responsible for the waste at the site. Parties that contributed some but not all of the wastes at a site argued that they should not be responsible for the entire cost of the cleanup since they were not responsible for all the hazardous substances released into the environment.

How Clean is Clean? The original statute was also ambiguous as to what would constitute a sufficient cleanup. The statute specified that the government was to remove the sources of immediately hazardous releases and take remedial action to permanently treat and dispose of other hazardous wastes. CERCLA did not, however, define what would be considered a complete cleanup. Environmentalists and surrounding residents wanted contaminant levels reduced to their background, or original prewaste-disposal, levels. The responsible parties, on the other hand, wanted cleanups to remove hazards to human health, but saw no need to reduce contaminants to background levels, particularly where those might not be known. This issue was not definitively resolved by the courts.

Technological Problems. Related to the "how clean is clean" issue was the problem of technological ability to effectively clean up a site. Congress apparently assumed that technology would be sufficient to achieve permanent remedies. In many cases this assumption was overly optimistic. Technology simply did not exist that would permanently reduce the dangers from many hazardous wastes. Some technologies that might greatly reduce those risks presented problems of their own. For example, dioxin, PCB's and other toxic organic compounds can be destroyed by incineration. However, even at the extremely high destruction efficiency required by EPA rules, 99.9999 percent, incineration still leaves some residues of the original dioxin or other organic compound. These residues continue to be hazardous and require safe disposal. Unfortunately, incinerators tend to discharge those residues into the air, creating an air pollution problem.

Statutory Corrections and Additions. Congress responded to these problems by passing the Superfund Amendments and Reauthorization Act of 1986 (SARA). The amount of the revolving fund was increased to \$8.5 billion. Of course, even with the larger amount of money the fund was not sufficient to clean up all the sites without contributions from responsible parties. Thus, the liability provisions of Superfund became even more important.

The 1986 amendments placed new emphasis on the litigation process used to determine liability of responsible parties for cleanup costs. Although SARA did not specifically adopt the joint and several liability standard used by the courts, Congress made it clear in its debates and in the reports describing the amendments that it approved of the courts' adoption of that standard.

The amendments also added a citizen suit provision, which, like those in the Clean Air and Clean Water Acts, allows any person to file a lawsuit to correct a violation of the law.

An attempt was made in SARA to answer the question of "how clean is clean." SARA requires a cleanup to meet any standards from other federal or state statutes that are "legally applicable" or "relevant and appropriate." (42 U.S.C. §9621(d)). Thus, if a standard under another federal or state statute would by its terms be legally applicable to a site, then the cleanup must meet that standard. Similarly, if a standard from another federal or state statute, though not legally applicable, would be relevant and appropriate to be applied to the site, then the cleanup must meet that standard as well. This standard is a compromise between the positions of the environmentalists and responsible parties because the level of allowable residual contamination depends on other environmental laws.

Furthermore, SARA states that there should be a presumption in favor of permanent cleanup remedies, including permanent treatment. The statute does not define a permanent remedy, however, it does state that land disposal is not a permanent remedy and is therefore a disfavored technique. This was intended to eliminate the problem that wastes from Superfund sites were simply being transported around the country for disposal at new sites where they were contributing to new releases of hazardous substances.

Small Business Liability Relief and Brownfields Revitalization Act

In 2002, Congress amended Superfund to encourage cleanup and redevelopment of brownfields, largely by adopting as part of the law a number of administrative policies that EPA had implemented during the preceding decade. Many of these policies were intended to reduce or eliminate liability for innocent landowners and others for whom strict liability was considered particularly unfair. The Small Business Liability Relief and Brownfields Revitalization Act (Brownfields Amendments) also authorized new grants to states and tribes to establish or enhance their non-NPL cleanup programs.*

The liability relief provisions of the 2002 amendments did not alter the fundamental nature of Superfund liability, it remains strict, joint, several, and retroactive, but they did provide exceptions for certain classes of parties. A person who contributed less than 110 gallons or 200 pounds of materials containing hazardous substances to a site is not liable if the contribution occurred before April 1, 2001 and the materials did not contribute significantly to the cost of the cleanup or restoration of natural resources.** A similar exception from liability was provided for small businesses, including small tax-exempt non-profits, and residential owners and lessees who contributed only municipal solid waste to a site.*** The exception for innocent landowners was clarified and expanded by specifying what actions a purchaser must take in order to qualify for the exception.**** A key element of qualifying as an innocent landowner is that the person made all appropriate inquiries into the condition of the property before purchasing it and did not know and had no reason to know of contamination. In addition, the landowner must comply with any land use controls on the property, and not impede the effectiveness or integrity of any

* 42 U.S.C. §9628 (a).

** 42 U.S.C. §9607 (o).

*** 42 U.S.C. §9607 (p).

**** 42 U.S.C. §9601 (35)(A)&(B) (this section actually defines a contractual relationship as the term is used in §107(b)(3), the liability section, but it is typically referred to as the innocent landowner defense).

institutional controls, used at the property as part of a cleanup.^{*****} Finally, the federal government was authorized to consider the ability to pay of the potentially responsible party in settling claims for response costs.^{*****} A condition applied to all of these provisions was that the person complies with requests for information.

In the second portion of the 2002 amendments, Congress built on state voluntary cleanup and brownfields programs, which states had begun developing in the 1980s in response to the large number of sites that did not meet the criteria for listing on the NPL but which required cleanup nevertheless.* In these brownfields amendments Congress modified the definition of a brownfield that most states and EPA had been using and defined a brownfield site as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.”** Sites are excluded from being treated as brownfields if they are listed or proposed to be listed on the NPL; the subject of a planned or ongoing removal action; the subject of a formal enforcement action under CERCLA; a permitted facility or a subject of a formal enforcement action under the Clean Water Act, Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), or Safe Drinking Water Act; required to undertake corrective measures under RCRA; a land disposal unit subject to closure requirements under the Solid Waste Disposal Act; a federal facility; part of a facility where PCBs have been released that are subject to cleanup under TSCA; or part of a facility that has received assistance for cleanup under the Leaking Underground Storage Tank Trust Fund under RCRA.*** A site also may be considered a brownfield site for purposes of receiving revitalization funding grants if it meets the above standards and is contaminated with controlled substances, petroleum or petroleum products (despite their exclusion from the definition of hazardous substances), or mine-scarred lands and is a relatively low-risk site, has no viable responsible party and will be cleaned up by a non-labile person.*

A significant change made by these brownfields amendments was to authorize EPA to provide grants to assess and clean up brownfield sites. Before these amendments EPA’s brownfields program had been built around its limited authority under CERCLA to provide grants for pilot programs.

***** *Id.* See www.lucs.org (this website is devoted to land use controls and institutional controls in the context of cleanups of hazardous substances) (last visited April 2, 2005), U. S. Environmental Protection Agency, Institutional Controls: A Site Manager’s Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups, Office of Solid Waste and Emergency Response, OSWER 9355.0-74FS-P, EPA 540-F-00-005, September 2000, ENVIRONMENTAL LAW INSTITUTE, PROTECTING PUBLIC HEALTH AT SUPERFUND SITES: CAN INSTITUTIONAL CONTROLS MEET THE CHALLENGE?, (2000) (this report contains a description of types of institutional controls, including land use controls).

***** 42 U.S.C. §9622 (g)(7).

* See U.S. EPA, Office of Brownfields Cleanup and Redevelopment, State Brownfields and Voluntary Response Programs: An Update from the States, EPA-560-R-05-001 (2005), ENVIRONMENTAL LAW INSTITUTE, AN ANALYSIS OF STATE SUPERFUND PROGRAMS: 50—STATE STUDY, 2001 UPDATE 37-43 (2002) (contains a description of state voluntary cleanup programs and of state brownfields programs).

** 42 U.S.C. §9601 (39)(A).

*** 42 U.S.C. §9601 (39)(B).

* 42 U.S.C. §9601 (39)(D).

Emergency Planning and Community Right to Know Act

Within SARA Congress adopted a new independent program requiring companies that use hazardous substances to notify the communities surrounding their operations about any hazardous substances used or stored on the site or released from the site. This statute, Title III of SARA or the Emergency Planning and Community Right to Know Act (EPCRA), is based on dual themes, providing for both emergency planning and public access to information regarding toxic chemicals used, stored, or released in a community.

Planning. The planning component of EPCRA requires states to develop both state-wide and local emergency planning committees responsible for the development of emergency plans. Emergency plans must include: identification of facilities within the community that use or store substantial amounts of hazardous materials and plans for emergency action in event of accidental release of these materials, including notice to the public. Under EPCRA, EPA creates a list of extremely hazardous substances and sets threshold planning quantities (TPQs) that trigger the EPCRA reporting requirements. Facilities that use listed chemicals in amounts greater than the TPQ must notify the state and local committees and comply with emergency planning and reporting requirements. Facilities that are covered by EPCRA must submit inventory forms listing the chemicals they keep on-site, explaining how these chemicals are stored at the facility, and the location of the chemicals. The Act also requires companies to immediately notify the local authorities whenever there is a release of an extremely hazardous substance.

Toxic Chemical Releases. The information access component of EPCRA is found in §313, which requires covered facilities to complete an annual Toxic Chemical Release Form. The form requires facilities to report normal operating releases (not emergency releases) of chemicals listed in SARA §313. Currently close to 600 chemicals are included in the list. Chemicals are listed based on their significant adverse effects on human health or the environment. Information on listed substances is disseminated to the public by EPA. Through this process, communities are able to get information on the types, amounts, and locations of hazardous chemicals being used in their areas.

SARA dovetails with a regulation under the Occupational Safety and Health Act requiring companies using hazardous substances to inform their workers of the hazards associated with those substances and of safety information.