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Environmental Laws: Summaries of Statutes Administered by the Environmental Protection Agency

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Summary

A dozen major statutes form the legal basis for the programs of the Environmental Protection Agency (EPA). Many of these have been amended several times. The current provisions of each are briefly summarized in this report.

The **Pollution Prevention Act (PPA)** seeks to prevent pollution through reduced generation of pollutants at their point of origin.

The **Clean Air Act (CAA)** requires EPA to set mobile source limits, ambient air quality standards, hazardous air pollutant emission standards, standards for new pollution sources, and significant deterioration requirements; and to focus on areas that do not attain standards.

The **Clean Water Act (CWA)** establishes a sewage treatment construction grants program, and a regulatory and enforcement program for discharges of wastes into U.S. waters. Focusing on the regulation of the intentional disposal of materials into ocean waters and authorizing related research is the **Ocean Dumping Act.** The **Safe Drinking Water Act (SDWA)** establishes primary drinking water standards, regulates underground injection disposal practices, and establishes a groundwater control program.

The **Solid Waste Disposal Act** and **Resource Conservation and Recovery Act (RCRA)** provide regulation of solid and hazardous waste, while the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**, or Superfund, provides authority for the federal government to respond to releases of hazardous substances, and established a fee-maintained fund to clean up abandoned hazardous waste sites. The authority to collect fees has expired, and funding is now provided from general revenues.

The **Emergency Planning and Community Right-to-Know Act** requires industrial reporting of toxic releases and encourages planning to respond to chemical emergencies.

The **Toxic Substances Control Act (TSCA)** regulates the testing of chemicals and their use, and the **Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)** governs pesticide products and their use.

The **Environmental Research and Development Demonstration Act (ERDDA)** authorizes all EPA research programs, and the **National Environmental Policy Act (NEPA)**, in part, requires EPA to review environmental impact statements.

Parts of some statutes pre-existed the EPA's formation in 1970, but most of contemporary environmental law was established by Congress during the 1970s, and has been expanded by major amendments; Congress has assigned EPA the administration of a considerable body of law and associated programs.

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Contents

List of Tables

Environmental Laws: Summaries of Statutes Administered by the Environmental Protection Agency

Introduction

The authorities and responsibilities of the Environmental Protection Agency (EPA) derive primarily from a dozen major environmental statutes. This report, updated at the beginning of each Congress, provides a brief summary of EPA's present major authorities and responsibilities. It abstracts EPA-administered statutes, with each chapter providing a discrete analysis. It also summarizes environmental programs, explains how each act is structured, defines key terms, and reports the current authorization status of each act. The overall strategy of pollution control and the major programs authorized by each act are discussed. At the beginning of each chapter is a list of all major amendments to the parent statute, while the final table in each chapter cites the major *U.S. Code* sections of the codified statute, offering ready reference to the codified sections. **Table 1** shows the current status of statutory authorizations for appropriations.

While these summaries present the essence of each statute, they are necessarily incomplete, in that many details and secondary provisions are omitted, and even some major components are only briefly mentioned. Moreover, this report describes the statutes without discussing their implementation. For example, statutory deadlines to control pollutant discharges and achieve particular mandates have often been missed as a result of delayed standard setting by EPA. Other CRS products track current developments and discuss implementation concerns.

For a report on current issues, see CRS Issue Brief IB10146, *Environmental Protection Issues in the 109th Congress,* which describes current issues and legislation associated with implementing these laws.

Table 1. Schedule of Expiration of Appropriation Authority for Major Environmental Laws

(as of January 2001)[a]

Statute	Expiration of Authorization
Pollution Prevention Act	September 30, 1993
Clean Air Act	September 30, 1998
Clean Water Act	
(a) Wastewater Treatment Aid	September 30, 1994
(b) Other Programs	September 30, 1990
Ocean Dumping Act	September 30, 1997
Safe Drinking Water Act	September 30, 2003
Resource Conservation and Recovery Act	September 30, 1988
Superfund (collection of taxes)	December 30, 1995
Environmental Planning and Community-Right-To-Know Act	Permanent
Federal Insecticide, Fungicide, and Rodenticide Act	September 30, 1991
Toxic Substances Control Act	September 30, 1983
Environmental Research, Development, and Demonstration Authorization	September 30, 1982
National Environmental Policy Act	Permanent

[a]House rules require enactment of an authorization before an appropriation bill can be considered; but this requirement can be waived and frequently has been. Thus, while appropriation authorizations in environmental statutes have expired from time to time, programs have continued and have been funded through appropriations legislation. These dates *do not* indicate termination of program authority.

Pollution Prevention Act of 1990[1]

The Pollution Prevention Act of 1990 requires the Environmental Protection Agency to establish an Office of Pollution Prevention, develop and coordinate a pollution prevention strategy, and develop source reduction models. The act requires owners and operators of manufacturing facilities to report annually on source reduction and recycling activities, and authorizes EPA to collect data collection on pollution prevention.

Background

Enactment of the Pollution Prevention Act of 1990 marked a turning point in the direction of U.S. environmental protection policy. From an earlier focus on the need to reduce or repair environmental damage by controlling pollutants at the point where they are released to the environment — i.e., at the "end of the pipe" or smokestack, at the boundary of a polluter's private property, in transit over public highways and waterways, or after disposal — Congress turned to pollution prevention through reduced generation of pollutants at their point of origin. Broad support for this policy change was based on the notion that traditional approaches to pollution control had achieved progress, but may in the future be supplemented with new approaches that might better address cross-media pollution transfers, the need for cost-effective alternatives, and methods of controlling pollution from dispersed or nonpoint sources of pollution.

Pollution prevention, also referred to as "source reduction," is viewed by its advocates as the first in a hierarchy of options to reduce risks to human health and the environment. Where prevention is not possible or may not be cost-effective, other options would include recycling, followed next by waste treatment according to environmental standards, and as a last resort, safe disposal of waste residues. Source reduction is the preferred strategy for environmental protection because it often: is cost-effective; offers industry substantial savings in reduced raw materials, pollution control costs, and liability costs; reduces risks to workers; and reduces risk to the environment and public health.

In 1990, opportunities for source reduction appeared to be plentiful, but often were unrealized or rejected by industries without adequate consideration. The act was meant to increase interest in source reduction and encourage adoption of cost-effective source reduction practices. The law was enacted as Title VI of the Omnibus Budget Reconciliation Act of 1990, P.L. 101-508, and is codified as 42 U.S.C. 13101-13109.

Provisions

Section 6602(b) of the Pollution Prevention Act states that it is the policy of the United States that "pollution should be prevented or reduced at the source whenever

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[1] Prepared by Linda Schierow, Specialist in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner."

Section 6603(5) defines source reduction as:

> any practice which —
>
> (i) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and
>
> (ii) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

Section 6604 of the act required EPA to establish an Office of Pollution Prevention. The office must be independent of the "single-medium program offices," but was given authority to review and advise those offices to promote an integrated, multi-media (i.e., air, land, and water) approach to source reduction. EPA was directed to develop and implement a detailed and coordinated strategy to promote source reduction, to consider the effect on source reduction of all EPA programs and regulations, and to identify and make recommendations to Congress to eliminate barriers to source reduction. EPA also must conduct workshops and produce and disseminate guidance documents as part of a training program on source reduction opportunities for state and federal enforcement officers of environmental regulations. EPA's strategy, issued in 1991, identifies goals, tasks, target dates, resources required, organizational responsibilities, and criteria to evaluate program progress. In addition, the act requires EPA to promote source reduction practices in other federal agencies and to identify opportunities to use federal procurement to encourage source reduction.

To facilitate source reduction by industry, EPA is required under Section 6604 to develop, test, and disseminate model source reduction auditing procedures to highlight opportunities; promote research and development of source reduction techniques and processes with broad applicability; establish an annual award program to recognize innovative programs; establish a program under Section 6605 of state matching grants for programs to provide technical assistance to business; and disseminate information about source reduction techniques through a clearinghouse established in Section 6606.

The act also includes provisions to improve data collection and public access to environmental data. Section 6604(b) directs EPA to develop improved methods of coordinating, streamlining and assuring access to data collected under all federal environmental statutes. An advisory panel of technical experts is established to advise the Administrator on ways to improve collection and dissemination of data. With respect to data collected under federal environmental statutes, Section 6608 directs EPA to evaluate data gaps and data duplication as well as methods of coordinating, streamlining, and improving public access.

Section 6607 requires owners and operators of many industrial facilities to report annually on their releases of toxic chemicals to the environment (under the Emergency Planning and Community Right-to-Know Act of 1986, Section 313). The Pollution Prevention Act requires these reports to include information about the facility's efforts in source reduction and recycling. Specifically, reports must include:

- the quantity of the toxic chemical entering any waste stream (or released to the environment) prior to recycling, treatment, or disposal;
- the quantity of toxic substance recycled (on- or off-site);
- the source reduction practices used;
- quantities of toxic chemical expected to enter waste streams and to be recycled in the two years following the year for which the report is prepared;
- ratio of production in the reporting year to production in the previous year;
- techniques used to identify opportunities for source reduction;
- amount of toxic chemical released in a catastrophic event, remedial action, or other one-time event; and
- amount of toxic chemical treated on- or off-site.

All collected information is to be made available to the general public.

Section 6607(c) of the Pollution Prevention Act provides enforcement authority under Title III of the Superfund Amendments and Reauthorization Act (also known as the Emergency Planning and Community Right-to-Know Act). Civil, administrative, and criminal penalties are authorized for non-compliance with mandatory provisions. Citizens are given the authority to bring civil action for non-compliance against a facility, EPA, a governor, or a State Emergency Response Commission.

Section 6608(a) requires EPA to file a report on implementation of its Pollution Prevention Strategy biennially. The required contents of the reports are specified in the statute.

Authorization for appropriations under the Pollution Prevention Act expired September 30, 1993, but appropriations have continued.

Selected References

National Pollution Prevention Roundtable. *An Ounce of Pollution Prevention is Worth Over 167 Billion Pounds of Cure: A Decade of Pollution Prevention Results 1990 - 2000.* Washington, DC, 2003. 53 pp.

U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics. *Program Accomplishments: Office of Pollution Prevention and Toxics 2000 - 2002.* Washington, DC, 2002. 40 pp.

Table 2. Major U.S. Code Sections of the Pollution Prevention Act

(42 U.S.C. 13101-13109)

42 U.S.C.	Section Title	Pollution Prevention Act P.L. 101-508, Title VI
13101	Findings and Policy	13101
13102	Definitions	13102
13103	EPA Activities	13103
13104	Grants to States for Technical Assistance	13104
13105	Source Reduction Clearinghouse	13105
13106	Source Reduction and Recycling Data Collection	13106
13107	EPA Report	13107
13108	Savings Provisions	13108
13109	Authorization of Appropriations	13109

Clean Air Act[2]

The Clean Air Act, codified as 42 U.S.C. 7401 et seq., seeks to protect human health and the environment from emissions that pollute ambient, or outdoor, air. It requires the Environmental Protection Agency to establish minimum national standards for air quality, and assigns primary responsibility to the states to assure compliance with the standards. Areas not meeting the standards, referred to as nonattainment areas, are required to implement specified air pollution control measures. The act establishes federal standards for mobile sources of air pollution, for sources of 188 hazardous air pollutants, and for the emissions that cause acid rain. It establishes a comprehensive permit system for all major sources of air pollution. It also addresses the prevention of pollution in areas with clean air and protection of the stratospheric ozone layer.

Background

Like many other programs administered by the Environmental Protection Agency, federal efforts to control air pollution have gone through several phases, beginning with information collection, research, and technical assistance, before being strengthened to establish federal standards and enforcement. Federal legislation addressing air pollution was first passed in 1955, prior to which air pollution was the exclusive responsibility of state and local levels of government.

Table 3. Clean Air Act and Amendments

(codified generally as 42 U.S.C. 7401-7671)

Year	Act	Public Law Number
1955	Air Pollution Control Act	P.L. 84-159
1959	Reauthorization	P.L. 86-353
1960	Motor vehicle exhaust study	P.L. 86-493
1963	Clean Air Act Amendments	P.L. 88-206
1965	Motor Vehicle Air Pollution Control Act	P.L. 89-272, Title I
1966	Clean Air Act Amendments of 1966	P.L. 89-675
1967	Air Quality Act of 1967	P.L. 90-148
1970	Clean Air Act Amendments of 1970	P.L. 91-604
1973	Reauthorization	P.L. 93-13
1974	Energy Supply and Environmental Coordination Act of 1974	P.L. 93-319
1977	Clean Air Act Amendments of 1977	P.L. 95-95
1980	Acid Precipitation Act of 1980	P.L. 96-294, Title VII
1981	Steel Industry Compliance Extension Act of 1981	P.L. 97-23
1987	Clean Air Act 8-month Extension	P.L. 100-202
1990	Clean Air Act Amendments of 1990	P.L. 101-549
1995-96	Relatively minor laws amending the act	P.L. 104-6, 59, 70, 260
1999	Chemical Safety Information, Site Security and Fuels Regulatory Relief Act	P.L. 106-40
2004	Amendments to §209 re small engines	P.L. 108-199, Division G, Title IV, Section 428

[2] Prepared by James E. McCarthy, Larry B. Parker, Linda Schierow, and Claudia Copeland, Specialists in the Resources, Science, and Industry Division.

The federal role was strengthened in subsequent amendments, notably the Clean Air Act amendments of 1970, 1977, and 1990. The 1970 amendments established procedures under which EPA sets national standards for air quality, required a 90% reduction in emissions from new automobiles by 1975, established a program to require the best available control technology at major new sources of air pollution, established a program to regulate air toxics, and greatly strengthened federal enforcement authority. The 1977 amendments extended deadlines and added the Prevention of Significant Deterioration program to protect air cleaner than national standards.

Changes to the act in 1990 included provisions to (1) classify non-attainment areas according to the extent to which they exceed the standard, tailoring deadlines, planning, and controls to each area's status; (2) tighten auto and other mobile source emission standards; (3) require reformulated and alternative fuels in the most polluted areas; (4) revise the air toxics section, establishing a new program of technology-based standards and addressing the problem of sudden, catastrophic releases of toxics; (5) establish an acid rain control program, with a marketable allowance scheme to provide flexibility in implementation; (6) require a state-run permit program for the operation of major sources of air pollutants; (7) implement the Montreal Protocol to phase out most ozone-depleting chemicals; and (8) update the enforcement provisions so that they parallel those in other pollution control acts, including authority for EPA to assess administrative penalties.

The remainder of this section describes major programs required by the act, with an emphasis on the changes established by the 1990 amendments.

National Ambient Air Quality Standards

In Section 109, the act requires EPA to establish National Ambient Air Quality Standards (NAAQS) for several types of air pollutants. The NAAQS must be designed to protect public health and welfare with an adequate margin of safety. Using this authority, EPA has promulgated NAAQS for six air pollutants: sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone,[3] and lead. The act requires EPA to review the scientific data upon which the standards are based, and revise the standards, if necessary, every five years. More often than not, however, EPA has taken more than five years in reviewing and revising the standards.

Originally, the act required that the NAAQS be attained by 1977 at the latest, but the states experienced widespread difficulty in complying with these deadlines. As a result, the deadlines have been extended several times. Under the 1990 amendments, areas not in attainment with NAAQS must meet special compliance schedules, staggered according to the severity of an area's air pollution problem. The

[3] Unlike the other NAAQS pollutants, ozone is not directly emitted, but rather is formed in the atmosphere by the interaction of volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight. The control of ozone is thus based on regulating emissions of VOCs and NOx.

amendments also established specific requirements for each nonattainment category, as described below.

State Implementation Plans

While the act authorizes the EPA to set NAAQS, the states are responsible for establishing procedures to attain and maintain the standards. Under Section 110 of the act, the states adopt plans, known as State Implementation Plans (SIPs), and submit them to EPA to ensure that they are adequate to meet statutory requirements.

SIPs are based on emission inventories and computer models to determine whether air quality violations will occur. If these data show that standards would be exceeded, the state must impose additional controls on existing sources to ensure that emissions do not cause "exceedances" of the standards. Proposed new and modified sources must obtain state construction permits in which the applicant shows how the anticipated emissions will not exceed allowable limits. In ozone nonattainment areas, emissions from new or modified sources must also be offset by reductions in emissions from existing sources.

The 1990 amendments require EPA to impose sanctions in areas which fail to submit a SIP, fail to submit an adequate SIP, or fail to implement a SIP: unless the state corrects such failures, a 2-to-1 emissions offset for the construction of new polluting sources is imposed 18 months after notification to the state, and a ban on most federal highway grants is imposed six months later. An additional ban on air quality grants is discretionary. Ultimately, a Federal Implementation Plan may be imposed if the state fails to submit or implement an adequate SIP.

The amendments also require that, in nonattainment areas, no federal permits or financial assistance may be granted for activities that do not "conform" to a State Implementation Plan. This requirement can be used to halt funding for highway and transit projects, unless an area demonstrates that the emissions caused by such projects are consistent with attainment and maintenance of ambient air quality standards. Demonstrating conformity of transportation plans and SIPs is required in nonattainment areas at least every three years.

Nonattainment Requirements

In a major departure from the prior law, the 1990 Clean Air Act Amendments group nonattainment areas into classifications based on the extent to which the NAAQS is exceeded, and establish specific pollution controls and attainment dates for each classification. These requirements are spelled out in Sections 171-193 of the act.

The most extensive requirements apply to areas failing to attain the 1-hour ozone standard of 0.12 parts per million. These requirements are described here as specified in the statute.[4] As shown in **Table 4**, the act created five classes of ozone

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[4] EPA has modified the ozone standard to 0.08 parts per million averaged over 8-hour (continued...)

nonattainment. Only Los Angeles originally fell into the "extreme" class, but 97 other areas were classified in one of the other four ozone categories. A simpler classification system establishes moderate and serious nonattainment areas for carbon monoxide and particulate matter with correspondingly more stringent control requirements for the more polluted class. For 1-hour ozone nonattainment areas, the deadlines stretch from 1993 to 2010, depending on the severity of the problem. For carbon monoxide, the attainment date for moderate areas was December 31, 1995, and for serious areas, December 31, 2000. For particulate matter, the deadline for areas designated moderate nonattainment as of 1990 was December 31, 1994; for those areas subsequently designated as moderate, the deadline was six years after designation. For serious areas, the respective deadlines were December 31, 2001, or 10 years after designation.

Table 4. Ozone Nonattainment Classifications

Class	Marginal	Moderate	Serious	Severe	Extreme
Deadline	3 years	6 years	9 years	15-17 yrs.[a]	20 years
Areas[b]	42 areas	32 areas	14 areas	9 areas	1 area
Design Value	0.121 ppm-0.138 ppm	0.138 ppm-0.160 ppm	0.160 ppm-0.180 ppm	0.180 ppm-0.280 ppm	> 0.280 ppm

[a]Areas with a 1988 design value between 0.190 and 0.280 ppm were given 17 years to attain; others had 15 years.
[b] Number of areas in each category as of the date of enactment.

[4] (...continued)
periods, through regulations promulgated in July 1997. In April 2004, the agency promulgated an implementation rule for the new 8-hour standard. Under this rule, the 1-hour standard would be revoked as of June 15, 2005, and areas that had not yet attained it would be converted to new classifications depending on their 8-hour concentration of ozone. The revocation of the 1-hour standard has been challenged in court.

Requirements for Ozone Nonattainment Areas. Although areas with more severe air pollution problems have a longer time to meet the standards, more stringent control requirements are imposed in areas with worse pollution. A summary of the primary ozone control requirements for each nonattainment category follows.

Marginal Areas

- Inventory emissions sources (to be updated every three years).
- Require 1.1 to 1 offsets (i.e., industries must reduce emissions from existing facilities by 10% more than the emissions of any new facility opened in the area).
- Impose reasonably available control technology (RACT) on all major sources emitting more than 100 tons per year for the nine industrial categories where EPA had already issued control technique guidelines describing RACT prior to 1990.

Moderate Areas

- Meet all requirements for marginal areas.
- Impose a 15% reduction in volatile organic compounds (VOCs) in six years.
- Adopt a basic vehicle inspection and maintenance program.
- Impose RACT on all major sources emitting more than 100 tons per year for all additional industrial categories where EPA will issue control technique guidelines describing RACT.
- Require vapor recovery at gas stations selling more than 10,000 gallons per month.
- Require 1.15 to 1 offsets.

Serious Areas

- Meet all requirements for moderate areas.
- Reduce definition of a major source of VOCs from emissions of 100 tons per year to 50 tons per year for the purpose of imposing RACT.
- Reduce VOCs 3% annually for years 7 to 9 after the 15% reduction already required by year 6.
- Improve monitoring.
- Adopt an enhanced vehicle inspection and maintenance program.

- Require fleet vehicles to use clean alternative fuels.
- Adopt transportation control measures if the number of vehicle miles traveled in the area is greater than expected.
- Require 1.2 to 1 offsets.
- Adopt contingency measures if the area does not meet required VOC reductions.

Severe Areas

- Meet all requirements for serious areas.
- Reduce definition of a major source of VOCs from emissions of 50 tons per year to 25 tons per year for the purpose of imposing RACT.
- Adopt specified transportation control measures.
- Implement a reformulated gasoline program.
- Require 1.3 to 1 offsets.
- Impose $5,000 per ton penalties on major sources if the area does not meet required reductions.

Extreme Areas

- Meet all requirements for severe areas.
- Reduce definition of a major source of VOCs from emissions of 25 tons per year to 10 tons per year for the purpose of imposing RACT.
- Require clean fuels or advanced control technology for boilers emitting more than 25 tons per year of NO_x.
- Require 1.5 to 1 offsets.

As noted, EPA promulgated a new, 8-hour ozone standard in July 1997. Following extensive court challenges, the agency designated nonattainment areas for the new standard on April 15, 2004. State Implementation Plans must be submitted within three years of an area's designation.

Requirements for Carbon Monoxide Nonattainment Areas. As with ozone nonattainment areas, carbon monoxide (CO) nonattainment areas are subjected to specified control requirements, with more stringent requirements in serious nonattainment areas. A summary of the primary CO control requirements for each nonattainment category follows.

Moderate Areas

- Conduct an inventory of emissions sources.
- Forecast total vehicle miles traveled in the area.
- Adopt an enhanced vehicle inspection and maintenance program.
- Demonstrate annual improvements sufficient to attain the standard.

Serious Areas

- Adopt specified transportation control measures.
- Implement an oxygenated fuels program for all vehicles in the area.
- Reduce definition of a major source of CO from emissions of 100 tons per year to 50 tons per year if stationary sources contribute significantly to the CO problem.

Serious areas failing to attain the standard by the deadline have to revise their SIP and demonstrate reductions of 5% per year until the standard is attained.

Requirements for Particulate Nonattainment Areas. Particulate (PM_{10}) nonattainment areas are also subject to specified control requirements. These are:

Moderate Areas

- Require permits for new and modified major stationary sources of PM_{10}.
- Impose reasonably available control measures (RACM).

Serious Areas

- Impose best available control measures (BACM).
- Reduce definition of a major source of PM_{10} from 100 tons per year to 70 tons per year.

In July 1997, EPA promulgated new standards for fine particulates ($PM_{2.5}$). The $PM_{2.5}$ standards were also subject to court challenges and the absence of a monitoring network capable of measuring the pollutant also delayed implementation.

Nonattainment areas for $PM_{2.5}$ were designated on January 5, 2005. States will have three years subsequent to designation to submit State Implementation Plans.

Emission Standards for Mobile Sources

Title II of the Clean Air Act has required emission standards for automobiles since 1968. The 1990 amendments significantly tightened these standards: for cars, the hydrocarbon standard was reduced by 40% and the nitrogen oxides (NO_x) standard by 50%. The new standards — referred to as "Tier 1" standards — were phased in over the 1994-1996 model years.

The amendments envisioned a further set of reductions ("Tier 2" standards), but not before model year 2004. For Tier 2 standards to be promulgated, the agency was first required to report to Congress concerning the need for further emission reductions, the availability of technology to achieve such reductions, and the cost-effectiveness of such controls compared to other means of attaining air quality standards. EPA submitted this report to Congress in August 1998, concluding that further emission reductions were needed and that technology to achieve such reductions was available and cost-effective. Tier 2 standards, requiring emission reductions of 77% to 95% from cars and light trucks were promulgated in February 2000, and are being phased in over the 2004-2009 model years. To facilitate the use of more effective emission controls, the standards also required a more than 90% reduction in the sulfur content of gasoline, beginning in 2004.

The 1990 amendments also stipulated that oxygenated gasoline, designed to reduce emissions of carbon monoxide, be sold in the worst CO nonattainment areas and that "reformulated" gasoline (RFG), designed to reduce emissions of volatile organic compounds and toxic air pollutants, be sold in the nine worst ozone nonattainment areas (Los Angeles, San Diego, Houston, Baltimore, Philadelphia, New York, Hartford, Chicago, and Milwaukee); four other areas, all in California, were added to the mandatory list later. Other ozone nonattainment areas can opt in to the RFG program; as of 2003, 14 additional areas in 12 states and the District of Columbia had done so.

Use of alternative fuels and development of cleaner engines was to be stimulated by the Clean-Fuel Fleet Program. In all of the most seriously polluted ozone and CO nonattainment areas, centrally fueled fleets of 10 or more passenger cars and light-duty trucks must purchase at least 30% clean-fuel vehicles when they add new vehicles to existing fleets, starting in 1999. (The act originally required the program to begin in 1998, but the start was delayed by a year.) The percentage rose to 50% in 2000 and 70% in 2001. Heavy-duty fleets are required to purchase at least 50% clean-fuel vehicles annually. A clean fuel vehicle is one which meets Low Emission Vehicle (LEV) standards and operates on reformulated gasoline, reformulated diesel, methanol, ethanol, natural gas, liquefied petroleum gas, hydrogen, or electricity.

In addition to the above program, California's Zero Emission Vehicle (ZEV) program also is intended to promote the development of alternative fuels and vehicles. Section 209(b) of the Clean Air Act grants California the authority to develop its own vehicle emissions standards if those standards are at least as stringent

as the federal standards. In addition to setting more stringent standards for all vehicles, California used this authority to establish a program requiring auto manufacturers to sell ZEVs (electric or hydrogen fuel cell vehicles) in the state beginning in 2003. This program has been substantially modified since it was enacted, and now allows credit for hybrid and partial ZEV vehicles in addition to true ZEVs, but it has served as an incubator for lower emission technologies since its adoption. Section 177 of the act allows other states to adopt California's stricter standards: Maine, Massachusetts, New York, and Vermont have done so, and three other Northeastern states (Connecticut, New Jersey, and Rhode Island) will do so over the next few years.

The 1990 amendments also imposed tighter requirements on certification (an auto's useful life is defined as 100,000 miles instead of the earlier 50,000 miles), on emissions allowed during refueling, on low temperature CO emissions, on in-use performance over time, and on warranties for the most expensive emission control components (8 years/80,000 miles for the catalytic converter, electronic emissions control unit, and onboard emissions diagnostic unit). Regulations were also extended to include nonroad fuels and engines.

Standards for trucks and buses using diesel engines were also strengthened. The 1990 amendments required new urban buses to reduce emissions of diesel particulates 92% by 1996, and all other heavy-duty diesel engines to achieve an 83% reduction by the same year. NO_x emissions must also be reduced, 33% by 1998. Authority to further strengthen these standards led to promulgation in January 2001 of new emission standards requiring a further 90%-95% reduction in emissions phased in over the 2007-2010 model years, and a reduction of 97% in the allowable amount of sulfur in highway diesel fuel.

Hazardous Air Pollutants

Completely rewritten by the Clean Air Act Amendments of 1990, Section 112 of the act establishes programs for protecting the public health and environment from exposure to toxic air pollutants. As revised by the 1990 amendments, the section contains four major provisions: Maximum Achievable Control Technology (MACT) requirements; health-based standards; standards for stationary "area sources" (small, but numerous sources, such as gas stations or dry cleaners, that collectively emit significant quantities of hazardous pollutants); and requirements for the prevention of catastrophic releases.

First, EPA is to establish technology-based emission standards, called MACT standards, for sources of 188 pollutants listed in the legislation, and to specify categories of sources subject to the emission standards.[5] EPA is to revise the standards periodically (at least every eight years). EPA can, on its initiative or in response to a petition, add or delete substances or source categories from the lists.

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[5] The 1990 amendments specified 189 pollutants, but P.L. 102-187, enacted on December 4, 1991, deleted hydrogen sulfide from the list of toxic pollutants, leaving only 188.

Section 112 establishes a presumption in favor of regulation for the designated pollutants; it requires regulation of the pollutants unless EPA or a petitioner is able to show "that there is adequate data on the health and environmental effects of the substance to determine that emissions, ambient concentrations, bioaccumulation or deposition of the substance may not reasonably be anticipated to cause any adverse effects to human health or adverse environmental effects."

EPA is required to set standards for sources of the listed pollutants that achieve "the maximum degree of reduction in emissions" taking into account cost and other non-air-quality factors. The standards for new sources "shall not be less stringent than the most stringent emissions level that is achieved in practice by the best controlled similar source." The standards for existing sources may be less stringent than those for new sources, but must be no less stringent than the emission limitations achieved by either the best performing 12% of existing sources (if there are more than 30 such sources in the category or subcategory) or the best performing five similar sources (if there are fewer than 30). Existing sources are given three years following promulgation of standards to achieve compliance, with a possible one-year extension; additional extensions may be available for special circumstances or for certain categories of sources. Existing sources that achieve voluntary early emissions reductions will receive a six-year extension for compliance with MACT.

The second major provision of Section 112 directs EPA to set health-based standards to address situations in which a significant residual risk of adverse health effects or a threat of adverse environmental effects remains after installation of MACT. This provision requires that EPA, after consultation with the Surgeon General of the United States, submit a report to Congress on the public health significance of residual risks, and recommend legislation regarding such risks. If Congress does not legislate in response to EPA's recommendations, then EPA is required to issue standards for categories of sources of hazardous air pollutants as necessary to protect the public health with an ample margin of safety or to prevent an adverse environmental effect. A residual risk standard is required for any source emitting a cancer-causing pollutant that poses an added risk to the most exposed person of more than one in a million. Residual risk standards would be due eight years after promulgation of MACT for the affected source category. Existing sources would have 90 days to comply with a residual risk standard, with a possible two-year extension. In general, residual risk standards do not apply to area sources.

The law directed EPA to contract with the National Academy of Sciences (NAS) for a study of risk assessment methodology, and created a Risk Assessment and Management Commission to investigate and report on policy implications and appropriate uses of risk assessment and risk management. In 1994 NAS published its report, *Science and Judgment in Risk Assessment*. The commission study, *Framework for Environmental Health Risk Management*, was released in 1997.

Third, in addition to the technology-based and health-based programs for major sources of hazardous air pollution, EPA is to establish standards for stationary "area sources" determined to present a threat of adverse effects to human health or the environment. The provision requires EPA to regulate the stationary area sources responsible for 90% of the emissions of the 30 hazardous air pollutants that present the greatest risk to public health in the largest number of urban areas. In setting the

standard, EPA can impose less stringent "generally available" control technologies, rather than MACT.

Finally, Section 112 addresses prevention of sudden, catastrophic releases of air toxics by establishing an independent Chemical Safety and Hazard Investigation Board. The board is responsible for investigating accidents involving releases of hazardous substances, conducting studies, and preparing reports on the handling of toxic materials and measures to reduce the risk of accidents.

EPA is also directed to issue prevention, detection, and correction requirements for catastrophic releases of air toxics by major sources. Section 112(r) requires owners and operators to prepare risk management plans including hazard assessments, measures to prevent releases, and a response program.

New Source Performance Standards

Section 111 of the act requires EPA to establish nationally uniform, technology-based standards (called New Source Performance Standards, or NSPS) for categories of new industrial facilities. These standards accomplish two goals: first, they establish a consistent baseline for pollution control that competing firms must meet, and thereby remove any incentive for states or communities to weaken air pollution standards in order to attract polluting industry; and second, they preserve clean air to accommodate future growth, as well as for its own benefits.

NSPS establish maximum emission levels for new major stationary sources — powerplants, steel mills, and smelters, for example — with the emission levels determined by the best "adequately demonstrated" continuous control technology available, taking costs into account. EPA must regularly revise and update NSPS applicable to designated sources as new technology becomes available, since the goal is to prevent new pollution problems from developing and to force the installation of new control technology.

The standards also apply to modifications of existing facilities, through a process called New Source Review (NSR). The law's ambiguity regarding what constitutes a modification (subject to NSR) as opposed to routine maintenance of a facility has led to litigation, with EPA recently proposing to modify its interpretation of the requirements of this section.

Solid Waste Incinerators

Prior to 1990, solid waste incinerators, which emit a wide range of pollutants, were subject to varying degrees of state and federal regulation depending on their size, age, and the type of waste burned. In a new Section 129, the 1990 amendments established more consistent federal requirements specifying that emissions of 10 categories of pollutants be regulated at new and existing incinerators burning municipal solid waste, medical waste, and commercial and industrial waste. The amendments also established emissions monitoring and operator training requirements.

Prevention of Significant Deterioration / Regional Haze

Sections 160-169 of the act establish requirements for the prevention of significant deterioration of air quality (PSD). The PSD program reflects the principle that areas where air quality is better than that required by NAAQS should be protected from significant new air pollution even if NAAQS would not be violated.

The act divides clean air areas into three classes, and specifies the increments of SO_2 and particulate pollution allowed in each. Class I areas include international and national parks, wilderness and other pristine areas; allowable increments of new pollution in these areas are very small. Class II areas include all attainment and not classifiable areas, not designated as Class I; allowable increments of new pollution in these areas are modest. Class III represents selected areas that states may designate for development; allowable increments of new pollution are large (but not exceeding NAAQS). Through an elaborate hearing and review process, a state can have regions redesignated from Class II to Class III (although none have yet been so redesignated).

While the 1977 amendments only stipulated PSD standards for two pollutants, SO_2 and particulates, EPA is supposed to establish standards for other criteria pollutants. Thus far, only one of the other four has been addressed: the agency promulgated standards for NO_2 in 1988.

Newly constructed polluting sources in PSD areas must install best available control technology (BACT) that may be more strict than that required by NSPS. The justifications of the policy are that it protects air quality, provides an added margin of health protection, preserves clean air for future development, and prevents firms from gaining a competitive edge by "shopping" for clean air to pollute.

In Sections 169A and B, the act also sets a national goal of preventing and remedying impairment of visibility in national parks and wilderness areas, and requires EPA to promulgate regulations to assure reasonable progress toward that goal. In the 1990 amendments, Congress strengthened these provisions, which had not been implemented.

The amendments required EPA to establish a Grand Canyon Visibility Transport Commission, composed of Governors from each state in the affected region, an EPA designee, and a representative of each of the national parks or wilderness areas in the region. Other visibility transport commissions can be established upon EPA's discretion or upon petition from at least two states. Within 18 months of receiving a report from one of these commissions, EPA is required to promulgate regulations to assure reasonable progress toward the visibility goal, including requirements that states update their State Implementation Plans to contain emission limits, schedules of compliance, and other measures necessary to make reasonable progress. Specifically mentioned is a requirement that states impose Best Available Retrofit Technology on existing sources of emissions impairing visibility.

The Grand Canyon Commission delivered a set of recommendations to EPA in June 1996, and the agency subsequently promulgated a "regional haze" program applicable to all 50 states under this authority.

Acid Deposition Control

The Clean Air Act Amendments of 1990 added an acid deposition control program (Title IV) to the act. It set goals for the year 2000 of reducing annual SO_2 emissions by 10 million tons from 1980 levels and reducing annual NO_x emissions by 2 million tons, also from 1980 levels.

The SO_2 reductions were imposed in two steps. Under Phase 1, owners/operators of 111 electric generating facilities listed in the law that are larger than 100 megawatts had to meet tonnage emission limitations by January 1, 1995. This would reduce SO_2 emission by about 3.5 million tons. Phase 2 included facilities larger than 75 megawatts, with a deadline of January 1, 2000. So far, compliance has been 100%.

To introduce some flexibility in the distribution and timing of reductions, the act creates a comprehensive permit and emissions allowance system. An allowance is a limited authorization to emit a ton of SO_2. Issued by EPA, the allowances would be allocated to Phase 1 and Phase 2 units in accordance with baseline emissions estimates. Powerplants which commence operation after November 15, 1990, would not receive any allowances. These new units would have to obtain allowances (offsets) from holders of existing allowances. Allowances may be traded nationally during either phase. The law also permits industrial sources and powerplants to sell allowances to utility systems under regulations to be developed by EPA. Allowances may be banked by a utility for future use or sale.

The act provided for two types of sales to improve the liquidity of the allowance system and to ensure the availability of allowances for utilities and independent power producers who need them. First, a special reserve fund consisting of 2.8% of Phase 1 and Phase 2 allowance allocations has been set aside for sale. Allowances from this fund (25,000 annually from 1993 to 1999 and 50,000 thereafter) are sold at a fixed price of $1,500 an allowance. Independent power producers have guaranteed rights to these allowances under certain conditions. Second, an annual, open auction sells allowances (150,000 from 1993 to 1995, and 250,000 from 1996 to 1999) with no minimum price. Utilities with excess allowances may have them auctioned off at this auction, and any person may buy allowances.

The act essentially caps SO_2 emissions at individual existing sources through a tonnage limitation, and at future plants through the allowance system. First, emissions from most existing sources are capped at a specified emission rate times an historic baseline level. Second, for plants commencing operation after November 15, 1990, emissions must be completely offset with additional reductions at existing facilities beginning after Phase 2 compliance. However, as noted above, the law provides some allowances to future powerplants which meet certain criteria. The utility SO_2 emission cap is set at 8.9 million tons, with some exceptions.

The act provides that if an affected unit does not have sufficient allowances to cover its emissions, it is subject to an excess emission penalty of $2,000 per ton of SO_2 and required to reduce an additional ton of SO_2 the next year for each ton of excess pollutant emitted.

The act also requires EPA to inventory industrial emissions of SO_2 and to report every five years, beginning in 1995. If the inventory shows that industrial emissions may reach levels above 5.60 million tons per year, then EPA is to take action under the act to ensure that the 5.60 million ton cap is not exceeded.

The act requires EPA to set specific NO_x emission rate limitations — 0.45 lb. per million Btu for tangentially-fired boilers and 0.50 lb. per million Btu for wall-fired boilers — unless those rates can not be achieved by low-NO_x burner technology. Tangentially and wall-fired boilers affected by Phase 1 SO_2 controls must also meet NO_x requirements. EPA is to set emission limitations for other types of boilers by 1997 based on low-NO_x burner costs, which EPA did. In addition, EPA is to propose and promulgate a revised new source performance standard for NO_x from fossil fuel steam generating units, which EPA also did, in 1998.

Permits

The Clean Air Act Amendments of 1990 added a Title V to the act which requires states to administer a comprehensive permit program for the operation of sources emitting air pollutants. These requirements are modeled after similar provisions in the Clean Water Act. Previously, the Clean Air Act contained limited provision for permits, requiring only new or modified major stationary sources to obtain construction permits (under Section 165 of the act).

Sources subject to the permit requirements generally include major sources that emit or have the potential to emit 100 tons per year of any regulated pollutant, plus stationary and area sources that emit or have potential to emit lesser specified amounts of hazardous air pollutants. However, in nonattainment areas, the permit requirements also include sources which emit as little as 50, 25, or 10 tons per year of VOCs, depending on the severity of the region's nonattainment status (serious, severe, or extreme).

States were required to develop permit programs and to submit those programs for EPA approval by November 15, 1993. EPA had one year to approve or disapprove a state's submission in whole or in part. After the effective date of a state plan, sources had 12 months to submit an actual permit application.

States are to collect annual fees from sources sufficient to cover the "reasonable costs" of administering the permit program, with revenues to be used to support the agency's air pollution control program. The fee must be at least $25 per ton of regulated pollutants (excluding carbon monoxide). Permitting authorities have discretion not to collect fees on emissions in excess of 4,000 tons per year and may collect other fee amounts, if appropriate.

The permit states how much of which air pollutants a source is allowed to emit. As a part of the permit process, a source must prepare a compliance plan and certify compliance. The term of permits is limited to no more than five years; sources are required to renew permits at that time. State permit authorities must notify contiguous states of permit applications that may affect them; the application and any comments of contiguous states must be forwarded to EPA for review. EPA can veto a permit; however, this authority is essentially limited to major permit changes. EPA

review need not include permits which simply codify elements of a state's overall clean air plan, and EPA has discretion to not review permits for small sources. Holding a permit to some extent shields a source from enforcement actions: the act provides that a source cannot be held in violation if it is complying with explicit requirements addressed in a permit, or if the state finds that certain provisions do not apply to that source.

Enforcement

Section 113 of the act, which was also strengthened by the 1990 amendments, covers enforcement. The section establishes federal authority to issue agency and court orders requiring compliance and to impose penalties for violations of Act requirements. Section 114 authorizes EPA to require sources to submit reports; to monitor emissions; and to certify compliance with the act's requirements, and authorizes EPA personnel to conduct inspections.

Like most federal environmental statutes, the Clean Air Act is enforced primarily by states or local governments; they issue most permits, monitor compliance, and conduct the majority of inspections. The federal government functions as a backstop, with authority to review state actions. The agency may act independently or may file its own enforcement action in cases where it concludes that a state's response was inadequate.

The act also provides for citizen suits both against persons (including corporations or government agencies) alleged to have violated emissions standards or permit requirements, and against EPA in cases where the Administrator has failed to perform an action that is not discretionary under the act. Citizen groups have often used the latter provision to compel the Administrator to promulgate regulations required by the statute.

The 1990 amendments elevated penalties for some knowing violations from misdemeanors to felonies; removed the ability of a source to avoid an enforcement order or civil penalty by ceasing a violation within 60 days of notice; gave authority to EPA to assess administrative penalties; and authorized $10,000 awards to persons supplying information leading to convictions under the act.

Stratospheric Ozone Protection

Title VI of the 1990 Clean Air Act Amendments represents the United States' primary response on the domestic front to the ozone depletion issue. It also implements the U.S. international responsibilities under the Montreal Protocol on Substances that Deplete the Ozone Layer (and its amendments). Indeed, Section 606(a)(3) provides that the Environmental Protection Agency shall adjust phase-out schedules for ozone depleting substances in accordance with any future changes in Montreal Protocol schedules. As a result, the phase-out schedules contained in Title VI for various ozone depleting compounds have now been superseded by subsequent amendments to the Montreal Protocol.

Since passage of Title VI, depleting substances such as CFCs, methyl chloroform, carbon tetrachloride, and halons (referred to as Class 1 substances) have been phased out by industrial countries, including the United States. New uses of hydrochlorofluorocarbons (HCFCs) (called Class 2 substances under Title VI) are banned beginning January 1, 2015, unless the HCFCs are recycled, used as a feedstock, or used as a refrigerant for appliances manufactured prior to January 1, 2020. Production of HCFCs is to be frozen January 1, 2015 and phased out by January 1, 2030. Exemptions consistent with the Montreal Protocol are allowed.

The EPA is required to add any substance with an ozone depletion potential (ODP) of 0.2 or greater to the list of Class 1 substances and set a phase-out schedule of no more than seven years. For example, methyl bromide (ODP estimated by EPA at 0.7) was added to the list in December 1993, requiring its phaseout by January 1, 2001; this decision was altered by Congress in 1998 to harmonize the U.S. methyl bromide phase-out schedule with the 2005 deadline set by the parties to the Montreal Protocol in 1997. Also, EPA is required to add any substance that is known or may be reasonably anticipated to harm the stratosphere to the list of Class 2 substances and set a phase-out schedule of no more than ten years.

Title VI contains several implementing strategies to avoid releases of ozone depleting chemicals to the atmosphere, including (1) for Class 1 substances used as refrigerants — lowest achievable level of use and emissions, maximum recycling, and safe disposal required by July 1, 1992; (2) for servicing or disposing refrigeration equipment containing Class 1 and 2 substances — venting banned as of July 1, 1992; (3) for motor vehicle air conditioners containing Class 1 or 2 substances — recycling required by January 1, 1992 (smaller shops by January 1, 1993); (4) sale of small containers of class 1 and 2 substances — banned within two years of enactment; and (5) nonessential products — banned within two years of enactment.

Selected References

U.S. Environmental Protection Agency. Office of Air Quality Planning and Standards. *Air Trends*. Research Triangle Park, NC. Compiled annually, and available at [http://www.epa.gov/airtrends/].

Martineau, Robert J., Jr., and David P. Novello (eds.). *The Clean Air Act Handbook*. 2nd edition. Chicago: American Bar Association, 2004. 728 p.

For current issues, see CRS Issue Brief IB10137, *Clean Air Act Issues in the 109th Congress*.

Table 5. Major U.S. Code Sections of the Clean Air Act[6]

(codified generally as 42 U.S.C. 7401-7671)

42 U.S.C.	Section Title	Clean Air Act, as amended
Subchapter I —	Programs and Activities	
Part A —	Air Quality Emissions and Limitations	
7401	Findings, purpose	Sec. 101
7402	Cooperative activities	Sec. 102
7403	Research, investigation, training	Sec. 103
7404	Research relating to fuels and vehicles	Sec. 104
7405	Grants for air pollution planning and control programs	Sec. 105
7406	Interstate air quality agencies; program cost limitations	Sec. 106
7407	Air quality control regions	Sec. 107
7408	Air quality criteria and control techniques	Sec. 108
7409	National primary and secondary air quality standards	Sec. 109
7410	SIPs for national primary and secondary air quality standards	Sec. 110
7411	Standards of performance for new stationary sources	Sec. 111
7412	Hazardous air pollutants	Sec. 112
7413	Federal enforcement	Sec. 113
7414	Recordkeeping, inspections, monitoring, and entry	Sec. 114
7415	International air pollution	Sec. 115
7416	Retention of state authority	Sec. 116
7417	Advisory committees	Sec. 117
7418	Control of pollution from federal facilities	Sec. 118
7419	Primary nonferrous smelter orders	Sec. 119
7420	Noncompliance penalty	Sec. 120
7421	Consultation	Sec. 121
7422	Listing of certain unregulated pollutants	Sec. 122
7423	Stack heights	Sec. 123
7424	Assurance of adequacy of state plans	Sec. 124
7425	Measures to prevent economic disruption/unemployment	Sec. 125
7426	Interstate pollution abatement	Sec. 126
7427	Public notification	Sec. 127
7428	State boards	Sec. 128
7429	Solid waste combustion	Sec. 129
7430	Emission factors	Sec. 130
7431	Land use authority	Sec. 131

[6] NOTE: This table shows only the major *U.S. Code* sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

42 U.S.C.	Section Title	Clean Air Act, as amended
Part B — Ozone Protection (repealed — new provisions related to stratospheric ozone protection are found at 42 U.S.C. 7671 et seq., below)		
Part C —	Prevention of Significant Deterioration of Air Quality	
Subpart I —	Clean Air	
7470	Congressional declaration of purpose	Sec. 160
7471	Plan requirements	Sec. 161
7472	Initial classifications	Sec. 162
7473	Increments and ceilings	Sec. 163
7474	Area redesignation	Sec. 164
7475	Preconstruction requirements	Sec. 165
7476	Other pollutants	Sec. 166
7477	Enforcement	Sec. 167
7478	Period before plan approval	Sec. 168
7479	Definitions	Sec. 169
Subpart II —	Visibility Protection	
7491	Visibility protection for federal class I areas	Sec. 169A
7492	Visibility	Sec. 169B
Part D —	Plan Requirements for Nonattainment Areas	
Subpart 1 —	Nonattainment Areas in General	
7501	Definitions	Sec. 171
7502	Nonattainment plan provisions in general	Sec. 172
7503	Permit requirements	Sec. 173
7504	Planning procedures	Sec. 174
7505	Environmental Protection Agency grants	Sec. 175
7505a	Maintenance plans	Sec. 175A
7506	Limitations on certain federal assistance	Sec. 176
7506a	Interstate transport commissions	Sec. 176A
7507	New motor vehicle emission standards in nonattainment areas	Sec. 177
7508	Guidance documents	Sec. 178
7509	Sanctions and consequences of failure to attain	Sec. 179
7509a	International border areas	Sec. 179B
Subpart 2 —	Additional Provisions for Ozone Nonattainment Areas	
7511	Classifications and attainment dates	Sec. 181
7511a	Plan submissions and requirements	Sec. 182
7511b	Federal ozone measures	Sec. 183
7511c	Control of interstate ozone air pollution	Sec. 184
7511d	Enforcement for Severe and Extreme ozone nonattainment areas for failure to attain	Sec. 185
7511e	Transitional areas	Sec. 185A
7511f	NO_x and VOC study	Sec. 185B
Subpart 3 —	Additional Provisions for Carbon Monoxide Nonattainment Areas	
7512	Classification and attainment dates	Sec. 186

42 U.S.C.	Section Title	Clean Air Act, as amended
7512a	Plan submissions and requirements	Sec. 187
Subpart 4 —	Additional Provisions for Particulate Matter Nonattainment Areas	
7513	Classifications and attainment dates	Sec. 188
7513a	Plan provisions and schedules for plan submissions	Sec. 189
7513b	Issuance of RACM and BACM guidance	Sec. 190
Subpart 5 —	Additional Provisions for Areas Designated Nonattainment for Sulfur Oxides, Nitrogen Dioxide, or Lead	
7514	Plan submission deadlines	Sec. 191
7514a	Attainment dates	Sec. 192
Subpart 6 —	Savings Provisions	
7515	General savings clause	Sec. 193
Subchapter II —	Emission Standards for Moving Sources	
Part A —	Motor Vehicle Emission and Fuel Standards	
7521	Emission standards for new motor vehicles or engines	Sec. 202
7522	Prohibited acts	Sec. 203
7523	Actions to restrain violations	Sec. 204
7524	Civil penalties	Sec. 205
7525	Motor vehicle and engines testing and certification	Sec. 206
7541	Compliance by vehicles and engines in actual use	Sec. 207
7542	Information collection	Sec. 208
7543	State standards	Sec. 209
7544	State grants	Sec. 210
7545	Regulation of fuels	Sec. 211
7547	Nonroad engines and vehicles	Sec. 213
7548	Study of particulate emissions from motor vehicles	Sec. 214
7549	High altitude performance adjustments	Sec. 215
7550	Definitions	Sec. 216
7551	Study and report on fuel consumption of CAAA of 1977	Sec. 203
7552	Motor vehicle compliance program fees	Sec. 217
7553	Prohibition on production of engines requiring leaded gasoline	Sec. 218
7554	Urban bus standards	Sec. 219
Part B —	Aircraft Emissions Standards	
7571	Establishment of standards	Sec. 231
7572	Enforcement of standards	Sec. 232
7573	State standards and controls	Sec. 233
7574	Definitions	Sec. 234

42 U.S.C.	Section Title	Clean Air Act, as amended
Part C —	Clean Fuel Vehicles	
7581	Definitions	Sec. 241
7582	Requirements applicable to clean-fuel vehicles	Sec. 242
7583	Standards for light-duty clean-fuel vehicles	Sec. 243
7584	Administration and enforcement as per California standards	Sec. 244
7585	Standards for heavy-duty clean-fuel vehicles	Sec. 245
7586	Centrally fueled fleets	Sec. 246
7587	Vehicle conversions	Sec. 247
7588	Federal agency fleets	Sec. 248
7589	California pilot test program	Sec. 249
7590	General provisions	Sec. 250
Subchapter III —	General Provisions	
7601	Administration	Sec. 301
7602	Definitions	Sec. 302
7603	Emergency powers	Sec. 303
7604	Citizen suits	Sec. 304
7605	Representation in litigation	Sec. 305
7606	Federal procurement	Sec. 306
7607	Administrative proceedings and judicial review	Sec. 307
7608	Mandatory licensing	Sec. 308
7609	Policy review	Sec. 309
7610	Other authority	Sec. 310
7611	Records and audits	Sec. 311
7612	Economic impact analyses	Sec. 312
7614	Labor standards	Sec. 314
7615	Separability	Sec. 315
7616	Sewage treatment plants	Sec. 316
7617	Economic impact assessment	Sec. 317
7619	Air quality monitoring	Sec. 319
7620	Standardized air quality modeling	Sec. 320
7621	Employment effects	Sec. 321
7622	Employee protection	Sec. 322
7624	Cost of vapor recovery equipment	Sec. 323
7625	Vapor recovery for small business marketers of petroleum products	Sec. 324
7625-1	Exemptions for certain territories	Sec. 325
7625a	Statutory construction	Sec. 326
7626	Authorization of appropriations	Sec. 327
7627	Air pollution from Outer Continental Shelf activities	Sec. 328
Subchapter IV-A	Acid Deposition Control	
7651	Findings and purposes	Sec. 401
7651a	Definitions	Sec. 402
7651b	Sulfur dioxide allowance program for existing and new units	Sec. 403

42 U.S.C.	Section Title	Clean Air Act, as amended
7651c	Phase I sulfur dioxide requirements	Sec. 404
7651d	Phase II sulfur dioxide requirements	Sec. 405
7651e	Allowances for states with emissions rates at or below 0.80 lbs./mmBtu	Sec. 406
7651f	Nitrogen oxides emission reduction program	Sec. 407
7651g	Permits and compliance plans	Sec. 408
7651h	Repowered sources	Sec. 409
7651i	Election for additional sources	Sec. 410
7651j	Excess emissions penalty	Sec. 411
7651k	Monitoring, reporting, and record keeping requirements	Sec. 412
7651l	General compliance with other provisions	Sec. 413
7651m	Enforcement	Sec. 414
7651n	Clean coal technology regulatory incentives	Sec. 415
7651o	Contingency guarantee, auctions, reserve	Sec. 416
Subchapter V —	Permits	
7661	Definitions	Sec. 501
7661a	Permit programs	Sec. 502
7661b	Permit applications	Sec. 503
7661c	Permit requirements and conditions	Sec. 504
7661d	Notification to administrator and contiguous states	Sec. 505
7661e	Other authorities	Sec. 506
7661f	Small business stationary source technical and environmental compliance assistance program	Sec. 507
Subchapter VI —	Stratospheric Ozone Protection	
7671	Definitions	Sec. 601
7671a	Listing of class I and class II substances	Sec. 602
7671b	Monitoring and reporting requirements	Sec. 603
7671c	Phase-out of production and consumption of class I substances	Sec. 604
7671d	Phase-out of production and consumption of class II substances	Sec. 605
7671e	Accelerated schedule	Sec. 606
7671f	Exchange authority	Sec. 607
7671g	National recycling and emission reduction program	Sec. 608
7671h	Servicing of motor vehicle air conditioners	Sec. 609
7671i	Nonessential products containing chlorofluorocarbons	Sec. 610
7671j	Labeling	Sec. 611
7671k	Safe alternatives policy	Sec. 612
7671l	Federal procurement	Sec. 613
7671m	Relationship to other laws	Sec. 614
7671n	Authority of Administrator	Sec. 615
7671o	Transfers among parties to Montreal Protocol	Sec. 616

42 U.S.C.	Section Title	Clean Air Act, as amended
7671p	International cooperation	Sec. 617
7671q	Miscellaneous provisions	Sec. 618
[29 U.S.C. 655]	Chemical Process Safety Management	Sec. 304 of CAA of 1990
[29 U.S.C. 1662e]	Clean Air Employment Transition Assistance	Sec. 1101 of CAA of 1990

Clean Water Act[7]

The principal law governing pollution of the nation's surface waters is the Federal Water Pollution Control Act, or Clean Water Act. Originally enacted in 1948, it was totally revised by amendments in 1972 that gave the act its current shape. The 1972 legislation spelled out ambitious programs for water quality improvement that have since been expanded and are still being implemented by industries and municipalities. Congress made certain fine-tuning amendments in 1977, revised portions of the law in 1981, and enacted further amendments in 1987. **Table 6** lists the original law and major amendments to it.

Table 6. Clean Water Act and Major Amendments
(codified generally as 33 U.S.C. 1251-1387)

Year	Act	Public Law
1948	Federal Water Pollution Control Act	P.L. 80-845 (Act of June 30, 1948)
1956	Water Pollution Control Act of 1956	P.L. 84-660 (Act of July 9, 1956)
1961	Federal Water Pollution Control Act Amendments	P.L. 87-88
1965	Water Quality Act of 1965	P.L. 89-234
1966	Clean Water Restoration Act	P.L. 89-753
1970	Water Quality Improvement Act of 1970	P.L. 91-224, Part I
1972	Federal Water Pollution Control Act Amendments	P.L. 92-500
1977	Clean Water Act of 1977	P.L. 95-217
1981	Municipal Wastewater Treatment Construction Grants Amendments	P.L. 97-117
1987	Water Quality Act of 1987	P.L. 100-4

Authorizations for appropriations to support the law generally expired at the end of FY1990 (Sept. 30, 1990). Programs did not lapse, however, and Congress has continued to appropriate funds to carry out the act. For a review of current issues and legislation, see CRS Issue Brief IB10142, *Clean Water Act Issues in the 109th Congress*.

Background

The Federal Water Pollution Control Act of 1948 was the first comprehensive statement of federal interest in clean water programs, and it specifically provided state and local governments with technical assistance funds to address water pollution problems, including research. Water pollution was viewed as primarily a state and local problem, hence, there were no federally required goals, objectives, limits, or even guidelines. When it came to enforcement, federal involvement was strictly limited to matters involving interstate waters and only with the consent of the state in which the pollution originated.

[7] Prepared by Claudia Copeland, Specialist in Resources and Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

During the latter half of the 1950s and well into the 1960s, water pollution control programs were shaped by four laws which amended the 1948 statute. They dealt largely with federal assistance to municipal dischargers and with federal enforcement programs for all dischargers. During this period, the federal role and federal jurisdiction were gradually extended to include navigable intrastate, as well as interstate, waters. Water quality standards became a feature of the law in 1965, requiring states to set standards for interstate waters that would be used to determine actual pollution levels.

By the late 1960s, there was a widespread perception that existing enforcement procedures were too time-consuming and that the water quality standards approach was flawed because of difficulties in linking a particular discharger to violations of stream quality standards. Additionally, there was mounting frustration over the slow pace of pollution cleanup efforts and a suspicion that control technologies were being developed but not applied to the problems. These perceptions and frustrations, along with increased public interest in environmental protection, set the stage for the 1972 amendments.

The 1972 statute did not continue the basic components of previous laws as much as it set up new ones. It set optimistic and ambitious goals, required all municipal and industrial wastewater to be treated before being discharged into waterways, increased federal assistance for municipal treatment plant construction, strengthened and streamlined enforcement, and expanded the federal role while retaining the responsibility of states for day-to-day implementation of the law.

The 1972 legislation declared as its objective the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Two goals also were established: zero discharge of pollutants by 1985 and, as an interim goal and where possible, water quality that is both "fishable" and "swimmable" by mid-1983. While those dates have passed, the goals remain, and efforts to attain the goals continue.

The Clean Water Act (CWA) today consists of two major parts, one being the Title II and Title VI provisions which authorize federal financial assistance for municipal sewage treatment plant construction. The other is regulatory requirements, found throughout the act, that apply to industrial and municipal dischargers.

The act has been termed a technology-forcing statute because of the rigorous demands placed on those who are regulated by it to achieve higher and higher levels of pollution abatement. Industries were given until July 1, 1977, to install "best practicable control technology" (BPT) to clean up waste discharges. Municipal wastewater treatment plants were required to meet an equivalent goal, termed "secondary treatment," by that date. (Municipalities unable to achieve secondary treatment by that date were allowed to apply for case-by-case extensions up to July 1, 1988. According to EPA, 86% of all cities met the 1988 deadline; the remainder were put under judicial or administrative schedules requiring compliance as soon as possible. However, many cities, especially smaller ones, continue to make investments in building or upgrading facilities needed to achieve secondary treatment.) Cities that discharge wastes into marine waters were eligible for case-by-case waivers of the secondary treatment requirement, where sufficient

showing could be made that natural factors provide significant elimination of traditional forms of pollution and that both balanced populations of fish, shellfish, and wildlife and water quality standards would be protected.

The act required greater pollutant cleanup than BPT by no later than March 31, 1989, generally demanding that industry use the "best available technology" (BAT) that is economically achievable. Compliance extensions of as long as two years are available for industrial sources utilizing innovative or alternative technology. Failure to meet statutory deadlines could lead to enforcement action.

Control of toxic pollutant discharges has been a key focus of water quality programs. In addition to the BPT and BAT national standards, states are required to implement control strategies for waters expected to remain polluted by toxic chemicals even after industrial dischargers have installed the best available cleanup technologies required under the law. Development of management programs for these post-BAT pollutant problems was a prominent element in the 1987 amendments and is a key continuing aspect of CWA implementation.

Prior to the 1987 amendments, programs in the Clean Water Act were primarily directed at point-source pollution — wastes discharged from discrete and identifiable sources, such as pipes and other outfalls. In contrast, except for general planning activities, little attention had been given to nonpoint-source pollution (stormwater runoff from agricultural lands, forests, construction sites, and urban areas), despite estimates that it represents more than 50% of the nation's remaining water pollution problems. As it travels across land surface towards rivers and streams, rainfall and snowmelt runoff picks up pollutants, including sediments, toxic materials, and conventional wastes (e.g., nutrients) that can degrade water quality.

The 1987 amendments authorized measures to address such pollution by directing states to develop and implement nonpoint pollution management programs (Section 319 of the act). States were encouraged to pursue groundwater protection activities as part of their overall nonpoint pollution control efforts. Federal financial assistance was authorized to support demonstration projects and actual control activities. These grants may cover up to 60% of program implementation costs.

While the act imposes great technological demands, it also recognizes the need for comprehensive research on water quality problems. This is provided throughout the statute, on topics including pollution in the Great Lakes and Chesapeake Bay, in-place toxic pollutants in harbors and navigable waterways, and water pollution resulting from mine drainage. The act also provides support to train personnel who operate and maintain wastewater treatment facilities.

Federal and State Responsibilities. Under this act, federal jurisdiction is broad, particularly regarding establishment of national standards or effluent limitations. The Environmental Protection Agency (EPA) issues regulations containing the BPT and BAT effluent standards applicable to categories of industrial sources (such as iron and steel manufacturing, organic chemical manufacturing, petroleum refining, and others). Certain responsibilities are delegated to the states, and this act, like other environmental laws, embodies a philosophy of federal-state partnership in which the federal government sets the agenda and standards for

pollution abatement, while states carry out day-to-day activities of implementation and enforcement. Delegated responsibilities under the act include authority for qualified states to issue discharge permits to industries and municipalities and to enforce permits. (As of March 2005, 45 states had been delegated the permit program; EPA issues discharge permits in the remaining states.)

In addition, states are responsible for establishing water quality standards, which consist of a designated use (recreation, water supply, industrial, or other), plus a numerical or narrative statement identifying maximum concentrations of various pollutants which would not interfere with the designated use. These standards serve as the backup to federally set technology-based requirements by indicating where additional pollutant controls are needed to achieve the overall goals of the act.

Titles II and VI — Municipal Wastewater Treatment Construction

Federal law has authorized grants for planning, design, and construction of municipal sewage treatment facilities since 1956 (Act of July 9, 1956, or P.L. 84-660). Congress greatly expanded this grant is program in 1972. Since that time Congress has authorized $66.6 billion and appropriated $76 billion in Clean Water Act funds to aid wastewater infrastructure plant construction (not including congressionally earmarked appropriations for specific projects). Grants are allocated among the states according to a complex statutory formula that combines two factors: state population and an estimate of municipal sewage treatment funding needs derived from a biennial survey conducted by EPA and the states.

The most recent EPA-state estimate, completed in 2000, indicated that nearly $181 billion is needed to build and upgrade needed municipal wastewater treatment plants in the United States and for other types of water quality improvement projects that are eligible for funding under the act. In 2002, EPA released a new report called the Gap Analysis which estimates that, over the next two decades, the United States needs to spend nearly $390 billion to replace existing wastewater infrastructure systems and to build new ones. Estimates of future funding needs and questions about federal support continue to be prominent.

Under the Title II construction grants program established in 1972, federal grants were made for several types of projects (such as secondary or more stringent treatment and associated sewers) based on a priority list established by the states. Grants were generally available for as much as 55% of total project costs. For projects using innovative or alternative technology (such as reuse or recycling of water), as much as 75% federal funding was allowed. Recipients were responsible for non-federal costs but were not required to repay federal grants.

Policymakers have debated the tension between assisting municipal funding needs, which remain large, and the impact of grant programs such as the Clean Water Act's on federal spending and budget deficits. In the 1987 amendments to the act, Congress attempted to deal with that apparent conflict by extending federal aid for wastewater treatment construction through FY1994, yet providing a transition towards full state and local government responsibility for financing after that date.

Grants under the traditional Title II program were authorized through FY1990. Under Title VI of the act, grants to capitalize State Water Pollution Control Revolving Funds, or loan programs, were authorized beginning in FY1989 to replace the Title II grants. States contribute matching funds, and under the revolving loan fund concept, monies used for wastewater treatment construction will be repaid to a state, to be available for future construction in other communities. All states now have functioning loan programs, but the shift from federal grants to loans, since FY1991, has been easier for some than others. The new financing requirements have been a problem for cities (especially small towns) that have difficulty repaying project loans. Statutory authorization for grants to capitalize state loan programs expired in 1994; however, Congress has continued to provide annual appropriations.

Permits, Regulations, and Enforcement

To achieve its objectives, the act embodies the concept that all discharges into the nation's waters are unlawful, unless specifically authorized by a permit. Thus, more than 65,000 industrial and municipal dischargers must obtain permits from EPA (or qualified states) under the act's National Pollutant Discharge Elimination System (NPDES) program (authorized in Section 402 of the act). An NPDES permit requires the discharger (source) to attain technology-based effluent limits (BPT or BAT for industry, secondary treatment for municipalities, or more stringent for water quality protection). Permits specify the control technology applicable to each pollutant, the effluent limitations a discharger must meet, and the deadline for compliance. Sources are required to maintain records and to carry out effluent monitoring activities. Permits are issued for five-year periods and must be renewed thereafter to allow continued discharge.

The NPDES permit incorporates numerical effluent limitations issued by EPA. The initial BPT limitations focused on regulating discharges of conventional pollutants, such as bacteria and oxygen-consuming materials. The more stringent BAT limitations emphasize controlling toxic pollutants — heavy metals, pesticides, and other organic chemicals. In addition to these limitations applicable to categories of industry, EPA has issued water quality criteria for more than 115 pollutants, including 65 named classes or categories of toxic chemicals, or "priority pollutants." These criteria recommend ambient, or overall, concentration levels for the pollutants and provide guidance to states for establishing water quality standards that will achieve the goals of the act.

A separate type of permit is required to dispose of dredge or fill material in the nation's waters, including wetlands. Authorized by Section 404 of the act, this permit program is administered by the U.S. Army Corps of Engineers, subject to and using EPA's environmental guidance. Some types of activities are exempt from these permit requirements, including certain farming, ranching, and forestry practices which do not alter the use or character of the land; some construction and maintenance; and activities already regulated by states under other provisions of the act. EPA may delegate certain Section 404 permitting responsibility to qualified states and has done so twice (Michigan and New Jersey). For some time, the act's wetlands permit program has become one of the most controversial parts of the law. Some who wish to develop wetlands maintain that federal regulation intrudes on and

impedes private land-use decisions, while environmentalists seek more protection for remaining wetlands and limits on activities that take place in wetlands.

Nonpoint sources of pollution, which EPA and states believe are responsible for the majority of water quality impairments in the nation, are not subject to CWA permits or other regulatory requirements under federal law. They are covered by state programs for the management of runoff, under Section 319 of the act.

Other EPA regulations under the CWA include guidelines on using and disposing of sewage sludge and guidelines for discharging pollutants from land-based sources into the ocean. (A related statute, the Ocean Dumping Act, regulates the intentional disposal of wastes into ocean waters.) EPA also provides guidance on technologies that will achieve BPT, BAT, and other effluent limitations.

The NPDES permit, containing effluent limitations on what may be discharged by a source, is the act's principal enforcement tool. EPA may issue a compliance order or bring a civil suit in U.S. district court against persons who violate the terms of a permit. The penalty for such a violation can be as much as $25,000 per day. Stiffer penalties are authorized for criminal violations of the act — for negligent or knowing violations — of as much as $50,000 per day, three years' imprisonment, or both. A fine of as much as $250,000, 15 years in prison, or both, is authorized for 'knowing endangerment' — violations that knowingly place another person in imminent danger of death or serious bodily injury. Finally, EPA is authorized to assess civil penalties administratively for certain well-documented violations of the law. These civil and criminal enforcement provisions are contained in Section 309 of the act. EPA, working with the Army Corps of Engineers, also has responsibility for enforcing against entities who engage in activities that destroy or alter wetlands.

While the CWA addresses federal enforcement, the majority of actions taken to enforce the law are undertaken by states, both because states issue the majority of permits to dischargers and because the federal government lacks the resources for day-to-day monitoring and enforcement. Like most other federal environmental laws, CWA enforcement is shared by EPA and states, with states having primary responsibility. However, EPA has oversight of state enforcement and retains the right to bring a direct action where it believes that a state has failed to take timely and appropriate action or where a state or local agency requests EPA involvement. Finally, the federal government acts to enforce against criminal violations of the federal law.

In addition, individuals may bring a citizen suit in U.S. district court against persons who violate a prescribed effluent standard or limitation. Individuals also may bring citizen suits against the Administrator of EPA or equivalent state official (where program responsibility has been delegated to the state) for failure to carry out a nondiscretionary duty under the act.

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Table 7. Major U.S. Code Sections of the Clean Water Act[8]

(codified generally as 33 U.S.C. 1251-1387)

33 U.S.C.	Section Title	Clean Water Act (as amended)
Subchapter I —	Research and Related Programs	
1251	Congressional declaration of goals and policy	Sec. 101
1252	Comprehensive programs for water pollution control	Sec. 102
1253	Interstate cooperation and uniform laws	Sec. 103
1254	Research, investigations, training and information	Sec. 104
1255	Grants for research and development	Sec. 105
1256	Grants for pollution control programs	Sec. 106
1257	Mine water pollution demonstrations	Sec. 107
1258	Pollution control in the Great Lakes	Sec. 108
1259	Training grants and contracts	Sec. 109
1260	Applications for training grants and contracts; allocations	Sec. 110
1261	Scholarships	Sec. 111
1262	Definitions and authorization	Sec. 112
1263	Alaska village demonstration project	Sec. 113
1265	In-place toxic pollutants	Sec. 115
1266	Hudson River reclamation demonstration project	Sec. 116
1267	Chesapeake Bay	Sec. 117
1268	Great Lakes	Sec. 118
1269	Long Island Sound	Sec. 119
1270	Lake Champlain Basin program	Sec. 120
1271	Sediment survey and monitoring	Sec. 121
1272	Environmental dredging	Sec. 122
1273	Lake Pontchartrain Basin	Sec. 123
1274	Wet weather watershed pilot projects	Sec. 124
Subchapter II —	Grants for Construction of Treatment Works	
1281	Congressional declaration of purpose	Sec. 201
1282	Federal share	Sec. 202
1283	Plans, specifications, estimates, and payments	Sec. 203
1284	Limitations and conditions	Sec. 204
1285	Allotment of grant funds	Sec. 205
1286	Reimbursement and advanced construction	Sec. 206
1287	Authorization of appropriations	Sec. 207
1288	Area wide waste treatment management	Sec. 208
1289	Basin planning	Sec. 209
1290	Annual survey	Sec. 210
1291	Sewage collection system	Sec. 211
1292	Definitions	Sec. 212

[8] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

33 U.S.C.	Section Title	Clean Water Act (as amended)
1293	Loan guarantees	Sec. 213
1294	Wastewater recycling and reuse information and education	Sec. 214
1295	Requirements for American materials	Sec. 215
1296	Determination of priority	Sec. 216
1297	Guidelines for cost-effective analysis	Sec. 217
1298	Cost effectiveness	Sec. 218
1299	State certification of projects	Sec. 219
1300	Pilot program for alternative water source projects	Sec. 220
1301	Sewer overflow control grants	Sec. 221
Subchapter III —	Standards and Enforcement	
1311	Effluent Limitations	Sec. 301
1312	Water quality-related effluent limitations	Sec. 302
1313	Water quality standards and implementation plans	Sec. 303
1314	Information and guidelines	Sec. 304
1315	State reports on water quality	Sec. 305
1316	National standards of performance	Sec. 306
1317	Toxic and pretreatment effluent standards	Sec. 307
1318	Records and reports, inspections	Sec. 308
1319	Enforcement	Sec. 309
1320	International pollution abatement	Sec. 310
1321	Oil and hazardous substance liability	Sec. 311
1322	Marine sanitation devices	Sec. 312
1323	Federal facility pollution control	Sec. 313
1324	Clean lakes	Sec. 314
1325	National study commission	Sec. 315
1326	Thermal discharges	Sec. 316
1327	Omitted (alternative financing)	Sec. 317
1328	Aquaculture	Sec. 318
1329	Nonpoint source management program	Sec. 319
1330	National estuary study	Sec. 320
Subchapter IV —	Permits and Licenses	
1341	Certification	Sec. 401
1342	National pollutant discharge elimination system	Sec. 402
1343	Ocean discharge criteria	Sec. 403
1344	Permits for dredge and fill materials	Sec. 404
1345	Disposal or use of sewage sludge	Sec. 405
1346	Coastal recreation water quality monitoring and notification	Sec. 406
Subchapter V —	General Provisions	
1361	Administration	Sec. 501
1362	Definitions	Sec. 502
1363	Water pollution control advisory board	Sec. 503

33 U.S.C.	Section Title	Clean Water Act (as amended)
1364	Emergency powers	Sec. 504
1365	Citizen suits	Sec. 505
1366	Appearance	Sec. 506
1367	Employee protection	Sec. 507
1368	Federal procurement	Sec. 508
1369	Administrative procedure and judicial review	Sec. 509
1370	State authority	Sec. 510
1371	Authority under other laws and regulations	Sec. 511
1372	Labor standards	Sec. 513
1373	Public health agency coordination	Sec. 514
1374	Effluent standards and water quality information advisory committee	Sec. 515
1375	Reports to Congress	Sec. 516
1376	Authorization of appropriations	Sec. 517
1377	Indian tribes	Sec. 518
Subchapter VI —	State Water Pollution Control Revolving Funds	
1381	Grants to states for establishment of revolving funds	Sec. 601
1382	Capitalization grant agreements	Sec. 602
1383	Water pollution control revolving loan funds	Sec. 603
1384	Allotment of funds	Sec. 604
1385	Corrective actions	Sec. 605
1386	Audits, reports, fiscal controls, intended use plan	Sec. 606
1387	Authorization of appropriations	Sec. 607

Ocean Dumping Act[9]

The Ocean Dumping Act has two basic aims: to regulate intentional ocean disposal of materials, and to authorize related research. Title I of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA, P.L. 92-532), which is often referred to just as the Ocean Dumping Act, contains permit and enforcement provisions for ocean dumping. Research provisions are contained in Title II, concerning general and ocean disposal research; Title IV, which established a regional marine research program; and Title V, which addresses coastal water quality monitoring. The third title of the MPRSA, not addressed here, authorizes the establishment of marine sanctuaries. **Table 8** shows the original enactment and subsequent amendments.

Table 8. Ocean Dumping Act and Amendments
(codified as 33 U.S.C. 1401-1445, 16 U.S.C. 1431-1447f, 33 U.S.C. 2801-2805)

Year	Act	Public Law Number
1972	Marine Protection, Research, and Sanctuaries Act	P.L. 92-532
1974	London Dumping Convention Implementation	P.L. 93-254
1977	Authorization of Appropriations	P.L. 95-153
1980	Authorization of Appropriations	P.L. 96-381
1980	Authorization of Appropriations	P.L. 96-572
1982	Surface Transportation Assistance Act	P.L. 97-424
1986	Budget Reconciliation	P.L. 99-272, §§6061-6065
1986	Water Resources Development Act	P.L. 99-662, §§211, 728, 1172
1987	Water Quality Act of 1987	P.L. 100-4, §508
1988	Ocean dumping research amendments	P.L. 100-627, Title I
1988	Ocean Dumping Ban Act	P.L. 100-688, Title I
1988	U.S. Public Vessel Medical Waste Anti-Dumping Act of 1988	P.L. 100-688, Title III
1990	Regional marine research centers	P.L. 101-593, Title III
1992	National Coastal Monitoring Act	P.L. 102-567, Title V
1992	Water Resources Development Act	P.L. 102-580, §§504-510

Background

The nature of marine pollution requires that it be regulated internationally, since once a pollutant enters marine waters, it knows no boundary. Thus, a series of regional treaties and conventions pertaining to local marine pollution problems and more comprehensive international conventions providing uniform standards to control worldwide marine pollution has evolved over the last 25 years.

At the same time that key international protocols were being adopted and ratified by large number of countries worldwide (early 1970s), the United States enacted the MPRSA to regulate disposal of wastes in marine waters that are within U.S. jurisdiction. It utilizes a comprehensive and uniform waste management system to regulate disposal or dumping of all materials into ocean waters. Prior to 1972,

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U.S. marine waters had been used extensively as a convenient alternative to land-based sites for the disposal of various wastes such as sewage sludge, industrial wastes, and pipeline discharges and runoff.

The basic provisions of the act have remained virtually unchanged since 1972, but many new authorities have been added. These newer parts include (1) research responsibilities for EPA; (2) specific direction that EPA phase out the disposal of "harmful" sewage sludges and industrial wastes; (3) a ban on the ocean disposal of sewage sludge and industrial wastes by December 31, 1991; (4) inclusion of Long Island Sound within the purview of the act; and (5) inclusion of medical waste provisions. Authorizations for appropriations to support provisions of the law expired at the end of FY1997 (September 30, 1997). Authorities did not lapse, however, and Congress has continued to appropriate funds to carry out the act.

Four federal agencies have responsibilities under the Ocean Dumping Act: EPA, the U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration (NOAA), and the Coast Guard. EPA has primary authority for regulating ocean disposal of all substances except dredged spoils, which are under the authority of the Corps of Engineers. NOAA is responsible for long-range research on the effects of human-induced changes to the marine environment, while EPA is authorized to carry out research and demonstration activities related to phasing out sewage sludge and industrial waste dumping. The Coast Guard is charged with maintaining surveillance of ocean dumping.

Regulating Ocean Dumping

Title I of the MPRSA prohibits all ocean dumping, except that allowed by permits, in any ocean waters under U.S. jurisdiction, by any U.S. vessel, or by any vessel sailing from a U.S. port. The act bans any dumping of radiological, chemical, and biological warfare agents and any high-level radioactive waste, and medical wastes. Permits for dumping of other materials, except dredge spoils, can be issued by the EPA after notice and opportunity for public hearings where the Administrator determines that such dumping will not unreasonably degrade or endanger human health, welfare, the marine environment, ecological systems, or economic potentialities. EPA designates sites for ocean dumping and specifies in each permit where the material is to be disposed.

In 1977, Congress amended the act to require that dumping of municipal sewage sludge or industrial wastes which unreasonably degrade the environment cease by December 1981. In 1986 amendments, Congress directed that ocean disposal of all wastes cease at the traditional 12-mile site off the New York/New Jersey coast (that is, barred issuance of permits at the 12-mile site) and be moved to a new site 106 miles offshore. In 1988, Congress enacted several laws amending the Ocean Dumping Act, with particular emphasis on phasing out sewage sludge and industrial waste disposal in the ocean, which continued despite earlier legislative efforts.

Also in 1992, Congress amended the act to permit states to adopt ocean dumping standards more stringent than federal standards and to require that permits conform with long-term management plans for designated dumpsites, to ensure that permitted activities are consistent with expected uses of the site.

Virtually all ocean dumping that occurs today is dredged material — sediments removed from the bottom of water bodies in order to maintain navigation channels. The Corps of Engineers issues permits for ocean dumping of dredged material, the bulk of which results from maintenance dredging by the Corps itself or its contractors. According to EPA, more than 400 million cubic yards of sediment is dredged annually from U.S. waterways, and each year approximately 60 million cubic yards of this material is disposed of in the ocean at designated sites. Before sediments can be permitted to be dumped in the ocean, they are evaluated to ensure that the dumping will not cause significant harmful effects to human health or the marine environment. EPA is responsible for developing criteria to ensure that the ocean disposal of dredge spoils does not cause environmental harm. Permits for ocean disposal of dredged material are to be based on the same criteria utilized by EPA under other provisions of the act, and to the extent possible, EPA-recommended dumping sites are used. Where the only feasible disposition of dredged material would violate the dumping criteria, the Corps can request an EPA waiver. Amendments enacted in 1992 expanded EPA's role in permitting of dredged material by authorizing EPA to impose permit conditions or even deny a permit, if necessary to prevent environmental problems.

Permits issued under the Ocean Dumping Act specify the type of material to be disposed, the amount to be transported for dumping, the location of the dumpsite, the length of time the permit is valid, and special provisions for surveillance. The EPA Administrator can require a permit applicant to provide information necessary for the review and evaluation of the application.

Enforcement

The act authorizes EPA to assess civil penalties of not more than $50,000 for each violation of a permit or permit requirement, taking into account such factors as gravity of the violation, prior violations, and demonstrations of good faith; however, no penalty can be assessed until after notice and opportunity for a hearing. Criminal penalties (including seizure and forfeiture of vessels) for knowing violations of the act also are authorized. In addition, the act authorizes penalties for ocean dumping of medical wastes (civil penalties up to $125,000 for each violation and criminal penalties up to $250,000, five years in prison, or both). The Coast Guard is directed to conduct surveillance and other appropriate enforcement activities to prevent unlawful transportation of material for dumping, or unlawful dumping. Like many other federal environmental laws, the Ocean Dumping Act allows individuals to bring a citizen suit in U.S. district court against any person, including the United States, for violation of a permit or other prohibition, limitation, or criterion issued under Title I of the act.

In conjunction with the Ocean Dumping Act, the Clean Water Act (CWA) regulates all discharges into navigable waters including the territorial seas. Although these two laws overlap in their coverage of dumping from vessels within the territorial seas, any question of conflict is essentially moot because EPA has promulgated a uniform set of standards (40 C.F.R. Parts 220-229). The Ocean Dumping Act preempts the CWA in coastal waters or open oceans, and the CWA controls in estuaries. States are permitted to regulate ocean dumping in waters within their jurisdiction under certain circumstances.

The act also requires the Administrator, to the extent possible, to apply the standards and criteria binding upon the United States that are stated in the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (known as the London Dumping Convention). This Convention, signed by more than 85 countries, includes Annexes that prohibit the dumping of mercury, cadmium and other substances such as DDT and PCBs, solid wastes and persistent plastics, oil, high-level radioactive wastes, and chemical and biological warfare agents; and requires special permits for other heavy metals, cyanides and fluorides, and medium- and low-level radioactive wastes.

Research and Coastal Water Quality Monitoring

Title II of the MPRSA authorizes two types of research: general research on ocean resources, under the jurisdiction of the National Oceanic and Atmospheric Administration; and EPA research related to phasing out ocean disposal activities.

NOAA is directed to carry out a comprehensive, long-term research program on the effects not only of ocean dumping, but also of pollution, overfishing, and other human-induced changes on the marine ecosystem. Additionally, NOAA assesses damages from spills of petroleum and petroleum products.

EPA's research role includes "research, investigations, experiments, training, demonstrations, surveys, and studies" to minimize or end the dumping of sewage sludge and industrial wastes, along with research on alternatives to ocean disposal. Amendments in 1980 required EPA to study technological options for removing heavy metals and certain organic materials from New York City's sewage sludge.

Title IV of the MPRSA established nine regional marine research boards for the purpose of developing comprehensive marine research plans, considering water quality and ecosystem conditions and research and monitoring priorities and objectives in each region. The plans, after approval by NOAA and EPA, are to guide NOAA in awarding research grant funds under this title of the act.

Title V of the MPRSA established a national coastal water quality monitoring program. It directs EPA and NOAA jointly to implement a long-term program to collect and analyze scientific data on the environmental quality of coastal ecosystems, including ambient water quality, health and quality of living resources, sources of environmental degradation, and data on trends. Results of these activities (including intensive monitoring of key coastal waters) are intended to provide information necessary to design and implement effective programs under the Clean Water Act and Coastal Zone Management Act.

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Table 9. Major U.S. Code Sections of the Marine Protection, Research, and Sanctuaries Act[10]

(codified as 33 U.S.C. 1401-1445, 16 U.S.C. 1431-1447f, 33 U.S.C. 2801-2805)

	Section Title	Ocean Dumping Act
33 U.S.C.		
1401	Congressional findings, policy, declaration of purpose	Sec. 2
1401	Definitions	Sec. 3
Title I —	Permit Program	
1411	Prohibited acts	Sec. 101
1412	Dumping permit program	Sec. 102
1412a	Emergency dumping of industrial waste	Sec. 102A
1413	Corps of Engineers permits	Sec. 103
1414	Permit conditions	Sec. 104
1414a	Special provisions regarding certain dumping sites	Sec. 104A
1414b	Ocean dumping of sewage sludge and industrial waste	Sec. 104B
1414c	Prohibition on disposal of sewage sludge at landfills on Staten Island	Sec. 104C
1415	Penalties	Sec. 105
1416	Relationship to other laws	Sec. 106
1417	Enforcement	Sec. 107
1418	Regulations	Sec. 108
1419	International cooperation	Sec. 109
1420	Authorization of appropriations	Sec. 111
1421	Omitted (Annual report to Congress)	Sec. 112
Title II —	Research Programs	
1441	Monitoring and research programs	Sec. 201
1442	Research program respecting possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems	Sec. 202
1443	Research program respecting ocean dumping and other methods of waste disposal	Sec. 203
1444	Annual reports	Sec. 204
1445	Authorization of appropriations	Sec. 205
Title III —	Marine Sanctuaries (omitted from this chapter)	
Title IV —	Regional Marine Research Programs	
16 U.S.C.		
1447	Purposes	Sec. 401
1447a	Definitions	Sec. 402
1447b	Regional marine research boards	Sec. 403
1447c	Regional research plans	Sec. 404

[10] NOTE: This table shows the major code sections. For more detail and to determine when a section was added, the reader should consult the printed version of the *U.S. Code*.

	Section Title	Ocean Dumping Act
1447d	Research grant program	Sec. 405
1447e	Report on research program	Sec. 406
1447f	Authorization of appropriations	Sec. 407
Title V — 33 U.S.C.	National Coastal Monitoring System	
2801	Purposes	Sec. 501
2802	Definitions	Sec. 502
2803	Comprehensive coastal water quality monitoring program	Sec. 503
2804	Report to Congress	Sec. 504
2805	Authorization of appropriations	Sec. 505

Safe Drinking Water Act[11]

The Safe Drinking Water Act (SDWA), Title XIV of the Public Health Service Act, is the key federal law for protecting public water supplies from harmful contaminants. First enacted in 1974 and substantively amended in 1986 and 1996, the act is administered through programs that establish standards and treatment requirements for public water supplies, control underground injection of wastes, finance infrastructure projects, and protect sources of drinking water. The 1974 law established the current federal-state arrangement in which states may be delegated primary implementation and enforcement authority for the drinking water program. The state-administered Public Water Supply Supervision (PWSS) Program remains the basic program for regulating the nation's public water systems, and 49 states have assumed this authority. SDWA appropriations are authorized through FY2003.

Table 10. Safe Drinking Water Act and Amendments
(codified generally as 42 U.S.C. 300f-300j)

Year	Act	Public Law Number
1974	Safe Drinking Water Act of 1974	P.L. 93-523
1977	Safe Drinking Water Act Amendments of 1977	P.L. 95-190
1979	Safe Drinking Water Act Amendments	P.L. 96-63
1980	Safe Drinking Water Act Amendments	P.L. 96-502
1986	Safe Drinking Water Act Amendments of 1986	P.L. 99-339
1988	Lead Contamination Control Act of 1988	P.L. 100-572
1996	Safe Drinking Water Act Amendments of 1996	P.L. 104-182

Background

As indicated by **Table 10**, the Safe Drinking Water Act has been amended several times since enactment of the Safe Drinking Water Act of 1974 (P.L. 93-523). Congress enacted P.L. 93-523 after nationwide studies of community water systems revealed widespread water quality problems and health risks resulting from poor operating procedures, inadequate facilities, and poor management of public water supplies in communities of all sizes. The 1974 law gave EPA substantial discretionary authority to regulate drinking water contaminants and gave states the lead role in implementation and enforcement.

The first major amendments (P.L. 99-339), enacted in 1986, were largely intended to increase the pace at which EPA regulated contaminants. From 1974 until 1986, EPA had regulated just one additional contaminant beyond the 22 standards previously developed by the Public Health Service. The 1986 amendments required EPA to (1) issue regulations for 83 specified contaminants by June 1989 and for 25 more contaminants every three years thereafter, (2) promulgate requirements for disinfection and filtration of public water supplies, (3) ban the use of lead pipes and lead solder in new drinking water systems, (4) establish an elective wellhead protection program around public wells, (5) establish a demonstration grant program for state and local authorities having designated sole-source aquifers to develop

[11] Prepared by Mary Tiemann, Specialist in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

groundwater protection programs, and (6) issue rules for monitoring injection wells that inject wastes below a drinking water source. The amendments also increased EPA's enforcement authority.

The Lead Contamination Control Act of 1988 (P.L. 100-572) added a new Part F to the SDWA. These provisions were intended to reduce exposure to lead in drinking water by requiring the recall of lead-lined water coolers, and requiring EPA to issue a guidance document and testing protocol for states to help schools and day care centers identify and correct lead contamination in school drinking water.

After the regulatory schedule mandated in the 1986 amendments proved to be unworkable for EPA, states and public water systems, the 104th Congress made sweeping changes to the act with the SDWA Amendments of 1996 (P.L. 104-182). As over-arching themes, these amendments aimed to target resources to address the greatest health risks, add some regulatory flexibility, provide funding for federal drinking water mandates, and improve water systems' compliance capacity. The amendments revoked the requirement that EPA regulate 25 new contaminants every three years, and provided a risk-based approach for selecting contaminants for regulation. Among other changes, Congress added some flexibility to the standard-setting process, required EPA to conduct health risk reduction and cost analyses for most new standards, authorized a state revolving loan fund (SRF) program to help public water systems finance projects needed to meet SDWA requirements, added programs to improve small system compliance, expanded consumer information requirements, increased the act's focus on pollution prevention through a voluntary source water protection program, and streamlined the act's enforcement provisions. P.L. 104-182 extended authorizations for appropriations under the act through FY2003.

In June 2002, drinking water security provisions were added to the SDWA through the Public Heath Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188). Key provisions of the act include requirements for community water systems serving more than 3,300 individuals to conduct vulnerability assessments and prepare emergency preparedness and response plans and requirements for EPA to conduct research on preventing and responding to terrorist or other attacks.

National Drinking Water Regulations

A key component of the SDWA is the requirement that EPA promulgate national primary drinking water regulations for contaminants that may pose health risks and that are likely to be present in public water supplies. Section 1412 instructs EPA on how to select contaminants for regulation and specifies how EPA must establish regulations once a contaminant has been selected. The regulations apply to the roughly 168,000 privately and publicly owned water systems that provide piped water for human consumption to at least 15 service connections or that regularly serve at least 25 people. EPA has issued regulations for roughly 90 contaminants.

Contaminant Selection and Regulatory Schedules. Section 1412, as amended in 1996, directs EPA to select contaminants for regulatory consideration based on occurrence, health effects, and meaningful opportunity for health risk

reduction. Starting in 1998, and every five years thereafter, EPA must publish a list of contaminants that may warrant regulation. Starting in 2001, and every five years thereafter, EPA must determine whether or not to regulate at least five of the listed contaminants. The act requires EPA to evaluate contaminants that present the greatest health concern and to regulate contaminants that occur at concentration levels and frequencies of public health concern. The amendments also included schedules for EPA to complete regulations for specific contaminants (i.e., radon, arsenic, disinfectants and disinfection byproducts, and *Cryptosproridium*).

Standard Setting. For each contaminant that EPA determines requires regulation, EPA must set a nonenforceable maximum contaminant level goal (MCLG) at a level at which no known or anticipated adverse health effects occur and which allows an adequate margin of safety. EPA must then set an enforceable standard, a maximum contaminant level (MCL), as close to the MCLG as is "feasible" using best technology, treatment techniques, or other means available (taking costs into consideration). EPA generally sets standards based on technologies that are affordable for large communities; however, under P.L. 104-182, EPA is now required, when issuing a regulation for a contaminant, to list any technologies or other means that comply with the MCL and that are affordable for three categories of small public water systems (serving populations of 10,000 or fewer). If EPA does not identify technologies that are affordable for small systems, then EPA must identify small system "variance" technologies or other means that may not achieve the MCL but are protective of public health.

Another provision added in 1996 requires EPA, when proposing a regulation, to publish a determination as to whether or not the benefits of the standard justify the costs. If EPA determines that the benefits do not justify the costs, EPA may, with certain exceptions, promulgate a standard that maximizes health risk reduction benefits at a cost that is justified by the benefits.

New SDWA regulations generally become effective three years after promulgation. Up to two additional years may be allowed if EPA (or a state in the case of an individual system) determines the time is needed for capital improvements. Section 1448 outlines procedures for judicial review of EPA actions involving the establishment of SDWA regulations and other final EPA actions.

Risk Assessment. The 1996 amendments also added risk assessment and risk communication provisions to SDWA. When developing regulations, EPA is required to (1) use the best available, peer-reviewed science and supporting studies and data; and (2) make publicly available a risk assessment document that discusses estimated risks, uncertainties, and studies used in the assessment. When proposing drinking water regulations, EPA must publish a health risk reduction and cost analysis (HRRCA). EPA may promulgate an interim standard without first preparing this benefit-cost analysis or making a determination as to whether the benefits of a regulation would justify the costs if EPA determines that a contaminant presents an urgent threat to public health.

Variances and Exemptions. In anticipation that some systems, particularly smaller ones, could have difficulty complying with every regulation, Congress included in the SDWA provisions for variances and exemptions. Section 1415

authorizes a state to grant a public water system a *variance* from a standard if raw water quality prevents meeting the standard despite application of best technology, and the variance does not result in an unreasonable risk to health. A 1996 provision (Subsection 1415(e)) authorizes variances specifically for small systems based on application of best affordable technology.

When developing a regulation, if EPA cannot identify a technology that meets the standard and is affordable for small systems, EPA must identify variance technologies that are affordable but do not necessarily meet the standard. In cases where EPA has identified variance technologies, states may grant small system variances to systems serving 3,300 or fewer persons if the system cannot afford to comply with a standard (through treatment, an alternative water source, or restructuring) and the variance ensures adequate protection of public health. States also may grant these variances to systems serving between 3,301 and 10,000 persons with EPA approval. To receive a small system variance, the system must install a variance technology. (To date, EPA has determined that all drinking water standards are affordable for small systems; thus the agency has not identified any variance technologies for SDWA regulations.)

Section 1416 authorizes states to grant public water systems temporary *exemption*s from standards or treatment techniques if a system cannot comply for other compelling reasons (including costs) and the system was in operation before the effective date of the regulation. An exemption is intended to give a water system more time to comply with a regulation and can be issued only if it will not result in an unreasonable health risk. A qualified system may receive an exemption for up to three years beyond the compliance deadline. Systems serving 3,300 or fewer persons may receive a maximum of three additional two-year extensions, for a total exemption duration of nine years.

State Primacy

Section 1413 authorizes states to assume primary oversight and enforcement responsibility (primacy) for public water systems. To assume primacy, states must adopt regulations at least as stringent as national requirements, develop adequate procedures for enforcement, adopt authority for administrative penalties, maintain records, and develop a plan for providing emergency water supplies. Currently, 55 of 57 states and territories have primacy authority. The act authorizes $100 million annually for EPA to make grants to states to administer the Public Water System Supervision Program. States may also use part of their SRF grant for this purpose.

Enforcement, Consumer Information, and Citizen Suits

The Safe Drinking Water Act requires public water systems to monitor their water supplies to ensure compliance with drinking water standards and to report monitoring results to the states. States review monitoring data submitted by public water systems, or conduct their own monitoring, to determine system compliance with drinking water regulations. EPA monitors public water system compliance primarily by reviewing the violation data submitted by the states.

Section 1414 requires that, whenever EPA finds that a public water system in a state with primary enforcement authority does not comply with regulations, the agency must notify the state and the system and provide assistance to bring the system into compliance. If the state fails to commence enforcement action within 30 days after the notification, EPA is authorized to issue an administrative order or commence a civil action. In a nonprimacy state, EPA must notify an elected local official (if any has jurisdiction over the water system) before commencing an enforcement action against the system.

The 1996 amendments strengthened enforcement authorities, streamlined the process for issuing federal administrative orders, increased administrative penalty amounts, made more sections of the act clearly subject to EPA enforcement, and required states (as a condition of primacy) to have administrative penalty authority. The amendments also provided that no enforcement action may be taken against a public water system that has a plan to consolidate with another system.

Consumer Information and Reports. Enforcement provisions also require public water systems to notify customers of violations of drinking water standards or other requirements, such as monitoring and reporting. Systems must notify customers within 24 hours of any violations that have the potential to cause serious health effects as a result of short-term exposure (e.g., violations of microbial standards). The amendments also require community water systems to mail to all customers an annual " consumer confidence report" on contaminants detected in their drinking water. States must prepare annual reports on the compliance of public water systems and make summaries available to EPA and the public, and EPA must prepare annual national compliance reports.

Citizen Suits. Section 1449 provides for citizens' civil actions. Citizen suits may be brought against any person or agency allegedly in violation of provisions of the act, or against the Administrator for alleged failure to perform any action or duty that is not discretionary.

Compliance Improvement Programs

The 1996 amendments added two state-administered programs aimed at improving public water system compliance with drinking water regulations: the operator certification program and the capacity development program. Section 1419 required states to adopt programs for training and certifying operators of community and nontransient noncommunity systems (e.g., schools and workplaces that have their own wells). In 1999, EPA issued guidelines specifying minimum certification standards. EPA is required to withhold 20% of a state's revolving fund (SRF) annual grant unless the state has adopted and is implementing an operator certification program. Section 1420 required states to establish capacity development programs, also based on EPA guidance. These programs must include (1) legal authority to ensure that new systems have the technical, financial, and managerial capacity to meet SDWA requirements; and (2) a strategy to assist existing systems that are experiencing difficulties to come into compliance. EPA is required to withhold a portion of SRF grants from states that do not have capacity development strategies.

Ground Water Protection Programs

Most water systems rely on ground water as a source of drinking water, and Part C of the act focuses on ground water protection. Section 1421 authorized the establishment of state underground injection control (UIC) programs to protect underground sources of drinking water. In 1977, EPA issued mandated regulations containing minimum requirements for the underground injection of wastes into five classes of disposal wells and requiring states to prohibit any underground injection not authorized by state permit. The law specified that the regulations could not interfere with the underground injection of brine from oil and gas production or recovery of oil unless underground sources of drinking water would be affected. Section 1422 authorized affected states to submit plans to EPA for implementing UIC programs and, if approved, to assume primary enforcement responsibility. EPA is required to implement the program if a state's plan has not been approved or the state has chosen not to assume program responsibility (Section 1423). For oil and gas injection operations only, states with UIC programs are delegated primary enforcement authority without meeting EPA regulations (Section 1425).

Section 1424(e) authorizes EPA to make determinations, on EPA's initiative or upon petition, that an aquifer is the sole or principal drinking water source for an area. In areas that overlie a designated sole-source aquifer, no federal funding may be committed for projects that EPA determines may contaminate such an aquifer. Any person may petition for sole source aquifer designation, and as of September 2001, EPA had designated 72 sole source aquifers nationwide.

The act contains three additional state programs aimed specifically at protecting ground water. Added in 1986, Section 1427 established procedures for demonstration programs to develop, implement, and assess critical aquifer protection areas already designated by the Administrator as sole source aquifers. Section 1428, also added in 1986, established an elective state program for protecting wellhead areas around public water system wells. If a state established a wellhead protection program by 1989, and EPA approved the state's program, then EPA may award grants covering between 50% and 90% of the costs of implementing the program. Section 1429, added in 1996, authorizes EPA to make 50% grants to states to develop programs to ensure coordinated and comprehensive protection of ground water within the states. Appropriations for these three programs and for UIC state program grants were authorized through FY2003.

Source Water Assessment and Protection Programs

In 1996, Congress broadened the act's pollution prevention focus to embrace surface water, in addition to ground water, protection. Section 1453 required EPA to publish guidance for states to implement source water assessment programs that delineate boundaries of areas from which systems receive their water, and identify the origins of contaminants in delineated areas to determine systems' susceptibility to contamination. States with approved assessment programs may adopt alternative monitoring requirements to provide systems with monitoring relief provided under Section 1418.

Section 1454 authorized a source water petition program based on voluntary partnerships between state and local governments. States may establish a program under which a community water system or local government may submit a petition to the state requesting assistance in developing a voluntary source water quality protection partnership to (1) reduce the presence of contaminants in drinking water; (2) receive financial or technical assistance; and (3) develop a long-term source water protection strategy. This section authorized, through FY2003, $5 million each year for grants to states to support petition programs. States also may use 10% of their annual SRF grant to support various source water protection activities including the petition program.

State Revolving Funds

In 1996, Congress authorized a drinking water state revolving loan fund (DWSRF) program to help systems finance improvements needed to comply with SDWA regulations (Section 1452). EPA is authorized to make grants to states to capitalize DWSRFs, which states then may use to make loans to public water systems. States must match 20% of the federal grant, and grants are allotted among the states based on the results of the latest quadrennial needs survey. Each state and the District of Columbia must receive at least 1% of the appropriated funds. A state may transfer up to 33% of the grant to the Clean Water Act (CWA) SRF, or an equivalent amount from the CWA SRF to the DWSRF through FY2002. This authority has been extended in subsequent appropriations acts.

DWSRFs may be used to provide loans for expenditures EPA has determined will facilitate compliance or significantly further the act's health protection objectives. States must make available 15% of their annual allotment for loan assistance to systems that serve 10,000 or fewer persons, to the extent that funds can be obligated for eligible projects. States may use up to 30% of their DWSRF grant to provide loan subsidies (including forgiveness of principal) to help economically disadvantaged communities. Also, states may use a portion of funds for technical assistance, source water protection and capacity development programs, and for operator certification. The law authorized appropriations of $599 million for FY1994 and $1 billion per year for FY1995 through FY2003 for the DWSRF program.

Drinking Water Security

The 107th Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188, H.Rept. 107-481). Title IV of the Bioterrorism Act amended the SDWA to address threats to drinking water security. Key provisions are summarized below.

Vulnerability Assessments. Section 1433 was added to SDWA, requiring each community water system serving more than 3,300 individuals to conduct an assessment of the system's vulnerability to terrorist attacks or other intentional acts to disrupt the provision of a safe and reliable drinking water supply. This provision established deadlines, based on system size, for community water systems to certify to EPA that they have conducted a vulnerability assessment and to submit to EPA a copy of the assessment. The law required all these systems to complete vulnerability

assessments by June 30, 2004, or earlier. The law exempts the contents of the vulnerability assessments from disclosure under the Freedom of Information Act (except for information contained in the certification identifying the system and the date of the certification), and provides for civil and criminal penalties for inappropriate disclosure of information by government officials.

In addition, Section 1433 required each community water system serving more than 3,300 individuals to prepare or revise an emergency response plan incorporating the results of the vulnerability assessment. EPA was required to provide guidance to smaller systems on how to conduct vulnerability assessments, prepare emergency response plans, and address threats.

The act authorized $160 million for FY2002, and such sums as may be necessary for FY2003 through FY2005, to provide financial assistance to community water systems to conduct vulnerability assessments, to prepare response plans, and to address basic security enhancements and significant threats.

The Bioterrorism Act also added new SDWA Sections 1434 and 1435 directing the EPA Administrator to review methods by which terrorists or others could disrupt the provision of safe water supplies. EPA was required to review methods for preventing, detecting, and responding to such disruptions, and methods for providing alternative drinking water supplies if a water system was destroyed or impaired. The act authorized $15 million for FY2002, and such sums as may be necessary for FY2003 through FY2005 to carry out these sections.

Emergency Powers. Under Section 1431, the Administrator has emergency powers to issue orders and commence civil action if (1) a contaminant likely to enter a public water supply system poses a substantial threat to public health, and (2) state or local officials have not taken adequate action. The Bioterrorism Act amended this section to specify that EPA's emergency powers include the authority to act when there is a threatened or potential terrorist attack or other intentional act to disrupt the provision of safe drinking water or to impact the safety of a community's water supply.

Tampering with Public Water Systems. Section 1432 provides for civil and criminal penalties against any person who tampers, attempts to tamper, or makes a threat to tamper with a public water system. Amendments made by the Bioterrorism Act increased criminal and civil penalties for tampering, attempting to tamper, or making threats to tamper with public water supplies. The maximum prison sentence for tampering was increased from 5 to 20 years. The maximum prison sentence for attempting to tamper, or making threats to tamper, was increased from 3 to 10 years. The maximum fine that may be imposed for tampering was increased from $50,000 to $1 million. The maximum fine for attempting to tamper, or threatening to tamper, was increased from $20,000 to $100,000.

Emergency Assistance. SDWA Subsection 1442(b) authorizes EPA to provide technical assistance and to make grants to states and public water systems to assist in responding to and alleviating emergency situations. The Bioterrorism Act amended Subsection 1442(d) to authorize appropriations for such emergency

assistance of not more than $35 million for FY2002, and such sums as may be necessary for each fiscal year thereafter.

Other Selected Provisions

Section 1417 prohibits the use of pipe, solder, or flux that is not "lead free" (as defined by the SDWA) in the installation or repair of public water systems or plumbing in residential or other facilities providing drinking water. It prohibits the sale of pipes and plumbing fixtures that are not lead free, and the sale of solder or flux that is not lead free (unless it is properly labeled), with the exception of pipes used in manufacturing or industrial processing.[12] The 1996 Amendments also required limits to be set on the amount of lead that may leach from new plumbing fixtures.

Section 1442 authorizes EPA to conduct research on the causes, treatment, control, and prevention of diseases resulting from contaminants in water. Section 1442(b) authorizes EPA to make grants and provide technical assistance to states or public water systems to assist them in responding to emergency situations; $35 million are authorized to be appropriated each year for this purpose. Section 1442(e) authorized $15 million for each year, through FY2003, for EPA to provide technical assistance to small public water systems and Indian Tribes to help them comply with SDWA regulations. Section 1458 directed EPA to conduct studies regarding subpopulations at greater risk, biological mechanisms, and waterborne disease occurrences.

Under Section 1447, any federal agency having jurisdiction over federally owned and maintained public water systems must comply with all federal, state and local drinking water requirements as well as any underground injection control programs. The act provides for waivers in the interest of national security.

Under Section 1457, EPA may use the estrogenic substances screening program created in the Food Quality Protection Act of 1996 (P.L. 104-170) to provide for testing of substances that may be found in drinking water, if the Administrator determines that a substantial population may be exposed to such substances.

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[12] For purposes of Section 1417, the term "lead free" refers to solders and flux containing not more than 0.2% lead, and refers to pipes and pipe fittings containing not more than 8.0% lead.

Selected References

Association of State Drinking Water Administrators. *Public Health Protection Threatened by Inadequate Resources for State Drinking Water Programs: An Analysis of State Drinking Water Programs, Resources, Needs, and Barriers.* April 2003.

U.S. Environmental Protection Agency. *The Clean Water and Drinking Water Infrastructure Gap Analysis Report.* Office of Water. Report No. EPA 816-R-02-020. September 2002. 50 p.
[http://www.epa.gov/safewater/gapreport.pdf]

U.S. Environmental Protection Agency. *Providing Safe Drinking Water in America: 2001 National Public Water Systems Compliance Report.* Report No. EPA 305-R-03-001. September 2003. 17 p. plus appendices.
[http://www.epa.gov/ogwdw/annual]

Table 11. Major U.S. Code Sections of the Safe Drinking Water Act[13] (Title XIV of the Public Health Service Act)

(42 U.S.C. 300f-300j-26)

42 U.S.C.	Section Title	Safe Drinking Water Act (as amended)
Subchapter XII —	Safety of Public Drinking Water Systems	
Part A —	Definitions	
300f	Definitions	Sec. 1401
Part B —	Public Water Systems	
300g	Coverage	Sec. 1411
300g-1	National drinking water regulations	Sec. 1412
300g-2	State primary enforcement responsibility	Sec. 1413
300g-3	Enforcement of drinking water regulations	Sec. 1414
300g-4	Variances	Sec. 1415
300g-5	Exemptions	Sec. 1416
300g-6	Prohibitions on the use of lead pipes, solder, and flux	Sec. 1417
300g-7	Monitoring of contaminants	Sec. 1418
300g-8	Operator certification	Sec. 1419
300g-9	Capacity development	Sec. 1420
Part C —	Protection of Underground Sources of Drinking Water	
300h	Regulations for state programs	Sec. 1421
300h-1	State primary enforcement responsibility	Sec. 1422
300h-2	Enforcement of program	Sec. 1423
300h-3	Interim regulation of underground injections	Sec. 1424
300h-4	Optional demonstration by states relating to oil and natural gas	Sec. 1425
300h-5	Regulation of state programs	Sec. 1426
300h-6	Sole source aquifer demonstration program	Sec. 1427
300h-7	State programs to establish wellhead protection areas	Sec. 1428
300h-8	State ground water protection grants	Sec. 1429
Part D —	Emergency Powers	
300i	Emergency powers	Sec. 1431
300i-1	Tampering with public water systems	Sec. 1432
300i-2	Terrorist and other intentional acts	Sec. 1433
300i-3	Contaminant prevention, detection, and response	Sec. 1434
300i-4	Supply disruption prevention, detection and response	Sec. 1435

[13] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

42 U.S.C.	Section Title	Safe Drinking Water Act (as amended)
Part E —	General Provisions	
300j	Assurance of availability of adequate supplies of chemicals necessary for treatment of water	Sec. 1441
300j-1	Research, technical assistance, information	Sec. 1442
300j-2	Grants for state programs	Sec. 1443
300j-3	Special project grants and guaranteed loans	Sec. 1444
300j-4	Records and inspections	Sec. 1445
300j-5	National Drinking Water Advisory Council	Sec. 1446
300j-6	Federal agencies	Sec. 1447
300j-7	Judicial reviews	Sec. 1448
300j-8	Citizen civil actions	Sec. 1449
300j-9	General provisions	Sec. 1450
300j-11	Indian Tribes	Sec. 1451
300j-12	State revolving loan funds	Sec. 1452
300j-13	Source water quality assessment	Sec. 1453
300j-14	Source water petition program	Sec. 1454
300j-15	Water conservation plan	Sec. 1455
300j-16	Assistance to colonias	Sec. 1456
300j-17	Estrogenic substances screening program	Sec. 1457
300j-18	Drinking water studies	Sec. 1458
Part F —	Additional requirements to regulate the safety of drinking water	
300j-21	Definitions	Sec. 1461
300j-22	Recall of drinking water coolers with lead-lined tanks	Sec. 1462
300j-23	Drinking water coolers containing lead	Sec. 1463
300j-24	Lead contamination in school drinking water	Sec. 1464
300j-25	Federal assistance for state programs	Sec. 1465
300j-26	Certification of testing laboratories	

Solid Waste Disposal Act/ Resource Conservation and Recovery Act[14]

The Resource Conservation and Recovery Act of 1976 (RCRA) established the federal program regulating solid and hazardous waste management. RCRA actually amends earlier legislation (the Solid Waste Disposal Act of 1965), but the amendments were so comprehensive that the act is commonly called RCRA rather than its official title.

The act defines solid and hazardous waste, authorizes EPA to set standards for facilities that generate or manage hazardous waste, and establishes a permit program for hazardous waste treatment, storage, and disposal facilities. RCRA was last reauthorized by the Hazardous and Solid Waste Amendments of 1984. The amendments set deadlines for permit issuance, prohibited the land disposal of many types of hazardous waste without prior treatment, required the use of specific technologies at land disposal facilities, and established a new program regulating underground storage tanks. The authorization for appropriations under this act expired September 30, 1988, but funding for the Environmental Protection Agency's programs in this area has continued; the act's other authorities do not expire.

Table 12. Solid Waste Disposal/Resource Conservation and Recovery Act and Major Amendments
(42 U.S.C. 6901-6991k)

Year	Act	Public Law Number
1965	Solid Waste Disposal Act	P.L. 89-272, Title II
1970	Resource Recovery Act of 1970	P.L. 91-512
1976	Resource Conservation and Recovery Act of 1976	P.L. 94-580
1980	Used Oil Recycling Act of 1980	P.L. 96-463
1980	Solid Waste Disposal Act Amendments of 1980	P.L. 96-482
1984	Hazardous and Solid Waste Amendments of 1984	P.L. 98-616
1988	Medical Waste Tracking Act of 1988	P.L. 100-582
1992	Federal Facility Compliance Act of 1992	P.L. 102-386
1996	Land Disposal Program Flexibility Act of 1996	P.L. 104-119

Background

Federal solid waste law has gone through four major phases. The Solid Waste Disposal Act (passed in 1965 as Title II of the Clean Air Act of 1965) focused on research, demonstrations, and training. It provided for sharing with the states the costs of making surveys of waste disposal practices and problems, and of developing waste management plans. The Resource Recovery Act of 1970 changed the whole

[14] Prepared by James E. McCarthy and Mary Tiemann, Specialists in Environmental Policy, Resources, Science and Industry Division.

tone of the legislation from efficiency of disposal to concern with the reclamation of energy and materials from solid waste. It authorized grants for demonstrating new resource recovery technology, and required annual reports from the Environmental Protection Agency (EPA) on means of promoting recycling and reducing the generation of waste. In a third phase, the federal government embarked on a more active, regulatory role, embodied in the Resource Conservation and Recovery Act of 1976. RCRA instituted the first federal permit program for hazardous waste and prohibited open dumps. In a fourth phase, embodied in the Hazardous and Solid Waste Amendments of 1984, the federal government attempted to prevent future cleanup problems by prohibiting land disposal of untreated hazardous wastes, setting liner and leachate collection requirements for land disposal facilities, setting deadlines for closure of facilities not meeting standards, and establishing a corrective action program.

Regulation of Hazardous Waste

Subtitle C of RCRA created the hazardous waste management program. A waste is hazardous if it is ignitable, corrosive, reactive, or toxic, or appears on a list of about 100 industrial process waste streams and more than 500 discarded commercial products and chemicals. The 1976 law expanded the definition of "solid waste," of which hazardous waste is a subset, to include "sludge ... , and other discarded material, including solid, liquid, semi-solid, or contained gaseous material." The broadened definition is particularly important with respect to hazardous wastes, at least 95% of which are liquids or sludges. Some wastes are specifically excluded, however, including irrigation return flows, industrial point source discharges (regulated under the Clean Water Act), and nuclear material covered by the Atomic Energy Act.

Under RCRA, hazardous waste generators must comply with regulations concerning record keeping and reporting; the labeling of wastes; the use of appropriate containers; the provision of information on the wastes' general chemical composition to transporters, treaters, and disposers; and the use of a manifest system. Facilities generating less than 1,000 kilograms of waste per month were initially exempt from the regulations; the 1984 amendments to RCRA lowered that exemption to 100 kilograms per month, beginning in 1986.

Transporters of hazardous waste must also meet certain standards. These regulations were coordinated by EPA with existing regulations of the Department of Transportation. A manifest system, effective since 1980, is used to track wastes from their point of generation, along their transportation routes, to the place of final treatment, storage, or disposal.

Treatment, storage, and disposal (TSD) facilities are required to have permits, to comply with operating standards, to meet financial requirements in case of accidents, and to close their facilities in accordance with EPA regulations. The 1984 amendments imposed a number of new requirements on TSD facilities with the intent of minimizing land disposal. Bulk or noncontainerized hazardous liquid wastes are prohibited from disposal in any landfill, and severe restrictions are placed on the disposal of containerized hazardous liquids, as well as on the disposal of nonhazardous liquids in hazardous waste landfills. The land disposal of specified

highly hazardous wastes was phased out over the period from 1986 to 1990. EPA was directed to review all wastes that it has defined as hazardous and to make a determination as to the appropriateness of land disposal for them. Minimum technological standards were set for new landfills and surface impoundments requiring, in general, double liners, a leachate collection system, and groundwater monitoring.

States are encouraged and financially assisted to assume EPA's hazardous waste program, which went into effect November 19, 1980. Virtually all the states are doing so: as of December 2002, 48 states (all but Alaska and Iowa) had received final authorization to run the pre-1984-amendment elements of the program. Many of the states had received authorization to run post-1984 components of the program, as well, although the degree of authorization varies from state to state.

In order to receive final authorization, a state's program must be equivalent to, no less stringent than, and consistent with the federal program. As EPA develops new regulations, a state's program must be reviewed to determine whether the state has authority to enforce comparable requirements.

Even where states do not have authorization, they often participate in running the program under what are called Cooperative Arrangements. The Cooperative Arrangements provide financial assistance and allow the states to participate in specific aspects of the program (e.g., assisting in permit evaluation, conducting inspections, or operating the manifest system), while working toward full authorization.

Solid Waste Provisions

The major (non-hazardous) solid waste provision in RCRA is the prohibition of open dumps. This prohibition is implemented by the states, using EPA criteria to determine which facilities qualify as sanitary landfills and may remain open. EPA's criteria were originally promulgated in 1979; open dumps were to close or be upgraded by September 13, 1984.

In the 1984 amendments to RCRA, EPA was required to revise the sanitary landfill criteria for facilities that receive small quantity generator hazardous waste or hazardous household waste. Using this authority, the agency promulgated revised regulations applicable to municipal solid waste landfills in October 1991, with an effective date of October 9, 1993, for most provisions. In general, the new criteria require liners, leachate collection, groundwater monitoring, and corrective action at municipal landfills.

Other solid waste provisions authorized in RCRA include financial and technical assistance for states and local governments (most such assistance ended in FY1981 due to overall budget cutbacks); research, development, and demonstration authority (most of which also fell victim to budget cutbacks); and a procurement program, the goal of which is to stimulate markets for recycled products by requiring federal departments and agencies to "buy recycled."

While EPA is the lead agency under RCRA, the Department of Commerce is given several responsibilities for encouraging greater commercialization of resource recovery technology. The department has not played an active role, however.

Underground Storage Tanks

To address a nationwide problem of leaking underground storage tanks (USTs), Congress established a leak prevention, detection, and cleanup program through the 1984 RCRA amendments and the 1986 Superfund Amendments and Reauthorization Act (SARA).

The 1984 RCRA amendments created a federal program to regulate USTs containing petroleum and hazardous chemicals to limit corrosion and structural defects, and thus minimize future tank leaks. The law directed EPA to set operating requirements and technical standards for tank design and installation, leak detection, spill and overfill control, corrective action, and tank closure. The UST program (RCRA Subtitle I) is administered primarily by states. It requires registration of most underground tanks, bans the installation of unprotected tanks, sets federal technical standards for all tanks, coordinates federal and state regulatory efforts, and provides for federal inspection and enforcement.

In 1986, Congress created a petroleum UST response program by amending Subtitle I of RCRA through SARA (P.L. 99-499). Prior to SARA, EPA lacked explicit authority to clean up contamination from leaking underground petroleum tanks as Congress had specifically excluded petroleum products (although not petrochemicals) from the Superfund law. The 1986 provisions authorized the federal government to respond to petroleum spills and leaks, and created a Leaking Underground Storage Tank Trust Fund to fund cleanup of leaks from petroleum USTs in cases where the UST owner or operator does not clean up a site. The LUST Trust Fund provides money for EPA to administer the program and for states to oversee cleanups, take enforcement actions, and undertake cleanups themselves when necessary. The money in the fund is derived primarily from a 0.1 cent-per-gallon federal tax on motor fuels and several other petroleum products.

The 1986 amendments also directed EPA to establish financial responsibility requirements for UST owners and operators to cover costs of taking corrective action and to compensate third parties for injury and property damage caused by leaking tanks. The law required EPA to issue regulations requiring tank owners and operators selling petroleum products to demonstrate minimum financial responsibility. The regulations require insurance coverage of $1 million, or alternatively, owners and operators may rely on state assurance funds to demonstrate financial responsibility.

Enforcement

RCRA contains stringent enforcement provisions. Criminal violations of Subtitle C (hazardous waste) requirements are punishable by fines of as much as $50,000 for each day of violation and/or imprisonment for as long as five years;

knowingly endangering human life brings fines of as much as $250,000 ($1 million for a company or organization) and as long as 15 years imprisonment.

In cases not involving criminal conduct, the act authorizes civil and administrative penalties of as much as $25,000 per day of violation. EPA is authorized both to issue administrative compliance orders and to seek injunctive relief through the courts. Similar civil and administrative penalties (but not criminal penalties) apply to violations of the underground storage tank requirements in Subtitle I. Failure to close or upgrade open dumps can also be enforced by EPA in limited circumstances.

Like most environmental programs, RCRA in practice is largely enforced by state agencies exercising state authority equivalent to the federal. EPA retains the power to undertake enforcement in such "authorized" states, however: the act requires only that the Administrator give notice to the state in which a violation has occurred prior to issuing an order or commencing a civil action.

RCRA also provides for citizen suits both against persons and entities alleged to have violated standards or permit requirements and against EPA in cases where the Administrator has failed to perform an action that is nondiscretionary under the act.

Amendments to RCRA

RCRA has been amended nine times, some of which were noncontroversial additions clarifying portions of the law or correcting clerical errors in the text. The most significant sets of amendments occurred in 1980, 1984, and 1992.

1980 Amendments. The Solid Waste Disposal Act Amendments of 1980 provided EPA tougher enforcement powers to deal with illegal dumpers of hazardous waste; the agency's authority to regulate certain high-volume, low-hazard wastes (known as "special wastes") was restricted; funds were authorized to conduct an inventory of hazardous waste sites; and RCRA authorizations for appropriations were extended through FY1982. Amending language contained in Superfund, P.L. 96-510, established an Assistant Administrator for Solid Waste and Emergency Response at EPA.

Hazardous and Solid Waste Amendments of 1984. The most significant set of amendments to RCRA was the Hazardous and Solid Waste Amendments of 1984 (HSWA), a complex law with many detailed technical requirements. In addition to restrictions on land disposal, and the inclusion of small-quantity hazardous waste generators (those producing between 100 and 1,000 kg of waste per month) in the hazardous waste regulatory scheme that was summarized above, HSWA created the new regulatory program for underground storage tanks (also described above). EPA was directed to issue regulations governing those who produce, distribute, and use fuels produced from hazardous waste, including used oil. Under HSWA, hazardous waste facilities owned or operated by federal, state, or local government agencies must be inspected annually, and privately owned facilities must be inspected at least every two years. Each federal agency was required to submit to EPA an inventory of hazardous waste facilities it ever owned.

The 1984 law also imposed on EPA a timetable for issuing or denying permits for treatment, storage, and disposal facilities; required permits to be for fixed terms not exceeding 10 years; terminated in 1985 the "interim status" of land disposal facilities that existed prior to RCRA's enactment, unless they met certain requirements; required permit applications to be accompanied by information regarding the potential for public exposure to hazardous substances in connection with the facility; and authorized EPA to issue experimental permits for facilities demonstrating new technologies. EPA's enforcement powers were increased, the list of prohibited actions constituting crimes was expanded, penalties were increased, and the citizen suit provisions were expanded. Other provisions prohibited the export of hazardous waste unless the government of the receiving country formally consented to accept it; created an ombudsman's office in EPA to deal with RCRA-associated complaints, grievances, and requests for information; and reauthorized RCRA through FY88 at a level of about $250 million per year. Finally, HSWA called for a National Ground Water Commission to assess and report to Congress in two years on groundwater issues and contamination from hazardous wastes. The commission was never funded and never established, however.

Federal Facility Compliance Act. The third major set of amendments was the Federal Facility Compliance Act of 1992. This act resolves the legal question of whether federal facilities are subject to enforcement actions under RCRA, by unequivocally waiving the government's sovereign immunity from prosecution. As a result, states, EPA, and the Department of Justice can enforce the provisions of RCRA against federal facilities, and federal departments and agencies can be subjected to injunctions, administrative orders, and/or penalties for noncompliance. Furthermore, federal employees may be subject to criminal sanctions, including both fines and imprisonment under any federal or state solid or hazardous waste law. The act also contains special provisions applicable to mixtures of radioactive and hazardous waste at Department of Energy facilities and to munitions, military ships, and military sewage treatment facilities handling hazardous wastes.

1996 Amendments. The 104th Congress passed an additional set of amendments to RCRA, the Land Disposal Program Flexibility Act (P.L. 104-119). This act exempts hazardous waste from RCRA regulation if it is treated to a point where it no longer exhibits the characteristic that made it hazardous, and is subsequently disposed in a facility regulated under the Clean Water Act or in a Class I deep injection well regulated under the Safe Drinking Water Act. A second provision of the bill exempted small landfills located in arid or remote areas from ground water monitoring requirements, provided there is no evidence of ground water contamination.

Other Recent Laws Affecting Solid Waste Management

Although not technically amending RCRA, the 101st, 103rd, and 104th Congresses have enacted five other solid/hazardous waste-related measures.

Sanitary Food Transportation Act. The Sanitary Food Transportation Act of 1990 (P.L. 101-500) required the regulation of trucks and rail cars that haul both food and solid waste (a problem commonly referred to as "backhauling of garbage"). The act directed the Departments of Agriculture, Health and Human Services, and

Transportation to promulgate regulations specifying (1) record keeping and identification requirements; (2) decontamination procedures for refrigerated trucks and rail cars; and (3) materials for construction of tank trucks, cargo tanks, and ancillary equipment.

Clean Air Act. The Clean Air Act Amendments of 1990 (P.L. 101-549) contained a provision mandating stronger federal standards for solid waste incinerators. The law requires EPA to issue new source performance standards to control air emissions from municipal, hospital, and other commercial and industrial incinerators. New facilities must comply with the EPA rules within six months of the time they are issued, and existing units must comply within five years of issuance.

Pollution Prevention Act. The Pollution Prevention Act of 1990 (Sections 6601-6610 of P.L. 101-508) was passed as part of the Omnibus Budget Reconciliation Act of 1990. The measure declared pollution prevention to be the national policy, and directed EPA to undertake a series of activities aimed at preventing the generation of pollutants, rather than controlling pollutants after they are created. Matching grants were authorized for states to establish technical assistance programs for businesses, and EPA was directed to establish a Source Reduction Clearinghouse to disseminate information. The act also imposed new reporting requirements on industry. Firms that were required to file an annual toxic chemical release form under the Emergency Planning and Community Right-to-Know Act of 1986 must also file a report detailing their source reduction and recycling efforts over the previous year. A more complete description of the act, which addresses air and water pollution as well as waste, is provided in the first section of this report.

Indian Lands Open Dump Cleanup Act. The Indian Lands Open Dump Cleanup Act of 1994 (P.L. 103-399) required the Indian Health Service (IHS) to provide technical and financial support to inventory and close open dumps on Indian lands, and to maintain the sites after closure. According to IHS, only two of more than 600 waste dumps on Indian lands met current EPA regulations prior to the law's enactment.

Mercury-Containing and Rechargeable Battery Management Act. The 104th Congress passed legislation (P.L. 104-142) exempting battery collection and recycling programs from certain hazardous waste management requirements, prohibiting the use of mercury in batteries, and requiring labels on batteries to encourage proper disposal and recycling. By exempting battery collection and management programs from some parts of RCRA, the law was expected to stimulate new recycling programs.

Selected References

Shimberg, Steven J. *The Hazardous and Solid Waste Amendments of 1984: What Congress Did ... and Why*. The Environmental Forum. March 1985. pp. 8-19.

U.S. Environmental Protection Agency. Office of Solid Waste. RCRA Orientation Manual. September 2002. 259 p. Available online at [http://www.epa.gov/epaoswer/general/orientat/index.htm].

Table 13. Major U.S. Code Sections of the Solid Waste Disposal/ Resource Conservation and Recovery Act[15]

(codified generally as 42 U.S.C. 6901 et seq.)

42 U.S.C.	Section Title	RCRA
Subchapter I —	General Provisions	Subtitle A
6901	Congressional findings	Sec. 1002
6901a	Congressional findings; used oil recycling	Sec. 2 of P.L. 96-463
6902	Objectives and national policy	Sec. 1003
6903	Definitions	Sec. 1004
6904	Governmental cooperation	Sec. 1005
6905	Application of chapter and integration with other Acts	Sec. 1006
6906	Financial disclosure	Sec. 1007
6907	Solid waste management information and guidelines	Sec. 1008
6908	Small town environmental planning	Sec. 109 of P.L. 102-386
Subchapter II —	Office of Solid Waste Authorities of Administrator	Subtitle B
6911	Office of Solid Waste and Interagency Coordinating Committee	Sec. 2001
6911a	Assistant Administrator of Environmental Protection Agency; appointment, etc.	Sec. 307(b) of P.L. 96-510
6912	Authorities of Administrator	Sec. 2002
6913	Resource Recovery and Conservation Panels	Sec. 2003
6914	Grants for discarded tire disposal	Sec. 2004
6914a	Labeling of lubricating oil	Sec. 2005
6914b	Degradable plastic ring carriers; definitions	Sec. 102 of P.L. 100-556
6914b-1	Regulation of plastic ring carriers	Sec. 103 of P.L. 100-556
6915	Annual report	Sec. 2006
6916	General authorization	Sec. 2007
6917	Office of Ombudsman	Sec. 2008
Subchapter III —	Hazardous Waste Management	Subtitle C
6921	Identification and listing of hazardous waste	Sec. 3001
6922	Standards applicable to generators of hazardous waste	Sec. 3002
6923	Standards applicable to transporters of hazardous waste	Sec. 3003
6924	Standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities	Sec. 3004

[15] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

42 U.S.C.	Section Title	RCRA
6925	Permits for treatment, storage, or disposal of hazardous waste	Sec. 3005
6926	Authorized State hazardous waste programs	Sec. 3006
6927	Inspections	Sec. 3007
6928	Federal enforcement	Sec. 3008
6929	Retention of State authority	Sec. 3009
6930	Effective date	Sec. 3010
6931	Authorization of assistance to States	Sec. 3011
6932	Transferred to § 6935	
6933	Hazardous waste site inventory	Sec. 3012
6934	Monitoring, analysis, and testing	Sec. 3013
6935	Restrictions on recycled oil	Sec. 3014
6936	Expansion during interim status	Sec. 3015
6937	Inventory of Federal agency hazardous waste facilities	Sec. 3016
6938	Export of hazardous wastes	Sec. 3017
6939	Domestic sewage	Sec. 3018
6939a	Exposure information and health assessments	Sec. 3019
6939b	Interim control of hazardous waste injection	Sec. 3020
6939c	Mixed waste inventory reports and plan	Sec. 3021
6939d	Public vessels	Sec. 3022
6939e	Federally owned treatment works	Sec. 3023
Subchapter IV —	State or Regional Solid Waste Plans	Subtitle D
6941	Objectives of subchapter	Sec. 4001
6941a	Energy and materials conservation and recovery; Congressional findings	Sec. 32(a) of P.L. 96-482
6942	Federal guidelines for plans	Sec. 4002
6943	Requirements for approval of plans	Sec. 4003
6944	Criteria for sanitary landfills; sanitary landfills required for all disposal	Sec. 4004
6945	Upgrading of open dumps	Sec. 4005
6946	Procedure for development and implementation of State plan	Sec. 4006
6947	Approval of State plan; Federal assistance	Sec. 4007
6948	Federal assistance	Sec. 4008
6949	Rural communities assistance	Sec. 4009
6949a	Adequacy of certain guidelines and criteria	Sec. 4010
Subchapter V —	Duties of Secretary of Commerce in Resource and Recovery	Subtitle E
6951	Functions	Sec. 5001
6952	Development of specifications for secondary materials	Sec. 5002
6953	Development of markets for recovered materials	Sec. 5003

42 U.S.C.	Section Title	RCRA
6954	Technology promotion	Sec. 5004
6955	Marketing policies; establishment; nondiscrimination requirement	Sec. 5005
6956	Authorization of appropriations	Sec. 5006
Subchapter VI —	Federal Responsibilities	Subtitle F
6961	Application of Federal, State and local law to Federal facilities	Sec. 6001
6962	Federal procurement	Sec. 6002
6963	Cooperation with Environmental Protection Agency	Sec. 6003
6964	Applicability of solid waste disposal guidelines to Executive agencies	Sec. 6004
6965	Chief Financial Officer report	Sec. 110 of P.L. 102-386
Subchapter VII —	Miscellaneous Provisions	Subtitle G
6971	Employee protection	Sec. 7001
6972	Citizen suits	Sec. 7002
6973	Imminent hazard	Sec. 7003
6974	Petition for regulations; public participation	Sec. 7004
6975	Separability	Sec. 7005
6976	Judicial review	Sec. 7006
6977	Grants or contracts for training projects	Sec. 7007
6978	Payments	Sec. 7008
6979	Labor standards	Sec. 7009
6979a	Transferred to § 6939b	
6979b	Law enforcement authority	Sec. 7010
Subchapter VIII —	Research, Development, Demonstration, and Information	Subtitle H
6981	Research, demonstration, training, and other activities	Sec. 8001
6982	Special studies; plans for research, development, and demonstrations	Sec. 8002
6983	Coordination, collection, and dissemination of information	Sec. 8003
6984	Full-scale demonstration facilities	Sec. 8004
6985	Special study and demonstration projects on recovery of useful energy and materials	Sec. 8005
6986	Grants for resource recovery systems and improved solid waste disposal facilities	Sec. 8006
6987	Authorization of appropriations	Sec. 8007
Subchapter IX —	Regulation of Underground Storage Tanks	Subtitle I
6991	Definitions and exemptions	Sec. 9001
6991a	Notification	Sec. 9002

42 U.S.C.	Section Title	RCRA
6991b	Release detection, prevention, and correction regulations	Sec. 9003
6991c	Approval of State programs	Sec. 9004
6991d	Inspections, monitoring, testing, and corrective action	Sec. 9005
6991e	Federal enforcement	Sec. 9006
6991f	Federal facilities	Sec. 9007
6991g	State authority	Sec. 9008
6991h	Study of underground storage tanks	Sec. 9009
6991i	Authorization of appropriations	Sec. 9010
Subchapter X —	Demonstration Medical Waste Tracking Program	Subtitle K
6992	Scope of demonstration program for medical waste	Sec. 11001
6992a	Listing of medical wastes	Sec. 11002
6992b	Tracking of medical waste	Sec. 11003
6992c	Inspections	Sec. 11004
6992d	Enforcement	Sec. 11005
6992e	Federal facilities	Sec. 11006
6992f	Relationship to State law	Sec. 11007
6992g	Report to Congress	Sec. 11008
6992h	Health impacts report	Sec. 11009
6992i	General provisions	Sec. 11010
6992j	Effective date	Sec. 11011
6992k	Authorization of appropriations	Sec. 11012

Superfund[16]

The Superfund hazardous substance cleanup program was created by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, P.L. 96-510, enacted December 11, 1980). It was enlarged and reauthorized by the Superfund Amendments and Reauthorization Act of 1986 (SARA, P.L. 99-499). CERCLA, as amended, is codified as 42 U.S.C. 9601-9675. The law's taxing authority was extended through December 31, 1995, by the Omnibus Budget Reconciliation Act of 1990 (OBRA, P.L. 101-508). The program was authorized at $1.7 billion per year through FY1991 by SARA, and through FY1994 by OBRA. Targeted amendments in 1992 and 1996 (P.L. 102-426 and P.L. 104-201) addressed transferring of contaminated defense sites; another 1996 amendment (P.L. 104-208) amended CERCLA to protect lenders. In 1999, P.L. 106-113 absolved recyclers from CERCLA liability.

Table 14. Superfund and Amendments

(codified generally as 42 U.S.C. 9601-9675)

Year	Act	Public Law Number
1980	Comprehensive Environmental Response, Compensation, and Liability Act of 1980	P.L. 96-510
1986	Superfund Amendments and Reauthorization Act of 1986	P.L. 99-499
1990	Superfund extension	P.L. 101-508, § 6301, 11231
1992	Community Environmental Response Facilitation Act	P.L. 102-426
1996	Asset Conservation, Lender Liability and Deposit Insurance Protection Act	P.L. 104-208, Division A, Title II, Subtitle E
1996	Defense Authorization Act of Fiscal Year 1997	P.L. 104-201, §334
1999	Superfund Recycling Equity Act	P.L. 106-113, appendix I, Title VI
2002	Small Business Liability Relief and Brownfields Revitalization Act	P.L. 107-118

CERCLA authorizes the federal government to respond to spills and other releases (or threatened releases) of hazardous substances, as well as to leaking hazardous waste dumps. Hazardous substances are identified under the Solid Waste Disposal Act, the Clean Water Act, the Clean Air Act, and the Toxic Substances Control Act, or are designated by the Environmental Protection Agency. Response is also authorized for releases of "pollutants or contaminants," which are broadly defined to include virtually anything that can threaten the health of "any organism." Most nuclear materials and petroleum are excluded, except for those petroleum products that are specifically designated as hazardous substances under one of the laws mentioned above.

The fund is not to be used for responding to (1) releases of naturally occurring unaltered substances; (2) releases from products that are part of the structure of

[16] Prepared by Mark Reisch, Analyst in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

residential buildings, businesses, or community structures (such as asbestos); or (3) releases into drinking water supplies due to ordinary deterioration of the water system. An exception to these three limitations is made, however, in cases of public health or environmental emergencies when no other person has the authority and capability to respond in a timely manner. EPA is to give priority to releases that threaten public health or drinking water supplies.

The Fund and Taxes

The Hazardous Substances Superfund Trust Fund was first established at $1.6 billion for the 1980-1985 period. Revenues were raised primarily by taxes on crude oil and on 42 chemicals; one-eighth of the total was authorized from the General Fund of the Treasury.[17] The taxation authority expired on September 30, 1985, and to keep the program running during 1986 (while SARA was debated in the conference committee), Congress authorized two repayable advances, later repaid, to the fund: $150 million was loaned in April, and an additional $48 million was made available in August.

For the 1987-1991 period, SARA funded the program at $8.5 billion. As previously noted, these taxes were extended through 1995 at the same rate of $1.7 billion annually. **Table 15** summarizes Superfund's revenue sources for the last 5 full fiscal years the taxes were in effect. (The excise taxes on crude oil and chemicals, and the corporate environmental income tax, ceased on December 31, 1995.)

Table 15. Superfund Revenue, FY1991 to FY1995

Revenue	Amount of Revenue ($ billion)	Percent of Total Revenue
Petroleum Tax	2.800	30.7
Chemical Feedstocks Tax[a]	1.275	14.0
Corporate Environmental Tax	3.121	34.3
Cost Recoveries from Responsible Parties	.901	9.9
Fines and Penalties	.011	0.1
Interest on Investments[b]	.998	11.0
Total	9.106	100.0

Source: Funds Management Division, U.S. Treasury Department, *Hazardous Substances Superfund Trust Fund, 20X8145, Income Statement* (monthly reports). Compiled by CRS.

[a] Includes tax on imported chemical derivatives.
[b] Includes accrued interest on investments.

All of the taxes went into effect on January 1, 1987, except the tax on imported chemical derivatives which began on January 1, 1989. It was also extended through 1995.

[17] Appropriations actually comprised 10.6% of the total.

The tax on petroleum, previously 0.79 cents per barrel according to the 1980 law, was increased to 8.2 cents per barrel for domestic crude oil, and to 11.7 cents per barrel on imported petroleum products by the 1986 amendments. After a challenge by several countries before an investigative panel of the General Agreement on Tariffs and Trade, this tax was changed to 9.7 cents a barrel, regardless of source (P.L. 101-221).

With the exception of xylene, the taxes on the 42 organic and inorganic feedstock chemicals, which range from $0.22 to $4.87 per ton, were reimposed by SARA at their former rates. Xylene had been the subject of a controversial Treasury Department ruling having to do with separated isomers of the chemical and the point of taxation. SARA allowed all those who previously paid the tax on xylene to apply for a refund, with interest. To compensate for the lost revenues, the tax on xylene was increased from $4.87 to $10.13 per ton.

Certain chemicals listed in the tax table are exempt from payment of the tax when used for specified purposes, or when produced in certain ways. Thus, methane and butane are excused from the tax when used as fuel, as are substances used in the production of fertilizer. Also exempted are sulfuric acid when produced as a byproduct of air pollution control, and any chemicals derived from coal.

Two new taxes were imposed by the 1986 law. Imported chemical derivatives are taxed at a rate equal to the amount which would have been imposed on the feedstocks used in the manufacture of the derivative if the feedstocks had been sold in the United States for that purpose. If the importer does not furnish sufficient information to compute the tax in that manner, the tax is 5% of the customs value of the import. Fifty chemical derivatives are listed in the law. The Secretary of the Treasury is to add to this list any derivative made from taxable feedstocks, if the feedstocks make up more than 50% *by weight* of the raw materials used to produce the substance. The Secretary may also add other substances to the list if taxable feedstocks comprise more than 50% *of the value* of the raw materials used to make them. For the same reasons, the Secretary may remove substances from the list as well. As of August 1994 there were 113 chemicals on the list, including the 50 designated in the law. This tax went into effect on January 1, 1989, and was extended through 1995.

The other tax added by SARA in 1986 is the corporate environmental income tax, which is based on the alternative minimum income tax system of the Tax Reform Act of 1986. The tax is 0.12% ($12 per $10,000) of taxable income in excess of $2 million, and is imposed on corporations.

In addition to taxes and appropriations, the fund receives reimbursements from polluters for cleanup and other response costs under this act and under Section 311 of the Clean Water Act, plus any penalties and punitive damages assessed under other provisions of CERCLA.

Responding to Releases

The procedures to be followed in responding to hazardous substance releases are detailed in the National Contingency Plan (40 CFR Part 300). The

Environmental Protection Agency (EPA) is the lead agency, except for spills in coastal areas and inland waterways, where the Coast Guard assumes responsibility.

There are two types of governmental response: (1) short-term removals, where emergency action is required (for example, to avert fire or explosion, or to prevent the imminent contamination of a water body); and (2) long-term remedial actions taken at sites on the National Priority List. Removals are limited to a one-year effort and the expenditure of not more than $2 million. Remedial actions are of a longer term, are more expensive, and frequently involve extensive engineering at the sites.

To ensure that the most serious sites are addressed, the law calls for a National Priority List (NPL) to be assembled. EPA developed a Hazard Ranking System (HRS) to construct the NPL, which scores such factors as the quantity and nature of hazardous wastes present; the likelihood of contamination of ground water, surface water, and air; and the proximity of the site to population and sensitive natural environments. As of November 2000, the NPL contained 1,294 proposed and final sites. The total listed since the beginning of the program is 1,458, of which construction has been completed at 757 (52%); 227 sites have been removed from the NPL.

Before remedial action is undertaken at sites where Superfund money is used, the state must assure (1) that it will provide future maintenance of the site (in cases of ground or surface water cleanup, the 100% state maintenance requirement is delayed for 10 years); (2) that off-site disposal capacity is available, if necessary; and (3) that it will pay 10% of the costs of remedial action, or, if the site was owned or operated by the state or a local government at the time of disposal, that it will pay at least 50% of the costs.

Liability and Financial Responsibility

In general, waste generators, transporters who select the disposal site, and disposal facility owners and operators are liable for response costs and for damage to natural resources. Limits to liability are set as follows: (1) for vessels (except incineration vessels) carrying hazardous substances as cargo or residue, the greater of $300 per gross ton or $5 million; (2) for other vessels (except incineration vessels), the greater of $300 per gross ton or $500,000; (3) for motor vehicles, aircraft, pipelines, or rolling stock, $50 million or a lesser amount set by regulations, but in no event less than $5 million; and (4) for incineration vessels and for any other facility not specified in (3), the total of all costs of response plus as much as $50 million for any damages. The act does not impose liability for victims of exposure to hazardous substances. Generally speaking, such victims must seek restitution for damages in state courts.

EPA's enforcement costs are collectible from potentially responsible parties (PRPs), as well as its cleanup costs. There are no limits to liability if the hazardous substance release is due to misconduct; negligence; violation of any safety, construction, or operating standards or regulations; or when cooperation and assistance requested by a public official in connection with response activities is denied. Triple punitive damages may be imposed for failure to comply with a cleanup order without sufficient cause. All federal agencies are subject to the act.

Owners and operators of vessels and facilities are required to show evidence of financial responsibility (such as insurance). For vessels exceeding 300 gross tons (except non-self-propelled barges not carrying hazardous substances as cargo) such financial responsibility is to be the greater of $300 per gross ton or $5 million. For facilities, the amount is $1 million per occurrence, with an annual aggregate of $2 million for sudden accidental events. For non-sudden accidents coverage must be at least $3 million per occurrence, with an annual aggregate of $6 million.

The 1986 law added a provision limiting insurance companies' liability to the amount of coverage specified in the policy. Previously, some courts had held them liable for higher amounts. SARA also authorized companies to form "risk retention groups" as a means of insuring themselves (Title IV).

The 104th Congress passed the Asset Conservation, Lender Liability, and Deposit Insurance Protection Act of 1996,[18] amending CERCLA to protect lenders and fiduciaries from liability so long as they do not participate in the management of a facility contaminated with hazardous substances. Lenders at times have incurred liability after foreclosing on a contaminated property. This law details what actions a lender may take, which include activities related to his financial interest, and responding appropriately to the hazardous substance release. A fiduciary's liability is limited to the value of the assets held in trust, provided the fiduciary did not cause or contribute to the hazardous substance release.

Protection from CERCLA liability was also extended to recyclers of paper, plastic, glass, textiles, rubber, metal, and batteries by the Superfund Recycling Equity Act of 1999.[19] This law enacted by the 106th Congress absolves recyclers from liability unless the person has reason to believe the material would be burned, or the consuming facility was not in compliance with environmental laws, or that hazardous substances had been added to the material, or failed to exercise care in managing the material. The liability exemption is inapplicable if the recyclable material contains PCBs in excess of federal standards.

Additional limits on CERCLA liability were provided in the Small Business Liability Relief and Brownfields Revitalization Act.[20] Contributors of "de micromis" amounts of hazardous substances (less than 110 gallons of liquid or less than 200 pounds of solid material) at an NPL site are exempt from liability if the wastes were disposed prior to April 1, 2001. Also exempt are residential property owners, small businesses, and small non-profit organizations that sent only municipal solid waste to NPL sites, as well as property owners whose land abuts a Superfund site, prospective purchasers of contaminated property, and innocent landowners.

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[18] P.L. 104-208, the Omnibus Appropriation Act of 1996. The language of the Asset Conservation, Lender Liability, and Deposit Insurance Protection Act is found in Division A, Title II, Subtitle E.

[19] P.L. 106-113, Appendix I, Title VI.

[20] P.L. 107-118.

Health-Related Authorities

CERCLA created the Agency for Toxic Substances and Disease Registry (ATSDR) in the Public Health Service to carry out the health-related authorities in the act. ATSDR is to maintain a registry of persons exposed to toxic substances; maintain an inventory of literature, research, and studies on the health effects of toxic substance contamination; provide medical care and testing in cases of public health emergencies; and periodically conduct surveys and screening programs to determine the relationship between exposure to toxic substances and illness. Facilities of the Public Health Service are to be made available to exposed persons in cases of public health emergencies.

SARA created new duties for ATSDR. The agency and EPA were to prepare a list of at least 275 of the hazardous substances most commonly found at NPL sites. ATSDR is to prepare toxicological profiles of these substances at a rate of at least 25 per year. Where there is insufficient information on a substance, ATSDR is to conduct research. The costs of the research program are to be borne by the manufacturers and processors of the hazardous substances in question, in accordance with procedures promulgated under the authorities of the Toxic Substances Control Act, and the Federal Insecticide, Fungicide, and Rodenticide Act.

The ASTDR must perform a health assessment at each facility within one year of its proposal for listing on the NPL. The health assessments are to assist in determining whether or not to take additional steps to reduce human exposure to hazardous substances, and whether to gather additional information through, for example, epidemiological studies or health surveillance programs. Citizens may petition ATSDR for a health assessment if they have been exposed to a hazardous substance. ATSDR is to provide consultations to EPA, and to state and local officials as requested, on health issues related to hazardous substances.

Cleanup Schedules

Because of slow cleanup progress, SARA set deadlines for commencing specified numbers of site inspections, rankings for the National Priorities List, remedial investigations and feasibility studies (RI/FSs), and physical on-site work through November 1990. Those targets were all surpassed.

Cleanup Standards

In general, cleanups must assure protection of health and the environment, and be cost-effective in both the long-term and the short-term. SARA requires that cleanups meet the standards of federal and state environmental laws, but EPA may waive a requirement when:

- the action is part of a larger remedial action that will meet the standards;

- compliance would result in a greater risk than alternative options;

- compliance is impractical from an engineering perspective;
- an equivalent standard of performance is attained;
- in the case of a state standard, the state has not consistently applied the standard elsewhere; or,
- meeting the standard does not provide a balance between the need for protection of health and the environment at the facility, and the availability of amounts in the fund to respond to other sites that also present a threat.

The law specifically requires cleanups to meet the Safe Drinking Water Act's recommended maximum contaminant levels (RMCLs), and the Clean Water Act's water quality criteria. The agency is directed to choose permanent remedies when possible, as opposed to burying wastes in landfills. If a nonpermanent treatment is employed, EPA must review the site every five years to see if it presents a threat. States are given the opportunity for an active role in choosing the cleanup method.

Federal Facilities

CERCLA made federal agencies subject to the law in the same way as any nongovernmental entity, and required them to clean up any hazardous waste sites they owned or operated. The Superfund trust fund is not available to them, and the cost of cleanup is to be funded from the agencies' appropriations. The one exception to this rule is that the fund may be used to provide alternative water supplies in cases where there is groundwater contamination outside the boundaries of a federally owned facility, and there are other potentially responsible parties besides the federal agency.

Two provisions of SARA attempted to accelerate the cleanup, and to resolve questions of jurisdiction that have arisen. Section 120 sets out a timetable, and requires participation in the planning and cleanup selection process by state and local officials and the public. Where a federal agency and EPA disagree on the proposed remedy to be undertaken at a site, EPA is to make the selection. Although Subsection (g) prohibits the transfer of EPA's authorities under this section to any other agency or person, an executive order signed by President Reagan on January 23, 1987, gives the Office of Management and Budget the final authority in cases where EPA and another federal agency disagree on the remedy selection.

Nevertheless, in May and June 1988 EPA came to terms with the Department of Defense (DOD) and the Department of Energy on model language to be inserted in all federal facility cleanup agreements at Superfund sites owned by the two departments. The model language provides for and recognizes (1) EPA's authority to assess penalties in the case of noncompliance with the agreement; (2) the departments' commitment to study and perform EPA-approved cleanups at the facilities; (3) EPA's commitment to review and comment on the departments' studies and plans; (4) a mechanism for resolving disputes, with final authority resting with the EPA Administrator when staff of the agency and the departments cannot reach agreement; and (5) enforceability of the agreements by states and citizens.

Federally owned sites that are *not* on the National Priorities List are subject to state laws concerning removal, remedial action, and enforcement.

Information on federally owned hazardous waste sites that agencies are required to submit under several different provisions of CERCLA and the Resource Conservation and Recovery Act is required to be centralized in a Federal Agency Hazardous Waste Compliance Docket. EPA established this docket on April 17, 1987, and publishes updates in the *Federal Register* every six months. SARA also places strictures on the sale of federal property to ensure that any hazardous wastes will be cleaned up prior to sale.

The second provision of interest added by SARA is found in Section 211, the "Department of Defense Environmental Restoration Program." This section amends Title 10 of the *U.S. Code* rather than CERCLA. In addition to making DOD's pre-existing Installation Restoration Program a matter of statutory law, this provision establishes a research program for military hazardous wastes and the health effects of exposure to them. It also creates a special transfer account to receive appropriations to implement this section, but allows funding to be reprogrammed for the removal of unsafe buildings or debris at former DOD sites. The explanatory statement of the conference committee notes that the restoration program is to be implemented in a manner consistent with SARA, including the provisions relating to public participation (Section 117), federal facilities (Section 120), and cleanup standards (Section 121).[21]

The 102nd Congress amended CERCLA by enacting the Community Environmental Response Facilitation Act (CERFA, P.L. 102-426). The act eases military base closures by allowing portions of bases that are not contaminated to be sold or transferred. The numerous base closures and realignments across the nation have had adverse economic effects on some local communities, particularly through the loss of jobs, and under previous law a base could not be sold or transferred for development until environmental cleanup was completed. CERFA permits the non-contaminated portions of bases to be transferred, while cleanup continues at the contaminated portions, and provides for the appropriate identification on deeds and other documents of the activities that have taken place there. It also confirms that the U.S. government remains responsible for any further cleanup of hazardous substances or petroleum products that might be required.

In Section 334 of P.L. 104-201, the Defense Authorization Act of Fiscal Year 1997, the 104th Congress took CERFA a step further by allowing the transfer of federal property even if contamination remained at the site.[22] EPA and the governor of the state where the site is located must make a finding that the site is suitable for

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[21] U.S. Congress, Senate, Committee on Environment and Public Works, *A Legislative History of the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-949) together with a Section-by-Section Index*, Prepared by the Environment and Natural Resources Policy Division of the Congressional Research Service of the Library of Congress, Committee Print, 101st Congress, 2nd sess., GPO, 1990, v. 6, p. 5095.

[22] This amendment appears at Section 334 of the Defense Authorization Act of Fiscal Year 1997, P.L. 104-201. It amends CERCLA Section 102(h)(3).

the use intended by the new owner, the intended use is consistent with protection of public health and the environment, the public has an opportunity to comment, and the deferral of cleanup and the transfer of property will not substantially delay any necessary response action at the property. The deed to the property must contain assurances that provide for any necessary restrictions on the use of the property, and to ensure that response actions will not be disrupted; it must also assure that the cleanup will be completed in accordance with an approved timetable, and that the federal agency will submit an adequate budget request to the Office of Management and Budget to complete all necessary response actions. When cleanup is completed, the agency shall provide to the new owner a warranty to that effect.

Settlements

EPA, at its discretion, is authorized to enter into settlement agreements that are in the public interest and that minimize litigation; such a decision is not subject to judicial review. The agency can also prepare a nonbinding allocation of cleanup costs among responsible parties when it would aid settlement. "Mixed funding," where responsible parties conduct the cleanup with some assistance from the Superfund, is explicitly permitted. In certain situations EPA may release a party from future liability as part of a settlement agreement. Expedited procedures for settling with minor (*de minimis*) contributors of waste at a site are provided; such parties are protected from contribution suits by others involved at the site.

States

States are authorized to participate in the cleanup process, from initial site assessment to selecting and carrying out the remedial action, and negotiating with responsible parties.

To encourage states to establish new treatment and disposal facilities, SARA requires, as a condition of having its NPL sites cleaned up, that a state assure that it will have adequate disposal capacity for all hazardous wastes expected to be generated within the state for the next 20 years. This requirement went into effect in November 1989.

The law requires that, in lawsuits for personal injury or property damage due to exposure to hazardous substances, state statutes of limitations will not begin to run until the date when the individual knows, or should have known, that the personal injury was caused by the exposure to the hazardous substance. The purpose of this provision is to overcome situations (e.g., long-latency diseases such as cancer) where a party is barred from bringing a lawsuit because the statute of limitations expired before the injury was discovered.

Enforcement

EPA's principal enforcement tool is the authority to order a potentially responsible party (PRP) to take actions at a site that presents an imminent and substantial danger to the public health or welfare, or the environment from an actual or threatened hazardous substance release. Failure to obey an order may make a PRP

liable for triple punitive damages. CERCLA also gives EPA information-gathering powers, and authority to enter and inspect facilities, and to obtain samples of suspected hazardous substances. EPA can assess civil penalties of not more than $25,000 per day ($75,000 per day for subsequent violations) for failure to comply with its orders or for violating these and other CERCLA provisions, including (1) the requirement to notify authorities of a hazardous substance release; (2) destruction of records; (3) financial responsibility requirements; and (4) violating an order or consent decree concerning settlement agreements. A subpoena power can compel the attendance of witnesses and documents at administrative hearings. As noted in the section on liability, EPA may seek to recover its cleanup and enforcement costs from PRPs in order to reimburse the trust fund; the law also gives the United States a lien on the property.

In addition, CERCLA authorizes paying awards of up to $10,000 for information leading to criminal conviction for failure to give notice of a release, and for destroying or concealing records. The law also has provisions protecting employees who provide information to a state or the federal government regarding the administration or enforcement of the Superfund law.

A state may enforce any federal or state regulation to which a remedial action is required to conform. A consent decree (from a court) or a consent order (from EPA) implementing a settlement agreement must contain penalties for violations of the decree or order; it, too, is enforceable by either the state or federal government. Individuals may bring a citizen suit against anyone, including the United States, for violating CERCLA (or any order, agreement, etc., that has become effective pursuant to the act). A citizen suit may also be brought against EPA or any other federal agency for failure to perform a nondiscretionary duty required by the law.

Natural Resource Damages

In addition to imposing liability for cleanup costs, CERCLA requires PRPs to remedy the environmental harm they caused by restoring or replacing the injured natural resources, and by paying damages for the lost use of publicly owned resources, including the costs of performing the damage assessment. The law and its implementing regulations designate federal, state, and tribal authorities as trustees for the natural resources under their jurisdiction, and they are the only ones who can assert a claim for damages. Losses that were previously identified in an environmental impact statement are excluded, as are injuries to a natural resource that occurred before enactment of CERCLA. A claim must be brought within three years of its discovery and connection to the release.

Public Participation

The public is allowed to participate in the selection of a cleanup plan, and EPA is required to respond to public comments. Local groups can receive as much as $50,000 to obtain technical assistance in interpreting information related to a site.

Brownfields

EPA's brownfields program for addressing less seriously contaminated industrial and commercial hazardous waste sites was granted statutory authority in the Brownfields Revitalization and Environmental Restoration Act of 2001.[23] The agency initiated the program administratively in 1993 under the general authority of CERCLA, and Congress recognized it in earmarked funding within the Superfund appropriation since FY1997.[24] The 2001 enactment directs EPA to establish: (1) a program to provide grants to characterize, assess, and conduct planning at brownfield sites, and to perform targeted site assessments; and (2) a program to provide grants to capitalize revolving loan funds, or to be used directly to remediate one or more sites. The new law also authorizes grants to assist states in establishing or enhancing their voluntary cleanup programs.

Additionally, the Taxpayer Relief Act of 1997 (P.L. 105-34) allowed developers to deduct from their income the costs of environmental cleanup at certain brownfields in the same year that the expenditures are incurred. Previous Internal Revenue Service rules required cleanup costs to be spread over a number of years. Originally usable until December 31, 2000, the tax break was continued for one year by the Tax Relief Extension Act of 1999 (P.L. 106-170), and was extended through 2003 by the Consolidated Appropriations Act, 2001 (P.L. 106-554).

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U.S. Environmental Protection Agency. *Superfund: Building on the Past, Looking to the Future* (the 120-Day Study Action Plan). April 22, 2004. [http://www.epa.gov/superfund/news/benefits.htm]

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[23] Title II of P.L. 107-118, the Small Business Liability Relief and Brownfields Revitalization Act.

[24] P.L. 104-204; for FY1998: P.L. 105-65; for FY1999: P.L. 105-276; for FY2000: P.L. 106-74; for FY2001: P.L. 106-377.

Table 16. Major U.S. Code Sections of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and Amendments[25]

(codified generally as 42 U.S.C. 9601-9675)

42 U.S.C.	Section Title	Comprehensive Environmental Response, Compensation, and Liability Act (as amended)
Subchapter I —	Hazardous Substances Releases, Liability, Compensation	
9601	Definitions	Sec. 101
9602	Designations of additional hazardous substances/reportable quantities	Sec. 102
9603	Notification requirements respecting released substances	Sec. 103
9604	Response authorities	Sec. 104
9605	National contingency plan	Sec. 105
9606	Abatement actions	Sec. 106
9607	Liability	Sec. 107
9608	Financial responsibility	Sec. 108
9609	Civil penalties	Sec. 109
9610	Employee protection	Sec. 110
9611	Uses of fund	Sec. 111
9612	Claims procedure	Sec. 112
9613	Civil proceedings	Sec. 113
9614	Relationship to other law	Sec. 114
9615	Presidential delegation/assignment	Sec. 115
9616	Schedules	Sec. 116
9617	Public participation	Sec. 117
9618	High priority for drinking water supplies	Sec. 118
9619	Response Action Coordinators	Sec. 119
9620	Federal facilities	Sec. 120
9621	Cleanup standards	Sec. 121
9622	Settlements	Sec. 122
9623	Reimbursement to local governments	Sec. 123
9624	Methane recovery	Sec. 124
9625	Sec. 6921 (b)(3)(A)(i)	Sec. 125
9626	Indian tribes	Sec. 126

[25] NOTE: This table shows on the major *U.S. Code* sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

42 U.S.C.	Section Title	Comprehensive Environmental Response, Compensation, and Liability Act (as amended)
Subchapter II —	Hazardous Substance Response Trust Fund	
Part A —	Hazardous Substance Response Trust Fund	
9631	Repealed (Establishment of Hazardous Response Trust Fund)	Sec. 221
9632	Repealed (Liability of United States limited to the amount in trust fund)	Sec. 222
9633	Repealed (Administrative procedures)	Sec. 223
Part B —	Post-Closure Liability Trust Fund	
9641	Repealed (Post Closure Liability Trust Fund)	Sec. 232
Subchapter III —	Miscellaneous Provisions	
9651	Reports and studies	Sec. 301
9652	Effective dates; savings provision	Sec. 302
9653	(Repealed) Termination of authority to collect taxes	Sec. 303
9654	Applicability of Federal water pollution control funding	Sec. 304
9655	Legislative veto of rule or regulation	Sec. 305
9656	Transportation of hazardous substances; listing as hazardous material; liability for damage	Sec. 306a
9657	Separability of provisions	Sec. 308
9658	Actions under state law for damages from exposure to hazardous substances cases	Sec. 309
9659	Citizen suits	Sec. 310
9660	Research, development, and demonstration	Sec. 311
9660a	Grant program	Sec. 312
9661	Love Canal property acquisition	Sec. 312
9662	Limitation on contract and borrowing authority	(Sec. 3 of SARA)
Subchapter IV —	Pollution Insurance	
9671	Definitions	Sec. 401
9672	State laws; scope of chapter	Sec. 402
9673	Risk retention groups	Sec. 403
9674	Purchasing groups	Sec. 404
9675	Applicability of securities laws	Sec. 405

Emergency Planning and Community Right-to-Know Act[26]

The Emergency Planning and Community Right-to-Know Act (EPCRA, codified at 42 U.S.C. 11001-11050) was enacted in 1986 as Title III of the Superfund Amendments and Reauthorization Act (P.L. 99-499). EPCRA established state commissions and local committees to develop and implement procedures for coping with releases of hazardous chemicals, and mandated annual reporting to government officials on environmental releases of such chemicals by the facilities that manufacture or use them in significant amounts. EPA facilitates planning, enforces compliance when necessary, and provides public access to information about environmental releases of toxic chemicals.

Subtitle A — Emergency Planning and Notification

EPCRA established a national framework for EPA to mobilize local government officials, businesses, and other citizens to plan ahead for possible chemical accidents in their communities. Subtitle A requires local planning to respond to sudden releases of chemicals that might occur in the event of a spill, explosion, or fire. It ensures that responsible officials will know what hazardous chemicals are used or stored by local businesses and will be notified quickly in the event of an accident.

Under Section 301, each state is required to create a State Emergency Response Commission (SERC), to designate emergency planning districts, and to establish local emergency planning committees (LEPCs) for each district. Section 302 requires EPA to list extremely hazardous substances and to establish threshold planning quantities for each substance. Originally, Congress defined chemicals as "extremely hazardous substances" if they appeared on a list EPA published in November 1985 as Appendix A in "Chemical Emergency Preparedness Program Interim Guidance." However, EPA has authority to revise the list, and the threshold quantities of chemicals. Based on listing criteria, the intent appears to be to include only chemicals in quantities that could harm people exposed to them for only a short period of time. The law directs each facility to notify the LEPC for its district if it stores or uses any "extremely hazardous substance" in excess of its threshold planning quantity.

Section 303 directs LEPCs to work with facilities handling specified "extremely hazardous substances" to develop response procedures, evacuation plans, and training programs for people who will be the first to respond in the event of an accident. Upon request, facility owners and operators are required to provide an LEPC any additional information that it finds necessary to develop or implement an emergency plan.

Section 304 requires that facilities immediately report a sudden release of any "extremely hazardous substance" or any "hazardous substance" (a much broader

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[26] Prepared by Linda Schierow, Specialist in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

category of chemicals defined under CERCLA Section 102(a)) that exceeds the reportable quantity to appropriate state, local, and federal officials.[27] Releases of a reportable quantity of a "hazardous substance" also must be reported to the National Response Center under CERCLA Section 103(a). (See the section above on Superfund).

Subtitle B — Reporting Requirements

Subtitle B establishes various reporting requirements for facilities. The information collected may be used to develop and implement emergency plans, as well as to provide the public with general information about chemicals to which they may be exposed.

The Occupational Health and Safety Act of 1970 (OSHAct) requires most employers to provide employees with access to a material safety data sheet (MSDS) for any "hazardous chemical". This "right-to-know" law for workers aims to ensure that people potentially exposed to such chemicals have access to information about the potential health effects of exposure and how to avoid them. EPCRA, Section 311 requires facilities covered by OSHAct to submit an MSDS for each "hazardous chemical" or a list of such chemicals to the LEPC, the SERC, and the local fire department. EPA has authority to establish categories of health and physical hazards and to require facilities to list hazardous chemicals grouped by such categories in their reports. An MSDS need only be submitted once, unless there is a significant change in the information it contains. An MSDS must be provided in response to a request by an LEPC or a member of the public. "Hazardous chemicals" are defined by the Code of Federal Regulations, Title 29, at Section 1910.1200(c).[28]

EPCRA, Section 312 requires the same employers to submit annually an emergency and hazardous chemical inventory form to the LEPC, SERC, and local fire department. These forms must provide estimates of the maximum amount of the chemicals present at the facility at any time during the preceding year; estimates of the average daily amount of chemicals present; and the general location of the chemicals in the facility.[29] Information must be provided to the public in response to a written request. EPA is authorized to establish threshold quantities for chemicals below which facilities are not required to report.

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[27] Under CERCLA Section 102(a) a "hazardous substance" includes any "elements, compounds, mixtures, solutions, and substances which, when released into the environment may present a substantial danger to the public health or welfare or the environment." Included in this definition are substances listed under the authority of any of the major environmental statutes (see CERCLA Section 101(14)).

[28] EPCRA excepts foods, food additives, and other substances regulated by the Food and Drug Administration; solids in a manufactured item to the extent exposure does not occur; substances used for personal or household purposes; substances used in research or hospitals; and substances used in routine agricultural operations.

[29] EPCRA allows facilities to report aggregate amounts of chemicals with similar health and environmental effects. This is called "Tier I" information. However, chemical specific information ("Tier II") must be provided on request (under certain conditions) to a SERC, LEPC, fire department, or the public.

Section 313 mandates development of the Toxics Release Inventory (TRI), a computerized EPA database of "toxic chemical" releases to the environment by manufacturing facilities. It requires manufacturing facilities that manufacture, use, or process "toxic chemicals" to report annually to EPA on the amounts of each chemical released to each environmental medium (air, land, or water) or transferred off-site. EPA makes TRI data available in "raw" and summarized form to the general public. The public may obtain specific information (e.g., about a particular manufacturing facility) by submitting a request in writing to EPA. EPA distributes written and electronic, nationwide and state-by-state summaries of annual data. Raw data and summaries also are available over the Internet.[30]

EPCRA Section 313 generally requires a report to EPA and the state from each manufacturer with 10 or more employees who either uses 10,000 pounds or manufactures or processes 25,000 pounds of any "toxic chemical" during the reporting year. However, EPA may adjust these thresholds for classes of chemicals or categories of facilities. On November 30, 1994, EPA exempted from standard reporting requirements facilities that manufacture, process, or otherwise use up to 1 million pounds of a toxic chemical per year, if they have less than 500 pounds of reportable quantities of chemical per year (59 *Federal Register* 61488-61502, Nov. 30, 1994). The agency reduced the threshold that triggers reporting requirements for releases of certain persistent, bioaccumulative, and toxic chemicals in a rule issued October 29, 1999 (64 *Federal Register* 58665-58753). A rule reducing the threshold for reporting releases of lead compounds was issued January 17, 2001 (66 *Federal Register* 4500-4547).

EPCRA enumerates the following data reporting requirements for each covered chemical present at each covered facility:[31]

- whether it is manufactured, processed, or otherwise used, and the general category of use;
- the maximum amount present at each location during the previous year;
- treatment or disposal methods used; and
- amount released to the environment or transferred off-site for treatment or disposal.

EPCRA requires reporting by manufacturers, which the law defines as facilities in Standard Industrial Classification codes 20 through 39. The law authorized EPA to expand reporting requirements to additional industries. EPA promulgated a rule

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[30] See, for example, EPA's Envirofacts, at [http://www.epa.gov/enviro/html/efovw.html]; TOXNET, operated by the National Library of Medicine, at [http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TRI]; or Right-to-Know Net, a project of OMB Watch and the Unison Institute, at [http://rtk.net/].

[31] Congress added data submission requirements for manufacturers and processors of toxic substances when it enacted the Pollution Prevention Act of 1990 (see above).

May 1, 1997, requiring reports on toxic releases from seven additional industrial categories, including some metal mining, coal mining, commercial electric utilities, petroleum bulk terminals, chemical wholesalers, and solvent recovery facilities (62 *Federal Register* 23834).

The original statute specified 313 "toxic chemicals" or categories of chemicals for which reporting was required, but EPCRA gave EPA authority to add or delete chemicals from the list either on its own initiative or in response to citizen petitions. EPA has removed more than 15 and added roughly 350 chemicals (or categories) to the original list. The listing criteria specified in Section 313(d)(2) authorize EPA to add a chemical when it is "known to cause or can reasonably be anticipated to cause" —

- "significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases,"
- in humans cancer, birth defects, or serious or irreversible chronic health effects, or
- "a significant adverse effect on the environment of sufficient seriousness ..."

Subtitle C — General Provisions

Subtitle C contains various general provisions, definitions, and authorizations.

Trade Secrets. Section 322 authorizes reporting facilities to withhold the identity of a chemical if it is a trade secret and they follow procedures established by EPA.

Information for Health Professionals. Special provisions are made in Section 323 for informing health professionals of a chemical identity that has been withheld to protect confidential business information, if the information is needed to diagnose or treat a person exposed to the chemical.

Right to Know. Section 324 directs EPA, Governors, SERCS, and LEPCs to make emergency response plans, MSDSs, lists of chemicals, inventory forms, toxic chemical release forms, and follow up emergency notices available to the general public.

Enforcement. Section 325 establishes civil, administrative, and criminal penalties for non-compliance with mandatory provisions of the act. Citizens are given the authority to bring civil action against a facility, EPA, a Governor, or an SERC by Section 326.

Chemical Transport. Chemicals being transported or stored incident to transport are not subject to EPCRA requirements, according to Section 327.

Other Provisions. Section 328 authorizes EPA to issue regulations. Definitions are provided in Section 329. Section 330 authorizes to be appropriated "such sums as may be necessary" to carry out this title.

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U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics. 2002 Toxics Release Inventory: Public Data Release. EPA 260-R-04-003. Washington, DC, 2004.
[http://www.epa.gov/tri/tridata/tri02/index.htm]

Table 17. Major U.S. Code Sections of the Emergency Planning and Community Right-to-Know Act

(42 U.S.C. 11001-11050)

42 U.S.C.	Section Title	Emergency Planning and Community Right-to-Know Act, P.L. 99-499, Title III
Subtitle I —	Emergency Planning and Notification	Subtitle A
11001	Establishment of state commissions, planning districts, and local committees	Sec. 301
11002	Substances and facilities covered and notification	Sec. 302
11003	Comprehensive emergency response plans	Sec. 303
11004	Emergency notification	Sec. 304
11005	Emergency training and review of emergency systems	Sec. 305
Subchapter II —	Reporting Requirements	Subtitle B
11021	Material safety data sheets	Sec. 311
11022	Emergency and hazardous chemical Inventory forms	Sec. 312
11023	Toxic chemical release forms	Sec. 313
Subchapter III —	General Provisions	Subtitle C
11041	Relationship to other law	Sec. 321
11042	Trade secrets	Sec. 322
11043	Provision of information to health professions, doctors and nurses	Sec. 323
11044	Public availability of plans, data sheets, Forms and follow up notices	Sec. 324
11045	Enforcement	Sec. 325
11046	Civil actions	Sec. 326
11047	Exemption	Sec. 327
11048	Regulations	Sec. 328
11049	Definitions	Sec. 329
11050	Authorizations	Sec. 330

Toxic Substances Control Act[32]

The Toxic Substances Control Act (TSCA, 15 U.S.C. 2601 *et seq.*) authorizes the EPA to screen existing and new chemicals used in U.S. manufacturing and commerce to identify potentially dangerous products or uses that should be subject to federal control. Both naturally occurring and synthetic chemicals are subject to TSCA, with the exception of chemicals regulated under other federal laws concerning food, drugs, cosmetics, firearms, ammunition, pesticides, tobacco, or mixtures. As enacted, TSCA also included a provision requiring EPA to take specific measures to control the risks from polychlorinated biphenyls (PCBs) (Section 6(e)). Subsequently, three titles have been added to address concerns about other specific toxic substances — asbestos in 1986 (Title II, P.L. 99-519), radon in 1988 (Title III, P.L. 100-551), and lead in 1992 (Title IV, P.L. 102-550).

TSCA authorizes EPA to require manufacturers and processors of chemicals to conduct and report the results of tests to determine the effects of potentially dangerous chemicals on living things. Based on test results and other information, EPA must regulate the manufacture, importation, processing, distribution, use, and/or disposal of any chemical that presents an unreasonable risk of injury to human health or the environment. A variety of regulatory tools is available to EPA under TSCA ranging in severity from a total ban on production, import, and use to a requirement that a product bears a warning label at the point of sale. TSCA directs EPA to use the least burdensome option that can reduce risk to a level that is reasonable given the benefits provided by the chemical product or process.

Table 18. Toxic Substances Control Act and Major Amendments
(codified as 15 U.S.C. 2601-2671)

Year	Act	Public Law Number
1976	Toxic Substances Control Act	P.L. 94-469
1986	Asbestos Hazard Emergency Response Act	P.L. 99-519
1988	Radon Program Development Act	P.L. 100-551
1990	Radon Measurement	P.L. 101-508, § 10202
1990	Asbestos School Hazard Abatement Reauthorization Act	P.L. 101-637
1992	Residential Lead-Based Paint Hazard Reduction Act of 1992	P.L. 102-550

Background

Federal legislation to control toxic substances was originally proposed in 1971 by the President's Council on Environmental Quality. Its report, "Toxic Substances," defined a need for comprehensive legislation to identify and control chemicals whose manufacture, processing, distribution, use, and/or disposal was potentially dangerous and not adequately regulated under other environmental statutes. The House and Senate each passed bills in both the 92nd and 93rd Congresses (in 1972 and 1973,

[32] Prepared by Linda Schierow, Specialist in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

respectively), but controversies over the scope of chemical screening prior to commercial production and distribution, level of costs, and the relationship to other regulatory laws stalled final action. Episodes of environmental contamination — including the Hudson River and other waterways by PCBs, the threat of stratospheric ozone depletion from chlorofluorocarbon (CFC) emissions, and contamination of agricultural produce by polybrominated biphenyls (PBBs) in the state of Michigan — together with more exact estimates of the costs of imposing toxic substances controls, opened the way for final passage of the legislation. President Ford signed the TSCA into law on October 11, 1976.

TSCA (Title I) directs EPA to:

- require manufacturers and processors to conduct tests for existing chemicals if (1) their manufacture, distribution, processing, use, or disposal may present an unreasonable risk of injury to health or the environment; or they are to be produced in substantial quantities and the potential for environmental release or human exposure is substantial or significant; (2) existing data are insufficient to predict the effects of human exposure and environmental releases; and (3) testing is necessary to develop such data (Section 4);

- prevent future risks through pre-market screening and regulatory tracking of new chemical products (Section 5);

- control unreasonable risks already known, or as they are discovered for existing chemicals (Section 6); and

- gather and disseminate information about chemical production, use, and possible adverse effects to human health and the environment (Section 8).

Authorization for appropriations for these activities and a state grant program for control of toxic substances in the environment expired on September 30, 1983, although appropriations for these programs have continued.

Title I

Testing of Chemicals. Many chemicals, even some in widespread use, are not well characterized in terms of their potential health and environmental effects. One of the major goals of TSCA was to induce the development of test data by producers (i.e., manufacturers, importers, and processors) of chemicals in commerce. Section 4 of TSCA directs EPA to require the development of test data on existing chemicals when certain conditions prevail: (1) the manufacture, processing, distribution, use, or disposal of the chemical "may present an unreasonable risk," or (2) the chemical is produced in very large volume and there is a potential for a substantial quantity to be released into the environment or for substantial or significant human exposure. Under either condition, EPA must issue a rule requiring tests if (a) existing data are insufficient to resolve the question of safety, and (b) testing is necessary to develop the data.

Because there were more than 55,000 chemicals in commerce at the time EPA was to begin developing test rules, Congress established a special interagency committee to help EPA determine which chemicals should be considered first, and to coordinate testing needs and efforts among government agencies. At least every six months the Interagency Testing Committee (ITC) must consider candidate chemicals for inclusion on a list of substances that the ITC recommends to EPA for development and promulgation of test rules. TSCA directs the ITC to "designate" a subset of chemicals on the list for EPA action within 12 months. The list can contain no more than 50 "designated" chemicals at any time. When a chemical is designated, EPA has one year to respond by issuing a proposed test rule or a notice explaining why no testing is needed.

TSCA requires the ITC to consider the following factors when it makes listing decisions: (1) quantity of the substance to be manufactured, (2) quantity of the chemical in environmental releases, (3) number of people who will be exposed occupationally and the duration of exposure, (4) extent of non-occupational human exposure, (5) similarity of the chemical to any other chemical known to present an unreasonable risk, (6) existence of data concerning environmental or health effects of the chemical, (7) the quantity of information to be gained by testing, and (8) the availability of facilities and personnel for performing testing. Chemicals known or suspected to cause or contribute to cancer, gene mutations, or birth defects are to be assigned a higher priority. In response to information that indicates "there may be a reasonable basis to conclude that a chemical ... presents or will present a significant risk of serious or widespread harm to human beings from cancer, gene mutations, or birth defects," TSCA requires EPA action to prevent or reduce that risk or publication of a finding that the risk is not unreasonable.

Pre-manufacture Notification for New Chemicals or Uses. TSCA (Section 5) requires manufacturers, importers, and processors to notify EPA at least 90 days prior to producing or otherwise introducing a new chemical product into the U.S. Any information or test data that is known to, reasonably ascertainable by, or in possession of the notifier, and that might be useful to EPA in evaluating the chemical's potential adverse effects on human health or the environment, must be submitted to EPA at the same time. TSCA also requires EPA to be notified when there are plans to produce, process, or use an existing chemical in a way that differs significantly from previously permitted uses, so that EPA may determine whether the new use poses a greater risk of human or environmental exposure or effects than the former use.

EPA has 45 days after notification (or up to 90 days if it extends the period for good cause) to evaluate the potential risk posed by the chemical. If EPA determines that there is a reasonable basis to conclude that the substance presents or will present an unreasonable risk, the Administrator must promulgate requirements to protect adequately against such risk. Alternatively, EPA may determine that the proposed activity related to a chemical does not present an unreasonable risk; this decision may be based on the available data, or, when no data exist to document the effects of exposure, on what is known about the effects of chemicals in commerce with similar chemical structures and used in similar ways.

The purpose of EPA's screening procedure is to identify potential hazards, and control them before use of a chemical becomes widespread. If data are inadequate to make an informed judgment and (1) manufacture, processing, distribution in commerce, use, or disposal may present an unreasonable risk, or (2) a chemical is to be produced in substantial quantities, and the potential for environmental release or human exposure is substantial or significant, EPA may issue a proposed order to prohibit or limit such activities until sufficient data are submitted.

Although the legislative history of TSCA includes a presumption that testing of new products would take place before they were widely used, either as the chemical was developed, or as its markets grew, TSCA also forbids promulgation of blanket testing requirements for all new chemicals. This reflects concern that uniform testing requirements might stifle innovation in the chemical industry. Thus, EPA must decide which chemicals, or which categories of chemicals, warrant the costs of premarket testing. EPA reviews approximately 1,000 new chemical manufacturing notices annually.

Regulatory Controls for Hazardous Chemicals. TSCA requires EPA to regulate manufacturing, processing, distribution in commerce, use, or disposal of a chemical if it will present an unreasonable risk of injury to health or the environment, and the risk cannot be reduced to a sufficient degree under another federal law administered by EPA. The alternative means available to EPA for controlling chemical hazards that present unreasonable risks are specified in Section 6 of TSCA. EPA has the authority to:

- prohibit or limit the amount of production or distribution of a substance in commerce;
- prohibit or limit the production or distribution of a substance for a particular use;
- limit the volume or concentration of the chemical produced;
- prohibit or regulate the manner or method of commercial use;
- require warning labels and/or instructions on containers or products;
- require notification of the risk of injury to distributors and, to the extent possible, consumers;
- require record-keeping by producers;
- specify disposal methods; and
- require replacement or repurchase of products already distributed.

EPA also may impose any of these requirements in combination, or for a specific geographical region. However, EPA is required by TSCA to regulate only "to the extent necessary to protect adequately" against a risk, and to use the "least burdensome" regulatory approach, even in controlling unreasonable risks.

Information Gathering. Section 8 of TSCA requires EPA to develop and maintain an inventory of all chemicals, or categories of chemicals, manufactured or processed in the United States. The first version of this inventory identified approximately 55,000 chemicals in commerce in 1979. All chemicals not on the inventory are, by definition, "new" and subject to the notification provisions of Section 5. These chemicals must be added to the inventory if they enter commerce. Chemicals need not be listed if they are only produced in very small quantities for purposes of experimentation or research.

To aid EPA in its duties under TSCA, the agency was granted considerable authority to collect information from industries. EPA may require maintenance of records and reporting of: chemical identities, names, and molecular structures; categories of use; amounts manufactured and processed for each category of use; descriptions of byproducts resulting from manufacture, processing, use, and disposal; environmental and health effects; number of individuals exposed; number of employees exposed and the duration of exposure; and manner or method of chemical disposal. In addition, manufacturers, processors, and distributors of chemicals must maintain records of significant adverse reactions to health or the environment alleged to have been caused by the substance or mixture. Records of adverse effects on the health of employees shall be retained for 30 years from the date of reporting. Industry also must submit lists and copies of health and safety studies. Studies showing adverse effects previously unknown must be submitted to EPA as soon as they are completed or discovered.

Imminent Hazards. Section 7 provides EPA authority to take emergency action through the district courts to control a chemical substance or mixture which presents an imminent and unreasonable risk of serious widespread injury to health or the environment.

Relation to Other Laws. Section 9 allows EPA to refer cases of chemical risk to other federal agencies with the authority to prevent or reduce the risk. For statutes under EPA's jurisdiction, TSCA gives the Administrator discretion to decide if a risk can best be handled under the authority of TSCA.

Enforcement and Judicial Review. Section 11 authorizes EPA to inspect any facilities subject to TSCA requirements and to issue subpoenas requiring attendance and testimony of witnesses, production of reports and documents, answers to questions and other necessary information. Section 13 mandates TSCA enforcement at the national borders by the Treasury Department.

Section 15 identifies acts prohibited under TSCA, while Section 16 describes penalties for acts violating these prohibitions, as well as recourse available to anyone accused of such violations. Section 16 authorizes civil penalties, not to exceed $25,000 per violation per day, and affords the defendant an opportunity to request a hearing before an order is issued and to petition for judicial review of an order after it is issued. Criminal penalties also are authorized for willful violations. Section 17 provides jurisdiction to U.S. district courts in civil actions to enforce TSCA Section 15 by restraining or compelling actions that violate or comply with it, respectively. Chemicals may be seized and condemned if their manufacture, processing, or distribution violated the act.

Section 19 authorizes any person to file a petition for judicial review of specified rules within 60 days of issuance under TSCA. The court is directed to set aside specified rules if they are not supported by substantial evidence in the rulemaking record taken as a whole.

Section 20 authorizes civil suits by any person against any person in violation of the act. It also authorizes suits against EPA to compel performance of nondiscretionary actions under TSCA. Section 21 provides the public with the right to petition for the issuance, amendment, or repeal of a rule requiring toxicity testing of a chemical, regulation of the chemical, or reporting.

Confidential Business Information. Section 14 provides broad protection of proprietary confidential information about chemicals in commerce. Disclosure by EPA employees of such information generally is not permitted, except to other federal employees, or when necessary to protect health or the environment. Data from health and safety studies of chemicals is not protected unless its disclosure would reveal a chemical process or chemical proportion in a mixture. Wrongful disclosure of confidential data by federal employees is prohibited, and may result in criminal penalties.

Chemical Categories. Section 26 allows EPA to impose regulatory controls on categories of chemicals, rather than on a case-by-case basis. However, EPA cannot regulate a group merely because it is composed of new chemical substances.

Other Provisions. TSCA Section 10 directs EPA to conduct and coordinate among federal agencies research, development, and monitoring that is necessary to the purposes of the act.

Section 12 excludes chemical products manufactured for export from TSCA requirements except for reporting and record keeping requirements in Section 8.

State actions that are preempted by TSCA are described in Section 18.

Section 22 waives compliance when in the interest of national defense.

Section 23 provides protection of employees who assist in carrying out the provisions of the act (i.e., “whistle-blowers”).

The potential effects of TSCA rules on employment must be monitored by EPA, according to Section 24.

Section 25 mandates study of the need for indemnification of people affected by federal laws administered by EPA and of the feasibility of establishing a standard classification system for chemical substances and of storing and retrieving information about them.

Section 26 authorizes data sharing and cooperative action to facilitate TSCA implementation between EPA and other federal agencies. It also authorizes collection of fees for EPA processing of data submitted in response to an order under Section 4 or 5. EPA is directed to establish an office to assist the regulated

community. The agency also must establish a procedure to ensure disclosure of financial interests in the regulated community by EPA employees. Final orders issued under TSCA must contain a statement of basis and purpose. Finally, Section 26 established within EPA a new Assistant Administrator for Toxic Substances.

TSCA Section 27 authorizes research and development of test methods for chemicals by the Public Health Service in cooperation with EPA.

Grants to states are authorized by Section 28 to establish and operate programs to prevent or eliminate unreasonable risks to health or the environment.

Section 29 authorized appropriations through 1983.

An annual report is mandated by Section 30.

Title II (Asbestos in Buildings)

Growing public concern about the presence of potentially hazardous asbestos in buildings, especially in schools, led to congressional efforts to address this problem. Title II of TSCA, the Asbestos Hazard Emergency Response Act (AHERA), was enacted in 1986 (P.L. 99-519) and amended in July 1988 (P.L. 100-368). It required EPA to set standards by October 1987, for responding to the presence of asbestos in schools. The standards, set at levels adequate to protect public health and the environment, identify appropriate response actions that depend on the physical condition of asbestos. Schools, in turn, were required to inspect for asbestos-containing material, and to develop and implement a plan for managing any such material. Plans for managing asbestos were to be submitted by schools before May 1989, and implementation was to begin by July 1989. The law contains no deadlines for schools to complete implementation.

Title II requires asbestos contractors and analytical laboratories to be certified, and schools to use certified persons for abatement work. Training and accreditation requirements also apply to inspectors, contractors, and workers performing asbestos abatement work in all public and commercial buildings. EPA may award training grants to nonprofit organizations for asbestos health and safety programs. However, authorization of appropriations for this grant program expired September 30, 1995. Other Title II requirements (such as mandates that buildings be inspected for asbestos) have not been extended to non-school buildings.

To enforce requirements, TSCA authorizes EPA to take emergency action with respect to schools if school officials do not act to protect children. The act also authorizes citizen action with respect to asbestos-containing material in a school and to compel action by EPA, either through administrative petition or judicial action. Civil penalties not to exceed $5,000 are authorized for violations such as failing to conduct an inspection or to develop a school management plan.

Concern about how schools would pay for required actions was addressed in separate legislation (the Asbestos School Hazard Abatement Act of 1984, or ASHAA, P.L. 98-377). It established a program offering grants and interest-free loans to schools with serious asbestos problems and demonstrated financial need.

Although EPA for several years did not request funding for this program, Congress appropriated funds. Authorization of appropriations for this program expired September 30, 1995, and Congress has not appropriated funds since FY1993; a total of $382 million in grant and loan funds were appropriated from FY1984 through FY1993. Repaid ASHAA loans are returned to an Asbestos Trust Fund, established in TSCA Title II, to become a dedicated source of revenues for future asbestos control projects.

Title III (Radon Programs)

In October 1988 Congress amended TSCA by adding Title III — Indoor Radon Abatement (15 U.S.C. 2661 *et seq.*, P.L. 100-551). The basic purpose of Title III is to provide financial and technical assistance to the states that choose to support radon monitoring and control; neither monitoring nor abatement of radon is required by the act.

Title III required EPA to update its pamphlet "A Citizen's Guide to Radon," to develop model construction standards and techniques for controlling radon levels within new buildings, and to provide technical assistance to states. EPA is to provide technical assistance by: establishing an information clearinghouse; publishing public information materials; establishing a national database of radon levels detected, organized by state; providing information to professional organizations representing private firms involved in building design and construction; submitting to Congress a plan for providing financial and technical assistance to states; operating cooperative projects with states; conducting research to develop, test, and evaluate radon measurement methods and protocols; developing and demonstrating new methods of radon measurement and mitigation, including methods that are suitable for use in nonresidential child care facilities; operating a voluntary program to rate radon measurement and mitigation devices and methods and the effectiveness of private firms and individuals offering radon-related services; and designing and implementing training seminars. The proficiency rating program and certification for training programs collect fees for service, and therefore, are meant to be self-supporting, but Congress authorized $1,500,000 to be appropriated to establish these programs. Congress authorized $3,000,000 to be appropriated for each of three years beginning in 1989 for the other provisions of Sections 303, 304, and 305.

A matching grant program was established for the purpose of assisting states in developing and implementing programs for radon assessment and mitigation. For this program, $30 million was authorized to be appropriated over three years, with funds targeted to states or projects that made efforts to ensure adoption of EPA's model construction standards and techniques for new buildings; gave preference to low-income persons; or addressed serious and extensive radon contamination problems or had the potential to reduce risk or to develop innovative assessment techniques, mitigation measures, or management approaches.

Other sections of Title III require EPA to: conduct a study to determine the extent of radon contamination in schools; identify and list areas of the U.S. with a high probability of having high levels of indoor radon; make grants or cooperative agreements to establish and operate at least three regional radon training centers; and

provide guidance to federal agencies on radon measurement, risk assessment, and remedial measures.

All authorizations for appropriations specific to this title expired September 30, 1991, although appropriations have continued.

Title IV (Lead Exposure Reduction)

The 102nd Congress added Title IV to TSCA when it enacted the Residential Lead-Based Paint Hazard Reduction Act of 1992 as Title X in the Housing and Community Development Act of 1992 (P.L. 102-550). Title IV aims to accelerate federal efforts to reduce risks to young children who daily are exposed to lead-based paint in their homes. In addition, it is expected to stimulate development of lead inspection and hazard abatement services in the private sector, while ensuring that the services provided and any products employed are reliable and effective in reducing risk. To these ends, Title IV directs EPA:

- to promulgate definitions of lead-contaminated dust, lead-contaminated soil, and lead-based paint hazards;
- to ensure that people engaged in detection and control of lead hazards are properly trained and that contractors are certified;
- to publish requirements for the accreditation of training programs for workers;
- to develop criteria to evaluate the effectiveness of commercial products used to detect or reduce risks associated with lead-based paint;
- to establish protocols, criteria, and minimum performance standards for laboratory analysis of lead in paint films, soil, and dust;
- to establish a program to certify laboratories as qualified to test substances for lead content; and
- to publish and distribute to the public a list of certified or accredited environmental sampling laboratories.

Title IV explicitly applies these requirements to federal facilities and activities that may create a lead hazard.

In addition, Congress directed EPA to conduct a study of lead hazards due to renovation and remodeling activities that may incidentally disturb lead-based paint. EPA is required to promulgate guidelines for the renovation and remodeling of buildings or other structures when these activities might create a hazard.

Title IV directs EPA to establish a clearinghouse and hotline to distribute information about the hazards of lead-based paint, how to avoid exposure and reduce risk, and new technologies for removing or immobilizing lead-based paint. In addition, Congress mandated development of: a lead hazard information pamphlet;

public education and outreach activities for health professionals, the general public, homeowners, landlords, tenants, consumers of home improvement products, the residential real estate industry, and the home renovation industry; and information to be distributed by retailers of home improvement products to provide consumers with practical information related to the hazards of renovation where lead-based paint may be present.

Title IV authorizes states to propose programs to train and certify inspectors and contractors engaged in the detection or control of lead-based paint hazards. States also may develop the required informational pamphlets. TSCA requires EPA to promulgate a model state program that may be adopted by any state. Congress gave EPA the authority to approve or disapprove authorization for state proposals and to provide grants for states to develop and implement authorized programs. A federal program must be established, administered, and enforced by EPA in each state without an authorized program.

The Department of Health and Human Services also has responsibilities under Title IV of TSCA. It mandates a study by the Centers for Disease Prevention and Control (CDC) and the National Institute for Environmental Health Sciences to determine the sources of lead exposure to children who have elevated lead levels in their bodies. The National Institute for Occupational Safety and Health is directed to study ways of reducing occupational exposure to lead during abatement activities.

The act established a rule-making docket to ensure the availability to the general public of all documents submitted to agencies that are relevant to regulatory decisions pursuant to this legislation. The docket is required to include the drafts of all proposed rules submitted by EPA to the President's Office of Management and Budget (OMB), written comments on the drafts, and written responses to comments. In addition, the agency must provide an explanation for any major change to a proposed rule that appears in the final rule, and such changes may not be made based on information not filed in the docket. Dockets are required to be established in each EPA regional office.

Congress authorized to be appropriated "such sums as may be necessary" for TSCA Title IV.

In addition to amending TSCA, Title X of the Housing and Community Development Act of 1992 authorized grants to states for risk assessments and lead-based paint removal and immobilization in private housing for low-income residents; establishing state training, certification, or accreditation programs for inspectors and abatement contractors; and research at the Department of Housing and Urban Development (HUD). Authorization for appropriations for these grants expired September 30, 1994, but appropriations have continued. Title X directed HUD to establish guidelines for federally supported work involving risk assessments, inspections, interim controls, and abatement of lead-based paint hazards. In addition, the National Institute for Occupational Safety and Health (NIOSH) was provided $10 million for training people who remove or immobilize paint.

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—— Part II. *Environmental Law Reporter*, v. 24, June 1994, pp. 10285-10304.

—— Part III. *Environmental Law Reporter*, v. 24, July 1994, pp. 10357-10405.

Table 19. Major U.S. Code Sections of the Toxic Substances Control Act[33]

(codified as 15 U.S.C. 2601-2692)

15 U.S.C.	Section Title	Toxic Substances Control Act (as amended)
Subtitle I —	Control of Toxic Substances	
2601	Findings, policy and intent	Sec. 2
2602	Definitions	Sec. 3
2603	Testing of chemical substances and mixtures	Sec. 4
2604	Manufacturing and processing notices	Sec. 5
2605	Regulation of hazardous chemical substances and mixtures	Sec. 6
2606	Imminent hazards	Sec. 7
2607	Reporting and retention of information	Sec. 8
2608	Relationship to other federal laws	Sec. 9
2609	Research, development, collection, dissemination, and utilization of data	Sec. 10
2610	Inspections and subpoenas	Sec. 11
2611	Exports	Sec. 12
2612	Entry into customs territory of the United States	Sec. 13
2613	Disclosure of data	Sec. 14
2614	Prohibited acts	Sec. 15
2615	Penalties	Sec. 16
2616	Specific enforcement and seizure	Sec. 17
2617	Preemption	Sec. 18
2618	Judicial	Sec. 19
2619	Citizens' civil actions	Sec. 20
2620	Citizens' petitions	Sec. 21
2621	National defense waiver	Sec. 22
2622	Employee protection	Sec. 23
2623	Employment effects	Sec. 24
2624	Studies	Sec. 25
2625	Administration	Sec. 26
2627	Development and evaluation of test methods	Sec. 27
2628	Authorization of appropriations	Sec. 28
2629	Annual report	Sec. 29
Subtitle II —	Asbestos Hazard Emergency Response	
2641	Congressional findings and purpose	Sec. 201
2642	Definitions	Sec. 202
2643	EPA regulations	Sec. 203
2644	Requirements if EPA fails to promulgate regulations	Sec. 204

[33] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

15 U.S.C.	Section Title	Toxic Substances Control Act (as amended)
2645	Submission to state governor	Sec. 205
2646	Contractor and laboratory accreditation	Sec. 206
2647	Enforcement	Sec. 207
2648	Emergency authority	Sec. 208
2649	State and federal law	Sec. 209
2650	Asbestos contractors and local educational agencies	Sec. 210
2651	Public protection	Sec. 211
2652	Asbestos ombudsman	Sec. 212
2653	EPA study of asbestos-containing material in public buildings	Sec. 213
2654	Transition rules	Sec. 214
2655	Worker protection	Sec. 215
Subtitle III —	Indoor Radon Abatement	
2661	National goal	Sec. 301
2662	Definitions	Sec. 302
2663	EPA's citizen guide	Sec. 303
2664	Model construction standards and techniques	Sec. 304
2665	Technical assistance to states for radon programs	Sec. 305
2666	Grant Assistance to states for radon programs	Sec. 306
2667	Radon in schools	Sec. 307
2668	Regional radon training centers	Sec. 308
2669	Study of radon in federal buildings	Sec. 309
2670	Regulations	Sec. 310
2671	Additional authorizations	Sec. 311
Subtitle IV —	Lead Exposure Reduction	
2681	Definitions	Sec. 401
2682	Lead-based paint activities training and certification	Sec. 402
2683	Identification of dangerous levels of lead	Sec. 403
2684	Authorized state programs	Sec. 404
2685	Lead abatement and measurement	Sec. 405
2686	Lead hazard information pamphlet	Sec. 406
2687	Regulations	Sec. 407
2688	Control of lead-based paint at federal facilities	Sec. 408
2689	Prohibited acts	Sec. 409
2690	Relationship to other federal law	Sec. 410
2691	General provisions relating to administrative proceedings	Sec. 411
2692	Authorization of appropriations	Sec. 412

Pesticide Laws[34]

The Environmental Protection Agency (EPA) is responsible for implementing federal pesticide policies under two statutes: the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA),[35] governing the sale and use of pesticide products within the United States; and the Federal Food, Drug, and Cosmetic Act (FFDCA), which limits pesticide residues on food in interstate commerce (including imports). Pesticides are broadly defined in FIFRA Section 2(u) as chemicals and other products used to kill, repel, or control pests. Familiar examples include pesticides used to kill insects and weeds that can kill, reduce the yield, and sometimes harm the quality of agricultural crops, ornamental plants, forests, wooden structures, and also pastures. But the broad definition of "pesticide" in FIFRA also applies to products with less familiar "pesticidal uses." For example, substances used to control mold, mildew, algae, and other nuisance growths on equipment, in surface water, or on stored grains are pesticides. The term also applies to disinfectants and sterilizing agents, animal repellents, rat poison, and many other substances. EPA estimates that as of May 2003, there were about 19,107 pesticide products currently in use.[36] These all are regulated under FIFRA, but approximately 6,502 pesticide products used in food production also are regulated under the FFDCA, as discussed below.

FIFRA directs EPA to restrict the use of pesticides as necessary to prevent unreasonable adverse effects on people and the environment, taking into account the costs and benefits of various pesticide uses. FIFRA requires EPA to regulate the sale and use of pesticides in the United States through registration and labeling.[37] The act prohibits sale of any pesticide in the United States unless it is registered and labeled to indicate approved uses and restrictions. It is a violation of the law to use a pesticide in a manner that is inconsistent with the label instructions. EPA registers each pesticide product for each approved use. For example, a product may be registered for use on green beans to control mites, as a seed treatment for cotton, and as a treatment for structural cracks. In addition, FIFRA requires EPA to reregister older pesticides based on new data that meet current regulatory and scientific standards. Establishments that manufacture or sell pesticide products must register with EPA. Facility managers are required to keep certain records and to allow inspections by federal or state regulatory officials.

For the approximately 582 pesticides (i.e., active ingredients) registered for use in food production, the FFDCA Section 408 authorizes EPA to establish allowable residue levels (called tolerances) that ensure that human exposure to the pesticide

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[34] Prepared by Linda Schierow, Specialist in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division.

[35] FIFRA also is known as the Act of June 25, 1947.

[36] Beech, James L. U.S. EPA, Office of Pesticide Programs. Personal communication, May 13, 2003.

[37] Exceptions are noted in 40 CFR 152.20, 152.25, and 152.30.

ingredients in food and animal feed will be "safe".[38] A "safe" tolerance is defined as a level at which there is "a reasonable certainty of no harm" from the exposure. Under FFDCA, foods with a residue of a pesticide ingredient for which there is no tolerance established, or with a residue level exceeding an established tolerance limit, are declared "unsafe" and "adulterated"; such foods cannot be sold in interstate commerce or imported to the United States. Pesticides may not be registered under FIFRA for use on food unless tolerances (or exemptions) have been established under the FFDCA.

History of Federal Pesticide Law

Tables 20 and **21** summarize the history of FIFRA and FFDCA, respectively.

FIFRA. Federal pesticide legislation was first enacted in 1910. It aimed to reduce economic exploitation of farmers by manufacturers and distributors of adulterated or ineffective pesticides. Congress did not address the potential risks to human health posed by pesticide products until it enacted FIFRA in 1947. The U.S. Department of Agriculture (USDA) was responsible for administering the pesticide statutes during this period. However, responsibility was shifted to the EPA when that agency was created in 1970. Broader congressional concerns about long- and short-term toxic effects of pesticide exposure on people who applied pesticides (applicators), wildlife, nontarget insects and birds, and on food consumers, subsequently led to a complete revision of FIFRA in 1972. The 1972 law completely replaced the original 1947 law, and is the basis of current federal policy. Substantial changes were made in 1988 (P.L. 100-532) to accelerate the reregistration process, and again in 1996 (P.L. 104-170). The 1996 amendments facilitate registration of pesticides for special (so-called "minor") uses, reauthorize collection of fees to support reregistration, and require coordination of regulations implementing FIFRA and the FFDCA. See **Table 22** for a listing of current provisions in FIFRA.

Authorization for appropriations for FIFRA expired on September 31, 1991, although appropriations bills have continued to provide funding to implement the law. The Food Quality Protection Act of 1996 did not reauthorize FIFRA. However, authority in FIFRA to issue and enforce regulations, is, for the most part, permanent, and is not affected by the lack of authorization.

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[38] Ingredients in pesticide products are categorized as active or inert. Active ingredients are those that are intended to control the pest, while inert ingredients are used to deliver the active ingredients effectively to the pest. Inert ingredients often are solvents or surfactants and often comprise the bulk of the pesticide product. Some inerts are known to be toxic, and some are known to be harmless, but EPA lists most in the category "inerts of unknown toxicity".

Table 20. Federal Insecticide, Fungicide, and Rodenticide Act and Amendments

(codified generally as 7 U.S.C. 136-136y)

Year	Act	Public Law Number
1947	Federal Insecticide, Fungicide, and Rodenticide Act	P.L. 80-104
1964	Federal Insecticide, Fungicide, and Rodenticide Act Amendments	P.L. 88-305
1972	Federal Environmental Pesticide Control Act	P.L. 92-516
1975	Federal Insecticide, Fungicide, and Rodenticide Act Extension	P.L. 94-140
1978	Federal Pesticide Act of 1978	P.L. 95-396
1980	Federal Insecticide, Fungicide and Rodenticide Act Amendments	P.L. 96-539
1988	Federal Insecticide, Fungicide, and Rodenticide Amendments of 1988	P.L. 100-532
1990	Food, Agriculture, Conservation, and Trade Act of 1990	P.L. 101-624
1991	Food, Agriculture, Conservation and Trade Amendments of 1991	P.L. 102-237
1996	Food Quality Protection Act (FQPA) of 1996	P.L. 104-170

Source: Congressional Research Service.

Note: The current FIFRA statute was established by P.L. 92-516, which completely replaced (by amendment) the original 1947 legislation.

FFDCA. The original Federal Food, Drug, and Cosmetic Act of 1938 (FFDCA) established the structure of the current law. With respect to food safety, it required the Food and Drug Administration (then a part of the U.S. Department of Agriculture) to set maximum residue levels (tolerances) for unavoidable poisonous substances in food. Congress acted to protect consumers from pesticide residues on food in 1954 by adding a new Section 408 to the FFDCA. It directed FDA to set residue tolerances for all pesticides in *raw* agricultural commodities.

Congress expanded the requirement for tolerances in the Food Additives Amendment of 1958, which added Section 409, directing FDA to set tolerances for food additives, including pesticide residues in *processed* foods. Section 409 also forbade the addition to food of any additive (including pesticide residue), if it was found to be a potential cancer-causing agent. This provision is referred to as the Delaney Clause. In 1970, authority to establish tolerances for pesticide residues was transferred to the newly formed EPA. FDA (now in the Department of Health and Human Services) retained responsibility for enforcement of tolerances in food that is imported or sold across state boundaries. In 1996, Congress substantially revised requirements for pesticide residue tolerance setting in the Food Quality Protection Act (FQPA). The FQPA redefined terms so that pesticide residues in processed foods were no longer regulated as food additives, and therefore no longer were subject to the Delaney Clause. The FQPA also established a new safety standard of a "reasonable certainty of no harm" from exposure to pesticides.

The Act of July 22, 1954 authorized such sums as may be necessary to carry out this FFDCA section (21 U.S.C. 346b).

Table 21. Federal Food, Drug, and Cosmetic Act, Section 408, and Amendments

(codified generally as 21 U.S.C.346a)

Year	Act	Public Law Number
1938	Federal Food, Drug, and Cosmetic Act	Act of June 25, 1938
1954	Federal Food, Drug, and Cosmetic Act Amendments	Act of July 22, 1954
1958	Food Additive Amendments of 1958 (including the Delaney Clause)	P.L. 85-929
1996	Food Quality Protection Act of 1996	P.L. 104-170

Source: Congressional Research Service.

Registration of Pesticide Products

When pesticide manufacturers apply to register a pesticide active ingredient, pesticide product, or a new use of a registered pesticide under FIFRA Section 3, EPA requires them to submit scientific data on toxicity and behavior in the environment. EPA may require data from any combination of more than 100 different tests, depending on the potential toxicity of active and inert ingredients and degree of exposure. To register a pesticide use on food, EPA also requires applicants to identify analytical methods that can be used to test food for residues of active ingredients, certain inert ingredients, and their breakdown products and to determine the amount of residue that could remain on crops, as well as on (or in) food products, assuming that the pesticide product is applied according to the manufacturers' recommended rates and methods.

Based on the data submitted, EPA determines whether and under what conditions the proposed pesticide use would present an unreasonable risk to human health or the environment. If the pesticide is proposed for use on a food crop, EPA also determines whether a "safe" level of pesticide residue, called a "tolerance," can be established under the Federal Food, Drug, and Cosmetic Act. A tolerance must be established before a pesticide registration may be granted for use on food crops. If registration is granted, the agency specifies the approved uses and conditions of use, including safe methods of pesticide storage and disposal, which the registrant must explain on the product label. FIFRA requires that federal regulations for pesticide labels pre-empt state, local, and tribal regulations. Use of a pesticide product in a manner inconsistent with its label is prohibited.

EPA may classify and register a pesticide product for general or for restricted use. Products known as "restricted-use pesticides" are those judged to be more dangerous to the applicator or to the environment. Such pesticides can be applied only by people who have been trained and certified. Individual states and Indian tribes generally are responsible for training and certifying pesticide applicators.

FIFRA Section 3 also allows "conditional," temporary registrations if (1) the proposed pesticide ingredients and uses are substantially similar to currently registered products and will not create additional significant environmental risks; (2) an amendment is proposed for additional uses of a registered pesticide, and sufficient data are submitted indicating that there is no significant additional risk; or (3) data requirements for a new active ingredient require more time to generate than normally allowed, and use of the pesticide during the period will not cause any unreasonable adverse effect on the environment and will be in the public interest.

FIFRA-FFDCA Coordination

EPA has long coordinated pesticide registrations for food uses under FIFRA with tolerance setting under the FFDCA. The Food Quality Protection Act of 1996 (FQPA; P.L. 104-170) codified this policy. Thus, if EPA revokes a residue tolerance under FFDCA, it cancels the FIFRA pesticide registration for that food use. Similarly, if a pesticide registration for use on a food crop is canceled, EPA also cancels the residue tolerance for food. However, just as FIFRA allows continued use of remaining pesticide stocks after a registration is canceled, FFDCA allows continued commerce in commodities legally treated with a pesticide. Thus, EPA does not immediately revoke the tolerance for the pesticide residue when it cancels the corresponding registration.

Tolerance Setting

Any person who has registered a pesticide may petition EPA proposing establishment of a tolerance or an exemption for that pesticide to permit its use on food-related crops.[39] Tolerance petitions must include information about pesticide application rates, measured concentrations of pesticide residues on the food after the pesticide has been applied according to directions on its label, and safety of pesticide use on food crops. The FFDCA requires EPA to respond to each petition by establishing a tolerance or exempting the pesticide from the requirement. If the pesticide will not leave residues above an established safe level, EPA will register the pesticide for use on that food product and set the tolerance level by issuing a regulation. EPA tolerances for pesticide residues preempt state and local restrictions on food, if the state and local restrictions are based on lower residue levels. States may petition for an exception if the EPA-set residue level threatens public health.

The FFDCA, Section 408, as amended, requires EPA to assess safety in terms of total exposure to the pesticide (that is, to the concentration of pesticide allowed by the tolerance, together with all other dietary and non-food exposures for which there is reliable information) as well as to other pesticides that have the same toxic effects on people. No quantitative standard of safety is established by law, but the Committee on Commerce noted in its report on the bill that became the FQPA that EPA should continue setting standards to ensure safety as it had in the past:

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[39] That is, use on food crops, animal feed crops, or food products directly (e.g., grains, fruits, or vegetables after harvest).

> ... the Committee expects that a tolerance will provide a 'reasonable certainty of no harm' if the Administrator determines that the aggregate exposure to the pesticide chemical residue will be lower by an ample margin of safety than the level at which the pesticide chemical residue will not cause or contribute to any known or anticipated harm to human health. The Committee further expects, based on discussions with the Environmental Protection Agency, that the Administrator will interpret an ample margin of safety to be a 100-fold safety factor applied to the scientifically determined 'no observable effect' level when data are extrapolated from animal studies.[40]

In determining a safe level, the FFDCA directs EPA to take into account many factors, including available information on dietary exposure to pesticides among infants and children. FQPA strictly limited the nature and influence of benefits considered in tolerance setting under Section 408 of the FFDCA. As amended, Section 408 allows EPA to maintain or modify existing tolerances (but not to establish new tolerances) at higher than "safe" residue levels *only if* the pesticide use avoids other greater risks to consumers, or is necessary to avoid significant disruption in domestic production of an adequate, wholesome, and economical food supply. Such higher tolerance levels may be set only for pesticides that are potential carcinogens (or have some other health effect) for which there is no known level of exposure at which no harm is anticipated (known as a non-threshold effect).

The higher tolerance level allowed for such pesticide residues must be "safe" for infants and children, as well as with respect to health effects for which there is a known threshold (that is, a level below which exposure is known to be harmless). The higher cancer (or other non-threshold) risk posed by the tolerance on an annual basis may not be more than 10 times the risk at a "safe" level of exposure and not more than twice the risk of a "safe" level over a lifetime.

For non-threshold effects, the House Commerce Committee provided additional guidance for establishing a level of residue that should be considered "safe."

> In the case of a nonthreshold effect which can be assessed through quantitative risk assessment, such as a cancer effect, the Committee expects, based on its understanding of current EPA practice, that a tolerance will be considered to provide a 'reasonable certainty of no harm' if any increase in lifetime risk, based on quantitative risk assessment using conservative assumptions, will be no greater than 'negligible.' It is the Committee's understanding that, under current EPA practice, ... EPA interprets a negligible risk to be a one-in-a-million lifetime risk. The Committee expects the Administrator to continue to follow this interpretation.[41]

The "safe" standard applies to both raw and processed foods, and requires EPA to consider cumulative and aggregate exposure to pesticides in food, drinking water, air, and consumer products. Congress directed EPA to reevaluate all existing tolerances against this standard before August 2006.

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[40] U.S. House, Committee on Commerce, *Food Quality Protection Act of 1996*, H.Rept. 104-669, part 2, 104th Congress, 2nd sess., 1996, p. 6.

[41] Ibid.

FFDCA directs the FDA in the Department of Health and Human Services and USDA to monitor pesticide residue levels in food in interstate commerce and to enforce tolerances through their food inspection programs. USDA is responsible for inspecting meat and poultry; FDA inspects all other foods. States also may monitor pesticide residues in food sold within their jurisdictions.

Public Disclosure, Exclusive Use, and Trade Secrets

FIFRA Section 3 directs EPA to make the data submitted by the applicant for pesticide registration publicly available within 30 days after a registration is granted. However, applicants may claim certain data are protected as trade secrets under FIFRA, Section 10. If EPA agrees that the data are protected, the agency must withhold those data from the public, unless the data pertain to the health effects or environmental fate or effects of the pesticide ingredients. Information may be protected if it qualifies as a trade secret and reveals (1) manufacturing processes; (2) details of methods for testing, detecting, or measuring amounts of inert ingredients; or (3) the identity or percentage quantity of inert ingredients.

Companies sometimes seek to register a product based upon the registration of similar products, relying upon the data provided by the original registrant that are publicly released. This is allowed. However, Section 3 of FIFRA provides for a 10-year period of "exclusive use" by the registrant of data submitted in support of an original registration or a new use. In addition, an applicant who submits any new data in support of a registration is entitled to compensation for the cost of data development by any subsequent applicant who supports an application with that data within 15 years of its submission. If compensation is not jointly agreed upon by the registrant and applicant, binding arbitration can be invoked.

Reregistration

Most pesticides currently registered in the United States are older pesticides and were not subject to modern safety reviews. Amendments to FIFRA in 1972 directed EPA to "reregister" approximately 35,000 older products, in order to assess their safety in light of current standards. The task of reregistering older pesticides has been streamlined by reviewing groupings of products having the same active ingredients, on a generic instead of individual product basis. For food-use pesticides, EPA is evaluating a pesticide's eligibility for reregistration at the same time the agency is reassessing the tolerance for that pesticide under the FFDCA. The FQPA requires EPA to reassess pesticides posing the greatest risks first. Many of the 35,000 pesticide products will not be reviewed and their registrations will be canceled, because registrants are not requesting reregistration. At least 14,000 products are no longer in use. Nevertheless, the task for registrants and EPA remains immense and costly.

To accelerate the process of reregistration, Congress, in 1988 amendments to FIFRA, imposed a 10-year reregistration schedule. To help pay for the additional costs of the accelerated process, Congress directed EPA to require registrants to pay fees for reregistration and registration of pesticide ingredients and products. Exemptions from or reductions in fees are allowed for minor-use pesticides, public

health pesticides, and small business registrants. The 1996 amendments to FIFRA extended EPA's authority to collect certain fees through FY2001. Congress extended authority for fees annually through appropriations legislation since FY2001. The Omnibus appropriations legislation signed January 23, 2004 (P.L. 108-199) modified the types and amounts of fees that EPA could collect potentially through FY2008.

Special Review

EPA continues to evaluate the safety of pesticides after they are registered as new information becomes available. FIFRA requires registrants to report promptly any new evidence of adverse effects from pesticide exposure. If evidence indicates that a registered pesticide may pose an unreasonable risk, EPA may initiate a special review of available information to reevaluate the risks and benefits of each registered use. FIFRA also authorizes EPA to require registrants to conduct new studies to fill gaps in scientific understanding to assist risk assessments. As a result of a special review EPA may conclude that registration is adequate, needs amendment, or should be canceled.

Canceling or Suspending a Registration

If a special review or reregistration evaluation finds that a registered use may cause "unreasonable adverse effects," EPA may amend or cancel the registration.[42] FIFRA also allows registrants to request cancellation or amendment of a registration to terminate selected pesticide uses. Requesting voluntary cancellation sometimes reflects a registrant's conclusion that the cost of additional studies is not worth the expected benefit (that is, profit) from sales if the registration is maintained.

If a registration is canceled for one or more uses of a pesticide, FIFRA does not permit it to be sold or distributed for those uses in the United States, although for a specified period of time, U.S. farmers may use remaining stocks, and commerce may continue for commodities that were legally treated with the pesticide. FIFRA allows registrants to appeal an EPA decision to cancel a registration. An appeal initiates a lengthy review process during which the product may continue to be marketed. However, if there is threat of an "imminent hazard" during the time required to cancel a registration, FIFRA authorizes EPA to suspend registration. Suspension orders, which also may be appealed, stop sales and use of the pesticide. In the event of suspension and cancellation, FIFRA Section 15 directs EPA to request an appropriation from Congress to compensate anyone who owned any of the pesticide and suffered any loss due to the suspension or cancellation. The registrant of the suspended and canceled product is responsible, however, for all of the transportation and disposal costs, and most storage costs.

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[42] Registrations also may be canceled under other conditions, for example, if data are not submitted in response to EPA's request for additional information to maintain a registration, or if a registrant fails to pay the maintenance fee.

Use of Unregistered Pesticides

FIFRA also allows for unregistered use of pesticide products in special circumstances. Section 5 allows experimental use permits for purposes of research and to collect data needed to register a pesticide. Section 18 allows "emergency exemptions" from the provisions of FIFRA to be granted to federal or state agencies, for example, if there is a virulent outbreak of a disease that cannot be controlled by registered products. In addition, Section 24(c) permits states to allow additional uses of a federally registered product to meet "special local needs."

Enforcement

Generally, EPA enforces FIFRA requirements. However, FIFRA Section 26 gives primary enforcement authority for pesticide use under FIFRA to states that have adequate enforcement procedures, laws, and regulations primary authority, including inspection authority. EPA is authorized by Section 27 to rescind a state's primary enforcement responsibility if it is not being carried out.

FIFRA Section 11 authorizes EPA to form cooperative agreements with states, giving them the responsibility for training and certifying applicators of restricted use pesticides. States also may initially review and give preliminary approval to applications for emergency exemptions and special local needs registrations, (although under some conditions FIFRA allows EPA later to deny state-approved applications).

Section 9 authorizes inspections by EPA and authorized state officials of pesticide products where they are stored for distribution or sale. Section 13 authorizes EPA to issue orders to stop sales and to seize supplies of pesticide products. Civil and criminal penalties for violations of FIFRA are established in Section 14, while Section 15 provides indemnity payments for end users, distributors, and dealers of pesticides when registrations are suspended and canceled.

Federal district courts are authorized in Section 16 to review EPA final actions and omissions when action is not discretionary. People adversely affected by an EPA order may file for judicial review of the order following a hearing. But, FIFRA does not authorize citizen suits against violators.

Export of Unregistered Pesticides

FIFRA does not give EPA the authority to regulate domestic production for export of unregistered pesticides, even if U.S. registration has been canceled for health or environmental reasons. However, FIFRA does require exporters to prepare or pack pesticides as specified by the purchaser and in accord with some of the FIFRA labeling provisions. For example, exporters must translate warning information into the language of the destination. FIFRA also requires exporters of unregistered pesticides to obtain the purchaser's signature on a statement acknowledging that the pesticide is unregistered and cannot be sold in the United States. EPA is required to notify governments of other countries and international

agencies whenever a registration, cancellation, or suspension of any pesticide becomes or ceases to be effective in the United States.

Selected References

Bergeson, Lynn L. *FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act).* Basic Practice Series. American Bar Association. 2000. 150 p.

U.S. Library of Congress, Congressional Research Service. *Pesticide Legislation: Food Quality Protection Act of 1996 (P.L. 104-170).* CRS Report 96-759 ENR. Washington, DC. Sept. 11, 1998. 31 p.

Table 22. Major U.S. Code Sections of the Federal Insecticide, Fungicide, and Rodenticide Act[43]

(codified generally as 7 U.S.C. 136-136y)

7 U.S.C.	Section Title	Federal Insecticide, Fungicide, and Rodenticide Act (as amended)
	Short title and table of contents	Sec. 1
136	Definitions	Sec. 2
136a	Registration of pesticides	Sec. 3
136a-1	Reregistration of registered pesticides	Sec. 4
136c	Experimental use permits	Sec. 5
136d	Administration review; suspension	Sec. 6
136e	Registration of establishments	Sec. 7
136f	Books and records	Sec. 8
136g	Inspection of establishments	Sec. 9
136h	Protection of trade secrets and other information	Sec. 10
136i	Restricted use pesticides; applicators	Sec. 11
136j	Unlawful acts	Sec. 12
136k	Stop sale, use, removal, and seizure	Sec. 13
136l	Penalties	Sec. 14
136m	Indemnities	Sec. 15
136n	Administrative procedure; judicial review	Sec. 16
136o	Imports and exports	Sec. 17
136p	Exemption of federal and state agencies	Sec. 18
136q	Storage, disposal, transportation, and recall	Sec. 19
136r	Research and monitoring	Sec. 20
136s	Solicitation of comments; notice of public hearings	Sec. 21
136t	Delegation and cooperation	Sec. 22
136u	State cooperation, aid, training	Sec. 23
136v	Authority of states	Sec. 24
136w	Authority of Administrator	Sec. 25
136w-1	State primary enforcement responsibility	Sec. 26
136w-2	Failure by the state to assure enforcement of state pesticide use regulations	Sec. 27
136w-3	Identification of pests; cooperation with Department of Agriculture's program	Sec. 28
136w-4	Annual report	Sec. 29
136w-5	Minimum requirements for training of maintenance applicators and service technicians	Sec. 30
136w-6	Environmental Protection Agency minor use program	Sec. 31
136w-7	Department of Agriculture minor use program	Sec. 32
136x	Severability	Sec. 33
136y	Authorization of Appropriations	Sec. 34

[43] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

Table 23. Major U.S. Code Sections of the Federal Food, Drug, and Cosmetic Act Related to Pesticides[44]

(codified generally as 21 U.S.C. 321-346a)

21 U.S.C.	Section Title	Federal Food, Drug, and Cosmetic Act
Chapter II — Definitions		
321	Definitions	Sec. 201
Chapter III — Prohibited Acts and Penalties		
331	Prohibited acts	Sec. 301
332	Injunction proceedings	Sec. 302
333	Penalties	Sec. 303
334	Seizure	Sec. 304
Chapter IV — Food		
342	Adulterated food	Sec. 402
343	Misbranded food	Sec. 403
346	Tolerances for poisonous ingredients in food	Sec. 406
346a	Tolerances and exemptions for pesticide chemical residues	Sec. 408
346a(a)	Requirement for tolerance or exemption	Sec. 408(a)
346a(b)	Authority and standard for tolerance	Sec. 408(b)
346a(c)	Authority and standard for exemptions	Sec. 408(c)
346a(d)	Petition for tolerance or exemption	Sec. 408(d)
346a(e)	Action on Administrator's own initiative	Sec. 408(e)
346a(f)	Special data requirements	Sec. 408(f)
346a(g)	Effective data, objections, hearings, and administrative review	Sec. 408(g)
346a(h)	Judicial review	Sec. 408(h)
346a(i)	Confidentiality and use of data	Sec. 408(i)
346a(j)	Status of previously issued regulations	Sec. 408(j)
346a(k)	Transitional provision	Sec. 408(k)
346a(l)	Harmonization with action under other laws	Sec. 408(l)
346a(m)	Fees	Sec. 408(m)
346a(n)	National uniformity of tolerances	Sec. 408(n)
346a(o)	Consumer right to know	Sec. 408(o)
346a(p)	Estrogenic substances screening program	Sec. 408(p)
346a(q)	Schedule for review	Sec. 408(q)
346a(r)	Temporary tolerance or exemption	Sec. 408(r)
346a(s)	Savings clause	Sec. 408(s)

[44] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

Environmental Research, Development, and Demonstration Authorization Act[45]

EPA's statutory mandate for research and development (R&D) grew piecemeal from provisions of many environmental protection laws as enacted or amended over the years. The authority to conduct basic and applied research, to develop and demonstrate new technologies, to monitor the ambient environment — air, water, land, plants, and animals — and to conduct diverse special studies was conferred by Congress in two ways: in the context of at least 12 different environmental protection laws and in the Environmental Research, Development, and Demonstration Authorization Act (ERDDA). The 12 environmental protection statutes are listed in **Table 24**.

Table 24. Statutory Environmental Research and Development Provisions

Clean Air Act, especially Sections 103, 104, 153, and 319;
Clean Water Act, especially Title I, Sections 104-11;
Safe Drinking Water Act, especially Sections 1442 and 1444;
Marine Protection, Research and Sanctuaries Act (Ocean Dumping Act), especially Title II and Title IV;
Solid Waste Disposal Act/Resource Conservation and Recovery Act, Subtitle H, Sections 8001-8007;
Federal Insecticide, Fungicide, and Rodenticide Act, Section 20;
Pesticide Research Act;
Toxic Substances Control Act, especially Section 10;
Noise Control Act, Section 14;
National Environmental Policy Act, Section 204(5);
Comprehensive Environmental Response, Compensation and Liability Act of 1980 (Superfund); Sec. 311 as amended by SARA Sec. 209;
Acid Precipitation Act of 1980

The environmental R&D authorities contained in these statutes range from general to the highly specific. Some authorizations are for continuing programs; others are for one-time studies.

In 1976, Congress enacted ERDDA (P.L. 94-475) to consolidate annual authorization of appropriations for most of EPA's R&D activity in a single statute.

[45] Prepared by Michael Simpson, Specialist in Life Sciences, Environmental Policy Section, Resources, Science and Industry Division.

A major impetus for this was a decision by the House to consolidate jurisdiction for environmental R&D in the Committee on Science, Space, and Technology.

Table 25. Environmental Research, Development, and Demonstration Authorization Act and Amendments
(codified as 42 U.S.C. 4361-4370)

Year	Act	Public Law Number
1976	Environmental Research, Development and Demonstration Authorization Act	P.L. 94-475
1977	ERDDA of 1978	P.L. 95-155
1978	ERDDA of 1979	P.L. 95-477
1979	ERDDA of 1980	P.L. 96-229
1980	ERDDA of 1981	P.L. 96-569

These statutes not only provided annual authorizations, but also contained directives on a number of R&D policy issues. For example, P.L. 94-475 required EPA to prepare a comprehensive five-year environmental R&D plan, to be submitted annually to Congress no later than two weeks after the President submits a budget, and P.L. 95-155 added the requirement that the five-year plan include projections for no-growth, moderate-growth, and high-growth budgets. To ensure the scientific quality of EPA activities, P.L. 95-155 created, within the agency, a Science Advisory Board. The Board has responsibilities for reviewing agency activities, including specifically the preparation of the five-year environmental R&D plan.

Other enactments addressed the issue of research coordination. P.L. 95-155 assigned EPA the lead role in coordinating all Federal environmental R&D, required the Council on Environmental Quality to prepare a study of interagency research coordination, and directed EPA to study and report on internal coordination of research with EPA's regulatory programs. In P.L. 95-477 and P.L. 96-229, Congress explicitly forbade the Administration from transferring energy-related research conducted by EPA to the Department of Energy.

With regard to basic research, Congress has repeatedly directed the agency to maintain discrete programs of continuing, long-term research within each R&D activity, and to dedicate at least 15% of funds appropriated for each activity to such long-term research. In addition, from time to time, these enactments have specified funding for new research areas not previously proposed by EPA. For example, P.L. 95-477 specified $15 million for demonstrating wastewater reuse.

ERDDA was reauthorized four times. The last action in 1981 authorized appropriations of $364.7 million to EPA for environmental research. (As a cost-cutting measure, the act included a provision superimposing an across-the-board authorization cap equal to $8 million less than the sum of the specified authorizations for programs under the act.) In addition, ERDDA of 1981 subdivided the authorizations for many of the programs and limited EPA's ability to transfer funds from one program category to another. For example, the $70,167,000 authorized under the Clean Air Act was divided into three categories: $45,243,000 for health and ecological effects; $4,099,000 for industrial processes; and $20,825,000 for monitoring and technical support. Other provisions specified certain projects. For

example, of the Safe Drinking Water Act funds, $4 million was to be obligated and expended on groundwater research.

ERDDA's process of annually authorizing EPA's environmental R&D ended in 1981 when Congress did not enact an authorization for FY82. Thus, authorization of EPA's environmental R&D expired September 30, 1981.

Amendments to some environmental protection statutes have included R&D authorizations — for example, the Safe Drinking Water Act Amendments of 1996 (P.L.104-182), the Clean Air Act Amendments of 1990 (P.L. 101- 549), the Hazardous and Solid Waste Amendments of 1984 (P.L. 98-616); the Superfund Amendments and Reauthorization Act of 1986 (P.L. 99-499), and the Water Quality Act of 1987 (P.L. 100-4).

Although the annual ERDDA authorizations, when enacted, provide the overall statutory authority for environmental R&D, the provisions of the various environmental protection statutes have remained in effect, and as previously noted, amendments to other environmental statutes often include new R&D provisions. Thus, EPA's current and continuing authority for R&D activities derives from the combination of authorization provisions in basic environmental protection statutes, in laws that authorized appropriations for EPA's overall R&D program annually (though the funding authorization has expired), and annual appropriations for EPA.

Selected References

U.S. Congress. House. Committee on Science, Space, and Technology. *The Role of Science at EPA and Fiscal Year 1993 Budget Authorization for EPA's Office of Research and Development*. Hearing, 102d Congress, 2d session. March 19, 1992. Washington, GPO. 1992. 327 p.

U.S. Environmental Protection Agency. *Research, Development, and Technical Services at EPA: A New Beginning*. EPA/600/R-94/122. July 1994. Washington. 183 p.

Table 26. Major U.S. Code Sections of the Environmental Research, Development, and Demonstration Act[46]

(as amended)
(codified as 42 U.S.C. 4361-4370)

42 U.S.C.	Section Title
4361	Plan for research, development, and demonstration
4361a	Budget projections in annual revisions of plans for research, development and demonstration
4361b	Implementation by Administrator of Environmental Protection of "CHESS" investigative report; waiver inclusion of status of implementation requirements in annual revisions of plan for research, development, and demonstration
4361c	Staff management
4363	Continuing and long-term environmental research and development
4363a	Pollution control technologies demonstration
4364	Expenditures of funds for research and development related to regulatory program activities
4365	Science Advisory Board
4366	Identification and coordination of research, development, and demonstration activities
4367	Reporting requirements of financial interests of officers and employees of Environmental Protection Agency
4368	Grants to qualified citizens
4369	Miscellaneous reports
4369a	Reports on environmental research and development activities
4370	Reimbursement for use of facilities

[46] NOTE: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

National Environmental Policy Act[47]

Introduction

The National Environmental Policy Act (NEPA, 42 U.S.C. 4321 et seq.) was enacted in 1969 and signed into law by President Nixon on January 1, 1970 (P.L. 91-190). NEPA was the first of several major environmental laws enacted in the 1970s. Under Title I of the act, Congress declared a national policy that stated, in part, that it is "the continuing policy of the Federal government...to use all practicable means and measures...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." NEPA also created the Council on Environmental Quality (CEQ) in the Executive Office of the President. Among other duties, CEQ was required to develop and recommend to the President national policies to foster and promote the improvement of environmental quality. In the 1970's, CEQ played a key role in shaping regulations for implementation of NEPA.

One of the best-known elements of NEPA is its directive to federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. Specifically, NEPA requires all federal agencies to prepare a detailed statement of the environmental impact of and alternatives to major federal actions significantly affecting the environment. The "detailed statement" was subsequently referred to as an environmental impact statement (EIS).[48]

Judicial interpretation of NEPA ultimately determined that the act did not require agencies to elevate environmental concerns over other considerations. Rather, the courts determined, NEPA requires only that the agency take a "hard look" at a project's environmental consequences before taking action. If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other benefits outweigh the environmental costs.

In 1978, CEQ formally promulgated regulations, binding on all federal agencies, implementing NEPA's provisions. In addition to CEQ, Congress authorized EPA to perform certain duties to ensure the proper implementation of NEPA's EIS requirements (discussed below).

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[47] Prepared by Linda Luther, Analyst in Environmental Policy, Environmental Policy Section, Resources, Science, and Industry Division, and H. Steve Hughes, Analyst in Environmental Policy, Natural Resources Section, Resources, Science, and Industry Division.

[48] 42 U.S.C. § 4332(2)(C).

Table 27. National Environmental Policy Act and Amendments
(42 U.S.C. 4321-4347)

Year	Act	Public Law Number
1970	National Environmental Policy Act	P.L. 91-190
1971	Clean Air Act Amendments of 1970 (§ 309) [Did not amend NEPA, but specified EPA responsibilities in the NEPA process]	P.L. 91-604
1975	Authorizations — Office of Environmental Quality	P.L. 94-52
1975	National Environmental Policy Act [Administrative Delegation to State] Amendment	P.L. 94-83

The NEPA Process

NEPA applies to all major federal actions, including projects and programs entirely or partly funded, assisted, conducted, regulated, or approved by federal agencies. To ensure that environmental impacts of those actions are considered before final decisions are made, NEPA requires the preparation of an environmental impact statement (EIS) for any major federal action significantly affecting the quality of the human environment. An EIS is a full disclosure document that provides a description of the proposed action, and the existing environment, as well as analysis of the anticipated beneficial and adverse environmental effects of all reasonable alternatives.[49]

As required under CEQ's regulations, some level of analysis is also required when environmental impacts are uncertain or not significant. Projects for which it is not initially clear whether impacts will be significant require the preparation of an environmental assessment (EA). An EA is a concise public document that analyzes the environmental impacts of a proposed federal action and provides sufficient evidence to determine the level of significance of the impacts.[50] It is followed by either a Finding of No Significant Impact (FONSI) or a decision to prepare an EIS. Categorical exclusions are actions that do not individually or cumulatively have a significant social, economic, or environmental effect, and which the applicable agency has determined from past experience have no significant impact. Such actions are excluded from the requirement to prepare an EIS or EA.

Prior to completing the appropriate NEPA documentation, the responsible federal official (the "lead agency") is required to consult with and obtain the comments of any federal agency which has jurisdiction by law or special expertise (a "cooperating agency") with respect to any environmental impact involved. For any

[49] For more overview information, see CRS Report RS20621, *Overview of NEPA Requirements*, by Pamela Baldwin. For information regarding the NEPA process for a specific agency, see CRS Report RL32024, *Background on NEPA Implementation for Highway Projects: Streamlining the Process*, by Linda Luther.

[50] 40 C.F.R. § 1508.9.

given federal action, compliance with a wide variety of legislative and regulatory requirements, enforceable by multiple agencies, may be required. NEPA documentation may be required to document compliance with all applicable environmental laws, executive orders, and other related requirements. Most agencies use the NEPA process as a means of coordinating or demonstrating compliance with all applicable environmental requirements. In this capacity NEPA may function as an "umbrella statute," meaning any study, review, or consultation required by law, that is related to the environment, may be conducted within the framework of the NEPA process.

Complex federal projects such as highway construction projects, forest thinning, or oil and gas development projects, may trigger compliance with literally dozens of federal, state, tribal, and local environmental statutory and regulatory requirements. These, in turn, require the participation or input of possibly dozens of agencies. Some Members of Congress have expressed concerns that the interagency coordination required of such projects is often inefficient, leading to unnecessary delays in needed projects. Improved interagency cooperation has been identified by some Members of Congress as a critical element to the success of streamlining the NEPA process. The CEQ's regulations implementing NEPA currently include a variety of provisions intended to expedite the compliance process. In particular, CEQ's regulations specify procedures to reduce paperwork and delay. The regulations also direct agencies to efficiently facilitate the process of complying with multiple statutory and regulatory requirements. To do so, the regulations direct agencies, among other requirements to:

- Integrate NEPA's requirements with other required planning and environmental review procedures.
- Prepare environmental reviews concurrently with one another, rather than consecutively.
- Establish appropriate time limits on EISs.
- Integrate the NEPA process into early planning and prepare the EIS early in the process.
- Emphasize interagency cooperation before the EIS is prepared, rather than submission of adversary comments on a completed document.
- Insure the swift and fair resolution of lead agency disputes.[51]

Environmental Protection Agency Functions Under NEPA

NEPA is broad, with requirements potentially affecting all federal agencies. Also, EPA is not authorized to enforce NEPA's requirements; instead, federal agencies are required to implement its requirements themselves.[52] However, EPA does have two distinct roles in the NEPA process. The first regards its duty, under Section 309 of the Clean Air Act, to review and comment publicly on the

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[51] 40 C.F.R. §§ 1500.2 and 1500.4-1500.5

[52] In CEQ's regulations (40 C.F.R. § 1507.3), federal agencies were required to prepare their own NEPA procedures that address that agency's compliance in relation to its particular mission.

environmental impacts of proposed federal activities, including those for which an EIS is prepared. After conducting its review, EPA rates two elements of the action: the adequacy of the EIS and the environmental impact of the action.[53] The EIS may be rated "adequate," "needs more information," or "inadequate." The lead agency would be required to respond appropriately depending upon EPA's rating. With regard to rating the environmental impacts of an action, EPA would rate a project in one of the following four ways: lack of objections, environmental concerns, environmental objections, environmentally unsatisfactory. If EPA determines that the action is environmentally unsatisfactory, it is required to refer the matter to CEQ to resolve any interagency dispute.

EPA's second duty is an administrative one, in which it carries out the operational duties associated with the EIS filing process. In 1978, these duties were transferred to EPA by CEQ in accordance with a Memorandum of Agreement (MOA) entered into by EPA and CEQ. Under the terms of the MOA, EPA's Office of Federal Activities is designated the official recipient of all EISs prepared by federal agencies. EPA maintains a national EIS filing system. By maintaining the system, EPA facilitates public access to EISs by publishing weekly notices in the Federal Register of EISs available for public review, along with summaries of EPA's comments.

Apart from these duties, like any other federal agency, EPA may participate in the NEPA process as a lead agency when it is sponsoring its own federal actions. Currently, NEPA documentation is required of EPA for research and development activities, construction of EPA facilities, wastewater treatment plant construction under the Clean Water Act, EPA-issued National Pollutant Discharge Elimination System (NPDES) permits for new sources, [54] and for certain projects funded through EPA annual Appropriations Acts. Legislation has specifically limited EPA's requirement to comply with NEPA for certain actions. For example, Section 7(c) of the Energy Supply and Environmental Coordination Act of 1974 (15 U.S.C. 793(c)(1)) exempts actions taken under the Clean Air Act from the requirements of NEPA. EPA is also exempted from the procedural requirements of environmental laws, including NEPA, for response actions pursuant to requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Courts also have consistently recognized that EPA procedures or environmental reviews under enabling legislation are functionally equivalent to the NEPA process and thus exempt from the procedural requirements in NEPA.

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[53] An explanation of EPA's "Environmental Impact Statement (EIS) Rating System Criteria" is available online at [http://www.epa.gov/compliance/nepa/comments/ratings.html].

[54] Such permits are more likely to be issued by states authorized to implement provisions of the Clean Water Act, and hence would not be considered "federal actions" subject to NEPA compliance. Section 511(c) of the Clean Water Act exempts other EPA actions under the law from the requirements of NEPA.

Selected References

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Table 28. Major U.S. Code Sections of the National Environmental Policy Act

(as amended)
(42 U.S.C. 4321-4347)

42 U.S.C.	Section Title	National Environmental Policy Act
4321	Congressional Declaration of Purpose	
Subchapter I —	Policies and Goals	
4331	Congressional declaration of National Environmental Policy Act	Sec. 101
4332	Cooperation of agencies; reports; availability of information; recommendations	Sec. 102
4333	Conformity of administrative procedures to National Environmental Policy Act	Sec. 103
4334	Other statutory obligations of agencies	Sec. 104
4335	Efforts supplemental to existing authorities	Sec. 105
Subchapter II —	Council on Environmental Quality	
4341	Reports to Congress; recommendations for legislation	Sec. 201
4342	Establishment; membership; chairman; appointments	Sec. 202
4343	Establishment of personnel, experts and consultants	Sec. 203
4344	Duties and functions	Sec. 204
4345	Consultation with Citizen Advisory Committee on Environmental Quality	Sec. 205
4346a	Tenure and compensation of members	Sec. 206
	Travel reimbursement by private organizations and Federal, State and Local Governments	Sec. 207
4346b	Expenditure in support of international activities	Sec. 208
4347	Authorization of appropriations	Sec. 208