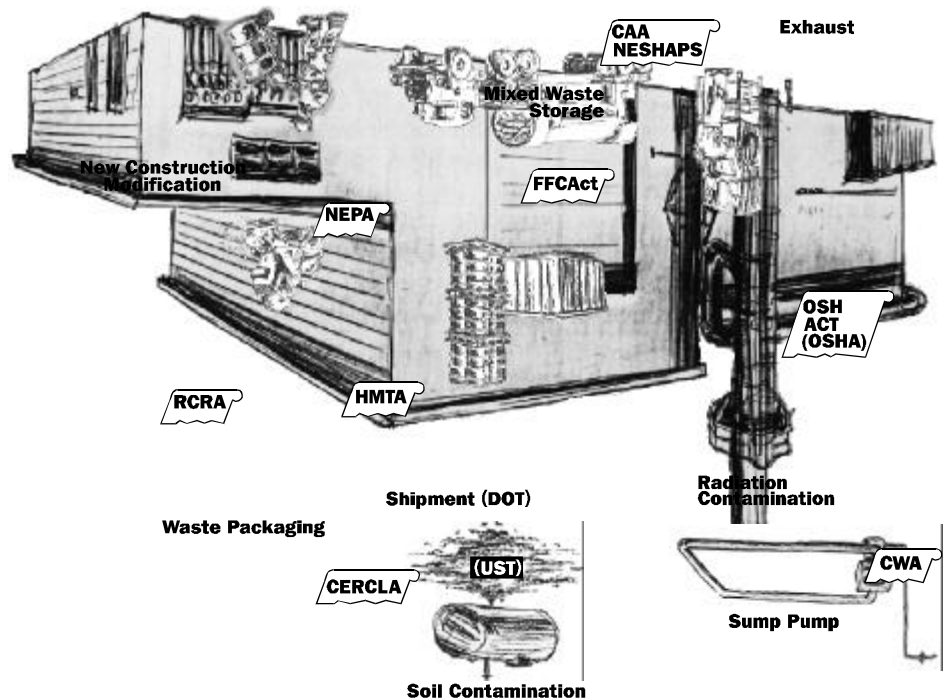





THE CLEAN WATER ACT (CWA)










TERMINAL OBJECTIVE

Given the Environmental Laws and Regulations course manual as a reference, you will be able to:

-  Describe and demonstrate how the Clean Water Act (CWA) applies to and affects operations at DOE facilities.

ENABLING OBJECTIVES

-  List the two goals that the CWA set in order to accomplish its primary objective of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters.
-  Identify the implementing programs that are responsible for ensuring the quality of the Nation's waters.
-  Explain how the CWA handles radioactive discharges.
-  Explain why compliance with the law is almost always cheaper than incurring penalties.
-  Define Point Source and Non-Point Source discharges.



OVERVIEW

The Clean Water Act (CWA) is a major environmental statute that affects the DOE. The objectives of the CWA include prohibition of toxic discharges, zero discharge (by 1985), protection of fish and wildlife, and availability of Federal funds for public waste treatment works.

All DOE facilities that discharge waste waters to either a surface water body or a publicly owned treatment system must ensure compliance with the CWA. The CWA's implementation of programs such as the National Pollutant Discharge Elimination System (NPDES) and the Oil and Hazardous Spills Program are instrumental to ensuring water quality throughout the United States.

HISTORY AND SUCCESSES

LEGISLATIVE HISTORY




The Water Pollution Control Act was first enacted in 1948. The Act was amended by the Federal Water Pollution Control Act (FWPCA) Amendments of 1972, now commonly known as the CWA. The amendments represented a major revision of the Act and replaced the previous text entirely, including the Water Quality Act of 1965, the Clean Water Restoration Act of 1966, and the Water Quality Improvement Act of 1970—all of which had been amendments to the original Act.

The CWA established a comprehensive Federal/State scheme for controlling the introduction of pollutants into the Nation's water. The 1972 amendments brought about a shift from reliance on violations of water and quality standards as the primary enforcement tool to the establishment of specific technology-based effluent limitations that are enforceable as permit conditions. Implementing regulations in 1992 brought an increased regulatory emphasis to controlling "non-point sources" of pollution, such as storm water runoff.

HALF FULL OR HALF EMPTY?

In 1997, the CWA was 25 years old. How successful has it been? You be the judge:

Since 1972, there has been a

-  Doubling in the number of waterways safe for fishing and swimming;
-  A reduction in industrial discharges by billions of pounds a year;
-  A more than doubling in the number of Americans served by adequate sewage treatment;



- ☎ A reduction in annual wetland losses by 75% a year; and
- ☎ A reduction in soil erosion from cropland by more than a third.

However,

- ☎ In 1998, 40% of the nation's navigable waterways did not meet state water quality standards;
- ☎ In 1996, nearly 2,200 fish consumption advisories were issued and beaches were nearly closed more than 2,500 times; and
- ☎ Occasional *Pfisteria* outbreaks in eastern coastal waters and an annual 6,000 square mile hypoxic (oxygen-starved) zone in the Gulf of Mexico are commonly attributed to excess nutrients (nitrogen and phosphorous) resulting from storm water runoff.

A brief summary of relevant, major, Federal legislation regarding water pollution control is presented in Table 6-1.





Table 6-1
Major Federal Legislation—Water Pollution Control

Date	Title	Important Provisions
1899	Refuge Act U.S.C. 1862, Title 33, Sec. 407	Required a permit from the Chief of Engineers for discharge of refuse into navigable water.
1948	Water Pollution Control Act Pub. L. 80-845	Gave the Federal Government authority for investigations, research, and surveys. Left primary responsibility for pollution control with the States.
1956	Water Pollution Control Act Amendments Pub. L. 84-600	Established Federal pollution policy for 1956 to 1970. Provided Federal grants for construction of municipal water treatment plants and complex procedures for Federal enforcement actions against individual discharges.
1961	Federal Water Pollution Control Act Amendments Pub. L. 87-88	Strengthened the Federal enforcement procedure.
1965	Water Quality Act Pub. L. 89-234	Created the Federal Water Pollution Control Administration.
1966	Clean Water Restoration Act Pub. L. 89-753	Increased grant authorizations.
1970	Water Quality Improvement Act Pub. L. 91-224	Established liability for owners of vessels that spill oil and created new rules regarding thermal pollution.
1972	Federal Water Pollution Control Act Amendments Pub. L. 92-500	Set policy under which the Federal Government now operates. Provided for Federal establishment of effluent limits for individual sources of pollution, issuance of discharge permits, and a large increase in authorized grant funds for municipal waste treatment plants.
1977	Federal Water Pollution Control Act Amendments Pub. L. 95-217	Relaxed some of the standards under the 1972 amendments. Relaxed existing industrial antipollution standards of discharge on suspended solids, fecal bacteria, and oxygen demand if it could be shown that the cost of equipment exceeded benefits.
1981	Municipal Wastewater Treatment Construction Grant Amendments of 1981 Pub. L. 97-117	Provided a four-year reauthorization, restricted grant eligibility to work necessary to meet water quality standards, and did not fund future growth in treatment capacity. The Federal Government's share of cost was reduced from 75% to 55%. Construction grants were authorized through fiscal year 1985.
1987	Water Quality Act Pub. L. 100-4	Reauthorized the CWA. Authorized funding of \$18 billion over a nine-year period for sewage treatment systems and \$2 billion for other cleanup programs involving the Nation's rivers, lakes, streams, and estuaries.
1990	Oil Pollution Act Pub. L. 101-380	Established limitations on liability for damages resulting from oil pollution and established a fund for the payment of compensation for such damages. Increased penalties for spills and for not reporting spills.



THE CLEAN WATER ACT: PURPOSE, GOALS, AND STRATEGIES

The CWA was implemented to “. . . restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (Section 101). In order to accomplish this objective, the Act set the following goals:

-  To attain a level of water quality that “provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water” by 1983. EPA commonly refers to the standard as “fishable and swimmable.”
-  To make navigable waters free of pollutant discharges by 1985.

The following five strategies were employed, through the CWA, to achieve these goals:

- (1) A system of minimum national effluent standards for each industry was created.
- (2) Water quality standards were set.
- (3) A discharge permit program (that translates these standards into enforceable limits) was created.
- (4) Provisions for special problems (such as toxic chemicals and oil spills) were set up.
- (5) A revolving construction loan program (formerly a grant program) for publicly owned treatment works (POTWs) was established.

EPA’S ROLE

The CWA requires the Environmental Protection Agency (EPA) to establish effluent limitations for the amounts of specific pollutants that may be discharged by municipal sewage plants and industrial facilities. The two-step approach to setting the standards includes:

- (1) Establishing a nationwide, base-level treatment through an assessment of what is technologically and economically achievable for a particular industry; and
- (2) Requiring more stringent levels of treatment (for specific plants) if necessary to achieve water quality objectives for the particular body of water into which that plant discharges. (For example, the EPA sets limits based on water quality to control pollution in waters designated by the States for drinking, swimming, or fishing.)



IMPLEMENTING PROGRAMS

The CWA has several implementing programs that are responsible for ensuring the quality of the Nation's water.

THE NATIONAL POLLUTANT DISCHARGE AND ELIMINATION SYSTEM

POINT SOURCES

The primary method by which the Act imposes limitations on pollutant discharges is the nationwide permit program established under Section 402 and referred to as the NPDES. Under the 1972 NPDES program, any person responsible for the discharge of a pollutant or pollutants into any waters of the United States from any point source must apply for and obtain a permit.

In cases where technology-based limits are not strict enough to make waters safe for uses designated by the States (i.e., fishing, drinking, swimming), the EPA also sets limits based on water quality to control pollution. Permits based on water quality standards offer greater levels of protection than permits based only on technological considerations.

Permits issued under the NPDES point source program utilize industrial effluent and water quality standards to establish discharge limits for industries and treatment plants. By 1992, the NPDES program regulated more than 200,000 discharge sources nationwide. Regulated pollutants include conventional pollutants (human waste, sink disposal waste, laundry and bath wastes) and toxic pollutants (organic pesticides and solvents, and metals), and non-conventional pollutants (including nutrients such as nitrogen). NPDES permits specify the discharge standards and monitoring and reporting requirements that the facility must achieve for each point source or outfall. For industrial facilities that existed before July 1, 1977, best conventional technology must be applied to the discharge stream for conventional pollutants (Section 301). For facilities built after July 1, 1977, so-called "new" facilities, the National Standards of Performance apply. When either an existing or new facility discharges toxic pollutants from a point source, more stringent controls are required. The regulations for toxics are based on the best available and economically achievable technology (Section 307). In all cases, NPDES point source permits can be made even more stringent than the previous standards if the specific water body in question requires lower discharges of pollutants to meet water quality standards (Sections 302 and 303) under EPA's Total Maximum Daily Load (TMDL) regulations.

NON-POINT SOURCE

In 1992, the NPDES permitting program was expanded to include permitting of storm water and other non-point source discharges. Such non-point sources include discharges from parking and storage lots and agricultural storm water discharges (except for concentrated animal feeding operations, which are



considered to be point sources). In 1996, EPA reinforced its commitment to managing non-point sources by issuing its national Non-Point Source Program and Grants Guidance, in which EPA made a “. . . national commitment to achieve the vision that all states are implementing dynamic and effective non-point source programs designed to achieve and maintain beneficial uses of water.” Since 1998, storm water discharges are regulated by the issuance of a NPDES Storm Water Multi-Sector General Permit.

Under section 303(d) of the CWA, EPA requires states to list, on a “watershed scale,” waterways that do not meet Federal or state water quality standards. These lists are periodically updated, with the most recent update occurring in 1998. Listed waterways will be subject to TMDL standards, and states will be required to allocate pollutant loadings among point and non-point sources. Focusing on TMDLs will be a major change in the way the CWA is implemented. In EPA’s words, the change is a “transition from technology-based controls to water quality-based controls.” For DOE, this means that any DOE facility that discharges to a state-listed waterway may see its permitted discharge limits reduced to reduce the overall pollutant load on the listed waterway. It will be up to the state to allocate discharges among the array of permitted point and non-point discharges.

PRETREATMENT STANDARDS

Sometimes an industry may not discharge its waste streams directly into a waterway. Instead, it may discharge to a POTW where the waste is treated by that facility before entering receiving waters. When this is the case, the industry does not need a NPDES permit. However, the industry does need to maintain certain national pretreatment standards regarding the characterization of its waste streams.

This means that an industry needs to pretreat any waste that may either disrupt the POTW’s treatment processes or cause the POTW to violate its NPDES permit. Generally, the industry and the POTW will establish guidelines specific to what the industry will discharge. Compliance with the applicable pretreatment standards also needs to be required and met. These pretreatment standards are enforced under the POTW’s NPDES permit. If any deviations from this pretreatment plan occur, then it is the industry’s responsibility to notify the POTW of the change. By 1998, EPA had promulgated effluent limitation guidelines and standards for 51 industrial categories.

Pretreatment standards apply to DOE facilities if they discharge into a POTW. However, if the DOE discharges to a treatment facility it owns, this treatment plant is considered a “government owned” treatment plant and is not considered a POTW (the key words in POTW are “publicly owned”).








DISCHARGE OF DREDGE OR FILL MATERIALS

Section 404 enables the U.S. Army Corps of Engineers to issue permits for the discharge of dredged or fill materials into U.S. waters at specific sites. The Corps specifies a site by applying guidelines promulgated by the EPA (40 CFR 230). Further, any proposal to dump dredged or fill material into the ocean must comply with the dumping criteria set forth in regulations implementing Section 227.13 of the Marine Protection, Research, and Sanctuaries Act (MPRSA). Under Subsection 404(c) of the CWA, the EPA can prohibit or limit the use of a proposed disposal site or withdraw an already designated site (40 CFR 231). This may occur if the EPA foresees unacceptable impacts on municipal water supplies, shellfish beds, fishery areas, or wildlife and recreational areas. However, such a determination must be made after consultation with the Corps and the permit applicant.

A significant feature of Section 404 is that the Corps may issue General Permits on a State, regional, or nationwide basis for dredge or fill activities that are similar in nature and cause only minimal individual and cumulative adverse impacts. General Permits are granted for a period not to exceed five years. The Corps issues Individual Permits for actions that have a potential for significant environmental impacts.

Various dredged and fill material disposal activities are excluded from CWA Section 404 permitting requirements unless the action (1) alters the use of navigable waters, or (2) impairs the flow of those waters. Actions thus excluded from permitting that may pertain to DOE projects include the following:

-  Maintenance or emergency construction on damaged dams.
-  Transportation structures and related structures.
-  Drainage ditch maintenance.
-  Construction of temporary sediment basins at construction sites.
-  Temporary road construction for moving mining equipment.





Placement of riprap and construction of new dams also fall under the purview of Section 404 permits.

OIL AND HAZARDOUS SPILLS PROGRAM

The National Contingency Plan (NCP), a program set up under both the CWA and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), is a national program designed to provide for immediate response and cleanup in the event of a spill into waters anywhere within the United States.



The NCP sets forth procedures and standards for how the EPA, other Federal agencies, States, and private parties respond. Some of these procedures include the following:

-  Assigning spill cleanup responsibilities at State and Federal levels.
-  Providing for a strike force of personnel specially trained to deal with a spill situation (Regional Response Teams).
-  Requiring early warning systems to ensure the earliest possible notification of excessive discharges.
-  Establishing procedures and techniques to be used in spill identification, containment, disposal, or removal.

Under the CWA, the NCP mainly governs oil spills, while under CERCLA, it governs the release of hazardous substances.

SPILL REPORTING - SECTION 311

While not a permitting program, Section 311 is another very important part of the CWA. This section covers spill reporting and is the primary area where the CWA interfaces with CERCLA.

Section 311 established requirements to address oil spills and releases of hazardous substances (defined as those substances that, when released into water, could cause an adverse impact to human health or the environment). In addition to identifying and generating this hazardous substances list, reportable quantities for spilled substances were also established. If the amount of a spilled substance exceeds a certain quantity, the spill must be reported to the proper State authorities. Reportable quantities for hazardous substances can be found in 40 CFR 117 and 40 CFR 300. Spill reports are to be made by the person in charge of the facility or vessel involved.

SPILL CONTROL AND COUNTERMEASURES PLAN

Another important part of the spill reporting program is the development of Spill Control and Countermeasures (SPCC) plans. These plans are customized by each industry to meet their specific needs. The plan must be detailed to the point that all possible spill situations are prepared for to ensure remediation (taking into consideration the chemicals and other hazardous substances that the industry handles). Containment procedures would fall under this category. The plan also needs to provide details for all industry buildings, as well as other facilities, where hazardous materials are used. In addition to planning for response activities in the event of a spill, the SPCC plan must also include spill prevention procedures (provisions for testing and inspection of all facility processes are to be detailed in this part of the plan).



The SPCC plan must be certified by a professional engineer and revised periodically. Implementing regulations for preparing a SPCC plan can be found in 40 CFR 110 and 40 CFR 112.

OIL POLLUTION ACT

The Oil Pollution Act of 1990 (OPA), modified certain provisions of Section 311 of the CWA. OPA substantially increased the damages and liabilities associated with oil discharges into U.S. waterways, gave states access to Federal funds for immediate removal, mitigation, or prevention of a discharge, and greatly increased the civil and criminal penalties associated with oil discharges. Under the CWA, civil penalties were limited to \$5,000 per day per violation. Under OPA, this penalty was increased to \$25,000 per day, or \$1,000 per barrel of oil discharged. Under OPA, penalties for failing to notify the appropriate Federal agency of a discharge was increased from a maximum of \$10,000 to a maximum of \$250,000 for an individual and \$500,000 for an organization. In addition, the maximum prison term for failure to report a discharge was increased from one to five years.

RADIOACTIVE DISCHARGES UNDER THE CLEAN WATER ACT

Section 502(6) of CWA defines the term “pollutant” to include radioactive materials. In its implementing regulations (particularly 40 CFR 122), the EPA refined the definition of “pollutant” to exclude radioactive materials regulated under the Atomic Energy Act (AEA) of 1954, as amended. Thus, although the CWA and its implementing regulations clearly apply to naturally occurring (e.g., radium) and accelerator-produced radioisotopes, they do not apply to source, by-product, or special nuclear materials as defined by the AEA. The U.S. Supreme Court, in *Train v. Colorado Public Interest Research Group, Inc.* [426 U.S. 1 (1976)], agreed with the EPA’s interpretation of the language in both the CWA and the AEA (meaning that source, by-product, and special nuclear material are subject to regulation under the AEA, but not the CWA). DOE discharges containing radioactive material that are not source, by-product, or special nuclear materials are regulated under the CWA by the EPA or States having an EPA-authorized permit program.

The AEA defines source materials to mean:

- i Uranium, thorium, or any other material which the [Atomic Energy] Commission [now the Nuclear Regulatory Commission (NRC)] finds is essential to the production of special nuclear material pursuant to the provisions of Section 61; or
- i “Ores containing one or more of the foregoing materials, in such concentration as the Commission may by regulation determine from time to time.”



Special nuclear materials are:

- l Plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of Section 51, finds is capable of releasing substantial quantities of atomic energy and is in the interest of the common defense and security, but does not include source material; or
- l “any material artificially enriched by any of the foregoing, but does not include source material.”

By-product materials are:





- l “any radioactive material (except special nuclear material) yielded in or made radioactive by exposure incident to the process of producing or utilizing special nuclear material; and
- l the tailing or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.”

In many DOE operations, these materials could constitute the principal radioactive contaminants present in plant effluents and would, therefore, be subject to only DOE or NRC regulation and not to EPA or State regulation under the CWA. DOE facilities should be aware, however, of DOE’s Byproduct Rule, 10 CFR 962, that states that the nonradioactive hazardous component of a wastestream containing by-product material is subject to EPA regulation under the RCRA.

In another section of the CWA, Congress is unequivocal in its language relative to two specific types of radioactive materials. Section 301(f) of the CWA states that “. . . it shall be unlawful to discharge any radiological . . . warfare agent or high-level radioactive waste into the navigable waters.” DOE facilities are, of course, obligated to observe this ban.

APPLICABILITY OF THE CWA TO THE DOE

The sections of the Act most relevant to the DOE deal with requirements for the following:

-  Technology-based effluent limitations (Section 301).
-  Water quality-based effluent limitations (Section 302).
-  Individual control strategies for toxic pollutants [Section 304(1)].
-  New source performance standards (Section 306).



- ☎ Regulation of toxics and indirect discharges (Section 307).
- ☎ Federal facilities' pollution control (provisions for Presidential exemption) (Section 313).
- ☎ Thermal discharges (Section 316).
- ☎ Point source and non-point source discharge permits under the NPDES (Section 402).
- ☎ Permits for the discharge of dredged or fill materials into navigable waters (Section 404 of the CWA and Sections 9 and 10 of the Rivers and Harbors Act).

All DOE facilities that discharge waste waters to either a surface water body or a publicly owned treatment system must comply with the CWA. Facilities that discharge wastewaters to a surface water body from either point or non-point source must obtain an NPDES permit (Section 402).

Facilities that discharge to a municipal or publicly owned wastewater system do not have to obtain an NPDES permit, but they must follow pre-treatment regulations (Section 307). Pre-treatment regulations require that industrial dischargers remove or treat all pollutants that could pass through the municipal system untreated or that could adversely affect the performance of the municipal system. Toxic pollutants are the primary concern of these regulations.

Table 6-2 presents a more comprehensive list of the CWA sections that directly impact the DOE.



Table 6-2
Index to Sections of the CWA with Major Impacts on Federal Facilities

Description	Section
Definitions and authorizations	112 and 502
Requirements and schedules for establishing effluent limitations	301 and 302
Establishment of water quality standards	303
Individual control strategies for toxic pollutants (including TMDLs)	304(1)
Establishment of national standards of performance, including:	306
– Stream electric power plants	306(b)(1)
– Petroleum refining	306(b)(1)
Requirements for toxic and pretreatment effluent standards	307
Requirements to maintain records and reports and to monitor effluents	308(a)(A)
Establish right of entry for inspection by State or EPA	308(c)
EPA enforcement powers	309
Requirements concerning discharges of oil and hazardous substances	311
Requirement for Federal departments to comply with Federal, State, and local laws	313(a)
Requirements concerning thermal effluents	316
Non-point source management programs	319
Requirement to obtain State certification when applying for permit to discharge	401
National Pollution Discharge Elimination System	402
Establishment of ocean discharge criteria	403
Requirements for permits for dredged or fill material	404
Right of citizens to bring suit against anyone who is alleged to be in violation	505



ENFORCEMENT AND PENALTIES

Both the EPA and the corresponding State have broad enforcement discretion. Much of the real enforcement power, however, has been exercised by the public. Several citizens suits have been filed against CWA violators. In these suits, strict liability has prevailed. Perhaps one of the most well known suits involved the community of Fernald, Ohio. The community brought a civil suit against the DOE for water pollution problems at the Feed Materials Production Center (FMPC). The result of this citizen suit culminated in State, and finally Federal involvement, with the DOE being required to pay penalties and clean up the area as quickly as possible.

Penalties exist for violations of CWA programs. Listed in Table 6-3 are some of the most common violations as well as the penalties that they carry. Not mentioned in this table are jail sentences, which can vary with the seriousness of the violation and often depend on whether or not the violation was willful. The penalties mentioned in Table 6-3 are per violation, per day. If a facility has five different CWA violations and noncompliance has been occurring for a month (approximately 30 days), it is easy to see how the facility could have to pay penalties totalling millions of dollars. Compliance with the law is almost always cheaper.

Action		Fine
Civil		\$25,000
Criminal	Negligent Violation	\$2,500 – 25,000
	Knowing Violation	\$5,000 – 50,000
	Knowing Endangerment	<\$250,000
	Falsifying Reports	\$10,000

FURTHER INFORMATION

Regulations implementing the CWA statute may be found in 40 CFR 110-136 and 401-459. A bimonthly publication called the *Environmental Regulatory Update Table* summarizes the current status of updates and revisions in these regulations. An *Environmental Guidance Program Reference Book* on the CWA, which is updated periodically, is also available. The reference book presents a summary of the regulatory programs, a brief history of the statute, an annotated copy of the implementing regulations of most significance for the DOE, and information regarding proposed regulations.