



The Clean Water Act

An Overview

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Disclaimer

- This presentation is not intended to constitute legal advice or official EPA interpretation of the Clean Water Act or Regulations.

Overview

- Clean Water Act History & Overview
- Discharge Permits
- Water Quality Standards
- Total Maximum Daily Loads
- Conclusion

Clean Water Act History and Overview

- The Clean Water Act (CWA) is the most important water pollution prevention law in the United States
- The CWA was passed by the U.S. Congress in 1972, two years after creation of the U.S. Environmental Protection Agency (EPA)

Where Did the CWA Come From?

- The 1972 CWA evolved from two earlier U.S. water pollution control laws:
 - The Rivers and Harbors Act of 1889 (also known as “The Refuse Act”)
 - The Federal Water Pollution Control Act of 1948

The CWA is a Blend of those Earlier Laws

- The older “**Rivers and Harbors Act**” tried to achieve clean water by banning the discharge of pollutants – focus on the discharger and what it could (or could not) do
- Largely ignored until 1950s
- It was not until 1959 that the U.S. Supreme Court said that the Rivers and Harbors Act could be used to control wastewater discharges from a steel mill (*U.S. v. Republic Steel Corp.*, 362 U.S. 482 (1959))

The CWA is a Blend of those Earlier Laws

- The newer “**Federal Water Pollution Control Act**” tried to achieve clean water by identifying the desired use and quality of the waterbody – focus on the waterbody and how clean it should be
- 1965 amendments required States (or EPA) to adopt water quality standards to “protect the public health or welfare”
- By 1970, less than half the States had adopted water quality standards

The Need for Action

- By the late 1960s, there was a growing belief that U.S. water pollution laws were not adequate to solve the country's growing water pollution problems
- In 1969, the Cuyahoga River in Cleveland, Ohio caught fire
- Also in 1969, a large and environmentally-destructive oil spill occurred off Santa Barbara, California
- In May 1970, citizens organized the first "Earth Day" calling attention to need for more environmental protection

The 1972 Clean Water Act

- It was against this backdrop that Congress held hearings in 1970 and 1971 on a new Clean Water Act
- The U.S. Senate concluded that the national effort to control water pollution had been “inadequate in every vital aspect”
- In October 1972, Congress passed the Clean Water Act over the veto of President Nixon, who said it would be too expensive to implement

The 1972 CWA: A Blend of Earlier Approaches

- The CWA includes discharger-based elements
 - Includes a broad discharge prohibition: “discharge of any pollutant by any person shall be unlawful” except as allowed by the Act - CWA 301(a)
 - “Point sources” generally required to have permits to lawfully discharge pollutants - CWA 301(b) and 402(a)
 - Permit limits must meet uniform, national technology-based requirements - CWA 301(b)
 - CWA 101(a)(1) expressed an aggressive “national goal” to eliminate all discharge of pollutants by 1985

The 1972 CWA: A Blend of Earlier Approaches

- The CWA includes water quality-based elements
 - Maintained requirement for States to develop (and revise) water quality standards - CWA 303(c)
 - Dischargers must have permit limits to meet these standards - CWA 301(b)(1)(C)
 - CWA 101(a)(2) adopts aggressive “national goal” for achieving water quality necessary to protect “fish, shellfish, and wildlife and provide for recreation in and on the water” by 1983

The CWA: a Federal – State Partnership

- The CWA shares authority and responsibility to protect water quality between the fifty States and the Federal Government
- The States are generally given the lead role in defining and protecting the quality of their waters
- The Federal Government (EPA) oversees what the States do and ensures that they meet minimum Federal requirements

State CWA Responsibilities

- States adopt water quality standards (desired uses and quality) for all their waters
- States issue permits to “point source” dischargers of pollutants
- States identify waterbodies not meeting water quality standards and develop plans to meet those standards called “total maximum daily loads” (TMDLs)
- States take lead in preventing “nonpoint” source pollution

EPA CWA Responsibilities

- EPA establishes minimum requirements States must meet when adopting water quality standards and issuing permits
- EPA establishes national industry-specific effluent limitations (effluent limitations guidelines) representing varying levels of technology-based water pollution control
- EPA approves State National Pollutant Discharge Elimination System (NPDES) permit programs
- EPA reviews and (if found inadequate) objects to State NPDES permits
- EPA approves State water quality standards and TMDLs; if it disapproves, EPA must replace them

Citizen CWA Responsibilities

- Citizens have broad rights to protect their waters under the CWA
- Citizens can file lawsuits in court to challenge illegally adopted or approved State water quality standards, NPDES permits, and TMDLs – CWA 505 and 5 U.S.C. 701 et seq.
- Citizens can file lawsuits in court to challenge EPA regulations implementing the CWA and EPA approval of State permitting programs – CWA 505 and 5 U.S.C. 701 et seq.
- Citizens also have a right to participate in, and comment upon, State and Federal environmental decision making - 5 U.S.C. 551 et seq. (Administrative Procedure Act)

The Role of the Courts

- The Federal courts hear and decide most lawsuits challenging EPA action under the CWA
 - CWA 509(b)
 - EPA-issued permits are first reviewed by EPA administrative law judges (ALJs) – 40 CFR 124.19(a)
- If the court agrees with EPA, it will uphold the challenged action (e.g., uphold the water quality standard, permit, national regulation, or TMDL)
- However, if the court decides that EPA acted unlawfully, it will usually set the action aside and tell EPA to correct its mistake

The NPDES Permit Program

- The “National Pollutant Discharge Elimination System” (NPDES) permit program is the CWA’s central feature
- It requires that most “point sources” obtain a permit before they may discharge pollutants to surface waters— CWA 301(b) and 402(a)
- EPA reviews State permitting laws and programs; if they meet CWA requirements, EPA authorizes the State to issue NPDES permits
- 46 States have approved NPDES programs

Who Needs NPDES Permits? “Point Sources”

- Section 301(a) prohibits the “discharge of any pollutant” by any “person” except in compliance with the CWA
- “Person” means just about anybody (individual, corporation, partnership, association, village, town, county or State) - CWA 502(6)
- “Discharge of any pollutant” means “any addition of any pollutant to navigable waters from any point source” - CWA 502(12)
- “Point source” means “any discernable, confined and discrete conveyance,” e.g., pipe - CWA 502(14)

Who Does Not Need NPDES Permits?

- “Nonpoint sources” introducing pollutants into the water, e.g., runoff from farmlands, pastures, forests
- However, if this “runoff” is conveyed to the water by a man-made “channel,” “ditch” or “fissure,” it may need a permit because it is then introduced by a “point source”

Individual and General Permits

- Typically, industrial factories and sewage treatment plants are issued individual permits that regulate their discharges of pollutants
- Sometimes, however, for convenience a State or EPA will issue a single “general permit” to all facilities in a particular category, e.g., all offshore oil and gas production facilities – 40 CFR 122.28

NPDES Permit Conditions

- NPDES permits for “point sources” discharging pollutants generally contain the following:
 - Technology-based discharge limits
 - Water quality-based discharge limits
 - Monitoring and sampling requirements to make sure the discharge limits are met
 - Recordkeeping and inspection requirements
 - Other conditions as necessary

Technology-based Permit Limits

- CWA 301(b) requires all point sources to have discharge limits based on specified levels of pollution control technology
- These technology-based limits have been responsible for most of the reduction in water pollution in the U.S. since 1972
- Technology-based permit limits are based on:
 - EPA-established nationwide technology requirements for certain industries (ELGs), or
 - The permit writer's "best professional judgment"

National Effluent Limitations Guidelines (ELGs)

- EPA establishes national industry-specific effluent limitations (ELGs), e.g., limits for all iron and steel manufacturing facilities
- ELGs must be placed in permits for facilities in that category
- ELGs represent varying “levels” of technology-based pollution control [CWA 301(b)]
- ELGs are developed by EPA based, in part, on detailed information about the particular industry, what pollution control technologies are available, their cost, and comments from industry and the public

Levels of Technology Control in Permits

- Depending on the type of facility and pollutant being controlled, a permit's technology-based effluent limits must generally meet one of the following levels of pollution control:
 - “Best Practicable Control Technology Currently Available” (BPT): “average of the best performing facilities”
 - “Best Conventional Pollutant-Control Technology” (BCT) – higher level of protection, only if cost-justified
 - “Best Available Technology Economically Achievable” (BAT): “best of the best performing facilities” – to control toxic and non-conventional pollutants
 - “Secondary treatment” – to control pollution from sewage treatment plants

Water Quality-based Effluent Limitations

- In addition to limits based on available pollution control technology, CWA 301(b)(1)(C) requires NPDES permits to have discharge limits necessary to implement water quality standards
- These water quality-based limits must be more stringent than the technology-based limits if that is necessary to achieve water quality standards
40 CFR 122.44(d)(1); 122.4(d);
122.44(d)(1)(vii)(A)

Storm Water

- The CWA regulates a wide variety of storm water runoff from industrial and municipal “point sources”
- This includes “wet weather” runoff from city streets, paved surfaces, construction sites, and municipal sewer system overflows
- 1987 CWA Amendments required NPDES permits for storm water runoff from cities and certain industrial and construction activities – CWA 402(p)
- Large livestock and poultry operations (“CAFOs”) are also regulated as “point sources” and may require an NPDES permit

Water Quality Standards

- CWA 303(c) requires each State to establish water quality standards (WQS) for all its waterbodies
- States review their standards at least every three years - CWA 303(c)(1)
- EPA reviews and approves (disapproves) new or revised State standards – CWA 303(c)(2) and (3)

Water Quality Standards: Three Elements

- “Designated uses” identify the desired use and purpose of a waterbody
- Water quality “criteria” identify the quality of the waterbody necessary to protect its designated uses
- “Antidegradation” requirements are designed to prevent the waterbody from getting more polluted

WQS: Designated Uses

- CWA 303(c) requires that each State designate “uses” for all its waterbodies
- The State may designate multiple, compatible uses for a given waterbody
- “Designated uses” may include the following:
 - Protection and propagation of fish/shellfish
 - Wildlife protection
 - Recreation
 - Drinking water supply
 - Agriculture, navigation, industry

Presumed Designated Uses

- The CWA assumes that, if feasible, all waterbodies should be designated for protection and propagation of fish/shellfish, human consumption of those fish/shellfish, and recreation – CWA 101(a)(2); 40 CFR 131.2
- If a State believes these uses are not feasible for a particular waterbody, the State must preparing a “use attainability analysis” (UAA) to identify the “highest” feasible use – CWA 131.10(g), (j)
- For example, the existence of natural conditions (e.g., natural pollutants or naturally low flow) may prevent a “higher” use (fish habitat or human water supply) but may allow for a “lower” use (crop irrigation or cattle watering)

“Existing” Uses

- The CWA gives States considerable flexibility to “designate” appropriate uses for their waterbodies
- However, the CWA also requires that States protect any use attained in a waterbody on, or after, November 28, 1975 – 40 CFR 131.3(e)
- These are called “existing uses”
- States may not remove “existing” uses, and permits must be written to protect them

Water Quality Criteria

- In addition to establishing designated uses for its waterbodies, the CWA also requires States to establish water quality “criteria” necessary to protect those uses
- Water quality criteria establish the maximum allowed in-stream level for certain pollutants
- They are usually expressed as either:
 - Chemical-specific concentrations, e.g., 10 pg/L PCBs, or
 - Narrative statements of the quality of the water necessary to protect the designated use, e.g., “no toxic chemicals in amounts hazardous to fish or humans”

Antidegradation

- The third part of a State's water quality standards is the "antidegradation policy" – 40 CFR 131.12
- The antidegradation policy:
 - Must maintain "existing" in-stream water quality
 - May allow lowering of water quality only (1) where necessary to accommodate important social or economic development and (2) after public participation
 - Must protect high quality "outstanding National resource" waters like National and State parks

Impaired Waters List

- Every two years, each State makes a list of all waters not meeting their water quality standards (“impaired waters list”) - CWA 303(d)(1)(a); 40 CFR 130.7(b)
- The State submits the impaired waters list to EPA for approval; if EPA “disapproves,” it may add waters to the list
- The list should identify each “impaired” water and the pollutant causing non-attainment of water quality standards - 40 CFR 130.7(b)(4)

Total Maximum Daily Loads

- Each State (or EPA) must establish a “total maximum daily load” (TMDL) for all the waters on its impaired waters list – 303(d)(1)(C); 40 CFR 130.7(c)
- A “total maximum daily load” (TMDL) is an analysis of the waterbody to determine how much pollutant it can receive from different sources and still meet its water quality standards - CWA 303(d); 40 CFR 130.7

Total Maximum Daily Loads

- The TMDL must be “established at a level necessary to implement the applicable water quality standards” for the waterbody – CWA 303(d)(1)(C); 40 CFR 130.7(c)
- The TMDL calculation must also contain a protective “margin of safety”
- EPA approves (or disapproves) each State TMDL – CWA 303(d)(2)

TMDLs Allocate Pollutant Loads

- A TMDL also assigns a portion or “allocation” of the total allowable pollutant load to each source of the pollutant
- For example, a TMDL may determine that a river cannot receive more than 10 lbs/per day of sediment and still meet its designated use of salmon spawning.
- If there are five sources of sediment to the river, the TMDL might “allocate” the total daily sediment load among the five sources as follows:
 - $2 \text{ lbs} + 2 \text{ lbs} + 3 \text{ lbs} + 1 \text{ lb} + 2 \text{ lbs} = 10 \text{ lbs}$

How Are TMDLs Used?

- TMDLs are plans used by States and citizens to reduce water pollution
- Discharge limits in a “point source” NPDES permit must be “consistent with” the TMDL pollutant share (wasteload allocation) assigned to that point source – 40 CFR 122.44(d)(1)(vii)(B)
- In other words, a factory or sewage plant’s NPDES permit may not allow it to discharge more of a pollutant (e.g., PCBs, phosphorous, sediment) than its TMDL share
- TMDL allocations also encourage and guide non-point source pollution reduction (e.g., runoff from farms)

Nonpoint Source Pollution

- The CWA does not require nonpoint sources to obtain NPDES pollutant discharge permits
- However, it encourages States to reduce nonpoint source pollution by:
 - Requiring States to develop EPA-approved nonpoint source pollution management programs – CWA 319(b)
 - Providing States with funding under CWA 319(h) to implement those programs

Water Quality Trading

- EPA's 2003 "Water Quality Trading Policy" endorses trading pollutant reduction "credits" between, and among, sources to achieve cost-effective pollution reduction
- If a source reduces its discharge of a pollutant by more than the amount or "cap" specified in a permit or TMDL, it generates a pollutant reduction "credit"
- That source may trade or sell its reduction credit to another source who needs to make similar reductions
- Sources can only trade credits to meet water quality-based limits, not technology-based limits
- Sources may trade credits for nutrient and sediment reduction, but not for persistent, bioaccumulative toxics like PCBs, dioxin, and mercury

Progress Since 1972

- The CWA has helped the U.S. make significant progress since 1972
- The CWA's point source permit program has stopped the unregulated discharge of toxic chemicals and other pollutants from factories and sewage treatment plants
- Its water quality standards program has created protective water quality goals for most of the Nation's rivers and lakes
- As a result, most U.S. rivers and lakes are much cleaner today than 40 years ago

Much Work Still To Be Done

- Getting and keeping clean water is not easy or cheap
- Almost forty years later, the CWA's ambitious goals have not all been met
- Many U.S. waters are still not clean enough to support healthy fish, shellfish and wildlife populations or allow for human recreation
- We continue our efforts to meet the CWA's goals of eliminating pollutant discharges and making our waters safe for fish, wildlife and humans

Conclusion

- We wish you well in your efforts to protect the quality of China's rivers and lakes
- I hope you have found this presentation about our "Clean Water Act" helpful
- I am pleased to answer any questions
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CLEAN WATER ACT

The Congress and the EPA set program standards, and the States implement the programs with EPA oversight. For instance, under CWA 301, except as provided by certain sections, the addition of any pollutant from a point source into waters of the United States is prohibited.

Under **Section 402**, EPA or authorized States may issue National Pollutant Discharge Elimination System permits for all pollutants except dredge and fill material.

Must include **technology-based requirements** (pursuant to EPA-established national effluent limitations guidelines or, where no ELG established, best professional judgment)

May need to include **water quality-based requirements** (permits must include any more stringent limitations that are needed to meet water quality standards)

Impaired waters: 303(d) list and Total Maximum Daily Loads (wasteload allocation, load allocation, and margin of safety)

Water quality standards: Uses and criteria (WQS adopted by States, approved or disapproved and promulgated by EPA; fishable/swimmable uses unless not attainable; EPA-recommended criteria)

Government enforcement
Citizen enforcement