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# Chapter 2

## Regulatory Framework and Scope of the NPDES Program

This chapter provides a discussion of the regulatory framework of the NPDES Program, identifies the types of activities regulated under the NPDES Program, and discusses the program areas that address the various types of regulated activities.

### 2.1 Regulatory Framework of the NPDES Program

Chapter 1 discussed how Congress, in Section 402 of the CWA, required EPA to develop and implement the NPDES permit program. While Congress' intent was established in the CWA, EPA had to develop specific regulations to carry out the congressional mandate. The primary regulations developed by EPA to implement and administer the NPDES Program are found in Title 40 of the *Code of Federal Regulations* (CFR) Part 122.

The CFR is a set of documents listing all regulations issued by every United States government agency. The CFR is published by the National Archives and Records Service of the General Services Administration. The CFR is updated annually based on the regulations published daily in the *Federal Register* (FR).

The *FR* is the vehicle by which EPA and other branches of the Federal government provide notice of, propose, and promulgate regulations. Although all of the regulations can be found in the CFR, the background and implementation information related to these regulations can be found in the preamble to the regulations contained in the *FR*. This information is important to the permit writer because it explains the regulatory basis upon which permitting decisions are made.

An outline of the Federal NPDES regulations (40 CFR Part 122) is provided in **Exhibit 2-1**. Other parts of 40 CFR that are related to the NPDES Program include:

- 40 CFR Part 123 (State program requirements)
- 40 CFR Part 124 (procedures for decision making)
- 40 CFR Part 125 (technology-based standards)
- 40 CFR Part 129 (toxic pollutant standards)
- 40 CFR Part 130 (water quality management plans)
- 40 CFR Part 131 (water quality-based standards)
- 40 CFR Part 133 (sewage secondary treatment regulations)
- 40 CFR Part 135 (citizen suits)
- 40 CFR Part 136 (analytical procedures)
- 40 CFR Part 257 (State sludge disposal regulations)
- 40 CFR Part 401 (general effluent guidelines provisions)
- 40 CFR Part 403 (general pretreatment regulations)
- 40 CFR Parts 405-471 (effluent limitations guidelines)
- 40 CFR Part 501 (State sludge permitting requirements)
- 40 CFR Part 503 (sewage sludge disposal standards).

An index to the NPDES regulations is provided in **Appendix A**. This index groups the regulatory requirements by subject area to provide the permit writer easier access to specific provisions.

## 2.2 Scope of the NPDES Program

Under the NPDES Program, all facilities which discharge pollutants from any point source into waters of the United States are required to obtain a NPDES permit. Understanding how each of the key terms (“pollutant,” “point source,” and “waters of

## EXHIBIT 2-1

### Federal NPDES Regulations (40 CFR Part 122)

#### Subpart A - Definitions and General Program Requirements

- 122.1 Purpose and Scope of NPDES Program
- 122.2 Definitions
- 122.3 Exclusions
- 122.4 Prohibitions
- 122.5 Effect of a Permit
- 122.6 Continuation of Expired Permits
- 122.7 Confidentiality of Information

#### Subpart B - Permit Application and Special NPDES Program Requirements

- 122.21 Applications
- 122.22 Signatures Requirements for Applications
- 122.23 Animal Feeding Operations
- 122.24 Aquatic Animal Production
- 122.25 Aquaculture
- 122.26 Storm Water Discharges
- 122.27 Silviculture
- 122.28 General Permits
- 122.29 New Sources and New Discharges

#### Subpart C - Permit Conditions

- 122.41 Standard Conditions
- 122.42 Standard Conditions Applicable to Specified Categories
- 122.43 Permit Conditions
- 122.44 Permit Limitations

- |                          |                               |
|--------------------------|-------------------------------|
| (a) Technology Basis     | (j) Pretreatment Program      |
| (b) Other Basis (not WQ) | (k) Best Management Practices |
| (c) Reopeners            | (l) Anti-Backsliding          |
| (d) Water Quality Basis  | (m) Private Treatment Works   |
| (e) Priority Pollutants  | (n) Grants                    |
| (f) Notification Levels  | (o) Sludge                    |
| (g) 24 Hour Reporting    | (p) Coast Guard               |
| (h) Duration of Permits  | (q) Navigation                |
| (i) Monitoring           |                               |

#### 122.45 Calculating Limitations

- |                               |                             |
|-------------------------------|-----------------------------|
| (a) Discharge Points          | (f) Mass Based Limits       |
| (b) Production Basis          | (g) Intake Water Pollutants |
| (c) Metals                    | (h) Internal Waste Streams  |
| (d) Continuous Discharges     | (i) Discharge into Wells    |
| (e) Non-continuous Discharges |                             |

- 122.46 Duration of Permits
- 122.47 Schedules of Compliance
- 122.48 Reporting
- 122.49 Consideration of Other Federal Laws
- 122.50 Disposal to Other Points

#### Subpart D - Transfer, Modification, Revocation and Reissuance, and Termination of Permit

- 122.61 Transfer of Permits
- 122.62 Modification or Revocation and Reissuance of Permits
- 122.63 Minor Modifications of Permits
- 122.64 Termination of Permits

the United States”) have been defined and interpreted by the regulations is the key to defining the scope of the NPDES Program.

## **Pollutant**

The term “pollutant” is defined very broadly by the NPDES regulations and includes any type of industrial, municipal, and agricultural waste discharged into water (see glossary). For regulatory purposes, pollutants have been grouped into three general categories under the NPDES Program: conventional, toxic, and nonconventional. By definition, there are five conventional pollutants: 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), fecal coliform, pH, and oil and grease. Toxic or “priority” pollutants are those defined in Section 307(a)(1) of the CWA (and listed in 40 CFR §401.15) and include metals and manmade organic compounds. Nonconventional pollutants are those which do not fall under either of the above categories and include such parameters as ammonia, nitrogen, phosphorus, chemical oxygen demand (COD), and whole effluent toxicity (WET).

## **Point Source**

Pollutants can enter waters of the United States from a variety of pathways including agricultural, domestic and industrial sources (see **Exhibit 2-2**). For regulatory purposes these sources are generally categorized as either “point sources” or “non-point sources.” Typical point source discharges include discharges from publicly owned treatment works (POTWs), industrial facilities, and discharges associated with urban runoff. While provisions of the NPDES Program do address certain specific types of agricultural activities (i.e., concentrated animal feeding operations), the majority of agricultural facilities are defined as non-point sources and are exempt from NPDES regulation.

Pollutant contributions to waters of the United States may come from both “direct” and “indirect” sources. “Direct” sources discharge wastewater directly into the receiving waterbody, whereas “indirect” sources discharge wastewater to a POTW, which in turn discharges into the receiving waterbody. Under the national program, NPDES permits are issued only to direct point source discharges. Industrial and commercial indirect dischargers are controlled by the national pretreatment program (see Section 8.3.1).

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**EXHIBIT 2-2**  
**Sources of Discharge to Waters of the United States**

[ ducks, deer, and sewage picture ]

As indicated above, the primary focus of the NPDES permitting program is municipal and non-municipal (industrial) direct dischargers. Within these major categories of dischargers, however, there are a number of more specific types of discharges that are regulated under the NPDES Program. **Exhibit 2-3** provides an overview of the scope of the NPDES Program and identifies the program areas that control various categories of wastewater discharges.

Municipalities (e.g., POTWs) receive primarily domestic sewage from residential and commercial customers. Larger POTWs will also typically receive and treat wastewater from industrial facilities (indirect dischargers) connected to the POTW sewerage system. The types of pollutants treated by a POTW, therefore, will always include conventional pollutants (BOD<sub>5</sub>, TSS, pH, oil and grease, fecal coliform), and will include nonconventional and toxic pollutants depending on the unique characteristics of the commercial and industrial sources discharging to the POTW. The treatment typically provided by POTWs includes physical separation and settling (e.g., screening, grit removal, primary settling), biological treatment (e.g., trickling filters, activated sludge), and disinfection (e.g., chlorination, UV, ozone). These processes produce the treated effluent and a biosolids (sludge) residual. An additional

**EXHIBIT 2-3**  
**NPDES Program Areas and Applicable Regulations**

Source	Activity	Program Areas	Applicable Regulations
<b>Municipal</b>	Municipal Effluent Discharge	NPDES Point Source Control Program	40 CFR 122 40 CFR 125 40 CFR 133
	Indirect Industrial/ Commercial Discharges	Pretreatment Program	40 CFR 122 40 CFR 403 40 CFR 405-499
	Municipal Sludge Use and Disposal	Municipal Sewage Sludge Program	40 CFR 122 40 CFR 257 40 CFR 501 40 CFR 503
	Combined Sewer Overflow (CSO) Discharges	CSO Control Program	40 CFR 122 40 CFR 125
	Storm Water Discharges (Municipal)	Storm Water Program	40 CFR 122 40 CFR 125
<b>Industrial</b>	Process Wastewater Discharges	NPDES Point Source Control Program	40 CFR 122 40 CFR 125 40 CFR 405-499
	Non-process Wastewater Discharges	NPDES Point Source Control Program	40 CFR 122 40 CFR 125
	Storm Water Discharges (Industrial)	Storm Water Program	40 CFR 122 40 CFR 125

concern to some older POTWs are “combined sewer” systems (i.e., sewerage systems that are designed to collect both sanitary sewage and storm water). Exhibit 2-3 illustrates how the NPDES Program is structured to control all of the various types of pollutant sources and wastestreams that contribute to municipal point sources.

Non-municipal sources, which include industrial and commercial facilities, are unique with respect to the products and processes present at the facility. Unlike municipal sources, the types of raw materials, production processes, treatment technologies utilized, and pollutants discharged at industrial facilities vary widely and are dependent on the type of industry and specific facility characteristics. The

operations, however, are generally carried out within a more clearly defined plant area; thus, collection system considerations are generally much less complex than for POTWs. In addition, residuals (sludge) generated by industrial facilities are not currently regulated by the NPDES Program. Industrial facilities may have discharges of storm water that may be contaminated through contact with manufacturing activities, or raw material and product storage. Industrial facilities may also have non-process wastewater discharges such as non-contact cooling water. As illustrated in Exhibit 2-3, the NPDES Program addresses each of these potential wastewater sources for industrial facilities.

## Waters of the United States

The term “waters of the United States,” has been defined by EPA to include:

- Navigable waters
- Tributaries of navigable waters
- Interstate waters
- Intrastate lakes, rivers, and streams:
  - Used by interstate travelers for recreation and other purposes; or
  - Which are the source of fish or shellfish sold in interstate commerce; or
  - Which are utilized for industrial purposes by industries engaged in interstate commerce.

The intent of this definition is to cover all possible waters within Federal jurisdiction under the framework of the Constitution (i.e., Federal versus State authorities). The definition has been interpreted to include virtually all surface waters in the United States, including wetlands and ephemeral streams. As a general matter, groundwater is not considered a waters of the United States. Therefore discharges to groundwater are not subject to NPDES requirements. If, on the other hand, there is a discharge to groundwater that results in a “hydrological connection” to a nearby surface water, the Director may require the discharger to apply for an NPDES permit. [Note: Because States maintain jurisdiction over groundwater resources, they may choose to require NPDES permits for discharges to groundwater.]

## **2.3 NPDES Program Areas**

As indicated in Exhibit 2-3, the national NPDES Program includes provisions that address several different types of discharges from municipal and industrial sources. This section provides a brief description of how the NPDES Program addresses each of these program areas.

### **2.3.1 NPDES Program Areas Applicable to Municipal Sources**

The NPDES permitting program focuses on the development of effluent limits and conditions for the discharge of treated effluent. The NPDES Program, however, also incorporates other control measures to address certain types and categories of discharges that may be present at some municipal facilities. A description of these control measures, and a discussion of how they are incorporated into the permitting process is provided below.

#### **National Pretreatment Program**

The national pretreatment program regulates the discharges of wastewater from non-domestic (i.e., industrial and commercial) facilities that discharge to POTWs (i.e., “indirect” discharges). The pretreatment program requires industrial and commercial indirect dischargers to “pretreat” their wastes, as necessary, prior to discharge to POTWs, to prevent interference or upset to the operation of the POTW. The Federal program also requires many indirect dischargers to meet technology-based requirements similar to those for direct dischargers. The pretreatment program is generally implemented directly by the POTW receiving indirect discharges, under authority granted through the NPDES permit. The Federal regulations specifying which POTWs must have pretreatment programs, and the authorities and procedures that must be developed by the POTW prior to program approval are found in 40 CFR Part 403. The implementation of a local pretreatment program is typically included as a special condition in NPDES permits issued to POTWs. The incorporation of pretreatment special conditions is discussed in Chapter 8.

#### **Municipal Sewage Sludge Program**

Section 405 of the CWA requires that all NPDES permits issued to POTWs and other Treatment Works Treating Domestic Sewage (TWTDS) contain conditions



implementing 40 CFR Part 503 Standards for the Use and Disposal of Sewage Sludge. Thus, POTWs and other TWTDS must submit permit applications for their sludge use or disposal practices. TWTDS include sewage sludge incinerators, sewage sludge surface disposal sites, and facilities that do not discharge to waters of the United States (sludge-only facilities such as sludge composting facilities that treat sewage sludge).

The permitting regulations can be found at 40 CFR Part 122 for the Federal program. Regulations for State program approval are found at 40 CFR Parts 123 or 501 (depending on whether the State wishes to administer the sewage sludge program under its NPDES Program or under another program, e.g., a solid waste program). The technical regulations governing sewage sludge use and disposal are contained in 40 CFR Part 503. Where applicable, sludge management requirements are included as a special condition in permits issued to POTWs. The incorporation of special conditions that address sludge requirements is discussed in Chapter 8.

## Combined Sewer Overflows

Combined sewer systems (CSS) are wastewater collection systems designed to carry sanitary wastewaters (commercial and industrial wastewaters) and storm water through a single conduit to a POTW. As of 1995, CSSs serve about 43 million people in approximately 1,100 communities nationwide. During dry weather, CSSs collect and convey domestic, commercial, and industrial wastewater to a POTW; however, during periods of rainfall or snowmelt, these systems can become overloaded. When this occurs, the CSS overflows at designed relief points, discharging a combination of untreated sanitary wastewaters and storm water directly to a surface water body. These overflows, called combined sewer overflows (CSOs), can be a major source of water pollution in communities served by CSSs. CSOs often contain high levels of suspended solids (SS), pathogenic microorganisms, toxic pollutants, floatables, nutrients, and other pollutants, causing exceedances of water quality standards.

To address CSOs, EPA issued the National CSO Control Strategy on August 10, 1989 (54 *FR* 37370). While the 1989 Strategy resulted in some progress in controlling CSOs, significant public health risks and water quality impacts remained. To expedite compliance with the CWA and to elaborate on the 1989 Strategy, EPA, in collaboration with other CSO stakeholders (communities with CSSs, State water

quality authorities, and environmental groups), developed and published the CSO Control Policy on April 19, 1994 (59 *FR* 18688). The Policy establishes a uniform, nationally consistent approach to developing and issuing NPDES permits that address CSOs. With respect to NPDES permittees, State water quality standards authorities, and NPDES permitting and enforcement authorities, the CSO Policy states the following:

- Permittees should immediately implement the nine minimum controls (NMCs), which are technology-based actions or measures designed to reduce CSOs and their effects on receiving water quality, as soon as practicable, but no later than January 1, 1997.
- Permittees should give priority to environmentally sensitive areas.
- Permittees should develop long-term control plans (LTCPs) for controlling CSOs. A permittee may use one of two approaches: (1) demonstrate that its plan is adequate to meet the water quality-based requirements of the CWA (“demonstration approach”), or (2) implement a minimum level of treatment (e.g., primary clarification of at least 85% of the collected combined sewage flows) that is presumed to meet the water quality-based requirements of the CWA, unless data indicate otherwise (“presumptive approach”).
- Water quality standards authorities should review and revise, as appropriate, State water quality standards during the CSO long-term planning process.
- NPDES permitting authorities should consider the financial capability of permittees when reviewing CSO control plans.

The CSO Policy recommends that NPDES permitting authorities utilize a phased approach in addressing CSOs. Phase I permits should require the permittee to implement the NMC within two years of notice from the NPDES permitting authority and to develop a LTCP. Phase II permits should require continued implementation of the NMC and implementation of a LTCP.

Prior to issuing a permit that requires conditions that address CSOs, permit writers should consult the CSO Control Policy and associated guidance materials. The incorporation of permit conditions that address CSOs is provided in Chapter 8.

## Storm Water Program (Municipal)

EPA has determined that storm water runoff from major metropolitan areas is a significant source of pollutants discharged to waters of the United States. While rainfall and snow are natural events, the nature of runoff and its impact on receiving waters is highly dependent on human activities and use of the land. Runoff from lands modified by human activities (i.e., metropolitan areas) can affect surface water resources in two ways: (1) natural flow patterns can be modified; and (2) pollution concentrations and loadings can be elevated.

To address these discharges, the 1987 amendments to the CWA added a provision [Section 402(p)] that directed EPA to establish phased NPDES requirements for storm water discharges. Section 402(p)(2) of the Act identifies discharges covered under Phase I of the Storm Water Program and includes discharges from municipal separate storm sewer systems (MS4s) serving a population of 100,000 or more. Section 402(p)(3) identifies the standards for MS4 permits. These standards mark the significant difference in permits that address storm water discharges from MS4s versus permits that address other more traditional sources (i.e., POTWs and non-municipal sources). In general, Congress provided that permits for discharges from MS4s:

- May be issued on a system- or jurisdiction wide basis;
- Shall effectively prohibit non-storm water discharges into the MS4; and
- Shall require controls to reduce the discharge of pollutants to maximum extent practicable (MEP).

In response, EPA published regulations addressing storm water discharges from municipal separate storm sewer systems on November 16, 1990 (55 *FR* 47990). The regulations define a MS4 as any conveyance or system of conveyances that is owned or operated by a State or local government entity designed for collecting and conveying storm water. Under Phase I of the Storm Water Program, only those MS4s which served a population of 100,000 or more were required to apply for a NPDES permit. Unlike permits that are developed and issued to individual POTWs (also referred to as “municipals”), permits that address storm water discharges from MS4s may be issued on a jurisdiction-wide basis to the operator of the storm water collection

system (e.g., a county or city public works department). Chapter 8 discusses considerations for developing NPDES permits for storm water discharges from MS4s.

### **2.3.2 NPDES Program Areas Applicable to Industrial Sources**

In addition to the development of effluent limits and conditions for discharges of process and non-process wastewater from direct dischargers, the NPDES Program also includes provisions for control of storm water discharges from industrial sources. A description of this program area and a discussion of how it is incorporated into the permitting process is provided below.

#### **Storm Water Program (Industrial)**

All storm water discharges associated with industrial activity that discharge through municipal separate storm sewer systems or that discharge directly into the waters of the United States are required to obtain NPDES permit coverage, including those which discharge through MS4s located in municipalities with a population of less than 100,000. Discharges of storm water to a sanitary sewer system or to a POTW are excluded. As with the Municipal Storm Water Program discussed in Section 2.3.1 above, EPA published the initial permit application requirements for certain categories of storm water discharges associated with industrial activity on November 16, 1990 (55 *FR* 48065).

The regulations define storm water discharges associated with industrial activity as discharges from any conveyance used for collecting and conveying storm water directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The NPDES permitting regulations at 40 CFR §122.26 were promulgated on November 16, 1990 (55 *FR* 48065) to identify the following 11 industrial categories required to apply for NPDES permits for storm water discharges:

- Facilities subject to storm water effluent limitations guidelines (ELG), new source performance standards (NSPS), or toxic pollutant effluent standards under 40 CFR Subchapter N
- Certain heavy manufacturing facilities (lumber, paper, chemicals, petroleum refining, leather tanning, stone, clay, glass, concrete, ship construction)
- Active and inactive mining operations and oil and gas operations with contaminated storm water

- Hazardous waste treatment, storage, or disposal facilities, including Resource Conservation and Recovery Act (RCRA) Subtitle C facilities
- Landfills, open dumps, and RCRA Subtitle D facilities
- Recycling facilities, including metal scrapyards, battery reclaimers, salvage yards, and automotive junkyards
- Steam electric power generating facilities, including coal handling sites
- Transportation facilities that have vehicle maintenance shops, equipment cleaning operations, or airport de-icing operations
- Major POTW sludge handling facilities, including onsite application of sewage sludge
- Construction activities that disturb five acres or more
- Light industrial manufacturing facilities.

Operators of industrial facilities that are federally, state or municipally owned or operated that meet the description of the facilities listed in 40 CFR 122.26(b)(14)(1)-(xi) must also submit applications (note: the Transportation Act of 1991 provides exceptions for certain municipally owned or operated facilities). EPA published final rules regarding the NPDES Storm Water Regulations on both April 1, 1992 (57 *FR* 11394) and December 18, 1992 (57 *FR* 60444). The rule promulgated on April 2, 1992 was, in part, to codify provisions of the Transportation Act of 1991. The December 18, 1992 rule was in response to the mandate of the Ninth Circuit United States Court of Appeals in *NRDC v. EPA* (June 4, 1992). Each of these final rules are summarized below:

- **Transportation Act of 1992**—The Transportation Act of 1991 provides an exemption from Phase I storm water permitting requirements for certain industrial activities owned or operated by municipalities with a population of less than 100,000 (note: population threshold not tied to a service population for a MS4). Such municipalities must submit storm water discharge permit applications only for airports, powerplants, and uncontrolled sanitary landfills that they own or operate.
- **Ninth Circuit Court Decision**—The Ninth Circuit United States Court of Appeals’ opinion in *NRDC v. EPA* (June 4, 1992) invalidated and remanded for further proceedings two regulatory exemptions from the definition of “storm water discharges associated with industrial activity”:
  1. The exemption for construction sites disturbing less than five acres of land (category x), and
  2. The exemption of certain “light” manufacturing facilities without exposure of materials and activities to storm water (category xi).

In response to these two remands, EPA intends to conduct further rulemaking proceedings on construction activities under five acres and light industry without exposure. As ordered by the Court, EPA will not require permit applications for construction sites disturbing less than five acres of land and category xi facilities without exposure until this further rulemaking is completed.

Generally, storm water discharges from industrial sources are regulated by Federal or State issued general permits (see Section 3.1 for a description of the types of NPDES permits). However, in some cases, storm water conditions may be incorporated into a comprehensive individual NPDES permit for a facility, or a storm water-specific individual NPDES permit. The incorporation of permit conditions that address storm water discharges from industrial facilities is provided in Chapter 8. For more information regarding the scope of the NPDES Storm Water Program, refer to EPA's storm water regulations at 40 CFR 122.26 and the *Overview of the Storm Water Program*.<sup>2</sup>

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<sup>2</sup>USEPA (1996). *Overview of the Storm Water Program*. EPA 833-R-96-008. Office of Water.