CHAPTER 2. Regulatory Framework and Program Areas of the NPDES Program

This chapter discusses the regulatory framework of the National Pollutant Discharge Elimination System (NPDES) program, identifies the types of activities regulated under the NPDES program, describes the roles and responsibilities of federal and state governments, and presents 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 Clean Water Act (CWA) section 402, required the U.S. Environmental Protection Agency (EPA) to develop and implement the NPDES permit program. While Congress' intent was established in the CWA, EPA was required to develop specific regulations to carry out the congressional mandate. The regulations developed by EPA to implement and administer the NPDES program primarily are in Title 40 of the *Code of Federal Regulations* (CFR) Part 122 <www.epa.gov/lawsregs/search/40cfr.html>.

The CFR is an annual codification of the general and permanent rules published in the *Federal Register* (FR) by the executive departments and agencies of the federal government. The CFR is divided into 50 titles that represent broad areas subject to federal regulation. Title 40 covers protection of the environment. The FR is a legal publication that contains federal agency regulations; proposed rules and notices; and executive orders, proclamations and other presidential documents. The National Archives and Records Administration, an independent federal agency responsible for managing all federal records, publishes the FR and CFR. The text of all final regulations is found in the CFR. The background and implementation information related to these regulations, however, are found in the preamble to the regulations contained in the FR. This information is important to permit writers because it explains the legal, technical, and scientific bases on which regulatory decisions are made.

Exhibit 2-1 lists regulations in 40 CFR that are related to the NPDES program, and Exhibit 2-2 is an outline of the federal NPDES regulations from Part 122. The regulations at § 123.25 should be referenced for information applicable to state NPDES programs. Exhibit B-2 in Appendix B of this document is an Index to NPDES Regulations that provides regulatory citations by topic area.

Exhibit 2-1 Regulations related to the NPDES program

Regulation (40 CFR)	Subject
Part 121	State certification
Part 122	The federal NPDES permit program
Part 123	State program requirements
Part 124	Procedures for decision making
Part 125	Technology standards
Part 129	Toxic pollutant effluent standards
Part 130	Water quality planning and management
Part 131	Water quality standards
Part 133	Secondary treatment regulations
Part 135	Citizen suits
Part 136	Analytical procedures
Part 257	State sludge disposal regulations
Part 401	General provisions for effluent limitations guidelines and standards (effluent guidelines)
Part 403	General pretreatment regulations
Parts 405-471	Effluent guidelines
Part 501	State sewage sludge management program requirements
Part 503	Standards for use or disposal of sewage sludge

2.2 Federal and State Responsibilities

This section discusses the relationship between federal and state governments in the administration of the NPDES program and the process by which a state can become *authorized*.

2.2.1 State NPDES Program Authority

EPA may authorize qualified state, territorial, or tribal government agencies to implement all or parts of the NPDES program. States, territories, or tribes (hereafter *states*) are authorized through a process defined by the CWA section 402(b) and NPDES regulations Part 123. A state wanting to be authorized to administer the NPDES program submits to EPA a letter from the governor requesting review and approval of its program submission, a Memorandum of Agreement (MOA), a Program Description, a Statement of Legal Authority (also known as an *Attorney General's Statement* or *AG Statement*), and the underlying state laws and regulations. EPA determines whether the package is complete within 30 days of receipt. Within 90 days of receipt, EPA renders a decision to approve or disapprove the program. The time for review can be extended by agreement. The process of authorization includes a public review and comment period, and a public hearing.

States may apply for the authority to issue one or more of the following five types of NPDES authorization:

- NPDES Base Program for individual municipal and industrial facilities.
- General Permit Program.
- Pretreatment Program.
- Federal Facilities Program.
- Biosolids (Sewage Sludge) Program.

Exhibit 2-2 Federal NPDES regulations (40 CFR Part 122)

Subpart A–Definitions and General Program Requirements

§ 122.1 Purpose and scope
§ 122.2 Definitions
§ 122.3 Exclusions
§ 122.4 Prohibitions
§ 122.5 Effect of a permit
§ 122.6 Continuation of expiring permits
§ 122.7 Confidentiality of information

Subpart B–Permit Application and Special NPDES Program Requirements

§ 122.21 Applications
§ 122.22 Signatories to permit applications and reports
§ 122.23 Concentrated animal feeding operations
§ 122.24 Concentrated aquatic animal production
§ 122.25 Aquaculture projects
§ 122.26 Stormwater discharges
§ 122.27 Silviculture activities
§ 122.28 General permits
§ 122.29 New sources and new dischargers
§ 122.30-122.37 MS4s

Subpart C–Permit Conditions

§ 122.41 Standard conditions applicable to all permits
§ 122.42 Standard conditions applicable to specified categories of permits
§ 122.43 Establishing permit conditions
§ 122.44 Establishing limitations, standards, and other permit conditions

(a) Technology basis
(b) Other basis (not WQ)
(c) Reopeners
(d) Water quality basis
(e) Toxic (priority) pollutants
(f) Notification levels
(g) 24 Hour reporting
(h) Duration of permits
(i) Monitoring
(j) Pretreatment program
(k) Best management practices (BMPs)
(l) Anti-backsliding
(m) Privately owned treatment works
(n) Grants
(o) Sewage sludge
(p) Coast Guard
(q) Navigation
(r) Great Lakes
(s) Qualifying programs

§ 122.45 Calculating limitations

(a) Outfalls and discharge points
(b) Production basis
(c) Metals
(d) Continuous discharges
(e) Non-continuous discharges
(f) Mass limitations
(g) Pollutants in intake water
(h) Internal waste streams
(i) Discharge into wells, into publicly owned treatment works or by land application

§ 122.46 Duration of permits
§ 122.47 Schedules of compliance
§ 122.48 Requirements for recording and reporting of monitoring results
§ 122.49 Consideration under federal law
§ 122.50 Disposal into wells, into publicly owned treatment works or by land application

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

A state can receive authorization for one or more of the NPDES program components. For example, a state might receive authorization for the NPDES Base Program, General Permit Program, and Pretreatment Program, but not the Federal Facilities Program or Biosolids Program. In such a case, EPA continues to issue permits to federal facilities (e.g., facilities on military installations, federal lands) for discharges originating within the state and continues to implement the Biosolids Program. (Section 2.2.2 below provides additional discussion of Biosolids Program implementation.)

If EPA approves a program, the state assumes permitting authority in lieu of EPA. All new permit applications would then be submitted to the state agency for NPDES permit issuance. Certain permits issued before authorization might continue under EPA administration as set forth in the MOA. Even after a state receives NPDES authorization, EPA continues to issue NPDES permits on tribal lands within the boundaries of the state (if the tribe is not administering its own approved NPDES program). Following authorization, EPA also continues its national program management responsibilities by ensuring that state programs meet applicable federal requirements. If EPA disapproves the program, EPA remains the permitting authority for that state.

The State Program Status Website <www.epa.gov/npdes/authorization> provides the current authorization status for the states.

2.2.2 Roles and Responsibilities of the Federal and State Authorities

Until a state program is authorized, EPA is the Permitting Authority that issues all permits, conducts all compliance and monitoring activities, and enforces all program requirements.

As noted above, if a state has only partial authority, EPA will implement the other program activities. For example, where a state has an approved NPDES program but has not received EPA approval of its state sewage sludge management program, the EPA Region is responsible for including conditions to implement the Part 503 Standards for the Use or Disposal of Sewage Sludge in permits issued to treatment works treating domestic sewage (TWTDS) in that state. EPA could issue a separate permit with the applicable sewage sludge standards and requirements, or collaborate with the state on joint issuance of NPDES permits containing the Part 503 sewage sludge standards. The same process also applies where a state has not received approval of its pretreatment program or federal facilities program. One exception to that process is where an NPDES-authorized state is not approved to implement the general permit program. In such cases, EPA may not issue a general permit in that state as clarified in the memorandum *EPA's Authority to Issue NPDES General Permits in Approved NPDES States*[1] <www.epa.gov/npdes/pubs/owm0444.pdf>.

Once a state is authorized to issue permits, EPA generally is precluded from issuing permits in the state; however, EPA must be provided with an opportunity to review certain permits and may formally object to elements that conflict with federal requirements. If the permitting agency does not satisfactorily address the points of objection, EPA will issue the permit directly. Once a permit is issued through a government agency, it is enforceable by the approved state and federal agencies (including EPA) with legal authority to implement and enforce the permit. Private citizens may also bring a civil action in federal court against an alleged violator or against the EPA Administrator for alleged failure to enforce NPDES permit requirements. Exhibit 2-3 presents a summary of federal and state roles before and after program authorization.

Exhibit 2-3 Summary of federal and state/territorial/tribal roles in the NPDES permitting program

Before state/territorial/tribal program approval:

- EPA issues permits
- EPA conducts compliance and monitoring activities
- EPA enforces
- State/territory/tribe reviews permits and grants CWA section 401 certification

After state/territorial/tribal program approval:

- State/territory/tribe issues permits
- State/territory/tribe conducts compliance and monitoring activities
- State/territory/tribe enforces
- EPA provides administrative, technical and legal support
- EPA ensures state program meets federal requirements
- EPA offers NPDES program training
- EPA oversees grants to states (e.g., CWA section 106)
- EPA reviews permits and, as necessary, comments or objects
- EPA oversees and, as necessary, assumes enforcement of permits

2.3 NPDES Program Areas

NPDES permittees can be broadly classified as municipal (publicly owned treatment works [POTWs] and related discharges) and non-municipal facilities. Federal facilities fall into the broader category of non-municipal facilities. Within those broad categories, there might also be specific types of activities that are subject to unique programmatic requirements in the NPDES regulations. Exhibit 2-4 provides an overview of the different activities related to municipal and non-municipal sources; identifies the NPDES program areas that address these activities; and identifies the applicable regulations for each NPDES program area.

2.3.1 NPDES Program Areas Applicable to Municipal Sources

The NPDES regulations establish technology-based effluent requirements applicable to discharges from POTWs. In addition to effluent requirements, the NPDES regulations establish other programmatic requirements applicable to other POTW activities (e.g., sewage sludge disposal and management, stormwater discharges from the treatment plant site) or activities that may be conducted by a municipality (e.g., municipal separate storm sewer systems, combined sewer overflows). A description of those programs and how they relate to NPDES permits is provided in the following sections.

2.3.1.1 Publicly Owned Treatment Works (POTWs)

The federal regulations at § 403.3 define a POTW as a treatment works (as defined in CWA section 212) that is owned by a state or municipality [as defined in CWA section 502(4)]. The definition includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW. Finally, the term also means the municipality that has the jurisdiction over the indirect discharges to and the discharges from the treatment works. Federally owned treatment works, privately owned treatment works, and other treatment plants not owned by a state or municipality are not considered POTWs.

Exhibit 2-4 NPDES program areas and applicable regulations

Source	Program areas	Applicable regulations (40 CFR)
Municipal	Municipal (POTWs) effluent discharges	Part 122 Part 125 Part 133
	Indirect non-municipal discharges (Pretreatment)	Part 122 Part 403 Parts 405-471
	Biosolids (sewage sludge) use and disposal	Part 122 Part 257 Part 501 Part 503
	Combined sewer overflow (CSO) discharges	Part 122 Part 125
	Sanitary sewer overflow (SSO) discharges	Part 122
	Municipal separate storm sewer systems (MS4s) discharges	Part 122 Part 125
Non-municipal (Industrial)	Process wastewater discharges	Part 122 Part 125 Parts 405-471
	Non-process wastewater discharges	Part 122 Part 125
	Stormwater discharges associated with industrial activity	Part 122 Part 125
	Stormwater discharges from construction activities*	Part 122 Part 125
	Cooling water intake structures (CWIS)	Part 122 Part 125 Part 401
	Concentrated animal feeding operations (CAFOs)	Part 122 Part 123 Part 125 Part 412
	Concentrated aquatic animal production (CAAP) facilities	Part 122 Part 125 Part 451
	Vessel Discharges	Part 122

* Though stormwater discharges from construction activity resulting in disturbance of 5 or more acres of total land area technically are considered, "stormwater discharges associated with industrial activity" as defined by §122.26(b)(14)(x), these discharges are commonly referred to as stormwater discharges from *large* construction activities.

POTWs receive, primarily, domestic sewage from residential and commercial customers. Larger POTWs also typically receive and treat wastewater from industrial facilities (indirect dischargers) connected to the collection system. The types of pollutants treated by a POTW always include conventional pollutants and may include nonconventional and toxic pollutants, depending on the characteristics of the sources discharging to the POTW. The treatment provided by a POTW typically produces a treated effluent and a biosolids (sewage sludge) residual.

2.3.1.2 The National Pretreatment Program

The National Pretreatment Program <www.epa.gov/npdes/pretreatment> regulates the introduction of nondomestic (i.e., industrial and commercial) wastewater to POTWs. Because such discharges are treated by the POTW before release to a water of the United States, they are termed *indirect* discharges. The

pretreatment program prohibits industrial and commercial indirect dischargers from discharging pollutants to a POTW that will pass through the POTW to receiving waters or interfering with POTW treatment processes or contaminating sewage sludge. The federal program also requires certain indirect dischargers to meet technology-based requirements developed specifically for such POTW users that are similar to those for direct dischargers.

EPA's pretreatment regulations require certain POTWs to develop a pretreatment program, the requirements of which are generally included as conditions of a POTW's NPDES permit. The federal regulations specifying which POTWs must have pretreatment programs, and the authorities and procedures that must be developed by the POTW before program approval, are in Part 403. The requirement to develop and implement a local pretreatment program typically is included as a special condition in the POTW's NPDES permit. Section 9.2.1 of this manual includes a discussion on incorporating pretreatment special conditions into permits.

2.3.1.3 Biosolids (Sewage Sludge)

In 1987 Congress amended CWA section 405 to establish a comprehensive sewage sludge program <www.epa.gov/OW-OWM.html/mtb/biosolids/index.htm>. The program regulates the use and disposal of sewage sludge by POTWs and by other TWTDS. TWTDS include facilities that generate sewage sludge, provide commercial treatment of sewage sludge, manufacture a product derived from sewage sludge, or provide disposal of sewage sludge. CWA section 405 required EPA to develop technical standards that establish sewage sludge management practices and acceptable levels of toxic pollutants in sewage sludge. The terms *biosolids*, *sewage sludge*, and *municipal sludge* are used interchangeably throughout this document.

Regulations for state sewage sludge program approval are at Part 123 or Part 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 standards governing sewage sludge use and disposal are in Part 503. TWTDS not otherwise subject to the NPDES permit requirements under CWA section 402 must apply for and receive a permit addressing standards for use and disposal of sewage sludge in Part 503. Details of this rule are described in *A Plain English Guide to the EPA Part 503 Biosolids Rule*[2] <www.epa.gov/owm/mtb/biosolids/503pe/>. Where applicable, sewage sludge management requirements may be included as a special condition in permits issued to POTWs. Section 9.2.2 of this manual includes a discussion on incorporating special conditions that address sewage sludge requirements.

2.3.1.4 Combined Sewer Overflows (CSOs)

An additional concern for some older POTWs may be combined sewer systems (CSS), which are wastewater collection systems owned by a state or municipality [as defined by CWA section 502(4)] that convey sanitary wastewater (domestic, commercial and industrial wastewaters) and stormwater through a single-pipe system to a POTW [as defined by § 403.3(q)]. EPA estimates that CSSs serve about 40 million people in 772 communities nationwide <www.epa.gov/npdes/cso/csodem>. During dry weather, CSSs collect and convey domestic, commercial, and industrial wastewater to a POTW; however, during periods of rainfall, snowmelt, and other forms of precipitation, the systems can become overloaded. When that overloading occurs, the CSS can overflow at designed relief points and discharge a combination of untreated sanitary wastewater and stormwater directly to a surface waterbody.

A combined sewer overflow (CSO) <www.epa.gov/npdes/cso> is the discharge from a CSS at a point before the POTW. 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, oxygen-demanding organic compounds, oil and grease, and other pollutants, causing water quality standards to be exceeded.

To address CSOs, EPA issued the National CSO Control Strategy (54 FR 37370, September 8, 1989). While implementation of the 1989 strategy has resulted in progress toward controlling CSOs, significant public health and water quality risks remain. To expedite compliance with the CWA, and to elaborate on the 1989 strategy, EPA, after collaboration with other CSO stakeholders (communities with CSSs, state water quality authorities, and environmental groups), published the CSO Control Policy <www.epa.gov/npdes/cso/controlpolicy> (59 FR 18688, April 19, 1994). The 1994 CSO policy represents a comprehensive national strategy to ensure that municipalities, permitting authorities, water quality standards authorities, and the public engage in a comprehensive and coordinated planning effort to achieve cost-effective CSO controls that ultimately meet appropriate health and environmental objectives. The Wet Weather Water Quality Act of 2000 stipulates that NDPES permits, enforcement orders, or decrees must conform to the 1994 CSO Policy [CWA section 402(q)].

Before issuing a permit with conditions that address CSOs, permit writers should consult the CSO Control Policy and associated guidance. Section 9.2.3 of this manual includes a discussion on incorporating appropriate CSO permit conditions.

2.3.1.5 Sanitary Sewer Overflows (SSOs)

Properly designed, operated, and maintained sanitary sewer systems are meant to collect and transport all the sewage that flows into them to a POTW; however, occasional, unintentional spills of raw sewage from municipal sanitary sewers occur in almost every system. Such types of releases are called sanitary sewer overflows (SSOs) <www.epa.gov/npdes/sso>.

SSOs have a variety of causes including severe weather, improper system operation and maintenance, and vandalism. EPA estimates that over 40.000 SSO events occur per year in the United States (excluding basement backups). Overflows of untreated wastewater can present risks of human exposure when released to certain areas, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. A description of the extent of human health and environmental impacts caused by releases of untreated sewage, along with other information, is provided in the *Report to Congress on the Impacts and Control of CSOs and SSOs*[3] <www.epa.gov/npdes/csossoreport2004>. That 2004 report shows that NPDES permit requirements establishing clear reporting, record keeping, third party notification of overflows from municipal sewage collection systems, and clear requirements to properly operate and maintain the collection system, are critical to effective program implementation.

EPA has developed a draft fact sheet <www.epa.gov/npdes/pubs/sso_fact_sheet_model_permit_cond.pdf> and draft model permit conditions <www.epa.gov/npdes/pubs/sso_model_permit_conditions.pdf> that explain how NPDES permitting authorities can better address SSOs and sanitary sewer collection systems. Section 9.2.4 of this manual discusses incorporation of conditions to address SSOs in NPDES permits.

2.3.1.6 Municipal Separate Storm Sewer Systems (MS4s)

Stormwater 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 stormwater discharges and their impact on receiving waters are greatly affected by human activities and land use. Stormwater from lands modified by human activities, such as metropolitan areas and urban streets, can affect surface water resources by modifying natural flow patterns or by elevating pollution concentrations and loadings.

To address such concerns, the 1987 amendments to the CWA added section 402(p), a provision that directed EPA to establish phased NPDES requirements for stormwater discharges. Phase I of the stormwater program addresses permits for discharges from medium and large MS4s serving a population of 100,000 or more, as well as certain categories of industrial activity, including construction activity disturbing greater than 5 acres. Phase II expanded the stormwater program to include small MS4s and construction activity disturbing between 1–5 acres.

The MS4 stormwater application regulations (Phase I) established requirements for a two-part permit application that allowed large and medium local governments to help define priority pollutant sources in the municipality and to develop and implement appropriate controls for such discharges to MS4s (55 FR 47990, November 16, 1990). Part II of the application requires municipal applicants to propose municipal stormwater management programs to control pollutants to the *maximum extent practicable* (MEP) and to effectively prohibit non-stormwater discharges to the municipal system. Medium and large MS4 operators are required to submit comprehensive permit applications and are issued individual permits.

Phase II of the stormwater program extended the NPDES permitting program to small MS4s in urbanized areas (64 FR 68722, December 8, 1999). The Phase II MS4 regulations require small MS4s to develop a program to address six *minimum control measures* that include BMPs and measurable goals for each BMP. Permit writers have the option of permitting regulated small MS4 operators using an individual permit, a general permit, or a modification of an existing Phase I MS4's individual permit (although the vast majority of small MS4s have been covered under general permits).

Municipal stormwater management programs combine source controls and management practices that address targeted sources in the boundaries of the municipal system. For example, a municipality that expects significant new development may focus more on proposing requirements for new development and construction. On the other hand, a municipality that does not expect significant new development could focus more on municipal activities that affect stormwater quality such as: maintenance of leaking sanitary sewers, road de-icing and maintenance, operation of municipal landfills, flood control efforts, and control of industrial contributions of stormwater.

MEP is not precisely defined so as to allow maximum flexibility in MS4 permitting to optimize reductions in stormwater pollutants on a location-by-location basis (64 FR 68754, December 8, 1999). Therefore, permit writers must rely on application requirements specified in the regulations and the applicant's proposed management program when developing appropriate permit conditions. The stormwater Phase II rule was challenged in the courts, with the U.S. Court of Appeals for the Ninth Circuit generally upholding the Phase II rule but remanding three issues back to EPA. EPA issued guidance on April 16, 2004 for how new general permits should address the remanded issues of public availability of notices of intent (NOIs), opportunity for public hearings, and permitting authority reviews of NOIs titled *Implementing the Partial Remand of the Stormwater Phase II Regulations Regarding*

Notices of Intent & NPDES General Permitting for Phase II MS4s[4] <www.epa.gov/npdes/pubs/hanlonphase2apr14signed.pdf>.

In addition to information on the Stormwater Discharges From Municipal Separate Storm Sewer Systems (MS4s) Website <www.epa.gov/npdes/stormwater/municipal>, EPA has developed the following guidance documents and memoranda to help permit writers and permittees implement the municipal stormwater program:

- *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharge from Municipal Separate Storm Sewer Systems*[5] <www.epa.gov/npdes/pubs/owm0246.pdf>.
- *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits*[6] <www.epa.gov/npdes/pubs/swpol.pdf>.
- *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*[7] <www.epa.gov/npdes/pubs/final-wwtmdl.pdf>.
- *MS4 Program Evaluation Guidance*[8] <www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf>.
- *MS4 Permit Improvement Guide*[9] <http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf>.

The application requirements for stormwater discharges from MS4s serving a population greater than 100,000 and for stormwater discharges from small MS4s are discussed in sections 4.3.10 and 4.3.11 of this manual.

2.3.2 NPDES Program Areas Applicable to Non-Municipal Sources

Non-municipal sources include industrial and commercial facilities, industrial stormwater (including large construction activities), and discharges from small construction activity, concentrated animal feeding operations (CAFOs) and concentrated aquatic animal production (CAAP) facilities. Unlike municipal sources, the types of raw materials, production processes, treatment technologies used and pollutants discharged at industrial facilities vary widely and are dependent on the type of industry and specific facility characteristics. The operations, however, generally are carried out within a more clearly defined area; thus, the collection systems are less complex than POTW collection systems. In addition, unlike biosolids at POTWs, the NPDES program does not regulate residuals (sludge) generated by non-municipal facilities.

Non-municipal facilities can have discharges of stormwater that might be contaminated through contact with manufacturing activities or raw material and product storage, or they can have non-process wastewater discharges such as non-contact cooling water. In addition, some non-municipal facilities take in cooling water. Those discharges and intakes may be regulated under an NPDES permit in addition to any process wastewater.

2.3.2.1 Process Wastewater

Industrial and commercial facilities often use water in the manufacture and processing of products. The regulations at § 122.2 define process wastewater as, "[a]ny water which, during manufacturing or processing, comes into direct contact with, or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product."

Process wastewater can contain pollutants at levels that could affect the quality of receiving waters. The NPDES permit program establishes specific requirements for discharges of process wastewater from industrial and commercial sources. If a facility discharges directly to surface water, it would require an individual or general NPDES permit. An industrial or commercial facility also may discharge wastewater to a municipal sewer system, which would be covered under the NPDES pretreatment program. Many types of industrial facilities, whether they discharge directly to surface water or to a municipal sewer system, are covered by effluent guidelines and standards (see section 5.2 of this manual). The stormwater that runs off the property of an industrial or commercial facility or from a construction site might require an NPDES permit under the industrial stormwater program (see section 2.3.2.3 below).

2.3.2.2 Non-Process Wastewater

Industrial and commercial facilities often use water for purposes other than processing products, such as using non-contact cooling water for heat exchange, and may discharge wastewater from sources such as sanitary or cafeteria wastes. Like process wastewater, non-process wastewater is regulated under the NPDES program. Non-process wastewater might also be important to the permit writer when drafting monitoring conditions for facilities where the non-process wastewater dilutes the concentration of pollutants of concern in process wastewater. The permit writer must ensure that specified monitoring locations ensure accurate measurement for compliance with all effluent limitations.

2.3.2.3 Stormwater Associated with Industrial Activity

To minimize the impact of stormwater discharges from industrial facilities, the NPDES program includes an industrial stormwater permitting component. Operators of industrial facilities included in 1 of the 11 categories of stormwater discharges associated with industrial activity that discharge or propose to discharge stormwater to an MS4 or directly to waters of the United States require authorization under an NPDES industrial stormwater permit. EPA published permit regulations and permit application requirements for stormwater discharges associated with industrial activity in 55 FR 48063, November 16, 1990.

Permit Regulations for Stormwater Associated with Industrial Activity

The regulations define stormwater discharges associated with industrial activity as discharges from any conveyance used for collecting and conveying stormwater and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The regulations at § 122.26(b)(14)(i - xi) identify the following 11 industrial categories required to apply for NPDES permits for stormwater discharges:

- Facilities subject to stormwater effluent guidelines, new source performance standards, or toxic pollutant effluent standards under Parts 400-471 (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 stormwater.
- Hazardous waste treatment, storage, or disposal facilities, including Resource Conservation and Recovery Act (RCRA) Subtitle C facilities.
- Landfills, land application sites, open dumps, and RCRA Subtitle D facilities.

- Recycling facilities, including metal scrap yards, 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 deicing operations.
- Major POTW sludge handling facilities, including on-site application of sewage sludge.
- Construction activities that disturb 5 acres or more (see subsection below).
- Light industrial manufacturing facilities.

Operators of industrial facilities that are federally, state- or municipally owned or operated that meet the above descriptions must also submit applications.

EPA issued a final rule for Phase II of the stormwater program in 64 FR 68722, December 8, 1999. That rule clarified that stormwater discharges from industrial facilities that have *no exposure* of industrial activities or materials to stormwater may be conditionally excluded from the stormwater permitting program. To qualify for the no exposure exclusion, the industrial operator must complete a no exposure certification form and submit this to EPA once every 5 years. For more information, see the Conditional No Exposure Exclusion Website <www.epa.gov/npdes/stormwater/noexposure>.

Generally, EPA- or state-issued general permits regulate stormwater discharges from industrial, construction and Phase II municipal sources, while Phase I municipal sources usually are issued individual permits. In some cases, stormwater conditions may be incorporated into a comprehensive individual NPDES permit for a facility or a stormwater-specific individual NPDES permit. Incorporating permit conditions to address stormwater discharges associated with industrial and construction activities into an individual facility permit is discussed in the subsections below. For more information regarding the scope of the NPDES stormwater program, see the NPDES Stormwater Program Website <www.epa.gov/npdes/stormwater>.

Permit Conditions for Stormwater Discharges Associated with Industrial Activity

All stormwater discharges associated with industrial activity that discharge stormwater through a separate MS4 or discharge directly to waters of the United States are required to obtain an NPDES permit. Because of the large number of facilities requiring permits, EPA and most NPDES-authorized states choose to issue general permits to regulate stormwater discharges. The Phase I rule in 1990 established the concept of a permitting exemption for industrial facilities with little or no likelihood of discharging contaminated stormwater; however, this exemption was not well-defined or required to be submitted to the NPDES permitting authority. The Phase II rule in December 1999 clarified and expanded the no exposure certification requirement to require industrial facilities with no exposure of industrial processes to stormwater to submit a written certification notifying EPA or the authorized state that the facility wishes to be excluded from the NPDES program.

Each industrial facility covered under an EPA-issued stormwater general permit must meet the numeric and non-numeric effluent limitations established in the general permit. Industrial facilities can meet those effluent limitations by implementing control measures, including BMPs, that control the discharge of stormwater associated with industrial activity.

The EPA- and state-issued stormwater general permits generally require the facility to develop and implement a site-specific stormwater pollution prevention plan (SWPPP). The SWPPP describes the control measures, whether structural or nonstructural, which are used for controlling stormwater discharges from the industrial facility. The special conditions component of EPA's stormwater general permits identifies the requirements that must be documented in the SWPPP, including the following:

- A description of potential pollutant sources at the facility, including the following:
  - A map of the facility indicating the drainage areas of the site and the industrial activities that occur in each drainage area.
  - An inventory of materials that could be exposed to stormwater.
  - A description of the likely sources of pollutants from the site and a prediction of the pollutants likely to be present in the stormwater.
  - The history of spills and leaks of toxic and hazardous materials over the past 3 years.
- The measures and controls that will be implemented to prevent or minimize pollution of stormwater, including the following:
  - Good housekeeping or upkeep of industrial areas exposed to stormwater.
  - Preventive maintenance of stormwater controls and other facility equipment.
  - Spill prevention and response procedures.
  - Testing of outfalls to ensure that there are no illicit discharges.
  - Employee training on pollution prevention measure and controls, and record keeping.

A permit writer's best sources of information for developing appropriate special conditions for stormwater control measures are other stormwater general permits. Using existing general permits as the basis for special conditions is encouraged because doing so will reduce duplication of effort. A listing of individual and general permits (stormwater and non-stormwater) issued by EPA and authorized states is on the View NPDES Individual and General Permits Website <www.epa.gov/npdes/permitsearch>. In addition to the Stormwater Discharge From Industrial Facilities Website <www.epa.gov/npdes/stormwater/indust>, EPA published *Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators*[10] <www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf> to help permit writers identify components of SWPPPs and BMPs and to help permittees develop their own plans. Section 4.3.8 of this manual discusses Form 2F and individual permit requirements for stormwater discharges associated with industrial activity.

Permit Conditions for Stormwater Discharges associated with Construction Activities

EPA and most NPDES-authorized states have issued NPDES general stormwater permits for discharges associated with construction activity that are separate from the industrial stormwater general permits. The Phase I stormwater regulations require permit coverage for all construction activity that results in the disturbance of five acres or greater of the total land area. This includes disturbance of less than five acres of total land area that is part of larger common plan of development or sale if the larger common plan will ultimately disturb five acres of more. The Phase II stormwater regulations require permit coverage for all construction activity that result in land disturbance of equal to or greater than one acre and less than five acres. This includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Since March 2003, most construction activity disturbing one to five acres has been required to comply with the conditions of the relevant NPDES permit (typically under the relevant construction general permit for stormwater discharges), though states have the option of not requiring the submittal of NOIs for stormwater discharges associated with small construction activity.

EPA and NPDES-authorized state permitting authorities may include permit conditions that incorporate qualifying state or local erosion and sediment control program requirements by reference. A qualifying state or local erosion and sediment control program is one that includes the requirements at § 122.44(s). Once EPA or an NPDES authorized state identifies and incorporates a qualifying local program in their NPDES construction general permit, operators can follow the erosion and sediment control requirements of the qualifying local program. By incorporating the qualifying local program by reference the permitting authority can avoid duplicative or conflicting erosion and sediment control requirements between the local program requirements and the NPDES general permit control requirements addressing stormwater discharges associated with construction activity. Operators that are engaged in construction activity within a qualifying program must still submit an NOI under the appropriate construction general permit and comply with all other permit conditions.

The permit requirements in a construction general permit may be similar to those in an industrial general permit, including the development of a SWPPP. In addition to the Stormwater Discharges from Construction Activities Website <www.epa.gov/npdes/stormwater/construction>, EPA also developed the Stormwater Pollution Prevention Plans for Construction Activities Website <www.epa.gov/npdes/swpppguide>. Section 4.3.9 of this manual discusses individual permit requirements for stormwater discharges associated with construction activity.

2.3.2.4 Cooling Water Intake Structures

CWA section 316(b) provides that any standard established pursuant to CWA sections 301 or 306 and applicable to a point source will require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. This CWA provision is unique because it addresses the *intake* of water, in contrast to other provisions that regulate the discharge of pollutants into waters of the United States. EPA has established national performance standards under CWA section 316(b) designed to reduce the impingement and entrainment of fish and other aquatic organisms as they are drawn into a facility's cooling water intake structure(s). Impingement occurs when organisms are trapped against cooling water intake structures by the force of water being drawn through the intake structure. Entrainment occurs when organisms are drawn through a cooling water intake structure into a cooling system, through the heat exchanger, and then pumped back out into the waterbody. For more information, see section 4.3.12 of this manual.

In April 1976, EPA published regulations at Part 402 to address cooling water intake structures. Fifty-eight electric utility companies challenged the final rule. The U.S. Court of Appeals for the Fourth Circuit remanded the rule in 1977, and in 1979, EPA withdrew Part 402. Beginning in 1977, NPDES permit authorities made decisions implementing CWA section 316(b) on a case-by-case basis using best professional judgment (BPJ) (§§ 125.90(b) and 401.14).

In the 1990s, EPA began developing CWA section 316(b) regulations establishing national standards. EPA divided the rulemaking into three phases:

- Phase I addressed new facilities and was completed in December 2001 (Part 125, Subpart I).
- Phase II addressed existing electric generating plants that use at least 50 million gallons per day (mgd) of cooling water was completed in July 2004 (Part 125, Subpart J).

- Phase III addressed other existing facilities, including small existing electric generating plants that use less than 50 mgd of cooling water, manufacturers, and new offshore and coastal oil and gas extraction facilities.

The Phase III regulations, finalized in June 2006, establish national standards only for new offshore and coastal oil and gas extraction facilities (Part 125, Subpart N). EPA decided that other Phase III industrial facilities withdrawing water for cooling purposes would not be covered by national standards but would continue to be subject to CWA section 316(b) requirements set by the NPDES Permitting Director on a case-by-case, BPJ basis (§§ 125.90(b) and 401.14).

All three regulations were subject to judicial challenges. While the Phase I rule was largely upheld, the court reviewing the Phase II regulation rejected a number of its provisions. Under remands from the reviewing courts, EPA is reevaluating the Phase II regulation and the decision in the Phase III regulation not to establish national standards for existing Phase III facilities. In the interim, as noted above, NPDES permits must include CWA section 316(b) conditions developed on a case-by-case basis. For the most current information on regulatory requirements, see the Cooling Water Intake Structure Program Website <www.epa.gov/waterscience/316b/>, and for additional Cooling Water Intake Structures regulatory requirements, see section 4.3.12 of this manual.

2.3.2.5 Concentrated Animal Feeding Operations (CAFOs)

Animal feeding operations (AFOs) are agricultural facilities where animals are kept and raised in confined situations. AFOs typically maintain animals, feed, and manure and have production operations in a limited land area. Manure and wastewater from AFOs have the potential to contribute pollutants such as nitrogen and phosphorus, organic matter, sediments, pathogens, heavy metals, hormones, antibiotics, and ammonia to the environment. An AFO is a lot or facility (other than an aquatic animal production facility) where the following conditions are met:

- Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period.
- Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

AFOs that meet the regulatory definition of a CAFO, or that are designated as CAFOs by the permitting authority, and that discharge or propose to discharge are required to be permitted under the NPDES permitting program.

An animal operation must meet the definition of an AFO [§ 122.23(b)(1)] before it can be considered a CAFO. To be defined as a CAFO, an AFO must meet the regulatory definition [§§ 122.23(b)(4) or 122.23(b)(6)] of a large or medium CAFO or must be designated by the permitting authority [§ 122.23(c)]. Only CAFOs that discharge or propose to discharge are subject to NPDES permitting requirements.

CAFOs are subject to requirements that limit discharges from the production area and requirements applicable to land application areas under the control of the CAFO operator. Large CAFOs are subject to a no discharge requirement for production areas, whereas other CAFOs are subject to BPJ requirements for their production areas. One of the principal substantive pollution control conditions in any CAFO

permit is the requirement to implement the terms of the nutrient management plan (NMP) incorporated into the permit when permit authorization is granted. For more information, see the Animal Feeding Operations Website <www.epa.gov/npdes/cafo>. In addition, section 4.3.4 of this manual discusses application requirements for CAFOs.

2.3.2.6 Concentrated Aquatic Animal Production (CAAP) Facilities

CAAP facilities also are regulated under the NPDES program. In 2004 EPA promulgated new effluent guidelines that address CAAP facilities. The effluent guidelines apply to CAAP facilities (flow-through, recirculating, and net pen) that directly discharge wastewater and have annual production equal to or greater than 100,000 pounds of aquatic animals. The rule requires a BMP plan and implementation of measures, including recordkeeping and reporting requirements, to minimize discharges of solids, to prevent spills of drugs, feed, and chemicals that could result in discharges to waters of the United States, and to ensure proper maintenance of the facility. A facility that does not meet the effluent guideline threshold might still need an NPDES permit if it meets the CAAP facilities thresholds established in the NPDES regulations at § 122.24(b) or if it is designated as a CAAP facility under the designation authority in § 122.24(c). For more information, see the Aquatic Animal Production Industry Effluent Guidelines Website <www.epa.gov/guide/aquaculture/>.

2.3.2.7 Vessel Discharges

On March 30, 2005, the U.S. District Court for the Northern District of California (in *Northwest Environmental Advocates et al. v. EPA*) ruled that the EPA regulation excluding discharges incidental to the normal operation of a vessel from NPDES permitting exceeded the Agency's authority under the CWA. On September 18, 2006, the Court issued an order revoking this regulation [40 CFR 122.3(a)] as of September 30, 2008. EPA appealed the District Court's decision, and on July 23, 2008, the Ninth Circuit upheld the decision, leaving the September 30, 2008, *vacatur* date in effect. In response to the Court order, EPA developed two proposed permits to regulate discharges from vessels. The district court ultimately extended the date of *vacatur* to February 6, 2009.

In July 2008, Congress amended the CWA (P.L. No. 110-288) to add a new section 402(r), which excludes discharges incidental to the normal operation of a recreational vessel from NPDES permitting. Instead, it directs EPA to regulate those discharges under a newly created CWA section 312(o). As a result of the law, EPA did not finalize the previously proposed Recreational Vessel General Permit and is instead undertaking rulemaking to develop BMPs for these vessels under the authority of CWA section 312(o).

In July 2010 P.L. 111-215 (Senate Bill S. 3372) was signed into law. This law amends P.L. 110-299 (Senate Bill S. 3298), which generally imposes a moratorium during which time neither EPA nor states may require NPDES permits for discharges incidental to the normal operation of commercial fishing vessels and other non-recreational vessels less than 79 feet. As a result, of P.L. 110-299, the Vessel General Permit (VGP) does not cover vessels less than 79 feet, or commercial fishing vessels, unless they have ballast water discharges. P.L. 111-215 extended the expiration date of the moratorium from July 31, 2010, to December 18, 2013.

As a result of the court ruling, EPA issued the VGP on December 18, 2008. The 2008 VGP regulates discharges incidental to the normal operation of vessels operating in a capacity as a means of transportation. The VGP includes the following:

- general effluent limits applicable to all discharges.
- general effluent limits applicable to 26 specific discharge streams.
- narrative water-quality based effluent limits.
- inspection, monitoring, recordkeeping, and reporting requirements.
- additional requirements applicable to certain vessel types.

EPA estimates that approximately 61,000 domestically flagged commercial vessels and approximately 8,000 foreign flagged vessels could be affected by this permit.

Because this area of the NPDES permit program is relatively new and continues to evolve, for the most current information, see EPA's Vessel Discharges Website <www.epa.gov/npdes/vessels>.

2.4 Major/Minor Facility Designation

In addition to categorizing facilities as municipal and non-municipal, EPA has also developed criteria to determine which of the sources should be considered *major facilities*. The distinction was made initially to assist EPA and states in setting priorities for permit issuance and reissuance. The regulations at § 122.2 define major facility as, "any NPDES *facility or activity* classified as such by the Regional Administrator, or in the case of *approved state programs*, the Regional Administrator in conjunction with the [s]tate Director." All facilities that are not designated as *majors* are considered *minor* facilities.

Through policy, including the memoranda *Procedures for Revising the Major Permit List*[11] <www.epa.gov/npdes/pubs/owm0364.pdf> and *Delegation of Updates to Major/Minor Lists*[12] <www.epa.gov/npdes/pubs/owm0142.pdf>, EPA has established working definitions for POTW and non-municipal major facilities. For POTWs, major facilities are those that have a design flow of one million gallons per day or greater or serve a population of 10,000 or more or cause significant water quality impacts. Non-POTW discharges are classified as major facilities on the basis of the number of points accumulated using the NPDES Permit Rating Work Sheet <www.epa.gov/npdes/pubs/owm0116.pdf>. The worksheet evaluates the significance of a facility using several criteria, including toxic pollutant potential, flow volume, and water quality factors such as impairment of the receiving water or proximity of the discharge to coastal waters.

2.5 Growth and Change in the NPDES Program

The basic structure of the NPDES program has remained the same since the 1972 Federal Water Pollution Control Act amendments, but as EPA develops new regulations, policies, and guidance or modifies existing program requirements and guidance, the existing program is refined and new aspects of the program can emerge. To stay informed about the most recent program developments, permit writers should visit EPA's NPDES Program Website <www.epa.gov/npdes/> frequently.

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[2] U.S. Environmental Protection Agency. 1994. *A Plain English Guide to the EPA Part 503 Biosolids Rule.* EPA/832/R-93/003. U.S. Environmental Protection Agency, Office of Wastewater Management, Washington, DC. <www.epa.gov/owm/mtb/biosolids/503pe/>.

[3] U.S. Environmental Protection Agency. 2004. *Report to Congress on the Impacts and Control of CSOs and SSOs.* EPA 833-R-04-001. U.S. Environmental Protection Agency, Office of Water, Washington, DC. <www.epa.gov/npdes/csossoreport2004>.

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[5] U.S. Environmental Protection Agency. 1992. *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Application for Discharges from Municipal Separate Storm Sewer Systems*. EPA-833/B-92-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC. <www.epa.gov/npdes/pubs/owm0246.pdf>

[6] Perciasepe, R. 1996. *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits*. U.S. Environmental Protection Agency, Office of Water. Memorandum, September 1, 1996. <www.epa.gov/npdes/pubs/swpol.pdf>.

[7] Wayland, R.H., III, and J.A. Hanlon. 2002. *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.* U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds and Office of Wastewater Management. Memorandum, November 22, 2002. <www.epa.gov/npdes/pubs/final-wwtmdl.pdf>.

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[9] U.S. Environmental Protection Agency. 2010. *MS4 Permit Improvement Guide*. EPA833-R-10-001. U.S. Environmental Protection Agency. Office of Water, Washington, DC. <http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf>

[10] U.S. Environmental Protection Agency. 2009. *Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators*. EPA 833-B-09-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC. <www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf>.

[11] Dougherty, Cynthia. 1988. *Procedures for Revising the Major Permit List.* U.S. Environmental Protection Agency, Permits Division. Memorandum, December 28, 1988. <www.epa.gov/npdes/pubs/owm0364.pdf>

[12] Pendergast, James F. 1995. *Delegation of Updates to Major/Minor Lists.* U.S. Environmental Protection Agency, Office of Wastewater Management. Memorandum, February 6, 1995. <www.epa.gov/npdes/pubs/owm0142.pdf>.