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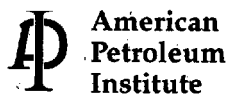


UNDERSTANDING AND PREPARING APPLICATIONS FOR PETROLEUM FACILITY NPDES DISCHARGE PERMITS

Regulatory and Scientific Affairs
Publication Number 4695
December 1999



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Understanding and Preparing Applications for Petroleum Facility NPDES Discharge Permits

Regulatory and Scientific Affairs

API PUBLICATION NUMBER 4695

PREPARED UNDER CONTRACT BY:

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ROUND ROCK, TEXAS

DECEMBER 1999



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Preface

The American Petroleum Institute's (API's) Health and Environmental Sciences Department, through the API Water Technology Task Force, has been conducting a multi-year research program to evaluate and identify practical and environmentally sound technologies for petroleum facility wastewater treatment. The Task Force has also been sponsoring research to help petroleum facilities and government agencies to improve efficiencies and to change and comply with regulations. The results of this program are intended to provide industry and regulatory agencies with technical information to make informed decisions on appropriate alternatives for individual petroleum manufacturing and distribution facilities.

The Task Force has sponsored and published a significant amount of work in prior years on handling and treating petroleum waters. A listing of some key published reports is summarized below. This report is aimed at helping individual petroleum facilities understand the NPDES (National Pollutant Discharge Elimination System) permitting process, and how to cost-effectively prepare permit applications under this system, whether done by in-house staff or through a consulting firm or other resource.

This comprehensive report goes beyond explaining how to prepare the NPDES permit application. It provides strategies for improving facility operation as personnel go through the permit application; raises possible issues and resolutions for negotiation and appeals with government regulators; provides example case histories; discusses stormwater permits; and provides a "tool box" to help work through areas such as effluent limit calculations, mixing zones, waste load allocations, sampling/analytical data, and biomonitoring.

The Task Force greatly acknowledges and appreciates the fine work performed by Tischler/Kocurek, Round Rock, Texas in preparing this comprehensive study and for the expert guidance of Mr. David Pierce, Chevron, in overseeing the development of this report.

Studies Sponsored by the Water Technology Task Force

- | | |
|------------|--|
| Publ. 1612 | Guidance Document for Discharging of Petroleum Distribution Terminal Effluents to Publicly Owned Treatment Works, November 1996. |
| Publ. 4665 | Analysis and Reduction of Toxicity in Biologically Treated Petroleum Product Terminal Tank Bottoms Water, April 1998. |

- Publ. 4664 Mixing Zone Modeling and Dilution Analysis for Water-Quality-Based NPDES Permit Limits, April 1998.
- Publ. 4606 Source Control and Treatment of Contaminants Found in Petroleum Product Terminal Tank Bottoms, August 1994.
- Publ. 4602 Minimization, Handling, Treatment, and Disposal of Petroleum Product Terminal Wastewaters, September 1994.
- Publ. 4582 Comparative Evaluation of Biological Treatment of Petroleum Product Terminal Wastewater by the Sequencing Batch Reactor Process and the Rotating Biological Contactor Process, June 1993.
- Publ. 4581 Evaluation of Technologies for the Treatment of Petroleum Product Marketing Terminal Wastewater, June 1993.

Abstract

A manual is presented by the American Petroleum Institute (API) to assist member companies and others in preparing applications and negotiating with permit authorities for National Pollutant Discharge Elimination System (NPDES) permits for wastewater discharges. The manual is intended to help permittees and permit applicants to understand the permit process from application to final permit, and to provide tools and strategies for assuring that the permit is fair and properly implements the applicable regulations. The manual documents issues that may arise during the preparation of permit applications and the negotiation of permit conditions with permit writers. It also describes administrative and judicial mechanisms that are available to permittees to challenge permit conditions and limits that are technically unsound or do not comport with the applicable regulations. Much of the information in this manual is based on practical experience with many NPDES permits and applications. Examples and case histories are provided to help the user understand the permit application process.



Documents

Document Sharing Hub

Contents

Section		Page
1	Introduction	
	Objective	1-1
	Scope	1-1
	Using This Manual	1-2
	What's in This Manual	1-3
	Overview of Manual	1-3
	Quick Start	1-4
2	NPDES Program Basics	
	Permit Process	2-1
	Regulatory Authority and Duties	2-3
	Overview of Clean Water Act Provisions	2-3
	Federal Authority	2-4
	State and Local Authority	2-7
3	Types of Permits	
	Individual Permits	3-1
	General Permits	3-1
4	NPDES Permit Elements	
	Cover Page	4-1
	Effluent Limitations and Monitoring Requirements	4-1
	Technology-Based Limits	4-3
	Water-Quality-Based Limits	4-5
	Internal Outfalls	4-6
	Narrative Permit Limits	4-6
	Flow Limits	4-7
	Monitoring	4-7
	Compliance Schedule	4-8
	Reporting of Monitoring Results	4-9
	Standard Conditions	4-9
	Upset Provision	4-11
	Bypass	4-12
	Notification of Changes in Discharge	4-13



Section		Page
	Other Conditions	4-14
5	Permit Applications	
	Application Forms	5-1
	Individual Permits	5-1
	Deadlines	5-1
	Preparation Time	5-2
	Individual Permit Application Forms	5-2
	Individual Permit Application Contents	5-5
	Form 1	5-5
	Form 2C	5-7
	General Permits	5-13
	Baseline or Multi-Sector Permit	5-13
	Deadlines	5-13
	Notice of Intent	5-14
	Notice of Termination	5-15
	Application Submittal	5-15
6	The Draft Permit	
	How the Permit Writer Develops a Permit	6-1
	Fact Sheets	6-4
	Reviewing Prepublication Draft Permits	6-5
	Submitting Comments on Draft Permit	6-6
	Reviewing the Discharge Description	6-7
	Reviewing Effluent Limitations	6-7
	Technology-Based Limits	6-7
	Water-Quality-Based Limits	6-9
	Monitoring Requirements	6-9
	Compliance Schedules	6-12
	Reviewing Standard Conditions	6-12
	Reviewing Other Conditions	6-12
	Preparing the Comments	6-13
	Errors in Permit	6-13
	Comments by Environmental Groups	6-14
7	Hearings and Appeals	
	Hearings	7-1
	EPA Regulatory Requirements	7-1
	Public Hearings in Delegated States	7-2


Documents

Document Sharing Hub

Section	Page
The Applicant's Approach to Public Hearings	7-2
Appeals	7-3
EPA Appeals Process	7-3
State Appeals Process	7-6
The Applicant's Approach to Permit Appeals	7-7
Settlement of Contested Issues	7-9
Appeals by the Public or Government Agencies	7-10

8 Variances

Variances from Technology Standards	8-1
Fundamentally Different Factors Variance	8-2
Variance for Nonconventional Pollutants	8-6
Economic Achievability Variance from BAT	8-8
Alternative Effluent Limitations for Thermal Discharges	8-9
Variances from Water Quality Standards	8-11
Section 302(b)(2) Economic and Social Variance	8-11
Temporary Variances from Water Quality Standards	8-13

9 Tool Box

Effluent Limit Calculations	9-1
Types of Limits	9-1
Data Distributions	9-1
Outliers	9-3
Nondetects (Censored Data)	9-4
Confidence Intervals	9-4
Effluent Guideline Limits	9-7
Water-Quality-Based Effluent Limits	9-10
Seasonally-Based Limits	9-11
Sample Analyses	9-13
Choosing an Analytical Method	9-13
Permit Applications	9-14
Permit Compliance Analysis	9-16
Quantitation and Detection Limits	9-19
Alternative Analytical Methods	9-22
Quality Assurance/Quality Control	9-23
Auditing the Laboratory	9-24
Biomonitoring	9-25
WET Tests	9-25

Section	Page
WET Test Data for Applications	9-28
WET Testing in NPDES Permits	9-29
Aquatic Organism Testing	9-32
Mixing Zones	9-33
Regulatory Mixing Zones	9-34
Site-Specific Dilution Estimates	9-38
Mixing Zone Modeling	9-38
Tracer Studies	9-41
Diffusers	9-42
TMDLs and Waste Load Allocations	9-44
Site-Specific Water Quality Criteria	9-46
Bioavailability Adjustments to Water	9-47
Quality Criteria	
Partitioning Coefficients	9-47
The Water-Effect Ratio Procedure	9-49
Recalculation Procedure	9-52
Resident Species Procedure	9-53
Indicator Parameters	9-53
Technology-Based Limits	9-54
Water-Quality-Based Limits	9-55

Acronyms and Abbreviations

Bibliography

Appendices

- 1 EPA Correspondence on Baseline and Multi-Sector Storm Water General Permits
- 2 EPA Memo on Permit as Shield
- 3 Example of Standard Conditions in NPDES Permit
- 4 Individual Permit Application Forms
- 5 General Storm Water Permit NOI and NOT Forms

Table		Page
3-1	Examples of Types of Discharges Covered by General Permits	3-2
3-2	Petroleum Industry Sectors in the NPDES Multi-Sector Storm Water Permit	3-5
4-1	Outline of Standard Conditions of NPDES Permit	4-9
5-1	EPA Application Forms for Individual Permits	5-3
5-2	Contents of Form 1, General Information	5-3
5-3	Contents of Form 2C, Existing Facilities with Process Wastewater	5-3
5-4	Contents of Form 2D, New Facilities with Process Wastewater	5-4
5-5	Contents of Form 2E, Facilities with Only Nonprocess Wastewater	5-4
5-6	Contents of Form 2F, Storm Water from Industrial Activity	5-4
5-7	Subcategories of Petroleum Refining in National Effluent Guidelines	5-9
5-8	Petroleum Refining Processes Listed in National Effluent Guidelines	5-10
5-9	Example of Production Data for Petroleum Refinery With Petrochemical Operations	5-11
6-1	Reference Materials Commonly Used to Develop NPDES Permits	6-1
6-2	Information Typically Included in Fact Sheets	6-5
8-1	Factors Which may be Considered Fundamentally Different for an FDF Variance	8-3

Table**Page**

9-1	Example Information and Instructions That Should be Given to a Laboratory When Requesting NPDES Analyses	9-15
9-2	Aquatic Species Used in Standardized Acute WET Tests	9-26
9-3	Aquatic Species Used in Standardized Chronic WET Tests	9-27
9-4	Examples of Allowable Mixing Zone Dilution (Default)	9-36

Figure**Page**

2-1	Overview of the NPDES Permit Process	2-2
3-1	Relationship Between General and Individual Permits	3-3
5-1	Example of Flows, Sources of Pollution and Treatment Technologies Information for Section II.B, EPA Form 2C	5-8
9-1	Normal Probability Plot of Effluent Flows	9-2
9-2	Lognormal Plot of Effluent Vanadium Data	9-2
9-3	Censored Lognormal Distribution of Effluent Vanadium Data	9-5
9-4	Aquatic Life Mixing Zones	9-35

Examples**Page**

Example of NPDES Permit Appeal	7-7
Upper Confidence Limit on Effluent Flow	9-5
Effluent Guideline Calculation of Permit Limits for a Petroleum Refinery	9-7
Effluent Guidelines Calculation of Permit Limits for Storm Water at a Petroleum Refinery	9-9
Example of WQBEL Calculations	9-10
Alternative Analytical Method Case History	9-23
Calculations for Toxicity Unit Limits	9-31
Site-Specific Partitioning Coefficients Case History	9-49
WER Procedure for Alternative Water Quality Criterion for Aluminum	9-51

**Documents**

Document Sharing Hub

Section 1

Introduction

This manual has been prepared by the American Petroleum Institute (API) to assist member companies and others in preparing applications and negotiating with permit authorities for National Pollutant Discharge Elimination System (NPDES) permits. The NPDES permit process is often complicated, whether it is administered by the U.S. Environmental Protection Agency (EPA) or by a state that is delegated the authority to administer the program and issue permits. This manual is intended to help permittees and permit applicants to understand the permitting process, from application to final permit issuance, and to provide tools and strategies for assuring that the permit is fair and properly implements the applicable regulations.

The manual documents issues that may arise during the preparation and filing of permit applications and when proposed permits are negotiated with permit writers. It also specifies administrative and judicial mechanisms that are available to permittees to challenge permit conditions and limits that are technically unsound or do not comport with the applicable regulations.

Objective

The principal objective of this manual is to provide permittees and permit applicants with a detailed description of the NPDES permitting process, and the opportunities in this process to provide data, analyses, and information to help assure that the final permit is equitable and has achievable limits and conditions. The importance of building a complete record of the permit action is emphasized, because a complete record provides protection to the permittee from unjustified enforcement actions, whether initiated by the government or citizens.

Scope

This manual covers many aspects of the NPDES permitting process, from the preparation of the permit application through the issuance of the final NPDES permit. The manual describes the development of permit limits and conditions from the permit application, state and federal regulations, and guidance. The manual also describes the procedures for challenging permits through the state or federal administrative processes and the courts.

This manual focuses on NPDES permits issued by states and EPA Regions under the authority of Section 402 of the Clean Water Act (CWA). In many states delegated to administer the NPDES program, the permit may not be

called an NPDES permit. However, such permits in delegated states are NPDES permits regardless of what they are called.

Much of the information in this manual is based on practical experience with many NPDES permits and applications. Examples and case histories are provided to help the user understand the permit application process. A list of reference materials for technical resources is provided in a bibliography.

This manual does not address wastewater discharge permits that may be issued by states to regulate discharges that are not authorized under the CWA, such as discharges to ground water, or permits issued by states that have not been delegated NPDES permitting authority.

Users of this manual should understand that the CWA specifically allows NPDES delegated states to adopt regulations that are more restrictive than the federal regulations. Because each state's program is different, this manual does not attempt to identify specific state provisions that may be different or more restrictive than the federal regulations. Therefore, it is important that users of the manual, if their facility is in a delegated state, also become familiar with the state regulations.

Using This Manual

Information in this manual will allow a permittee to assess the relative complexity of the NPDES permit and to plan a strategy for obtaining it. For relatively simple permits, this manual provides sufficient information, when combined with the permit application instructions and the relevant state and federal regulations, to complete the permit process without resorting to additional technical support. In more complicated situations, the manual presents strategies for obtaining the necessary resources and to address the permit process with the required data and support.

This manual is intended to help the user understand how to prepare a permit application, how to review a proposed permit and fact sheet, how to prepare technical comments to the regulatory agency, and how to negotiate permit conditions and limits. The reference materials in the bibliography are technical resources that may be used in different permitting situations. Although, some permit applicants will not have experience or expertise with certain parts of the NPDES permit process, this manual provides enough information so that the applicant can understand what tools and methods are available, how they can be used, and when it is necessary to obtain technical support to apply them to a specific permitting problem.

What's in This Manual

This manual contains a lot of information about NPDES permits. Users of this manual who need information very quickly about a particular issue should see **Quick Start** at the end of this section. For other users who have less pressing needs, the following outline gives a brief overview of each section in the manual.

Overview of Manual

Section 1, **Introduction**—describes the purpose and use of this manual. Provides overview of manual and **Quick Start** guide.

Section 2, **NPDES Program Basics**—describes the NPDES permit program, which regulates the discharge of pollutants into waters of the United States. This section discusses the general permit process, provisions for the NPDES in the CWA, and federal and state authority for the NPDES program.

Section 3, **Types of Permits**—provides an overview of individual permits and general storm water permits.

Section 4, **NPDES Permit Elements**—describes the common elements of an NPDES permit, including effluent limitations and monitoring and standard conditions.

Section 5, **Permit Applications**—discusses the preparation of individual and general permit applications. This section focuses on items needing special guidance.

Section 6, **The Draft Permit**—describes how a draft NPDES permit is developed by a regulatory agency and what steps the permit applicant may take to obtain a correct and reasonable permit. An overview explains how the permit writer develops a permit. "Fact sheets" that accompany draft permits are explained. Guidance is provided on reviewing and commenting on the prepublication draft permit and the formal public-noticed draft permit.

Section 7, **Hearings and Appeals**—describes public hearings and the permit appeals process. The formal process for both hearings and appeals is described. Guidance is provided on how the permit applicant should approach and prepare for hearings and appeals.

Section 8, **Variations**—describes the variance process for technology-based standards and water-quality-based standards. Descriptions of technology standard variations include those for fundamentally different factors, nonconventional pollutants, economic achievability, and thermal discharges.

Descriptions of water quality standard variances include those for economic/social impacts and temporary periods.

Section 9, **Tool Box**—presents a number of techniques used in the development of NPDES applications and permits. Techniques include effluent limit calculations, seasonally-based effluent limits, sample analyses, biomonitoring, mixing zones, total maximum daily loads and wasteload allocations, site-specific water quality criteria, and indicator parameters.

Bibliography—list of references useful in the preparation and understanding of NPDES permits.

Appendices—includes permit application forms and EPA guidance/memos on NPDES permitting issues.

Quick Start

Below is a listing of the more common issues in NPDES permitting and where to find related information in this manual.

Preparing the Permit Application

Where to look in this manual:

- Section 5, **Permit Applications**
- Section 9, **Tool Box** (Sample Analyses, WET Tests)
- Appendix 4, **Individual Permit Applications Forms**
- Appendix 5, **General Storm Water Permit NOI and NOT Forms**

Working with the Permit Writer During the Draft Permit Stage

Where to look in this manual:

- Section 4, **NPDES Permit Elements**
- Section 6, **The Draft Permit**
- Section 8, **Variances**
- Section 9, **Tool Box**

Reviewing the Draft Permit

Where to look in this manual:

- Section 4, **NPDES Permit Elements**
- Section 6, **The Draft Permit**
- Section 8, **Variances**
- Section 9, **Tool Box**

Developing Permit Limits

Where to look in this manual:

- Section 6, **The Draft Permit**
- Section 8, **Variances**
- Section 9, **Tool Box**

Preparing Comments on a Draft Permit

Where to look in this manual:

- Section 6, **The Draft Permit**
- Section 8, **Variances**
- Section 9, **Tool Box**

Preparing for a Public Hearing

Where to look in this manual:

- Section 7, **Hearings and Appeals**
- Section 9, **Tool Box**

Appealing the Permit

Where to look in this manual:

- Section 7, **Hearings and Appeals**
- Section 8, **Variances**
- Section 9, **Tool Box**

Section 2

NPDES Program Basics

This section of the manual is an introduction to the National Pollutant Discharge Elimination System (NPDES), which regulates the discharge of pollutants into waters of the United States. This section discusses the general permit process, provisions for the NPDES in the Clean Water Act (CWA), and federal and state authority for the NPDES program.

Permit Process

With limited exceptions, the NPDES requires a permit for every point source discharge of wastewater to waters of the United States. The NPDES program is designed to be delegated to the states and territories, with the U.S. Environmental Protection Agency (EPA) in an approval and oversight role. If a state or territory has not been delegated NPDES authority, either due to reluctance to operate the program, legal issues, or otherwise, the EPA Region office is the NPDES permitting authority.

The NPDES permitting program consists of the following principal steps:

- 1) The owner/operator of the point source discharge prepares the permit application and submits it to the permitting authority;
- 2) The permitting authority drafts a proposed permit and fact sheet which states the regulatory and technical bases for the proposed permit;
- 3) The proposed permit is noticed for public comment, which may include a public hearing if one is requested by the permit applicant or an interested party, such as members of the general public, or federal, state, or local agencies;
- 4) The permitting authority responds to public comments on the proposed permit and issues a final permit;
- 5) The permit becomes effective or all or part of the final NPDES permit is challenged by the permittee, the public, or a federal, state, or local agency; and
- 6) If the regulatory authority grants the challenge, the specific provisions of the challenged permit are stayed until the administrative and/or judicial appeals process is completed.

A summary of the permitting process is shown in Figure 2-1.

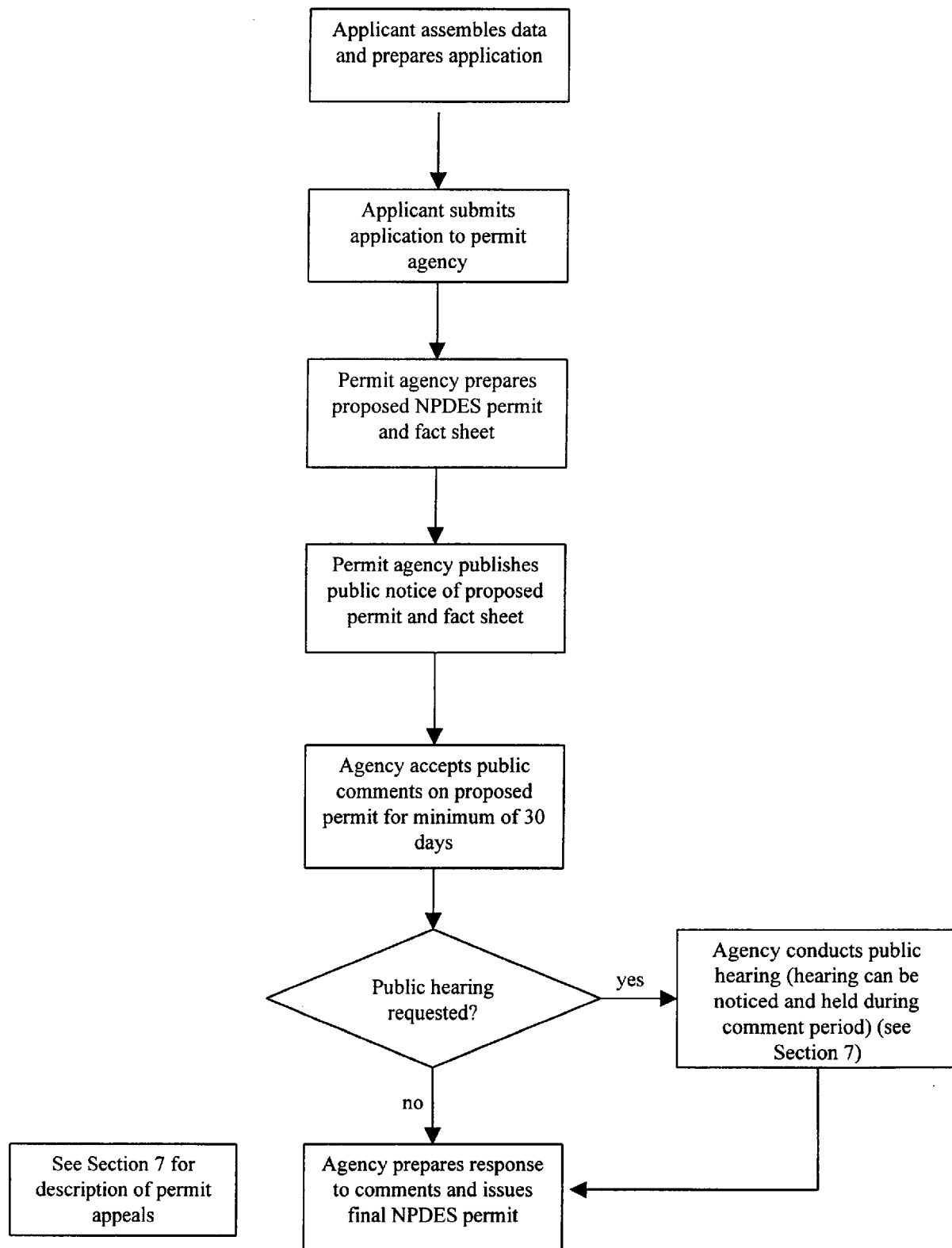


Figure 2-1. Overview of the NPDES Permit Process

Regulatory Authority and Duties

This section of the manual describes the regulatory authorities and duties of the agencies that are involved in the NPDES permit process. The discussion is intended to be a general introduction rather than a legal description of the NPDES program. When an NPDES permit is to be challenged through the regulatory appeals process, permittees must seek the assistance of attorneys that are skilled in the NPDES permitting process.

An overview of the CWA provisions for the NPDES program is given first, followed by a discussion of federal, state, and local program authority.

Overview of Clean Water Act Provisions

The NPDES permit program is authorized under Section 402 of the CWA. The program began in 1972, when the CWA's predecessor, the Federal Water Pollutant Control Act Amendments of 1972, was adopted by Congress over President Nixon's veto. Section 402(a)(1) of the CWA specifies that EPA may "issue a permit for the discharge of any pollutant, or combination of pollutants" if requirements of the CWA are met. NPDES permits are to be issued for discharges to navigable waters of the U.S., unless such discharges are specifically excluded. There are few exclusions, the principal ones being dredge and fill activities (permitted by the U.S. Army Corps of Engineers under the authority of Section 404 of the CWA) and agricultural irrigation return flows. The maximum term of an NPDES permit is five years.

The provisions of the CWA applying to the NPDES program as identified in Section 402(a)(1) are:

- Section 301: "Effluent Limitations," which are technology-based;
- Section 302: "Water-Quality-Related Effluent Limitations," which are implemented to protect water quality when technology-based limitations are insufficient;
- Section 306: "National Standards of Performance," also known as New Source Performance Standards;
- Section 307: "Toxic and Pretreatment Effluent Standards," for industrial discharges to publicly owned treatment works (POTW);
- Section 308: "Records and Reports: Inspections," monitoring of effluents and reporting of information to the regulatory authority; and

- Section 403: “Ocean Discharge Criteria,” for discharges to the territorial sea, contiguous zone, or oceans.

The above sections of the CWA reference other sections in the CWA. The most important of these additional sections are Section 303, “Water Quality Standards and Implementation Plans,” and Section 304, “Information and Guidelines.”

Section 402(b) of the CWA specifies requirements for NPDES program delegation to the states and territories. To receive delegation, a permitting authority must have a program that meets these minimum requirements.

Federal Authority

In states that do not have NPDES program delegation, the EPA regional office will issue the NPDES permits. EPA has promulgated regulations for NPDES program administration at 40 Code of Federal Regulations (CFR), Part 122 (40 CFR 122). These regulations describe the NPDES permitting program as it is administered by EPA. Many of the EPA provisions at 40 CFR 122 also serve as minimum requirements for authorized state programs, and many states have adopted these regulations by reference. The provisions at 40 CFR 122 that are applicable to state NPDES programs are identified explicitly.

Part 125 of 40 CFR contains certain criteria and standards for the NPDES program. These include criteria/standards for technology-based treatment requirements, variances and modifications of national technology-based effluent limitations and standards, ocean discharges, best management practices (BMP), and disposal of sewage sludge. Part 125 also includes EPA Form 2C, “Application for Permit to Discharge Wastewater from Existing Manufacturing, Commercial, Mining, and Silvicultural Operations.”

Even when a state has been delegated authority to administer the NPDES program, EPA retains oversight authority for all permits. States must provide the EPA Region with the proposed state permit and fact sheet, and respond to any EPA comments. EPA is required to provide its comments, and any objections to the proposed permit, within 90 days of receiving the proposed permit. If the state does not adopt EPA’s comments, EPA may issue the final permit with the disputed provisions. EPA may waive this right of review of state permits for certain classes or categories of discharge, for example, for discharges less than or equal to 500,000 gallons per day.

The coordination between the EPA Region and a delegated state is set out in a Memorandum of Agreement (MOA). The MOA specifies the categories or

classes of permits that EPA will review; provisions specifying documents, reports, and other information that the state must submit to EPA to demonstrate that the program is functioning correctly; and presents procedures to assure coordination of enforcement activities. EPA may waive its review rights for state NPDES permits in the MOA. Typically, the MOA specifies that EPA shall have only 30 to 45 days to review proposed permits rather than the full 90 days allowed by the NPDES regulations. EPA retains the right, however, to object to a permit within the 90-day period if it has provided general comments to the state on a permit within the time period specified in the MOA.

EPA has the authority and responsibility, under the CWA, to establish national technology-based standards for industrial dischargers and POTWs that are required by Sections 301, 306, and 307 of the CWA. The procedures that EPA must follow are set out in Sections 304, 306, and 307 of the CWA.

The technology-based standards for industrial dischargers are known as effluent limitations guidelines and new source performance standards. They are also known as categorical standards because they are promulgated for certain categories of point sources, such as petroleum refineries; oil and gas exploration and production; and organic chemical, plastic, and synthetic fibers manufacturing plants. These categorical standards are promulgated at 40 CFR Parts 404-499. For POTWs, the technology-based standards are known as secondary treatment standards and are found at 40 CFR 133.

The technology-based standards are of particular importance because they set minimum treatment performance. This requirement applies to all NPDES permits, whether they are issued by an EPA Region or by a delegated state. In other words, an NPDES permit limit cannot be less restrictive than that allowed by the categorical standard, unless the discharger can obtain specific variances allowed by the CWA (see Section 8, **Variances** for a detailed discussion).

Section 304 of the CWA specifies procedures and technical requirements EPA must follow to develop the technology-based effluent limitations guidelines for conventional pollutants (biochemical oxygen demand [BOD], total suspended solids [TSS], pH, oil and grease [O&G], and fecal coliforms), toxic pollutants, and nonconventional pollutants such as chemical oxygen demand (COD) and ammonia. The technology-based standards for conventional pollutants are identified as best practicable technology (BPT) and best conventional technology (BCT). The technology-based standards for toxic and nonconventional pollutants are defined as best available technology (BAT). Through Section 304(h) of the CWA, EPA has the authority to establish the analytical and testing methods that must be used to demonstrate compliance with NPDES permit limits. Section 304(l) relates to bodies of water that were

not in compliance with water quality standards for toxic pollutants. States had to prepare “304(l) lists” of such waters and to implement procedures to control point sources that exceeded water quality standards. These procedures were developed as individual control strategies (ICS) in NPDES permits. If states did not prepare appropriate 304(l) lists, then EPA Regions were required to do so.

Section 306 of the CWA requires EPA to establish NSPS for a minimum of 27 industrial point source categories, including petroleum refining. A new source, defined in Section 306(a)(2) and promulgated at 40 CFR 122.29, is a facility that is constructed after NSPS proposal, unless the final NSPS is promulgated more than 180 days after proposal; in which case, the date of promulgation is the effective date for the new source determination. These NSPS are intended to require new sources to achieve effluent standards that are more restrictive than those for existing sources because new sources have more opportunities to use better control and treatment technology.

Section 307 of the CWA requires EPA to develop a list of toxic pollutants, for which technology-based limits (BAT) will be developed under the provisions of Section 304. Section 307 also requires EPA to develop pretreatment standards for industrial dischargers to POTWs (referred to as indirect dischargers) to regulate pollutants that may pass through or interfere with the POTW. These pretreatment standards include both general pretreatment standards applicable to all indirect dischargers and categorical pretreatment standards for existing (PSES) and new sources (PSNS). PSES and PSNS are promulgated at 40 CFR Parts 404-499. EPA pretreatment regulations at 40 CFR 403 include the general pretreatment standards and incorporate PSES and PSNS by reference.

Under Section 303 of the CWA, EPA has the authority to review and approve state water quality standards regulations. The state regulations are the basis for establishing water-quality-based permit limits, pursuant to the requirements of Section 302 of the CWA. States must review and update their regulations every three years (triennial review). If EPA finds that a state’s water quality standards do not meet the requirements of the CWA, EPA is authorized to promulgate water quality standards for the state that will meet CWA requirements. EPA has used its authority to promulgate water quality standards for a number of states at 40 CFR 131. In general, these EPA-promulgated standards are for toxic pollutants that states did not address in their water quality standards.

EPA promulgated the Great Lakes Water Quality Guidance (GLWQG) at 40 CFR 132. This regulation establishes minimum water quality standards and implementation procedures for the Great Lakes and their tributaries. For such waters in their jurisdiction, states are required to adopt water quality standards

and implementation procedures that are at least as restrictive as the GLWQG. The objective of the GLWQG is to ensure consistency of water quality standards for these waters among the Great Lakes states.

Section 303(d) of the CWA requires states to prepare lists of water bodies that do not meet water quality standards or designated uses. Total maximum daily load (TMDL) allocations for point and nonpoint sources for these “impaired waters” must be developed by the states to achieve compliance with their water quality standards. EPA has the authority to approve the 303(d) lists and the TMDLs. If a state does not submit an approvable 303(d) list, EPA must prepare and promulgate the list. EPA also must develop and implement TMDLs for impaired waters if a state does not act or does not adopt approvable TMDLs.

Section 308 of the CWA gives EPA authority to collect the information it needs to develop categorical effluent limitations guidelines and standards, water quality data, and other types of information required to implement provisions of the CWA. The EPA can, and has, used its Section 308 authority to require point sources to collect data for sediment quality, water quality, and fish tissue from the waters to which they discharge. Section 308 also authorizes EPA to enter and inspect the site of a point source discharger.

EPA regulations at 40 CFR 124 allow the public to appeal NPDES permits. Appeals occur in two tiers: (1) administrative appeals through EPA, and in the event that administrative appeals fail, (2) judicial appeal of the contested permit conditions to a federal district court. An “affected person” may appeal the limits and conditions in an NPDES permit, which includes the permittee and members of the public that reasonably can demonstrate that they have an interest in the permit action. The rules regarding who has standing to appeal a final NPDES permit are quite generous; most national and state environmental groups have sufficient standing to appeal a permit. Federal and state agencies, such as the U.S. Fish and Wildlife Service, may also appeal final NPDES permits. The appeals process is described in more detail in Section 7, **Hearings and Appeals**.

State and Local Authority

EPA may grant a state authority (delegate) to administer all or part of the NPDES program. Typically, delegated states will have authority for the entire NPDES program, subject to EPA oversight. State authority includes public participation and administrative and judicial procedures specified in the federal regulations.

EPA regulations at 40 CFR 123 specify the minimum requirements of state NPDES programs. These regulations describe the coordination required between states and EPA regions. They also specify what must be included in a state's NPDES program.

Even though states must meet, at a minimum, the applicable requirements of 40 CFR 122, they are allowed to establish regulations that are more restrictive. Many states have specific requirements that are more stringent than EPA's, such as concentration limits in addition to mass limits required by EPA and limits on effluent maximum flows.

Although not a common practice, states may delegate responsibility for state NPDES permits to local or regional authorities. For example, California and Pennsylvania have delegated authority to regional agencies, although these regional agencies are arms of the state agencies that have overall NPDES permitting authority.

Section 303 of the CWA gives states the primary responsibility of developing water quality standards for all surface waters within their jurisdiction. States must review and revise their water quality standards, as necessary, every three years. Water quality standards consist of several parts: (1) numeric criteria for specified water quality constituents; (2) narrative criteria to protect a number of water quality characteristics that cannot be expressed by numeric criteria; and (3) designated uses. Most state water quality standards also include provisions such as for mixing zones, averaging periods for numeric criteria compliance, and procedures for developing site-specific numeric criteria and designated uses. States have considerable latitude in the development of their water quality standards; therefore, their standards and implementation procedures are very state-specific. EPA issues national water quality criteria and guidance, but with the exception of the GLWQG described earlier, EPA allows considerable opportunity for states to deviate from the national guidance if such deviations can be scientifically justified.

Even if a state does not have NPDES authority, a state does have the authority and responsibility under Section 401(a) of the CWA to certify whether an EPA-proposed NPDES permit will comply with the state's water quality standards. EPA must include any conditions of the state water quality certification in the NPDES permit. Some states and territories without NPDES delegation use the state certification provision to incorporate many state-specific provisions into NPDES permits.

Delegated states must have regulations that allow appeal of permit decisions. State regulations must specifically provide the opportunity for affected persons to challenge an NPDES permit in state district courts, and standing requirements must be consistent with those of the EPA rules. These appeals

are typically provided for under the state administrative procedures act. States are not required to have an evidentiary hearing process similar to that provided by EPA regulations at 40 CFR 124, although many states do provide for such hearings.

Section 3

Types of Permits

Two types of NPDES permits are discussed in this manual, general permits and individual permits. This section briefly describes each of these permit types. Detailed discussions of NPDES permit applications and permit requirements are presented in Section 4, **Elements of a Permit** and Section 5, **Permit Applications**. Because requirements among states vary so much, details of state NPDES permits that are unique to a particular state are not specifically discussed in this manual.

General permits contain “generalized” permit conditions; they cannot be tailored to a specific site—they are a “one size fits all” type of permit. Individual permits are meant to be tailored to specific site conditions. These two types of permits are discussed in more detail here.

Individual Permits

Individual NPDES permits are tailored to each specific facility. They require detailed permit applications and significantly more time and effort to obtain than general permits. Individual permits can apply to any type of surface water discharge—including process wastewater, utility wastewaters, storm water, and sanitary wastewater.

Like the individual NPDES permit, an individual state permit also applies to all types of discharges. If a state has the authority from EPA to run the NPDES program, a facility will receive only a state permit. On the other hand, if a state does not have NPDES authority, the facility will receive an EPA permit and in some cases, a state permit as well.

Because an individual permit process has so many steps and can be quite complicated, it is the main focus of this guidance manual.

General Permits

A general permit may be issued by EPA or NPDES-delegated states to cover a group of discharges that have similar characteristics. A general permit can be issued when there are a number of dischargers that:

- Involve the same or substantially similar types of operations;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;

- Require the same or similar monitoring requirements; and
- Are considered more appropriately controlled under a general permit than under an individual permit.

There are many types of discharges covered by general permits. Examples of general permits for discharges related to the petroleum industry and petroleum products are listed in Table 3-1. The availability of these and other general permits vary by state. Those interested in knowing which general permits are available in their states should contact their state permitting authority.

Table 3-1. Examples of Types of Discharges Covered by General Permits*

Permit Category	Discharge Description
Aquifer restoration	Contaminated ground water, which contains or is being treated for only petroleum-related contaminants with a maximum discharge rate of 50 gallons per minute.
Fuel spill cleanup	Discharges resulting from corrective actions of ground and/or surface water that has been exposed to gasoline and/or petroleum-related products from point sources, including discharges through municipal separate storm sewer systems. Treated ground water polluted by fuel leaks from service stations and similar sites. Extracted and treated ground water resulting from the cleanup of ground water polluted by fuel and other related waste leaks in fuel storage and dispensing facilities.
Ground water cleanup	Contamination by fuel oil and gasoline. Petroleum-contaminated ground water.
Hydrostatic oil and gas lines	Discharges of waste from structural integrity testing of new tanks and pipelines used to hold drinking water, sewage, or natural gas.
Offshore oil and gas exploration, development, and production facilities	Discharges of sanitary and domestic wastewater from mobile, exploration, development, and production camps; gravel pit dewatering; use of water from gravel pits for construction of ice structures and road watering; and construction dewatering. Produced water.
Onshore oil and gas extraction	Ground water cleanup of gasoline. Water produced from oil-producing facilities.

Petroleum bulk stations and terminals	Storm water, tank bottoms, water draws, hydrostatic test water, and ground water resulting from storage, handling, transportation, cleanup of contaminated ground water, cleanup of contaminated soils, investigations of potential contaminations, or other operations involving petroleum and its derivatives.
Storm water	Industrial activities. Construction activities.
Underground storage tanks	Discharges of contaminated ground water/storm water from construction-related excavation projects. Discharges of ground water contaminated with gasoline or petroleum related products, which have been treated using multi-stage granular activated carbon treatment systems. Uncontaminated ground water from petroleum pits.

* The availability of these and other general permits vary by state. Those interested in knowing which general permits are available in their states should contact their state permitting authority.

One of the most commonly implemented types of general permit is the storm water general permit. The relationship between a general storm water permit and an individual NPDES permit is shown in Figure 3-1.

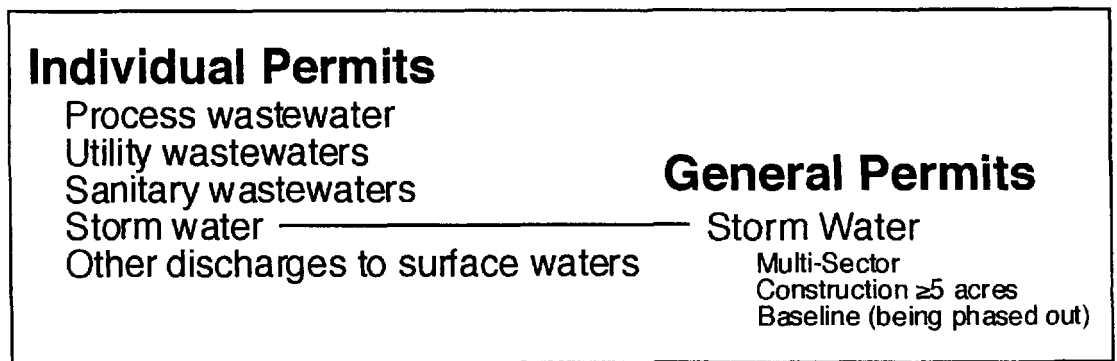


Figure 3-1. Relationship Between General Storm Water and Individual NPDES Permits

Note from Figure 3-1 that storm water discharges may be regulated by either an individual NPDES permit or general permit. Whether a storm water discharge is covered under a general or individual permit depends on the type of discharge and the preferences of both the permittee and the regulatory

agency. For example, a facility may choose a general rather than an individual permit because the general permit is easier and faster to obtain. On the other hand, the facility may choose the individual permit because the general permit is not applicable to its type of storm water discharges, because permit requirements can be tailored to its specific discharge, or because a single permit is preferred for both process and storm water outfalls.

As shown in Figure 3-1, there are three types of general NPDES permits for storm water—multi-sector, construction, and baseline (industrial general). EPA is phasing out the baseline industrial general permit in preference for the multi-sector permit. However, because the baseline permit was still in use by some facilities at the time this manual was written, it is included in the discussion here. The baseline industrial general permit was issued by EPA in 1992 for a five-year term until September 9, 1997. It has general applicability for most storm water discharges, but does not cover certain types. Most importantly, it cannot be used for storm water discharges that are covered by national effluent limitation guidelines, including those from petroleum refining and asphalt emulsion facilities.

EPA is replacing the baseline industrial general permit with the multi-sector general permit (see EPA correspondence in **Appendix 1**), which tailors requirements to 29 different industrial and facility sectors. Table 3-2 lists the petroleum industry sectors in the multi-sector permit. The original multi-sector storm water permit issued by EPA in 1995 has been revised several times since then. One of the most important revisions was to include petroleum refining facilities, which were added to the original oil and gas extraction sector. However, contaminated storm water subject to national effluent guidelines, at either extraction or refining facilities, may not be permitted through the multi-sector permit, instead requiring an individual permit. Areas at refineries which may be eligible for coverage include vehicle and equipment storage and maintenance and refueling areas. Gasoline service stations are not included in any of the specific sectors of the multi-sector permit; however, other state general permits may be issued to cover certain discharges from stations such as contaminated ground water.

The general permit for construction activities originally was issued by EPA in 1992 for a five-year period, and in 1998, EPA reissued the permit with modifications. The general construction permit applies to construction areas of 5 or more acres, including activities such as clearing, grading, and excavation. The multi-sector permit does not cover industrial activity from construction that disturbs 5 or more acres; however, storm water from smaller construction areas may be combined with storm water that is discharged under a multi-sector or baseline general permit. In 1998, EPA proposed storm water regulations for construction sites less than 5 acres separate from the multi-sector permit; at the time of this writing, EPA had not issued final regulations.

States that do not have EPA-authorized NPDES programs cannot develop state-specific general permits under the NPDES program. However, most states do have NPDES authority, and can either develop their own type of general permit or adopt EPA's. For example, when Louisiana obtained authority for the NPDES program in 1996, it took over EPA's general permits, with the exception of those in Indian lands—these general permits remained unchanged with the same expiration date as originally set by EPA. Texas, which received NPDES delegation in 1998, is taking over EPA's general storm water permits in phases. In Oklahoma, EPA has NPDES permitting authority for oil and gas exploration- and production-related industries and pipeline operations. Because states have limited authority, and because different states handle the transfer of EPA general permits to their delegated programs differently, applicants should check with their individual states to determine who is the permitting authority for the particular discharge, and which application forms should be used.

Table 3-2. Petroleum Industry Sectors in the NPDES Multi-Sector Storm Water Permit

Sector	Comment
Oil and Gas Extraction Facilities and Petroleum Refineries	Covers extraction facilities that have had a reportable quantity of oil or hazardous substance released in storm water. Covers storm water not commingled with "contaminated runoff" (that which is subject to national effluent guidelines).
Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturers	Lubricant manufacturers include re-refining facilities, but do <i>not</i> include petroleum refining facilities or oil recycling facilities.
Vehicle Maintenance or Equipment Cleaning Areas at Petroleum Bulk Oil Stations and Terminals	Also includes activities not related to petroleum industry—motor freight transportation facilities, passenger transportation facilities, rail transportation facilities, and United States Postal Service.
Vehicle Maintenance Areas and/or Equipment Cleaning Operations at Water Transportation Facilities	Includes deep sea foreign and domestic, Great Lakes, and other water freight transport.
Hazardous Waste Treatment, Storage, or Disposal Facilities	Includes those operating under interim status or permit under Subtitle C of RCRA.
Landfills and Land Application Sites	Includes sites under Subtitle D of RCRA.
Scrap and Waste Recycling Facilities	Liquid waste recycling facilities, typically identified under SIC 5093, include used oil recycling facilities. Liquid waste recycling facilities are typically classified as service centers including those that accumulate spent solvent, used oil, and antifreeze. Re-refining facilities are covered under the multi-sector permit for lubricant manufacturers.

Section 4

NPDES Permit Elements

This section of the guidance manual describes the common elements of an NPDES permit. The minimum content of an NPDES permit is specified at 40 CFR 122 and all NPDES permits have the same general format. However, because permitting agencies develop their own specific formats, the look and content of a permit will differ among agencies. Therefore, the description of the NPDES permit given here is only a general one and will not reflect a specific permit exactly.

Cover Page

The cover page of the NPDES permit identifies the discharger's legal name, address, and physical location. It also identifies the discharge outfalls (usually by number) and the name and state segment number of the receiving water. The latitude and longitude of each outfall usually is included, although sometimes the outfall location is shown on the first page of the "effluent limitations and monitoring requirements section" instead. The cover page includes the effective date of the permit and the expiration date or duration. The cover page is signed by a designated representative of the permit agency.

Effluent Limitations and Monitoring Requirements

The first major section of an NPDES permit contains effluent limitations and monitoring requirements. These requirements are often identified as Part 1 of the permit. The effluent limitations and monitoring section is usually, but not always, where enforceable, numerical permit limits are found.

Usually, there are separate pages for each outfall. If several outfalls have identical limits (such as for cooling water or storm water), the requirements may be listed only once for the set. It is unusual for process outfalls at the same facility to have identical numerical permit limits and monitoring conditions; each process outfall usually has a separate page. There also may be separate pages for internal outfalls. The purpose and regulatory authority for internal outfalls are discussed later in this section.

The first page of the "effluent limitations section" identifies the particular outfall and describes the discharge from this outfall in detail. For example, a typical description is:

The permittee is authorized to discharge from Outfall 001: the continuous discharge of treated process wastewater, utility wastewater, process area storm water runoff, and hydrostatic test water.

Numerical limits usually are of two types: the daily average and the daily maximum. The daily average limit represents the maximum allowable average of all individual daily samples collected in a calendar month (i.e., it is a maximum monthly average). The daily maximum limit is the maximum for any one day (or 24-hour period). If only one sample is analyzed during a month, it must be compared to both the daily average and daily maximum limit. In this case, because the daily average is never higher than the daily maximum, the average limit controls, and the maximum limit is essentially irrelevant.

Some states also include grab sample limits in NPDES permits. A grab sample typically is defined as one collected within 15 minutes or less. Grab sample limits usually are set for concentrations rather than mass loadings.

EPA regulations at 40 CFR 122.45(f) specify that numerical pollutant limits should be expressed as mass discharged per unit of time (kilograms/day or pounds/day) whenever possible. Obviously, parameters such as temperature, fecal coliform, pH, and whole effluent toxicity (WET) (see Section 9, **Tool Box**) cannot be expressed as mass limits, but almost every other wastewater constituent can.

Effluent limits sometimes are expressed as concentrations. Most often, this is done by states as a matter of policy, and the concentration-based limits are included in permits along with mass limits. However, for effluents with highly variable flow rates (such as storm water), it is common for permit limits to be expressed as concentrations because monitoring for compliance with mass limits for such discharges is impractical. The NPDES regulations 40 CFR 122.45(f)(1)(ii)-(iii) allow concentration limits when mass limits are infeasible or when an effluent limitations guideline is expressed as a concentration.

The “effluent limitations section” of the permit lists every pollutant regulated in each internal and final outfall. There are numerical limits for each pollutant, unless the permit specifies “only monitoring and reporting” for a pollutant (see **Monitoring** later in this section). The numerical limits are developed as either technology-based or water-quality-based limits, which are described below. The calculation methods for these two types of limits are described in Section 9, **Tool Box**.

Technology-Based Limits

As discussed in Section 2, **NPDES Program Basics**, technology-based permit limits are required by Section 301 of the CWA. These numerical limits are established using national categorical effluent limitations guidelines at 40 CFR 401-499. These guidelines apply to specific industrial categories in manufacturing or service operations. Technology-based limits for industrial dischargers are defined by EPA for different treatment levels and pollutants. The technology-based limits are defined as follows:

- **Best practicable technology (BPT)**—The level of treatment required to be achieved by industrial dischargers by 1977. This technology is now directed toward pollutants that EPA defines as conventional pollutants (BOD, TSS, pH, oil and grease, and fecal coliforms). BPT effluent guidelines that were first promulgated before 1977 may also include limits on nonconventional and toxic pollutants.
- **Best conventional technology (BCT)**—A level of treatment for conventional pollutants that is more stringent than BPT. BCT limits are only established for an industrial category when a specialized cost test demonstrates that the limits are cost-effective as compared to the costs to upgrade a publicly-owned treatment works (POTW) to advanced treatment. For most industrial categories, BCT and BPT limits are the same.
- **Best available technology (BAT)**—The level of treatment required for toxic pollutants and nonconventional pollutants. Toxic pollutants are typically individual organic chemicals (e.g., benzene, phenol, benzo(a)pyrene) and metals (e.g., copper, mercury, chromium). Nonconventional pollutants are a catch-all category for pollutants that are not conventional or toxic. For example, ammonia, total phenols, chemical oxygen demand (COD), and total organic carbon (TOC) are nonconventional pollutants.
- **New source performance standards (NSPS)**—This is the level of treatment required for new sources in a point source category. A new source is any independently functional manufacturing process, even if it is at an existing plant site, that is constructed after NSPS is proposed or more often, after promulgation of NSPS. The concept of NSPS is that a new manufacturing process or processes, with its associated treatment, can cost-effectively achieve a higher treatment level than an existing source, which must retrofit its operations and treatment to achieve the effluent guidelines. The idea is that a the new source can incorporate pollution prevention at the design stage, thus reducing

pollutant generation at the source, as well as include more efficient end-of-pipe treatment processes. NSPS are established for conventional, nonconventional, and toxic pollutants. A facility that has to meet NSPS is exempted from any more restrictive effluent limits on conventional and nonconventional pollutants for 10 years (2 permit terms) from the date of startup. This exemption does not apply to standards for toxic pollutants.

Effluent guidelines specify both the pollutants that must be regulated in an industrial discharge and the numerical limits that must apply to each pollutant. In most guidelines, the numerical limits are calculated on the basis of manufacturing production rate (per unit of raw material or product). For example, the limits for COD may be specified in the guidelines as kg/1000 kg of product manufactured. The manufacturing rate would be expressed on a daily operation basis (1000 kg/day). Therefore, multiplying the manufacturing rate by the limit would give the allowable daily mass of COD (kg/day) that could be discharged. A few effluent guidelines are expressed in concentration terms, and must be multiplied by the regulated process wastewater flow rate to calculate the mass-based permit limits. The calculation of technology-based limits from effluent limitations guidelines is described in more detail in Section 9, **Tool Box**.

There are many industrial services and operations for which there are no national categorical effluent limitations guidelines. For those wastewaters, permit writers must establish case-by-case technology-based effluent limits. These limits often are referred to as best professional judgment (BPJ) permit limits. BPJ limits are based on agency policy, effluent limits established for discharges with similar characteristics, treatment technology assessments by the permit writer, data submitted by the permit applicant, and technology transfer from effluent guidelines for wastewaters considered similar to the discharge. In addition to establishing BPJ limits for process wastewater not regulated by categorical effluent limitations guidelines, the permit writer will establish BPJ limits for other, nonprocess wastewaters such as cooling water (both once-through and recycle/blowdown streams), demineralizer water, steam condensates, scrubber blowdown, and if not regulated as process wastewater, storm water from process areas.

In many cases, because discharges often are mixtures of process wastewater regulated by effluent limitations guidelines and other wastewaters not covered by a guideline (“unregulated” with respect to a guideline), permit limits for these discharges will be based on both guidelines and BPJ. In such cases, the technology-based permit limits are created by a “building-block approach” using the technology-based limits for each waste stream.

Pollutants assigned technology-based permit limits include those in the applicable effluent limitations guidelines and any pollutants identified in the permit application that the permit writer believes is a concern and requires regulation. Every pollutant regulated by a guideline must be included in the permit, even if the pollutant is not discharged, unless the guideline specifically allows it to be excluded. As discussed in Section 5, **Permit Applications**, it is important to provide a comprehensive listing of all pollutants known or believed to be present in a discharge in order to use the permit as a shield from enforcement action for unauthorized discharges of a pollutant (see Appendix 2, **EPA Memo on Permit as Shield**). A permit writer is not obligated to regulate every pollutant identified in the permit application, because many of the pollutants so identified are considered to be controlled effectively when other pollutants regulated by the effluent guidelines are controlled (see Section 9, **Indicator Parameters**).

Water-Quality-Based Limits

Water-quality-based permit limits are required by Section 302 of the CWA when they are determined to be necessary to meet state water quality standards and protect designated uses of the receiving water. Water-quality-based effluent limits (WQBEL) and technology-based limits establish a hierarchy of permit limits. Technology-based limits establish the minimum acceptable level of treatment for regulated pollutants. If there is a numerical state water quality criterion for a pollutant, the permit agency must calculate an allowable discharge level that will not cause or contribute to the exceedance of the criterion. This allowable discharge level is the WQBEL. If the WQBEL is more restrictive than the technology-based limit, or if there is no technology-based limit, then the WQBEL becomes the permit limit. If the technology-based limit is more restrictive than the WQBEL, then the technology-based limit becomes the permit limit.

WQBELs for those pollutants with numerical water quality criteria are calculated using the state's implementation procedures for water quality standards. Example WQBEL calculations are included in Section 9, **Effluent Limit Calculations**.

WQBELs also will be included in NPDES permits for pollutants which have a TMDL or waste load allocation (WLA) for the receiving water. TMDLs and WLAs are established when discharges cause or contribute to a water quality standards excursion, even though all the dischargers are in compliance with technology-based limits. The derivation and application of TMDLs and WLAs are discussed in Section 9, **TMDLs and Waste Load Allocations**.

In addition to numerical water quality criteria, there are narrative criteria that also must be achieved. Every state has a narrative criterion that prohibits the discharge of toxic substances in toxic amounts. Usually, this narrative criterion is implemented by including whole effluent toxicity (WET) test requirements in the NPDES permit (see Section 9, **Biomonitoring**). Most permit agencies do not establish permit limits for WET unless the discharger has a history of effluent toxicity. However, some states do include WET limits in NPDES permits for every industrial discharger determined to have the potential to cause or contribute to aquatic toxicity in the receiving water.

Internal Outfalls

In some cases, NPDES permits will contain effluent limits and monitoring requirements for discharges before they combine in a final outfall. Such discharges are called “internal outfalls.” Internal outfall limits are authorized by NPDES regulations at 40 CFR 122.45(h) when establishing limits at the final outfall is impractical or infeasible. Internal outfall limits are to be established only when there are exceptional reasons for doing so.

In general, internal outfall limits are established only when compliance with an effluent limitations guideline or BPJ limit for a process wastewater cannot be determined at the final outfall because of dilution by another wastewater stream. An example is a process effluent covered by an effluent guideline mixed with once-through cooling water before the final outfall. The flow rate of the cooling water may be much higher than the process wastewater, diluting the latter such that the pollutant limit in the combined discharge would be lower than the analytical detection limit. Therefore, an internal outfall can be established to monitor compliance with effluent limits before mixing with the cooling water. This is the principal reason for establishing internal outfalls in NPDES permits.

Similarly, an internal outfall may be assigned when a regulated process wastewater stream is a small fraction of the total process wastewater. An example is the effluent limitations guidelines for organic chemicals manufacturing facilities at 40 CFR 414. These guidelines include BAT limits on cyanide and metals, which apply only to process wastewaters identified as cyanide-bearing or metals-bearing. In some cases, internal outfalls are specified solely for the cyanide or metals treatment unit effluent. Usually, however, the limits are set on the combined process wastewater.

Narrative Permit Limits

NPDES permits also may include narrative limits. Narrative limits are unusual, and are usually expressed as prohibitions on certain wastewater

discharges. For example, a permit may prohibit discharges from a storm water outfall during dry weather (“dry weather flow”). The permit also may prohibit certain chemicals in cooling water systems; such limits usually are included in the “other requirements” section of permits. A common narrative limit is prohibiting the discharge of excessive floating solids or visible foam.

Flow Limits

NPDES regulations do not require limits on discharge flow rate. However, some state regulations do require flow limits in the NPDES permit. If flow limits are included, usually they will be for the same duration as specified for pollutant limits – usually a maximum monthly average (daily average) and a daily maximum.

Monitoring

The required monitoring frequency and sample type are specified in the NPDES permit for each pollutant regulated with a numerical limit. In addition, monitoring requirements may be specified for pollutants even when no numerical limit has been set. In this case, the only requirement is to report the monitoring results (“report only”).

The monitoring frequency may be continuous (e.g., for flow, pH, and temperature) or in terms of the number of samples to be collected in a given time period. Typical frequencies are daily, one or more times per week, monthly, quarterly, or yearly. In general, monitoring frequencies less than once per year are not used in NPDES permits.

Sample types specified in permits include continuous, grab, and 24-hour-composite samples. A continuous sample is one collected with a direct-reading instrument, such as a pH meter. In most cases, recording is also continuous, although EPA and states generally will allow use of data systems that record at intervals, such as once a minute. In this case, the sample frequency usually is negotiable with the permit writer. A grab sample typically means a sample collected within 15 minutes. A 24-hour composite sample can be a continuously collected, flow-weighted sample or a sample prepared by combining, on a flow-weighted basis, grab samples that are collected at equal intervals over a 24-hour period. In some cases, equal volume subsamples can be used to prepare composite samples. The permit will specify the composite sampling requirements, which may be different for specific pollutants. For example, compositing requirements for volatile organic pollutants often will be different from those for nonvolatile organic pollutants.

Although NPDES permits do not have to contain limits on flow rates, all permits must require some type of flow monitoring. The monitoring provisions will specify the type of flow measurements that must be collected and reported. For large industrial facilities with continuous discharges (e.g., greater than 1 million gallons per day), NPDES permits will typically require continuous monitoring and recording of effluent flow rates. Small continuous discharges and intermittent discharges (including storm water) will typically require monitoring on a periodic basis, but not continuously.

Except in special cases, the permit does not specify the exact analytical methods for monitoring; however, the permit will include in the “general conditions” section a provision requiring methods approved at 40 CFR 136. These methods must be used unless there is no method at 40 CFR 136 for the pollutant. In this case, the analytical method will be specified in the “other requirements” section.

The permit also will specify the sample location for outfalls. A typical description of a sampling location would be:

Samples taken in compliance with the monitoring requirements specified in this permit shall be collected at the following location: Outfall 001 at the final weir box prior to discharge to the Blue River.

The permit contains other requirements and instructions relating to the monitoring and effluent limits. A typical example is reporting pH excursions when continuous monitoring is required by the permit. EPA regulations at 40 CFR 401.17 allow for short-term, infrequent excursions outside pH limits. This provision may be included as a footnote or other provision in the permit.

Footnotes are used to note when a particular permit limit or monitoring condition becomes effective, if it is not effective for the entire permit duration. For example, when a permit contains a compliance schedule, a footnote on the numerical limit specifies the time, within the permit term, when the limit becomes effective. Footnotes also may be used to require notification of the permit agency when a certain manufacturing or treatment process that is under construction, or is temporarily shut down, is brought into service.

Compliance Schedule

When limits cannot be met at the same time the permit becomes effective, the permit may include a compliance schedule for achieving limits later within the permit period. The compliance schedule usually requires periodic progress reports.

Reporting of Monitoring Results

The permit specifies how often and when monitoring results are submitted to the permit agency. The permit specifies the discharge monitoring report (DMR) form to be used for submittals. Usually, monitoring results must be reported monthly. The due date for each month's DMR usually is 15 days to 25 days after the end of the month.

Standard Conditions

Standard conditions of NPDES permits often are referred to as "boilerplate." Appendix 3 contains a copy of the standard conditions from an NPDES permit from EPA Region VI. The standard conditions required in all NPDES permits are defined at 40 CFR 122.41. Table 4-1 is an outline of these conditions. Several of the standard conditions identified in Table 4-1 deserve additional discussion and explanation, namely, the upset provision, the bypass provision, and notification of changes in discharges.

Table 4-1. Outline of Standard Conditions of NPDES Permit

General Conditions

- Duty to comply—permittee must comply with all conditions of permit.
- Toxic pollutants—permit will be modified to conform to new more stringent toxic limits; permittee must comply with regulatory deadlines for toxic pollutants despite conditions in permit.
- Duty to reapply—permittee must reapply to continue permit; application must be submitted 180 days before permit expiration date.
- Permit flexibility—permit may be modified, revoked and reissued, or terminated for cause.
- Property rights—permit does not convey property rights or exclusive privilege.
- Duty to provide information—permittee must provide information and copies of records.
- Criminal and civil liability—except for bypasses and upsets, permit provisions do not relieve permittee from civil or criminal penalties for noncompliances.
- Oil and hazardous substance liability—permittee remains subject to liability under Section 311 of CWA.
- State laws—permittee remains subject to state law and regulation.
- Severability—permit provisions are severable, invalidation of individual provision does not invalidate remaining provisions.

Proper Operation and Maintenance

- Need to halt or reduce not a defense—permittee cannot use as a defense for a permit excursion that it would have had to halt or reduce a facility operation to prevent the excursion.
- Duty to mitigate—all reasonable steps must be taken to prevent discharges in violation of the permit.
- Proper operation and maintenance—all treatment equipment must be properly operated and maintained, adequate staffing is required, and sufficient operating data must be collected.

Table 4-1.*Continued*

Bypass of treatment facilities—bypasses are allowed if they do not cause permit violations, but only for essential maintenance. Notification of anticipated bypass is required. Bypasses that are not for essential maintenance are prohibited except to prevent loss of life, personal injury, or severe property damage.

Upset conditions—upset conditions are an affirmative defense for permit violations of technology-based permit limits; causes of upset must be demonstrated.

Removed substances—sludges, oils, and other pollutants removed from wastewater by treatment must be properly disposed.

Monitoring and Records

Inspection and entry—representatives of the permit agency must be allowed access to the facility for review of records and treatment facilities, and collection of samples.

Representative sampling—samples must be representative of the effluent discharge.

Retention of records—all monitoring records and records used in preparation of the permit application must be maintained for 3 years.

Record contents—records must include sampling dates, times, person collecting the sample, date and time of analysis, analyst name, analytical method used, results of analysis

Monitoring procedures—monitoring must be in accordance with 40 CFR 136. All monitoring and analytical instruments must be calibrated and maintained. Adequate QA/QC is required.

Flow measurements—flow measuring devices must be properly maintained and calibrated; flow measurements must be accurate within $\pm 10\%$.

Reporting Requirements

Planned changes—notification is required if any planned changes will cause the facility to be subject to new source requirements and/or there will be a significant change in the quantity or types of pollutants discharged.

Anticipated noncompliance—advance notice is required of any planned changes that may result in noncompliance with permit requirements.

Transfers—permit is non-transferrable except after notice to and approval from permit agency.

Discharge monitoring reports and other reports—DMRs must be filed on appropriate form and with authorized signature. Address of DMR recipient is listed.

Additional monitoring by the permittee—if a permittee monitors any limited pollutant more frequently than required by the permit, and uses approved analytical methods, these data must be reported on the DMR.

Averaging of measurements—an arithmetic average is to be used unless otherwise specified.

Twenty-four hour reporting—any noncompliance that may endanger health or the environment must be reported orally within 24 hours.

Other noncompliance—all other noncompliance with permit conditions shall be reported with the DMR.

Other information—when a permittee becomes aware of any relevant facts not included in the permit application, such information shall be reported to the permitting agency.

Changes in discharges of toxic substances—any discharge of a toxic pollutant on a frequent or routine basis that is not limited in the permit must be reported if defined notification levels are exceeded.

Table 4-1.*Continued*

Signatory requirements—all required reports shall be signed and certified; signatory requirements are specified.

Availability of reports—any information other than applications, effluent data, permits, and DMRs may be declared as business confidential if permit authority is notified at the time of submission.

Penalties for Violations of Permit Conditions

Criminal penalties—for negligent violations, knowing violations, knowing endangerment, and false statements.

Civil penalties—up to \$25,000 per day for each permit violation.

Administrative penalties—Class I is \$10,000 per day per violation up to \$25,000; Class II is \$10,000 per day per violation to \$125,000 maximum.

Definitions

Terms such as daily average, daily maximum, etc., as used in the permit.

Upset Provision

The upset provision at 40 CFR 122.41(n) is a valuable permit condition for the discharger. It offers a defense from enforcement action on a permit violation if certain criteria are met. This provision is only available for violation of a technology-based permit limit. The upset provision is not a defense from enforcement action for a violation of a water-quality-based permit limit.

In order to use the upset defense, the permittee must establish, through properly signed operating logs for the period in question, or other relevant data, that:

- An upset occurred and that the permittee can identify the cause(s) of the upset;
- The permitted facility was being properly operated at the time of the upset;
- The permittee submitted notice of the upset within 24 hours of when the permittee became aware of the permit violation; and
- The permittee took all reasonable steps to mitigate the permit violation.

Because of the restrictive notification requirements, a discharger must be aware of the upset defense whenever monitoring data are received and reviewed. Whenever the exceedance of a permit limit is identified in the

monitoring data, the discharger must determine quickly if the violation was due to an upset and if the upset provisions (notification, mitigation, identification) can be met.

Bypass

The definition of a bypass in the NPDES regulations at 40 CFR 122.41(m) is broad. It is any intentional diversion of waste streams from any portion of a treatment facility. Thus, if a secondary clarifier is taken out of service for repair, it is technically a bypass, even if another clarifier is in operation and all permit limits are consistently achieved. Bypass of treatment that does not result in a permit violation is acceptable provided that the bypass is for essential maintenance to assure efficient operation. The example of the secondary clarifier would be this type of bypass. This form of bypass does not require notification of the permit agency, but records should be maintained showing when the unit was out of service and the type of maintenance required.

Bypasses of treatment equipment that result in violations of permit limits are prohibited and may result in enforcement action. The only defense against enforcement for a bypass that results in the violation of a permit limit is if the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. To demonstrate that a bypass was unavoidable, the discharger must show that there was no feasible alternative to the bypass. A bypass is not unavoidable if adequate backup equipment could have been installed by the discharger to prevent a bypass which occurs during normal equipment downtime or preventive maintenance.

If a bypass that may cause a permit violation is anticipated in advance, the permit agency is required to be notified, at least 10 days in advance, if possible. For unanticipated bypasses, the permit agency must be notified within 24 hours of the bypass.

If a treatment process is used for effluent polishing, but does not need to be in continuous operation, diversion of treated effluent around the treatment process would be considered to be a bypass, *unless the permit application clearly shows that the treatment process is contingent treatment and that effluent can be diverted around the unit if the treatment is not needed.* An example is end-of-pipe carbon columns used only when testing indicates the presence of elevated organic constituents in a biotreatment effluent. It is very important that treatment units and their operation are clearly identified and described in the permit application.

Notifications of Changes in Discharge

There are two types of standard notification requirements that are of particular importance to industrial dischargers. The first deals with planned changes in the permitted facility; the second deals with discharges of toxic pollutants.

Industrial facilities often make planned changes in their manufacturing processes, utilities, and treatment systems during the duration of an NPDES permit. Notification to the permit agency is required at 40 CFR 122.41(l)(1) under two conditions:

- 1) If the alteration or addition to the permitted facility meets the criteria at 40 CFR 122.29(b) for a new source; or
- 2) If the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies only to pollutants that are not specifically limited in the permit and that are not toxic pollutants.

Although notification of planned changes that do not meet the above conditions is not required by the permit, it is always good practice to notify the permit authority of any significant changes at the facility in order to ensure that the permit file for the facility is complete.

The notification requirement for toxic pollutants at 40 CFR 122.42(a) applies to those not specifically identified and regulated in the permit. Notification is required if the discharge exceeds the highest of the following levels:

- One hundred micrograms per liter (100 µg/L);
- Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol (4,6-dinitro-o-cresol); and 1 mg/L for antimony;
- Five times the maximum concentration reported for that pollutant in the permit application; or
- A specific notification level established in the permit.

Tables II and III at 40 CFR 122, Appendix D, list some of the more common toxic pollutants that are subject to this notification requirement. (Note that

“total phenols” listed in Table III is a method-defined parameter and not a toxic pollutant per se.)

Other Conditions

All NPDES permits have an “other conditions” section (sometimes called “other requirements”) which is used by the permit agency to incorporate agency policies and special monitoring or study requirements into the permit, to specify analytical methods to be used for monitoring (if different from those in 40 CFR 136), to specify analytical reporting requirements such as detection or quantification limits, and to describe the methods to be used and reporting requirements for WET testing. Mixing zone requirements and dimensions may also be included in the “other conditions” section of the NPDES permit.

Because the “other conditions” sections of permits may contain a variety of conditions, which are based on the permit writer’s evaluation of the application and permit agency policies and procedures, it is impossible to generalize the contents of this section. In some permits, the other conditions section may consist of only one or two provisions; in others, there may be 20 or more special provisions. The permittee must understand that this section of the permit has equal importance with the other more standard sections and every provision must be carefully read and met.

Section 5

Permit Applications

This section of the manual discusses the preparation of individual and general permit applications. Because most of the information in the application is straightforward and covered by the application instructions, this section covers only certain items needing additional guidance.

Application Forms

Application forms are available from permitting agencies or can be found in the NPDES regulations. Permitting agencies may have the forms available electronically and downloadable through the internet. Because the application forms can be lengthy, printed forms that are not available as word processing files can be scanned into the computer to make typing and editing easier.

Individual Permits

This subsection discusses deadlines, preparation time, various application forms, and application content.

Deadlines

For new discharges, individual permit applications must be submitted 180 days before the discharge starts. For new storm water discharges from construction activities, applications must be submitted 90 days before construction starts (180 days for other storm water discharges). For renewal of individual permits, applications must be submitted 180 days before the existing permit expires. Applications to request changes to the permit before the renewal deadline may be submitted at any time. The general rule is to submit any permit application at least 180 days before the requested change is to take place.

The above deadlines are regulatory drop-dead times. Applications should be submitted earlier if timing is critical for a project, the wastewater system is particularly complex, special issues need to be addressed, a lengthy public hearing is likely, the permitting agency is slow in processing applications, or for any other reason that may require extra time. The amount of extra time that will be needed depends on individual circumstances; however, two to six months ahead of the 180-day deadline is typical.



Preparation Time

Preparing a permit application is straightforward; however, a significant amount of time is required to collect the necessary data and put them together in a well-organized and complete package. Permit writers appreciate applications that are well prepared. Some of the more time consuming tasks are outlining and scheduling laboratory analyses of discharges, preparing maps and drawings, and writing technical reports. Generally, preparation requires a minimum of two months for simple applications or permit renewals with minor changes. This is not two man-months of continuous work, but includes the time waiting for laboratory analyses, company approval of the application, and other milestones. Depending on the amount of work involved, some companies start on the application as much as a year before it's due.

Individual Permit Application Contents in this section gives an overview of the information that is included in individual permit applications, and can be used to estimate preparation time and schedules for a particular facility.

Individual Permit Application Forms

Table 5-1 lists EPA NPDES application forms applicable to individual permits for the petroleum industry. Copies of these forms are in Appendix 4 of this manual. Originals may be obtained from EPA regional offices or from printed copies in the regulations as indicated in Table 5-1. Tables 5-2 through 5-6 summarize the contents of each of these forms for easy review. The actual forms and their instructions in Appendix 4 should be consulted for the exact information required in the application.

Form 1 contains general facility information and must be submitted with every application along with other forms, listed in Table 5-1, applicable to the facility. Form 2C is the form that is most familiar to applicants. It is for existing facilities that discharge process wastewater and is used for permit renewals and modifications. Form 2D is for proposed facilities that will discharge process wastewater or existing sites that have not previously permitted a process wastewater outfall. Form 2E is for both new and existing facilities that discharge only nonprocess wastewater such as noncontact cooling water. Form 2F is for storm water discharges from industrial activity. Form 2F must be submitted for all discharges containing storm water—those that are composed entirely of storm water as well as those that are mixed with process or nonprocess wastewater. For example, an existing facility with both a process and storm water outfall would submit Forms 1, 2C, and 2F.