



Missouri
Department of
Natural Resources

Water Protection Program
Water Pollution Control Branch

1 *Part I: Overview and Basis for Reviews*

1.1 Guidance Document Overview

The water quality and antidegradation review assistance and effluent limit determination process is an important component in the implementation of water pollution control within the state of Missouri. The review and determination process includes all the steps necessary to ensure that effluent limitations and monitoring requirements for discharges to waters of the state are complete, consistent, and protective of water quality. This guidance document contains methods and procedures for conducting water quality and antidegradation reviews and effluent limit determinations for domestic, municipal, and industrial discharges. This guidance also contains methods and procedures that supplement the existing Missouri Regulations and [*Antidegradation Rules and Implementation Procedure, May 2008 \(AIP\)*](#). The AIP addresses new and expanded discharges; thus, this guidance will apply to these discharges rather than discharge renewals. The water quality and antidegradation review and effluent limit determination process consists of the four fundamental steps:

- Determination of applicable water quality standards,
- Determination of applicable effluent characteristics and regulations,
- Characterization of the receiving waterbody, and
- Development and documentation of effluent limitations and monitoring requirements protective of water quality.

Although the four steps outlined above are simplified, complicating factors such as limited water quality data, multiple discharges, and impaired waters all need to be considered. The approach presented in this guidance document addresses the additional complexities introduced by these factors.

1.1.1 Purpose of Guidance

This guidance provides Missouri Department of Natural Resources (department) staff and the regulated community with a consistent strategy for assessing the need for and rationale used in the development of effluent limitations and monitoring requirements for discharges to waters of the state. To these ends, this guidance document contains processes and procedures that will help ensure the quality of Missouri's waters will be protected for current and future uses.

This guidance does not prohibit establishing alternative methods of analysis or permit limits, if the methods are technically sound, consistent with federal and state regulations and this document, and are protective of human health and the environment. Ultimately,

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the department reserves the right to review and approve the use of alternative approaches. Because this document cannot encompass all of the situations encountered when developing the terms and conditions of a facility operating permit, the reader is encouraged to contact department staff with site-specific questions.

1.1.2 Origin of Guidance

This guidance document arose out of the necessity to communicate the increasingly more complex water quality standards into the permit process to department staff in the central and regional offices. This guidance is also intended to serve as a reference for the regulated community and their consultants who may be required to submit information or conduct analyses using information and procedures contained within this document. Lastly, this guidance is intended to serve as a resource for those who review and provide comments on water quality and antidegradation reviews issued by the state of Missouri.

1.1.3 Organization of Guidance

Part One (1) outlines the purpose, origin, and organization of content within the guidance document and briefly summarizes federal and State Clean Water Law and the state of Missouri's regulatory authority and responsibilities toward their implementation. Part Two (2) contains a discussion of water quality standards including designation of uses, waterbody classification, water quality criteria, antidegradation requirements, regulatory mixing zones, and toxicity testing that can be collectively employed to ensure a more holistic approach to water pollution control. Part Three (3) discusses the difference between technology-based and water quality-based effluent limitations and provides the rationale for calculating both of these types of limits. Part Four (4) contains procedures for determining effluents potential to exceed the water quality standards and processes and procedures for calculating effluent limitations that are protective of water quality standards, or, where applicable, that retain assimilative capacity of a pollutant. Finally, to enhance the processes found in each the above-mentioned parts, the *Supplemental Instructional Guide for Water Quality and Antidegradation Review Assistance*, hereafter WQAR Instructional Guide, is referenced as a companion volume. WQAR Instructional Guide contains guidelines or procedures to enable a reviewer or permit writer to construct a water quality review for new and expanded state operating permits, or for those occasions when a water quality review without the antidegradation review is needed for existing, non-expanding facilities.

1.2 Clean Water Law

The following section briefly summarizes federal and State Clean Water Law and the state of Missouri's regulatory authority and responsibilities toward their implementation. The Federal Clean Water Act and State Clean Water Law are the foundation from which the state of Missouri's water pollution control regulations, policies, and procedures are derived.

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1.2.1 Federal Clean Water Act

The [Federal Clean Water Act](#) (CWA) is the primary law passed by the United States Congress to control water pollution into **Waters of the United States**. The CWA is also known as the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), 33 U.S.C. 1251 et seq. Additional amendments have been made to the CWA, the most notable being the Clean Water Act of 1977 (Public Law 95-217) and the Water Quality Act of 1987 (Public Law 100-04). The CWA is comprised of Titles I through VI with each title addressing a major component of the act:

Title I	Research and Related Programs
Title II	Grants for Construction of Treatment Works
Title III	Standards and Enforcement
Title IV	Permits and Licenses
Title V	General Provisions
Title VI	State Water Pollution Control Revolving Funds

As stated in Section 101(a), the congressional intent and overarching goal of the CWA is “...to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The CWA also contained an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.” This is more commonly known as the “fishable, swimmable” goal of the CWA. The CWA also contained four important principles:

- The discharge of pollutants to navigable waters is not a right.
- A discharge permit is required to use public resources for waste disposal and limits the amount of pollutants that may be discharged.
- Wastewater must be treated with the best treatment technology economically achievable – regardless of the condition of the receiving water.
- Effluent limitations must be based on treatment technology performance, but more stringent limits may be imposed if the technology-based limits do not prevent violations of water quality standards in the receiving water.

To implement and achieve the goals, objectives, and principles of the CWA, Section 402 required the creation of the [National Pollutant Discharge Elimination System](#) (NPDES) permit program for the control and reduction of pollutant discharges to the Nation’s waters. The primary regulations developed by the **Environmental Protection Agency (EPA)** to implement and administer the NPDES Program are found in Title 40 of the *Code of Federal Regulations* (CFR) Part 122. While the EPA is authorized under the CWA to implement the NPDES Program, EPA may delegate the responsibility to authorized states, territories, or tribes to implement all or parts of the national program.

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The state of Missouri sought and obtained authorization to implement the following parts of the national program on the following dates:

NPDES Program	Date Approved
State NPDES Permit Program	October 30, 1974
Regulate Federal Facilities	June 26, 1979
State Pretreatment Program	June 3, 1981
General Permits Program	December 12, 1985
Biosolids (Sludge) Program	----

While Section 402 of the CWA established the NPDES program to regulate the discharge of pollutants to surface waters, Sections 301 and 302 of the CWA provided the basis for establishing technology-based and water quality-based effluent standards, respectively. Where Section 301 establishes technology-based effluent standards for specific industries (e.g. municipal and categorical industrial), Section 302 addresses the requirement for water quality-based effluent standards based on the water quality goals of the waters receiving the discharge. One of the CWA's central tenets is a comparison between technology-based and water quality-based effluent limits to determine which will be the most protective of water quality and prevent degradation. This comparison therefore becomes the central focus of the water quality and antidegradation review process to ensure that water quality goals are met and the state program is properly implemented.

In addition to the programs listed above, state delegation also included water pollution control activities related to water quality standards development and promulgation (Section 303), State Revolving Fund grant and loan authority (Section 601-07), and non-point source watershed pollution prevention and reduction (Section 319). Regulations implementing all sections of the Clean Water Act are found in 40 CFR Parts 104 – 140.

1.2.2 Missouri Clean Water Law

Sections 644.006 – 644.141 of Missouri Revised Statutes (RSMo) are the primary statutes passed by the Missouri Legislature to administer water pollution control programs established by the CWA at the state level. Also known as the Missouri Clean Water Law, these statutes establish among other things the State NPDES permit program, state water quality standards program, and provide for promulgation of associated regulations. The Missouri Clean Water Law authorizes these activities under authority granted by the state to the [Missouri Clean Water Commission \(Section 644.026, RSMo\)](#).

Below is a list and brief description of revisions made to Part 1:

Version	Date Completed	Description
Version 1.0	August 2, 2006	Original draft outline and Part 1 were written by John Hoke.
Version 1.1	May 15, 2009	Revised outline and Part 1 rewrites by Todd Blanc. Updated to include antidegradation rule.