

**Notice of Proposed Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code Chapter 95)
(Wastewater Treatment Requirements)**

Preamble

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code Chapter 95 (relating to Wastewater Treatment Requirements). The proposed amendments include the elimination of a redundant provision, the recognition of applicable TMDL requirements, and the establishment of new effluent standards for new sources of wastewaters containing high Total Dissolved Solids (TDS) concentrations.

The proposal was adopted by the Board at its meeting of _____, 2009.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final rule making.

B. Contact Persons

For further information, contact Ronald C. Furlan, Chief, Division of Planning and Permits, P.O.Box 8774, Rachel Carson State Office Building, Harrisburg, PA 17105-8774, (717) 787-8184 or William Cumings, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Information regarding submitting comments on this proposal appears in Section J of this preamble. Persons with disability may use AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This proposal is available electronically through the DEP Web site (<http://www.dep.state.pa.us>).

C. Statutory Authority

The proposed rulemaking is being made under the authority of section 5 of the Clean Streams Law (35 P.S. § 691.5), which grants the Department the authority to adopt rules and regulations in establishing policy and priorities for issuing orders and permits and in taking other actions pursuant to this law, and Sections 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§ 510-7 and 510-20).

D. Background and Purpose

Total dissolved solids (TDS) is comprised of inorganic salts, organic matter and other dissolved materials in water. They can be naturally present in water or the result of runoff, mining or industrial or municipal treatment of water. TDS contain minerals and organic molecules that provide benefits such as nutrients, but also may contain contaminants such as toxic metals and

organic pollutants. However, the benefits noted are when considered in moderation, which is likely not the case in a high TDS discharge. The concentration and composition of TDS in natural waters is determined by the geology of the drainage, atmospheric precipitation and the water balance (evaporation/precipitation).

TDS causes toxicity to water bodies through increases in salinity, changes in the ionic composition of the water, and toxicity of individual ions. The composition of specific ions determines toxicity of elevated TDS in natural waters. Also, as the hardness increases, TDS toxicity may decrease. The major concern associated with high TDS concentrations relates to direct effects of increased salinity on the health of aquatic organisms.

Water quality analyses performed for the major watersheds of the Commonwealth to date show that many of the rivers and streams of Pennsylvania have a very limited ability to assimilate additional TDS, sulfates and chlorides. This phenomenon was most evident during the fall of 2008, when actual water quality issues related to these parameters emerged in the Monongahela River basin. While river flows reached seasonal lows, the concentrations of TDS and sulfates in the river increased to historic highs, exceeding the water quality standards at all of the 17 Potable Water Supply (PWS) intakes from the border with West Virginia to Pittsburgh. Exceedances of water quality standards for TDS and Sulfate persisted in the river through November and December of 2008. Elevated chloride levels were observed on at least one major tributary – South Fork Tenmile Creek – and for the first time, elevated bromide levels were observed in these streams.

During this period, several environmental agencies performed studies on the effects of TDS, sulfate and chloride discharges on the Monongahela and some of its tributaries. A study conducted by the Environmental Protection Agency (EPA), the Pennsylvania Department of Environmental Protection (DEP) and the Allegheny County Health Department (ACHD) also identified bromides as a key parameter of concern in these waters. The study concluded that a high percentage of the Disinfection By-Products (DBPs) being formed in the drinking water systems were brominated DBPs, which pose a greater health risk than chlorinated DBPs; and, subsequent formation of brominated DBPs increases overall DBP concentrations, specifically trihalomethanes (THMs). The study also concluded that based on the speciation there appears to be a strong correlation between THM formation and elevated source water bromide concentrations in the Monongahela River. As a result, the 17 potable water supply intakes on the Monongahela River are subject to higher levels of the more toxic brominated DBPs, which result in increased risks of bladder cancer to their consumers.

Several studies on the potential impacts to aquatic life from these large TDS discharges were also conducted on major tributaries flowing into the Monongahela River in Greene County, Pennsylvania. Each of these studies documents the adverse effects of discharges of TDS, sulfates and chlorides on the aquatic communities in these receiving streams. The former concludes that there is a high abundance of halophilic (salt-loving) organisms downstream from the discharges of TDS and chlorides and a clear transition of fresh water organisms to brackish water organisms in the receiving stream from points above the discharge to points below. It is evident from this study that increases in salinity have caused a shift in biotic communities.

The Monongahela River watershed is being adversely impacted by TDS discharges and many points in the watershed are already impaired, with TDS, sulfates and chlorides as the cause.

Although the Monongahela has received the most attention, is not an anomalous situation. DEP has studied the results of stream monitoring and has conducted an analysis on the water quality of the Beaver River in western Pennsylvania. These results show upward trends in TDS concentrations. DEP has also conducted similar studies on the Shenango and Neshannock Rivers, with similar upward trends in TDS concentrations.

In addition, watershed analyses conducted by DEP of the West Branch of the Susquehanna River and the Moshannon River watersheds have documented that they are also severely limited in the capacity to assimilate new loads of TDS and sulfates. DEP has received several permit applications in these areas where the permits will not be able to be issued with limits greater than the water quality standards due to the high background concentrations of TDS.

The surveys, analyses and studies referenced establish that the extent of existing and potential pollution from TDS, sulfates and chlorides is widespread. DEP is constrained from approving any significant portion of the pending proposals and applications for new sources of discharge high-TDS wastewater that include sulfates and chlorides, and still protect the quality of Pennsylvania's streams.

The existing practice for high TDS wastewaters is the removal of heavy metals, but currently no treatment exists for TDS, sulfates and chlorides, other than dilution. As documented by the rising levels of TDS in the waters of the Commonwealth, dilution can no longer be considered adequate treatment for high TDS wastewaters.

The Commonwealth's Clean Streams Law (P.L. 1987, No. 394) delegates the authority to preserve and improve the purity of its waters and develop remedies to purify those waters currently polluted to DEP, in the form of adopting rules and regulations as necessary to accomplish these tasks.

The Department's "Permitting Strategy for High Total Dissolved Solids (TDS) Wastewater Discharges" (April 11, 2009) outlines the foundation and scientific rationale for promulgation of such rules and regulations necessary to address the existing and potential pollution of Pennsylvania's waters from large sources of TDS, sulfates and chlorides. This approach relies upon the basic water quality management premise that discharges of these pollutants must be managed through permit limitations required by the more stringent of treatment-based or water quality-based standards.

The goal of this permitting strategy is that by January 1, 2011, new sources of High-TDS wastewaters will be prohibited from Pennsylvania's waters. To achieve this goal, the Department proposes to amend Chapter 95 – relating to wastewater treatment requirements – to establish new effluent standards.

In addition to moving this regulatory package forward, the Department is considering, on a parallel track, the formation of a work group in the Monongahela River watershed to review possible alternative approaches that would also be protective of Pennsylvania's water resources.

The proposed rulemaking was presented to the Water Resources Advisory Committee (WRAC) at a special meeting on June 19, 2009, and considered at the committee's regular meeting on July 15, 2009. The WRAC, by majority vote, recommended that the Department work in conjunction with the committee to form a statewide stakeholders group to analyze the issues and develop appropriate solutions, in lieu of proceeding with the currently proposed rulemaking.

E. Summary of Regulatory Requirements

§ 95.2 Effluent Standards for Industrial Wastes

The department has proposed to retitle the section for clarity. The department also proposes to delete paragraph (1) because it is redundant. The other paragraphs have been renumbered as a result of the deletion of paragraph (1).

§ 95.10 Effluent standards for new sources of wastewaters containing high Total Dissolved Solids (TDS) concentrations.

This is a new section. Subsection (a) defines high TDS wastewater. Subsection (b) establishes effluent standards for Total Dissolved Solids, Total Chlorides, and Total Sulfates, and provides for exceptions to these criteria for industries that have established federal criteria for TDS, sulfates and chlorides. Subsection (c) establishes criteria for new sources of wastewaters resulting from fracturing, production, field exploration, drilling or completion of oil and gas wells. Subsection (d) establishes that the effluent limitations in section 95.10 will not apply if an NPDES permit has established more stringent limitations than the limits specified in this section.

The term "new discharge" is also defined in subsection (a). This definition is intended to make it clear that a new discharge from an existing facility, an additional discharge from an existing facility or an expanded discharge from an existing facility are included. It is not intended to include discharges from treatment facilities for abandoned mine discharges (AMD), which existed on April 1, 2009, where new treatment facilities are installed or existing facilities are modified. This is important to assure that efforts to treat AMD by third parties (watershed groups, trustees or the government) are not thwarted by imposing limits on these projects with overwhelming positive environmental benefits. Remining projects authorized under Subchapter F of Chapter 87 or Subchapter G of Chapter 88 are also not included in this definition because the discharges associated with them existed as of April 1, 2009.

F. Benefits, Costs and Compliance

Benefits

The Monongahela River has been significantly impacted by discharges of wastewaters containing high TDS concentrations. These high TDS concentrations have caused exceedances

of drinking water standards at many drinking water treatment plants in Pennsylvania. Some of these exceedances include bromides. Bromides in drinking water may result in the formation disinfection byproducts that are more toxic than the byproducts from chlorination. This proposed rulemaking will address these high TDS discharges as well as high levels of chlorides and sulfates, resulting in cleaner streams. This reduction will also reduce the number of brominated disinfection byproducts and help to ensure safe drinking water for Pennsylvanians.

Compliance Costs

The regulation will impose new costs on new or increased discharges of high TDS wastewater. New or increased discharges will be required to install advanced treatment to meet the requirements of this proposed rulemaking. It is anticipated that treatment costs could be on the order of \$0.25/gallon. Since there is currently no treatment required for TDS, chlorides, and sulfates, any cost is an increase over the existing cost.

Existing facilities will have minimal additional costs as a result of this proposed rulemaking. The additional costs will be the result of additional monitoring and recordkeeping that will be required to comply with this rulemaking.

Compliance Assistance Plan

DEP has conducted many outreach sessions to educate stakeholders about the new regulations, at least as they apply to Marcellus shale activities. These include:

- On October 16, 2008, the Department sent a letter to existing treatment plants in Pennsylvania explaining the requirements that would apply to each plant that chooses to accept high TDS wastewater, including additional monitoring.
- On April 15, 2009, the Department held a meeting of the Marcellus Shale Wastewater Partnership to introduce and discuss the Permitting Strategy for High TDS Wastewater Discharges.
- On April 16, 20, and 21, 2009 industry sponsored Marcellus shale application training, including wastewater transportation and delivery, was held in Williamsport, Canonsburg and Clarion. Questions were taken and answered, and a Question and Answer document has been posted on the DEP web site.
- In the spring of 2009, a wastewater generation, transportation and disposal powerpoint presentation was developed, and is posted on the DEP web site.
- In 2009, DEP will be offering Industry Training Workshops at 6 locations throughout the state. Wastewater management issues will be addressed in the training after the regulation has been finalized.

Paperwork Requirements

This proposal will result in additional paperwork only for existing wastewater treatment plants that choose to accept high TDS wastewater. This additional paperwork will include additional monitoring and recordkeeping requirements, as well as the requirement to develop or revise a pretreatment program and to modify their existing NPDES permit to reflect the constituents present in the high TDS wastewater.

G. Sunset Review

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

H. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P.S. §745.5(a)), on _____ the Department submitted a copy of the proposed rulemaking to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the Senate and House Environmental Resources and Energy Committees. In addition to submitting the proposed amendments, the Department provided IRRC and the Committees with a copy of a detailed regulatory analysis form prepared by the Department. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed regulations within 30 days of the close of the public comment period. The comments, recommendations or objections shall specify the regulatory review criteria that have not been met. The Regulatory Review Act specifies detailed procedures for review of these issues by the Department, the General Assembly and the Governor prior to final publication of the regulations.

I. Public Comments

The Department is particularly interested in comments regarding economic impacts and treatment technologies, including levels of treatment and associated costs, from industries covered by this regulatory change. Comments on this and other aspects of the draft regulation can be submitted in hard or electronic copy as explained below.

Written Comments - Interested persons are invited to submit comments, suggestions, or objections regarding the proposed regulation to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17105-2301). Comments submitted by facsimile will not be accepted. Comments, suggestions, or objections must be received by the Board by _____ (*within 60 days of publication in the Pennsylvania Bulletin*). Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by _____ (*within 60 days of publication in the Pennsylvania Bulletin*). The one-page summary will be

provided to each member of the Board in the agenda packet distributed prior to the meeting at which the final regulation will be considered.

Electronic Comments - Comments may be submitted electronically to the Board at RegComments@dep.state.pa.us and must also be received by the Board by _____ (within 60 days of publication in the *Pennsylvania Bulletin*). A subject heading of the proposal and a return name and address must be included in each transmission. If an acknowledgement of electronic comments is not received by the sender within two working days, the comments should be retransmitted to ensure receipt.

J. Public Hearings

The Environmental Quality Board will hold four public hearings for the purpose of accepting comments on this proposal. The hearings will be held at ___ p.m. on the following dates:

- _____ (blank)
- _____ (blank)
- _____ (blank)
- _____ (blank)

Persons wishing to present testimony at a hearing are requested to contact the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477, 717-787-4526, at least one week in advance of the hearing to reserve a time to present testimony. Oral testimony is limited to ten minutes for each witness. Witnesses are requested to submit three written copies of their oral testimony to the hearing chairperson at the hearing. Organizations are limited to designating one witness to present testimony on their behalf at each hearing.

Persons in need of accommodations as provided for in the Americans With Disabilities Act of 1990 should contact the Environmental Quality Board at 717-787-4526 or through the Pennsylvania AT&T Relay Service at 1-800-654-5984 (TDD) to discuss how the Board may accommodate their needs.

BY:

John Hanger
Chairman
Environmental Quality Board