

## **EXECUTIVE SUMMARY**

### **Amendments to 25 Pa. Code, Chapter 93 and 96 Water Quality Standards for Manganese and Implementation**

This proposed rulemaking includes changes to 25 Pa. Code Chapter 93 (relating to water quality standards) and 25 Pa. Code Chapter 96 (relating to water quality standards implementation).

#### **PURPOSE OF THE PROPOSED RULEMAKING**

On October 30, 2017, subsection (j) (known as “Act 40”) was added to section 1920-A of The Administrative Code of 1929. This subsection states:

(j) The board shall promulgate regulations under the act of June 22, 1937 (P.L. 1987, No. 394), known as "The Clean Streams Law (CSL)," or other laws of this Commonwealth that require that the water quality criteria for manganese established under 25 Pa. Code Ch. 93 (relating to water quality standards) shall be met, consistent with the exception in 25 Pa. Code § 96.3(d) (relating to water quality protection requirements). Within ninety days of the effective date of this subsection, the board shall promulgate proposed regulations.

The purpose and goals of this proposed rulemaking are: to comply with Act 40 of 2017 (71 P.S. § 510-20(j)); to delete the existing manganese numeric water quality criterion from Table 3 at § 93.7 (relating to specific water quality criteria) which was established for the protection of the Potable Water Supply use; to add a criterion to Table 5 at § 93.8c (relating to human health and aquatic life criteria for toxic substances) designed to protect human health from the neurotoxicological effects of manganese which will also ensure adequate protection of all water uses; and to identify the point of compliance for the criterion.

#### **SUMMARY OF THE PROPOSED RULEMAKING**

*Proposed amendments to Chapter 93* - The Department of Environmental Protection (Department) is recommending to the Environmental Quality Board (EQB) the adoption of a numeric water quality criterion for manganese designed to be protective of human health. This standard would be added to § 93.8c Table 5 - Water Quality Criteria for Toxic Substances, and the existing Potable Water Supply criterion of 1.0 mg/L, found in § 93.7 Table 3 would be deleted. The proposed numeric human health criterion for manganese is more stringent than the existing Potable Water Supply criterion of 1.0 mg/L and includes protection of the Potable Water Supply use. Since this numeric criterion will be included in Table 5, it should apply in all surface waters of the Commonwealth, consistent with § 93.8a(a) (relating to toxic substances), and the Department’s Water Quality Toxics Management Strategy – Statement of Policy (25 Pa. Code Chapter 16). Based upon the Department’s scientific review, the adoption and implementation of a human health criterion in all surface waters should also provide adequate protection to aquatic life and livestock from the toxic effects of manganese. The proposed regulation considers an alternative point of compliance for this toxic substance at the point of water supply withdrawal, consistent with Act 40.

The proposed human health criterion is designed to protect human health from the neurotoxicological effects of manganese when levels necessary to maintain adequate health are

exceeded. The criterion was developed consistent with the Department's Water Quality Toxics Management Strategy – Statement of Policy (Chapter 16) and Water Quality Standards regulations. The United States Environmental Protection Agency (EPA) developed an oral reference dose (RfD) for manganese (CASRN 7439-96-5) and published the complete summary in the Integrated Risk Information System (IRIS) database <https://www.epa.gov/iris> in 1995. Central nervous system effects were identified as the threshold critical health effect. The reference dose is for the total daily oral intake of manganese, which includes drinking water and dietary sources. However, the no-observed-adverse-effect level (NOAEL) was based solely on dietary studies; therefore, EPA recommends that an assessment of drinking water exposure should include a modifying factor of 3.

Pursuant to § 16.32(c), the Department follows the EPA Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000) <https://www.epa.gov/wqc/methodology-deriving-ambient-water-quality-criteria-protection-human-health-2000-documents> in establishing criteria for threshold toxics. The Department used the updated exposure input values as given in the 2015 EPA Updated Ambient Water Quality Criteria for the Protection of Human Health <https://www.epa.gov/wqc/2015-epa-updated-ambient-water-quality-criteria-protection-human-health>. In accordance with § 93.8a (relating to toxic substances), the Department derived the human health criterion of 0.3 mg/L for manganese. Manganese is not known to significantly bioaccumulate in freshwater fish; therefore, a bioaccumulation factor of 1 has been assumed.

This proposed criterion of 0.3 mg/L is expected to protect human health from the threshold level toxic effects of manganese (i.e., developmental neurotoxicological effects) consistent with Chapters 16, 93, and 96. Under sections 4 and 5 of the CSL, the Department has the duty to formulate regulations that prevent and eliminate water pollution. "Pollution" is defined by the law as "contamination of any waters of the Commonwealth such as ... to render such waters harmful, detrimental or injurious to public health..., or to domestic, municipal, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life...." Section 1920-A of the Administrative Code of 1929 authorizes the Board to formulate, adopt and promulgate such rules and regulations as may be determined by the Board for proper performance of the work of the Department. Where a pollutant found in discharges to surface waters is toxic to human health or aquatic life, the Commonwealth's regulations require development of appropriate water quality criteria to control pollution.

Furthermore, under the Pennsylvania Safe Drinking Water Act (35 P.S. §§ 721.3 and 721.5) public water suppliers must achieve the Secondary Maximum Contaminant Level (SMCL) for manganese in finished water. The SMCL for manganese in Pennsylvania is based on the Federal standard found at 40 CFR § 143.3.

***Proposed amendments to Chapter 96*** - Annex A includes language which supports two alternative points of compliance for the proposed manganese criterion. The first alternative, consistent with Act 40 of 2017, is to move the point of compliance to the point of all existing or planned surface potable water supply withdrawals. The second alternative, consistent with the CSL, is to maintain the existing point of compliance in all surface waters (i.e., at the point of discharge). The Department recommends receiving public comment on both alternatives.

## **ADVANCE NOTICE OF PROPOSED RULEMAKING**

The Department published an Advance Notice of Proposed Rulemaking (ANPR) in the *Pennsylvania Bulletin* on January 27, 2018 (48 Pa.B. 605). The Department requested scientific and economic information in the ANPR that was used in the development of this proposed rulemaking. The comments received were used in the Department's evaluation of the adequacy of the existing manganese water quality criterion when the point of compliance is moved to the location of an existing or planned potable water supply withdrawal. In response to the ANPR, the Department received comments from 15 organizations or individuals, including parties related to the coal mining industry, surface water organizations, public water supply facilities, and Federal and State Agencies. Arguments were made by those parties associated with the coal mining industry in favor of moving the compliance point of the manganese criterion to the point of withdrawal, citing less stringent regulations both at the Federal level and in other states. In addition, those parties do not consider manganese to be an environmental or human health concern and point to the millions of dollars in cost savings for coal mining operations and state that moving the point of compliance would make coal mining in Pennsylvania more competitive. All other parties made arguments for keeping the compliance point at the point of discharge. They cited the need to evaluate manganese as a toxic metal and substantial threat to human and environmental health and to determine if a human health criterion is necessary for the protection of public health, as required by the State and Federal Safe Drinking Water Acts and the Federal Clean Water Act. Arguments were also made that moving the application of the manganese criterion to the point of withdrawal would increase manganese concentrations in surface waters and place the burden of maintaining manganese limits on public water suppliers, costing them millions of dollars to monitor and treat surface waters for human consumption.

## **AFFECTED PARTIES**

All persons, groups, or entities with proposed or existing point source discharges of manganese into surface waters of the Commonwealth must comply with the regulation.

Persons who discharge wastewater containing manganese from mining will be affected by the change in the proposed criterion and by its implementation at the proposed second alternative point of compliance—near the point of discharge. The mining industry will likely need to add treatment to meet the new limit if the point of compliance is at their discharge location. In addition to NPDES permits for mine discharges, the Department conducted a review of non-mining NPDES-permitted discharges and found that other sectors (e.g., landfills, wastewater treatment plants and power plants) that currently have water quality-based effluent limits for manganese may be affected by the regulation.

Besides dischargers, public water suppliers of drinking water and other water supply users of surface water for production activities could be affected if the proposed first alternative point of compliance is applied to the proposed manganese criterion. Surface water intakes that require a certain level of water quality for use in food and beverage production or preparation, paper and textile manufacturing, aquaculture, and irrigation may be affected. Under this alternative, the point of compliance for the manganese criterion will be at the point of any planned or existing potable water supply withdrawal. Water suppliers will likely need to conduct additional source water monitoring at their facilities to determine the effects of increased source water manganese levels on their operations. Additionally, as the levels of manganese change in the surface water based on discharges, public water suppliers of drinking water may require facility upgrades or additional chemical usage to continue achieving the secondary maximum contaminant level

(SMCL) for manganese of 0.05 mg/L in the finished water, which is required under the Pennsylvania Safe Drinking Water Act (35 P.S. §§ 721.3 and 721.5) and regulations at 25 Pa. Code Chapter 109.202(b) (relating to state MCLs, MRDLs and treatment technique requirements). Any upgrades to drinking water treatment will likely result in water fee increases for the water supply rate payers.

### **ADVISORY GROUPS**

On November 29, 2018, May 23, 2019 and July 25, 2019 the Department met with the Water Resources Advisory Committee (WRAC) to discuss the scientific literature for manganese water quality criterion development and other regulatory issues relating to manganese. On July 25, 2019, WRAC voted on a motion to: acknowledge the legislative requirement in Act 40 of 2017 to propose a regulation moving the point of compliance for manganese to the point of all existing or planned surface potable water supply withdrawals; support proposing a regulation that adds manganese to Table 5 in section 93.8c as a toxic substance for human health at the level of 0.3 mg/L, recognizing that the compliance point for this standard will be met in all surface waters, as described in section 96.3(c); and recommend that the Board request public comment on this combined approach for consideration in developing a final regulation.

The Department met with the Agricultural Advisory Board on October 25, 2018, June 20, 2019 and August 29, 2019 to present information and seek additional agriculture-related information relating to manganese and this proposed rulemaking. Also, the Department met with the Small Water Systems Technical Assistance Center Advisory Board (TAC) on January 31, 2019 and August 8, 2019 to present information and seek additional water supply treatment information relating to manganese and this proposed rulemaking. TAC voted to concur with WRAC's motion.

### **PUBLIC COMMENTS AND EQB HEARINGS**

The Department recommends that this proposed regulation be adopted by the EQB and published in the *Pennsylvania Bulletin* with a 45-day public comment period, including one public hearing to be held in the Harrisburg area. Other public hearings and/or meetings will be scheduled if sufficient interest is shown during the public comment period.