



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Testimony of

**Aneca Y. Atkinson, Deputy Secretary
Pennsylvania Department of Environmental Protection**

Before the

Senate Environmental Resources and Energy Committee

**Public Hearing to discuss a proposed rulemaking: Water Quality Standards for Manganese
and Implementation (#7-553)**

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Good morning Chairman Yaw, Chairman Santarsiero, and members of the committee. On behalf of the Department of Environmental Protection, I would like to thank you for the opportunity to discuss the Department's proposed rulemaking to update the water quality standard for manganese and its implementation. The Environmental Quality Board is currently accepting public comments on this proposed rulemaking. To satisfy Federal Clean Water Act obligations, three virtual public hearings have been scheduled for the Board to receive testimony. The first public hearing was held yesterday afternoon. Two additional hearings are being held today at 6 p.m. and tomorrow at 2 p.m. Information on how to register for the hearings or provide testimony is available on the EQB website.

Act 40 of 2017 added subsection (j) to section 1920-A of The Administrative Code of 1929. Act 40 directed the Environmental Quality Board to propose regulations requiring that the water quality criteria for manganese, established under Chapter 93 of the Department's regulations, be met consistent with the exception in section 96.3(d). Act 40 directed the Board to propose a regulation that moves the point of compliance for the manganese water quality criterion from the point of discharge to the point of any downstream drinking water intake.

On July 25, 2020, the Board proposed a regulation that identified the point of compliance described in Act 40 as one alternative for meeting a manganese water quality criterion.

The proposed regulation considers Act 40 in addition to several other statutory obligations the Department and the Board must consider when evaluating water quality criteria and points of compliance for the criteria, including the following:

- Under the Clean Streams Law, the Department has the duty to formulate regulations that prevent and eliminate water pollution, where "pollution" is defined as "contamination of any waters of the Commonwealth such as ... to render such waters harmful, detrimental or injurious to public health..." The Clean Streams Law also protects against harm to other water uses such as municipal, industrial, agricultural, recreational, and aquatic life uses.

- Under the Pennsylvania Safe Drinking Water Act, 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, which is 0.05 mg/L.
- Additionally, Section 101(a)(3) of the Federal Clean Water Act declares the national policy that the discharge of toxic pollutants in toxic amounts be prohibited (33 U.S.C.A. § 1251(a)(3)).

The Department considered all the relevant statutory directives in the development of the proposed regulation for manganese.

To gather information to support development of a proposed rulemaking addressing all the relevant statutory directives, the Department published an advance notice of proposed rulemaking on January 27, 2018.

The Department requested current scientific information pertaining to manganese in surface waters. This evaluation was necessary because the current manganese water quality criterion has been in place since 1967, and the U.S. EPA has since published new criteria development methodologies. In addition, the Department's preliminary review of the current, peer-reviewed scientific literature and data on manganese indicated there was new information on the toxic effects of manganese to people, livestock, and aquatic life. Under the Federal Clean Water Act, the Department must develop, and update, the Commonwealth's water quality criteria based on the current scientific literature and data to protect the most sensitive designated water use, or group of organisms affected by a pollutant (that is, aquatic life or human health).

In the advanced notice of proposed rulemaking, the Department also requested financial and economic impact information for compliance with the current manganese potable water supply criterion of 1.0 mg/L, including costs associated with adding manganese treatment to drinking water facilities that may result if the point of compliance were moved to the point of a downstream drinking water intake.

Manganese Criterion Development

In sufficient quantities, manganese is a toxic substance. The Federal Clean Water Act and Pennsylvania's Clean Streams Law require the Department to formulate regulations that prevent and control pollution, including the discharge of toxic pollutants in toxic amounts. Although there was limited data available to evaluate aquatic life impacts, the available data indicate that the level of manganese necessary to protect human health from toxic effects, when applied in all surface waters, is more stringent than the level necessary to protect aquatic organisms. Based on these data, the Department proceeded with the development of a human health criterion for manganese.

Department staff reviewed over 60 peer-reviewed human health studies specific to the neurotoxicological effects of manganese, with the majority of these studies having been published within the last 15 years. While manganese is an essential dietary component, there can be significant variation in exposure levels and pathways and other factors which may result in the body absorbing and retaining more manganese than is necessary to maintain adequate health. When this occurs, manganese may build up in the body to toxic levels that result in adverse health effects.

Many of the recent studies indicate that, during the fetal and childhood life stages, when manganese levels in the body are above those levels necessary to maintain adequate health, manganese has the potential to significantly and irreversibly affect a child's developing brain. It is important to note that infants represent a sensitive subpopulation due to the unique characteristics of this life stage. The infant life stage encompasses a critical period of growth and development that can be negatively and irreversibly altered by environmental exposures to toxins. The current scientific literature continues to demonstrate that brain development in the period spanning prenatal development through childhood can be affected by exposures to elevated levels of manganese associated with water consumption.

In addition to manganese toxicity studies, the Department evaluated all available and relevant U.S. EPA health advisories, risk assessment information, and national recommendations for manganese.

The Department develops water quality criteria in accordance with the regulations and policies contained in Title 25, Chapters 93 and 16 of the *Pennsylvania Code*. The Department developed a human health water quality criterion for manganese using information contained in the Federal Integrated Risk Information System (IRIS) and U.S. EPA-recommended methodologies for developing surface water criteria for the protection of human health. The result of the Department's evaluation is an ambient water quality criterion for manganese of 0.3 mg/L, which is intended to protect human health from all routes of manganese exposure.

Points of Compliance

In addition to scientific and economic information on the appropriate water quality criterion for manganese, the advance notice of proposed rulemaking also requested information relating to the shift of the burden for treating manganese from dischargers to water suppliers if the point of compliance for the manganese water quality criterion were moved from the point of discharge to the point of a downstream drinking water intake. After consultation with the Department's Water Resources Advisory Committee and Small Water Systems Technical Assistance Center Advisory Board, the Department recommended that the Environmental Quality Board receive comment on two point-of-compliance alternatives to determine the appropriate point of compliance.

The first alternative, consistent with Act 40, is to move the point of compliance from the point of discharge – which means the criterion must be met in all surface waters – to the point of any existing or planned surface potable water supply withdrawals – which means the criterion would only need to be met at the locations of those drinking water supply intakes. If the point of compliance were moved to the point of any potable water supply withdrawal, the criterion would not apply and may not protect other water uses between a discharge location and a downstream drinking water intake.

The second alternative is to maintain the existing point of compliance in all surface waters (that is, at the point of discharge). This point of compliance will protect all water uses, including municipal, industrial, and agricultural water supplies, and recreational and aquatic life uses, between the point of discharge and the point of a downstream drinking water intake. This point of compliance is consistent with the previously mentioned statutory obligations of the Department and the Board under Pennsylvania's Clean Streams Law, Safe Drinking Water Act, and the Federal Clean Water Act. In particular, this point of compliance is mindful of the responsibilities of drinking water suppliers to meet the manganese SMCL under Pennsylvania's Safe Drinking Water Act.

To better understand and evaluate the potential impacts of manganese on aquatic life, water supplies, and permits addressing manganese at the point of discharge, the Department examined the number and distribution of permitted drinking water intakes on surface waters and wastewater discharge permits with manganese limits across the state, as well as the number and distribution of waters with TMDLs – total maximum daily loads – that were developed to address aquatic life use impairments due to acid mine drainage, which can contain elevated levels of manganese. This analysis revealed overlap between the locations of these TMDL waters, permitted drinking water intakes, and discharge permits, which indicates that a number of drinking water suppliers may face increased treatment costs if the point of compliance were moved to the point of potable water supply intake.

In addition to the information sought through the advance notice of proposed rulemaking, the Department met multiple times with several of the Department's advisory bodies – including the Water Resources Advisory Committee, the Agricultural Advisory Board, and the Small Water Systems Technical Assistance Center Advisory Board – to gather input and to discuss information on the current science of manganese and the impacts of moving the point of compliance for the manganese criterion.

The Department also sought the expertise of several sister agencies – including the Department of Agriculture, the Department of Health, and the Pennsylvania Fish and Boat Commission – on the effects of manganese on agriculture, human health, and aquatic life, respectively. Through

these interagency meetings, the advisory body meetings, and the advanced notice of proposed rulemaking, the Department received valuable information on the impacts of elevated levels of manganese on human health and aquatic life, and on the economic impacts associated with establishing a new point of compliance for the manganese water quality criterion.

Additionally, the Department discussed this proposed regulation with staff from several Department programs – including the Bureau of Safe Drinking Water, Bureau of Mining Programs, and Bureau of Abandoned Mine Reclamation – and with various external organizations and groups – including the Pennsylvania Coal Alliance and the Pennsylvania Aggregates and Concrete Association – potentially affected by this proposed rulemaking.

The potential economic impacts of the regulation will depend upon the point of compliance for the criterion that is adopted in the final regulation. The regulation has the potential to increase costs for either permitted **dischargers** of manganese, including active mining facilities, or for downstream water **users**, including public drinking water suppliers.

The Department does **not** anticipate that this regulation will have significant impacts on its programs, including abandoned mine drainage (AMD) restoration projects. The Department's Bureau of Abandoned Mine Reclamation (BAMR) provides unique beneficial services to the Commonwealth by utilizing available public funds to restore AMD-impaired surface waters. The goal of each BAMR restoration project is to remove pollutant loadings from the abandoned mine discharge to levels necessary to restore the fishable/swimmable water uses of the AMD-impaired surface water. To the extent that public funding exists, the Department will continue its work to restore the fishable/swimmable water uses to as many AMD-impaired waters of the Commonwealth as possible. The Department's Office of Water Programs will continue to coordinate with the Department's Office of Active and Abandoned Mine Operations as the Department develops recommendations for the Environmental Quality Board to consider for a final rulemaking.

Following the close of the public comment period for this proposed regulation on September 25, the Department will evaluate all comments, testimony, and information received during the

public comment period in the development of a recommendation for final rulemaking. Furthermore, the Department agreed during the December 2019 meeting of the Environmental Quality Board to study the possible effects of each alternative point of compliance on re-mining efforts in Pennsylvania; any potential impacts in that regard will be identified and evaluated during the Department's review of the public comments received. The Department will continue to communicate with its advisory bodies, sister agencies, and other stakeholders as part of the regulatory process.

Thank you again for inviting the Department to testify before the committee on this important topic. I thank you for your time, and I am available to respond to any questions you may have.