



Pennsylvania Fish & Boat Commission

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Via email at RegComments@pa.gov

Department of Environmental Protection
Policy Office
400 Market Street
P.O. Box 2063
Harrisburg, PA 17105-2063

Re: Advanced Notice of Proposed Rulemaking for Water Quality Standard for Manganese

Dear Sir or Madam:

The Pennsylvania Fish and Boat Commission (PFBC) appreciates the opportunity to provide comment on the Water Quality Standard for Manganese; Advanced Notice of Proposed Rulemaking (ANPR) that appeared in the *Pennsylvania Bulletin* on January 27, 2018. This ANPR is in response to the recent statutory amendment that directs the Environmental Quality Board (Board) to promulgate proposed regulations related to manganese (Mn). Therefore, the Pennsylvania Department of Environmental Protection (DEP) is soliciting information to prepare the rulemaking documents required by law to support the Board's adoption of the required proposed regulations. It is our understanding that DEP will use the information it receives in response to this ANPR to evaluate the appropriateness of the existing Mn water quality criterion when the point of compliance is moved to the location of an existing or planned surface potable water supply (PWS) withdrawal.

The amendment eliminates the requirement to meet a current water quality discharge standard for Manganese in surface waters and replaces long standing accepted regulatory standards that have provided protection for over 40 years. 25 Pa. Code § 93.6 currently requires all water quality standards to be met at the discharge point. Specifically, “*water may not contain substances attributable to point or nonpoint source discharges in concentration or amounts sufficient to be inimical or harmful to the water uses protected or to human, animal, plant or aquatic life*” or “*substances that produce color, tastes, odors, turbidity, or settle to form deposits.*”

The PFBC is very concerned that there was no consideration given within the amendment for the potential impacts this change will have on fish and other aquatic life when moving the point of compliance for Mn from the wastewater discharge to the existing or planned surface PWS withdrawal. Even more concerning is that necessary studies were not done ahead of time to determine what impacts and possible environmental ramifications the removal of the Mn standard at the point of discharge will have on the Commonwealth's natural resources.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

Allowing wastewater that contains substances deleterious to aquatic life to discharge into a receiving stream is a potential violation of Section 2504 of the Fish and Boat Code, 30 Pa. C.S. § 2504. This section provides that that “*no person regardless of intent, shall allow any substance, deleterious, destructive or poisonous to fish to be turned into or allowed to run, flow, wash or be emptied into any waters within or bordering this Commonwealth.*”

The scientific literature indicates that manganese is one of several widely distributed heavy metals associated with acid mine discharges that act on aquatic organisms as metabolic poisons. Manganese can be present in various forms and compounds, is persistent in the aquatic environment, and can be transported long distances downstream of discharge points. Manganese, under certain water quality conditions primarily driven by pH, will precipitate or settle onto stream substrates. The metal settles as a black, sticky coating on streambed habitats. Precipitate coated substrates (the rocks, gravel, and boulders) interfere with colonization, abundance and diversity of stream dwelling aquatic insects. Aquatic insects are a vital component to the food web in stream ecosystems.

DEP has requested specific information regarding the following.

Impacts on other water supply uses:

Changing the point of compliance may impact PFBC and cooperative fish hatcheries that rely on withdrawals from streams for their raw source water. It is recommended that for fish culture, Mn be 0-0.01 ppm for both trout and warm water fish species (Piper *et al.* 1982). In fish culture, a desirable range for Mn is between 0-0.01 mg/L, and an acceptable range is up to 1.0 mg/L (Stone *et al.* 2013). If Mn concentrations were higher, there would be a need for pre-treatment not previously warranted to remove Mn to an acceptable level to raise fish.

Use of surface water for recreational uses, including boating, fishing, water contact sports and esthetics, are protected. The current standard has provided protection for these other designated uses even though it was developed for PWS. Manganese will precipitate or settle onto stream substrates under certain stream conditions. The metal settles as a black, sticky coating on streambed substrates that could most certainly interfere with the ability and desire to boat, fish and enjoy a stream.

Fish and aquatic life use:

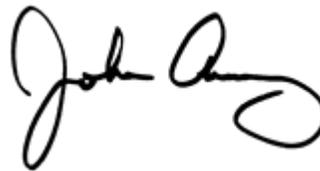
We know that without treatment, mine drainage discharges in Pennsylvania, such as the Shade Mining site in Somerset County, could potentially discharge Mn concentration of up to 25 mg/L in their effluent. With passive removal, the Mn concentrations in the effluent are reduced to <2 mg/L (Brant *et al.* 1997).

According to benchmarks for priority contaminants in freshwater based on levels for chronic effects, fish criteria for 20% effect is 1.2 mg/L (Suter *et al.* 1996). Therefore, given the concentration of Mn that could potentially be discharged, untreated wastewater will most likely be deleterious to aquatic life. A Mn water quality standard to protect aquatic life does not currently

exist in the Commonwealth. Therefore, to understand the impacts to water quality and aquatic life, the PFBC strongly suggests the necessary toxicology studies be performed or pilot studies be undertaken downstream of known discharges.

The PFBC firmly believes that the best solution to pollution is adequate and proper treatment of any material proposed to be discharged into the waters of the Commonwealth. The removal of the current regulatory standards for Manganese without the necessary evaluation of the impacts of untreated discharge will not only threaten water quality and aquatic life but damage clean water and its value to Pennsylvania's economy.

Sincerely,

A handwritten signature in black ink, appearing to read "John Arway". The signature is fluid and cursive, with the first name "John" and the last name "Arway" clearly distinguishable.

John A. Arway
Executive Director

Literature Cited

Brant, David L and Ziemkiewicz. 1997. "Passive Removal of Manganese from Acid Mine Drainage". Proceedings America Society of Mining and Reclamation, pp 741-744

Piper, Robert G., et al. 1982. Fish Hatchery Management. U.S. Fish and Wildlife Service, Washington, D.C.

Stone, Nathan, et al. 2013. Interpretation of Water Analysis Reports for Fish Culture, SRAC Publication No. 4606. Southern Regional Aquaculture Center.

Suter, G.WII and Tsao, C.L. 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. Risk Assessment Program Health Sciences Research Division Oak Ridge, Tennessee 37831