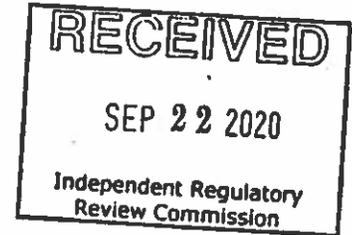


September 22, 2020

VIA E-MAIL (RegComments@pa.gov) and FIRST CLASS MAIL

Pennsylvania Environmental Quality Board
Rachel Carson State Office Building
400 Market Street
16th Floor
Harrisburg, PA 17101-2301



RE: Comments on Proposed Rulemaking: Water Quality Standard for Manganese and Implementation – 25 Pa. Code Chapters 93 and 96

Dear Environmental Quality Board:

On behalf of Homer City Generation, L.P., Saul Ewing Arnstein & Lehr LLP is submitting comments on the proposed amendments to the Pennsylvania Code Chapters 93 and 96 described in the proposed rulemaking *Water Quality Standard for Manganese and Implementation*, which was published in the Pennsylvania Bulletin on July 25, 2020.

Homer City Generation, LP (“Homer City Generation”) owns the Homer City Generating Station, a three-unit coal-fired electrical generating station that generates approximately 1880 MW of electricity for the PJM and NY ISO markets. The Homer City Station discharges stormwater and industrial wastewater pursuant to a NPDES permit issued by the Department of Environmental Protection (“Department”). On July 25, 2020 the Environmental Quality Board (“Board”) published for comment the above-referenced proposed rule (“Proposed Rule”) which would change the existing water quality standard for manganese from 1.0 mg/L, established for protection of the Potable Water Supply (“PWS”) use, to 0.3 mg/L, designed to protect human health.¹ The Proposed Rule also identifies two different points of compliance: at the point of PWS withdrawals, and at the point of discharge.

The Proposed Rule would have a substantial impact on operations at the Homer City Station. Homer City Generation submits the following comments for the Board’s consideration.

- 1. The Board has not established that the current manganese water quality standard is not protective of human health.**

The Proposed Rule justifies the need for a new water quality standard for manganese to protect human health (“Human Health criterion”) based on scientific studies which indicate that elevated manganese is toxic to aquatic organisms and has been identified as a nervous system toxin

¹ 50 Pa. Bull. 3724-3733 (July 25, 2020).

to humans, specifically linked to negative impacts on fetal and childhood neurodevelopment.² The proposed criterion, 0.3 mg/L, is based on the EPA's Integrated Risk Information System ("IRIS") reference dose, which was established in 1995.

PWS systems in the Commonwealth are required to meet drinking water standards (Maximum Contaminant Levels) established under the federal Safe Drinking Water Act, including the Secondary Maximum Contaminant Levels ("SMCL").³ The SMCL for manganese is 0.05 mg/L.⁴ Significantly, neither the Proposed Rule nor the supporting documentation cites any examples of PWS systems in the Commonwealth that currently are not able to meet the SMCL for manganese or of individuals experiencing neurological disorders from excessive intake of manganese from drinking water.

Indeed, the Proposed Rule fails to provide any information about current concentrations of manganese in surface waters of the Commonwealth. Without information on current conditions, it is not possible to determine whether a lower standard is needed.

However, by simply asserting that a reduced limit of 0.3 mg/L total manganese is needed to protect human health, the Proposed Rule fails to recognize that manganese is a ubiquitous element that is essential for normal physiological functioning in all animal species.⁵ Manganese is a component of the human diet, with higher intakes associated with diets high in whole grain cereals, nuts, green leafy vegetables and tea.⁶ The World Health Organization has reviewed investigations of diets and has concluded that 2-3 mg/day of manganese is adequate for adults and 8-9 mg/day is perfectly safe.⁷ Based on this, it is hard to understand why the current standard of 1.0 mg/L total manganese is not adequate for protecting human health.

2. The proposed water quality criterion for manganese should include separate limits for total and dissolved fractions.

The Proposed Rule does not indicate whether the standard is for total manganese (*i.e.*, soluble and insoluble fractions) or dissolved manganese. Insoluble manganese presents fewer issues concerning toxicity and treatability than the soluble fraction. Moreover, the pH required to dissolve particulate manganese is very low (pH<3) and would not be an issue in rivers and streams used as a source for a PWS.

Insoluble manganese comprises much of the manganese in many NPDES discharges. These discharges should not be regulated as if all the manganese is as dissolved manganese. The Proposed Rule should include provisions for industrial wastewater dischargers to develop a total-to-dissolved manganese translator on a case-by-case basis.

² 50 Pa. Bull. at 3726.

³ 25 Pa. Code § 109.202(b)(1)

⁴ 25 Pa. Code § 109.202(b)(2), incorporating by reference the federal SMCLs at 40 CFR 143.3

⁵ U.S. EPA. Integrated Risk Information System. *Chemical Assessment Summary: Manganese*

⁶ *Id.*

⁷ *Id.*

3. The proposed Human Health criterion for manganese should not be used as a default for the protection of aquatic life.

The Proposed Rule states that because the proposed Human Health criterion for manganese is more stringent than the current criterion for protection of use as a PWS, its application to all surface waters would be protective of other uses.⁸ However, the Human Health criterion is far more restrictive than is necessary to protect other surface water uses and would require dischargers to install costly upgrades to their effluent treatment systems with no benefit to the receiving stream.

Rather than relying on the Human Health criterion to be protective of other surface water uses, an in-stream water quality standard should be developed for the specific protection of aquatic life and other designated uses, which is likely to be well above the 0.3 mg/L proposed Human Health criterion. An example of this, Brown Trout (*Salmo trutta*) a widespread, recreationally important, and sensitive cold water fish species, has a reported growth and survival effect concentration (IC₂₅) of 4.59 mg/L for manganese.⁹ This indicates a water quality standard for the protection of aquatic life would be well above the proposed 0.3 mg/L; and therefore, the proposed criterion is far more restrictive than is necessary to protect aquatic life and other designated uses.

4. Applying the current water quality standard for manganese at the point of withdrawal should not cause increased PWS treatment costs.

a. The current manganese water quality standard was developed to apply at the point of withdrawal and at a level that could be achieved by well-designed plants.

The current criterion, total manganese not to exceed 1.0 mg/L, was established in 1967 by the Department of Health, Sanitary Water Board, for only certain waterbodies in the Commonwealth.¹⁰ This standard was adopted statewide in 1979.¹¹ This standard was to ensure that public water systems receive water at their intake structures that can achieve compliance with Safe Drinking Water standards using only conventional treatment.^{12, 13} An “average up-to-date plant can probably handle soluble manganese without too much difficulty. A well-designed plant can handle 1.5 to 2 part per million [mg/l]...”¹⁴ If a well-designed plant in 1967 could treat 1.5 to 2 mg/L of manganese to meet the SMCL of 0.05 mg/L, it is again difficult to understand why the water quality standard needs to be reduced to 0.3 mg/L for a “newer” conventional water treatment plant to meet the SMCL of 0.05 mg/L.

⁸ 50 Pa. Bull. at 3726.

⁹ Stubblefield, W., Brinkman, S., Davies, P., Garrison, T., Hockett, J., McIntyre, M. (1997). *1982 Effects of water hardness on the toxicity of manganese to developing brown trout (Salmo trutta)*. Environmental Toxicology and Chemistry, 16(10): 2082-2089.

¹⁰ PADEP Bureau of Clean Water. *Rationale Development of the Human Health Criterion for Manganese. Executive Summary.* (“PADEP Rational”)

¹¹ *Id.*

¹² *Id.*

¹³ The Safe Drinking Water Act Secondary Maximum Contaminant Level for manganese is 0.05 mg/l.

¹⁴ PADEP Rational, quoting Mr. Reginald Adams, an experienced water supply manager for the Wilkinsburg Joint water Authority.

5. The Proposed Rule overstates the impacts of establishing the point of compliance at the point of withdrawal for a PWS.

a. It is unreasonable to assume that manganese discharges would be unregulated before the point of withdrawal

The Proposed Rule asserts that if no PWS exists or is planned for a surface water, then no water quality based effluent limit for manganese would continue to apply to discharges into that water.¹⁵ Manganese limits established under Federal ELGs would apply to discharges subject to those ELGs, but those limits may not be protective of designated uses of those surface waters.¹⁶ Discharges not subject to ELGs would essentially be unregulated.¹⁷ The Proposed Rule further asserts that even where a PWS withdrawal exists, applying the water quality criterion at the point of withdrawal would leave surface water users between the point of discharge and the point of withdrawal unprotected.¹⁸

Such assertions ignore the Board's ability to establish additional water quality criteria for manganese to protect the designated uses of the receiving surface water, and that such criteria could be applied at the point of discharge. For example, the Board could establish a Human Health criterion for manganese applicable at the point of PWS withdrawal and a second criterion protective of aquatic life applicable at the point of discharge (or at the end of an appropriate mixing zone).

Alternatively, the Department could establish discharge limits protective of downstream water uses on a case-by-case basis using its Best Professional Judgment ("BPJ").

b. Impacts on downstream users is purely speculative.

The Proposed Rule expresses concern that moving the point of compliance to the PWS withdrawal could burden facilities with surface water intakes that require a certain level of water quality and cites certain industrial sectors as examples. However, the Proposed Rule fails to identify any examples of potentially impacted facilities, what the current water quality is to those facilities, what their required levels of influent water quality are, how current water quality compares to the required levels, what treatment is already required in addition to conventional water treatment, as defined by the U.S. EPA Surface Water Treatment Rules, or what additional treatment might be required. Without such information, the potential impacts are speculative.

6. Applying the proposed water quality criterion at the point of discharge will not reduce PWS treatment costs, but will increase costs for dischargers.

Drinking water providers must meet the SMCL of 0.05 mg/L for total manganese, whereas the proposed standard for protection of human health is 0.3 mg/L – six times higher than the

¹⁵ 50 Pa. Bull. at 3728.

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

drinking water standard. Because of the difference between the two standards, treatment to remove manganese will still be required at PWS treatment plants to achieve the SMCL. Thus, imposing the proposed standard at the point of discharge for users upstream of a PWS would likely improve downstream manganese concentrations, but not to the extent where treatment to meet the SMCL could be reduced or eliminated.

Conversely, imposing the proposed criterion on upstream dischargers (or all dischargers if the criterion applies to all surface waters) would increase the wastewater monitoring and treatment costs for many of those dischargers, including municipal wastewater treatment plants, industrial discharges, coal and non-coal mining discharges, and earth disturbance activities. The proposed criterion is only 30% of the existing criterion, and is so low that many discharges will trigger monitoring requirements and additional treatment would be required to meet a 0.3 mg/L effluent limit for manganese. Significantly, effluent treatment also may be required for PWS facilities, as the reject water and sludge handling from their water treatment systems may have total manganese in concentrations greater than 0.3 mg/L.

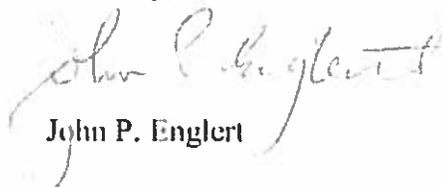
7. The economic impact analysis for the Proposed Rule is inadequate.

The Proposed Rule states that the economic impacts associated with a new water quality criterion of 0.3 mg/L and with applying the manganese criterion at the point of PWS withdrawal versus at the point of discharge depend upon the size of the discharges, specific treatment processes employed, the quality of the source water and many other factors; and therefore, concludes that it is not possible to precisely predict the actual change in costs.¹⁹ Having concluded that it is not possible to precisely predict the actual change in costs, the Proposed Rule then fails to do any quantitative cost evaluation for the various economic impacts. Without such analysis it is impossible to determine whether the proposed rules are economically feasible or whether the economic impacts would be manageable or appropriate for the expected benefits versus the expected costs.

Considering the treatment processes for manganese are well known for many industries, including the water treatment industry, an evaluation of the relative costs of various options should be performed using flow-based unit costs for capital and operating costs for treatment options to provide at least some basis for assessing economic impacts of the rulemaking options.

On behalf of Homer City Generation, we thank the Board for this opportunity to comment on the Proposed Rule. Please direct any questions you may have to me at john.englert@saul.com.

Sincerely,



John P. Englert

cc: Gary Cline

¹⁹ 50 Pa. Bull. at 3730-3731.