



Pennsylvania Aggregates and Concrete Association

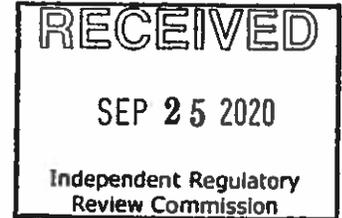
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September 25, 2020

Sent via email to eComment at <http://www.ahs.dep.pa.gov/eComment>

Environmental Quality Board
P.O. Box 8477
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**RE: Environmental Quality Board Proposed Rulemaking
25 PA Code Chapters 93 and 96
Water Quality Standard for Manganese and Implementation
50 Pa.B. 3724, Saturday, July 25, 2020**

We are submitting comments on behalf of the Pennsylvania Aggregates and Concrete Association (PACA), the trade organization for the aggregates (crushed stone, sand and gravel), ready mixed concrete and cement companies in Pennsylvania. Over 175 member companies across the Commonwealth, of all sizes and types, are involved in the production of the above commodities or provide support products and services to the construction materials manufacturing companies. These companies have been actively and positively involved for more than 100 years in helping to provide sustainable jobs and tax revenue in the counties in which they operate.

The proposed rulemaking will affect the aggregates portion of our industry, as the quarry (noncoal) NPDES permits need to comply with water quality standards. The stewardship and ownership of these natural aggregate resources requires a caring and comprehensive balance of personnel, environmental, economic and community considerations. Pennsylvania is consistently in the top five nationwide production of crushed stone with one member company individually 10th in the nation in production. We cannot neglect the strategic importance of cultivating our own natural resources.

We oppose the proposed manganese (Mn) rulemaking and believe the point of compliance should be as directed by Act 40. On behalf of the above businesses, we appreciate the opportunity to provide comments on the above referenced proposed rulemaking.

Manganese and its Regulation

Manganese is a very common element on Earth and there are many locations in Pennsylvania, particularly in coalfield areas, where ambient background levels of manganese in the streams are greater than the proposed limit of 0.3 mg/l or even the current 1 mg/l manganese.

Manganese is also an essential mineral for good human health and plant health. Several manganese compounds are generally recognized to be safe as a direct human food ingredient. For example, manganese is added to infant baby formulae, as recommended by the Food and Agriculture Organization of the United Nations and World Health Organization.



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Regulation of manganese in surface waters initially followed the Environmental Protection Agency's (EPA) 1972 and 1977 Clean Water Acts, where resulting manganese concentrations were limited in the range of 2-4 mg/l Mn. EPA's mid 1970s report of Coal Mining Effluent Guidelines indicated treating water to these limits also ensured other trace elements were controlled, as manganese acted as a surrogate for other elements such as iron and aluminum. Manganese was selected because when manganese was present, other priority pollutants (iron and aluminum) were also present.

We are aware of the requirements of Section 303(c)(1) of the federal Clean Water Act and 40 CFR 131.20 of the federal regulations requiring states review their water quality standards and modify them, as appropriate, at least once every three years. However, this regulation appears to be driven by more than the federal requirement.

Regulatory Analysis

Section 2(a), Legislative Intent, of the Regulatory Review Act¹ states:

"It is the intent of this act to establish a method for ongoing and effective legislative review and oversight in order to foster executive branch accountability; to provide for primary review by a commission with sufficient authority, expertise, independence and time to perform that function;..."[Emphasis added.]

Section 5(a)(14) states, *"A description of any data upon which a regulation is based with a detailed explanation of how the data was obtained and why the data is acceptable data. An agency advocating that any data is acceptable data shall have the burden of proving that the data is acceptable." [Emphasis added.]*

The Pennsylvania Department of Environmental Protection's (DEP or the Department) responses to the Independent Regulatory Review Commission's (IRRC) Regulatory Analysis Form for the Water Quality Standards for Manganese proposed rulemaking references 1315 NPDES permits that contain limits or monitoring requirements for manganese. While these include several industry categories, what they do not include is the hundreds of untreated abandoned coal mine legacy discharges—for which the Department itself is responsible to restore and treat—that (1) have no NPDES permits and (2) discharge levels of manganese that are considerably higher than the 1 mg/l manganese limit.

Furthermore, Pennsylvania streams limited by TMDLs (Total Maximum Daily Loads) house the majority of manganese concentrations where the TMDLs are the result of legacy coal mine sites that are not currently treated by the Commonwealth nor are they the responsibility of current mine companies to do so. But they are the responsibility of DEP to reestablish and treat.

¹ Found at <https://www.legis.state.pa.us/cfdocs/legis/Li/uconsCheck.cfm?txtType=HTM&yr=1982&sessInd=0&act=0181>.



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Also, the many watershed groups across the Commonwealth who take care of some of these abandoned mine discharges do not currently treat for manganese. We believe the Department puts itself at a significant legal and financial liability risk by not having considered this issue in the analysis of this rulemaking.

Because of the geology of Pennsylvania and the many abandoned coal mine lands in areas of the Commonwealth, current ambient background levels of manganese are higher than the proposed 0.3 mg/l mainly due to pyrite oxidation. The Department has not considered in their analysis the background levels of manganese in streams that are upstream of noncoal facilities nor have they considered homogeneous manganese oxidation and precipitation reactions that naturally occur and can oxidize and remove soluble manganese from water. Testimony given by Tetratex at the September 9, 2020 Senate Environment, Resources and Energy Committee touched on this issue.

In order to set a water quality standard, the following information should be collected: biological integrity data, chemical data, physical data, habitat assessment, and toxicity testing. It is our belief that DEP failed to develop a complete, acceptable data package to propose Mn rulemaking and shortcut the regulatory analysis process by using unacceptable, outdated data in the form of a literature review. Current scientific data should be the basis for a regulation, and promulgating agencies are required to provide a description of the data, explain in detail how the data was obtained, and how it meets the acceptability standard for empirical, replicable and testable data that is supported by Section 5(a)(14) of the Regulatory Review Act.

Because of the above and the lack of current acceptable scientific data, we believe this rulemaking should not move forward.

Health Concerns

DEP is proposing to revise the current 1 mg/l Mn standard to a value of 0.3 mg/l based on concern for possible health effects at 1 mg/l Mn. It should be noted that all public water systems currently must supply tap drinking water that meets the Secondary Maximum Contaminant Limit (MCL) of 0.05 mg/l Mn. Therefore, regardless of DEP's proposed Mn limit of 0.3 mg/l, there already exists a secondary MCL for drinking water, which is 0.05 mg/l Mn. Consequently, moving the point of compliance will not cause additional hardship on the drinking water suppliers. Nor is it likely that that any PA resident would regularly drink stream water exceeding 1 mg/l or consistently mix baby formula with stream water.

The proposed rulemaking moves Mn into the toxic substance category, unlike the EPA and other states, who do not regulate Mn as a toxic substance. This was not the intent of the legislative action surrounding Act 40. Questions 11 and 12 of the IRRC Regulatory Analysis Form ask if this proposed rulemaking is more stringent than federal standards and how this proposed rulemaking compares to other states. The Department itself states in response to question 11 that "EPA does not currently have national recommendations concerning surface water quality criteria for



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manganese.” In their response to question 12, they fail to answer the question, and merely misdirect the answer to state “Other states are also required to maintain water quality standards...”.

At the December 17, 2019 Environmental Quality Board (EQB) meeting regarding this proposed rulemaking, an EQB Board member visually illustrated the levels of manganese in every-day items, showing that a bottle of grape juice, which can be purchased at any grocery store, contains levels of manganese above 10 mg/l. We fail to understand how juice with this level of manganese, generally imbibed on a daily basis, can be sold to the general public in Pennsylvania and across the nation, but industries across the Commonwealth may potentially need to treat to 0.3 mg/l in their discharges to protect human health.

DEP has not completed their own studies, based on conditions in Pennsylvania for their analysis, but instead relies on outside studies from third world countries. DEP also relies on the EPA’s Integrated Risk Information System (IRIS) assessment of Mn to obtain the proposed Mn water quality criteria value. This also includes an inaccurate modifying factor of 3 for drinking water ingestion routes for Mn, which in finality moves the Mn level down to 0.3 mg/l. However, EPA’s data is now 17 years old and not consistent with the current science for Mn. EPA has indicated they relied on a study that measured Mn drinking water exposure concentrations and neurological effects one time only, as opposed to a consistent sampling dataset over a period of years. Relying on one set of data to set a relationship between Mn exposure and neurological effects would be considered by any scientist to be inadequate and potentially scientifically unethical. Furthermore, EPA themselves in a 2002 study² indicated that it would be inappropriate to use the study, but EPA did so regardless. We refer you to studies by Song et al, 2018³ and Yoon et al, 2019⁴. These studies are the most current peer-reviewed studies that address potential adverse effects in humans resulting from exposure to Mn in water and should have been used in DEP’s analysis.

Again, Section 2(a), Legislative Intent, of the Regulatory Review Act states “*It is the intent of this act to establish a method for ongoing and effective legislative review and oversight in order to foster executive branch accountability; to provide for primary review by a commission with sufficient authority, expertise, independence and time to perform that function;...*” [Emphasis added.] DEP had no toxicologists on staff when developing this proposed rulemaking. This is vitally important when evaluating any viable health concerns of a proposed rulemaking of this magnitude.

² Found at <http://www.epa.gov/iris>. US EPA. 2002. “IRIS Chemical Assessment Summary for Manganese (CAS No. 7439-96-5).” 46p., December 3.

³ Song, G; Van Landingham, CB; Gentry, PR; Taylor, MD; Keene, AM; Andersen, ME; Clewell, HJ; Yoon, M. 2018. “Physiologically-based pharmacokinetic modeling suggests similar bioavailability of Mn from diet and drinking water.” *Toxicol. Appl. Pharmacol.* 359:70-81. doi: 10.1016/j.taap.2018.09.023.

⁴Yoon, M; Ring, C; Van Landingham, CB; Suh, M; Song, G; Antonijevic, T; Gentry, PR; Taylor, MD; Keene, AM; Andersen, ME; Clewell, HJ. 2019. “Assessing children’s exposure to manganese in drinking water using a PBPK model.” *Toxicol. Appl. Pharmacol.* 380:114695. doi: 10.1016/j.taap.2019.114695.



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We refer you to the testimony given by a highly regarded toxicologist from Gradient Corporation at the Senate Environmental, Resources and Energy Committee hearing on September 9, 2020.

We believe it is inaccurate to use the modifying factor of 3, and no modifying factor at all is needed in this proposed rulemaking.

Point of Compliance

On October 30, 2017, the Governor signed into law Act 40⁵. 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," 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.

Essentially, Act 40 directed the EQB, to within 90 days, propose a regulation that moves the point of compliance for manganese from the point of discharge to any downstream public water supply intake.

25 PA Code 96.3(d) requires that the water quality criteria for currently six constituents shall be met at least 99 percent of the time, at the point of all existing or planned surface potable water supply withdrawals, unless otherwise specified in the title.

After significant delay, and what is an expanded, broader rulemaking, DEP issued a proposed regulation on July 25, 2020. DEP issued two options in the rulemaking. One "technically" complies with the wording of Act 40 but ignores the intent of the legislature, and one exposes DEP's efforts to force industries into an unnecessary, poorly researched regulatory requirement that will bring no additional environmental or health benefits to the general public. It would have been much simpler and incurred considerably less resources had DEP followed the directive of Act 40. They merely had to add the word manganese to Chapter 96.3(d) to comply with the intent of Act 40. We recommend DEP amend the regulations at 25 PA Code 96.3(d) adding the word manganese to read:

(d) As an exception to subsection (c), the water quality criteria for total dissolved solids, nitrite-nitrate nitrogen, phenolics, chloride, sulfate, manganese and fluoride established for the protection of potable water supply shall be met at least 99% of the time at the point

⁵ On October 30, 2017, subsection (j) was added to section 1920-A of The Administrative Code of 1929. Subsection (j) is now commonly referred to as "Act 40".



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of all existing or planned surface potable water supply withdrawals unless otherwise specified in this title.

Furthermore, DEP incorrectly answered Question 12 of the IRRC Regulatory Analysis Form. We direct the DEP to the states of West Virginia, Ohio, Kentucky, Illinois, and Indiana, all of whom base their manganese standard on the Mn concentration at the public water supply withdrawal, with no adverse effects on the health of the general public. We also refer you to the testimony by Rosebud Mining given at the September 9, 2020 Senate Environmental, Resources and Energy Committee hearing.

Cost of Compliance and Implementation

DEP's answers to the questions on the IRRC Regulatory Analysis Form analysis regarding economic impact fail to adequately address economic impacts for industries, large and small, as well as the domino effect implementation would cause. In particular, the IRRC Regulatory Analysis Form did not adequately explain how the benefits of the regulation would outweigh the costs, nor provide any specific estimates and/or savings to the regulated community. The costs were identified as "Not Measurable".

Treatment for Mn involves use of chemical materials to raise the pH to neutralize acidity and precipitate metals such as iron, aluminum and manganese. There are many challenges to meeting a limit of 0.3 mg/l at the NPDES discharge point and many existing systems are simply not capable of treating Mn to a level below 0.3 mg/l. The additional cost to meet DEP's proposed limits doubles or triples the cost of existing treatment. This is particularly the case where large discharges are being treated. Contrary to public opinion, our industry strives for no violations of their permit limits. Consequently, to ensure a consistent pattern of no exceedances of a limit, the level of treatment will need to be below 0.3 mg/l, more likely near 0.15 mg/l.

To lower the Mn levels, a neutralization process can be used, but it depends on a myriad of factors, which ultimately determines the dosage of the neutralizing product. There is a reason that Mn is not usually treated for, and it is due to the balancing act required between iron and aluminum precipitation and Mn precipitation, and the insignificant environmental and health benefit. It will require a closely monitored, pH-controlled process whereby the pH is increased to a level greater than a pH of 10 and where any iron and aluminum begins to dissolve. Unfortunately, this pH level is outside the water quality criteria limits of 6 - 9, and will subsequently require another pH adjustment to get the pH back in line with the 6 - 9 limits. While this may sound simple, and perhaps for a small discharge it is, it is significant undertaking for large discharges.

As an example, we have a member company who has a significant number of NPDES permits at various locations across the Commonwealth of Pennsylvania. Of these permits, eight of them currently have conditions limiting the discharge of manganese, per the Reasonable Potential Analysis performed by DEP during the permit application process and due to geographic and geologic location.



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The company has done significant monitoring and sampling around these eight sites. They have installed monitoring wells to be able to provide a complete picture of water conditions surrounding the facilities. Background sampling of monitoring wells located upstream, downstream, and various other surface points at these eight locations, demonstrates elevated manganese levels commonly exceeding the facility's approved current discharge levels.

At the current 1.0 mg/l Mn limit, that company can keep those eight permits in compliance with the current 1.0 mg/l Mn limit with treatment costing approximately \$150,000 per year for all sites combined. The proposed change in the limit from 1.0 mg/l to 0.3 mg/l will mean that six of the eight sites will no longer be able to comply without additional treatment. Additionally, many of these sites also have low pH and elevated aluminum levels. Treatment for manganese removal is complicated by these factors, making it a much more complex and expensive process to achieve compliance for manganese, aluminum and pH together.

The company anticipates capital costs of approximately \$320,000 to expand the treatment footprint for some of the sites, and to install the necessary treatment equipment at all of the sites. Additional annual operating costs for all sites combined is expected to rise to approximately \$450,000. Two of the sites have serious footprint issues, which precludes them from expanding. The other six sites will need the pond size expanded to ensure that they meet the target reliably, and they will need increased treatment or new chemical systems. These projected costs are comprised of engineering, construction, treatment systems, power systems, and automation systems as necessary for each site. It is possible they will need additional personnel to manage the additional treatment systems.

It is anticipated there may be additional costs in addition to neutralization costs, including increased sludge disposal from the increased precipitation that will occur due to the pH adjustment process needed to meet the proposed 0.3 mg/l Mn level.

This is just one company example that illustrates the cost of this proposed regulation for a constituent that does not even pose a health threat. Due to competition and the low commodity price, it is not expected they will be able to recuperate these costs by increasing prices at these locations.

In addition, lowering manganese limits would put an additional financial burden on Pennsylvania as the state is already responsible for treating water from all previous bond-forfeited sites, regardless of whether those sites have NPDES permits. This will be a significant cost and DEP has not addressed this in the IRRC Regulatory Analysis Form and we request they do so to allow for an accurate cost of this regulation to just the Commonwealth alone.

Furthermore, the carbon footprint of having a significant amount of additional treatment chemicals delivered flies in the face of the Department's approach regarding climate change.





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Conclusion

PACA requests that the EQB withdraw the proposed rulemaking and promulgate the rule as directed in Act 40, maintain the current 1 mg/l Mn standard, remove Mn from the proposed water quality criteria for toxic substances, and add the word manganese to 25 PA Code 96.3(d), as noted above.

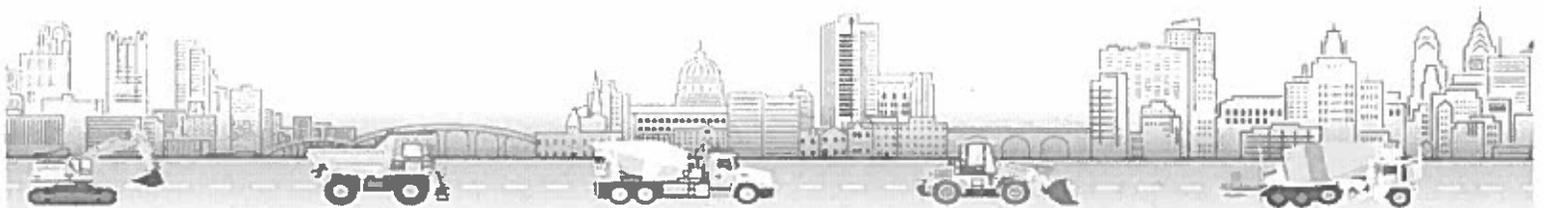
Sincerely,

A handwritten signature in black ink, appearing to read "Peter T. Vlahos", is written over a faint, light-colored signature line.

Peter T. Vlahos,
President and CEO

PTV:jg

cc: John Stefanko, PA DEP
Aneca Atkinson, PA DEP



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