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CORSA

September 21, 2020
Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

RE: Proposed Rulemaking on Amendments to Manganese Criterion in Chapter 93 and Amendment to Chapter 96 – Point of Compliance Alternatives

To the Members of the Environmental Quality Board:

Corsa Coal Corporation (Corsa) appreciates the opportunity to submit these comments on the Proposed Rulemaking on Amendments to Manganese Criterion in Chapter 93 and Amendment to Chapter 96 – Point of Compliance Alternatives. Corsa is a coal mining company focused on the production and sales of metallurgical coal, an essential ingredient in the production of steel. Our core business is producing and selling metallurgical coal to domestic and international steel and coke producers in the Atlantic and Pacific basin markets. We currently employ 210 people and operate 2 active underground mines, 3 active surface mines, 2 active preparation plants and 3 active refuse disposal areas in addition to a number of water treatment sites and idle or inactive mines, plants, and refuse disposal areas, all located in Somerset County. The proposed rulemaking would have a direct impact on our operations as each one has permitted discharges under the NPDES program with limits on manganese.

SUMMARY

Corsa opposes the proposed rulemaking on the grounds that it is a blatant attempt to circumvent Act 40 of 2017. Furthermore, Corsa opposes the proposed rulemaking on the grounds that the amendment to manganese criterion in Chapter 93 is a mischaracterization of manganese and that both the amendment to manganese criterion in Chapter 93 and the second alternative point of compliance in the amendment to Chapter 96 are unnecessary as protective measures and burdensome financially to stakeholders who meet their existing protective effluent limits.

CIRCUMVENTION OF ACT 40 OF 2017

On October 30, 2017, Governor Tom Wolf signed Act 40 into law. Among other things, Act 40 directed the Environmental Quality Board to promulgate a regulation that would require the water quality criterion for manganese to be met consistent with its critical use in order to eliminate an apparent contradiction in the existing regulations. Specifically, since the critical use for manganese is the protection of permitted Potable Water Supplies (PWS) as outlined in Chapter 93, the point of compliance stipulated in Chapter 96 must be at the point of PWS withdrawal. This was not clear in the regulations prior to Act 40 as manganese was not listed in Chapter 96.3(d). Act 40 was intended to clarify that manganese should be listed in Chapter 96.3(d) along with other water criterion established for PWS protection. However, rather than following the clear intent of Act 40, the proposed rulemaking attempts to circumvent Act 40 by changing the critical use of manganese. Corsa objects to this obvious attempt to disregard the law as it was written and urges the Board to reject the proposed rulemaking for having failed to achieve compliance with Act 40.

MISCHARACTERIZATION OF MANGANESE AS TOXIC TO HUMAN HEALTH

Manganese is a naturally occurring element that is an essential nutrient for human and animals (U.S. EPA, 2003a). A sustaining level of manganese must be maintained in the human diet, though chronic exposure to high doses of manganese may be harmful (U.S. EPA, 2004). The same may be said about other parameters, such as iron and fluoride, listed in Chapter 93.7 Table 3, the current location of the criterion for manganese. The potential to produce harmful effects at high doses does not constitute a rationale for characterizing a substance as toxic. To move manganese from Chapter 93.7 Table 3 to Chapter 93.8 Table 5, as the proposed rulemaking would do, would

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put manganese in the company of such chemicals with human health criterion as antimony, arsenic, mercury, and cyanide. These chemicals do not have a sustaining level in the human diet and rightly deserve their limits for human health criterion. Manganese does have a commonality with some substances listed in Table 5, such as copper, zinc, selenium, and chromium, in that each of these elements also have a role in the human diet. These elements, however, are not listed in Table 5 for human health criterion and neither should manganese be listed for human health criterion. Corsa objects to the mischaracterization of manganese as toxic to human health and requests that the Board reject the proposed rulemaking for this mischaracterization.

UNNECESSARY CHANGES TO MANGANESE CRITICAL USE & CRITERION

The proposed change to the critical use for manganese from Potable Water Supply to Human Health is unnecessary on account of the adequacy of the existing 1 mg/L criterion to protect human health. Studies show that there is no conclusive evidence to suggest that exposure to manganese in drinking water at concentrations less than 2 mg/L is associated with health effects (Gradient, 2020). As the Gradient report points out, the proposed rulemaking relies on outdated science regarding manganese bioavailability in infants and on a flawed application of the modifying factor (MF) in calculating the proposed criterion of 0.3 mg/L. Recent important research from the period 2017-2019 by Yoon *et al*, Song *et al*, and Ramoju *et al* was not incorporated in the proposed rulemaking, resulting in an artificially low criterion. If this more recent research were incorporated, the outdated U.S. EPA suggested value for the MF could be disregarded and the result of the calculation to determine the criterion would be approximately the same as the existing 1 mg/L concentration. Also contributing to the artificially low criterion are erroneous assumptions made on drinking water intake (DWI) per day and fish intake (FI) per person per day. The proposed criterion was calculated using an assumed DWI of 2.4 liters per person per day and an assumed FI intake of 0.022 kg/day. According to data from the National Health and Nutrition Examination Surveys (c-NHANES, 2005-2006), the average American drinks approximately 1057 grams, or 1.057 liters, of plain water per day, obtaining the balance of their water intake from other beverages and foods. The U.S. EPA relies upon a more conservative estimate of 2 liters per day for their calculations (U.S. EPA, 2004). The inflated DWI used in the proposed rulemaking artificially lowers the calculated criterion. Regarding daily fish intake, the 2018 Fisheries of the United States report from the National Oceanic and Atmospheric Administration (NOAA, 2020) shows that per capita consumption of fish in the US was 16.1 pounds, of which 85%-95% was imported. If only 85% was imported, then the per capita consumption of domestic fish would be 13.7 pounds, or 6.214 kg. This is equivalent to a daily FI of 0.017 kg/day from domestic fish sources, 23% lower than the rulemaking assumes. As with the inflated DWI, this inflated FI value artificially lowers the calculated criterion in the proposed rulemaking. Corsa opposes the proposed changes to the critical use for manganese and the manganese criterion because of the artificially lowered criterion and urges the Board to consider the most recent science on manganese and replace the erroneous assumptions in the manganese criterion calculation with more accurate estimates.

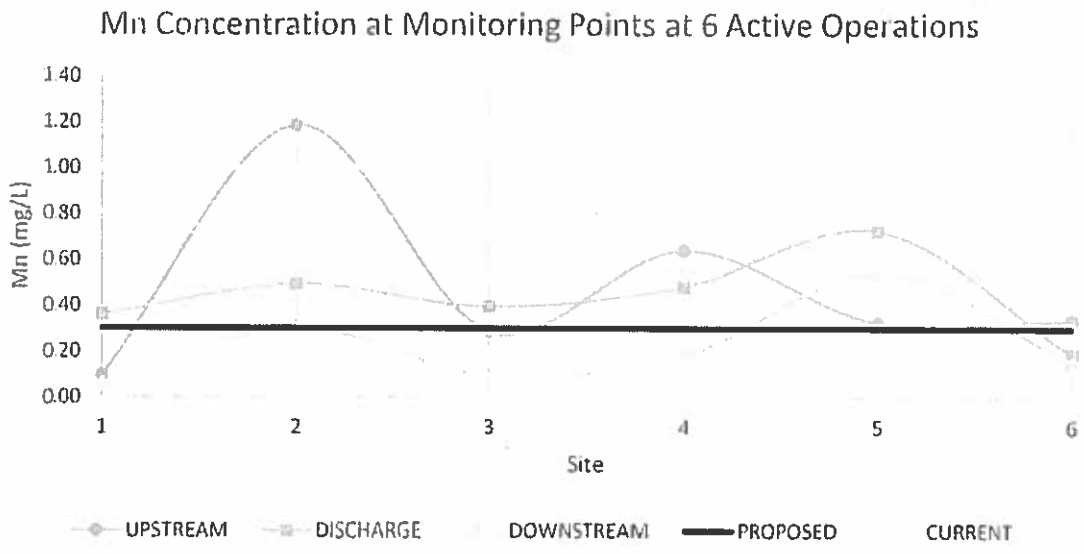
The proposed change to the manganese critical use and criterion is also unnecessary on account of the adequacy of the existing 1 mg/L criterion to protect aquatic life. In their review of aquatic life toxicological information, Tetra Tech (2020) found that manganese is not toxic to aquatic life at concentrations less than the existing criterion. The most sensitive species with acute toxicity to dissolved manganese was found to be the freshwater scud with an acute toxicity concentration of 8.6 mg/L, while the most sensitive species with chronic toxicity to dissolved manganese was found to be the brown trout with a chronic toxicity concentration of 4.6 mg/L. This analysis demonstrates that these species, and by extension the species less sensitive than they, are already protected by the existing criterion.

The proposed change to the manganese criterion is also unnecessary on account of the minimal downstream impact from discharges containing manganese at the existing limits. The modeling done by Tetra Tech (2020) shows how unlikely it is that dissolved manganese from a treated discharge would reach a location more than one-half mile from the discharge point and that under none of the modeled conditions would the concentration of manganese in the stream exceed the existing 1 mg/L criterion at any point further than one mile from the discharge point. This modeling is backed by real world data. Corsa examined the fate of manganese in discharges from six of its active operations for which there was extensive and consistent data. The table below shows the manganese concentrations

at the monitoring point located upstream of the discharge (typically 50 feet upstream), at the discharge, and at the monitoring point located downstream of the discharge (typically 100 feet downstream).

LOCATION	UPSTREAM Mn (mg/L)	DISCHARGE Mn (mg/L)	DOWNSTREAM Mn (mg/L)
Site 1	0.10	0.36	0.06
Site 2	1.18	0.49	0.30
Site 3	0.29	0.39	0.10
Site 4	0.64	0.48	0.18
Site 5	0.32	0.72	0.54
Site 6	0.33	0.19	0.16
AVERAGE	**0.48**	**0.44**	**0.22**

At 5 of the 6 active operations, the concentration of manganese in the discharge was greater than the proposed 0.3 mg/L, yet the downstream monitoring point (typically located 100 feet downstream of the discharge) showed concentrations less than 0.3 mg/L at 4 of the 5 sites. The average decrease in concentration from the upstream point to the downstream point was 61% and the average decrease in concentration from the discharge to the downstream point was 51%. The reduction over distance is particularly evident in the graph below, where the downstream concentration of manganese closely mimics the discharge concentration but at a much lower level.



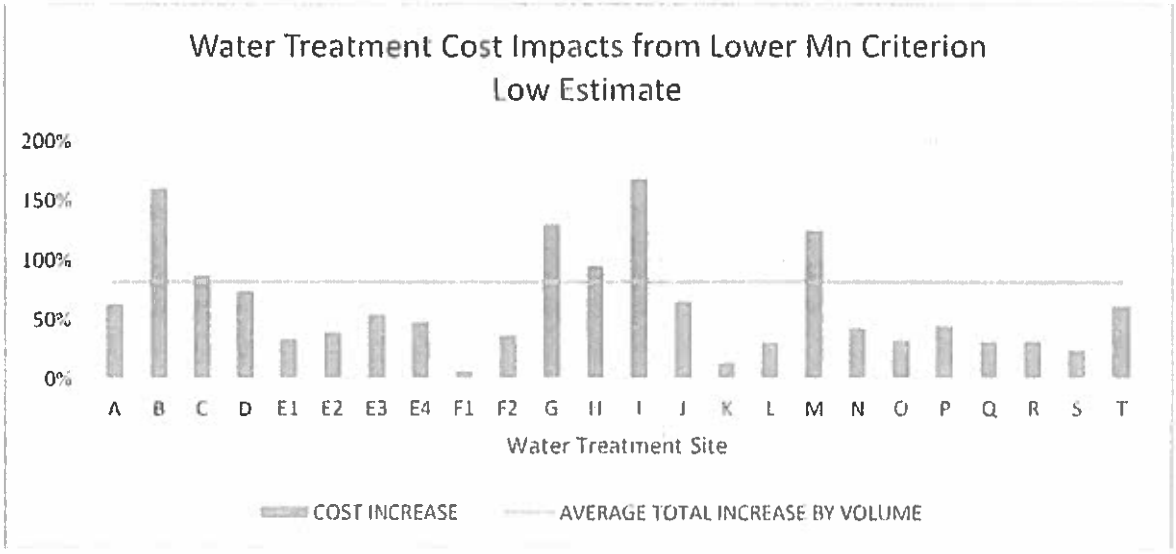
This significant reduction in the concentration, even over such small distances (approximately 150 feet), illustrates the point made in the Tetra Tech report that the downstream impact from the manganese in a treated discharge is minimal. Both the modeling and the real-world monitoring show that the existing criterion is sufficient to limit the downstream impact of manganese in the discharge.

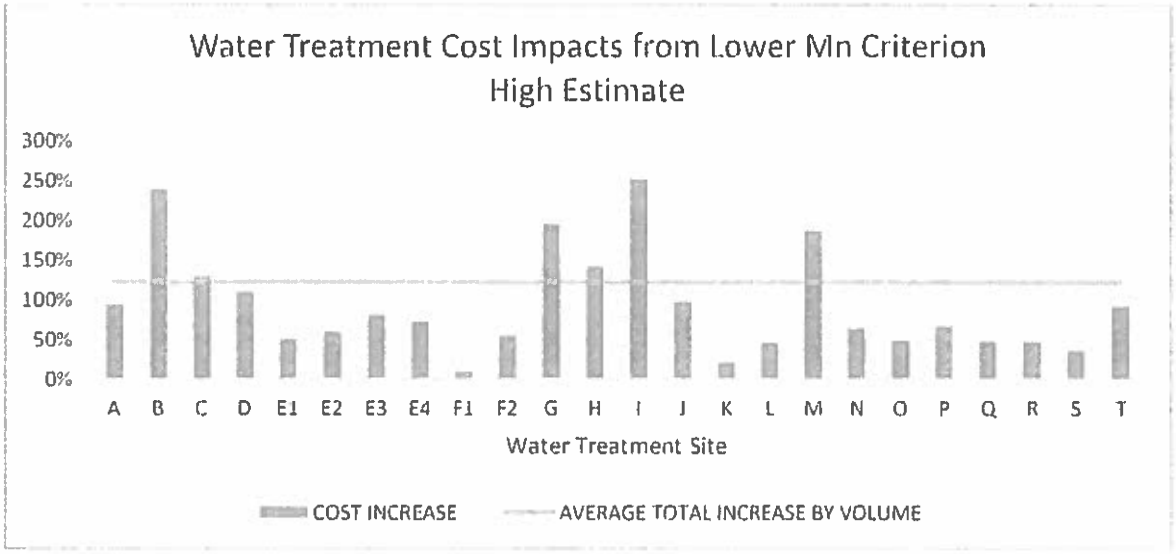
One additional observation that can be made from the Corsa data is that the proposed change to the manganese criterion is unwarranted as the manganese concentration in many of the streams that receive permitted discharges is already greater than the proposed 0.3 mg/L. The table above shows that of the 6 active operations Corsa examined, 4 of them discharged treated water into streams with concentrations of manganese greater than 0.3 mg/L. This

illustrates the point made in the Tetra Tech report that untreated legacy discharges contribute the majority of manganese in impaired waters.

BURDENSOME COST OF COMPLIANCE

The proposed reduction in the criterion for manganese from 1 mg/L to 0.3 mg/L imposes an unreasonable financial burden on the operators of permitted discharges, especially in light of the evidence that shows the reduction is not needed. First there is the impact on chemical costs directly related to manganese. Tetra Tech has estimated that the reduction in the criterion would result in reagent costs increasing $0.10 to $0.15 per 1,000 gallons treated for systems using lime and $0.30 to $0.45 per 1,000 gallons treated for systems using sodium hydroxide. Corsa has evaluated this impact across its water treatment sites and found that our water treatment costs would increase by 82% on the low end of the estimate and by 122% on the high end. The charts below illustrate these impacts.





The proposed reduction to the manganese criterion essentially doubles the chemical cost to treat water for Corsa, creating a substantial compliance burden.

Then there is the impact on costs to other areas affected by treating manganese to lower limits. Tetra Tech's report does a good job of detailing the impact to aluminum treatment and sludge disposal, two areas that are critical components of our water treatment systems. Lowering the criterion for manganese is not as simple as just adding more reagent. Rather, it would entail spending millions of dollars on labor, capital, and operating costs to meet the need for expanded treatment and disposal facilities.

Finally, there is the issue of substantially raising costs for the permitted industries without a significant tangible benefit for the citizens of the commonwealth. The primary argument put forth to justify the reduction in the criterion is to reduce the treatment cost for PWS systems. Yet Tetra Tech has convincingly shown that any impact from reducing the criterion to 0.3 mg/L will be negligible on account of the unlikelihood of dissolved manganese reaching a PWS withdrawal. The most generous case involves a savings to the average household in the range of $0.40 to $1.00 per year by reducing the criterion. This miniscule amount does not justify the outsized burden placed on permitted dischargers and, by extension, their employees and their families and the vendors that depend on their business. Additional purported benefits put forth include specific ones that can be shown to be at odds with the most up-to-date science, such as protection of human health and aquatic life, and general ones, such as impacts to tourism and property values, that are speculative and included with no justification or evidence that the current criteria is harmful in those regards. The net result is a rulemaking that fails the cost-benefit analysis.

POINT OF COMPLIANCE AT PWS WITHDRAWAL

The one component of the proposed rulemaking with which Corsa does agree is the First Alternative Point of Compliance. As discussed earlier, this should not be considered an alternative but rather the primary focus of the rulemaking, given that Act 40 called specifically for this rule. Regardless, the language in Annex A which adds "and the water quality criterion for manganese" to Chapter 96.3(d) should be implemented.

CONCLUSION

In conclusion, it is apparent that the proposed rulemaking is an attempt to avoid compliance with Act 40 by recharacterizing manganese as a toxic substance and is successful primarily at raising costs for industry while returning almost no benefit to the residents and aquatic life in Pennsylvania. The proposed rulemaking sets up a false dichotomy of winners and losers based on changing the criterion, yet since the existing criterion is already protective of human health and aquatic life while keeping treatment costs stable for both industry and operators of PWS systems, the most equitable path forward is to affirm the existing criterion. Corsa opposes the proposed rulemaking and requests that the Board consider these comments in its evaluation and reject the proposed rulemaking. Thank you for your time and attention in reviewing these comments.

Sincerely,
CORSA COAL CORPORATION

Peter V. Merritts
President & CEO