

Emily T. Carpenter
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Missouri Department of Natural Resources
1101 Riverside Drive, Jefferson City, MO 65101

Re: Comments to 10 CSR 20-8.190 Disinfection

March 6, 2014

Dear Ms. Carpenter,

Thank you for the opportunity to comment on the 10 CSR 20-8.190 Disinfection Guidelines.
Please see below.

1. Section 1.3 Forms of Disinfection (page 2)

Peracetic acid should be included in the list of Forms of Disinfection. "other disinfectants include chlorine dioxide, ozone, bromine *and peracetic acid*"

2. Section 4 Feed Equipment (page 3)

A) Feed Equipment.

Add to (4) (A) The use of peracetic acid feeders of the positive displacement type may be considered and are generally preferred.

B) Control section

Add part 4. *Peracetic Acid*. Facilities with design flows of one million gallons per day (1.0 mgd) or greater shall be equipped with a peracetic rate control to feed the peracetic acid proportional to the flow of wastewater and the peracetic acid residual.

3. Section (7) Peracetic Acid (page 17)

- a. Note: Peracetic acid formulations may or may not incorporate sulfuric acid. It is a manufacturing aid that helps reduce the time the formulation takes to reach equilibrium during the manufacturing process, and is not a key component of the disinfection process.

b. (7)(A)1. Minimum PAA dose of 1.5 ppm

There should not be a requirement for a minimum PAA (peracetic acid) dose. The PAA dose should be determined for the specific wastewater, via a jar test or other such similar approach. A concentration – time (C*t) profile will then determine the proper PAA dosing and residual target. If a wastewater matrix has low PAA demand, it is quite possible that the appropriate PAA dosing could be, as an example, 1 ppm and still be effective to meet the permitted bacterial reduction. We would like to see the minimum dosing requirement removed from the guidance document and in its place the need to determine the minimum dosing through site specific testing. There is no minimum requirement placed on chlorine disinfection, and PAA disinfection is similar in this respect to chlorine. Section 10.4(b) states that “for (chlorine) disinfection, the capacity shall be adequate to produce an effluent that will meet the applicable bacterial limits specified by the department for that installation.....” with no minimum requirements. The same statement can be made for PAA disinfection, and a minimum dosing requirement is not needed. Setting a minimum PAA dosing requirement may unnecessarily reduce the opportunity of PAA use at certain facilities with low demand wastewaters.

c. (7)(G)1 Contact Period: minimum contact period of 10 minutes

As with the minimum PAA dosing requirement, there should not be a set requirement of a minimum contact time of 10 minutes. The critical parameter is the C*t (concentration * time). Shorter contact times can be offset by higher PAA concentrations to achieve equivalent results. Jar testing or equivalent measurement should be conducted in order to determine the appropriate C*t to meet the site specific bacterial requirements. Requiring a minimum contact time would unnecessarily limit the use of PAA at facilities where the established contact chamber is less than ten minutes. Again, this requirement is not made of chlorine disinfection, and PAA disinfection is not different than chlorine disinfection in this respect. Contact time should be considered the residence time from the point of application to the point of compliance measurement.

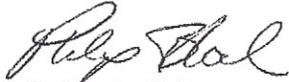
d. (7)(J) Sampling.

The guidance recommends that for sampling, a least one point immediately downstream of the PAA contact tank be chosen. It is recommended that this be restated as “Facilities shall be included for sampling the disinfected effluent, including one point at the point of compliance. Additional sampling points may be included on a site specific basis.” This would allow for facilities with either a contact pipe or additional contact time post the

contact tank be taken into account, and that priority be given to measurement of PAA residual at the point of compliance with the potential to add additional sampling points as needed per plant requirements.

If you have any questions regarding our recommendations, please let me know. We thank you for the opportunity to participate in the review process of Design Guidelines 10 CSR 20-8.190 Disinfection.

Sincerely,



Philip Block, PhD

Technology Manager – Water Treatment
PeroxyChem