

3136.

RECEIVED
IRRC

AQUA 2016 APR -8 PM 2: 14

Public Hearing

April 5, 2016

Norristown, PA

Summary comments by Charles D. Hertz, Ph.D. on PADEP's proposed disinfection requirements

PROPOSED RULEMAKING

[25 PA. CODE CH. 109]

Disinfection Requirements Rule

[46 Pa.B. 857]

[Saturday, February 20, 2016]

Comments on the following topics:

- Proposal of ≥ 0.1 mg/L as 95th percentile goal.
- Analytical method for measuring chlorine residual / Detection & Quantification studies
- Costs and time involved to implement requirements
- Guidance documents

Support for March 30th Proposal on Minimum Disinfectant Residual

Establish minimum disinfectant residual goal of ≥ 0.1 mg/L in 95 % of samples linked with an Action Level. If the goal is not realized in two consecutive months, water system would be required to "find and fix" the problem along with submitting a report to DEP.

This proposal would increase the existing definition of "detectable" by 5-fold: 0.02 mg/L to 0.1 mg/L. This would "right a wrong" and set a placeholder for future developments as research is conducted on quantification of chlorine residual in drinking water.

Follow and participate in a national discussion on science-based measurements of chlorine residual. Incorporate the national research into PADEP regulations as the science becomes more settled.

Detection and Quantification

The Department seeks comment on a *true detectable residual*. The proposal concluded that "...true detectable residual is likely somewhere between 0.1—0.2 mg/L."

Although I agree with the concept that a scientifically sound reporting level is in the range of 0.1 – 0.2 mg/L, a major reference cited by the Department appears to be from the gray literature and does not appear to be a peer-reviewed document. It is not clear why the Department put so much emphasis on this primer.

For many years the term ML was used in the Clean Water Act to define a quantification term known as Minimum Level. It appears to me that the Minimum Level (an EPA term) and Method Limit (term used in the primer) are essentially the same thing and may be the result of a typographical error.

We suggest that the Department find and reference a stronger citation to back up, what appears to be a key feature of the proposed rule. There is an entire body of literature and series of reports from the FACA process that attempted to refine detection and quantification.

Laboratory Experiments

Aqua Pennsylvania conducted laboratory experiments last year to help inform the conversation on detectable disinfectant concentrations. These experiments were conducted as part of an effort with Philadelphia Water and Corona Environmental Consulting to assess the variability of chlorine residual measurements. Summaries of these data have already been presented elsewhere by Jeffrey Rosen and Dr. Tim Bartrand of Corona.

These experiments were conducted by 3 chemists in Aqua's Water Quality Laboratory in Bryn Mawr. They were done under laboratory conditions and not in the field. All measurements were conducted with the same instrument (Hach Pocket Colorimeter II). None of these chemists routinely conduct these measurements in the field. No attempt was made to investigate interferences; all samples were prepared with reagent water in the laboratory.

Overall, our laboratory conducted 199 determinations of total chlorine residual by the DPD method. Hach reagents were used. Solutions were prepared from Hach Quality Control standards.

- 199 measurements
- 3 analysts
- 7 concentrations: 0.02 mg/L to 0.65 mg/L total chlorine
- No clear degradation of performance of analytical method at a specific concentration. The range of 0.1 – 0.2 mg/L was not unreasonable as a Minimum Reporting Level.

- These data should be viewed as one piece of information on the topic. A much larger project and national discussion of a "true detectable residual" is needed.

Costs of Implementing Proposal

Aqua is in the process of compiling cost estimates. Although we don't have official costs to share at this point, it is clear that the costs are going to be substantial. Aqua operates more than 100 drinking water systems across the state. Because of the vast size of Aqua PA's Main System, capital improvements will be needed. Aqua's Main System uses chloramines as a secondary disinfectant and has done so for decades.

Over the last few years, Aqua has implemented operational changes both at treatment facilities as well as in various distribution systems. This has included a use of best practices to improve the quality of water with respect to chlorine residual.

We expect to provide cost figures in written comments to be submitted to DEP by April 19th.

Timeframe for Implementation

The Department requested comment on whether a delay in implementation might be appropriate after promulgation. Aqua supports a deferred effective date of at least 6 months to give water systems sufficient time to implement capital projects and time to transition operational changes without being penalized.

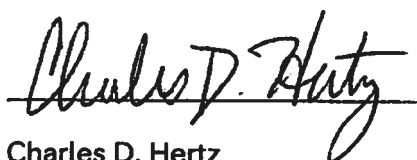
For more than two years, Aqua has made operational modifications related to potential changes in disinfection residual requirements. These on-going modifications are part of efforts to continuously improve operations. Topics of simultaneous compliance with other regulations must also be considered. A 6 month deferral in effective date of the proposed regulation may not be enough for some systems to fully consider appropriate operational modifications.

Guidance Manuals

While the proposed rule provides direction, the guidance manuals that will eventually be published by DEP will be at least as important as the regulation. We urge the Department to generate these manuals with flexibility and practicality in mind. There are few one-size-fits-all solutions when it comes to disinfectant residual.

We urge the Department to have an open dialogue with stakeholders during the development of guidance manuals so that the published product is workable by water utilities of all sizes, configuration, and disinfection practices.

For example, a Nitrification Control Plan is a good idea for chloraminated systems. The regulation and guidance manual must not be prescriptive, however. Flexibility in guidance is critical to allow water operators a chance to use their professional judgement in implementing a plan that makes sense for their system.

A handwritten signature in black ink, reading "Charles D. Hertz", written over a horizontal line.

Charles D. Hertz

Aqua Pennsylvania, Inc.
762 W. Lancaster Ave.
Bryn Mawr, PA 19010