

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
PUBLIC WATER SUPPLIES:) R18-17
PROPOSED NEW 35 ILL. ADM)
CODE 604 AND AMENDMENTS.) (Rulemaking- Water)
TO 35 ILL. ADM CODE PARTS 601,)
602, 607 AND 611)

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board ILLINOIS EPA'S RESPONSE TO MICHAEL D. CURRY'S SECOND PREFILED TESTIMONY a copy of which is herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/Rex L. Gradeless
Rex L. Gradeless
Assistant Counsel
Division of Legal Counsel

Date: November 14, 2017

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

THIS FILING IS SUBMITTED ELECTRONICALLY AND SERVED ON RECYCLED PAPER

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
PUBLIC WATER SUPPLIES:)	R18-17
PROPOSED NEW 35 ILL. ADM)	
CODE 604 AND AMENDMENTS.)	(Rulemaking- Water)
TO 35 ILL. ADM CODE PARTS 601,)	
602, 607 AND 611)	

**ILLINOIS EPA’S RESPONSE TO
MICHAEL D. CURRY’S SECOND PREFILED TESTIMONY**

NOW COMES the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, (“Illinois EPA” or “Agency”) by and through its counsel, and for response to the second prefiled testimony of Michael D. Curry (“Curry”) states as follows:

- 1) On October 19, 2017, Curry prefiled testimony related to this rulemaking.
- 2) On November 1, 2017, the Agency filed a response to Curry’s prefiled testimony.
- 3) On November 8, 2017, and responding to the Agency’s November 1, 2017, filing, Curry filed a second prefiled testimony.
- 4) The Agency responds to Curry’s second prefiled testimony in attached Exhibit A.

Wherefore, the Illinois EPA respectfully submits its response to Curry’s second prefiled testimony.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/Rex L. Gradeless
Rex L. Gradeless
Assistant Counsel
Division of Legal Counsel

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

EXHIBIT A - ILLINOIS EPA'S RESPONSE TO CURRY'S SECOND PREFILED TESTIMONY

Comment 1 (Curry followup response to Agency's Response to Curry Comment 2):

Respectfully recommend Section 604.120(a) be revised to read as follows:

- a) **Piping in a community water supply treatment facility shall be identified clearly by legends and color coding or the use of color-coded nametag labels identifying the contents on individual pipes, spaced at intervals to allow convenient identification of individual pipes. A consistent standard shall be used throughout the system.**

Agency Response: The Agency agrees with this change.

Comment 2 (Curry followup response to Agency's Response to Curry Comment 16):

Why is it important to include measurement of total NH₃-N as an indicator, along with other parameters, that nitrification is occurring? Curry respectfully requests that the Agency reconsider its rejection of the proposal to include total Ammonia-N measurements in the NAP (Nitrification Action Plan).

Agency Response: Based upon the additional testimony provided, the Agency believes that it is appropriate to include total Ammonia-N in the NAP and proposes the following additional change to the provisions in Section 604.140(a):

- a) contain a plan for monitoring total Ammonia-N, free Ammonia-N, monochloramine, total chlorine, Nitrite-N, and Nitrate-N levels, monochloramine residual, dichloramine residual, and total chlorine residual.

Comment 3 (Curry followup response to Agency's Response to Curry Comment 37):

Curry concurs with the Agency's requirement for a minimum 0.3 baffle correction factor to prevent short circuiting. If the minimum baffling factor remains as a requirement to prevent short circuiting, respectfully recommend re-phrase Section 604.715(a) to read as follows:

- a) **Unless otherwise approved by the Agency pursuant to Section 604.145(b), a minimum chlorine contact time of 60 minutes shall be provided for all sources utilizing surface water, groundwater under the direct influence of surface water, groundwater with basins open to the atmosphere, and groundwater obtained from unconfined, fractured bedrock. The equivalent baffling factor must be greater than or equal to 0.3 to prevent short circuiting. The 60 minute contact time shall be calculated based on the following formula:**

$$\frac{\text{Maximum pumping rate out of basin, gpm}}{\text{Actual basin operating water volume, gallons}} = \text{minimum 60 minutes}$$

Agency Response: The Agency agrees with this change.

Comment 4 (Curry followup response to Agency's Response to Curry Comment 41):

It is implied that 604.900 is intended to establish "General Stabilization Requirements", but the methodology for evaluating water stability is absent. In Curry's opinion, it is not sufficient to describe the "parameters" and exclude necessary procedures and information about how the parameters are to be evaluated to assure delivery of stable water.

In addition to water stability evaluations to minimize corrosion, water stability evaluations should be made to prevent damaging deposition of excess calcium carbonate scale in water mains and household plumbing systems. At the 2016 AWWA WQTC (American Water Works Association Water Quality Technology Conference) at Indianapolis, (attended by Curry) Michael Schock with USEPA commented that the Flint, Michigan lead problems were a result of the Michigan regulatory and engineering communities ignoring the available body of knowledge pertaining to corrosion control. This "body of knowledge" should be applied in Illinois, in Curry's opinion.

Curry respectfully recommends that 604.900 be modified to include known methods for monitoring water stability... for both the tendency to be corrosive and the tendency to deposit excessive calcium carbonate scale.

Agency Response: The Agency has reviewed Curry's original and supplemental prefiled testimony and believes the following could be used to determine corrosion and deposition of excess calcium carbonate (CaCO₃) scale, Additionally, the Agency provides to the Board general numerical values that can be used as guidance for some of the tests below:

- Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems
- Chloride Sulfate Mass Ratio (CSMR)

Generally, when using CSMR, values greater than 0.5 have reported tendencies to cause release of lead from solder and from galvanic corrosion. (Ref. "Chloride-to-sulfate mass ratio and lead leaching to water", Journal AWWA (July 2007), Marc Edwards and Simoni Triantafyllidou.

- Coupon and pipe loop studies
- Larson-Skold Index (L-SI)

Generally, when using L-SI, values should be less than 0.8.

- Calcium Carbonate Precipitation Potential (CCPP)

Generally, CCPP should be maintained between 0 and + 4 mg/L (as CaCO₃) to minimize potential for corrosion of iron, steel, and concrete pipe.

- The Alkalinity Difference Technique (“Marble Test”)

Also, when using the Marble Test, the concentration should not decrease by more than 2 mg/L (as CaCO₃) below the initial value to minimize potential for corrosion of iron, steel, and concrete pipe.

To provide clarity, the Agency believes the regulations should include a list of ways to test water for stability. Therefore, the Agency proposes the following new Section 604.900 as follows:

- a) Water distributed by community water supplies must be stable so as to not cause a violation of 35 Ill. Admin. Code 601.101(a).

- b) The following water quality parameters of finished water must be evaluated to ensure that water quality parameters minimize corrosion and minimize deposition of excess calcium carbonate (CaCO₃) scale throughout the distribution system of the community water supply:
 - 1) alkalinity (as CaCO₃);
 - 2) total hardness (as CaCO₃);
 - 3) calcium hardness (as CaCO₃);
 - 4) temperature;
 - 5) pH;
 - 6) chloride;
 - 7) sulfate;
 - 8) total dissolved solids;
 - 9) oxidation reduction potential;
 - 10) conductivity;
 - 11) iron;
 - 12) manganese;
 - 13) orthophosphate, if applicable; and
 - 14) silica, if applicable.

c) The following may be used to determine the corrosivity of water distributed by community water supplies:

1) Lead and Copper:

A) Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems, USEPA (March 2016); Office of Water (4606M), EPA 816-B-16-003;

B) Chloride Sulfate Mass Ratio (CSMR), calculated as follows:

$$\text{CSMR} = \frac{\text{Cl}^-, \text{ expressed as mg/L}}{\text{SO}_4^{2-}, \text{ expressed as mg/L;}}$$

C) Coupon and pipe loop studies.

2) Iron and Steel

Larson-Skold Index (L-SI), calculated as follows:

$$\text{L-SI} = (\text{Cl} + \text{SO}_4) / \text{Alkalinity}$$

All parameters expressed as mg/L of equivalent CaCO₃

3) Iron Steel and Concrete

A) Calcium Carbonate Precipitation Potential (CCPP) as referenced in 2330C Standard Methods for Examination of Water and Wastewater, 22nd edition incorporated by reference in 35 Ill. Admin Code 611.102;

B) The Alkalinity Difference Technique as described in 2330C Standard Methods for Examination of Water and Wastewater, 22nd edition;

C) The Marble Test as described in 2330C Standard Methods for Examination of Water and Wastewater, 22nd edition.

d) The following may be used to determine deposition of excess calcium carbonate (CaCO₃) scale:

A) Calcium Carbonate Precipitation Potential (CCPP) as referenced in 2330B Standard Methods for Examination of Water and Wastewater, 22nd edition incorporated by reference in 35 Ill. Admin Code 611.102;

- B) The Alkalinity Difference Technique (“Marble Test”) as described in 2330D Standard Methods for Examination of Water and Wastewater, 22nd edition.
- e) Acceptable stability treatments include, but are not limited to the following:
- 1) carbon dioxide addition;
 - 2) acid addition;
 - 3) phosphate addition;
 - 4) split treatment;
 - 5) alkali chemical;
 - i. hydrated lime
 - ii. sodium carbonate
 - iii. sodium bicarbonate
 - 6) carbon dioxide reduced by aeration;
 - 7) calcium hydroxide; and
 - 8) sodium silicate addition.
- f) When chemical addition is used for stabilization, the community water supply must comply with requirements of Subpart K.

Comment 5 (Curry followup response to Agency’s Response to Curry Comment 50):

The original proposal (Section 604.1115(c)(11) states...

11) provisions must be made to chemically neutralize chlorine gas where feed and/or storage is located near (emphasis added) residential or developed areas in the event of any measured chlorine release. The equipment must be sized to treat the entire contents of the largest storage container on site.

Respectfully request a response to Curry's original question. Since this is a mandatory provision, a minimum clearance distance should be stated in order to guide and determine applicability of the regulation. Otherwise, will the Agency accept the judgement decision of the CWS?

Agency Response: Based upon the additional testimony provided, the Agency believes that it is appropriate to make the following change to Section 604.1115(c)(11):

(11) provisions must be made to chemically neutralize chlorine gas ~~where feed and/or storage is located near residential or developed areas~~ in the event of any measured chlorine release. The equipment must be sized to treat the entire contents of the largest storage container on site.

CERTIFICATE OF SERVICE

Rex L. Gradeless, Assistant Counsel for the Illinois EPA, herein certifies that he has served a copy of the foregoing NOTICE OF FILING, and ILLINOIS EPA'S RESPONSE TO MICHAEL D. CURRY'S SECOND PREFILED TESTIMONY, upon persons listed on the Service List, by placing a true copy in an envelope duly addressed bearing proper first class postage in the United States mail at Springfield, Illinois on November 14, 2017, or by sending an email from my email account (Rex.Gradeless@Illinois.Gov) to the email addresses designated below with the following attached as a 10 page PDF document in an e-mail transmission on or before 5:00 pm on November 14, 2017.

By: /s/Rex L. Gradeless

THIS FILING IS SUBMITTED ELECTRONICALLY AND SERVED ON RECYCLED PAPER

SERVICE LIST

<p>Office of the Attorney General 69 West Washington, St. Suite 1800 Chicago, IL 62706 mdunn@atg.state.il.us enviro@atg.state.il.us KPamenter@atg.state.il.us</p>	<p>Office of General Counsel Illinois Department of Natural Resources One Natural Resources Way Springfield, IL 62702-1271 virginia.yang@illinois.gov eric.lohrenz@illinois.gov</p>
<p>Illinois Pollution Control Board 100 W. Randolph St. Suite 11-500 Chicago, IL 60601 Tim.Fox@Illinois.gov daniel.robertson@illinois.gov</p>	<p>Justin DeWitt, P.E. Chief of Gen. Engineering Illinois Department of Public Health 535 West Jefferson Springfield, IL 62761 justin.dewitt@illinois.gov</p>
<p>Janet Kuefler USEPA - Region 5 77 West Jackson Blvd. Chicago, IL 60601 kuefler.janet@epa.gov</p>	<p>Deborah J. Williams Regulatory Affairs Director Office of Public Utilities 800 East Monroe Springfield, Illinois 62757 deborah.williams@cwlp.com</p>
<p>Illinois Environmental Protection Agency 1021 North Grand Avenue East Springfield, Illinois 62794-9276 joanne.olson@illinois.gov Rex.Gradeless@Illinois.gov</p>	<p>Katy Khayyat DCEO 500 East Monroe Street Springfield, IL 62701 Katy.Khayyat@illinois.gov</p>