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 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 1, 2017

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ILLINOIS EPA'S RESPONSE TO
MICHAEL D. CURRY'S PREFILED TESTIMONY

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

1) On October 19, 2017, Curry prefiled testimony related to this rulemaking.

2) The Illinois EPA responds to Curry's prefiled testimony in attached Exhibit A.

Wherefore, the Illinois EPA respectfully submits its response Curry's prefiled testimony.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

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EXHIBIT A – ILLINOIS EPA'S RESPONSE TO CURRY'S PREFILED TESTIMONY

General Comment 1: Definitions are not provided for terms contained in this part; addition of definitions would be helpful to the public entities that will be using this part for guidance.

Agency Response: Definitions are contained in 35 IL Adm Code 601.105 and in the incorporation by reference "The Water Dictionary" (see 35 IL Adm Code 601.115).

General Comment 2: Traditionally, the Board's regulations have used the term "shall" for mandatory compliance items and the term "should" for recommendations. This part departs from the traditional format, and frequently uses the term "must".

Agency Response: The Agency intends for "must" to be mandatory and "should" to be a recommendation.

Comment 1 (604.105(d)(3)): (Question) East Alton, Illinois has a single aerator and intermittently detects troublesome concentrations of regulated VOCs (volatile organic chemicals). Will East Alton be required to install a second aerator?

Agency Response: The Agency would need to evaluate specific circumstances on a case specific basis. For example, in this case, the Agency would need to consider the ability of available sources of water without regulated contaminants of concern (COC) to meet demand, the ability of other portions of the treatment process to adequately remove COC, and the availability of alternate water sources before determining if redundancy was necessary.

Comment 2 (604.120): Respectfully recommend that use of painted labels be permitted. If this proposed requirement remains "as-is", will existing plants that use painted labels be required to re-paint and color code all piping? If re-painting is required to comply with this proposal, would the Board and Agency grant at least a 12-month grace period to accomplish the re-painting?

Agency Response: The Agency has no objection to the use of painted labels. The Agency proposes the following revision to proposed Section 604.120:

a) Piping in a community water supply treatment facility shall be identified clearly by legends and color coding or the use of color coded labels. A consistent standard shall be used throughout the system.

Comment 3 (604.130): Respectfully recommend add additional requirements for systems that use chloramines for disinfection and as a secondary disinfectant: "... test equipment to measure free chlorine residual, total chlorine residual, monochloramine residual, dichloramine, free Ammonia-N, total Ammonia-N (including reagents to dechlorinate samples containing chloramines)."

Agency Response: The Agency has no objection to this addition, however believes that the use of four of the six suggested tests is sufficient for most systems to monitor chloramination. If necessary, the Agency could require monitoring of dichloramine and total Ammonia-N through a Special Exception Permit. However, for most community water supplies ("CWSs"), the four monitoring parameters are sufficient to determine where a treated water is located on the chloramination curve. The Agency proposes the following revision to the proposed Section 604.130(d)(10):

10) Chloramination - equipment to measure free chlorine residual, total chlorine residual, monochloramine residual, and free Ammonia-N.

Comment 4 (604.130): Respectfully recommend re-phrase: "iron removal - test equipment for measuring ferrous and total iron".

Agency Response: The Agency has no objection to this addition. The Agency proposes the following revision to proposed Section 604.130(d)(2):

2) iron removal – test equipment for measuring ferrous and total iron levels;

Comment 5 (604.130) : Respectfully recommend add equipment for measuring CHLORIDE.

Agency Response: The Agency has no objection to this addition. The Agency proposes the following revision to proposed Section 604.130(d)(3):

3) Cation exchange softening – equipment for measuring hardness and chloride concentration.

Comment 6 (604.130): Respectfully recommend add Nitrite-N to list of parameters.
Comment 7 (604.130): Respectfully recommend eliminate "alkalinity" and replace with "total and phenolphthalein ("P") alkalinity forms."

Agency Response: The Agency has no objection to these changes. The Agency proposes the following revision to proposed Section 604.130(d)(4):

4) coagulation and filtration – jar testing equipment for determining chemical dosages and equipment for measuring pH, hardness, total and phenolphthalein ("P") alkalinity ~~and~~ nitrate and nitrite.

Comment 8 (604.130): Respectfully recommend adding "Total and Insoluble Aluminum" to list of parameters .

Agency Response: The Agency has no objection to this addition. The Agency proposes the following revision to proposed Section 604.130(d)(11):

11) Coagulation using coagulants that contain aluminum – in addition to the equipment described in 604.130(d)(4), equipment to measure total and insoluble aluminum.

Comment 9 (604.130): Respectfully recommend eliminate "alkalinity" and replace with "total and phenolphthalein alkalinity forms." (It is important to be able to differentiate forms of alkalinity.)

Agency Response: The Agency has no objection to this addition. The Agency proposes the following revision to proposed Section 604.130(d)(5):

5) lime softening – equipment for measuring pH, hardness and total and phenolphthalein alkalinity.

Comment 10 (604.130): Respectfully recommend eliminate "hardness" and replace with "calcium hardness and total hardness, expressed as calcium carbonate".
Comment 11 (604.130): Respectfully recommend add "temperature".
Comment 12 (604.130): Respectfully recommend adding Chloride and Sulfate to list of parameters.

Agency Response: The Agency has no objection to these additions. The Agency proposes the following revision to proposed 604.130(d)(9):

9) stabilization – equipment for determining the effectiveness of stabilization treatment for parameters which may include but are not limited to temperature, pH, alkalinity, total dissolved solids, chloride, sulfate, calcium ~~and~~ hardness and total hardness, expressed as calcium carbonate.

Comment 13 (604.130): Respectfully recommend add manganese removal - test equipment for measuring the concentration of total Manganese and soluble Manganese.

Agency Response: The Agency has no objection to this addition. The Agency proposes the following revision to proposed Section 604.130(d):

12) manganese removal – equipment for measuring the concentration of total manganese and soluble manganese.

Comment 14 (604.130): Respectfully recommend add: "treatment with chlorine dioxide- equipment for measuring chlorine dioxide residual and chlorite ion concentration."

Agency Response: The Agency has no objection to this addition. The Agency proposes the following revision to proposed Section 604.130(d):

13) chlorine dioxide – equipment for measuring chlorine dioxide residual and chlorite ion concentration.

Comment 15 (604.135(d)): Are "templates" available from IEPA, USEPA, or any other source? Many small systems do not have in- house staff capable of writing this type of plan. If the Agency and/or Board desires specific content, would it be possible to

include a sample "table of contents" for the plan? The concept of having an Emergency Operations Plan is in the best interest of the public, but the logistics are daunting for preparation of individual plans for approximately 1700 individual systems in Illinois. Small systems in particular could benefit from additional guidance.

Agency Response: This is not a new requirement. The Illinois EPA, through its triennial inspection process, has been requiring CWSs to have emergency plans for at least the past 20 years. There are many template plans available. For example, the Illinois Rural Water Association (IRWA) has a very serviceable template. The Illinois EPA is also aware that the IRWA will also help in the preparation of plans for small CWSs.

Comment 16 (604.140(a)): Will "consecutive systems" that purchase treated water from another source be required to comply with 604.140? Please, can a clarification be added?

Anticipate that there is no TKN data for Illinois community water systems? If Organic N is present, it may pose water quality problems? And, if it is present, but not monitored, the nitrogen balance may be inaccurate? An annual test for TKN could be beneficial ... to determine if organic N is present.

At (a) ... respectfully recommend re-phrase as follows, with addition of total ammonia (after dechlorinating samples containing chloramines) and dichloramine. "a) contain a plan for monitoring total Ammonia-N, free Ammonia-N, Nitrite-N, Nitrate-N, monochloramine residual, dichloramine residual, and total chlorine residual."

Agency Response: CWSs that purchase water without a free chlorine residual and distribute this water must prepare a NAP. Similar to the response for comment #3, the Agency could require monitoring for total Ammonia-N and dichloramine residual through a Special Exception Permit. However, for most CWSs the monitoring listed in the proposed language is sufficient to determine if nitrification is occurring.

Comment 17 (604.155(b)): Respectfully recommend revise to include: Systems that do not have standby power on the date this part is adopted shall install standby power supply within 24 months of the date of adoption of this part.

Agency Response: This is not a new requirement. The Illinois EPA through its triennial inspection process and permitting program, has been requiring CWSs to install and maintain standby power capable of continued operation of their water supply.

Comment 18 (604.160(a)): Are "templates" available from IEPA, USEPA, or any other source? Is there available guidance identifying the contents desired by the Board? If the Agency and/or Board desires specific content, would it be possible to include a sample "table of contents" for the plan?

Agency Response: With this proposed Section, the Illinois EPA acknowledges the need for workplace safety with a general provision. However, the Agency must defer to the appropriate state and federal agencies who have the proper expertise for the development of templates and proper plans.

Comment 19 (604.165(d)): How long do the copies of records need to be maintained and stored?

Agency Response: Per the Illinois Environmental Protection Act (415 ILCS 5/15), copies must be maintained for ten years.

Comment 20 (604.170(a)): Respectfully recommend revising to read as follows: "Each community water supply well, well house, raw water intake structure, pumping stations, treatment plant buildings, and treated water storage reservoirs shall be protected to prevent vandalism and entrance by animals or unauthorized persons."

Agency Response: The Agency has no objection to this change. The Agency proposes the following revision to proposed Section 604.170:

a) Each community water supply well, well house, raw water intake structure, pumping stations, treatment plant buildings, and treated water storage reservoirs shall be protected to prevent vandalism and entrance by animals or unauthorized persons.

Comment 21 (604.170(b): Respectfully recommend clarifying where fencing is specifically required. It is not feasible to fence raw water reservoirs/lakes or river sources to prevent trespassing etc. There are many treatment plants that have open-top clarifiers and/or settling basins, but the properties are not fenced. What timeframe will be allowed to construct fencing in order to comply with this requirement? Respectfully recommend specifying the type of protective fencing, minimum height, and configuration.

Agency Response: With this proposed Section, the Illinois EPA acknowledges the need for security fencing in certain locations. However, the Agency will defer to the respective water supplies regarding what is reasonable to control trespassing, vandalism and sabotage. The Illinois EPA does not have the expertise to evaluate security issues. Other federal departments, such as the Department of Homeland Security, could be called upon to better evaluate fencing options.

With respect to timeframe for installation of fencing, the Illinois EPA has been making security recommendations in triennial inspection reports for quite some time.

Comment 22 (604.200(b)(2)): 604.200 references raw water source ... the requirements described at (b)(2) are more specifically described in various parts of 35 /AC. Redundant?

Agency Response: With this proposed Subsection, the Illinois EPA acknowledges that there are greater details in other portions of Subtitle F. However, this general provision is necessary to highlight that source water selected must be treatable.

Comment 23 (604.245): Respectfully recommend adding requirements to report well information to the Illinois State Water and Geological Surveys.

Agency Response: The requirements contained in Subtitle F are relative to the jurisdiction of the Illinois Pollution Control Board as established by the Illinois Environmental Protection Act. Reporting requirements to the Illinois EPA are appropriate; however, additional requirements to other Illinois Agencies or Departments are not appropriate as they would not be enforceable. With this said, reporting to the Illinois EPA does not diminish the requirements provided under other statutory provisions for reporting to either Survey.

Comment 24 (604.315(a)(4)(A): Respectfully recommend ... add list of parameters that are to be tested ... for wells ... and for surface water sources. (Guidance is available from the Agency for initial raw water quality parameters for well construction? Raw water quality parameter guidance is needed?)

Agency Response: The contaminant of concern list is part of the current Illinois EPA permitting process. Prior to obtaining a permit to operate a CWS well, the water system must monitor for the contaminant list provided at http://www.epa.illinois.gov/Assets/iepa/forms/water-quality/drinking-water/permits/schedule-c-i-well-construction.pdf . The Agency would anticipate using a similar list were a “new” surface water source to be used by a CWS.

Comment 25 (604.510(f)): Questions: What is meant by the term "superstructure"? What criteria govern the determination whether or not a "superstructure" is required?

Agency Response: Superstructure refers to a roofed in structure. Most flocculation basins are outdoors unless the climate dictates otherwise. The Agency would not require a superstructure unless climate, or other airborne environmental factors dictate otherwise.

Comment 26 (604.515(h): Respectfully recommend revise to read as follows: "(h) Mechanical sludge removal equipment may be used in the sedimentation basins." Or, "(h) Mechanical sludge removal equipment shall be used in sedimentation basins constructed after the date of adoption of this part."

Agency Response: The Agency does not believe that a change to the proposal is necessary. A CWS operating before the effective date of this Part will not be required to modify or replace components to meet the requirements of this Section under the conditions outlined in proposed Section 604.145(a).

Comment 27 (604.520(c)): What criteria will the Agency use in determining that a particular installation will require a separate rapid mix basin?

Agency Response: Solids contact units combine flocculation and sedimentation functions into a single basin. Some units operate with chemical feed directly into the inlet pipe, but a separate rapid mixer may provide better coagulation for turbidity or color removal applications. Typically, the Agency will look at similar existing installations or defer to the judgement of the consulting engineer on the need for an additional mixer.

Comment 28 (604.600(a)): What criteria will the Agency use in determining whether or not a pilot treatment study is to be performed?

Agency Response: Types of filters in widespread use in Illinois will not require pilot studies.

Comment 29 (604.605): This provision limits the filter media depth to 30 inches unless otherwise approved by the Agency pursuant to Section 604.145(b). Section 604.145(b) indicates that the Agency "may" approve ... alternate designs. What criteria will the Agency use for approving filter media depth greater than 30 inches? The 30 in. depth limitation is not objectionable in itself .. . but the necessity for obtaining Agency approval is burdensome and criteria for the Agency's approval are not stated.

Agency Response: The Agency proposes modifying proposed Section 604.605(g)(1) as follows:

1) a total depth of not less than 24 inches; ~~and not more than 30 inches, unless otherwise approved by the Agency pursuant to Section 604.145(b).~~

Comment 30 604.605(i)(5): Respectfully recommend revise to read as follows: a continuously recording Nephelometer capable of measuring and recording filter effluent turbidity at maximum 15 minute intervals, and with an alarm to notify the Operator if filtered water turbidity exceeds 0.3 NTU (Nephelometric Turbidity Units).

Agency Response: The Agency has no objection to this change. The Agency proposes the following revision to proposed Section 604.605(i)(5):

(5) a ~~turbidimeter~~ continuously recording Nephelometer capable of measuring and recording filter effluent turbidity at maximum 15 minute intervals, and with alarm capability to notify the Operator if filtered water turbidity exceeds 0.3 NTU (Nephelometric Turbidity Units);

Comment 31 (604.605(i)(6): Respectfully recommend revise to read as follows: "(6) provide an adjustable valve to allow the Operator to gradually control the flow rate increase when placing each filter back into operation;"

Agency Response: The Agency has no objection to this change. The Agency proposes the following revision to proposed Section 604.605(i)(6):

(6) ~~a flow rate controller capable of providing gradual rate increases~~ provide an adjustable valve to allow the Operator to gradually control the flow rate increase when placing the filters back into operation.

Comment 32 (604.605(j)(7)): Respectfully recommend ... revise to read as follows: "7) An Operator shall be in attendance to initiate the backwash cycle and to control the return-to-service procedure to assure that the effluent turbidity is less titan 0.3 NTU when the filter is placed back into operation for discharge to the clearwell."

Agency Response: The Agency has no objection to this change. The Agency proposes the following revision to proposed Section 604.605(j)(7):

604.605(j)(7) Backwash shall be ~~operator initiated, and automated sytems shall be operator adjustable.~~ completed with an operator in attendance to initiate the backwash cycle and to control the return-to-service procedure to assure that the effluent turbidity is less titan 0.3 NTU when the filter is placed back into operation for discharge to the clearwell.

Comment 33 (604.620): Respectfully recommend revise 6th sentence in first paragraph to read as follows: "…synthetic organic chemicals, oxidation of ammonia-nitrogen, iron and manganese."

Agency Response: The Agency believes the reference is to the second sentence of proposed 604.620. In this case, the use of reduction as opposed to oxidation is equally valid in the context applied. The Agency has no preference to this requested change and defers to the Board.

Comment 34 (604.620(a)(2): Respectfully recommend revise to read as follows: "2) The pilot study shall establish empty bed contact time, surface filtration hydraulic loading rate, substrate loading rate per unit filter media volume, and treatment efficiency for removal or reduction of concentration of parameters targeted for the pilot study."

Agency Response: The Agency concurs with this recommendation and proposes the following change to proposed Section 604.620(a)(2) as follows:

> 2) The pilot study must establish empty bed contact time, surface filtration hydraulic loading rate, substrate loading rate per unit filter media volume, and treatment efficiency for removal or reduction of concentration of parameters targeted for the pilot study ~~biomass loading, and any other parameters required by the Agency~~.

Comment 35 (604.700(b)): This provision prohibits use of chloramines as a primary disinfectant, unless approved by the Agency pursuant to Section 604.145(b). I am aware of at least one surface water treatment plant that does NOT use free chlorine residual in its process and completely relies on chloramine disinfection to achieve required log inactivations for Giardia and viruses. That particular community has chosen this treatment technique to minimize potential formation of DBPs (THM4 and HAAS) and for control of manganese.

If the specific community treatment plant has not had any water quality violations and has a record of attaining required log inactivations for Giardia and viruses, will the Agency approve continued use of chlorarnines? Should the community file a formal request for approval?

Agency Response: CWSs that have received approval for this practice should not have to request additional formal approval.

Comment 36 (604.700(d): Respectfully recommend ... clarify intent? ... to notify the public (particularly hospitals, kidney dialysis facilities, and fish breeders) ... prior to changing the form of chlorine residual or type of disinfectant.

Agency Response: This is an established practice. Water systems notify the Agency and the public of routine changes in chlorination practices to comply with reporting under Part 611 (e.g., Revised Total Coliform Rule reporting).

Comment 37 (604.715(a)): Question: Reference is made to a 0.3 baffling factor. How is the 60 minute minimum contact time to be determined? (Reference to the 0.3 baffling correction factor implies that my Potential Method B is to be used?)

Agency Response: The 60 minute minimum contact time is based upon Curry's referenced "Method A".

Comment 38 (604.720(d)): Respectfully recommend that the Board and Agency consider revising to read as follows: "d) Factors to be considered in determining inactivation include, but are not limited to, pH, temperature, form of disinfectant residual, disinfectant residual concentration, flow rate, volume of basins/piping, and baffling factors. Baffling factor shall be determined in accord with "Improving Clearwell Design for CT Compliance"* or a tracer study approved by the Agency."

"Improving Clearwell Design for CT Compliance, Gil F. Crazes and James P. Hagstrom (Carollo Engineers); Mark M Clark, Joel Ducoste, Catherine Burns (University of Illinois); AWWA Research Foundation, 1999.

Agency Response: The Agency has no objection to this change. The Agency proposes the following revision to proposed Section 604.720(d) and notes that the reference should be incorporated in Section 601.115 for Incorporation by Reference:

(d): Factors to be considered in determining inactivation include, but are not limited to, pH, ~~ammonia concentration,~~ temperature, form of disinfect~~ion~~ant residual, disinfectant residual concentration, flow rate, volume of basin/piping and baffling factors. Baffling factor shall be determined in accord with "Improving Clearwell Design for CT Compliance or a tracer study approved by the Agency. ~~Tracer studies should be performed to determine baffling factors.~~

Comment 39 (604.725): Respectfully recommend consider that this provision take effect 90 days (or a time period acceptable to the Board and Agency) after adoption of 604. It will take some time for Operators throughout the state to become informed of this change and to modify their treatment and operational practices.

Agency Response: The Agency believes that water system will have adequate lead time to become aware of this revised provision. Further, the Agency understands that initiating operational changes will take time and will use discretion in enforcing this provision.

Comment 40 (604.730): If this requirement is adopted "as-is" ... Respectfully recommend consider that this provision take effect 180 days (or a time period acceptable to the Board and Agency) after adoption of 604. It will take some time for Operators throughout the state to become informed of this change and to modify their treatment plant electrical controls and operational practices.

Agency Response: This section only applies to approximately 10 percent of the 1742 CWSs that meet proposed section 604.700(a). The majority of these CWSs already have continuous chlorine analyzers to comply with surface water treatment rule requirements. Most of the systems that have analyzers also have alarm capability, but it is estimated that no systems currently have the ability to automatically shut down the treatment process based upon a low chlorine residual. An analyzer costs approximately $5000. Less than 100 CWSs will need to purchase an analyzer. Whether adding alarm capacity or automatic shut-down of the high service pumps, controls are estimated to be an additional $500 per water plant. Based upon our further discussion of the issue, the Agency proposes requiring alarm capability instead of automatic shut-down controls. This proposal is based upon most applicable systems already having alarm capability. Also, the shut-down controls could involve more than just high service pumps. If water systems decided to include low service and chemical feed pumps, the wiring and control costs would vary greatly and could be expensive.

The Agency proposes modifying proposed Section 604.730 as follows:

CWSs that rely on chlorination for disinfection pursuant to Section 604.700(a) ~~present in the source water~~ must have continuous chlorine residual analyzers ~~and other equipment that automatically shuts down the facility when~~ with alarm capability in case chlorine residuals at the entry point to the distribution system are below the limits established in Section 604.725.

Comment 41 (604.900(a): Respectfully recommend that alkalinity, total hardness, and calcium hardness be expressed equivalent to calcium carbonate (CaCO3). Respectfully recommend that temperature be added as a water quality parameter, especially because it impacts CCPP (Calcium Carbonate Precipitation Potential) and potential for nitrification increases at higher temperature.

Agency Response: The Agency has no objection and proposes the following modification to proposed Section 604.900(a):

a) The following water quality parameters of finished water must be evaluated to ensure that water quality parameters minimize corrosion throughout the distribution system of the community water supply:

1) alkalinity (as $CaCO_3$);

2) total hardness (as $CaCO_3$)~~calcium carbonate hardness~~;

3) calcium hardness (as $CaCO_3$)~~pH~~;

4) temperature~~sulfate~~;

5) pH~~calcium~~;

6) chloride~~total dissolved solids~~;

7) sulfate~~oxidation reduction potential~~;

8) total dissolved solids~~conductivity~~;

9) oxidation reduction potential~~orthophosphate, if applicable~~;

10) conductivity~~chloride~~;

11) iron; ~~and~~

12) manganese~~.~~; and

13) orthophosphate, if applicable.

Comment 42 (604.900(b)): Respectfully recommend revising as follows: Under 3) ... list orthophosphate and sodium silicate as corrosion inhibitors? Under 5 ... list calcium hydroxide, soda ash (sodium carbonate), and sodium bicarbonate as alkali chemicals?

Agency Response: The Agency believes that listing "orthophosphate" is not necessary as it is addressed by the general term "phosphate" and sodium silicate is included (604.900(b)(8)). Again, the Agency believes that the general terminology of alkali chemicals addresses calcium hydroxide. Calcium hydroxide and sodium bicarbonate are listed as 604.900(b)(7) and 604.900(b)(9), respectively. However, if the Board believes additional clarity is warranted, 604.900(b)(5) could modified as follows:
5) ~~alkali chemical~~ calcium hydroxide;

Comment 43 (604.905): Respectfully recommend alter this provision to permit use of proprietary carbonic acid feed systems that can be used for lowering pH of lime softened water before it enters the filters.

Agency Response: The Agency proposes the following alternative language to proposed Section 604.905(a):

a) Unless carbon dioxide addition is provided in the form of a carbonic acid and water solution under pressure, r~~R~~ecarbonation basin design must provide

Comment 44 (604.1010(b)(2)(A): Respectfully recommend revise to read as follows: "A minimum detention time of 30 minutes shall be provided following aeration to insure that the oxidation reactions are complete prior to filtration. This minimum detention time may be modified only where a pilot plant study indicates completion of oxidation reactions in less time. For new treatment plants, the time required for complete oxidation of iron after being aerated should be determined by bench scale pilot studies."

Agency Response: The Agency concurs with this recommendation and proposes the following modification to proposed Section 604.1010(b)(2)(A):

A) A minimum detention time of 30 minutes must be provided following aeration to insure that the oxidation reactions are as complete ~~as possible~~ prior to filtration. This minimum detention time may be ~~omitted~~ modified only where a pilot study indicates ~~no need for detention~~. completion of oxidation reactions in less time.

Comment 45 (604.1010(b)(2)(A): Recommendation for consideration for "iron removal using groundwater source": ... add provision as follows: "When raw water iron and manganese concentration is expected to exceed 10 mg/L, consideration should be given to use of clarification unit or settling basin prior to filtration in order to reduce the solids loading to the filters and minimize potential for excessive water usage for backwashing the filters.

Agency Response: The Agency disagrees with adding this consideration at this time. When permitting treatment facilities this will be a consideration in meeting Section 611.

Comment 46 (604.1020(f)): Respectfully recommend ... eliminate the 0.1 mg/L minimum dosage.

Agency Response: The Agency concurs with this recommendation and proposes the following modification to 604.1020(f):

f) When feeding powdered activated carbon for taste and odor control provisions must be made for adding ~~from 0.1 milligrams per liter to~~ at least 40 milligrams per liter.

Comment 47 (604.1020(g)): Respectfully recommend delete (g) and insert the following requirements taken from the current edition of "l 0-State Standards":

1) **A separate room shall he provided for carbon feed equipment, including a door to allow isolation of the room.**
2) **The separate room shall he as nearly fireproof as possible.**
3) **Other chemicals shall not he stored in the same room as powdered activated carbon.**
4) **Carbon feeder rooms shall be equipped with explosion-proof electrical outlets, lights, and motors.**

Agency Response: The Agency concurs with this recommendation and proposes the following modification to 604.1020(d):

g) Powdered activated carbon must be handled as a potentially combustible material.

1) ~~Other chemicals shall not be stored in the same compartment.~~ A separate room shall he provided for carbon feed equipment, including a door to allow isolation of the room.

2) ~~A~~ The separate room shall be ~~provided for carbon feed installations~~ as nearly fireproof as possible.

3) Other chemicals shall not be stored in the same room as powdered activated carbon.

4) Carbon feeder rooms shall be equipped with explosion-proof electrical outlets, lights and motors.

Comment 48 (604.1010(d)(2)): Respectfully recommend incorporate additional provision contained at 604.910.

Agency Response: For consistency, the Agency concurs that these two sections should be consistent and proposes the following modification to 604.1010(d)(2):
2) Phosphate solution must be kept covered and disinfected by carrying approximately 10 mg/L free chlorine residual unless the phosphate is not able to support bacterial growth and the phosphate is being fed from the covered shipping container. Phosphate solutions having a pH of 2.0 or less may also be exempted from this requirement by the Agency.

Comment 49 (604.1110(b)): Respectfully recommend add after (b):

"The deluge shower and eye/face wash device shall be located in close proximity to the potentially hazardous material. Comply with:

- ***1)*** **OSHA regulations contained at 29 CFR 1910.151.**
- ***2)*** **2) ANSI Z358.l-2014.**
  - ***a.*** **Within 10 seconds walking time from the location of the hazard (approximately 55 ft.).**
  - ***b.*** **Installed on the same floor level as the hazard (i.e. access shall not require going up or down stairs or ramps).**
  - ***c.*** **The path of travel shall be free of obstructions and as straight as possible.**

The water supply for the deluge shower shall comply with:

- ***3)*** **OSHA regulations contained at 29 CFR 1910.151.**
- ***4)*** **4) ANSI Z358.1-2014.**
  - ***a)*** **Water temperature between 60 and 100 deg. F., except in circumstances where a chemical reaction is accelerated bv flushing fluid temperature if determined by consultation with product manufacturer safety advice to determine the optimum water temperature for each application.**

b) Deliver at least 20 gpm for 15 minutes.

The water supply for the eve/face wash device shall comply with: "The water supply for the deluge shower shall comply with:

- ***5)*** **OSHA regulations contained at 29 CFR 1910.151.**
- ***6)*** **6) ANSI Z358.1-2014.**
  - ***a)*** **Water temperature between 60 and 100 deg. F. except in circumstances where a chemical reaction is accelerated by flushing fluid temperature if determined by consultation with product manufacturer safety advice to determine the optimum water temperature for each application.**

b) Deliver at least 3 gpm for 15 minutes."

Agency Response: With proposed Section 604.1110, the Illinois EPA acknowledges the need for workplace safety with a general provision. However, the Agency must defer to the appropriate state and federal agencies who have the proper expertise for the development specific regulations on this matter. For additional background, proper construction and water tempering for deluge showers has been a contentious point between the regulated community, Agency and Illinois Department of Public Health (Department). To avoid confusion, these plumbing appurtenances must be addressed by Department in the Illinois Plumbing Code in a more complete and appropriate fashion.

Comment 50 (604.115(c)(11): I am not aware of any treatment plant in the southern part of Illinois that has provisions for neutralization of chlorine gas. This is not to say that some or all of the plants need to install this type of equipment in order to protect public health.

Question: Is there a certain distance between the chlorine gas storage area and residential or developed areas that the Board and Agency feel should trigger installation of equipment to chemically neutralize chlorine gas?

Respectfully recommend revise to include: Existing systems that do not have provisions for neutralization of chlorine gas, but are required to provide this capability, on the date this part is adopted, shall install equipment for neutralization of chlorine gas within 24 months of the date of adoption of this part.

Agency Response: The Agency does not believe it is necessary to change the effective date of this provision. A CWS operating before the effective date of this Part will not be required to modify or replace components to meet the requirements of this Section under the conditions outlined in Section 604.145(a).

Comment 51 (604.1140(b)(1): Respectfully recommend .. . delete the last sentence ... "Provision should be made for removal of the agitator after dissolving the solid"

Agency Response: Based upon the practical experience of Curry, the Agency concurs with this recommendation and proposes the following modification to proposed Section 604.1140(b)(1):

1) The water solution made by addition of ammonium sulfate solid to water must include agitation. ~~Provision should be made for removal of the agitator after dissolving the solid.~~

Comment 52 (604.1140(b)(3): Respectfully recommend add the following: "(b)(3) the submerged portion of the mixer shaft and propeller shall be made of 304 or 316 stainless steel that is resistant to corrosion by ammonium sulfate solution.

Agency Response: Based upon the practical experience of Curry, the Agency concurs with this recommendation and proposes adding 604.1140(b)(3):

3) The submerged portion of the mixer shaft and propeller shall be made of 304 or 316 stainless steel that is resistant to corrosion by ammonium sulfate solution.

Comment 53 (604.1145): I have been involved with numerous potassium permanganate feed systems that have successfully operated without using heated water for dissolving potassium permanganate. I discussed this proposed requirement with John Boll, an employee for nearly 40 years with Carus Chemical Company at LaSalle-Peru, and he does not feel that it is necessary to have a heated water source.

From my experience, if potassium permanganate is batched at solution strength compatible with the solubility at the temperature of water being used, and taking into account the temperature in the feed line environment, the potassium permanganate remains in solution (dissolved). It my experience that 1 to 3% solution strength is suitable/or most applications, with higher solution strength permissible during summer months.

From my experience, clogging problems have occurred in the feed piping because:
1) The amount of permanganate added exceeded the solubility limits based on temperature of the water being used.
2) "free-flowing" grade was used instead of "technical grade", and the "free flowing" grade is meant for use with gravimetric feeders... and is coated with a hydroxide-type coating that causes localized elevation of pH resulting in precipitation of calcium carbonate that "clogs" the piping system.

Questions: As **now written, this section appears to be applicable only to-batched solutions fed from day tanks? Does this section take into account that many (larger) treatment plants feed potassium permanganate with gravimetric (dry) feeders?**

Agency Response: The Agency concurs with this recommendation and proposes modifying proposed Section 604.1145 as follows:

Section 604.1145 Potassium Permanganate

Potassium permanganate may be fed with gravimetric feeders or from batched solutions fed from day tanks. For batched solutions:

a) the potassium permanganate added cannot exceed the solubility limits based upon temperature; and~~A source of heated water should be available for dissolving potassium permanganate.~~

b) mechanical mixers shall be provided.

Comment 54 (604.1150(c)(1)): Respectfully recommend revise (c)(l) to read as follows: "1) Fluoride compound shall not be added prior to filters at plants that lime soften and/or coagulate for turbidity removal, and shall not be added prior to ion exchange softeners."

Agency Response: The Agency concurs with this recommendation and proposes modifying proposed Section 604.1150(c)(1) as follows:

1) Fluoride compound shall not be added prior to filters at plants that lime soften or coagulate for turbidity removal, and shall not be added prior to ~~before lime-soda softening or~~ ion exchange softening.

Comment 55 (604.1225(c)(1)(C)): Respectfully recommend delete (C) ... a meter for measuring flow rate for each individual pump.

Agency Response: The Agency declines this recommendation. Section 604.145(a) will not require modification to existing water systems provided the provisions of this Section are met.

Comment 56 (604.1225(e)(1)(C)): Respectfully recommend delete (3) requiring that electrical controls be located above grade.

If this provision is adopted, a large number of community systems would be in violation, and considerable expense would be incurred to modify the controls for existing underground pump stations. If this provision must be adopted by the Board, respectfully recommend that it not take effect for 24 months to allow communities ample time to obtain funding for modifications to existing control systems for existing underground pump stations.

Agency Response: The Agency disagrees with this recommendation. The Agency does not believe it is necessary to change the effective date of this provision. A CWS operating before the effective date of this Part will not be required to modify or replace components to meet the requirements of this Part under the conditions outlined in proposed Section 604.145(a).

Comment 57 (604.1440(a)(1)): What is the definition of "existing or proposed drain"? Respectfully recommend revise to incorporate the following: The ten ft. horizontal separation is not required between water mains and open-ended culvert pipes intermittently conveying storm water runoff in response to precipitation events, and interconnected with open ditches upstream and downstream.

Agency Response: The Agency does not believe that this modification is necessary. The information indicated by Curry acknowledges current practice and exclusion of sanitary separation for culverts and ditches. The Water Dictionary (incorporated by reference) defines drain as “A pipe, conduit, or receptacle in a building that carries liquids by gravity to waste.”

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 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 1, 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 20 page PDF document in an e-mail transmission on or before 5:00 pm on November 1, 2017.

By:/s/Rex L. Gradeless

THIS FILING IS SUBMITTED ELECTRONICALLY AND SERVED ON RECYCLED PAPER

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