

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 electronically filed today with the Illinois Pollution Control Board Illinois EPA's PRE-FILED TESTIMONY OF DAVID C. COOK for the above captioned rulemaking, a copy of which is herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/Joanne M. Olson
Joanne M. Olson
Assistant Counsel
Division of Legal Counsel

DATED: August 31, 2017

Joanne M. Olson #6293500
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THIS FILING IS SUBMITTED ON RECYCLED PAPER

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TESTIMONY OF DAVID C. COOK

My name is David Cook. I began my current role as Acting Permit Section Manager of the Division of Public Water Supplies at the Illinois Environmental Protection Agency (Agency or Illinois EPA) in January of 2012. I am also the Springfield Regional Manager for the Division of Public Water Supplies' Field Operation Section, a position that I've held since June of 2002. I supervise a total of seven environmental engineers and a geographical information systems specialist. Staff in the Permit Section review and approval or deny permit applications for changes to community water supplies. My staff assess the technical, managerial and financial capacity of water supplies. Also, technical support is provided for Compliance Assurance, Field Operations, and Infrastructure Financial Assistance Sections. Staff of the Field Operations Section conduct periodic engineering evaluations of each community water supply, provide technical assistance to the certified water operators, and respond to citizen complaints.

My advancement to my current positions began in 1989 when I graduated from the University of Illinois with a degree in Mechanical Engineering. I've spent my entire professional career in the Division of Public Water Supplies. I first started as an engineer in the Permit Section in 1990. In 2002, I became the Springfield Regional Manager. In 2012, I took on the additional duties of the Permit Section Manager. My curriculum vita is attached.

The Agency has been working for several years on regulatory updates for submission of permit applications and on the design, operation and maintenance criteria for community water supplies. The first part of this work was completed in 2015 with the revisions to permitting requirements in Part 602. This phase includes the proposed Part 604 for the design standards for obtaining construction permits. The proposed Part 604 will also contain operation and maintenance criteria required in Illinois. These criteria are in addition to the Safe Drinking Water Act requirements found in Part 611. Part 604 will consolidate existing criteria from Part 611, Part 653, Part 654 and the 2012 edition of the Recommended Standards for Water Works that is incorporated by reference. The Illinois EPA believes that these actions will reduce confusion by having the design criteria in one location.

These updates to Parts 601 and 602 and the new Part 604 will allow for the repeal of Parts 607, 651, 653, 654, section 602.115 and some sections in Part 611.

The purpose of my testimony is to support Part 604 Subpart B: Source Development, Subpart E: Clarification, Subpart F: Filtration, Subpart G: Disinfection, Subpart I: Stabilization, and Subpart K: Chemical Application. Included with my testimony for Part 604 Subpart I is an explanation of the corrosion control permit requirements. Additions to Section 602.245 and Section 602.250 reflect permit requirements for corrosion control when a community water supply proposes a change in source or treatment. Finally, my testimony will include support for a change to the sampling method for verification of adequate disinfection to obtain an operating permit in Section 602.310.

Part 604 Subpart B is primarily made up of existing requirements from Part 654 and part 3 of the Recommended Standards for Water Works. The best available source requirement in proposed Section 604.200(a) is being moved from Section 611.231(c), so that the source water

requirements are in the same subpart. Section 604.200(e) is a re-write of section 654.101, which has not been updated since 1984 and does not reference part 611 finished water quality requirements. The auxiliary treatment standard for waters containing coliform bacteria has been changed from a total coliform count of 5,000 per 100 mL to a fecal coliform count of 2,000 per 100 mL to match a Subtitle C Water Pollution Control standard in Section 302.306.

In Section 604.205(b), the surplus quantity requirement was changed from a “reasonable” surplus per the Recommended Standards for Water Works to a 20 percent surplus. The 20 percent was chosen, because this matches the criteria for keeping water supplies off the critical review list in Part 602.

Since Part 654 has not been updated since 1984, the proposed regulations have been modified to recognize that alternative filtration technologies, such as membranes, can be allowed instead of conventional filtration. A definition for conventional filtration has been added to Part 601. Also, the groundwater under the direct influence of surface water classification found in Part 611 has been added to the Part 604 Subpart B source water requirements.

Illinois EPA has allowed community water supplies to operate with a single well and no emergency interconnection with another water supply, if that is the way that the community water supply was constructed decades ago. This can lead to potential health concerns including not having a water source for several days or longer, if the well is out of service. Proposed Section 604.230(c) attempts to correct this concern over time by requiring a second source when significant upgrades to the water supply are made. For some time, Illinois EPA has worked with communities to build multiple well for new community water supply systems based upon section 3.2.1.1 of the Recommended Standards for Water Works.

Part 604 Subpart E contains the clarification requirements for surface water systems and groundwater under the direct influence of surface water systems that utilize conventional filtration. This subpart also applies to groundwater systems that have lime softening treatment. Generally, the requirements in this subpart are the same as found in section 4.2 of the Recommended Standards for Water Works.

Minimum detention times for helical flow, solids contact units have been added to proposed Section 604.520(g). There is not a corresponding requirement in the Recommended Standards for Water Works. The detention times are based upon the performance and design of dozens of helical flow, solids contact units operating in Illinois.

The weir loading rates for helical flow, solids contact units have been added to proposed Section 604.520(i)(2). There is not a corresponding requirement in the Recommended Standards for Water Works. The weir loading rates are based upon the performance and design of dozens of helical flow, solids contact units operating in Illinois.

Part 604 Subpart F contains filtration requirements for surface water, groundwater under the direct influence of surface water, and groundwater systems. Generally, the requirements in this subpart are the same as found in section 4.3 of the Recommended Standards for Water Works.

The filter loading rates for surface water, groundwater under the direct influence of surface water systems, and groundwater with lime softening treatment in proposed Section 604.605(b) are the same as current loading rates in Section 653.116. Since these filters must have continuous turbidity monitoring and surface wash, the loading rate of 2 gal/min/sq. ft. has been removed from the proposed regulation for filters without these appurtenances. The loading rate for filters for groundwater systems without lime softening is limited to 4 gal/min/sq. ft. per proposed Section 604.605(c), because these units may be enclosed pressure filters. For clarity, the maximum loading

rate for gravity filters and pressure filters for groundwater systems is kept the same. See proposed Section 604.610. Pressure filters are limited to 4 gal/min./sq. ft. per section 4.3.2.2 of the Recommended Standards for Water Works, unless a pilot study demonstrates satisfactory results at a higher rate. Proposed Section 604.145(b) allows community water supplies to use pilot studies when compliance with Part 604 is economically unreasonable or technically impossible. Only a few groundwater systems in Illinois are permitted to operate at filtration rates above 4 gal/min/sq. ft.

The requirements for diatomaceous earth filtration, slow sand filters, and direct filtration in the Recommended Standards for Water Works were not included in Part 604, because community water supplies in Illinois do not utilize any of these filtration technologies. The Illinois EPA does not anticipate that any community water supplies will request a permit for these types of filters.

Part 604 Subpart G contains disinfection requirements for all water system classifications. Generally, these are the same as found in Part 653 and section 4.4 of the Recommended Standards for Water Works.

The proposed Section 604.700 differentiates between disinfection for inactivation of pathogens and maintaining a chlorine residual in the distribution system. Inactivation of pathogens is necessary to satisfy requirements found in Section 611.220 for *Giardia lamblia* and viruses, Part 611 Subpart Z for cryptosporidium, and Section 611.800 for coliform contaminated groundwater. In addition, the 60-minute contact time requirement currently in Section 653.603 for all surface water supplies and for groundwater supplies with open basins or utilizing creviced rock aquifers has been retained. Community water supplies, where applicable, must meet both the inactivation requirements and the 60-minute contact time requirement. Maintenance of a chlorine residual in

the distribution system is necessary as an indicator to show the absence of cross-connections, absence of significant biofilm growth, and to prevent the possibility of legionella bacteria growing in premise plumbing.

Section 611.220 has requirements for the removal and inactivation of giardia and viruses, but does not specify how much credit is given for removal through the treatment process and how much inactivation is needed for the disinfection process. Proposed Section 604.720 was added to clarify the minimum amounts of inactivation necessary for disinfection, if applicable. Also, in keeping with a multi-barrier approach, this section includes a requirement for groundwater systems with a 4-log inactivation requirement for viruses to have at least two methods for treatment.

The proposed Section 604.725 increases the minimum chlorine residual required in distribution system. The current regulation is found at Section 653.604. Water operators testing for free chlorine near the current minimum chlorine residual often detect a slight residual due to interferences with manganese and chloramines when perhaps there is not any free chlorine residual. Increasing the minimum chlorine residual will eliminate this problem and provide for greater health protection.

Proposed Section 604.730 expands on an existing requirement from the Safe Drinking Water Act found in Section 611.242. The Safe Drinking Water Act requires that surface water supplies and groundwater under the direct influence of surface water supplies continuously monitor for chlorine at the entry point to the distribution system. This revision adds some groundwater systems to the monitoring requirement. In addition, all supplies with continuous chlorine analyzers must now have the ability to automatically shut down the flow of water to the distribution system when required minimum chlorine residuals are not met.

Part 604 Subpart I contains requirements for the evaluation of water stability to minimize metal corrosion in distribution water mains and premise plumbing. Generally, these are the same as found in section 4.9 of the Recommended Standards for Water Works. There is a greater emphasis placed on corrosion control since the events that happened in Flint, Michigan several years ago, when the City of Flint changed water sources without any corrosion control treatment. This resulted in elevated lead concentrations in consumer taps due to metal release from lead service lines.

A November 3, 2015 memorandum from Peter Grevatt, Director of US EPA's Office of Ground Water and Drinking Water recommends that all water supplies consult with the primacy agency before any changes in source or treatment. The Illinois EPA currently includes as a part of the application form a Schedule D – Water Stability and Corrosion Control form that must be submitted with permit applications involving a change in source or treatment. The permit requirement to evaluate treatment necessary to reduce corrosion is being added in Section 602.245 for source water permit applications and Section 602.250 for permit applications involving treatment changes. These source and treatment changes are tracked in a spreadsheet. Upon issuance of an operating permit, lead and copper monitoring is increased for 18 months before a water supply is eligible again for reduced monitoring.

Any community water supply that exceeds a lead or copper action level must follow the requirements in the Lead and Copper Rule and US EPA's *Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Supplies* guidance manual, dated March 2016.

Part 604 Subpart K contains requirements for chemical application. Generally, these are the same as found in part 5 of the Recommended Standards for Water Works.

Part 602 was amended effective April 15, 2016. This was a significant update for the permit requirements for community water supplies that included the repeal of most of Part 652. With this proposed rulemaking, there are a few additional changes to Part 602. One of the changes is to Section 602.310. Illinois has required for decades that satisfactory disinfection be demonstrated by sampling using the membrane filter technique or the presumptive test, fermentation tube method. The test results must show the absence of any bacterial growth. Illinois may be only state left with this requirement. The industry standard has been for many years to verify disinfection based upon the absence of coliform bacteria using one of the many approved methods for the Total Coliform Rule and the Revised Total Coliform Rule. This is reflected in the American Water Works Association (AWWA) disinfection standards – AWWA C651, C652, C653 and C654. Also, changing the bacteria sampling requirement for new construction samples will eliminate the confusion that exists due to the different requirements between routine monitoring, new construction sampling, boil orders, and repair activities.

I thank the Board for allowing me to file testimony in this matter. I will supplement the testimony as needed during the hearing, and I am happy to address any questions.

Respectfully submitted,

By: /s/David C. Cook

David C. Cook, P.E.
Acting Manager, Permit Section
Division of Public Water Supplies

DATED: August 31, 2017

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August 22, 2017

CURRICULUM VITAE OF DAVID C. COOK

I. Education and Professional Registration

- 2012 to Present Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, Water Committee Representative
- 2002 to Present Licensed Professional Engineer (Illinois License No. 62-055584)
- 1990 to Present Continuing Education: various American Water Works Association conferences and webinars, Illinois Potable Water Supply Operators Association conferences, other governmental webinars, and DHS National Incident Management System training
- 1985 to 1989 Bachelor of Science in Mechanical Engineering – University of Illinois

II. Summary of Experience

Approximately twenty-seven years of experience working as an environmental engineer at the Illinois Environmental Protection Agency including progressive responsibility with state and federal rule implementation, permitting of community water supply improvements, and performing engineering evaluations of community water supplies. Currently serves as Acting Manager of the Division of Public Water Supplies' Permit Section and Springfield Regional Manager within the Field Operations Section.

III. Chronological Experience

- 1/12 to Present **ACTING MANAGER, PERMIT SECTION, DIVISION OF PUBLIC WATER SUPPLIES**
Manages the activities of the Permit Section and recommends policies and procedures involving advanced technical expertise; supervises a staff comprised of environmental engineers responsible for the statewide issuance of permits, and provides technical support for the compliance assurance, field operations, and drinking water state revolving loan program.
- 6/02 to Present **MANAGER, SPRINGFIELD REGIONAL OFFICE, FIELD OPERATIONS SECTION, DIVISION OF PUBLIC WATER SUPPLIES**
Directs, coordinates and reviews the activities of subordinate staff responsible for conducting highly technical and detailed evaluations of community water supplies; effectively communicates report findings and DPWS programs requirements to the owners, operators and official custodians; supervises staff responding to consumer and press inquiries and complaints; directs technical assistance to community water supplies in the Springfield Regional Office area of the state; assists owners, operators and official custodians in resolving emergencies and problem situations.

2/93 to 5/02

ENVIRONMENTAL PROTECTION ENGINEER III

Under direction of the Manager, Permit Section, Division of Public Water Supplies, Bureau of Water performed office engineering relating to the design, construction, location, or maintenance of public water supplies; provided interpretation of division regulations and policy to consulting engineers, water supply officials, and the general public; reviewed detailed plan documents for the construction and/or modification of public water supplies; prepared technical review letters specific to construction permit applications; met with engineering firms in the review of plan documents when required; reviewed and, if satisfactory, prepared sludge land application permits; and responded to general correspondence and telephone calls concerning Permit Section activities.

7/91 to 2/93

ENVIRONMENTAL PROTECTION ENGINEER II

Under direct supervision of the Manager, Permit Section, Division of Public Water Supplies, Bureau of Water, reviewed routine plans and specifications for water main extensions and other public water supply improvements; prepared technical review letters specific to construction permit applications; and responded to general correspondence and telephone calls concerning Permit Section activities.

2/90 to 7/91

ENVIRONMENTAL PROTECTION ENGINEER I

Under direct supervision of the Manager, Permit Section, Division of Public Water Supplies, Bureau of Water, reviewed routine plans and specifications for water main extensions and other public water supply improvements; prepared technical review letters specific to construction permit applications; and responded to general correspondence and telephone calls concerning Permit Section activities.

CERTIFICATE OF SERVICE

Joanne M. Olson, Assistant Counsel for the Illinois EPA, herein certifies that she has served a copy of the foregoing NOTICE OF FILING, and PRE-FILED TESTIMONY OF DAVID C. COOK, 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 August 31, 2017, or by sending an email from my email account (joanne.olson@illinois.gov) to the email addresses designated below with the following attached as a 13 page PDF document in an e-mail transmission on or before 5:00 pm on August 31, 2017.

By: /s/Joanne M. Olson

THIS FILING IS SUBMITTED ELECTRONICALLY AND SERVED ON RECYCLED PAPER

SERVICE LIST

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