Plumbing Board
c/o Department of Labor and Industry
443 Lafayette Road North
St. Paul, MN 55155-4344
www.dli.mn.gov

PRINT IN INK or TYPE

Plumbing Board
Request for Action

NAME OF SUBMITTER	**PURPOSE OF REQUEST** (check all that apply): ☐ New Code
Anita Anderson	X Code Amendment ☐ Repeal of an existing Rule

The Minnesota Plumbing Code (MN Rules, Chapter 4714) is available at http://www.dli.mn.gov/CCLD/PlumbingCode.asp.

Specify the purpose of the proposal: (If recommendation for code change for fixture, appurtenance, material, or method, check all that apply)

☐ Appurtenance (e.g., water conditioning equipment) ☐ Test Method

X Other (describe) Update Minimum Water Quality for Nonpotable Rainwater Catchment Systems

Does your submission contain a Trade Secret? ☐ Yes X No

If Yes, mark **"TRADE SECRET"** prominently on each page of your submission that you believe contains trade secret information. Minnesota Statutes, section 13.37, subdivision 1(b), defines "trade secret" as follows:

> "Trade secret information" means government data, including a formula, pattern, compilation, program, device, method, technique or process (1) that was supplied by the affected individual or organization, (2) that is the subject of efforts by the individual or organization that are reasonable under the circumstances to maintain its secrecy, and (3) that derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

Note that, although "trade secret" information is generally not public, the Board and its committees may disclose "trade secret" information at a public meeting of the Board or committee if reasonably necessary for the Board or committee to conduct the business or agenda item before it (such as your request.) The record of the meeting will be public.

Describe the proposed change. The Minnesota Plumbing Code (Minnesota Rules Chapter 4714) is available via the World Wide Web at http://www.revisor.leg.state.mn.us/arule/4714/

NOTE:

- Please review the Minnesota Plumbing Code and include all parts of the Code that require revision to accomplish your purpose.
- The proposed change, including suggested rule language, should be *specific*. If modifying existing rule language, underline new words and ~~strike through deleted words~~. Please list all areas of the Minnesota Plumbing Code that would be affected.

Office Use Only

RFA File No.	Date Received by DLI	Dated Received by Committee	Date Forwarded to Board
PB0124	3.21.2019		
Title of RFA	By:		

Committee Recommendation to the Board: ☐ Accept ☐ Reject ☐ Abstain

Board approved as submitted: ☐ Yes ☐ No Board approved as modified: ☐ Yes ☐ No

This material can be made available in different forms, such as large print, Braille or audio. To request, call 1-800-342-5354.

The proposed change is to section 4714.1702, Table 1702.9.4:

TABLE 1702.9.4	
Measure	**Limit**
~~Turbidity~~	~~<1~~
E. coli (MPN/100 mL)	2.2
Odor	Non-offensive
Temperature (degrees Celsius)	MR
Color	MR
pH	MR
MR = measure and record only Treatment: ~~5~~ 100 micron or smaller ~~absolute~~ filter Minimum 3.5 ~~.5~~ log ~~inactivation~~ reduction of ~~viruses~~ bacteria	

Need and Reasons For the Change. Thoroughly explain the need and why you believe it is reasonable to make this change. During a rulemaking process, the need and reasonableness of all proposed rule changes must be justified; therefore, a detailed explanation is necessary to ensure the Board thoroughly considers all aspects of the proposal.

The water quality requirements that were included in the 2015 code revision were based on the best available information at the time. There is now new information on recommended treatment for rainwater harvesting in the report titled "Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems" (see attached table), and we therefore recommend the change to require 3.5 log reduction of bacteria instead of 0.5 log inactivation of viruses. The word reduction is used because bacteria could be removed or inactivated.

The log reduction requirement can be met by several different technologies, offering flexibility of design. The system designer should choose the appropriate technology for the installation. Verification of meeting the log reduction requirement is done by checking a surrogate parameter such as chlorine residual or turbidity as appropriate. Not every technology requires turbidity <1 NTU, and so this requirement was removed.

The change to a maximum filter size of 100 micron is consistent with the UPC 2018, while considering that the roof water quality and/or the technology chosen to achieve 3.5 log reduction of bacteria at a given installation may require a smaller filter.

If your product/method standard(s) is not currently listed in both national codes, your Request For Action will not be considered by the Board or its committees, however, you are welcome to present at any Board meeting during the Open Forum section of the Agenda.

The proposal must be accompanied by copies of any published standards, the results of testing, and copies of any product listings, as documentation of the health, sanitation and safety performance of any materials, methods, fixtures, and/or appurtenances. If none are available, please explain:

Please attach electronic scanned copies of any literature, standards and product approvals or listings. Printed or copyrighted materials, ***along with written permission from the publisher to distribute the materials at meetings***, should be sent to the Plumbing Board, c/o Department of Labor and Industry, 443 Lafayette Road No., St. Paul, MN 55155-4344.

Primary reason for change: (check only one)

- X Protect public, health, safety, welfare, or security
- ☐ Lower construction costs
- ☐ Encourage new methods and materials
- ☐ Change made at national level
- ☐ Other (describe) _____
- ☐ Mandated by legislature
- ☐ Provide uniform application
- ☐ Clarify provisions
- ☐ Situation unique to Minnesota

Anticipated benefits: (check all that apply)

- ☐ Save lives/reduce injuries
- ☐ Improve uniform application
- X Improve health of indoor environment
- X Provide more construction alternatives
- ☐ Reduce regulation
- ☐ Other (describe) _____
- ☐ Provide more affordable construction
- ☐ Provide building property
- ☐ Drinking water quality protection
- ☐ Decrease cost of enforcement

Economic impact: (explain all answers marked "yes")

1. Does the proposed change increase or decrease the cost of enforcement? ☐ Yes X No If yes, explain

2. Does the proposed change increase or decrease the cost of compliance? ☐ Yes X No If yes, explain
Include the estimated cost increase or decrease, and who will bear the cost increase or experience the cost decrease:

3. Are there less costly or intrusive methods to achieve the proposed change? ☐ Yes X No If yes, explain

4. Were alternative methods considered? X Yes ☐ No If no, why not? If yes, explain what alternative methods were considered and why they were rejected.

Table 1602.9.6 Minimum Water Quality in the 2018 UPC is not risk-based and therefore may not be protective of public health.

5. If there is a fiscal impact, try to explain any benefit that will offset the cost of the change. If there is no impact, mark "N/A." N/A

6. Provide a description of the classes of persons affected by a proposed change, who will bear the cost, and who will benefit. The public will benefit by having safe and sustainable rainwater catchment systems in place. System installers will have more options to meet the minimum water quality requirements.

7. Does the proposed rule affect farming operations? (Agricultural buildings are exempt from the Minnesota Building Code under Minnesota Statutes, Section 326B.121.) ☐ Yes X No If yes, explain

Are there any existing Federal Standards? ☐ Yes X No If yes, list:

Are there any differences between the proposed change and existing federal regulations?
☐ Yes ☐ No X Not applicable ☐ Unknown
If yes, describe each difference & explain why each difference is needed & reasonable.

Minnesota Statutes, section 14.127, requires the Board to determine if the cost of complying with proposed rule changes in the first year after the changes take effect will exceed $25,000 for any small business or small city. A small business is defined as a business (either for profit or nonprofit) with less than 50 full-time employees and a small city is defined as a city with less than ten full-time employees.

During the first year after the proposed changes go into effect, will it cost more than $25,000 for any small business or small city of comply with the change? ☐ Yes X No If yes, identify by name the small business(es or small city(ies).

Will this proposed plumbing code amendment require any local government to adopt or amend an ordinance or other regulation in order to comply with the proposed plumbing code amendment? ☐ Yes X No, If yes, identify by name the government(s) and ordinances(s) that will need to be amended in order to comply with the proposed plumbing code amendment.

Additional supporting documentation may also be attached to this form. Are there any additional comments you feel the Committee/Board may need to consider? If so, please state them here:

Information will also soon be forthcoming from a research project aimed at obtaining Minnesota data for harvested rainwater and it is possible this recommendation may change by the time of actual rulemaking.

There is an interagency workgroup working to advance safe and sustainable reuse in Minnesota and we recommend the plumbing board read the report which is available at https://www.health.state.mn.us/communities/environment/water/docs/cwf/2018report.pdf. It is not recommended to adopt the 2018 UPC Chapter 15 on Alternate Water Sources for Nonpotable Applications until some of the management structure discussed in the report is established in Minnesota.

Information regarding submitting this form:

- Submissions are received and heard by the Committee on an "as received" basis. **Any missing documentation will delay the process, and your proposal will be listed as the date it was received "Complete."**
- **Submit any supporting documentation to be considered,** such as manufacturer's literature, approvals by other states, and engineering data electronically to DLI.CCLDBOARDS@state.mn.us. Once your Request For Action form has been received, it will be assigned a file number. Please reference this file number on any correspondence and supplemental submissions.
- **For copyrighted materials that must be purchased from publishers, such as published standards, product approvals or testing data, listings by agencies (IAPMO, ASSE, ASTM, etc.,) you may send just 2 copies, *along with written permission from the publisher to distribute the materials at meetings*, via U.S. Mail to: Plumbing Board, c/o Department of Labor and Industry, 443 Lafayette Road No., St. Paul, MN 55155-4344.**
- **For materials that must be submitted by U.S. Mail, please include a copy of your "Request For Action" form originally submitted and reference your assigned RFA file number.**

Information for presentation to the Committee and/or Board:

- Limit presentations to 5 minutes or less.
- Be prepared to answer questions regarding the proposal and any documentation.

Information regarding Committee and/or Board function:

- The Plumbing Board or designated committee.

I understand that any committee action is a recommendation to the Plumbing Board and is not to be considered final action.

SUBMITTED BY NAME	FIRM NAME	SUBMITTER'S E-MAIL ADDRESS
Anita Anderson	Minnesota Department of Health	Anita.c.Anderson@state.mn.us

NAME, PHONE NUMBER & E-MAIL ADDRESS OF PRESENTER TO THE COMMITTEE (if different):

Nancy Rice 651-201-4923 nancy.rice@state.mn.us

ADDRESS	CITY	STATE	ZIP CODE
11 E. Superior Street, Suite 290	Duluth	MN	55802

PHONE	SIGNATURE (original or electronic)	DATE
218-302-6143	Anita Anderson	3/20/19

For Assistance or questions on completing this form, contact Cathy Tran, Department of Labor and Industry at 651-284-5898.

For Office/Committee Use Only Proposal received completed? ☐ Yes ☐ No

Date Proposer notified of gaps:	Mode of notification (e.g., e-mail)	Date returned to Proposer:	Date materials re-received:

Table 3-3: Ninety-Fifth Percentile Log_{10} Pathogen Reductions Targets (LRT_{95}) to Meet 10^{-4} (infection) or 10^{-2} (infection) ppy Benchmarks for Healthy Adults[a]

Water Use Scenario	Log_{10} Reduction Targets for 10^{-4} (10^{-2}) Per Person Per Year Benchmarks[b,l]		
	Enteric Viruses[c]	Parasitic Protozoa[d]	Enteric Bacteria[e]
Domestic Wastewater or Blackwater			
Unrestricted irrigation	8.0 (6.0)	7.0 (5.0)	6.0 (4.0)
Indoor use[f]	8.5 (6.5)	7.0 (5.0)	6.0 (4.0)
Graywater			
Unrestricted irrigation	5.5 (3.5)	4.5 (2.5)	3.5 (1.5)
Indoor use[g]	6.0 (4.0)	4.5 (2.5)	3.5 (1.5)
Stormwater (10^{-1} Dilution)			
Unrestricted irrigation	5.0 (3.0)	4.5 (2.5)	4.0 (2.0)
Indoor use	5.5 (3.5)	5.5 (3.5)	5.0 (3.0)
Stormwater (10^{-3} Dilution)			
Unrestricted irrigation	3.0 (1.0)	2.5 (0.5)	2.0 (0.0)
Indoor use	3.5 (1.5)	3.5 (1.5)	3.0 (1.0)
Roof Runoff Water[h]			
Unrestricted irrigation	Not applicable	No data	3.5 (1.5)
Indoor use	Not applicable	No data	3.5 (1.5)

[a] Water-based pathogens that may grow post-treatment, such as *Legionella pneumophila*, are addressed by best management practices described in Chapter 7.

[b] Log_{10} Reduction Targets (LRT_{95}) were rounded to the highest 0.5 unit, given probable errors in estimating performance in field experiments. See Schoen et al. (2017) for individual reference pathogen LRT estimates.

[c] Fractional Poisson model was used for Norovirus and compared with Rotavirus or Adenovirus (Schoen et al., 2017) to reach the LRT.

[d] Fractional Poisson model was used for *Cryptosporidium* oocysts and compared with *Giardia* cysts (Schoen et al., 2017) to reach the LRT.

[e] *Campylobacter* and *Salmonella* dose-response models (Schoen et al., 2017) used to select the LRT.

[f] Assumes 10% of the population is exposed to a cross-connection event lasting one day per year.

[g] Based on 1,000 people contributing pathogens to graywater; estimates for fewer numbers of people given in Jahne et al. (2016).

[h] Calculated using the Animal Feces Approach, with seagulls as the selected animal and fecal indicator density in stored Australian rainwater (Chapman et al., 2008).

[i] The calculated LRTs must be achieved 100% of the time so that the health benchmark is met 95% of the time.