Meeting Minutes: 2024 UPC ad hoc Chapter 15 Rulemaking Committee of the Plumbing Board

Date: Jan. 6, 2026

Time: 9:00 a.m.

Minutes by: Lyndy Logan

Location: DLI, 443 Lafayette Rd. No., St. Paul, MN 55155

Committee Members

1. Karl Abrahamson (Committee Secretary)
2. Jonathan Lemke
3. Rick Wahlen (Chair)
4. Mike Westemeier (DLI CO's Designee)

Committee Members Absent

None

DLI Staff & Visitors

Paul Enger (DLI) – WebEx
Ken McGurran (Board Counsel, DLI)
Lyndy Logan (DLI)

DLI Staff & Visitors continued…

Sean Callanan (DLI)
Thomas Eisert (DLI) – WebEx
Steve Neubel (DLI)
Anita Anderson (Dept. of Health)
Jason Bethke (City of Blaine) – WebEx
Kent Erickson (Plumbing Board) – WebEx
Nick Erickson (Housing First)
John Galt (MDH) – WebEx
Lucas Hoffman (MDH) – WebEx
Nancy Rice (MDH) – WebEx
Brian Soderholm (Water Control Inc.) – WebEx
Scott Thompson (My Plumbing Training) – WebEx

1. Call to Order

A. Chair Wahlen called the meeting to order at 9:02 a.m., and a roll call was taken. A quorum was declared with 4 of 4 Committee members present in person.
B. Announcements/Introductions
   - Everyone present in person and remotely can hear all discussions.
   - All votes will be taken by roll call if any member is attending remotely.
   - All handouts and WebEx instructions are posted on the Committee's website.
   - Correspondence was received from the Freshwater Society expressing their support for adopting the Plumbing Code modifications to permit the use of non-potable water.

2. Approval of meeting agenda

A motion was made by Lemke, seconded by Westemeier, to approve the agenda as presented. The vote was unanimous, with 4 votes in favor; the motion carried.

3. Approval of previous meeting minutes

A motion was made by Abrahamson, seconded by Westemeier, to approve the Nov. 5, 2025, draft minutes, with formatting corrections to Table 1501.7. The vote was unanimous, with 4 votes in favor; the motion carried.

4. Regular Business

Wahlen's expense report was approved; Lemke is not collecting.

5. Special Business

- **RFA PB0215 – Anita Anderson & Tannie Eshenaur, MDH, Sections 1501.5, 1501.6, 1501.7, 1503.0 to 1504.11, 1505.0 to 1505.14, 1506.0 to 1506.13 – Rec'd 9.23.2025.**

  Proposed Change #9:

  The Committee agreed to accept Proposed Change #9 as presented.

  - **1501.11 Operator Qualifications and Duties.** The alternate water system owner must directly employ or maintain a service contract with a qualified operator who will be in charge of the daily and ongoing operations and maintenance of the alternate water source system.
  - **Need/Reason for Proposed Change #9:** The operator of an alternate water source system needs to be knowledgeable about pumps, storage, treatment, public health requirements and overall operations. Operator training and certification programs have been developed at the national level and could be used directly or adapted for Minnesota.

  Proposed Change #10:

  The Committee agreed to accept Proposed Change #10 as revised below.

  - **1502.3 Annual Cross-Connection and Water Quality Inspection and Testing.** An initial and subsequent annual inspection and test shall be performed on both the potable and alternate water source systems. The potable and alternate water source system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1502.3.1 through Section 1502.3.4. An initial and subsequent annual inspection and test shall be performed to determine compliance with the log reduction targets for pathogens and applicable water quality limits in accordance with Section 1502.3.5.
  - **1502.3.5 Water Quality Inspection.** A property served by on-site treated nonpotable water is subject to inspection by the Authority Having Jurisdiction and**/or** the commissioner of health. An inspection to verify compliance with the log reduction targets for pathogens and applicable water quality limits must be conducted a minimum of annually by the Authority Having Jurisdiction or the commissioner of health.
  - **Need/Reason for Proposed Change #10:** In addition to an annual cross-connection test, an annual inspection to verify water quality requirements are met will help ensure public health is protected over the life of the system. Any operator questions can be answered, and ideally

information can also be gathered as to what is working or not working about the system. This information can be shared to help other implementers.

Proposed Change #11:

- **The Committee agreed to accept Proposed Change #11 as presented.**
- **1502.5 Abandonment.** Alternate water source systems that are no longer in use or fail to be maintained in accordance with Section 1501.5 shall be abandoned. Abandonment shall comply with Section 1502.5.1 and Section 1502.5.2. Written notice of the abandonment must be made to the Authority Having Jurisdiction.
- **Need/Reason for Proposed Change #11:** Notification of abandonment is necessary so that the Authority Having Jurisdiction knows that annual inspections are no longer needed.

Proposed Change #12:

The Committee agreed to accept Proposed Change #12 as presented.

- **1506.1 General.** The provisions of this section shall apply to the installation, construction, alteration, and repair of on-site treated nonpotable water systems intended to supply uses such as water closets, urinals, clothes washers, trap primers for floor drains and floor sinks, above ~~and below~~ground irrigation, dust suppression, decorative fountains, vehicle washing, fire suppression, and other uses approved by the Authority Having Jurisdiction and the commissioner of health.
- **Need/Reason for Proposed Change #12:** The log reduction targets cover the uses listed in Proposed Change #12 and are based on public health protection. EPA and other researchers continue to develop exposure estimates for other end uses, and other uses may be able to be approved on a case-by-case basis. Log reduction targets are calculated in part on the volume of exposure for each end use. Scientific consensus has been reached on the exposure volumes for the end uses listed above. For below ground irrigation, the public health concern is minimal, but there may be environmental concerns or regulations that apply, depending on the source of alternate water.

Proposed Change #13:

The Committee agreed to table Proposed Change #13 until the meeting on Feb. 18, 2026. Anita Anderson will review updated standards and confirm correct references before the next meeting – bringing forward revised language if necessary.

Meeting discussion:

- **Purpose:** Clarify requirements for listing and certification of devices/equipment used in non-potable water systems.
- **Current Issue:**
  - Original language specifically referenced NSF 350 and IAPMO standards for certain uses (e.g., water closets, urinals, irrigation), which may be too restrictive.
  - Standards like NSF 350 and IAPMO IGC 324 exist but may not fully align with updated EPA log reduction targets.
- **Flexibility Needed:**
  - Allow multiple certifications (NSF, IAPMO, others) as long as they meet **minimum water quality requirements in Section 1501.7**.
  - Avoid locking into outdated standards (e.g., IGC 324 from 2022) and consider referencing updated versions.

- **Authority Having Jurisdiction (AHJ):**
  - Strong consensus that AHJ should retain approval authority for systems and components.
- **Standards Evolution:**
  - Field and standards are rapidly changing; referencing older versions could create compliance issues.
  - NSF 350 Annex N2 aligns with EPA log reduction targets; IGC 324 does not fully match.
- **Action Items**
  - **Revise Language:** Include flexibility for certification: "Listed and labeled, third-party certified by an accredited conformity assessment body (e.g., NSF, IAPMO) **and approved by the authority having jurisdiction**." Remove overly prescriptive references to specific standards in the last sentence.
  - **Ensure Compliance:** All systems must meet **Section 1501.7 minimum water quality requirements** regardless of certification.
  - **Update Standards Reference:** Verify and update IAPMO standard number (current version recommended).
  - **Clarify AHJ Role:** Explicitly state AHJ approval is required for the intended application.

- **1506.8 On-Site Treated Nonpotable Water Devices and Systems.** Devices or equipment used to treat on-site treated nonpotable water to maintain the minimum water quality requirements <u>in Section 1501.7</u> ~~determined by the Authority Having Jurisdiction~~ shall be listed and labeled (third-party certified), by a listing agency (accredited conformity assessment body or approved for the intended application~~. Devices or equipment used to treat on-site treated nonpotable water for use in the water closet and urinal flushing, surface irrigation, and similar applications shall comply with IAPMO IGC 324, NSF/ANSI 350 or approved by the Authority Having Jurisdiction.~~
- **Need/Reason for Proposed Change #13:** Compliance with IAPMO IGC 324 or NSF/ANSI 350 is replaced by the log reduction targets listed in Section 1501.7.

Proposed Change #14:

The Committee agreed to accept Proposed Change #14 as presented.

- **1506.10.1 Listing Terms and Installation Instructions.** On-site treated nonpotable water system~~s~~ <u>components</u> shall be installed in accordance with the terms of ~~its~~ <u>their</u> listing and the manufacturer's installation instructions.
- **Need/Reason for Proposed Change #14:** Alternate water systems may be comprised of multiple components from multiple manufacturers.

Proposed Change #15:

The Committee agreed to accept Proposed Change #15 as revised below.

- **1506.10.2 ~~Minimum Water Quality~~ <u>Disinfection Required</u>.** On-site treated nonpotable water supplied to toilets or urinals or for other uses in which it is sprayed or exposed to the public shall <u>carry a free or total chlorine residual. A free chlorine residual of 0.2 mg/L or a total chlorine residual of 0.5 mg/L must be maintained at all points of the distribution system. Potable water shall be supplied to personal hygiene devices (bidets and bidet seats).</u> ~~be disinfected. Acceptable disinfection methods shall include chlorination, ultraviolet sterilization, ozone, or other methods as approved by the Authority Having Jurisdiction. The minimum water quality for on-site treated nonpotable water systems shall meet the applicable water quality requirements for the intended applications as determined by the public health Authority Having Jurisdiction~~.

- **Need/Reason for Proposed Change #15:** The log reduction targets in Table 1501.7are designed to protect primarily against enteric (gut) bacteria that may be present in alternate sources of water. Other pathogens, including *Legionella* bacteria, may also be present. These organisms tend to thrive in biofilms and can grow in distribution piping. They are a health concern when they are inhaled through aerosolized droplets. To provide public health protection against pathogenic biofilm bacteria, a disinfectant residual must be maintained to the point of use, in addition to the treatment provided to meet the log reduction targets.

Proposed Change #16:

The Committee agreed to accept Proposed Change #16 as revised below.

- **1506.14 Monitoring and Sampling.** An operator must monitor water quality parameters at the locations and frequencies outlined in the operations and maintenance report to ensure compliance with the log reduction targets for pathogens and any water quality limits. The operator must also monitor any parameters required by the Authority Having Jurisdiction.
- **Need/Reason for Change #16:** Ongoing monitoring of surrogate parameters is needed to ensure the treatment provided to meet log reduction targets remains functional over time. For example, the surrogate parameter for filtration is typically turbidity. Turbidity limits for many filtration technologies are established, and these should be listed in the engineering report. Each system will have a unique set of monitoring parameters based on the technologies utilized.

Proposed Change #17:

The Committee agreed to accept Proposed Change #17 as presented.

- **1506.15 Reporting.** The owner must notify the Authority Having Jurisdiction and building users within 24 hours when inadequately treated nonpotable water enters the treated nonpotable water distribution system.
- **Need/Reason for Proposed Change #17:** Requiring notification of treatment issues allows the Authority Having Jurisdiction to require any actions necessary to protect public health. Tracking treatment issues would also provide valuable information to implementers.

Proposed Changes #18:

The Committee agreed to accept Proposed Change #18 as presented.

- **Addition to 203.0: Air conditioning condensate (AC condensate).** Water extracted from atmospheric water vapor due to the operation of air conditioning or refrigeration.
  - **The Committee agreed to accept the language for 203.0 as presented.**

- **Addition to 205.0: Continuous monitoring.** Ongoing confirmation of system performance with the use of sensors, analyzers, meters, and other instrumentation, no less than once every 15 minutes for the continuous observation of selected parameters, including surrogate parameters correlated with pathogen log reduction targets.
  - **The Committee agreed to accept the language for 205.0 as presented.**

- **Additions to 206.0: Disability adjusted life years (DALYs).** The measure of the health burden of a disease, calculated as the sum of years of life lost (YLL) due to premature death and years of life lived with disability (YLD) from illness (DALY=YLL+YLD).
  - **The Committee agreed to accept the language for 206.0 as presented.**

- **Addition to 207.0: Engineering report.** A technical document prepared under the direction, and bearing the seal, date, and signature of a professional engineer, describing an on-site treated nonpotable water system.
  - **The Committee agreed to NOT accept 207.0 as presented.**

- **Addition to 208.0: Foundation drainage.** Shallow groundwater collected from the drainage around building foundations or sumps. Foundation drainage does not include nonpotable groundwater extracted for beneficial use.
  - **The Committee agreed to accept the language for 208.0 as presented.**

- **Addition to 209.0: Gray water.** Liquid effluent collected from sources such as bathroom sinks, showers, bathtubs, clothes washers, and laundry sinks. Gray water does not include flow from toilets or urinals and does not include liquid effluent from kitchen sinks or dishwashers.
  - **The Committee agreed to accept the language for 209.0 as presented.**

- **Additions to 214.0: Log reduction.** The reduction in the concentration of infective pathogens or surrogate parameters through a treatment process expressed in $\log_{10}$ units. For example, a 1-log reduction equates to 90-percent removal, 2-log reduction to 99-percent removal, and 3-log reduction to 99.9-percent removal.
  - **The Committee agreed to accept the language for 214.0 as presented.**

- **Additions to 214.0: Log reduction target (LRT).** The required degree of pathogen reduction needed to achieve a risk of 10-6 DALYs per person per year (PPY) through exposure to treated nonpotable water.
  - **The Committee agreed to accept the language for 214.0 as presented.**

- **Additions to 222.0: Treatment process.** A combination of treatment unit processes, also known as a treatment train.
  - **The Committee agreed to accept the language for 222.0 as presented.**

- **Additions to 222.0: Treatment unit process.** A physical, chemical, or biological system intended to improve water quality. Examples include filtration, oxidation, adsorption, disinfection, and membrane separation.
  - **The Committee agreed to accept the language for 222.0 as presented.**

- **Need/Reason for Proposed Changes #18:** The above definitions are provided to explain terms used elsewhere in the proposed changes.

Proposals 1 through 8, shown below, were discussed at the meeting on Nov. 5, 2025.

Proposed Change #1 – Section 1501.1.1

Discussion at meeting:

- Gray water was removed due to conflict with Minnesota Rules 7080.
- Added restriction: On-site treated non-potable water for outdoor use is not allowed for single-family dwellings.
  - Concern: Single-family homes may lack the capacity to ensure water quality, especially for spray irrigation.

        - Abrahamson's proposal: Broaden restriction to all dwellings, not just single-family — "non-potable water for outdoor use is not allowed."
    - Rainwater reuse (e.g., rooftop collection) is already permitted and regulated.
    - Stormwater reuse (e.g., runoff from impervious surfaces) is not currently allowed in the Plumbing Code.
    - Appendix S (stormwater systems) and Appendix K (rainwater catchment) are on hold for committee review.
    - Definitions clarified:
        - Rainwater: From rooftops or above-ground surfaces.
        - Stormwater: Runoff from land, streets, parking lots; may contain contaminants.
    - MPCA has some coverage of stormwater reuse, but jurisdiction is unclear.
    - An interagency group is exploring governance (MPCA vs. MDH vs. Plumbing Code).
    - Plumbing Code currently lacks clear language on stormwater reuse.
    - Definitions of "on-site treated non-potable water" and "alternate water sources" are too broad, potentially including stormwater.
    - Suggested clarification: "Alternate water sources shall not be stormwater."
    - Black water reuse is also flagged as a concern; it may need to be excluded explicitly.
    - Gray water:
        - Untreated gray water is not allowed.
        - Treated gray water is acceptable as part of on-site treated non-potable systems.
        - Removal of Section 1503 (gray water systems) supports striking "gray water" from other references to avoid confusion.
    - Future updates may revisit stormwater reuse; timeline uncertain.
    - Definition cleanup is needed to ensure stormwater is clearly excluded.

The Committee agreed with Proposed Change #1 with the changes noted below.

- **Proposed Change #1: 1501.1.1 Allowable Use of Alternate Water.** Where approved or required by the Authority Having Jurisdiction, alternate water sources [reclaimed (recycled) water~~, gray water,~~ and on-site treated nonpotable water] shall be permitted to be used instead of potable water for the applications identified in this chapter. <u>On-site treated nonpotable water for outdoor</u> <u>use is not allowed</u>~~ for single family dwellings~~. <u>Alternate water sources shall not be stormwater.</u>
- **Need/Reason for Proposed Change #1:** Gray water is crossed out here because the gray water specific sections (1503.0 to 1504.11) appear to conflict with Minnesota Rules, chapter 7080. MDH is not currently supportive of alternate source systems for outdoor use in single family dwelling settings. A family can make a choice for themselves to use an alternate source but should not be allowed to impose this decision on neighbors who maybe be exposed to outdoor uses. For indoor uses, the safety for renters or guests could also be concerning, and adequate signage should still be required.

Proposed Change #2 – Section 1501.2 System Design

Discussion at meeting:

- Replace "licensed plumbing contractor or registered design professional" with "registered professional engineer."
- Require an engineering report detailing:
    - Operating conditions
    - Surrogate parameters for monitoring
    - Demonstration of treatment effectiveness
    - Compliance with log reduction targets in Table 1501.7
- Intent: Ensure public health protection through professional engineering oversight.
- Concerns Raised:

        - Limits design authority to engineers, excluding plumbers and manufacturers.
        - NSF 350-compliant systems may not meet MDH's specific log reduction targets without additional validation.
        - Manufacturer documentation (O&M manuals) is typically not signed by engineers, raising compliance issues.
    - Resolution: Retain original language: "Licensed plumbing contractor or registered design professional."
        - Replace "engineering report" with "operation and maintenance report" to avoid implying engineer-only authorship and maintain flexibility for manufacturers and non-engineer professionals.
        - Ensures required system documentation without restricting qualified contributors.
    - Amended proposal accepted with revised terminology.
    - Westemeier withdrew RFA PB0213 as a result of this resolution.

The Committee agreed with Proposed Change #2 with the changes noted below.

- **Proposed Change #2:** 1501.2 System Design. Alternate water source systems shall be designed in accordance with this chapter by a licensed plumbing contractor or a registered design professional. ~~and a registered professional engineer~~. An operation and maintenance ~~engineering~~ report that specifies necessary operating conditions and identifies surrogate parameters requiring continuous or periodic monitoring to demonstrate treatment effectiveness must be submitted along with the plumbing plans. The ~~engineering~~ report must show that required log reduction targets listed in Table 1501.7 are achieved by the treatment process(es). Components, piping, and fittings used in any alternate water source system shall be listed.

  ~~**Exceptions:**~~

  (1) ~~A registered design professional is not required to design gray water systems having a maximum discharge capacity of 250 gallons per day (gal/d) (0.011 L/s) for single family and multi-family dwellings.~~

  (2) ~~A registered design professional is not required to design an on-site treated nonpotable water system for single-family dwellings having a maximum discharge capacity of 250 gallons per day (gal/d) (0.011 L/s).~~
- **Need/Reason for Proposed Change #2:** The requirement for design by a professional engineer is included because, in addition to the installation of plumbing and treatment components, alternate source water systems require specialized design to meet health-based water quality requirements and outline ongoing monitoring and maintenance. This design work extends beyond the scope of plumbing. The engineering report is needed to document requirements for a particular system since the design is not prescriptive. The Exceptions are removed because they appear to conflict with Minnesota Rules, chapter 7080.

The Committee agreed with Proposed Change #3 with the changes noted below.

Discussion at meeting: Proposed Change #3 – Section 1501.3 Permit

- **The Committee agreed to a new, standalone section, not part of 1501.3, titled Operating Permit, and the following would be stricken: ~~1501.3 Permit.~~**
- Proposal Summary (Nancy Rice):
    - Replace existing language in Section 1501.3 with a requirement that building owners must obtain an operating permit from the authority having jurisdiction (AHJ) before using an on-site treated non-potable water system.

        - The permit would include system-specific conditions for storage, treatment, distribution, and permitted end uses.
        - Ownership changes must be reported to the AHJ.
    - Permit Clarification:
        - Abrahamson clarified that installation permits are already covered under Minnesota Rules Chapter 1300.
        - The proposed operating permit is distinct from a construction permit and should be placed in a new standalone section, not as a revision to 1501.3.
    - Support & Implementation:
        - Anita Anderson noted that templates and support materials for operating permits may be developed, possibly by MDH or other groups.
        - Wahlen raised concerns about local officials' expertise and suggested MDH involvement in crafting permit standards.
        - Abrahamson confirmed that systems must be registered with the AHJ and test reports submitted, addressing ownership change tracking.
    - Committee Consensus:
        - **Agreement to strike current 1501.3 and create a new section titled "Operating Permit."**
        - General support from Wahlen, Westemeier, Lemke, and others for the new approach.

- **Proposed Change #3: 1501.3 Operating Permit.** ~~It shall be unlawful for a person to construct, install, alter or cause to be constructed, installed, or altered an alternate water source system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.~~ The building owner must have an operating permit issued by the Authority Having Jurisdiction before operating an on-site treated nonpotable water system. The operating permit must include system-specific conditions authorizing and controlling the storage, treatment, distribution and permitted end uses of the treated nonpotable water in a manner that protects public health and the environment. The owner must notify the Authority Having Jurisdiction of any change in ownership.
- **Need/Reason for Proposed Change #3:** An operating permit would allow for a clear delineation of expectations for the alternate water source system and allow tracking of operation for both safety and learning purposes. When changes in ownership occur, the Authority Having Jurisdiction can make sure the new owner understands documented expectations.

The Committee agreed with Proposal Change #4 as presented.

- **Proposed Change #4:** 1501.5.1 Frequency. Alternate water source systems and components shall be inspected and maintained in accordance with Table 1501.5 unless more frequent inspection and maintenance are required by the manufacturer, designer, or the Authority Having Jurisdiction.
- **Need/Reason for Change #4:** Maintenance and inspections are key to successful implementation of alternate water source systems and the designer or Authority Having Jurisdiction may have requirements above those recommended by the manufacturer.

The Committee agreed with Proposed Change #5 as presented.

- **Proposed Change #5:** 1501.5.2 Maintenance Log. A maintenance log for ~~gray water and~~ on-site treated nonpotable water systems is required ~~to have a permit in accordance with Section 1501.3~~ and shall be maintained by the property owner and be available for inspection. The property owner or designated appointee shall ensure that a record of testing, inspection, and maintenance in accordance with Table 1501.5 and any requirements of the manufacturer, designer or the Authority Having Jurisdiction is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.
- **Need/Reason for Proposed Change #5:** As for proposed change #4, maintenance and inspections are key to successful implementation of alternate water source systems and the designer or Authority Having Jurisdiction may have requirements above those recommended by the manufacturer.

The Committee agreed to accept Proposed Change #6 with the changes noted below.

- **Discussion at meeting: After the Committee and MDH agreed on the changes shown below, Lemke rescinded RFA PB0212.**
- **Proposed Change #6: Table 1501.5, MINIMUM ALTERNATE WATER SOURCE TESTING, INSPECTION, AND MAINTENANCE FREQUENCY**

DESCRIPTION	MINIMUM FREQUENCY
Inspect and clean debris filters and screens, and replace (where necessary).	Every 3 months
Inspect and verify that disinfection, filters, and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the Authority Having Jurisdiction.	In accordance with the manufacturer's Instructions, operations and maintenance manual, and the Authority Having Jurisdiction.
Inspect pumps and verify operation.	After initial installation and ~~every 12 months~~ daily thereafter
Inspect valves and verify operation.	After initial installation and every ~~12~~ 3 months thereafter
Inspect pressure tanks and verify operation.	After initial installation and every ~~12~~ 3 months thereafter
Clear debris from, clean and inspect storage tanks, locking devices, and verify operation.	After initial installation and every ~~12~~ 3 months thereafter
Inspect caution labels and marking.	After initial installation and every ~~12~~ 3 months thereafter
~~Inspect and maintain mulch basins for gray water irrigation systems.~~	~~As needed to maintain mulch depth and prevent ponding and runoff.~~
Cross-connection inspection and test*	After initial installation and every 12 months thereafter

Test water quality of Alternative water systems required by section 1501.7 to maintain a minimum water quality.	Every 12 months. After system renovation or repair.**

~~***The cross-connection test shall be performed in the presence of the Authority Having Jurisdiction in accordance with the requirements of this chapter.**~~

***The cross-connection inspection and test shall be performed in accordance with this chapter by a plumber licensed under Minnesota Statutes, section 326B.46, and certified to ASSE Standard 5120.**

**** Testing may be required more frequently due to the manufacturer's instructions, operations and maintenance manual, or the Authority having Jurisdiction**

- **Need/Reason for Change #6:** Verification that disinfection, filters, and water quality treatment devices and systems are operational and maintaining minimum water quality requirements is better covered under the water quality requirements sections. Other inspections need to be conducted more frequently than every 12 months (even at a minimum) for a system to dependably provide nonpotable water.

The Committee agreed with Proposed Change #7 with the changes noted below.

- **Proposed Change #7: 1501.6 Operation and Maintenance Manual.** An operation and maintenance manual for ~~gray water and~~ on-site treated water systems ~~required to have a permit in accordance with Section 1501.3~~ shall be supplied to the building owner by the system designer. The building owner must keep the manual on the premises in one or more locations specified in the O&M manual. The owners must review the manual annually and update it as appropriate and/or upon request by the Authority Having Jurisdiction. The operation and maintenance manual must include the following:
  1) Detailed diagram of the entire system and the location of system components including: location of approved air gaps, other approved backflow prevention assemblies, flow meters, treatment components, sample ports, and diversion location(s); makeup water source and; public access restrictions in place to minimize human contact with treated nonpotable water.
  2) Instructions for operating and maintaining the system, including: treatment process operations, instruments and alarms, and any chemicals used; equipment and instrument product manufacturer literature that specifically addresses product installation, recommendations, and maintenance; and end use water management plan;
  3) Details on maintaining the required water quality for on-site nonpotable systems, including: a compliance monitoring plan including treatment system monitoring, pathogen reduction compliance, and water quality sampling; and provisions for monitoring and managing failure of treatment unit processes.
  4) Details on deactivating the system for maintenance, repair, or other purposes.
  5) Applicable testing, inspection, and maintenance frequencies in accordance with Table 1501.5 and any requirements of the manufacturer, designer or the Authority Having Jurisdiction.
  6) A method of contacting the manufacturer(s), key personnel, qualified operator(s), the installer and designer of the primary treatment system.
  7) ~~For district-scale projects, a copy of the district-scale agreement. The agreement must be an executed, enforceable, legal agreement defining the roles and responsibilities of each property owner or entity in relation to the maintenance and use of the system.~~

8) **Renumber to item (7):** Any additional information or changes needed to protect public health and the environment that the Authority Having Jurisdiction or the commissioner of health may require.

- **Need/Reason for Proposed Change #7:** MDH has heard from implementers and operators of alternate source systems that a detailed operation and maintenance manual is key to the success of the system. Building owners and operators change, and having the detailed documentation needed to operate the system is necessary during these transitions.

The Committee agreed to accept Proposed Change #8 with the changes noted below.

- **Proposed Change #8: 1501.7 Minimum Water Quality Requirements.** ~~The minimum water quality for alternate water source systems shall~~ Reclaimed (recycled) water systems shall meet the applicable water quality requirements ~~for the intended application~~ as determined by the Minnesota Pollution Control Agency for the intended application. ~~Authority Having Jurisdiction~~. On-site treated nonpotable water systems must have a treatment process design that achieves the log reduction targets for pathogens and water quality limits listed in Table 1501.7. Treated nonpotable water must continuously achieve the log reduction targets and any inadequately treated nonpotable water not meeting log reduction targets or water quality limits in Table 1501.7 must divert to sanitary or storm sewer as appropriate for the source of inadequately treated water. ~~In the absence of water quality requirements, for on-site treated nonpotable systems, the water quality requirements of IAPMO IGC 324 or NSF/ANSI 350 shall apply. **Exception:** Water treatment is not required for gray water used for subsurface irrigation.~~

TABLE 1501.7 PATHOGEN LOG_{10} REDUCTION TARGETS (LRT) AND WATER QUALITY LIMITS FOR ON-SITE TREATED NONPOTABLE WATER SYSTEMS

PATHOGEN LOG_{10} REDUCTION TARGETS (LRT) FOR INDOOR USE[1]			
Source Water	Virus	Protozoa	Bacteria
Untreated Onsite Wastewater[2]	10.0	6.5	5.5
Gray Water[2]	7.5	4.0	3.5
~~Stormwater (.1% Wastewater)[2]~~	~~6.0~~	~~4.0~~	~~3.5~~
Foundation Drainage[3]	5.0	3.0	2.5
AC Condensate[4]	N/A	N/A	3.5
~~PATHOGEN LOG_{10} REDUCTION TARGETS (LRT) FOR OUTDOOR USE[5]~~			
~~Source Water[2]~~	~~Virus~~	~~Protozoa~~	~~Bacteria~~
~~Untreated Onsite Wastewater[2]~~	~~8.5~~	~~6.5~~	~~5.5~~
~~Gray Water[2]~~	~~6.5~~	~~4.0~~	~~3.0~~
~~Stormwater (.1% Wastewater)[2]~~	~~5.5~~	~~3.0~~	~~2.5~~
~~Foundation Drainage[3]~~	~~4.5~~	~~2.0~~	~~1.5~~

~~AC Condensate[4]~~	~~0.0~~	~~0.0~~	~~3.5~~
WATER QUALITY LIMITS			
	Parameter	Limit	
All	pH	6.0 – 9.0	
Gray Water and On-site Wastewater	5-day Biological Oxygen Demand (BOD_5)	30 mg/L	

[1] Indoor use includes toilet flushing, clothes washing, decorative fountains, trap primers for floor drains and floor sinks, and fire suppression.

[2] U.S. Environmental Protection Agency. 2025. Risk-Based Framework for Developing Microbial Treatment Targets for Water Reuse. U.S. Environmental Protection Agency, Office of Research and Development, EPA/600/R-25/009, p. 39.

[3] The LRTs for foundation drainage are based on the assumption that foundation drainage will be of similar quality to stormwater containing a small amount of wastewater (.01% dilution).

[4] The LRTs for AC Condensate are assumed to be the same as for rainwater.

~~[5] Outdoor use includes unrestricted spray irrigation of ornamental or non-food plants, vehicle washing, dust suppression, and fire suppression.~~

- Comments from previous meeting regarding these sections: 1501.7 Minimum Water Quality Requirements. Section 1501.7 should be tabled to allow time for an RFA incorporating updated and health-based water quality standards. The current code references NSF 350 and IGC 324. Still, newer versions and more refined approaches—such as log reduction targets based on source and end use—have been developed by expert committees and adopted in Chapter 16. These standards move away from end-point testing and instead focus on treatment performance based on intended use (e.g., irrigation vs. toilet flushing). Incorporating this approach into the Plumbing Code would improve clarity and public health protection but would require training and guidance for inspectors and code officials. Anita Anderson agreed to draft and submit an RFA to propose appropriate updates for consideration at a future meeting.
- Comments from previous meeting regarding these sections: Section 1503.2, which addresses the use of gray water for irrigation, should be tabled for the reasons shown below. Until these issues are resolved and aligned with state regulations, Section 1503.2 should remain tabled and reviewed in conjunction with the RFA for 1501.7.
  - Enforcement Concerns: The current language prohibits gray water use for irrigating food crops that come into contact with the soil. However, it's unclear how building officials would enforce this restriction, especially after system installation or property ownership changes.

- Overlap with Section 1501.7: Since 1503.2 ties directly into water quality standards and treatment requirements outlined in 1501.7, it makes sense to review both sections together for consistency.
- Regulatory Conflict: Preliminary input from the Minnesota Department of Health suggests that the uses listed in 1503.2 may not align with current MPCA (Minnesota Pollution Control Agency) rules. Specifically, subsurface irrigation with gray water may not be considered an approved disposal method under existing regulations.
- Need for Agency Coordination: Before moving forward, clarification is needed from MPCA regarding allowable uses, as well as related requirements for surge capacity, diversion, and backwater valves.

- RFA PB0211 **– Tom Zangs & Rich Hibbard, St. Paul Reg. Water Srvs., Sec 1501.1.1 – Rec'd 9.19.2025**
  - **The Committee agreed to accept RFA PB0211 as presented.**

  Comments from previous meeting:

  - Committee members noted that there are strong arguments supporting the proposed language change, especially considering the operational challenges faced by large water utilities like St. Paul. The responsibility of verifying system functionality is significant and may be a reason the policy avoids taking on that role. Concern was raised about whether a specific term in the proposed language conflicts with existing state statutes. If a conflict exists, the proposal cannot be accepted. If no conflict is found, there are no objections to the current language.
  - 1501.1.1 Allowable Use of Alternate Water. There is ongoing uncertainty regarding how irrigation systems are addressed in the Plumbing Code. While Chapter 16 currently excludes irrigation systems, that exclusion has led to confusion in past code cycles—specifically, the mistaken belief that any piping serving irrigation systems is also excluded from the Plumbing Code. In reality, all piping up to the point where the system becomes irrigation (e.g., before the first solenoid or shutoff valve) is still governed by the Plumbing Code, particularly when potable or non-potable water is involved. Given this nuance, any proposed exclusion in Section 1501.1.1 must be carefully worded to avoid misinterpretation. Additionally, the broader context—such as whether the system uses reclaimed, greywater, or on-site water—has not yet been finalized. Therefore, it is recommended that Section 1501.1.1 be tabled until an RFA is submitted. This will allow time to review the language used in Chapter 16 and ensure consistency and clarity in how irrigation-related systems are addressed.

- RFA PB0214 **– Mike Westemeier, Section 1501.3, 1501.5.2 and 1501.6 – Rec'd 9.23.2025**
  - **The Committee agreed to accept RFA PB0214 as presented.**

- RFA PB0216**, Mike Westemeier, Section 1505.1 General – Rec'd 10.14.2025**
  - **The Committee agreed to accept RFA PB021*6* as presented.**

  Comments from previous meeting:

  - **Rick Wahlen**
    - Opened the discussion on Section 1505.0, specifically 1505.1 (General) and 1505.2, including the proposed subsection 1505.2.1 (Plumbing Plan Submission). He asked whether any comments required changes.
  - **Mike Westemeier**
    - Raised a concern about potential conflicts between the code and limitations imposed by water utility companies. He noted that while 1505.1 allowed certain uses (e.g., toilet flushing), some utilities may restrict use to irrigation only. He suggested revising the

language to reflect that uses must also be approved by the recycled water utility, not just the authority having jurisdiction.
    - **Karl Abrahamson**
        - Supported Mike's suggestion and emphasized the need for flexibility based on system size and utility-specific conditions.
    - **Mike Westemeier**
        - Offered to draft a Request for Action (RFA) to revise the language, proposing that the section state reclaimed water systems are for uses allowed by both the authority having jurisdiction and the water utility company. He agreed to bring draft language to the next meeting.
    - **Rick Wahlen**
        - Confirmed that Section 1505.1 would be tabled until the next meeting, pending Mike's submission of the RFA.

- RFA PB0218**, Mike Westemeier, Section 1505.2 Permit – Rec'd 10.31.2025**
    - **The Committee agreed to accept RFA PB0218 as presented.**

- RFA PB0219**, Mike Westemeier, Section 1505.3 System Changes – Rec'd 10.31.2025**
    - **The Committee agreed to accept RFA PB021*9* as presented.**

  Comments from previous meeting:

    - **Rick Wahlen:** Asked whether system changes made after design and construction still required review and approval by the AHJ.
    - **Mike Westemeier:** Confirmed they did and noted that Section 1300 already addressed this, suggesting the current language could be deleted.
    - **Karl Abrahamson:** Disagreed, emphasizing the need to reinforce permitting requirements due to frequent noncompliance in the field. He preferred retaining the language or at least referencing Section 1300 to avoid ambiguity.
    - **Mike Westemeier:** Acknowledged Karl's concerns but questioned whether adding language would change behavior, noting the code is already comprehensive.
    - **Rick Wahlen:** Supported including the language, stating that a few extra words wouldn't hurt, and deferred to the plumber representative.
    - **Jonathan Lemke: A**greed with Karl, stressing the importance of requiring permits for system changes.
    - **Mike Westemeier and Karl Abrahamson:** Will coordinate writing of the RFA referencing Section 1300.

- RFA PB0222**, Rick Wahlen, Chapter 3 Definitions – Rec'd 1.6.2026**
    - **The Committee agreed to accept RFA PB0222 as presented.**

- **1505.12 Same Trench as Potable Water Pipes – tabled**
  Comments from previous meeting:
    - **Mike Westemeier**
        - Explained that the required separation increased to 60 inches when pipe material did not meet certain requirements. He assumed the reduced distance—compared to the typical 10 feet—was due to reclaimed water being of better quality than sewer systems.
    - **Karl Abrahamson**
        - Asked whether they should reference the 10-foot standard or keep the 60 inches.
    - **Mike Westemeier**
        - Comfortable with 60 inches unless others had concerns and asked for MDH input

- **Anita Anderson**
  - Questioned whether the assumption was based on the piping being a better material.
- **Mike Westemeier**
  - Clarified that the code allowed 60 inches of separation when using materials not permitted inside buildings, likely due to the water being safer than sewer.
- **Anita Anderson**
  - Wants to double-check with 10 States.
- **Mike Westemeier**
  - Noted that 10 States typically required 18 inches vertically but wasn't sure about horizontal separation.
- **Karl Abrahamson**
  - Suggested tabling the discussion until the next meeting

- **1505.14 Inspection and Testing – tabled to discuss with new RFAs**

  Comments from previous meeting:

  - **Karl Abrahamson** recommended tabling the item, noting that changes to 1502.1 would impact 1505.14 and should be addressed together with the RFAs for 1505.2.1 and 1505.3.

- **1506.0 On-Site Treated Nonpotable Water Systems – Section and all sub-sections below were tabled until review of RFAs**

  Comments from previous meeting:

  1506.1 General. NSF/ANSI 350 was briefly reviewed as submitted with MDH's comments; however, due to copyright issues, it could not be printed, posted, or forwarded to Committee members and interested parties.

  - **Jonathan Lemke:** Raised concerns about the definition of *non-pollutable water*, particularly the inclusion of on-site treated gray water. He questioned whether allowing commercial-scale treatment systems (e.g., membrane filters, UV disinfection) would shift oversight to the Health Department, as such systems resemble small-scale utilities.
  - **Rick Wahlen:** Noted that some residents expressed interest in installing on-site treated non-potable systems in homes, suggesting the definition should include residential-scale systems, not just commercial ones.
  - **Mike Westemeier:** Clarified that previous discussions on gray water focused on outdoor use. He cautioned against allowing systems that treat gray water indoors and discharge it outside, referencing language in Section 1506.1 that may need to be removed.
  - **Cody Robinson:** Supported Mike's distinction between indoor and outdoor systems. He explained that residential systems certified under NSF 350 typically involve external aerobic treatment tanks with secondary and tertiary treatment (e.g., chlorination or UV). He stated that systems outside the home fall under MPCA rules, while indoor systems would defer to DLI.
  - **Jonathan Lemke:** Asked whether any treatment apparatus should be required to remain within the building footprint.
  - **Cody Robinson:** Responded that MPCA's informal recommendation aligns with that approach and offered to provide a formal RFA if needed.
  - **Mike Westemeier:** Recalled a previous code ad hoc committee discussion involving a product that met NSF 350 and was entirely within the building. Asked if those systems fell under NSF 350.
  - **Karl Abrahamson:** Confirmed the system was installed entirely inside the building and reused water internally. Noted NSF 350 requires installation and maintenance by a licensed

plumber, meaning homeowners could not maintain such systems. Recalled an instance where the system failed, and the contractor was notified.
    - **Jonathan Lemke:** Clarified that Anita's materials did not include the full NSF 350 standard.
    - **Brian Soderholm:** Provided input on commercial non-potable reuse systems not covered by rainwater or gray water categories. Identified three common sources: RO concentrate recovery – used in labs and universities, Foundation drainage reuse – water collected from drain tile systems, and Condensate recovery – from HVAC systems (not combustion-based). Stated that these systems likely fall outside NSF 350. Explained that NSF 350 posed challenges for commercial applications, often requiring 12 months of on-site water sampling before certification. Confirmed the standard applied to gray water systems, not the three commercial types mentioned.
    - **Cody Robinson:** Stated that NSF 350 was primarily geared toward residential systems due to standardized waste streams. Explained that certification involved six months of weekly testing for BOD, TSS, and bacteria. Noted that commercial waste streams were too variable and high-strength for NSF to develop a standard, though gray water-only systems might be an exception.
    - **Rick Wahlen:** Suggested simplifying language by striking "above and below ground irrigation" from the sentence in question.
- **Anita Anderson:** Referenced NSF/ANSI 350-2023 and IAPMO/ANSI Z1324-2022 as relevant standards for residential and commercial reuse systems, noting both are copyrighted and cannot be posted or printed. Later emphasized that while such systems are technically feasible and beneficial, they cross jurisdictional boundaries and add complexity. Noted that current regulatory frameworks lack authority, funding, and fee structures to support them. Suggested broader discussions outside the code to explore legislative or structural solutions.
- **Karl Abrahamson:** Offered to contact a connection at IAPMO to request access to the Z1324-2022 standard for Committee use.
- **Anita Anderson:** Acknowledged growing interest in on-site reuse systems and confirmed they were technically feasible and beneficial for water conservation. Noted that the systems added complexity to plumbing and often crossed jurisdictional boundaries. Cited an RFA suggesting some plumbing authorities lacked the capacity or willingness to manage them. Emphasized that these systems functioned like small wastewater plants and required oversight, but current regulatory frameworks lacked authority, funding, and fee structures. Suggested broader discussions outside the code to explore legislative solutions and coordination among agencies. The mentioned external groups were developing manuals and design guidelines.
- **Karl Abrahamson:** Recommended tabling discussion on Section 1506 until all RFAs were reviewed, as they might address current concerns. Suggested revisiting the topic afterward, possibly with more information from NSF 350 or IAPMO.

Tabled items:

- 1506.2 Plumbing Plan Submission
- 1506.3 System Changes
- 1506.4 Connections to Potable or Reclaimed (Recycled) Water Systems
- 1506.5 Water Pressure
- 1505.6 Initial Cross-Connection Test
- 1506.7 On-Site Treated Nonpotable Water System Materials
- 1506.8 On-Site Treated Nonpotable Water Devices and Systems
- 1506.9 On-Site Treated Nonpotable Water System Color and Marking Information
- 1506.10 Design and Installation
- 1506.10.1 Listing Terms and Installation Instructions
- 1506.10.2 Minimum Water Quality
- 1506.10.3 Deactivation and Drainage

- 1506.10.4 Near Underground Potable Water Pipe
- 1506.10.5 Required Filters
- 1506.11 Valves
- 1506.12 Signs
- 1506.13 Inspection and Testing

At the final meeting, the agenda will begin with tabled items (including a revision to Proposal 13 of RFA PB0215), new RFAs, and relevant sections or topics. Potential rulemaking recommendations for the Plumbing Board may also be discussed.

6. Announcements

- The Committee scheduled three upcoming meetings. Notices will be distributed to the Plumbing Board's interested parties one week in advance. To be added to this email group, please send your request to lyndy.logan@state.mn.us
- A notification will be sent to the Plumbing Board members and Interested Parties that RFAs must be submitted by the end of the day Thursday, Feb. 12, 2026, to be included in this rulemaking cycle. RFAs received after this deadline must be resubmitted during the Plumbing Board's next rulemaking cycle.
- The meetings will be held in person at DLI in the Isanti or Washington Room. Remote attendance options include WebEx and phone. Meetings will start at 9 a.m. and conclude by noon. Please check agendas for updates or refer to the Committee's webpage.
  - Weds., Feb. 18, 2026

7. Adjournment

A motion was made by Westemeier, seconded by Lemke, to adjourn the meeting at 11:29 a.m. The vote was unanimous, with 4 votes in favor of the motion; the motion passed.

Respectfully submitted,

Karl Abrahamson

Karl Abrahamson, Committee Secretary

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